



Media Suite User Guide

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Americas headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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Part A

MEDIA SUITE

Media Suite Overview

This chapter includes the following topics to introduce you to Media Suite:

- "Understanding Media Suite Objects", as shown below
- "Understanding Media Suite Modules" on page 2
- "Understanding Workflows" on page 3
- "Terminology" on page 4

This guide gives Media Suite administrators an understanding of the software and related theory necessary to perform day-to-day tasks. It is also intended as a reference for administrators to review less commonly performed operations or to explore lesser-known parts of the interface.

Of particular interest to readers, this guide has a chapter that describes a sample workflow for new administrators, which may be used to help establish an initial hands-on familiarity with Media Suite.

Understanding Media Suite

Media Suite is a modularized system that can facilitate all backend aspects of automated workflow processing, packaging, and the delivery of monetizable digital assets. The system is highly customizable, and supports a broad range of licensing, transcoding, encryption, and distribution models without the need to develop or redeploy new software. The default user interface tabs that you may have available within Media Suite are Workflow, Metadata, and Admin. If you purchase any additional optional modules, such as EPG, you will see those tabs as well.

Browser Requirements

All Media Suite applications have the following browser requirements:

Table 1 Supported Browsers for Media Suite

Browser	Version
FireFox	22 or higher
Internet Explorer	9 or higher
Chrome	Not officially supported.
Safari	Not officially supported.
Other	Not officially supported.

Although unsupported browsers may appear to work well in general, we cannot guarantee that there will not be any visual anomalies or unexpected behaviors in places. For an optimal experience, we also recommend that you set your display to a resolution of 1440 x 900 or higher.

Understanding Media Suite Objects

In order to manage all the functionality behind this powerful, yet flexible custom digital media workflow solution, Media Suite has been architected to construct and manipulate a highly customizable object model. To effectively work with Media Suite, it is important for all administrators to understand how this object model is structured, and how each object relates to others. This section is meant to serve as an initial introduction to Media Suite objects. For additional information, see “Objects” on page 91.

Components

Components hold name value pairs, and may store references to physical files, or reusable pieces of information (common entities) that are accessible throughout Media Suite. Components may be combined and reused as building blocks to create bundles, such as logical videos or DVDs. Components may be categorized into general types, such as ad insertion points, ISAN objects, licensing windows, metadata, physical assets, or program schedules.

Bundles

Bundles are customizable objects that conform to a template and are created when components, and/or other bundles are combined into a unit.

Understanding Media Suite Modules

Media Suite was built with a customizable architecture that ensures it will always be able to address and evolve with any requirements of your deployment. The system’s user interface serves as a framework that is leveraged by all core and any third party modules that are configured with it. The following section describes available Media Suite modules. Your deployment may contain all of only some of these.

Workflow Module

All functionality related to the creation and customization of workflows, and actions involved in those workflows, is managed through the Workflow module. In addition, the workflow module orchestrates all actions applied to content as it flows through Media Suite modules and any installed 3rd-party modules. To that end, this module also offers functionality for creating repository nodes and hot folders as well as for monitoring and intervening in workflows.

Metadata Module

The Metadata module is used to create or package metadata and physical assets into predefined objects such as components and bundles. This module is also where custom templates for bundles are created. Lastly, bind profiles, which match incoming content into bundle structures to automatically create bundles are managed through this module.

EPG Module

The optional Electronic Program Guide (EPG) module works in conjunction with Media Suite to enable deployments that can ingest TV scheduling information to process, and repurpose that information for use by consumer devices or 3rd-party systems.

As of Media Suite release 4.1.4 and higher, the EPG release numbers have been harmonized with Media Suite to make it simpler to match compatible versions.

Capture Manager

Capture Manager works in conjunction with the EPG module to create a catalog of prerecorded material and provides administrators precise control over policies related to playback capabilities. Those abilities includes license windows, supported devices, trick play, and pause availability for VoD, streaming, or live content.

Merchandiser Module

Merchandiser (formerly named VCM) is an external Cisco component that is integrated with Media Suite to aid in the monetization of content. Merchandiser helps manage and schedule catalog content, create site navigation structures, and allows you to visualize content availability on platforms in a time-based manner.

To access Merchandiser within Media Suite, click **Merchandiser > Manage**.

Producer Module

Producer offers a customizable user interface tailored for efficient and full featured metadata, image, and video management. For usage details see, “Producer” on page 169.

Admin Module

The Admin module is where administrators manage roles, administrators, and system-wide configuration settings.

Understanding Workflows

Workflows are a collection of steps or decision branches that may span one or more Media Suite modules or 3rd party applications. The key principle behind workflow in Media Suite is flexibility. As such, workflow steps may include functionality such as transcoding, encryption, distribution, or other processes that transport or transform physical assets. New processes that are required by Media Suite administrators may be plugged into the system to create numerous variations in content processing.

Assembling a workflow is a multi-step process that involves setting up the infrastructure for piecing together and configuring various items related to the specific tasks that will be involved in the workflow.

In general, the following steps are required to configure a workflow:

1. Create a repository node.

A repository node consists of a filesystem with one or more (optional) hot folders underneath it.

2. Create a workflow.

Workflows are created within a workflow design tool and establish the general decision branches and required steps to process your content. Individual steps within a workflow are called workflow nodes. Workflows are saved as PAR files.

3. Import the PAR file into Media Suite.

Once imported, the workflow (PAR) file becomes a workflow template.

4. Create an action template.

Action templates establish general actions that process, transform, or transport a file. Examples of action templates would be Transcode or Distribute.

5. Configure an action profile.

Action profiles provide greater configuration detail than action templates. For example, one Transcode action template may be used to create multiple action profile variations, such as Transcode with Expression Encoder or Transcode with Flip Factory.

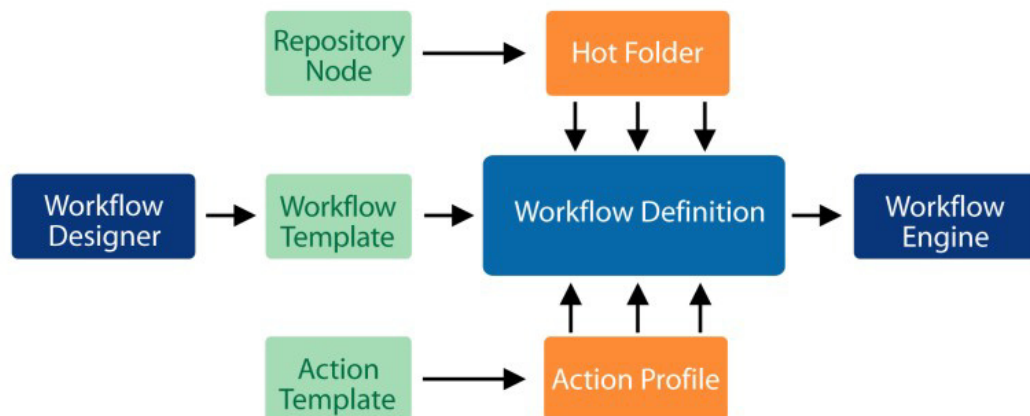
6. Create a workflow definition.

Workflow definitions are created by assigning action profiles to workflow nodes.

7. Initiate the workflow.

Workflows are initiated by one or more trigger events. One example would be that of linking a hot folder to the workflow definition. In that instance, once content is dropped into the specified hot folder, the workflow engine automatically executes the commands that are specified in the workflow definition.

Figure 1 Configuring a Workflow



Terminology

The following terminology tables have been organized into relevant areas to assist you in identifying what a particular Media Suite term pertains to. The terms are grouped with the following heading areas: general, binding, and workflow.

General Terminology

The following table defines general Media Suite terms:

Table 2 General Media Suite Terminology

Term	Definition
ADMINISTRATOR	The people that use and configure Media Suite. Administrators are the target audience for this guide.
AUTOMATION	All workflow processes are inherently automated within Media Suite and, once initiated, they follow the logic that has been defined within the workflow.
BULK EDITING	Bulk edit functionality allows administrators to modify field values across multiple components at one time. This process overwrites previous values and cannot be undone, so care should be taken when bulk editing.
BUNDLE	Bundles are objects that conform to a template and are created when various components or other bundles are combined into a unit. New bundles can be customized. For further details on the default bundles that are available in Media Suite, see “Understanding Media Suite Bundles” on page 299.
BUNDLE TEMPLATE	Predefined templates used to establish and maintain a consistent structure for bundles. These templates include the minimum and maximum number of components that are allowed within a bundle. Once the minimum requirements are met, a bundle may be set to active.
COMMON ENTITY	A collection of normalized values that are reused throughout Media Suite. Default common entities include advisory, category, genre, rating, style, and talent (consisting of a person and a role.)
COMPONENT	Components are comprised of name-value pairs, common entities, and custom attributes that form the basic building blocks for bundles. A component’s structure cannot be edited via the Media Suite user interface, but custom attributes may be added to provide additional fields for the component.
CUSTOM ATTRIBUTE	Provides the ability to extend metadata for components by adding custom fields. For details and restrictions on the creation of custom attributes, see the section “Understanding Custom Attributes” on page 101.
LOCALE	A locale refers to specific language and regional settings, such as number, date, and currency formats. Locales are specified using a language code and a country code, such as en_US.
OPENCASE	Versions of Media Suite up to and including 4.0 were branded as OpenCASE and were developed by ExtendMedia Inc., which was acquired by Cisco Systems Inc. in 2010.
PRODUCT	Products are no longer supported in Media Suite as of version 5.7.3 and higher. At this point, the existence or creation of products, if required, will be implemented differently for each deployment. Such functionality would reside externally to Media Suite.

Binding Terminology

The following table defines terminology that is related to Media Suite binding:

Table 3 Binding-specific Terminology

Term	Definition
ATTACHMENT RULES	A set of rules on a destination folder that direct the binding of components to folders within a bundle.
BINDING	A process that automatically creates a bundle from a diverse set of incoming content.
BUNDLE ASSOCIATION	A set of rules that helps Media Suite determine which incoming objects should be associated as belonging to the same bundle.
COMPONENT ASSOCIATION	A set of rules that helps Media Suite determine where incoming content should be directed on the bundle tree structure.
FOLDER ASSOCIATION	A set of rules that helps Media Suite determine where incoming content should be directed when a parent folder contains multiple versions of the same object type.

Workflow Terminology

The following table defines terms that are specific to Media Suite workflow functionality:

Table 4 Workflow-specific Terminology

Term	Definition
ACTION PROFILE	A configured instance of an action template. An action template may specify that a transcode be performed while an action profile would further specify to transcode using Expression Encoder.
ACTION TEMPLATE	A generic action that processes, transforms, or transports a file. Action templates establish a generic workflow action such as transcoding.
CISCO ANYRES VOD (CAV)	Cisco AnyRes VOD is the newest name for what was first called Armada and then Cisco Transcode Manager (CTM). The software is an enterprise-class asset transcoding workflow solution that eases the complexities of encoding large volumes of content. At present, references to Armada still exist within ESBs and sections of Media Suite code.
COLLATOR	A collator validates a fileset for completeness against a manifest file. Two types of collating exist within Media Suite: video collating (of assets) and metadata collating. When you have multiple video files that need to be processed together, an XML manifest identifies those files and then processes them as one unit. For metadata collating, multiple XML files are processed to merge information from various XML fragments within those files.
CONTENT FILE	Content files track the path of files as they move through a workflow.
ENTERPRISE SERVICE BUS (ESB)	An Enterprise Service Bus is a software component that provides fundamental services for complex architectures. Within Media Suite, ESBs perform specific functions that are initially configured within action templates and then further defined within action profiles. For a listing of ESBs see “Creating Action Templates” on page 25.
FILESYSTEM	Filesystems are mounted so that files may be browsed by Media Suite.

Table 4 Workflow-specific Terminology

Term	Definition
HOT FOLDER	A location on a file system that has been designated as a drop point for physical files. Hot folders are polled at frequent intervals.
MANIFEST	Manifest files (typically called “manifests”) are XML files that are used to validate a fileset for completeness. Various manifest files are used within Media Suite for different purposes. Video manifests are used by formats such as: HLS (Apple), HSS (smooth streaming), and ATS (a generic format).
MERCHANDISER	Merchandiser (formerly named VCM) is an external Cisco component that is integrated with Media Suite to aid in the monetization of content. Merchandiser helps manage and schedule catalog content, create site navigation structures, and allows you to visualize content availability on platforms in a time-based manner. To access Merchandiser within Media Suite, click Merchandiser > Manage .
REPOSITORY	The collection of all repository nodes within Media Suite.
REPOSITORY NODE	Repository nodes are created by mounting a filesystem. They may (optionally) have one or more hot folders that are linked to the filesystem.
TASK MONITOR	A place where administrators can view active, suspended, or completed tasks that have been assigned to them.
TRANSCODING	Is the digital-to-digital conversion of one video encoding to another. Common encoding formats that can be used within Media Suite include: • HTTP Live Streaming (HLS), which is an Apple format • Smooth Streaming, which is a Microsoft format • Multi-Bitrate, which is an Adobe format
VBO	VBO is an external Cisco component that integrates with Media Suite to manage the streaming process for physical assets. Consult the VBO User Guide for more information.
VCM	This was the former name for the Merchandiser module. See <i>Merchandiser</i> .
WORKFLOW	A collection of steps or decision branches that may span one or more Media Suite modules or 3rd party applications.
WORKFLOW CONTEXT	An XML structure that provides a mechanism within Media Suite to enable the robust and efficient transfer of information between Workflow ESB nodes. This information can include messages, file paths, warnings, and object-related details.
WORKFLOW INSTANCE	Any time a workflow starts, it creates a unique workflow instance for each file that it processes.
WORKFLOW INSTANCE MONITOR	A means for administrators to review workflow activity using various metrics. The workflow monitor is also used for suspending, resuming, ending, and deleting workflows.
WORKFLOW NODE	Within the graphical workflow definition view, this is a specific point where an action is intended to be performed. Each node exposes a set of configuration options within the Media Suite interface. A configured node example would be “Encrypt using PlayReady”.
WORKFLOW DEFINITION	Is a configured instance of a workflow template. It articulates the steps and decision branches of the workflow.

Table 4 Workflow-specific Terminology

Term	Definition
WORKFLOW TASK	The point at which a workflow has to stop and wait for a decision by an administrator. The status of tasks is managed through the task monitor in Media Suite.
WORKFLOW TEMPLATE	Is an imported Process Definition (PAR file) that was created within a visual process design tool. Workflow templates articulate steps and decision pathways within a workflow. These templates are a starting point to model customized workflows for a deployment.

Getting Started

This chapter includes the following topics on accessing Media Suite and explains recurring functionality within the interface:

- "Logging In and Out", as shown below
- "Navigating Media Suite" on page 10
- "Searching in Media Suite" on page 10
- "Create vs. Create & Edit" on page 13
- "Searching and Filtering" on page 13
- "Cycling Through Result Sets" on page 13

Logging In and Out

The following section describes how to log in and out of Media Suite.

Logging In to Media Suite

To log into Media Suite:

- 1 Type the Media Suite URL into your browser address bar. The URL will vary depending on where Media Suite was installed, but in general the URL format is as follows:
<http://www.domain-name.com/opencase/>
- 2 Type your Username.
- 3 Type your Password.
- 4 Click **Login**.

Note Immediately after an Media Suite installation, the initial administrator should log in with the credentials supplied by Cisco Systems. This administrator should then change the default password and log out and back in to assume that role. At this point, other administrators can be created as necessary.

Logging Out of Media Suite

After you have finished working with Media Suite, you should officially end your session by logging out of the application. The process of logging out helps to maintain system security and conserves server resources.

To log out of Media Suite:

- 1 Click **Logout** at the upper-right corner of the application. The logout option is available on all application pages after an administrator has logged in. In some instances, however, a modal dialog box may block access to the logout option until the dialog is closed.

Note After a period of inactivity, you will automatically be logged out of Media Suite. Logging into more than one instance of Media Suite within the same browser will cause you to log out of any previous instance.

Understanding the Interface

The following section explains the theory and usage for recurring functionality within the Media Suite user interface.

Navigating Media Suite

To navigate within Media Suite, hover over any available module tab (such as Workflow or Metadata) and then continue hovering over any submenus as they expand. Once your mouse is over the desired place in the menu hierarchy, click that menu item.

Within this guide, menu navigation will be expressed in the following manner:

Tab Heading > Menu Item > Submenu Item

Searching in Media Suite

Search functionality is standardized within Media Suite and should behave in a similar fashion throughout the application regardless of the type of search that you are performing. Keep in mind that search results are influenced by the settings of the underlying Media Suite database. For example, by default MS SQL Server is case insensitive, while Oracle is case sensitive when it sorts its results. To change existing defaults, consult with your database administrator.

To perform a search:

- 1 Navigate to the search page.
- 2 Additional filtering options may be available that are specific to the item being searched for. Please consult the relevant section of this user guide for details on those options.
- 3 Type the search value in the text box. The following rules apply when specifying parameters for searches:
 - To view all available items, click **Search** with an empty text box.
 - To view all items that start with a particular character, type the character followed by an asterisk symbol.
 - To view all items that end with a particular character, type an asterisk followed by the character.

- To view all items that contain a particular character string, type an asterisk before and after the character string (e.g. `*string*`) .

Note All wildcard searches must be performed using a minimum of three non-wildcard characters in addition to the specified wildcard.

4 Click **Search**.

Searchable Fields

When you perform a search, only specific fields are searched within each object. For all components, however, the standard fields of name, alt code, and external_id are searched. The following section indicates all fields that will be searched for default Media Suite components.

Table 5 Fields Searched for Metadata Components

Component	Fields Searched
Metadata	standard fields and
	keywords
	titleLong
	titleMedium
	titleShort
	titleSortable
Metadata Album	standard fields, metadata fields and
	artist
	title
	label
Metadata App	standard fields and metadata fields
Metadata Audio	standard fields, metadata fields and
	album
Metadata Chapter	standard fields, metadata fields and
	title
Metadata Document	standard fields and metadata fields
Metadata DVD	standard fields and metadata fields
Metadata Image	standard fields and metadata fields
Metadata Show	standard fields and metadata fields
Metadata Video	standard fields, metadata fields and
	episodeName

Table 6 Fields Searched for Physical Asset Components

Component	Fields Searched
Physical Asset	standard fields and pcfilename url
Physical Asset Document	standard fields and physical asset fields
Physical Asset App	standard fields, physical asset fields and platform
Physical Asset Audio	standard fields and physical asset fields
Physical Asset Image	standard fields and physical asset fields
Physical Asset Manifest	standard fields and physical asset fields
Physical Asset Subtitle	standard fields and physical asset fields
Physical Asset Video	standard fields and physical asset fields

Table 7 Fields Searched for Other Components

Component	Fields Searched
Ad Insertion Point	standard fields only
ISAN Document	standard fields only
ISAN Game	standard fields and identifier
ISAN Video	standard fields and identifier
Licensing Window	standard fields only
Program Schedule	standard fields only

Words Excluded from Searches

A number of “stop words” are automatically excluded from search queries for bundle and component metadata. If the name of the item being searched for uses these words in a significant way, ensure that other fields being searched have words that are not excluded.

The following words are excluded from searches:

"a", "an", "and", "are", "as", "at", "be", "but", "by", "for", "if", "in", "into", "is", "it", "no", "not", "of", "on", "or", "such", "that", "the", "their", "then", "there", "these", "they", "this", "to", "was", "will", "with"

During installation, stop words that apply to Solr bundle and component searches as well as Merchandiser categories and classifications can be imported into Media Suite. Those stop words will replace the default stop words that exist within the system. For details, see the Media Suite Installation Guide.

Create vs. Create & Edit

In many dialogs within Media Suite, administrators are presented with options to either **Create** or **Create & Edit** an object. You will see these options presented for items such as bundles, bundle templates, feeds, etc. The **Create** option allows you to create a placeholder item by including only the basic information for that item so that it appears on a list. The item is not configured, and will not function, but its existence is established. The **Create & Edit** option allows you to go further by initially creating the object placeholder, and then immediately populating the specific item details. In general, it is more efficient to use the **Create & Edit** option whenever possible.

Searching and Filtering

At a casual glance, searching and filtering may appear the same. Most pages within Media Suite use search functionality that starts with no result set and queries the application to seek records that match any parameters that you have entered. With filtering, however, you begin with a complete result set that includes all records on the system, but apply filters to restrict what you are seeing to limit results to match your criteria.

Cycling Through Result Sets

When you are on a detail page for a Media Suite object, you may cycle through all records. To increment or decrement through records, click the left or right-facing chevrons surrounding the “X of Y” record indicator at the top of the page.

For example:

MANAGE COMPONENTS > SAMPLE-METADATA ⌂2 of 30⌂

Repositories

This chapter includes the following topics related to repositories:

- "Understanding Repositories", as shown below
- "Managing Repository Nodes" on page 16
- "URL Signing" on page 18
- "Managing Hot Folders" on page 22
- "Understanding Remote Filesystem" on page 24

Understanding Repositories

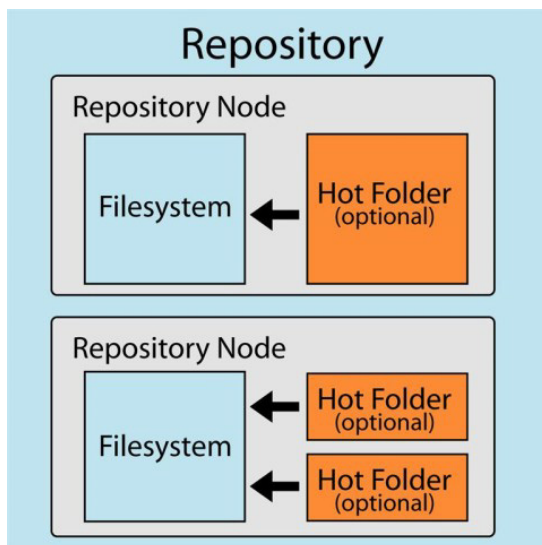
The repository is the collection of all repository nodes in your Media Suite deployment. In the following section, the constituent pieces of a repository are defined:

Filesystems are mounted so that they can be browsed by Media Suite. Filesystems can either be local or remote to the Media Suite server.

Hot Folders are optional links to folders on a filesystem. They are polled to trigger an ingestion. You can create multiple hot folders on a filesystem, but they cannot be nested within one another.

Repository Nodes are created by mounting a filesystem. They consist of the filesystem and (optionally) may reference hot folders on that filesystem.

Figure 2 Repository Diagram



Creating a repository node is a two-step process:

1. Mount a filesystem.
2. (Optionally) create one or more hot folders.

Managing Repository Nodes

Media Suite has the capability to securely work with both local and remote file servers residing on either Windows or Linux operating systems. Supported protocols for a default install include FTP, SFTP, File (local filesystem), and PFS (remote filesystem). The access and management of filesystems (whether local or remote) should be transparent to administrators. The following section describes the process of managing repository nodes and hot folders.

Adding Repository Nodes

Repository nodes are created by mounting a filesystem.

To create a repository node:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Click **Add New**.
- 3 Type a name and description for the repository node.
- 4 Click **Save**.
- 5 On the EDIT REPOSITORY NODE page, enter values for the available fields. They are described in the following table:

Table 8 Edit Repository Node Fields

Field	Description
Name	The name of the repository node.
Description	A description of the repository node.
Filesystem URL	The protocol and URL values consist of a protocol drop-down field and a URL text box. The drop-down list shows a protocol that Media Suite uses to transfer files to and from this filesystem. Supported protocols include <code>http://</code>, <code>https://</code>, <code>sftp://</code>, <code>smb://</code>, <code>ftp://</code>, <code>file://</code> (local), and <code>pfs://</code>. The <code>file://</code> setting refers to content that is accessible through a NAS or SAN from the Media Suite application server. Note Selecting the SMB protocol will use a Java Apache VFS library to access files. This library, however, imposes a performance penalty, which is significant when a large number of assets are processed. Instead, you should mount SMB at the operating system level and use the <code>file://</code> protocol so that Media Suite regards the mount as a local folder.

Table 8 Edit Repository Node Fields

Field	Description
	pfs is a custom Cisco Systems protocol that is used to manage remote file systems. The text box stores an internal URL used to establish a filesystem that requires the chosen protocol or a directory pathname (for filesystems that reference folder structures). All “File” protocol paths must start and end with a forward slash. After the filesystem is mounted correctly, these values become read-only. To change these values, you would need to delete the filesystem and recreate a new one.
Domain	A domain name for filesystems that require access using a domain.
Username	The user name to access the filesystem.
Password	The password to access the filesystem.
Private Key	Required for a public key encrypted filesystem for SFTP. This (base-64 encoded) value will reside in the Media Suite database.
Public URL	The URL that would be used to access the filesystem from the Internet.
Permissions	Select the read-only option so that users cannot write to the filesystem.
URL Signing	Configures URL signing options to secure the distribution of video content. For details, see “URL Signing” on page 18.

6 Click **Save**.

Editing Repository Nodes

To edit a filesystem:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Click the heading of the repository node that you would like to modify.
- 3 Change the repository name or description or edit the filesystem parameters.
- 4 Click **Save**.

Deleting Repository Nodes

To delete a filesystem:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Click the heading of the repository node that you would like to delete. The repository node details will appear.
- 3 Click **Delete**. A confirmation message will appear.
- 4 Click **Confirm**. The repository node and related filesystem will be removed from the repository manager.

URL Signing

URL Signing works in conjunction with the Cisco Content Delivery System Internet Streamer (CDS-IS), to fulfill video content requests in a secure manner. This is accomplished by validating user access and enforcing viewing times through the use of secure URLs. URL signing functionality may be enabled through workflows by populating the URL Signing Configuration field within physical asset components, or it may be configured through the Media Suite user interface as described in this section.

Note To enable signing and validation of URLs, various aspects of CDS-IS must be configured. Refer to the relevant CDS-IS Software Configuration Guide for your deployment.

Configuring a URL Signer

Prior to choosing a URL signing configuration for use, you must create a URL Signer configuration so that it becomes available on the relevant repository manager drop-down list. The following section explains the process of configuring a URL Signer.

To configure URL Signing:

- 1 Navigate to **Metadata > Setup > URL Signer Configuration**.
- 2 Click **Add New**.
- 3 Type a URL Signer name and select a URL Signer type.
- 4 Select the appropriate URL Signer from the drop-down list. Options are: CDS Version 0, CDS Version 1, or CDS Public Key.
- 5 Click **Create & Edit**.
- 6 When selected, each URL signer type will bring up relevant fields.

Figure 3 Fields for CDS Versions 0 & 1

URL Signing

Signer ☐ Suspend URL Signing

Key ID Owner *

Key ID Number *

Expiry delay seconds *

Include Client IP ☐

Key *

URL Signer configuration fields are described as follows:

Signer - selects the encryption technology that will be used for signing. The following options are for CDS Version 0 or CDS Version 1.

Suspend URL Signing - an option that suspends URL signing functionality on the client side if required. If this option is checked and a request comes to Media Suite, then an unsigned URL will be returned.

Key ID Owner - provides the first index into the key matrix.

Key ID Number - provides the second index into the key matrix.

Expiry delay seconds - indicates the number of seconds from now when the URL will expire. This request will be rejected if the time period has passed when the URL is validated at the device.

Include Client IP - An option to include the IP address of the client for which this URL is being signed. The signed URL will be rejected if it is sent from any other client.

Key - a shared secret key corresponding to this ordered pair (Key ID Owner, Key ID Number).

Figure 4 Fields for CDS Public Key

URL Signing

Signer ☐ Suspend URL Signing

Key ID Owner *

Key ID Number *

Expiry delay seconds *

Include Client IP ☐

Private Key *

Signer - selects the encryption technology that will be used for signing. The following options are for CDS Public Key.

Suspend URL Signing - an option that suspends URL signing functionality on the client side if required. If this option is checked and a request comes to Media Suite, then an unsigned URL will be returned.

Key ID Owner - provides the first index into the key matrix.

Key ID Number - provides the second index into the key matrix.

Expiry delay seconds - indicates the number of seconds from now when the URL will expire. This request will be rejected if the time period has passed when the URL is validated at the device.

Include Client IP - An option to include the IP address of the client for which this URL is being signed. The signed URL will be rejected if it is sent from any other client.

Private Key - a secret private key corresponding to this ordered pair (Key ID Owner, Key ID Number).

- 7 Click **Save** when you have completed configuring your URL Signer.

- 8 Once a URL Signer Configuration has been saved, the following options can be used:
- Click **Activate** to activate the URL Signer so that it becomes available for selection on the Edit Repository Node page.
 - Click **Bypass** so that if physical assets are associated to the URL Signer Configuration, the signing process is skipped and the content delivery network (CDN) location information is passed unprotected.
 - Click **Use** to undo a URL Signer Configuration Bypass operation. In this instance associated physical assets will use URL Signing when the CDN location is requested.
 - Click **Delete** to remove the URL Signing configuration from the system.

Note To ensure that the URL Signer values returned by REST calls are the most recent, if you make a change to those values, you will need to clear the “Component Cache”. This action may be performed by navigating to **Admin > Cache Management**.

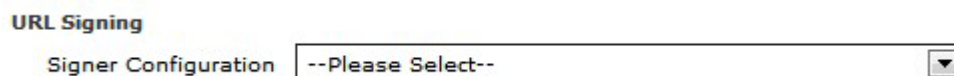
Choosing a URL Signer

After a URL Signer has been configured, it must be selected for use. This section describes that process.

To select URL signing configuration:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Create or select an existing repository node. For details, refer to “Adding Repository Nodes” on page 16. In this instance, we will select an existing node.
- 3 On the Edit Repository Node page, select one of the available URL Signer Configuration options. If an option is not available, you will have to create one as explained in this section.

Figure 5 URL Signer Configuration option



- 4 Click **Save**.

Origin Mappings

Origin mappings associate two different paths on a network. Media Suite uses origin mapping functionality to allow video assets to be offered through highly secure links. Origin mappings can be applied to all types of physical assets.

To configure origin mapping:

- 1 Navigate to **Metadata > Setup > Origin Mapping**.
- 2 Click **Add New**.

3 Fill in values for the following fields:

Table 9 Origin Mapping Field Listing

Field	Description
Name	A descriptive name for this Origin Mapping configuration.
Origin Base URL	The base URL for a given server that stores the original physical asset's distribution point. This is an internally resolvable location that should not be used outside of the closed content preparation network. Any available file transfer protocol, such as HTTP, SFTP, or FTP, can be used to access this location. When the origin base URL needs to be remapped to another path, an origin mapping is used to create a public URL from the origin base URL.
Public URL	The URL that the Origin Base URL is being associated to. A URL Signer Configuration can be applied to this URL to further transform and create a secure path to the resource. If no URL signer configuration is applied, this value will show up as the base path of the Public URL in the physical asset metadata page. Note This Public URL is different from the Public URL that is shown in component metadata.
URL Signer Configuration	(This option appears after clicking Create & Edit .) Select one of the available URL Signer Configurations from the drop-down list. These signers, will transform the Public URL to secure it. For more information, see "URL Signing" on page 18.

4 Click **Save**.

URL Fields

The following URL fields exist within physical asset metadata components to allow flexibility when configuring assets for distribution. Users can specify manual overrides for Origin Server to CDN URL mappings, which provides them with full control over where resources are accessed and what they are mapped to.

Table 10 URL Metadata Fields

Field	Description
Origin Base URL	This URL references an existing origin mapping configuration. The entered value must be identical to the Origin Base URL as defined on the Origin Mapping configuration page found at Metadata > Setup > Origin Mapping. Note For additional information, see "Origin Mappings" on page 20.
Origin Resource URL	A path that is appended to the Origin Base URL to create a publicly accessible destination for the content.
Delete URL	A URL that enables content deletion.
Manual URL	Change this value to override what is generated and shown in the Public URL field. This can be used when a custom URL is needed for clients to access.

Table 10 URL Metadata Fields

Field	Description
Manual CDN URL	Change this value to override what will be generated and shown in the Public CDN field. This can be used when a custom CDN URL is needed for the physical asset.
Public URL	The public URL for customers to access this content. The public URL is dynamically generated and populated. Depending upon the origin mapping configuration, this URL will be generated in different ways. Note This Public URL is different from the Public URL that is shown on the Origin Mapping configuration page.
Public CDN URL	This field is automatically generated by appending the Origin Resource URL to the Origin Base URL.

Managing Hot Folders

Hot folders are created to point to folders on filesystems and are used by Media Suite to trigger ingestion for a workflow. Hot folders only need to be created for folders where an ingestion task (specifically) will be taking place. A hot folder would not be required where actions can be performed directly on a filesystem.

Creating Hot Folders

To create a hot folder:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Click the **Filesystem** heading for the repository node that you want to add a hot folder to. The folder structure for that filesystem will appear.
- 3 Click a folder within the filesystem.
- 4 Click **Create Hot Folder**.
- 5 Enter a name and description for the hot folder.
- 6 Click **Save**.
- 7 On the Edit Hot Folder page, enter values for the following fields:

Table 11 Hot Folder Fields

Field	Description
Name	A label for the hot folder.
Description	A description for the hot folder.
Host Node	The fully qualified path of the hot folder.
Root Path	The path that should be considered root of the file structure of the host node.
Active Date	The date this hot folder will be active.
Inactive Date	The date this hot folder will become inactive.

Table 11 Hot Folder Fields

Field	Description
Priority	Specify a “Priority” value from 1 to 10. This value has no intrinsic purpose, but it can be passed to a computational workflow that will determine how the value will be used.
Process Subfolders	A boolean option that indicates whether processing should also occur for content within subfolders of this hot folder.
Bypass scanning for Filename (Regex)	Filenames that match this regex expression will be excluded from all hot folder operations.
Bypass workflow for Filename (Regex)	Filenames that match this regex expression will not be processed through workflows. These files, although scanned, will not be loaded into the workflow content file and will not be passed into a workflow instance.
Event Plugin	Used for selecting a plugin that will be executed for each hot folder event. As of Media Suite 5.7.2, this drop-down list will be removed and its functionality will instead be performed by a custom workflow prioritization plugin.
Related Workflow Definitions	Indicates any workflow definitions or workflow templates that are dependent upon this hot folder.

- 8 Click **Save**.

Editing Hot Folders

To edit a hot folder:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Locate the repository node that contains your hot folder. Any hot folders linked to the repository node will be displayed.

Figure 6 Hot Folder Shown Under a Repository Node



- 3 Click the name of the hot folder that you would like to edit.
- 4 Make your changes. Parameters that may be edited include Name, Description, and the Process Subfolders option.
- 5 Click **Save**.

Deleting Hot Folders

To delete a hot folder:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Locate the repository node that contains your hot folder and click the **Hot Folders** link beneath it. Any hot folders linked to the repository node will be displayed.
- 3 Click the name of the hot folder you would like to delete.
- 4 Click **Delete**.

Understanding Remote Filesystem

Remote Filesystem manages files located on filesystems that are not directly accessible to Media Suite through conventional file transfer protocols. Remote filesystem uses pfs (pluggable file system) to connect to a SOAP endpoint that has access to remote server locations. The remote server can be configured to connect to multiple network locations, each of which can store files that may be accessed by different protocols. Media Suite only needs to access the main remote server using pfs and the custom remote filesystem software will manage all the various connections and protocols to provide a single unified point of file access.

Configuring Workflows

This chapter includes the following topics related to configuring workflows:

- "Configuring Processor Actions", as shown below
- "Understanding Collators" on page 34
- "Configuring Custom Workflows" on page 35
- "Creating Updateable Workflows" on page 41

Understanding Workflows

Workflows are a collection of steps or decision branches that may span one or more Media Suite modules or 3rd party applications. The following chapter explains the steps involved in creating and configuring various parts of a workflow, which ultimately leads to a configured and deployed workflow definition.

The general steps for configuring a workflow are as follows:

1. Create a workflow PAR file.
2. Create a workflow template by importing the PAR file in Media Suite.
3. Create a repository node and hot folder (if necessary).
4. Create action templates (or perform other configuration work for required ESBs).
5. Configure an action profile from the action template.
6. Configure a workflow definition by assigning action profiles to workflow nodes.
7. Link the hot folder to the workflow definition.

Configuring Processor Actions

Configuring processor actions involves creating action templates that establish general actions that process, transform, or transport a file. Next, you specify the details behind those actions, which creates an action profile. One action template can be used to create multiple action profiles. Once complete, the action profile is used within the workflow definition to establish the work that will be performed at each workflow node.

Creating Action Templates

Action templates represent the general actions applied to assets and metadata at each node of a workflow. They are used to establish base configurations of a particular service within the system. For example, an "Encrypt for PlayReady" action template would define the parameters needed to access the PlayReady encryption server.

To set up an action template:

- 1 Navigate to **Workflow > Setup > Action Templates**.
- 2 Click **Add New**.
- 3 Type a name and description for the action template.
- 4 Select an ESB service upon which this action template will be based. For a listing of available ESB services, see “Media Suite ESBs” on page 313.
- 5 Click **Create & Edit**.
- 6 Depending on the ESB processor that you have chosen, you will have different configuration requirements and options. Some are configured via an Action Template, others may require changes to a configuration file, while yet others may require configuring aspects of your Media Suite deployment. The following table lists the options for each type of ESB processor. Note that each ESB name will be preceded with “OC_ESB_PROCESSOR_” within the ESB Service drop-down list:

Table 12 Action Template Fields to Configure

ESB Service	Field	Description
ARMADA:ArmadaService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
	Host	The Armada server location.
	Port	Commonly port 8062, unless otherwise configured.
	Repository Path	The network path for the repository node.
	Local Path	The local folder path for the content.
	Input Directory	The input directory for content to be transcoded.
	Output Directory	The output directory for content that has been transcoded.
	Armada Server Version	Selects the Armada server version that will perform the transcoding for this action template. Choose the server version number that your deployment has access to.
Binding Service	N/A	No configurable user interface options are available for action template creation.
Collator Service		
	N/A	No configurable user interface options are available for action template creation.
Encoder Service		
	N/A	This service has been deprecated. Use the ArmadaService instead for transcoding assets.

Table 12 Action Template Fields to Configure

ESB Service	Field	Description
EPG Ingest Service	N/A	Deprecated. The work of this service is now performed by the EPG Ingest Feed Fragment and EPG Finalize Ingest Services.
EPG_INGEST_FEED_FRAGMENT: EPGIIngestFeedFragmentService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
EPG_FINALIZE_INGEST: FinalizeEPGIIngestService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
FILE_DISCOVERY: FileDiscoveryService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with the ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
FILE:RepositoryManagerService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left)
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
HLS Collator Service	N/A	No configurable user interface options are available for action template creation.
Image Transformation Service	N/A	No configurable user interface options are available for action template creation.
MAPPING_SERVICE: MappingRulesService	Name	A name for this action template.
	Description	A description for this action template.

Table 12 Action Template Fields to Configure

ESB Service	Field	Description
	ESB Service Address	Pre-populated with the ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
Metadata Augmentation Service	N/A	No configurable user interface options are available for action template creation.
RHOZET:RhozeteService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with the ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
	Host	The Rhozet server location.
	Port	Commonly port 8731, unless otherwise configured.
	Repository Path	The network path for the repository node.
	Local Path	The local folder path for the content.
	Input Directory	The input directory for content to be transcoded.
	Output Directory	The output directory for content that has been transcoded.
RULES_SERVICE: GenericRulesService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with the ESB name (at left).
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
XML Reader Service	N/A	No configurable user interface options are available for action template creation.
XML:XmlTransformationService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left)
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.

Figure 7 Action Template Details

SETUP ACTION TEMPLATE > ARMADA SERVICE

Save Cancel Create Action Deactivate

Name Armada_Service_Example *

Description

ESB Service Address OC_ESB_PROCESSOR_ARMADA:ArmadaService

UUID 63a9905b-d66c-4464-a298-d9850cce6833

REST Service

Host sample-hostname.yourcompany.com *

Port 8062 *

Path Mapping

Repository Path /ARMADA_FS/armada/ Browse *

Local Path c:/YourFiles/armada *

Directory

Input Directory in *

Output Directory out *

Armada Server

Armada Server Version 4.5 *

7 Click **Save**.

8 Click **Activate**. This activates the current action template so that it becomes available for use in action profiles.

9 Click **Create Action**.

Creating Action Profiles

Action profiles establish the specific details of actions that will be applied to assets and metadata at each node of the workflow. For example, an “Encrypt for PlayReady” action profile would define the encryption key parameters and individualized version related to the PlayReady encryption server.

Action profiles may be created (in one flow) as a continuation of creating an action template. To do that, you would simply click **Create Action** once you have entered the parameters for your action template. Alternately, you can create an action profile by starting directly from the Media Suite menus. The following procedure will use the later approach, but all parameters are identical in both instances.

To create an action profile:

- 1 Navigate to **Workflow > Manage > Action Profiles**.
- 2 Click **Add New**.
- 3 Type a name and description for the action profile.
- 4 Select the action template service upon which this action profile will be based.

- 5 Click **Create & Edit**.
- 6 Depending on the action template that you have chosen, you will have different configuration options. The following section lists the options that are presented for a sampling of action profiles.

Table 13 Action Profile Listing

Profile	Type	Description
ARMADA_SERVICE-BASED ACTION PROFILE		
NOTE: ARMADA TRANSCODER IS ALSO CALLED CISCO ANYRES VOD (CAV)		
	Name	The name of the action profile.
	Description	A description for the action profile.
	Action Template	The name of the action template that was selected as the basis for this action profile.
	Modified Date	The last date that this action profile was modified. This field is automatically updated by the system and cannot be edited.
	Processor Action Type	Enables the selection of predefined transcoding options. Options include: Work Order - specifies a list of predefined transcode settings (on the Cisco AnyRes VOD (CAV) server) without encryption. Work Order PlayReady - specifies a list of predefined transcode settings (on the CAV server) with PlayReady encryption. Work Order HLS/AES - specifies a list of predefined HLS transcode settings (on the CAV server) with AES encryption. Work Order HLS/ABRe - specifies a list of predefined transcode settings (on the CAV server) with ABR encryption. Work Order XTVE - specifies a list of predefined transcode settings (on the CAV server) with XTVE encryption. Template - specifies one predefined transcode configuration on the CAV server.
	Work Order	Displays a listing of transcoding options. Note Whenever Cisco AnyRes VOD is reinstalled, any work order selection within the Media Suite action profile will be lost. Consequently, after reconfiguring Cisco AnyRes VOD, you will need to reselect the required work order within your action profile so that related workflows continue to properly function.
	Customer Content ID	When this option is selected, a random UUID is included into the XAT (CAV task file) and passed to Cisco AnyRes VOD. The Customer Content ID is then saved to the AltCode field of the physical asset.

Table 13 Action Profile Listing

Profile	Type	Description
	Filename Macro	Defines a macro that will establish a file naming template for all files output by Cisco AnyRes VOD. Available keywords for the template include: • %SOURCEFILE% (meaning source filename) • %CREATEDATE% (YYYY-MM-DD format) • %CREATETIME% (HH_MM format) • %JOBNAME% • %TEMPLATE% (meaning template name) • %BITRATE% (in KB) • %TOTALBITRATE% (in KB) • %COUNTER% (iterates for each transcoded asset) The format for the template can be any combination of text and keywords. For example: CISCO_%KEYWORD1%_VIDEO_%KEYWORD2%_%KEYWORD3%--%KEYWORD4%
	Job Priority	Assigns a relative priority for this transcoding job within the queue. Priorities range from 0 (highest) to 10 (lowest). Priority 0 is a special priority that attempts immediate transcoding and will stop any currently running jobs.
	Keep Source File	Selecting this option will keep the source file (instead of deleting it) after transcoding is complete.
	Related Workflow Definitions	A list of workflow definitions that are using this action profile. This list is generated by Media Suite and cannot be edited.

FILEDISCOVERY-BASED ACTION PROFILE

	Name	A name for the action profile.
	Description	A description for the action profile.
	Action Template	The name of the action template that was selected as the basis for this action profile.
	Modified Date	The last date that this action profile was modified. This field is automatically updated by the system and cannot be edited.
	Processor Actions	To configure FileDiscovery options: 1) Under the Processor Actions section click Add. 2) Click Browse to select a Repository path for the search. 3) Click Select. 4) In the pattern text box, type a regular expression to create a pattern to discover files. Note If FileDiscovery does not discover any files, the workflow process will end. Otherwise, the workflow will progress to the next node and use the found files.
	Include subfolders	Selecting this option causes FileDiscovery to search in subfolders under the source folder.
	Processor Actions: Pattern	Use regular expressions to create a pattern to discover files.

Table 13 Action Profile Listing

Profile	Type	Description
REPOSITORYMANAGERSERVICE-BASED ACTION PROFILE		
	Name	A name for the action profile.
	Description	A description for the action profile.
	Action Template	The name of the action template that was previously selected as the basis for this action profile.
	Modified Date	The last date that this action profile was modified. This field is automatically updated by the system and cannot be edited.
	Command	Specifies the way in which physical files will be sent to a content distribution network. Options include: Copy - copies the files from the source to the stated destination while leaving the source file intact. Copy & Zip - copies the source files and zips them to the stated destination. Copy & Unzip - copies the source file and unzips its contents at the destination. Delete - is used for a workflow that deletes files from a content delivery network after a component is removed from Media Suite. Move - moves the source file from the source to the destination. Move & Zip - moves the source files and zips them to the destination. Move & Unzip - moves the source file and unzips its contents at the destination. HLS Copy - copies a set of files (as specified by the HLS manifest) to the stated destination. HLS Move - moves a set of files (as specified by the HLS manifest) to the stated destination.
	Don't save ContentFile	When checked, this option prevents a ContentFile from being created. ContentFiles track the path of the files as they move through a workflow.
	Destinations	Specifies one or more destinations for physical files to be distributed to. This functionality may be used when copying files to different CDNs for multiple affiliates. In this instance, one bundle will reference each file that is directed to each CDN. To add an additional destination: 1) Click Add. 2) Browse to the destination. 3) Click Select.

Table 13 Action Profile Listing

Profile	Type	Description
	File Path	Specifies whether the source content's original path should be duplicated in the destination. Options include: Reproduce Original - reproduces the source content's file structure at the destination. This option is recommended when using HLS encryption. File Only - files are directly placed into the destination without a folder structure. This option is recommended when using Smooth Streaming or Multi-Bitrate encryption.
	Path Processor	Permits the selection of a plugin that provides custom logic related to file paths.
	File Collisions	Specifies what should be done in the event that source content already exists at the destination. Options include: Overwrite - incoming files will overwrite existing files. This option is recommended when using HLS encryption. Fail - the workflow fails and does not proceed Unique Filename - a unique file name is generated for new content Unique Directory - a unique directory name is generated for new folders. This option is recommended when using Smooth Streaming or Multi-Bitrate encryption.
	Related Workflow Definitions	A list of workflow definitions that are using this action profile. This list is generated by Media Suite and cannot be edited.

XMLTRANSFORMATIONSERVICE-BASED ACTION PROFILE

	Name	A name for the action profile.
	Description	A description for the action profile.
	Action Template	The name of the action template that was selected as a basis for this action profile.
	Processor Actions - XSLT	The contents of the XSLT file that performs data transformations. (Copy and paste the file contents into this field.) Note Media Suite only supports version 1.0 XSL documents.
	Related Workflow Definitions	A list of workflow definitions that are using this action profile. This list is generated by Media Suite.

7 Click **Save**.

8 Click **Activate**. Activating the action profile makes it available for use by workflow definitions.

Figure 8 Action Profile Details

MANAGE ACTION PROFILES > SFTP PLAYREADY

Name

SFTP Playready *

Description

SFTP Playready

Action Template

OC_ESB_PROCESSOR_DRM

PlayReady Configuration Settings

Key ID

B4153F8C-9AEE-45f6-AFCA-F9999ED9E5C

Key Seed

WWIovsmzhP9gRIZxWfFta3VVRPzVEWmJsa2 *

License Acquisition URL

http://www.domaincom/opencase/EntitlementManager/resourc *

Individualized Version

2.2.0.1 *

Related Workflow Definitions

Name	Workflow Template
SFTP DVD	Encrypt
SFTP Encrypt	Encrypt
SFTP Encrypt Approval	Encrypt approval
SFTP OpenCASE Classic	OpenCASE Classic

Deactivating Action Profiles

Deactivating an action profile will impact any workflow definitions that are using it.

To deactivate an action profile:

- 1 Navigate to **Workflow > Manage > Action Profiles**.
- 2 Click the action profile that you would like to deactivate.
- 3 Click **Deactivate**. A warning message will indicate the consequences of deactivating this action profile.
- 4 Click **Confirm**.

Understanding Collators

Collators are ESBs that are used in workflows to group related assets or metadata together for processing. A number of collators exist for specific purposes within Media Suite, but they all read a configuration file and wait for matching content to arrive prior to proceeding to the next workflow node. This improves processing efficiency and ensures that related files are treated as a unit during transcoding or encryption. Collators are referenced within workflow nodes when creating your workflow PAR file. For details on creating workflows, refer to the *Media Suite Developer Guide*.

The collators available within Media Suite are described in following table:

Table 14 Collators within Media Suite

Collator	Details
Adobe Multi-Bitrate Ingestion Service	This collator reads a <code>smil</code> configuration file to determine what video files should be processed together within a multi-bitrate package. The files will not proceed to the next node until all files specified within the <code>smil</code> file are available.
Metadata Collator Service	This collator matches all physical asset files with correlating metadata files. Otherwise, the collator waits until the accompanying supplementary metadata files are ingested (or vice versa if the metadata files arrive first). File naming conventions are important to indicate matching files. For example, the physical asset file: <code>asset_name.wmv</code> is matched with the file: <code>asset_name.wmv_metadata.xml</code> The supplementary metadata file may contain information such as custom attributes or common entities. Common entities would include fields such as target device or asset format. Metadata files must conform to the existing Media Suite schema. Metadata fields will overwrite metadata generated by processing before the collator node and will be overwritten by processing performed after the collator node. Fields that are not overwritten are merged. Note Any components referenced by the metadata collator must be one of the physical asset types.
Smooth Streaming Ingestion Service	This collator reads an <code>ism</code> configuration file to determine what video files should be processed together within a smooth streaming package. Note Microsoft's Smooth Streaming technology uses two manifest files. An <code>ism</code> file is used as the configuration file, which then points to an <code>ismc</code> file and related video files. The files will not proceed to the next node until all files specified within the <code>ism</code> file are available.

Configuring Custom Workflows

Although Media Suite comes with one or more predefined workflows, you may wish to create and configure custom workflows that match the specifics of your deployment. Once you have created a workflow and saved it as a PAR file, you will need to import it into Media Suite to create a workflow template.

Creating Workflow Templates

Workflow templates are created by importing PAR files into Media Suite.

To import a PAR file:

- 1 Navigate to **Workflow > Setup > Workflow Templates**.

- 2 Click **Import**.
- 3 Type a name and description for the workflow template.
- 4 For type, select either a **Standard** or **Priority Computation** workflow. Priority computation workflows calculate a priority based on a custom algorithm and then apply that priority to other (standard) workflows. Those standard workflows will prioritize based on their configured priority type and configuration values. For details, see “Prioritization” on page 42.
- 5 Click **Browse** to select your workflow archive (PAR file).
- 6 Click **Import & Edit Profile**.
- 7 If the PAR file is valid, a confirmation dialog appears confirming the creation of the workflow template. Newly-created workflow templates are active by default.

Figure 9 Workflow Template Details Page

SETUP WORKFLOW TEMPLATE > DOCS WORKFLOW TEMPLATE.

Save Cancel Create Definition Deactivate Reimport

✓ Workflow template successfully updated.

Name Docs Workflow Template.

Description Sample workflow template for documentation.

Process Archive OpenCASE Classic.par

- 8 At this stage, the following buttons are available:
 - **Save** (saves any changes that have been made to the description.)
 - **Cancel** (returns to the workflow template list page.)
 - **Create Definition** (creates a workflow definition using the current workflow template.)
 - **Deactivate** (deactivates the current workflow template.)
 - **Reimport** (changes made to the workflow PAR file can be reimported into Media Suite.)

Creating Workflow Definitions

Once the PAR file has been imported to create a workflow template, the specific nodes must be configured to match client requirements to prepare the workflow for use. This process creates the workflow definition. After configuration, workflow definitions must be deployed and then activated prior to being used by the workflow engine. Lastly, prior to starting a the workflow, a hot folder will need to be configured. Once the hot folder is chosen, it will be polled at frequent intervals for incoming content.

To create a workflow definition:

- 1 Navigate to **Workflow > Manage > Workflow Definitions**.

- 2 Click **Add New**. In order for this button to be active, you will need to have at least one active workflow template available in Media Suite.

Note The Manage Workflow Definitions page also has buttons that assist in easily shutting down your deployment. For details on the process, see Managing Nodes section in the *Media Suite Installation Guide*.

- 3 On the CREATE WORKFLOW DEFINITION dialog, type a name and description for this workflow definition.
- 4 Select a workflow template from the drop-down list.
- 5 Click **Create & Edit**.
- 6 The interface will open on the **SUMMARY** tab of the Manage Workflow Definitions page.

Figure 10 Manage Workflow Definitions Page

The screenshot displays the 'MANAGE WORKFLOW DEFINITIONS' interface, specifically the 'SAMPLE NON-COMPUTATIONAL WORKFLOW DEFINITION' page. At the top, there is a navigation bar with buttons: 'Save', 'Cancel', 'Delete', 'Deployment' (with a dropdown arrow), 'Reload Template', and 'Activate'. Below this is a tabbed interface with 'SUMMARY' and 'CONFIGURE' tabs. The 'SUMMARY' tab is active, showing a 'General' section with the following details: Name 'Sample Non-Computational Workflow Definition', a large empty 'Description' text area, 'Workflow Template' set to 'OpenCASE Classic Process Template', 'Deploy Status' as 'Incomplete', and a 'UUID' of 'e8b405d2-5521-45ba-8fa0-daf8dd573a8f'. Below the 'General' section is the 'Workflow Priority' section, which includes a 'Priority Source' dropdown set to 'Manual' and a numeric input field set to '5'. The 'Timeout' section has a 'Timeout in Minutes' input field set to '2880'. The 'WF Instance Monitor' section has a 'Display Property' text input field. At the bottom, the 'Trigger Event' section contains a message: 'This workflow has not been deployed. Trigger events will not be available until the workflow has been configured and successfully deployed'.

- 7 At this point, the following buttons are available:
 - **Save** - Saves any changes that have been made to the workflow definition.
 - **Cancel** - Returns to the workflow definition list page without saving changes.
 - **Deployment > Deploy** - Deploys the workflow definition. Workflow definitions cannot be deployed until all the nodes are correctly configured.

Afterwards, you need to select a hot folder within the summary tab to start the workflow.

- **Reload Template** - Reloads the workflow template if changes have been made to it.
- **Activate** - Activates the workflow definition. Workflow definitions must be deployed prior to being activated.

And the following tab options are available:

- **SUMMARY** - Allows you to change the workflow definition description and set other fields that relate to the entire definition.
- **CONFIGURE** - Allows you to configure individual workflow nodes while viewing a graphical representation of the workflow definition.

8 Additionally, the following fields are available:

Table 15 Workflow Definition Fields

Field	Description
Name	The workflow definition name.
Description	A description of the workflow definition.
Workflow Template	The template upon which this workflow is based.
Deploy Status	The deployment status of this workflow. Workflows exist in either a deployed or undeployed (incomplete) state.
UUID	A universally unique identifier for this workflow definition.
Priority Source	Establishes the source from where workflow priorities will be obtain for workflow instances running from this workflow definition. The options are: manual , whereby you set a priority number from between 1-10, with 10 being the highest priority. Alternately, you can select Priority Computational Workflow , which will provide an option to select a computational workflow from a drop-down list. That workflow will assign a priority based on any custom logic within the workflow.
Timeout in Minutes	The timeout in minutes at which a workflow will be moved into a terminated state. At that point, the workflow will be visible on the TERMINATED tab in the Workflow Instance monitor. The default period is 2880 minutes, which equals 2 days.
Display Property	Allows you to display any field from the workflow context (for workflows that use this definition) in the workflow instance monitor. To include one or more fields, include the comma delimited field name(s). For information on the workflow context, see “Viewing Workflow Instance Details” on page 83. (Hint: The workflow context is visible on the EVENT DATA tab within the Event detail page.)
Trigger Event	If you have created a non-computational workflow, then a Trigger Event section will appear. Once the workflow has been configured (under the CONFIGURE tab) and deployed, then the Trigger Event options will become visible.

9 Under the Trigger Event > Source section, select the `HotFolderNewContent` option from the first drop-down list and then select a specific hotfolder from the second drop-down list. Other events are also available to trigger a workflow. Click **Add** to include additional triggers as necessary.

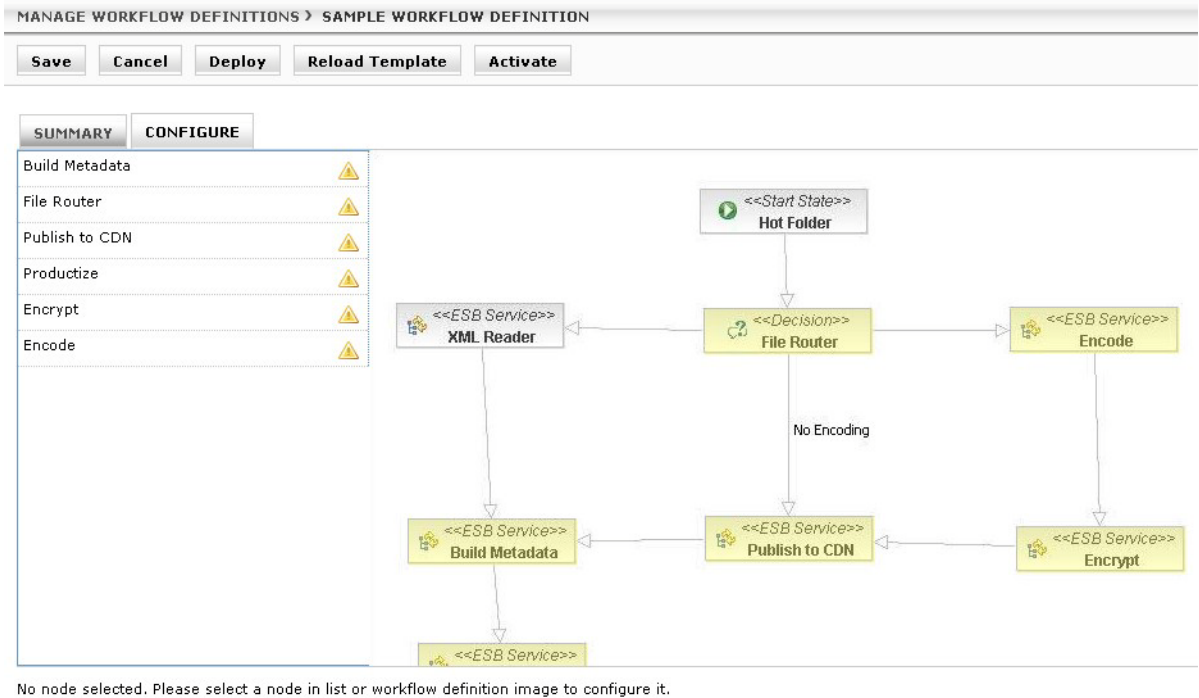
The following table lists the default available options when configuring workflow definition trigger events.

Table 16 Workflow Definition Trigger Events

Trigger Event	Description
HotFolderNewContent	Triggers a workflow when new content is placed into the selected hotfolder.
HTTPWorkflowTrigger	Triggers a workflow using an HTTP GET/POST request. Internal or external services can utilize this mechanism to trigger workflows and to pass information for processing. Query parameters and content requests will be stored in the workflow context. Request URL: <code>{server}/ContentProcessor/resource/rest/triggerworkflow</code> Two options are available for this trigger: 1. A Workflow Trigger ID can be set within the Media Suite user interface to trigger a specific workflow via an HTTP request that has the same <code>workflowTriggerId</code> parameter value. Predefined TriggerIDs are comma delimited, and can be viewed at the system configuration node located at: <code>modules > cp > http.workflow.trigger > predefined.workflow.trigger.Ids</code> 2. A <code>triggerworkflowservice.rest.trigger.id.parameter</code> can be used to substitute the default Media Suite <code>workflowTriggerID</code> parameter name with another name. This can be used in instances where a customer has a hard-coded name that must be used for their deployment.
PhysicalAssetDelete	Replaced by HTTPWorkflowTrigger as of Media Suite 5.6. To delete physical assets: 3. Set the Trigger Event to HTTPWorkflowTrigger, and the TriggerID to <code>physicalAssetDeleteWorkflow</code>. Doing so, causes that workflow to run when a physical asset needs to be deleted from a Media Suite repository. 4. Within the System Configuration, you must change: <code>modules > cm > component > record.deleted.physicalasset.xml</code> to <code>true</code>.
ScheduledInterval	Enables the configuration of a workflow at either a specific date and time or a specific interval. This trigger event is typically used with the FileDiscovery ESB.
Workflow	Triggers a workflow via another workflow.

- 10** Click **Configure** to view the MANAGE WORKFLOW DEFINITIONS page. All unconfigured nodes will appear with a warning triangle at left. In the workflow diagram, they will appear in yellow.

Figure 11 Configuring a Workflow Definition



11 To configure a workflow node, either click the node list entry (at left), or the node within the diagram (at right). Scroll to the bottom of the page to see the options that are available for this particular node. Options will vary depending on type of underlying ESB service that is performing the work for the node. Custom ESBs, of course, will have their own options. The following table shows options that will need to be configured for the default ESBs that are packaged with Media Suite:

Table 17 Workflow Node Configuration Parameters

Type of Node/ESB	Parameters to Configure
File Router No ESB. This is a specific type of node that routes incoming content to other nodes based on the logic that you specify.	Select each destination node that is attached to this decision node. Next, select parameters that will decide which files will go to each destination node. For example, an XML file may be directed to an XML reader, while a WMV file might be directed to a transcoder. Lastly, a JPG file might be sent directly to a Publish to CDN node as no further processing is required for the file.
Transcode Encoder Service	Select the action profile with the details of how to transcode (encode).
Encrypt DRM Packager Service	Select the action profile with the details of how to encrypt.
Publish to CDN Repository Manager Service	Select the action profile with the details of where and how to distribute.
Build Metadata Metadata Service	Select a bind profile with which to perform binding.

12 After the workflow definition is configured, click **Save**.

- 13 Click **Deployment > Deploy** to deploy the workflow definition.
- 14 Click **Activate** to activate the workflow definition.

Note Workflows cannot be used until they are first deployed, and then activated.

- 15 Click **Save**. The workflow should proceed as configured.

Deactivating Workflow Definitions

Deactivating a workflow definition does not affect any workflows that are currently running using that definition. Those jobs will continue to complete with the settings that they were originally started with. Future jobs, however, will be prevented from starting.

To deactivate a workflow:

- 1 Navigate to **Workflow > Manage > Workflow Definitions**.
- 2 Click the underlined name of the workflow definition that you would like to deactivate.
- 3 Click **Deactivate**.
- 4 Click **Confirm**.

Deleting Workflow-Related Entities

Media Suite includes the ability to delete workflow-related entities (Workflow Templates/Workflow Definitions/Action Templates/Action Profiles) under certain circumstances. These deletions can free up system space, remove clutter, and clear unused objects. To perform a deletion, click **Delete** within the detail page for each item. The following table indicates any dependencies that will prevent deletion of these entities.

Table 18 Deletion Dependencies for Workflow Entities

Entity to Delete	Dependencies Blocking Deletion
Workflow Template	No workflow definitions can be using this template.
Workflow Definition	No existing workflow instances can have been created from this definition (regardless of state). To delete a workflow definition, you will need to delete all workflow instances in progress, completed, or in error.
Action Template	No action profiles can be using this template.
Action Profile	Cannot be used within any workflow definitions.

Creating Updateable Workflows

Media Suite provides the ability to configure workflows that replace a corrupt or otherwise undesirable asset with a new copy without changing its URL or any downstream pointers that reference the asset. Enabling this option informs the system that incoming workflow content may consist of either new files, which will be processed as usual, or reingested files that will override existing content.

Related details are updated along with any physical asset updates. For example, if encryption or license information is updated for the new asset, those new values will be reflected in the physical asset metadata.

Enabling Physical Asset Updates

To enable physical asset updates for workflows:

- 1 Navigate to **Workflow > Manage > Workflow Definitions**.
- 2 Select the workflow for which you would like to enable physical asset updates.
- 3 Confirm that **HotFolderNewContent** is selected as the Trigger Event.
- 4 Select a hotfolder that will be polled for new content.

Figure 12 Supports update option on Workflow page

MANAGE WORKFLOW DEFINITIONS > TEST DRM PACKAGER

Save Cancel Deployment ▼ Reload Template Deactivate

SUMMARY CONFIGURE

General

Name Test DRM Packager

Description Workflow to test DRM Packager ESB service

Workflow Template Test DRM Packager Template

Deploy Status Deployed

UUID 67dcd2e2-2bee-46c9-a778-408fc502ff57

Deployment History

Current Version 1

Deployed On 2012-03-23 06:36

Trigger Event

Source : HotFolderNewContent ▼ Test_Packager_HF ▼ Supports update: ☒ Add

- 5 Click the **Supports update** checkbox beside the HotFolderNewContent trigger event to enable physical asset updates.

Note Physical asset updates will override existing assets on content delivery networks regardless of any “file collision” settings on the CDN.

- 6 Click **Save**.

Prioritization

When running a Media Suite deployment, you will find that at times it may be necessary to prioritize workflows or aspects related to content processing in order to manage loads. The following section discusses the prioritization options that are available within the system.

Workflow Prioritization

Media Suite uses a queue to schedule the order of workflow execution. That order is prioritized by workflow definition, so that all workflows that run using a given definition are managed by the same rule. There are two approaches with which you can configure workflow priorities:

- 1. **Manually**, by setting priorities within a Workflow Definition.
- 2. **Using a computational workflow**, which is a workflow that calculates a priority based on a custom algorithm and then applies that priority to a standard workflow.

Configuring Workflow Priorities

When manually configuring workflow priorities, you can select a Prioritization Configuration Type. This selection determines the logic that will be used by Media Suite when running workflows. The following section details the procedure and available options.

To configure workflow prioritization:

- 1 Navigate to **Workflow > Setup > Workflow Prioritization**.
- 2 On the Workflow Prioritization Configuration page, you will be able to choose the type of prioritization that you would like applied to all workflows system wide. The following section describes the available options.

FIFO - (Default) Processes workflows in a first in, first out priority with some considerations. The batch size is calculated by taking the batch size and subtracting the number of running instances. Thus a batch size of 100, with 15 instances in progress will result in 85 new instances being added to the queue for processing. This calculation is refreshed every minute with the most up-to-date information.

OCC_EQUALIZER - Processes workflows based on OCC Equalizer logic and configuration. Each job executes for one minute on a predetermined set of batch items.

In this example, OCC_EQUALIZER is configured with the following priorities within System Configuration (at `general > priority.content.processing > equalizer`).

Table 19 Default OCC_Equalizer Priority Configuration Values

Priority	Percent Allocated
1	5%
2	5%
3	5%
4	5%
5	5%
6	5%
7	5%
8	5%
9	20%
10	40%

For argument's sake, the configured batch size is 100. Therefore:

- $100 * 40\% =$ A maximum of 40 workflows running at priority 10.
- $100 * 20\% =$ A maximum of 20 workflows running at priority 9.
- $100 * 5\% =$ A maximum of 5 workflows running for each of priorities 1 through 8.

In the above example, if Priority 1 had 5 workflows running and 75 pending, the pending workflows would not be allocated to any free spaces that might be available to priority 10 workflows. In other words, workflows cannot borrow resources outside their priority allocation.

CUSTOM_PLUGIN - Adheres to the customized logic within a specified plugin. When this option is selected, a **Plugin** drop-down list becomes available for you to choose the plugin to be used.

3 Type a Batch Size, which will represent the maximum number of workflow instances that can be processed at one time.

4 Click **Save**.

Hot Folder Creation

When creating a Hot Folder, you can specify a "Priority" value from 1 to 10. This value has no inherent value, but will be passed to a computational workflow that can determine how the value will be used. For details, see "Managing Hot Folders" on page 22.

Workflow Template Prioritization

When creating a workflow template, select the **Type > Priority Computation** option to create a computation workflow. For details, see "Creating Workflow Templates" on page 35.

Configuring Prioritization

Priority settings can be configured within the Media Suite interface for all workflows, and then on a separate page for all of the queue prioritizations. Equalizer settings, which apply globally across all Prioritizations, are configured within system configuration.

Table 20 Configuring Prioritizations

Item	Where to Configure
Equalizer Thresholds	These values are all configured for each relevant object or action within System Configuration under general > priority.content.processing > equalizer The equalizer settings have 10 priorities in the following format: 1-5% 2-5% 3-5% 4-5% 5-5% 6-5% 7-5% 8-5% 9-20% 10-40% Note When configuring you equalizer in System Configuration, consider the following: Priorities use integers in the range of 1 to 10. Each priority starts on a new line, and the sum of all percentages must equal 100.

For information on how to change batch size or other Media Suite configuration values, see “System Configuration” on page 144.

Configuring Queue Priorities

The following section describes the types of queue prioritizations that are applied secondary to all workflow priorities. Priority values are passed along a chain that starts with a workflow, proceeds to a bind operation, then to notifications, and lastly to entity changes. This section explains the various available queue types and configuration options for each. All queue types are configured at: **Metadata > Setup > Queue Prioritization Configuration**.

Configuring Notification Queue Prioritization

Notification queues accept all objects and events. When there are changes related to a component, those changes can move up the chain to also affect related objects, which will result in multiple notifications being sent. For example, a component change can affect a video bundle, which in turn affects a show, that then affects a series. The entity change notification plugin aggregates those changes and removes redundancies.

The priority value for notifications is passed down from the binding queue priority value and is stored in the workflow context.

Notification queue configuration options include:

- **DEFAULT_UNTHROTTLED** - This option refers to the default queue behavior within Media Suite. No prioritization rules are in effect, and all queues in the batch are run on a first in first out basis. Queue items in progress are not taken into consideration for the batch size.
- **OCC_EQUALIZER_UNTHROTTLED** - Applies the same logic as the Workflow Prioritization equivalent. See “Configuring Workflow Priorities” on page 43.
- **TOP_PRIORITY_FIRST_UNTHROTTLED** - Executes the highest priority notification requests first, and then the next priority, and so on. The notification queue priority exists within the workflow context and can be changed either manually or programmatically as required. Queue items in progress are not taken into consideration when calculating the batch size.
- **CUSTOM_PLUGIN** - Calculates notification priorities based on custom logic within a specified plugin.
- **Batch Size** - Sets the maximum number of items that can be processed at one time by the system.

Configuring Entity Change Queue Prioritization

Entity change queues receive notifications and then apply the appropriate plugins to specific entities (such as components, bundles, or other objects). The priority value is passed down from the notification queue value and is stored in the workflow context.

Entity change queue configuration options include:

- **DEFAULT_UNTHROTTLED** - This option refers to the default queue behavior within Media Suite. No prioritization rules are in effect, and all queues in the batch are run on a first in first out basis. Queue items in progress are not taken into consideration for the batch size.
- **OCC_EQUALIZER_UNTHROTTLED** - Applies the same logic as the Workflow Prioritization equivalent. See “Configuring Workflow Priorities” on page 43.
- **TOP_PRIORITY_FIRST_UNTHROTTLED** - Executes the highest priority entity change requests first, and then the next priority, and so on. The entity change queue priority exists within the workflow context and can be changed either manually or programmatically as required. Queue items in progress are not taken into consideration when calculating the batch size.
- **CUSTOM_PLUGIN** - Calculates notification priorities based on custom logic within a specified plugin.
- **Batch Size** - Sets the maximum number of items that can be processed at one time by the system.

Configuring Bind Queue Prioritization

Bind queues are involved in queuing all bind requests. The priority value is passed down from the workflow priority value and is stored in the workflow context.

Bind queue configuration options include:

- **FIFO** - (Only available to the bind queue.) This option processes items using a first in, first out priority. Unlike FIFO workflow processing, the FIFO queue logic does not subtract “in progress” items. Thus, the entire batch size is sent for processing all at once.
- **OCC_EQUALIZER_UNTHROTTLED** - Applies the same logic as the Workflow Prioritization equivalent. See “Configuring Workflow Priorities” on page 43.
- **TOP_PRIORITY_FIRST_UNTHROTTLED** - Executes the highest priority bind requests first, and then the next priority, and so on. The bind queue priority exists within the workflow context and can be changed either manually or programmatically as required. Batch sizes are calculated by subtracting any items that are currently in progress.
- **CUSTOM_PLUGIN** - Calculates workflow priorities based on custom logic within a specified plugin.
- **Batch Size** - Sets the maximum number of items that can be processed at one time by the system.

Binding & Metadata

Understanding Binding

Bind profiles are used to create bundles within workflows by associating a diverse set of incoming content to a bundle template structure. Incoming content may consist of either physical files, or metadata that exists within bundle or component XML files.

This section explains the theory behind bind functionality; the importance of establishing an incoming content structure; and how to manage bind profiles. Lastly, sample scenarios are provided to assist you in configuring your own bind profiles.

Note It is important to understand the structure of the bundles that you will be working with when you plan and create your bind profiles. For details on the default bundles available within Media Suite, refer to “Understanding Media Suite Bundles” on page 299.

In general, a bind profile performs the following actions:

- defines (the type of bundle that components will be bound to at initial profile creation)
- groups (new content that belongs to the same bundle; also called bundle associations)
- locates (where to attach new content; also called component associations)
- determines (where to direct new content when there is ambiguity; also called child bundle associations)

Once created, bind profiles must be made active in order to become available for use in workflow definitions. At that point, the bind profile will automatically group and route incoming content until the specified bundle is populated to the satisfaction of the bundle template. From there, the bundle itself may automatically be activated, or may await further input from an administrator. The driving concept throughout all this functionality is that binding is a powerful and flexible process that adheres to the rules you have set.

Establishing Incoming Content Structure

There are two general ways in which Media Suite can interpret incoming content: filename-based parsing and folder name-based parsing. These methods can be used independently or in conjunction with one another and decisions about which way content should be examined by the system will affect how incoming content should be stored prior to ingestion.

- **Filename-based structures**
These store all content in one folder location and enforce specific naming conventions that allow Media Suite to parse filenames to understand what type of file is being examined and where that file belongs within a bundle. Filenames are parsed using a token/delimiter concept

where various parts of the filename are separated by a pre-defined delimiter, such as an underscore character. In addition, an examination of the file extension can yield further clues about the type of file that is being examined, and where it will be attached in a bundle tree.

- **Folder-based structures**

These store all content in multiple folder locations and enforce specific naming conventions that allow Media Suite to parse folder names to understand what type of file is being examined and where that file belongs within a bundle. Folder names are parsed in a similar manner to filenames, except that folders are differentiated by directory level instead of by using a delimiter.

Note Do not use spaces anywhere within (or after) pathnames or filenames for content that will be processed by a bind profile or workflow. Spaces may cause unwanted workflow behavior.

Administrators that configure bind functionality must predetermine how to structure incoming content. Content must be organized with consideration to filename and folder-based naming conventions. The key to setting up any structure is consistency, and the specifics of how to create your bind profile, will differ according to the naming conventions you have established.

The following sections present a couple of sample content structures and explains how Media Suite will interpret the given scenarios. Within your Media Suite implementation, however, you will need to create your own incoming content structure and matching rules.

Filename-Based Logic

Filename-based logic is useful for simpler bundles, such as logical videos, that have a flat content structure. Here is a generic filename-based representation:

```
//hotfolder/token1_token2.extension
```

Here are specific files that might follow that example:

```
//hotfolder/Rocky.xml (the bundle XML)
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt
```

```
//hotfolder/Batman.xml (the bundle XML)
//hotfolder/Batman_feature.wmv
//hotfolder/Batman_thumb.jpg
//hotfolder/Batman_poster.jpg
//hotfolder/Batman_subtitle.srt
```

In the previous example, all content is stored within the same folder, and an underscore is used as the filename delimiter. When you examine each filename, you can see that:

The movie name (first token) is always constant.

```
//hotfolder/Rocky.xml
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt
```

The second token gives the system an additional clue as to what it is examining.

```
//hotfolder/Rocky.xml
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt
```

The file extension provides a final clue. For example, Rocky_feature may have various extensions. A WMV extension indicates that Media Suite is looking at video content; XML indicates metadata; and JPG indicates that the file is a movie-related image.

```
//hotfolder/Rocky.xml
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt
```

The different jpgs can further be differentiated by the second token. A “thumb” token indicates a smaller sized asset thumbnail, while a “poster” token indicates a larger-sized movie poster image.

```
//hotfolder/Rocky.xml
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt
```

Given all the previous differentiators, Media Suite now has enough information to attach each file to its intended folder.

Folder-Based Logic

Folder-based logic is useful for more complex structures, such as DVDs, where identical content types need to be differentiated and redirected to different branches of a bundle tree. When organizing incoming content, it is best to adhere to the structure of the bundle that you are trying to create.

Types of Binding Associations

To create a bind profile, you will need to understand and create various associations to group and direct incoming content to the correct spot in the bundle tree. The following section describes the types of associations that can be created, and explains the purpose of each:

Bundle Association Rules

Bundle associations determine whether new content belongs to the same bundle. This is performed by matching part of the incoming file path with specific values stored within the bundle XML, such as bundle name, external ID, alt code, or bind ID.

Take this hypothetical example of an incoming file structure:

```
//hotfolder/folder1/folder2/token1_token2.xml
```

Assuming that you are going to associate bundles where the bundle name value within the bundle XML equals “mybundle”, here are the possible places where a match could be searched for:

```
//hotfolder/mybundle/folder2/token1_token2.xml
//hotfolder/folder1/mybundle/token1_token2.xml
//hotfolder/folder1/folder2/mybundle_token2.xml
//hotfolder/folder1/folder2/token1_mybundle.xml
```

Additionally, an “Allow component association on create new bundle” feature is available for you to specify how to identify existing components within a bundle when processing updates. After turning on the feature, additional options include: component name, external ID, alt code, and asset ID.

Bind ID Association Rules

Bundle association rules are made using one of multiple values that are found in the bundle XML, such as bundle name, external ID, or alt Code. When none of those values are suitable for your purpose, you may set a custom value that can be used for bundle associations. The custom value that will be used to associate incoming content to bundles is called the bind ID.

Taking our previous example

```
//hotfolder/folder1/folder2/token1_token2.xml
```

The bind ID can be set using one of the following tokens that are determined by using a part of the file path as shown in the following examples.

```
//hotfolder/bind ID/folder2/token1_token2.xml
//hotfolder/folder1/bind ID/token1_token2.xml
//hotfolder/bind ID//folder1/folder2/bind ID_token2.xml
//hotfolder/bind ID/folder1/folder2/token1_bind ID.xml
```

Figure 13 Setting the Bind ID

Component Association Rules

Component association rules are used to determine to which component within the bundle incoming content should be attached. These rules should be set for each folder that will be receiving content and will apply to any content that has met the bundle association requirements.

Figure 14 Setting Component Rules

Child Bundle Association Rules

In situations where a parent folder in a bundle structure can hold more than one child bundle of the same type (in other words, bundles within a bundle), a child bundle association rule must be created. Child bundle rules direct incoming content to the correct child bundle. These rules are set when you click a parent bundle in the bundle tree structure.

Figure 15 Setting Child Bundle Association Rules

Child Bundle Association

This folder (bundle) can hold more than one child bundle of the same type. Create a rule to direct incoming content to the correct child bundle.

where   equals  

Understanding the Bind Profile Process

The following general steps are used to create a bind profile.

To create a bind profile:

- 1 Navigate to **Metadata > Bind Profiles**.
- 2 Click **Add New**.
- 3 Type a name and description for your bind profile.
- 4 Select a bundle template that will provide the structure for your content. You may choose from all active default or custom bundle templates in Media Suite.
- 5 Click **Create & Edit** to specify the details of the bind profile.
- 6 Select the Bundle Activation option.
This option specifies whether a bundle should be automatically activated once the minimum number of associations are met for components within the bundle. Those limits are set within min/max values when creating a bundle template. For further details, see “Creating Bundle Templates” on page 121.
- 7 Set the bundle association rules.
For more information, see “Bundle Association Rules” on page 49.
- 8 (Optionally) set a bind ID if it is required by your bind profile.
For more information, see “Bind ID Association Rules” on page 50.
- 9 Set your component association rules.
These establish how incoming content will be attached to various components within the bundle. For more information, see “Component Association Rules” on page 50.
- 10 (Optionally) set child bundle association rules if they are required by your bind profile.
For more information, see “Child Bundle Association Rules” on page 50.
- 11 Once the bind profile is complete, click **Activate** to make the bind profile available for use within workflows.

Binding Considerations

There are two primary considerations when organizing incoming content for Media Suite to perform binding. At the outset, you must examine the implications of your file naming and folder structure conventions. The following section describes how to configure bind scenarios using combinations of these systems. You will also learn methods for dealing with typical content that would be used for a logical video. After you have learned the rationale behind binding incoming content to that bundle, the same general approach can be reused for binding components to other bundle types.

In general, files that are being sent through a workflow process will need to be attached to components and those components will later be attached to bundle folders. Components whose details are specified within the bundle XML, however, do not necessarily need to be attached. That information will automatically be taken from the XML and placed into the bundle when it is created. Given the flexibility of Media Suite, information such as DVD metadata or logical video metadata can either be:

- Placed in the bundle XML where it will be automatically inserted into the bundle upon creation. This is the preferred method of performing your workflows.
- Put into a separate component metadata XML files which can then be associated with a bundle within a workflow. Keep in mind that individual information fragments should not be put into an XML file for use by Media Suite, but that a complete set of information must be put inside the XML file within the context of a component.

Sample Logical Video

Consider the following files as an example of incoming content that will be bound to a logical video:

```
//hotfolder/Rocky.xml (the bundle XML)
//hotfolder/Rocky_feature.wmv
//hotfolder/Rocky_thumb.jpg
//hotfolder/Rocky_poster.jpg
//hotfolder/Rocky_subtitle.srt

//hotfolder/Batman.xml (the bundle XML)
//hotfolder/Batman_feature.wmv
//hotfolder/Batman_thumb.jpg
//hotfolder/Batman_poster.jpg
//hotfolder/Batman_subtitle.srt
```

Note At any point while creating a bind profile you may click **Save** to preserve your work in its current state. Since bind profiles can become quite involved, you may wish to save them occasionally while they are being created.

Configuring Bundle Associations

The following general steps are used to set bundle associations:

1. DISCOVER - tells Media Suite where to find content to attach to a bundle. This is done by establishing rules that must be fulfilled for content to be considered a part of a bundle.
2. (Optionally) set the bind ID if you will be using it as a custom identifier in step one.
3. ATTACH - for content that fulfills the criteria in steps 1 and 2, you set rules within each folder and component (as required) to associate that content to the bundle structure.

Discovering Content

Prior to associating content to bundles, it is important to establish rules that state where this content should come from.

To establish where the system should look for content:

- 1 In the “Find where” section, select either filename or folder. In this example you will use “filename”.
- 2 Click the plus sign to make the token choice options appear.
- 3 Select a token. Options are any, first token, last token, nth token, or nth last token.
- 4 Assign a token delimiter. After “by” type an underscore as the delimiter.
- 5 After “equals”, choose what the token should equal for the content to be accepted for binding. Options include, bundle name, external ID, alt code, and bind ID. The preview widget underneath the criteria will display how the “find where” parameters will be interpreted by the system.

Figure 16 Setting Find Where Parameters

Bundle Association

Define how OpenCASE should identify that different bits and pieces belong together.

Find where by equals

Configuring Bind IDs

The bind ID is derived from a part of the bundle XML path and provides a custom identifier commonality with which content can be grouped. A bind ID would be created if none of the other identifiers, such as bundle name, external ID, or alt code, are suitable for your purpose.

To configure the bind ID:

- 1 Select, in general, how the bundle should identify the various components within it. There are two options:
 - Folder - binds based upon a folder location within the folder hierarchy. When selecting “folder”, you must choose which folders are examined for a criteria match. Options include first, last, nth, nth last.
 - Filename - binds based upon an identifiable part of the filename. When selecting a filename, you may (optionally) choose a delimiter character as well as which token should be examined for a criteria match. Options include first, last, nth, and nth last.

In this instance, you should choose the “filename” option.

- 2 Click the  after “filename”.
- 3 Select a token. Options are first token, last token, nth token, or nth last token. Select “first token”.
- 4 After “by”, type in your delimiter. In this instance, you will use an underscore (_) character.
- 5 Click **Save**.

Figure 17 Setting the Bind ID

Bind ID by

Creating Component Association Rules

After you have created the bundle discovery rules, which are used to determine where items to be bound are located, it is time to create attachment rules that will determine where they *will go* within the bundle tree. The rules must be set up for all components that will be attached to the bundle.

The components that will need to be associated to our sample logical video bundle are:

- videos
- images - thumbnails
- images - artwork
- subtitles

To configure component association rules:

- 1 After creating the bundle association rules (with an optional bind ID), click a component on the bundle tree that you would like to attach content to.
- 2 Once the component is selected, you will see how many items can be associated to that part of the bundle tree. These restrictions are based upon the bundle template. Those values need to be populated in the min/max fields. Values can be 0 (meaning optional), a positive integer, or n, for an unspecified number of items.
- 3 Next, to the right of the tree, you will see options for establishing the rules that will determine *which* component to attach. These rules are configured in a similar manner to the bundle association rules. The current node that you have selected will indicate *where* the entity will be attached.
- 4 Once you have set the rules for the current component, click **Save** and then select another node for which you would like to add attachment rules.

Component Association

Attach Physical Asset Video

where first token

matches
contains
equals ignore case
matches ignore case
contains ignore case

Note Regular expressions, such as (png|jpg|bmp) can be used to provide additional flexibility when specifying component association rules in a bind profile.

Logical Video Binding Example

The following example provides a walkthrough of the steps required to create component association rules for our logical video example. To view the files in that example, see “Sample Logical Video” on page 52. Remember that XML metadata does not need to be explicitly bound to a video, but will be automatically associated when the bundle is created. All other components will need rules associated with them.

To configure component association rules:

- 1 Click **Videos** on the bundle tree.

- 2 For **Attach Physical Asset Video where** select **extension** and **equals**.
- 3 Type `wmv`.

Figure 18 Physical Asset Video Component Association Rule

Component Association

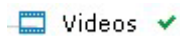
Attach Physical Asset Video

where extension equals wmv

\\hot folder\...\folder\filename.wmv

- 4 Click the "Subtitles" folder on the bundle tree structure.
- 5 If the configuration settings for the Videos component has been successfully configured, a check mark will appear to the right of "Videos" on the bundle tree.

Figure 19 Successfully Configured Component Association Rule



- 6 At right, in "Attach Physical Asset Subtitle where" select "extension" equals.
- 7 Type "srt".

Figure 20 Physical Asset Subtitle Component Association Rule

Component Association

Attach Physical Asset Subtitle

where extension equals srt

\\hot folder\...\folder\filename.srt

- 8 Click the Images folder on the bundle tree structure. The following message will appear: "This folder is unique and no association rule is required." This is a folder and not a component. Click on the right facing triangle to open the folder to view the components inside of it.
- 9 Click the "Thumbnails" component.
- 10 At right, in "Attach Physical Asset Image where" select "filename" equals.
- 11 Click plus sign to refine the criteria.
- 12 Select "last token".
- 13 Type by "_". This establishes the underscore character as your delimiter.
- 14 Select "equals".
- 15 Type "thumb". This implies that the last token of your filename contains the word "thumb". In our example convention, this will stand for "thumbnail".
- 16 Click "Add" to add an additional criteria.
- 17 Select "extension" then "equals" and type "jpg".

Figure 21 Physical Asset Image Thumbnail Component Association Rule

Component Association

Attach Physical Asset Image

where filename by equals

and extension

- 18 Click the "Artwork" component. ("Thumbnails" should have a check mark beside it.)
- 19 At right, in "Attach Physical Image where" select "filename" equals.
- 20 Click the plus sign to refine the criteria.
- 21 Select "last token"
- 22 By type "_", which establishes the underscore character as your delimiter.
- 23 Select "equals".
- 24 Type "poster". This implies that the last token of your filename contains the word "poster"
- 25 Click "Add" to add a new criteria.
- 26 Select "extension".
- 27 "Select equals".
- 28 Type "jpg".

Figure 22 Physical Asset Image Poster Component Association Rule

Component Association

Attach Physical Asset Image

where filename by equals

and extension

- 29 Click **Save**.
- 30 Click **Activate** once you have entered all your criteria. Activating a bind profile makes it available for use within workflows.

Editing Bind Profiles

Warning Editing a bind profile that is attached to a workflow definition will affect any new files that are being processed by that workflow.

To edit bind profiles:

- 1 Navigate to **Metadata > Bind Profiles**.
- 2 Click the underlined name of the bind profile that you would like to edit.
- 3 Make the required modifications to the profile.

- 4 Click **Save**.

Deactivating Bind Profiles

Bind profiles cannot be deleted, but may be deactivated.

To deactivate bind profiles:

- 1 Navigate to **Metadata > Bind Profiles**.
- 2 Click the underlined name of the bind profile that you would like to deactivate.
- 3 Within the bind profile details click **Deactivate**.
- 4 Click **Confirm**.

Warning Deactivating a bind profile that is attached to a workflow definition will affect any future content that is scheduled to be bound by that workflow.

Updating Metadata with Bind Profiles

Media Suite provides the ability to update existing bundle metadata (including custom attributes within components) by processing a new version of the XML file. This functionality is available in both the API (see the *Media Suite API Guide*) and within the user interface, whose use will be discussed here. Metadata is updated by turning on the `Allow Bundle Updates` option within a bind profile. This option enables two rules that control when to perform an update, and how to process it.

The bundle update rules expose the following two criteria for configuring:

- **Update when**, which has `folder`, `filename`, and `XML file path` options. Like other binding rules, this rule defines the process by which to extract a String from the original file path of the incoming XML file. If the incoming bundle XML string matches an existing bundle in the system, a metadata update operation is performed. Otherwise, a new bundle is created.
- **Find by**, which has `component name`, `external ID`, and `alt code` options. Use this field to compare incoming component metadata information against existing components. If incoming component XML matches the component parameters you specified, a component metadata update is performed. Otherwise, a new component is created.

Figure 23 Update Bundle Metadata Options

☒ Allow bundle updates

Selecting this option allows bundles to be updated, instead of creating a new bundle every time. Set the rule for how to find the bundle to update.

Update when XML file path

`\\hot folder\...\folder\filename.ext`

Choose how to identify an existing component in a bundle, when processing an update.

Find by -- Please Select --

Note When enabling metadata updates, ensure that any new bundles or component XML files contain ALL of the information that must be included for that object and not just the update information. Blank fields will erase existing information, and missing tags will remove that tag from the source.

Just in Time Publishing

Just in Time (JIT) Publishing enables administrators to delay the publication of asset and bundle metadata until a time nearer to when such information is required. This allows time for all required updates to be performed in the system prior to a publishing operation, and avoids having to repeatedly publish incremental updates.

To enable this functionality, Just in Time policies can be created within the Media Suite user interface. The following section describes the process of managing JIT profiles.

Creating Just in Time Policies

To create a Just in Time policy:

- 1 Navigate to **Metadata > Setup > Just in Time Policies**.
- 2 Click **Add New**.
- 3 Type a name.
- 4 Click **Create & Edit**.
- 5 Type the number of hours before the first Offer Start that you would like the metadata and offers to be published.

Note The "hour(s) before Offer Start" value must be ≥ 6 and ≤ 999 . In other words, all start times must be greater than the JIT Publishing time.

- 6 Select the Bundle Change Plugin that will be used to publish metadata to a downstream system once the configured time is reached.

Note Just in Time functionality is tightly coupled with bundle change plugin functionality. As such, validation exists to ensure that you cannot deactivate a bundle change plugin if it is attached to an active JIT policy. Additionally, you cannot activate a JIT policy if its associated to a deactivated bundle change plugin.

- 7 Click **Save**.
- 8 Click **Activate**.

Editing Just in Time Policies

To edit a Just in Time policy:

- 1 Navigate to **Metadata > Setup > Just in Time Policies**.
- 2 If necessary, perform a search for the policy that you would like to edit.
- 3 Click the underlined policy name.
- 4 Make any required changes to the policy.
- 5 Click **Save**.

Deleting Just in Time Policies

To delete a Just in Time policy:

- 1 Navigate to **Metadata > Setup > Just in Time Policies**.
- 2 If necessary, perform a search for the policy that you would like to edit.
- 3 Select one or more policies for deletion.
- 4 Click **Delete**.

Content File Types

The following table can be used as a reference when creating bind profiles. The table lists:

- various content file types
- the uses for those types,
- and whether a content type is a link to a physical entity or is represented virtually as a series of values within Media Suite.

Table 21 Explanation of Various Content File Types

Extension	Content Type	Notes
wmv, ism, ismv, flv, f4v, mov, mp4, rm, ogv, ogx, ts, 3g2, 3gpp, 3gp2, 3p2, asf, bsf, divx, dvx, evo, gvi, hdmov, mpg, mpeg, xvid, mp2v, mpg2	video files (PhysicalAssetVideo)	Video content that can be used for items such as features, previews, or special content.
XML	metadata	Used for importing descriptive information about components.
jpg, jpeg, gif, png, bmp	images (PhysicalAssetImage)	Can be used as product or chapter thumbnails. Images may also be used for other purposes such as liner notes for an album or production stills for a movie.
sub, aqt, srt, jss, ttst, srt, pjs, psb, rt, smi, ssf, ssa, ass, gsub, usf, idx	subtitles (PhysicalAssetSubtitle)	Not to be confused with closed captioning.
None	ad insertion points	Ad insertion points are internal Media Suite entities.
None	ISAN	ISAN identifiers internal Media Suite entities such as videos, documents and games. In general, an ISAN (International Standard Audiovisual Number) links a multimedia file to a standard metadata repository.
ism, smil, ismc	manifest (PhysicalAssetManifest)	An optional XML file that describes the structure of logical video files for streaming players. The manifest enables the smooth streaming of adaptive and multi-bitrate files at various resolutions.
None	chapters	Chapters are internal Media Suite entities.

Table 21 Explanation of Various Content File Types

Extension	Content Type	Notes
None	licensing windows	Licensing windows are a CableLabs construct that are represented internally within Media Suite as components.
xap	vDVD	A vDVD (virtual DVD) file is a package that provides menu, chapter, setup, and player functionality.
wma, mp3, mpg3, mpeg3, aac, aax, aob, au, m4a, m4b, m4p, mpa, oga, ogg, ra, wav	audio files (PhysicalAssetAudio)	Audio content that can be used for items such as album tracks and ringtones.
iso, exe	games or applications (PhysicalAssetApp)	Installable and executable files that provide gaming or other functionality.
doc, docx, txt, xls, pdf, ppt	documents (PhysicalAssetDocument)	Various document formats.

Understanding Bind Chaining

Bind chaining is an advanced feature that enables the automated construction of bundles within bundles. This section will explain a sample scenario that uses bind functionality, but keep in mind that, given Media Suite's customizable nature, this feature can be configured in many different ways. Our example is intended to show you one approach that you can learn from to devise your own variations once you understand the principles that are involved. You should consult with your Cisco Advanced Services representative for advice and for sample PAR and XSLT files to begin configuring any setup.

In this scenario, we will take nine television show videos (and related thumbnails) that are part of three seasons, with each season having three episodes. For those videos, we will use the bind chaining feature to produce the following bundles:

1. Nine standalone video bundles (containing individual episodes).
2. Three season bundles (each containing three episodes).
3. A series bundle (containing all seasons and all video episodes).

The bind chaining process can automate the creation of the above three types of videos bundles, or the creation of any bundles using similar structures.

Steps to Implement Bind Chaining

In this bind chaining example, we will need to perform the following actions within Media Suite:

Placing Source Files

Create a folder called **Source** into which you will place all source files that will be required for your workflows. The files that will be copied are as follows:

- logical videos
- video ADI (CableLabs) XML metadata files
- image files (jpgs, jpegs, or png)

Note Images are optional and, for example, could be thumbnails representing individual episodes or poster files that represents an entire season or series.

Creating Hot Folders

Create these hot folders for workflow use:

- 1 HF_Video
- 2 HF_Season
- 3 HF_Series

Copying Files

Follow these procedures when copying source content that will be used when bind chaining.

1. Copy all source files from **Source** to the **HF_Video** hot folder.
2. Copy the ADI XML files from the **Source** folder to the **HF_Season** and **HF_Series** hot folders. These are the only files that are duplicated across all folders.
3. Copy any Season or Series specific graphics from **Source** into the relevant **HF_Season** and **HF_Series** folders.

Warning Do not manually copy files from the **HF_Video** hot folder as those files will be instantly renamed and processed by Workflows. To avoid trouble, only copy content from the intended **Source** hot folder.

Creating XSLT Actions

These procedures will create action profiles that apply XSL transformations (version 1.0 XSL documents are supported) to the ADI (CableLabs) XML metadata during the workflow.

1. Create an Action Template that uses the XML Transformation Service ESB.
2. Name the template **XMLTransformActionTemplate**.

3. Create three XML Transform Action Profiles by leveraging the **XMLTransformActionTemplate**. Each Action Profile uses its own XSL file (version 1.0 documents are supported) to transform metadata from the CableLabs ADI specification to the Media Suite format. (For examples see, “Sample XML Files” on page 66.) Save and then activate each Action Profile. Those action profiles can be named:
 - ExtractVideoInfoAP (meaning logical video)
 - ExtractSeasonInfoAP
 - ExtractSeriesInfoAP

Creating Copy Actions

Create three copy action profiles that reference the default “Repository Manager Service” action template. The action profiles can be named as follows:

- CopyVideoAP
To copy any Video (episode-specific) files into a designated folder.
- CopySeasonAP
To copy any Season-specific files into a designated folder.
- CopySeriesAP
To copy any Series-specific files into a designated folder.

Creating Workflows

Create three workflows that will each process a different bundle type. Those workflows are explained in detail later on in this section but, in short, they will process:

- Logical Video Bundles (individual episodes)
- Season Bundles
- Series Bundles

The workflows should adhere to the following rule:

- Each workflow should have its own bind profile. (You are binding by bundle type.)

Creating Bind Profiles

Create three bind profiles that will bind either videos, seasons, or series by storing the appropriate extracted metadata into the proper bundle types in Media Suite. Where applicable, a bind profile will chain to another profile that is one level above. For example, the logical video profile will chain to the season bind profile, which will chain to the series profile. As with all bind operations, it is important to plan structured naming conventions for paths and filenames so that the system can use rules to automatically process the provided content.

Note The following bind profiles use a naming convention that describes whether the video is a “Primary” video, meaning that it is the main content, or some type of optional “Supplementary” video that accompanies that content. This distinction is made in the “Show Season” bundle structure, while the “Show Collection” bundle structure has “Seasons” that can also be augmented with one or more “Supplementary” videos.

Bind Profile #1 (for Videos)

This bind profile will be used to bind individual videos (known as “Logical Video” bundles in Media Suite terms). Use the following configuration:

- Bundle Activation = True
- Find where BIND ID = filename (e.g. \\hotfolder\TITLE_S1-E1_primary.xml)

Note The BIND ID would be the full filename and file type extension with no path.

- Bind ID = filename ID (e.g. TITLE_S1-E1_primary.xml)

Chain parameters:

- Bind Profile = Season Bind Profile
- Wait to Advance Workflow = True

Bind Profile #2 (for Seasons)

This bind profile will be used to bind a video season (known as a “Show Season” bundle in Media Suite terms). Use the following configuration:

- Bundle Activation = True
- Find where filename(first token by “-” = BIND_ID (e.g. \\hotfolder\TITLE_S1)
- Bind ID = filename ID (e.g. TITLE_S1-E1_primary.xml)

Chain parameters:

- Bind Profile = Series Bind Profile
- Wait to Advance Workflow = True

Rule for bind chaining

- Select the Primary Videos folder
Set: where filename contains “primary”

Bind Profile #3 (for Series)

This bind profile will be used to bind a video series (known as a “Show Collection” bundle in Media Suite terms). Use the following configuration:

- Bundle Activation = True
- Find where filename(first token by “_” = BIND_ID (e.g. TITLE)
- Bind ID = filename ID (e.g. TITLE)

Chain parameters:

- Bind Profile = None
- Wait to Advance Workflow = False

Rule for bind chaining

- Select the Seasons folder
Set: Where filename contains “_S”

Bind Chaining Workflows

The following section explains the workflows involved in bind chaining. The three workflows are identical (use the same PAR file), but they are configured with different options.

Video Workflow

The nodes in the Video workflow perform the following actions:

Hot Folder Node

- Is the start state.
- Points to the **HF_Video** hot folder.

File Router Node

- Routes files with an XML extension to the Transform XML node.
- Routes video files (with a wmv, mp4, or ts extension) to the Publish to CDN node.
- Routes thumbnail files (with a jpeg or jpg or png extension) to the Publish to CDN node.

Transform XML Node

- Runs the ADI XML through an XSLT (version 1.0 XSL documents are supported) to extract the video metadata and then sends the result to the Build Metadata node.

Publish to CDN Node

- Uploads video files and any episode graphics to a designated location on a CDN.

Build Metadata Node

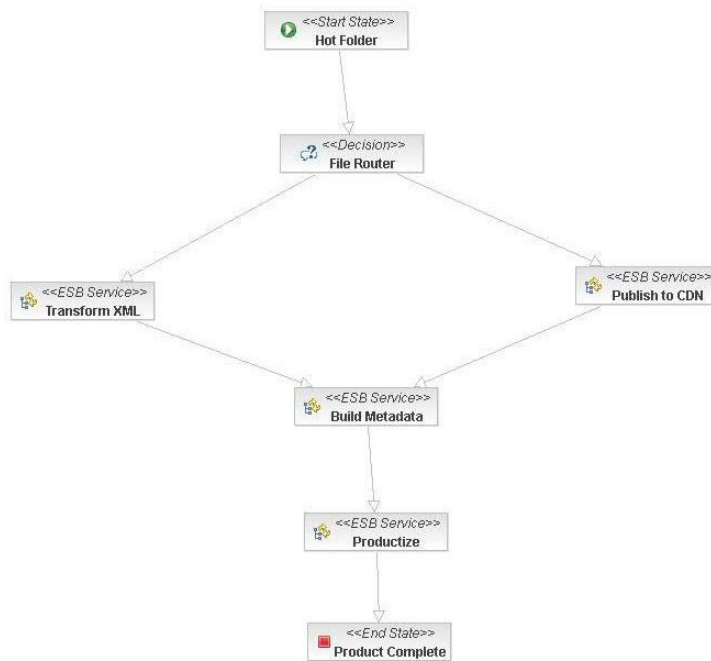
- Runs Bind Profile #1 (Video Bind)

Productize Node

- Applies the Video policy to the bundle to create individual video episode products.

Note Productize functionality no longer exists in Media Suite as of version 5.7.3. Regardless, this node is shown for illustrative purposes when describing the bind chaining feature.

Figure 24 Bind Chaining Workflow



Trigger Event

The Video workflow is triggered by the HotFolderNewContent event that points to the **HF_Video** hot folder.

Season Workflow

The nodes in the Season Workflow perform the following actions:

Hot Folder Node

- Is the start state.
- Points to the **HF_Season** hot folder.

File Router Node

- Routes files with an XML extension to the Transform XML node.
- Routes season image files (with a jpeg or jpg or png extension) to the Publish to CDN node

Transform XML Node

- Runs the ADI XML through an XSLT (version 1.0 XSL documents are supported) to extract the season metadata and then sends the result to the Build Metadata node.

Publish to CDN Node

- Uploads any season-specific graphics to a designated location on a CDN.

Build Metadata Node

- Runs Bind Profile #2 (Season Bind)

Productize Node

- Applies the Season policy to the bundle to create season products.

Trigger Event

- The Season workflow is triggered by the HotFolderNewContent event that points to the **HF_Season** hot folder.

Series Workflow

The nodes in the Series workflow perform the following actions:

Hot Folder Node

- Is the start state
- Points to the **HF_Series** hot folder

File Router Node

- Routes files with an XML extension to the Transform XML node.
- Routes series image files (with a jpeg or jpg or png extension) to the Publish to CDN node

Transform XML Node

- Runs the ADI XML through an XSLT (version 1.0 XSL documents are supported) to extract the series metadata and then sends the result to the Build Metadata node.

Publish to CDN Node

- Uploads any series-specific graphics to a designated location on a CDN.

Build Metadata Node

- Runs Bind Profile #3 (Series Bind)

Productize Node

- Applies the Series policy to the bundle to create the video series product.

Trigger Event

- The Series workflow is triggered by the HotFolderNewContent event that points to the **HF_Series** hot folder.

Sample XML Files

The samples shown here illustrate a video source metadata file and resulting output from XSL transformations that would typically be performed at the Transform XML node in a bind chaining workflow.

Source ADI File Sample

The following sample represents source ADI (CableLabs format) XML file content. Notice that it contains all video (asset), season, and series information within one file. Those separate pieces of information will be extracted by different XSL transformations (version 1.0 XSL documents are supported) and later bound into their relevant content manager bundle types (i.e. Logical Video, Show Season, and Show Collection).

```
<?xml version="1.0" encoding="UTF-8"?>
<ADI>
  <Metadata>
    <AMS Asset_Class="package" Asset_ID="VZNX000000000641566" Asset_Name="S_TODDMCFA-641566-
Package" Creation_Date="2012-02-16" Description="Prophecy - Package Asset" Product="MOD"
Provider="hbo" Provider_ID="hbo.com" Version_Major="3" Version_Minor="0"/>
```

```

    <App_Data App="MOD" Name="Metadata_Spec_Version" Value="CableLabs1.1"/>
  </Metadata>
  <Asset>
    <Metadata>
      <AMS Asset_Class="title" Asset_ID="VZNT0000000000641566" Asset_Name="S_TODDMCFA-641566-
Title" Creation_Date="2012-02-16" Description="Prophecy - Title Asset" Product="MOD"
Provider="hbo" Provider_ID="hbo.com" Version_Major="3" Version_Minor="0"/>
      <App_Data App="MOD" Name="Type" Value="title"/>
      <App_Data App="MOD" Name="Title" Value="Spawn S3E06"/>
      <App_Data App="MOD" Name="Title_Brief" Value="Spawn S3E06"/>
      <App_Data App="MOD" Name="Summary_Short" Value="In the series finale, Twitch remembers
that Chief Banks shot him. Jade reveals there is a bounty on her head. Two new Celestial Warriors
appear and battle Spawn and Jade. Spawn comes to realize his powers need not be used for evil."/>
      <App_Data App="MOD" Name="Rating" Value="TV-MA"/>
      <App_Data App="MOD" Name="Run_Time" Value="00:27:35"/>
      <App_Data App="MOD" Name="Display_Run_Time" Value="00:27"/>
      <App_Data App="MOD" Name="HD_Purchase_Billing_ID" Value="S_PMRS843_641566_HD_PURCH"/>
      <App_Data App="MOD" Name="SD_Purchase_Billing_ID" Value="S_PMRS843_641566_SD_PURCH"/>
      <App_Data App="MOD" Name="HD_Rental_Billing_ID" Value="S_PMRS843_641566_HD_RENT"/>
      <App_Data App="MOD" Name="SD_Rental_Billing_ID" Value="S_PMRS843_641566_SD_RENT"/>
      <App_Data App="MOD" Name="Propagation_Priority" Value="10"/>
      <App_Data App="MOD" Name="Actors" Value="David,Keith"/>
      <App_Data App="MOD" Name="Actors" Value="Dysart,Richard"/>
      <App_Data App="MOD" Name="Actors" Value="Jennings,Dominique"/>
      <App_Data App="MOD" Name="Actors" Value="Love,Victor"/>
      <App_Data App="MOD" Name="Actors" Value="McFarlane,Kate"/>
      <App_Data App="MOD" Name="Actors" Value="Leigh,Jennifer Jason"/>
      <App_Data App="MOD" Name="Actors_Display" Value="Keith David,Richard Dysart,Dominique
Jennings,Victor Love,Kate McFarlane,Jennifer Jason Leigh"/>
      <App_Data App="MOD" Name="Director" Value="Rader, Brad"/>
      <App_Data App="MOD" Name="Director_Display" Value="Brad Rader"/>
      <App_Data App="MOD" Name="Genre" Value="Drama"/>
      <App_Data App="MOD" Name="Advisories" Value="GL"/>
      <App_Data App="MOD" Name="Advisories" Value="GV"/>
      <App_Data App="MOD" Name="Advisories" Value="N"/>
      <App_Data App="MOD" Name="Advisories" Value="SC"/>
      <App_Data App="MOD" Name="Provider_QA_Contact" Value="ATOEST@hbo.com"/>
      <App_Data App="MOD" Name="Year" Value="1999"/>
      <App_Data App="MOD" Name="Closed_Captioning" Value="Y"/>
      <App_Data App="MOD" Name="Licensing_Window_Start" Value="2012-03-19"/>
      <App_Data App="MOD" Name="Licensing_Window_End" Value="2017-03-19"/>
      <App_Data App="MOD" Name="Display_As_New" Value="7"/>
      <App_Data App="MOD" Name="Display_As_Last_Chance" Value="7"/>
      <App_Data App="MOD" Name="Programmer_Call_Letters" Value="HBO"/>
      <App_Data App="MOD" Name="Network_Provider" Value="HBO"/>
      <App_Data App="MOD" Name="Episode_Name" Value="Prophecy"/>
      <App_Data App="MOD" Name="Episode_Number" Value="6"/>
      <App_Data App="MOD" Name="Episode_Id" Value="Spawn-3-6"/>
      <App_Data App="MOD" Name="Season" Value="3"/>
      <App_Data App="MOD" Name="Season-Id" Value="Spawn-3"/>
    </Metadata>
  </Asset>

```

```

<App_Data App="MOD" Name="Series_Id" Value="Spawn"/>
<App_Data App="MOD" Name="Series_Name" Value="Todd McFarlane's Spawn"/>
<series>
  <series_description>
    <title>
      <short>Spawn</short>
      <long>Todd McFarlane's Spawn</long>
    </title>
    <synopsis>
      <short>He was once a man...now he's a hell-spawn! One of the comics' most popular
and intriguing characters explodes on the screen in this adults-only animated series that combines
vivid imagery with action, romance and high-level espionage.</short>
    </synopsis>
  </series_description>
</series>
<season>
  <season_description>
    <title>
      <short>Season 3</short>
      <long>Todd McFarlane's Spawn: Season 3</long>
    </title>
    <synopsis>
      <short>In the third and final season of this animated series based on Todd
McFarlane's comic book, Al Simmons continues his life as a hell spawn who uses his superhuman
powers to battle the forces of evil on Earth...and in himself.</short>
    </synopsis>
  </season_description>
  <season-number>3</season-number>
  <season-qualifier/>
</season>
</Metadata>
<Asset>
  <Metadata>
    <AMS Asset_Class="movie" Asset_ID="VZNM0000000000641566" Asset_Name="S_TODDMCFA-
641566-Movie" Creation_Date="2012-02-16" Description="Prophecy - Movie Asset" Product="MOD"
Provider="hbo" Provider_ID="hbo.com" Version_Major="1" Version_Minor="2"/>
    <App_Data App="MOD" Name="Type" Value="movie"/>
    <App_Data App="MOD" Name="Content_FileSize" Value="7758750224"/>
    <App_Data App="MOD" Name="Content_CheckSum" Value="6182f9e74ee53b60bcbaab159bc0df60"/>
    <App_Data App="MOD" Name="Audio_Type" Value="Stereo"/>
    <App_Data App="MOD" Name="Encryption" Value="Y"/>
    <App_Data App="MOD" Name="Copy_Protection" Value="N"/>
    <App_Data App="MOD" Name="Bit_Rate" Value="37500"/>
    <App_Data App="MOD" Name="HDContent" Value="N"/>
  </Metadata>
  <Content Value="TODD_MCFARLANES_SPAWN_HBO_S3_E6_SD_S_PMR843_641566.mpg"/>
</Asset>
<Asset>
  <Metadata>

```

```

        <AMS Asset_Class="poster" Asset_ID="VZNA0000000000641566" Asset_Name="S_TODDMCFA-
641566-Poster" Creation_Date="2012-02-16" Description="Prophecy - Poster Asset" Product="MOD"
Provider="hbo" Provider_ID="hbo.com" Version_Major="1" Version_Minor="2"/>
        <App_Data App="MOD" Name="Type" Value="poster"/>
        <App_Data App="MOD" Name="Content_FileSize" Value="0"/>
        <App_Data App="MOD" Name="Content_CheckSum" Value="0"/>
    </Metadata>
    <Content Value="TODD_MCFARLANES_SPAWN_HBO_S3_E6_SD_1000x1450_S_PMR843_641566.jpg"/>
</Asset>
<Asset>
    <Metadata>
        <AMS Asset_Class="preview" Asset_ID="VZNP0000000000641566" Asset_Name="S_TODDMCFA-
641566-Preview" Creation_Date="2012-02-16" Description="Prophecy - Preview Asset" Product="MOD"
Provider="hbo" Provider_ID="hbo.com" Version_Major="1" Version_Minor="2"/>
        <App_Data App="MOD" Name="Type" Value="preview"/>
        <App_Data App="MOD" Name="Rating" Value="NR"/>
        <App_Data App="MOD" Name="Content_FileSize" Value="94801632"/>
        <App_Data App="MOD" Name="Content_CheckSum" Value="c64fef0cf5b805b16e2dd9ff6ae6812f"/>
        <App_Data App="MOD" Name="Run_Time" Value="00:00:20"/>
        <App_Data App="MOD" Name="Audio_Type" Value="Stereo"/>
        <App_Data App="MOD" Name="Bit_Rate" Value="37500"/>
    </Metadata>
    <Content Value="TODD_MCFARLANES_SPAWN_HBO_S3_E6_SD_S_PMR843_641566_PV.mpg"/>
</Asset>
</ADI>

```

ADI XML Transformed by ExtractVideoInfoAP

The following output is a result of the sample ADI (CableLabs format) XML content being transformed by the XSL (version 1.0 documents are supported) in the ExtractVideoInfoAP action profile to extract the individual video episode information.

```

<?xml version="1.0" encoding="UTF-8"?>
<cm:opencase xmlns="http://opencase.extend.com/cm"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xalan="http://xml.apache.org/xalan"
    xmlns:cm="http://opencase.extend.com/cm">
    <cm:component xsi:type="cm:Logical_Video">
        <cm:altCode xmlns=""/>
        <cm:name xmlns="">Spawn S3E06</cm:name>
        <cm:isActive>true</cm:isActive>
        <cm:Metadata_Folder>
            <cm:MetadataVideo>
                <cm:altCode xmlns=""/>
                <cm:name xmlns="">Spawn S3E06</cm:name>
                <cm:locale xmlns="">
                    <cm:country>US</cm:country>
                    <cm:language>en</cm:language>
                </cm:locale>
                <cm:summaryLong xmlns=""/>
            </cm:MetadataVideo>
        </cm:Metadata_Folder>
    </cm:component>
</cm:opencase>

```

```

        <cm:summaryMedium xmlns=""/>
        <cm:summaryShort xmlns=""/>
        <cm:titleLong xmlns=""/>
        <cm:titleMedium xmlns=""/>
        <cm:titleShort xmlns=""/>
        <cm:castMembers xmlns=""/>
        <cm:categories xmlns=""/>
        <cm:country xmlns=""/>
        <cm:directors xmlns=""/>
        <cm:genres xmlns=""/>
        <cm:producers xmlns=""/>
        <cm:ratings xmlns=""/>
        <cm:writers xmlns=""/>
        <cm:duration>00:27:35</cm:duration>
        <cm:episodeName>Prophecy</cm:episodeName>
        <cm:episodeNumber/>
    </cm:MetadataVideo>
</cm:Metadata_Folder>
<cm:Videos>
    <cm:PhysicalAssetVideo>
        <cm:altCode xmlns="">VZNM0000000000641566</cm:altCode>
        <cm:name xmlns="">S_TODDMCFA-641566-Movie</cm:name>
        <cm:checksum xmlns="">6182f9e74ee53b60bcbaab159bc0df60</cm:checksum>
        <cm:isEncrypted xmlns="">>false</cm:isEncrypted>
        <cm:url>TODD_MCFARLANES_SPAWN_HBO_S3_E6_SD_S_PMRS843_641566.mpg</cm:url>
        <cm:displayAspectRatio/>
    </cm:PhysicalAssetVideo>
</cm:Videos>
<cm:Subtitles/>
<cm:Images>
    <cm:Thumbnails>
        <cm:PhysicalAssetImage>
            <cm:altCode xmlns="">VZNA0000000000641566</cm:altCode>
            <cm:name xmlns="">S_TODDMCFA-641566-Poster</cm:name>
            <cm:url>TODD_MCFARLANES_SPAWN_HBO_S3_E6_SD_1000x1450_S_PMRS843_641566.jpg</cm:url>
        </cm:PhysicalAssetImage>
    </cm:Thumbnails>
    <cm:Artwork/>
</cm:Images>
<cm:Ad_Insertion_Points/>
<cm:Manifest/>
<cm:Chapters/>
<cm:Licensing_Window/>
<cm:Video_Previews/>
<cm:Identifiers/>
<cm:Related_Identifiers/>
</cm:component>
</cm:opencase>

```

ADI XML Transformed by ExtractSeasonInfoAP

The following output is a result of the sample ADI (CableLabs format) XML content being transformed by the XSL (version 1.0 documents are supported) in the ExtractSeasonInfoAP action profile to extract the season information.

```
<?xml version="1.0" encoding="UTF-8"?>
<cm:opencase xmlns="http://opencase.extend.com/cm"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xalan="http://xml.apache.org/xalan"
  xmlns:cm="http://opencase.extend.com/cm">
  <cm:component xsi:type="cm:Show_Season">
    <cm:altCode xmlns="">Spawn-3</cm:altCode>
    <cm:name xmlns="">Spawn-3</cm:name>
    <cm:Metadata_Folder>
      <cm:MetadataShow>
        <cm:altCode xmlns="">Spawn-3</cm:altCode>
        <cm:name xmlns="">Spawn-3</cm:name>
        <cm:locale xmlns="">
          <cm:country>US</cm:country>
          <cm:language>en</cm:language>
        </cm:locale>
        <cm:summaryLong xmlns=""/>
        <cm:summaryMedium xmlns=""/>
        <cm:summaryShort xmlns=""/>
        <cm:titleLong xmlns=""/>
        <cm:titleMedium xmlns=""/>
        <cm:titleShort xmlns=""/>
        <cm:castMembers xmlns=""/>
        <cm:categories xmlns=""/>
        <cm:country xmlns=""/>
        <cm:directors xmlns=""/>
        <cm:genres xmlns=""/>
        <cm:producers xmlns=""/>
        <cm:ratings xmlns=""/>
        <cm:writers xmlns=""/>
      </cm:MetadataShow>
    </cm:Metadata_Folder>
    <cm:Primary_Videos/>
    <cm:Supplementary_Videos/>
    <cm:Images>
      <cm:Thumbnails/>
      <cm:Artwork/>
    </cm:Images>
    <cm:Video_Previews/>
    <cm:Identifiers/>
    <cm:Related_Identifiers/>
  </cm:component>
</cm:opencase>
```

ADI XML Transformed by ExtractSeriesInfoAP

The following output is a result of the sample ADI (CableLabs format) XML content being transformed by the XSL (version 1.0 documents are supported) in the ExtractSeriesInfoAP action profile to extract series (i.e. show collection) information.

```
<?xml version="1.0" encoding="UTF-8"?>
<cm:opencase xmlns="http://opencase.extend.com/cm"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xalan="http://xml.apache.org/xalan"
  xmlns:cm="http://opencase.extend.com/cm">
  <cm:component xsi:type="cm:Show_Collection">
    <cm:altCode xmlns="">Spawn</cm:altCode>
    <cm:name xmlns="">Todd McFarlane's Spawn</cm:name>
    <cm:isActive>true</cm:isActive>
    <cm:Metadata_Folder>
      <cm:MetadataShow>
        <cm:altCode xmlns="">Spawn</cm:altCode>
        <cm:name xmlns="">Todd McFarlane's Spawn</cm:name>
        <cm:locale xmlns="">
          <cm:country>US</cm:country>
          <cm:language>en</cm:language>
        </cm:locale>
        <cm:summaryLong xmlns=""/>
        <cm:summaryMedium xmlns=""/>
        <cm:summaryShort xmlns=""/>
        <cm:titleLong xmlns=""/>
        <cm:titleMedium xmlns=""/>
        <cm:titleShort xmlns=""/>
        <cm:castMembers xmlns=""/>
        <cm:categories xmlns=""/>
        <cm:country xmlns=""/>
        <cm:directors xmlns=""/>
        <cm:genres xmlns=""/>
        <cm:producers xmlns=""/>
        <cm:ratings xmlns=""/>
        <cm:writers xmlns=""/>
      </cm:MetadataShow>
    </cm:Metadata_Folder>
    <cm:Seasons/>
    <cm:Supplementary_Videos/>
    <cm:Images>
      <cm:Thumbnails/>
      <cm:Artwork/>
    </cm:Images>
    <cm:Identifiers/>
    <cm:Related_Identifiers/>
  </cm:component>
</cm:opencase>
```

Understanding Data Restriction

The Data Restriction feature within Media Suite allows Service Providers to easily compartmentalize the content of multiple Content Providers within one deployment. This functionality is performed by marking specific components or bundles with a key so that only administrators assigned to that key can view and edit the content. With such functionality, content owners can safely view and work with only their own content within a multi-user deployment without being concerned about accidentally modifying content belonging to others. The following section explains how to configure data restriction for your deployment.

Creating Restriction Keys

To enable data restriction functionality, Restriction Keys must first be created. Those keys are later assigned to content that will be managed by a specific group. Users must also be created that have permissions to view and edit only content that is assigned to their specific Restriction Key.

To create a restriction key:

- 1 Navigate to **Admin > Restriction Keys**.
- 2 Click **Add New**.
- 3 Type an alphanumeric Restriction Key.
- 4 Click **Create & Edit**.
- 5 Click **Publish**.
- 6 Click **Confirm**. The Restriction Key is now available for use. Key cannot be changed or deleted once they have been published.

Creating Administrators

After creating the Restriction Key, you must also create a Media Suite administrator that will be assigned to that key. From that point on, the administrator will only be able to view and edit bundles and components that have that same key. Only a user with a `super_admin` user role will be able to see all bundles and components regardless of what Restriction Keys have been applied to them. The process will be entirely transparent to the user. For information on creating an administrator, see “Managing Administrators” on page 141.

Programmatically Assigning Restriction Keys

Restriction Keys can be programmatically assigned to bundles and components when they are created or ingested. In short, this action is performed by setting the restriction key in the Workflow Context. For details, see the *Media Suite Developer Guide*.

Understanding Image Selection

The Image Selection feature is used to augment Media Suite image data from a large pool of Gracenote sources images. This feature works by applying logic that is triggered by the VCS Bundle Change Plug-in. That logic compares available Gracenote images to the parameters specified within System Configuration and chooses the closest matches (for resolution), while also applying other criteria that match the stated parameters. For details on this feature, see the *Media Suite Installation Guide*, System Configuration Appendix.

Merchandiser

Understanding Merchandiser

Merchandiser (formerly named VCM) is an external Cisco component that is integrated with Media Suite to aid in the monetization of content. Merchandiser helps manage and schedule catalog content, create site navigation structures, and allows you to visualize content availability on platforms in a time-based manner. The following chapter explains the fundamental concepts behind the Merchandiser module as it pertains to Media Suite. For further details on Merchandiser usage, refer to the Merchandiser User Guide, which can be found on the Media Suite portal, or by clicking help within the Merchandiser user interface.

To access Merchandiser within Media Suite, click **Merchandiser > Manage**.

Merchandiser Terminology

The following table defines common terms that are used within Merchandiser.

Table 22 Merchandiser Terminology

Term	Definition
Catalog	Unique domains of content that are specific to devices and locations. Examples include a set top box catalog, a PC catalog (in the US), or a PC catalog (in Canada).
Classification	A means of categorizing content into meaningful groups for navigational purposes for an Electronic Program Guide, for example. Classifications are displayed as a hierarchy within Merchandiser.
Collection	A grouping of related programs to present as a unit for sale, and for viewing by content purchasers or subscribers.
Domain	A navigation hierarchy that can be reused within multiple Catalogs.
Program	A video program as represented by a logical video.
Schedule	Schedules provide timeframe granularity for relationships between objects being used by Media Suite and Merchandiser. For details on different types of Merchandiser schedules, see “Understanding Schedules” on page 76.
Visibility Window	A calculated system timeframe that determines when a program is visible within a classification. While Classification windows are used to set navigation structures for a storefront, catalog windows are used to establish purchase timeframes. In order to purchase a program, all Catalog and Classification timeframes must intersect for a given time period.

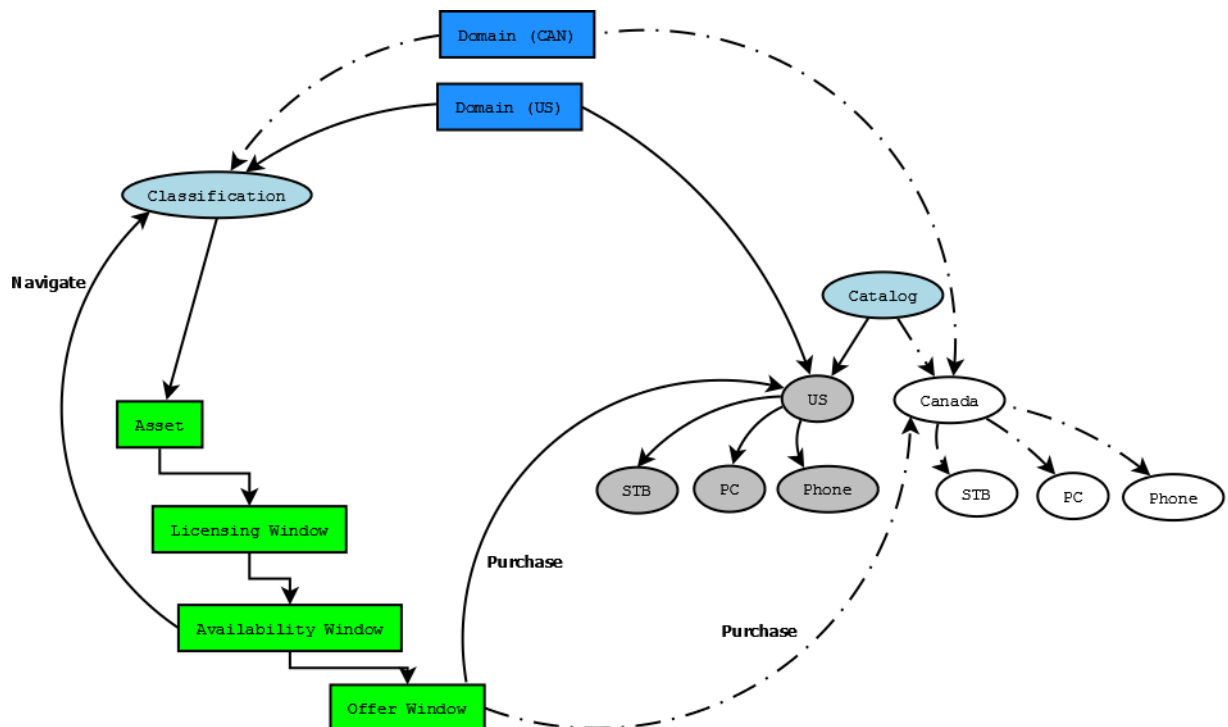
Merchandiser Entity Relationships

Merchandiser and Media Suite entity relationships (as shown in Figure 25) are used to implement navigation and purchase functionality within a deployment. This section describes the underlying theory that must be understood by administrators prior to using Merchandiser with Media Suite.

Four distinct areas of functionality are involved in a typical Merchandiser implementation:

1. Logical Assets (videos or images) with relevant licensing, availability, and offer windows make content available to the system for navigation and purchasing.
2. Classifications offer a hierarchical navigation structure for the logical assets, which can be leveraged for EPG use. Classifications are associated to asset availability windows.
3. Domains provide a pointer to a unique classification structure (for navigating content) and then link that structure to a specific Catalog (for purchasing content).
4. Catalogs offer device and location-specific groupings that enable purchasing. Catalogs are associated to asset offer windows.

Figure 25 Merchandiser and Media Suite Entity Relationships



Understanding Schedules

Note Two different types of schedules exist within Media Suite: EPG schedules and Merchandiser schedules. The following section describes Merchandiser schedules. For information on EPG Schedules, see “EPG Terminology” on page 225.

Schedules provide timeframe granularity for relationships between objects being used by Media Suite and Merchandiser. Examples of schedules include:

- **Catalog Offer Schedules**, which specify timeframes for offers within a Catalog. To edit this timeframe, navigate into a Catalog detail, and create an Offer Window. Within the Offer Window detail is a Schedule section where you can specify the required dates.
- **Asset Offer Schedules**, which specify timeframes for offers for a specific video. To edit this timeframe, navigate into a logical video detail, and create an Offer Window. Within the Offer Window detail is a Schedule section where you can specify the required dates.
- **Physical Asset Image/Bundle Schedules**, which specify timeframes for images being associated with a bundle. To edit this timeframe, navigate into a logical video detail, and create an Image. Within the Image metadata is a Schedule section where you can specify the required dates.
- **Physical Asset Image/Classification Schedules**, which specify timeframes for images being associated with Classifications. To edit this timeframe, navigate into a Logical Image detail. Within the Images metadata is a Schedule section where you can specify the required dates. Also, you can set the Asset Classification to establish the classification.
- **Association Schedules**, which specify the timeframes when a bundle is within a classification. Association Schedules are set within Merchandiser.
- **Domain Schedules**, which specify timeframes for when a Domain is within a Catalog. To edit these timeframes, navigate into a Catalog detail, and create a Domain. Within the Domain detail is a Schedule section where you can specify the required dates.

Some schedules are input by Media Suite users, while others (such as the Visibility Window) are automatically calculated by the system.

Media Suite Plugins

Understanding Media Suite Plugins

Media Suite provides the capability to include plugins to customize system functionality. In general, the following plugin types are available:

- **Notification Plugins**, which notify the system when entities, such as components or bundles have been changed.
- **Entity Change Plugins** When entity change queues receive notifications, they then apply the appropriate plugins to specific entities (such as components, bundles, or other objects).

For examples and details on programmatically creating plugins, see the *Media Suite 5.1 Plugin Guide*. The following section will describe how to configure pre-created and pre-deployed plugins so that they may be utilized by the system. Also see “Configuring Queue Priorities” on page 45.

To configure plugins within Media Suite:

- 1 Navigate to **Metadata > Setup > Plugins > Entity Change Plugins | Notification Plugins**. (Choose the relevant plugin-type for your purpose.)
- 2 Type the plugin name.
- 3 Click **Create & Edit**.
- 4 Populate relevant fields for the respective plugin type:

Table 23 Notification Plugin Fields

Field	Description
Name	The name of the Notification plugin.
Plugin Class	The full Java plug-in class name, including the package.

Table 24 Entity Change Plugin Fields

Field	Description
Status	Displays the Active or Inactive state of this plugin.
Name	The name of the Entity Change plugin.
Plugin Type	Options include FEED, ESB, CORE, VCM, VBO, VCS, CUSTOM.
Plugin Class	The full Java plugin class name, including the package.
Process All Entities	A boolean value that, if selected, will process all available entities within the system. If not selected, then you will need to individually select the entities that need to be processed.

Table 24 Entity Change Plugin Fields

Field	Description
Process All Plugins	A boolean value that, if selected, will execute all available plugins within the system. If not selected, you will need to individually select the plugins that need to execute.
Interval	A millisecond interval between running instances of this plugin.
Last Run	A timestamp that indicates the last time this plugin was run.

5 Click **Save**.

6 Click **Activate**. Once activated, the plugin should be ready for use.

Monitoring Workflows and Tasks

This chapter includes information related to monitoring and interacting with workflows (by definition), workflow instances, and tasks.

Monitoring Workflow Instances

After you have configured and initiated workflows within Media Suite, you will want to monitor the progress of the resulting workflow instances in greater or lesser detail. The following section describes functionality related to monitoring, intervening in, and otherwise managing workflows to see them through to completion.

Workflows information is generally viewed in two ways:

- on initial listing pages that show aggregated workflows in various states
- on other pages, where individual workflow instance details or other data are shown

When managing workflows, the pages that you will be using are as follows:

- Workflow Definition listing pages. These pages provide a high level view that groups workflows by state and then by workflow definition. The states (and tabs) are IN PROGRESS, ERROR, COMPLETED, TERMINATED, and QUEUE.
- Workflow Instance listing pages. When you click an underlined workflow definition, you will see the resulting workflow instances.
- Workflow Instance detail pages. When you click an underlined event file you will see tabs with information specific to various aspects of that workflow. A WORKFLOW IMAGE tab, for example, visually shows the workflow progress, while a DETAILS tabs shows a textual depiction of the paths of workflow execution. Lastly an EVENT DATA tab shows the workflow context depicted in a treenode format.

With the implementation of rule-based functionality within Media Suite, a need has arisen to enhance workflow representations and to further control workflow instances within the user interface. These enhancements make it easier for administrators to interpret and manage workflow activity within the application. To enable this functionality, the following features are available within the system:

- All execution paths can be highlighted.
- Individual instance paths in any state (in progress, in error, completed, terminated, or in queue) can be displayed graphically or via a text listing that shows the path of execution.
- Individual workflows can be suspended.
- Context values, filesets, and bind values can be modified to address errors. Activity can then be resumed, or terminated, as required.

Viewing In Progress Workflows & Instances

In progress workflows can be viewed in two different ways: on initial listing pages that show an aggregate view of workflows in various states, and in more detail on other pages, where individual workflow instances and other data are shown.

To view in-progress workflows and workflow instances:

- 1 Navigate to **Workflow > Monitor > Workflow Instances**.
- 2 Click the **IN PROGRESS** tab.
- 3 Click **Clear Filter** to clear all date and time filters. This allows you to easily view all workflows that are in progress within the system. Alternately, you can input your search criteria (start dates and status) and click **Filter** to restrict the data that is returned.

Figure 26 Aggregated Workflows in Progress

WORKFLOW INSTANCES	
IN PROGRESS ERROR COMPLETED TERMINATED QUEUE	
Start Date from to Filter Clear Filter Set Status Terminate	
☐	Workflow Definition
☐	Test (v.1) 92
☐	Test (v.2) 2417

The status indicator shows that 92 instances are currently running for the Test (v.1) workflow definition. Hover your mouse over any status indicator to see an explanation of its meaning.

Check the box to the left of one or more workflow definitions to control the running state of one or more workflows. Options on this page include:

- **Set Status > Suspend** - to suspend a running workflow in order to make changes to it
 - **Set Status > Resume** - to resume a suspended workflow. A workflow would typically be resumed after making changes to a variable within the workflow context.
 - **Terminate** - to manually terminate a workflow that is in progress
- 4 Click any underlined workflow definition name to open a new tab showing all workflow instances that are in progress.

Figure 27 Workflow Instances in Progress

IN PROGRESS

ERROR

COMPLETED

TERMINATED

QUEUE

TEST (v.1)

Terminate

Set Status

Test (v.1) 92

	Instance Id	Parent Id	Event File	Property	Origin	Status	Node	Start Date
	9211		test_copy_207.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 207.wmv	Running	Publish to CDN	2015-11-17 16:06
	9191		test_copy_393.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 393.wmv	Running	Publish to CDN	2015-11-17 16:06
	9171		test_copy_220.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 220.wmv	Running	Publish to CDN	2015-11-17 16:06
	9131		test_copy_148.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 148.wmv	Running	Publish to CDN	2015-11-17 16:06
	9111		test_copy_134.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 134.wmv	Running	Build Metadata	2015-11-17 16:06
	9091		test_copy_376.wmv		/Hotfolder-FS/testLogicalVideo/~test copy 376.wmv	Running	Publish to CDN	2015-11-17 16:06

- 5 As with the workflow definitions, workflow instances that are in progress may either be suspended (if running), resumed (if suspended), or terminated.
- 6 Click an underlined event file name to display the workflow instance details. When viewing workflow instance details, the same tabs (WORKFLOW IMAGE, DETAILS, EVENT DATA) will appear, regardless of state. The only exception is the QUEUE state, which has no details, but simply provides a means with which to manage queued workflows. For details, see “Viewing Queued Workflows & Instances” on page 87.

Viewing Workflow Instance Details

To review, when using the Workflow Monitor, you initially view workflow definitions that are displayed under the IN PROGRESS, ERROR, COMPLETED, TERMINATED, or QUEUE tabs. Next, click the underlined workflow definition name to see its underlying workflow instances. Lastly, click an underlined event file name to see its details. Viewing a workflow instance detail (regardless of the workflow state) brings up three tabs: WORKFLOW IMAGE, DETAILS, and EVENT DATA. The following section describes what is displayed for each tab, and the options that are available.

- **WORKFLOW IMAGE Tab**

Shows a graphical representation of the workflow instance and highlights the current workflow node that is being processed, is in error, or that this instance has ended on. Available options include:

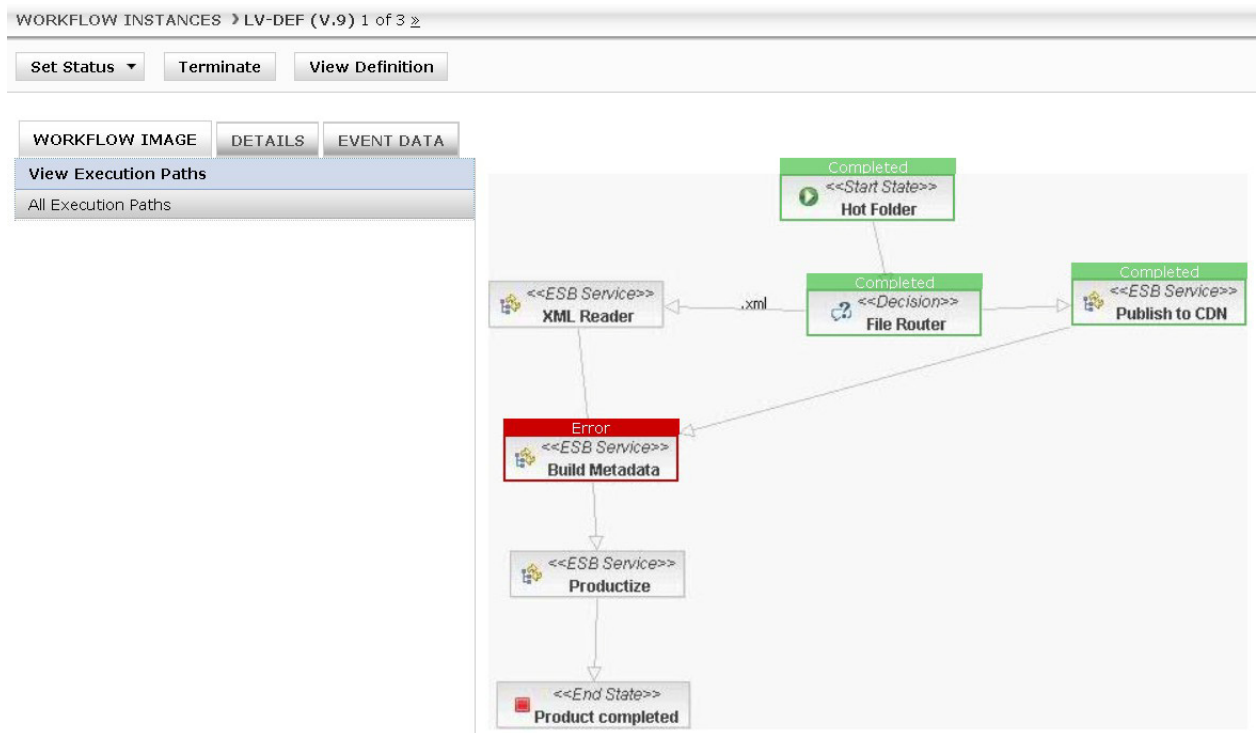
Set Status > Suspend/Resume - workflow instances that are in progress may either be suspended (if running), resumed (if suspended), or terminated

Terminate - available to permanently stop in-progress workflows or instances. that are in progress. From that point on, they will be displayed in the TERMINATED tab.

Delete - available to delete the record for workflows in an error, completed, or terminated state.

View Definition - available for all states (except for queued) to go to the manage workflow definition page to view or change configuration settings. For details on using the Workflow Definition page, see “Creating Workflow Definitions” on page 36.

Figure 28 Workflow Image Tab for a Workflow Instance



- DETAILS Tab

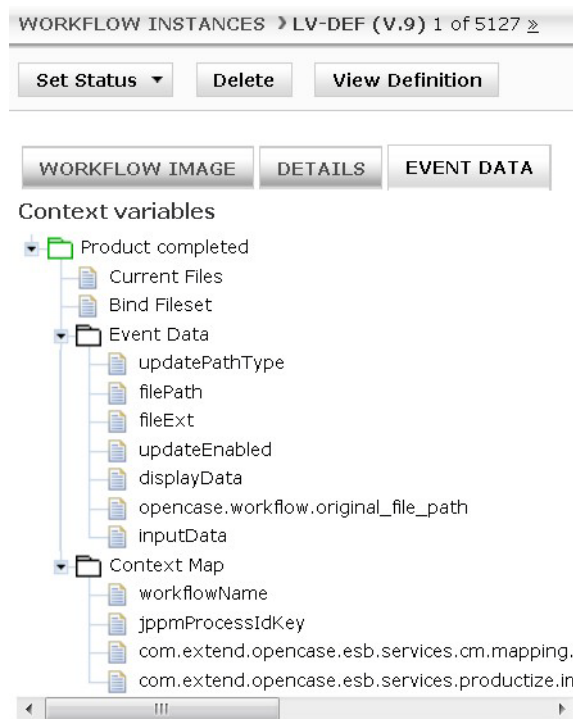
Shows details pertaining to this particular workflow instance, such as the instance ID, status (Running, Suspended, Ended, or Completed), the current node in the workflow, and any applicable start and end date stamps.

Figure 29 DETAILS Tab for a Workflow Instance

- **Event Data**

Shows context variables related to the current workflow instance. Collectively, these are commonly referred to as the Workflow Context. This data includes Current Files, Bind Fileset, Event Data, and the Context Map. Context variables store data that needs to be passed from one node to another and includes information that was appended to this dataset from all previous activity.

Figure 30 EVENT DATA Tab for a Workflow Instance



The following options are available for workflow instance details on the EVENT DATA tab:

- **Set Status > Suspend**

Pauses running workflow instances (where applicable).

- **Set Status > Resume**

Resumes suspended workflow instances (where applicable).

- **Delete**

This option is available for workflow instances in error, terminated, and completed, states.

- **Retry**

This option is only available for workflow instances in an error state. Click the node icon at the top of the tree to make this option visible (at right). Typically you would change a context variable or some aspect of the workflow prior to performing a retry action.

- **Terminate**

Terminates an in progress workflow instance from the page listing. Workflows may be terminated, either manually, or by reaching the configured timeout period. Terminated workflows will be shown on the TERMINATED tab.

- **View Definition**

Navigates to the Manage Workflow Definition page related to this workflow.

Viewing Workflows & Instances in Error

Workflow errors may occur whenever the process for a workflow node has not proceeded as expected. This may include situations such as where a file was not copied or was not successfully bound. Workflow instances in an error state will appear on the ERROR tab, and can be viewed, suspended, their data modified, then resumed to retry the node process. Lastly, you can manually Terminate a workflow or workflow instance, but that will place it in the Terminated tab.

To view workflows & instances that are in an error state:

- 1 Navigate to **Workflow > Monitor > Workflow Instances**.
- 2 Click the **ERROR** tab. Workflow instances shown here have ended in an error state.
- 3 Workflow errors may be deleted from the listing by selecting the workflow definition and clicking **Delete**.
- 4 Alternately, you can click the underlined workflow definition name to see a listing of the underlying workflow instances.
- 5 Click an underlined workflow instance to see its details. For information on those user interface pages, see “Viewing Workflow Instance Details” on page 83.

Viewing Completed Workflows & Instances

Completed workflow instances are workflows that have successfully performed all their designated actions to completion. At that point, the workflow instance will be listed under the COMPLETED tab.

To view workflow instances that have completed:

- 1 Navigate to **Workflow > Monitor > Workflow Instances**.
- 2 Click the **COMPLETED** tab. Workflows shown here have completed without an error.
- 3 Completed workflows may be deleted from the listing by checking the workflow definition name and clicking **Delete**. When deleting a workflow definition, any related workflow tasks will also be automatically deleted.
- 4 Alternately, you can click the underlined workflow definition name to open a new tab that will show a listing of all underlying workflow instances.
- 5 Click an underlined workflow instance name to navigate to its instance details. For more information on those user interface pages, see “Viewing Workflow Instance Details” on page 83.

Note When a workflow is deleted, any tasks associated with that workflow are automatically deleted from the task monitor. For more information, see Table 25 below, named "Effect of Various Workflow Instance Actions on Workflow Tasks".

Viewing Terminated Workflows & Instances

Terminated workflows are those that have been manually terminated or that have automatically terminated because they have reached their set timeout period. The timeout period can be set on the Workflow Definition details page.

To view workflow instances that have been terminated:

- 1 Navigate to **Workflow > Monitor > Workflow Instances**.
- 2 Click the **TERMINATED** tab.
- 3 Terminated workflows may be deleted from the listing by checking the workflow definition name and clicking **Delete**. When deleting a workflow definition, any related workflow tasks will also be automatically deleted.
- 4 Alternately, you can click any underlined workflow definition name to open a new tab that will show a listing of all underlying workflow instances.
- 5 Click an underlined workflow instance name to navigate to its instance details. For more information on those user interface pages, see "Viewing Workflow Instance Details" on page 83.

Note When workflows are terminated, any tasks associated with those workflows are automatically removed from the task monitor.

Viewing Queued Workflows & Instances

Queued workflows are those that are in the queue for processing.

To view queued workflow instances:

- 1 Navigate to **Workflow > Monitor > Workflow Instances**.
- 2 Click the **QUEUE** tab. Workflows shown here are in the queue for processing and will be picked up depending on what prioritization type and settings you have configured.
- 3 Queued workflows may be deleted from the listing by checking the workflow definition name and clicking **Delete**. When deleting a workflow definition, any related workflow tasks will also be automatically deleted.
- 4 Alternately, you can click any underlined workflow definition name to open a new tab that will show a listing of all underlying workflow instances.
- 5 Click an underlined workflow instance name to navigate to its instance details. For more information on those user interface pages, see "Viewing Workflow Instance Details" on page 83.

Understanding Task Monitor

Tasks are administrator duties that must be performed to verify a workflow stage before it can proceed, or to perform other workflow-related actions that involve an intervention. Tasks are created when defining a workflow within your workflow creation tool. By default, tasks involve approving or rejecting a particular stage in the workflow, but the system may be customized to accept data entry or other user inputs. This section explains how to use the Task Monitor.

Workflow instances and workflow tasks are directly related and, as such, many actions that you perform on a workflow instance will impact a workflow task. The following table covers common scenarios where an action on a workflow instance affects a workflow task:

Table 25 Effect of Various Workflow Instance Actions on Workflow Tasks

Action on Workflow Instance	Effect on Workflow Task
Workflow instance suspended	Related workflow tasks are suspended
Workflow instance manually ended	Related workflow tasks (in progress) are deleted from the AVAILABLE tab or the MY TASKS tab.
A completed workflow instance is deleted.	Related workflow tasks are deleted from the complete tab.

Task Monitor Tabs

Tasks are assigned to administrators based on the permission level of their user role. As such, all tasks are visible to super administrators, but otherwise tasks assigned to specific administrators will only be visible to those persons. The following section discusses using the Task Monitor.

To open the task monitor:

- 1 Navigate to **Workflow > Monitor > Tasks**.
- 2 Three tabs are available:
 - **ASSIGNED**- shows tasks that are assigned to the current administrator. Click to **START** an assigned task or click to **Reassign** that task to another administrator. Filter options include the ability to specify start and end date ranges for the tasks that will be listed.
 - **STARTED** - shows all tasks that this administrator has started. Click to **Reassign** that task to another administrator. Filter options include the ability to specify a "Create Date" range, which is a range within which the task was automatically created by the workflow.
 - **COMPLETED** - shows all tasks that are "complete". Filter options include the ability to specify a completion date range.

Understanding Dynamic Queues

The Dynamic Queue feature uses ESB Services to create custom queues as a part of Media Suite workflows. These queues can be used to queue up any type of work and to process items in whatever manner you require. Administrators have the ability to edit, delete, or retry queue entries from the Media Suite user interface. To dequeue work items, you must use the workflow context, possibly with custom plugins for more complex scenarios.

Dynamic Queue Monitor

The Dynamic Queue Monitor is a user interface page that enables the management of Media Suite queue entries.

To use the Dynamic Queue Monitor page:

- 1 Navigate to **Workflow > Monitor > Dynamic Queue**.
- 2 Set search parameters to see any required queue entries. Available search fields are as follows:

Table 26 Dynamic Queue Search Parameters

Field	Description
TYPE	A label for your queue instance, such as “custom_queue1”. Multiple queue instances can exist within Media Suite.
STATUS	Custom statuses for each queue entry. E.g. completed, failed, or processing.
INDEXED DATA	Specifies the text that is being searched for.
CREATE FROM/TO	Limits results to the creation date range of the queue instance.
FILTER	Executes a search based on the current search parameters.
CLEAR FILTER	Resets all search parameters.
DELETE SELECTED	Once you are looking at a queue listing, select any queue instances that you would like to delete and then click this button.

- 3 Click **Filter** to perform the search.
- 4 The search results will display the following fields:

Table 27 Dynamic Queue Field Listing

Field	Description
TYPE	A label for your queue instance such as customqueue1, custom_queue_2. Multiple queue instances can exist within Media Suite.
CONTENTID	A unique queue entry identifier within a specific queue type.
STATUS	Custom statuses for each queue entry. E.g. completed, failed, processing
PRIORITY	The priority of this thread between 1 (min) and 10 (max). This value can be set manually (within an Action Profile), within System Configuration, or will it inherit the priority of the current workflow. If the DYNAMIC_QUEUE_ENQUEUE_PRIORITY_X is set within the workflow context, it will override the value set within the Action Profile.
LOCKDATE	The date and time when this queue entry was locked.
CREATE DATE	The date and time when this queue entry was created.
LAST MODIFIED DATE	The date and time when this queue entry was last edited.

5 Additionally, an `editDynamicQueue.html` page link that is visible with the dynamic queue search results will allow you to edit the following fields related to each queue entry.

- Priority
- Retry Count
- Status
- Sort Integer
- Indexed Data (as a textArea)
- Data (as a textArea)
- Last Modified Date (via a Date Picker)
- Create Date (via a Date Picker)

All other fields are not editable as they form values that establish the uniqueness of the queue entry. Since implementing this feature can get quite involved, see your Cisco Systems developer team for any details specific to your deployment.

Objects

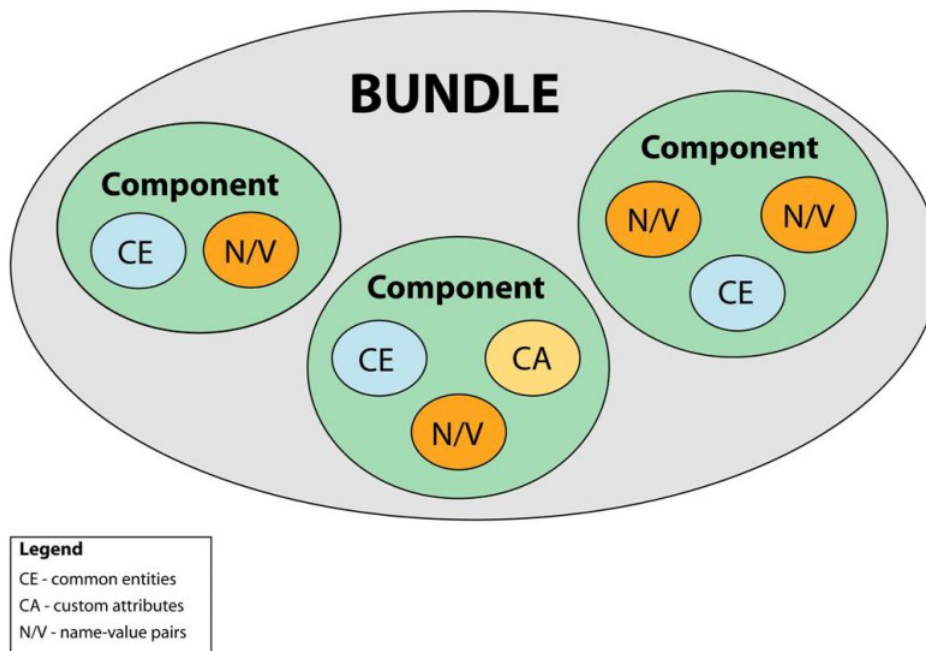
This chapter provides the following topics related to Media Suite objects:

- "Understanding Media Suite Objects", leanupas shown below
- "Understanding Bundles" on page 104
- "Managing Custom Attributes" on page 101
- "Managing Components" on page 92
- "Managing Bundles" on page 104

Understanding Media Suite Objects

Media Suite has been architected with the ability to construct and manipulate a configurable object model that is built around components and bundles.

Figure 31 Bundle Composition



In short:

- Components consist of name-value pairs, common entities, and custom attributes.
- Bundles consist of components and may also include other bundles.

Understanding Object Caching

Caching has been implemented in Media Suite to offer adequate performance when working with many objects. This caching has some implications, however, when changes are made to objects such as components, common entities, or bundles. When these objects are modified, then Media Suite shows the values that are in the cache. Keep in mind that these values may not necessarily reflect the current state of the object. Care must be taken to manually refresh objects when working in multi-user environments or when up-to-date values must be displayed. Deleted objects, however, do not exhibit this behavior, and are automatically updated once a deletion occurs.

Note Object caching is configured using “time to live” values that can be accessed on the System Configuration page. These values can be set for the different types of objects that are cached. The values are located in the System Configuration tree at: Modules > EM > caching > {ItemName}.ttl. After changing any caching parameters, restart JBoss for the new values to take effect. For further details, see “System Configuration” on page 144.

Understanding Components

Components consist of name-value pairs, common entities, and custom attributes that form the building blocks for bundles. The structure of components cannot be edited using the Media Suite user interface, but custom components may be created programmatically.

Components can be automatically created within a workflow by:

- Ingesting a component.xml file that states the component type (when the physical asset has already been processed and is on a content delivery network). Afterwards, these components must be attached to an existing bundle.
- Placing physical files into a hot folder to create physical asset components for those files. Some component fields may not be automatically populated because the workflow has no means of determining those values. Common fields that are always populated include file size, URL, filename, and MIME type. Whether other component fields are populated depends on your workflow. If you transcode within your workflow, for example, then Media Suite adds any available transcode information into the component.

Managing Components

This section details procedures for manually creating, editing, and deleting components.

Creating Components

This section explains the process of manually creating a component. This process is explained for illustrative purposes as components are normally created in an automated fashion during the bind process.

To create a new component:

- 1 Navigate to **Metadata > Components > Manage Components**.
- 2 Click **Add New > [Component Type]**.
- 3 Type a component name and description.

- 4 Optionally select a Restriction Key from the drop-down list. If a Restriction Key is selected, it limits viewing and editing of this component to administrators that share the same key. For details, see “Understanding Data Restriction” on page 73.

Note When you create a component from within a bundle, by necessity, it will inherit the Restriction Keys of the parent bundle. Likewise, performing a component search from within a bundle will only display components that match the Restriction Key of the current administrator.

- 5 Click **Create & Edit**.
- 6 Populate the component fields with required information. Available fields vary according to component type. Generally, physical asset components contain a link to physical files, while metadata components include descriptive information about the component. Mandatory fields are displayed with an asterisk after the text box. In this instance, only the “Name” field is mandatory.

The following table shows an example of metadata-type component information:

Table 28 Metadata DVD Fields

Field	Description
Name	The DVD Name
Alt Code	An alternate code with which to identify this DVD.
External ID	An optional foreign key identifying the DVD on an external system.
UUID	A unique identifier generated by Media Suite.
Created	The date and time this DVD metadata was created in Media Suite.
Modified	The date and time this DVD metadata was last modified in Media Suite.
Locale	The locale for this DVD metadata. A locale consists of a language and regional settings.
Long Title	A long version of the DVD title.
Medium Title	A medium version of the DVD title.
Short Title	A short version of the DVD title.
Sorting Title	A title that is used for sorting.
Long Summary	A long summary of the DVD content.
Medium Summary	A medium summary of the DVD content.
Short Summary	A short summary of the DVD content.
Notes	A generic notes field that can be used for any purpose.
Keywords	Keywords for the DVD.
Release Date	The release date of the DVD.
Additional Features	A listing of any “extras” such as free ringtones or a game.
Color Type	Specifies whether the DVD is color or black and white.
Format	The DVD aspect ratio, such as widescreen or standard.
Region	The DVD region.
Category	A common entity field that stores categories. For more information, see “Understanding Bundles” on page 104

Table 28 Metadata DVD Fields

Field	Description
Genre	A common entity field for genres.
Producer	A common entity field for producers.
Director	A common entity field for directors.
Writer	A common entity field for writers.
Cast Member	A common entity field for cast members.
Rating	A common entity field for ratings.

- 7 Click **Save**.

Editing Components

Components are primarily made up of fields that can be manually edited. The following section describes editing metadata for an individual component. To edit common metadata for multiple components, use the bulk editing feature.

To edit a component's metadata:

- 1 Navigate to **Metadata > Components > Manage Components**.
- 2 Search for the component that you want to edit. For instructions on searching, see "Searching in Media Suite" on page 10.
- 3 Click the underlined name of the component you want to edit.
- 4 Make the required changes to the component metadata.
- 5 Click **Save**. The modified date field within the component is automatically updated to indicate when your changes were made.

Bulk Editing Components

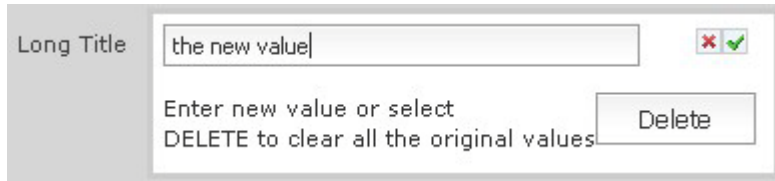
The bulk edit feature allows you to modify field values across multiple components at one time. This process overwrites previous values and cannot be undone, so take care when using bulk edit functionality.

To bulk edit components:

- 1 Navigate to **Metadata > Components > Manage Components**.
- 2 Select the Component Type to search. If this selection is not performed, then the **Bulk Edit** button will be disabled when the search results are shown.
- 3 Search for the components that you want to bulk edit by entering your search criteria and then clicking **Search**. For instructions on searching, see "Searching in Media Suite" on page 10.
- 4 Select the components that have fields that you want to replace with common values.
- 5 Click **Edit**.
- 6 A page displays showing common fields that may be edited. There are three options for each field. Click a field to bring up a text box where changes can be made. Three options are available:

- Enter a value and click the checkmark to set the default value.
- Close the text box.
- Click **Delete** to clear all values that presently exist in the field across all selected components.

Figure 32 Bulk edit new value dialog



The dialog box has a title bar with a close button (X) and a checkmark button. The main area contains a text input field with the text "the new value". Below the input field, there is a label "Long Title" on the left. Below the label, there is a text area with the text "Enter new value or select DELETE to clear all the original values". To the right of the text area is a button labeled "Delete".

- 7 Click **Apply** to have all the bulk edits that you have specified performed or click **Cancel** to back out of any changes that were set.
- 8 Click **Confirm** to enact changes to the fields that are shown in the dialog.

Deleting Components

To delete a component:

- 1 Navigate to **Metadata > Components > Manage Components**.
- 2 Search for the components you want to delete. For instructions on searching, see “Searching in Media Suite” on page 10.
- 3 Select the components that you want to delete.
- 4 Click **Delete**.

Understanding Common Entities

Common entities are global objects that encapsulate specific information that may be commonly reused within specific components. All common entities include a mandatory Name field, an optional External ID field, and localization options. Otherwise, the specific fields provided for the creation of each common entity type will vary. Navigate to **Metadata > Common Entities** and click **Add New** to create a new common entity. The available common entity types are as follows:

Advisory

Content advisories can be created using a text string.

Asset Format

Accepts a text string as an asset format.

Audio Language

Accepts a text string to define the audio language of the content.

Classification Type

Specifies the various classification types that are available within Media Suite. Classification types can include: Label, Label under label, Button, Listing, Genre, Editorially Controlled, Rank, Ask Parent, Catch Up Day, Catch Up TV Sort, Curated Feed, Content Recommendation, Personalized Recommendation, Promotion, A-Z, A-Z Leaf, Date Time Sort, Filter, Barker, Channel Group, Unentitled Click Through, and Entitled Click Through. For details on each classification type, consult the *Merchandiser User Guide*, which is available as online help from any Merchandiser UI page, or on the Media Suite documentation portal.

Click Through

Enables subscribers to “click through” to additional content held at a specific URL. A “Type” field allows you to specify either “entitled”, meaning access is available through a subscription, or “unentitled”, meaning that the content is available to all viewers.

Genre

Accepts a text string as a content genre, which is a tag serving as a content description. Examples would include action, comedy, drama, horror. It is possible to add sub genres underneath a main genre.

Figure 33 Creating Genre Common Entities

The screenshot shows the 'New Genre' form in the Media Suite interface. At the top, a green banner displays the message 'Genre successfully created'. On the left, a sidebar shows a tree view with 'Genres' expanded, containing 'Action' and 'New Genre'. The main form area has several sections: a top bar with 'Save', 'Revert', 'Delete', 'History', and 'Lock' buttons; a 'Name' field with the value 'New Genre' and a required field asterisk; an 'External ID' field; a section for 'Apply to all' and 'Choose languages' with radio buttons and a dropdown menu showing '-- Please Select --' and 'en_US'; a 'Display Name' field with the value 'Action^New Genre'; and an 'Additional information' section with an 'Add new Additional Info' button.

Image Type

Specifies the type of the image, for example, thumbnail or poster. The downstream expects Image Key within the XML as part of any Catalog ingest.

Offer Type

Specifies the types of offers that you would like for your deployment. For example, FVOD (free video on demand), TVOD (transactional video on demand), or SVOD (subscription video on demand), among others.

Price Category

Accepts a numerical value as a price. Tier and Region codes may also be selected from existing values. A currency must be selected for this price category. An offer can have multiple price categories, but there can only be one price for each Tier/Region/Locale combination. A maximum price can be set for price categories, and is validated upon a save operation.

Figure 34 Price Category Fields

The screenshot shows a web interface titled "MANAGE COMMON ENTITIES" with a sub-header "Price Category". Below the title are four buttons: "Save", "Cancel", "History", and "Lock". The form contains the following fields and controls:

- Category Name:** A text input field containing "Price_Category1", followed by an asterisk (*) and a button labeled "i18n".
- Price:** A text input field containing "3.99", followed by an asterisk (*).
- Tier Code:** A dropdown menu with "-- Apply to All --" selected.
- Region Code:** A dropdown menu with "-- Apply to All --" selected.
- Currency:** A dropdown menu with "US Dollars" selected, followed by an asterisk (*).
- External ID:** An empty text input field.
- Localization:** Two radio buttons. The first is labeled "Localize" and is selected. Below it are the labels "Apply to all" and "Choose languages".
- Additional Information:** A section with a button labeled "Add new Additional Info".
- Display Name:** A large, empty text area.

Note Tier and Region codes as well as maximum price are managed within "System Configuration" at the following location: `modules > cm > common.entity > price.category`

Provider

Accepts a text string as a content provider.

Rating

Accepts a text string as a rating name. Optional values are a text string for a rating body and reason text to explain why the rating was required.

Render Hint

Specifies how Darwin or Ethan variants of set-top boxes display collections and programs within classifications for their Electronic Program Guides.

Restrict To

Makes classifications unavailable in certain geographic areas or to STB subscriber segments. The list is populated with predefined regional entries. In the “value” field, type a comma delimited list of any required regions to restrict the classification's availability.

Studio

The name of the studio that owns the video content.

Style

Accepts a text string as a style label. This common entity is used to describe a video game's style and is not used to describe videos or other assets.

Subtitle Language

Accepts a text string to define a subtitle language.

Talent

Accepts a displayed name, first name, last name, and one or more roles. Role options are Artist, Author, Cast Member, Composer, Creator, Director, Lyricist, Producer, or Writer. In addition, localize settings can be chosen that specify whether the talent is available for all Media Suite languages or one or more specific languages. Examples of talent common entities would be: Stephen King (Writer) & Stephen King Producer) that is available for all languages.

Target Device

Encapsulates relevant device details. Accepts a displayed name, Manufacturer, Type (Mobile, PC, SetTop, TV, Tablet), (Device) OS Version, Min OS Version, Max OS Version, and an External ID. In addition, Localize settings must be chosen that specify whether the Target Device is available for all Media Suite languages or one or more specific languages.

Managing Common Entities

The following section details how to create, find, customize, and delete common entities. Lastly, other operations, such as locking and viewing history are described.

Searching for Common Entities

To search for a common entity:

- 1 Navigate to **Metadata > Common Entities**.
- 2 Select a common entity type to search for. For a description of the common entity types, see “Understanding Common Entities” on page 95.

- 3 Type a string for the common entity name that you want to find. For instructions on performing a search, see “Searching in Media Suite” on page 10.
- 4 Click **Search**.

Creating Common Entities

Common entities may be created either on a dedicated page (as follows) or within the component metadata view by clicking the "Click to add" field option.

To create a common entity:

- 1 Navigate to **Metadata > Common Entities**.
- 2 Click **Add New** and select the desired entity type. The following example creates a common entity of type Talent, but each type has its own requirements and thus displayed fields will vary between type. See “Understanding Common Entities” on page 95 for details on entity types and required values.
- 3 Type a Display Name. This name appears as the field value when this common entity is entered in a form. If you need to localize the name, click **in**. That will provide you with options to type localized names for any required locales.

Figure 35 Localizing Common Entity Labels

Label	Locale
	ar_SA
	de_DE
	en_US
French Label	fr_FR
	iw_IL
Japanese Label	ja_JP
	nl_NL
	ru_RU

- 4 Click **Confirm**.
- 5 Type the talent's First Name.
- 6 Type the talent's Last Name.
- 7 Choose a role from the drop-down list. Available roles include: Artist, Author, Cast Member, Director, Producer, Writer, Composer, Lyricist, and Creator. Keep in mind that some roles can later be chosen only from suitable bundles. For example, Director and Writer will be available for Logical Videos, but Author will only be available within Logical Documents.

- 8 Choose a **Localize** option, which specifies the languages in which this common entity will be available. To set the **Localize** option, first choose from “Apply to all”, or “Choose Languages.” If you have chosen “Apply to all”, then no other selections are required. If you have chosen “Choose Languages”, then select one or more languages. This is done by using the same drop-down list and button mechanism used for selecting individual roles.
- 9 Click **Save**. Your Talent Common Entity can now be selected from within suitable bundle metadata.

Editing Common Entities

To edit a common entity:

- 1 Navigate to **Metadata > Common Entities**.
- 2 Search for the common entity that you want to edit. For instructions on performing a search, see “Searching for Common Entities” on page 98.
- 3 Click the line showing the common entity that you want to edit.
- 4 Make the desired changes to the common entity.
- 5 Click **Save**. Any saved changes will propagate to all Media Suite metadata that uses this common entity.

Deleting Common Entities

To delete a common entity:

- 1 Navigate to **Metadata > Common Entities**.
- 2 Search for the common entity that you want to delete. For instructions on performing a search, see “Searching for Common Entities” on page 98.
- 3 Select the check box to the left of the common entity that you want to delete.
- 4 Click **Delete**.
- 5 Click **Confirm**.

Common Entity History and Locking

Two additional features (History and Locking) are available on the Common Entity detail screen. The following section will describe the functionality of these two features:

1. Click **History** to view a list of historical changes that were applied to this Common Entity. Selecting two Entity Name records and then clicking **Compare** will allow you to view any differences between the versions side-by-side.
2. Clicking **Lock** will block changes made to the current Common Entity during Ingestion and via Web Services until the entity is unlocked.

Understanding Custom Attributes

Custom attributes provide the ability to easily extend components, bundles (a type of component), or common entities with custom metadata fields. These fields can be populated with manually typed values, by a default value; or by selecting values from a list. Once defined, these values should be included as part of the specified component or common entity’s standard metadata set. As a best practice, we recommend that you judiciously create and apply custom attributes to your components and common entities. This approach will avoid potential performance and stability issues that might otherwise arise if an excessive number of custom attributes were used. If you require a large number of additional metadata fields, you should instead create custom components that contain the exact fields that you require. For more information on creating custom components, refer to the *Media Suite Developer Guide*.

Note Custom attributes that are defined within a parent component are not inherited by its child components. For example, adding a custom attribute to the Metadata component will not cause that custom attribute to also appear in Metadata Video.

Managing Custom Attributes

This section describes how to create, edit, and delete custom attributes.

Creating Custom Attributes

To create a custom attribute:

- 1 Navigate to **Metadata > Setup > Custom Attributes**.
- 2 Click **Add New**.

Figure 36 Adding a New Custom Attribute

ADD NEW CUSTOM ATTRIBUTE

Name

*

Key

*

Target

☒ Component

☐ Common Entity

*

Localize Custom Attribute

Provide international labels for other Media Suite users:

Label	Locale
	cs_CZ
	de_DE
	en_US
	fr_FR
	ja_JP
	nl_NL

Create

Create & Edit

Cancel

- 3 Type a name and a (resource) key for the custom attribute. The key is a unique internal value used to establish a database reference and cannot be changed once it has been set. Select whether this custom attribute will be used within a Component or Common Entity. Type a custom attribute label for any non-English Media Suite instance. The label will be shown whenever Media Suite is run in the specified locale.
- 4 Click **Create & Edit**.
- 5 Populate the custom attribute fields with relevant information. Available fields are described in the following table:

Table 29 Custom Attribute Fields

Field	Description
Name	A descriptive label for the custom attribute.
i18n	Clicking i18n displays a dialog that allows you to create labels for describing this custom attribute in any available Media Suite language. Setting the label for the en_US locale, for example, establishes what is shown to users when Media Suite is run using the en_US locale setting.
Description	A description of the custom attribute.
Target	A read-only field that indicates whether this custom attribute will be used within a component or common entity. Keep in mind that bundles are a type of component. Selecting “bundle” will place this custom attributes within all bundles.
Type	Assign a data type to the custom attribute. Available options include: string, integer, date, double, and clob.
Mode	Select a mode that dictates the behavior of the custom attribute field. Displayed values will vary depending upon the previously selected custom attribute type. The full set of options includes: “User entered”, “Multiple user Entered”, “Select from list”, and “Multiple select from list”. Choosing the “Select from list” option displays a table within the values section so that you may establish a list of values that users may choose from. This option is only available when string or integer data types have been selected for the custom attribute. Choosing any of the two “Multiple” options for custom attributes allows you to add multiple values for the given custom attribute. Note Media Suite no longer has an “Add explicit value” mode. Any data in older software versions that use that mode will be converted to the “Select from list” mode and will have the “Required” option enabled.
Required	Select the “Required” option if this custom metadata value should be mandatory.

Table 29 Custom Attribute Fields

Field	Description
Default Value	Displays the default value defined for this custom attribute. Default values are applied as follows: - Created via ingestion If an XML file does not already have a required custom attribute on ingest, the attribute will be set with the default value. If no default value is defined, the XML file will be rejected as invalid. - Created via web services If a bundle or component does not have a required custom attribute when created by web services, the attribute will be set with the default value. If no default value is defined, the bundle or component will be rejected as invalid. Neither a bundle XML nor component web services will contain the default if the custom attribute is not present. During updates, both cases described above require that custom attributes have values assigned regardless of whether or not default values are defined. Note Changes to the default value will not affect existing components, but only components that are created after the new default value has been applied.
Values	What appears here is dependent upon the mode that you have selected. User entered mode displays “None” as users can manually enter whatever value they require. Select from List mode displays a table with multiple rows that can be filled in. You establish multiple choices by entering them into this table. Click the Add Key button to add new rows to the table as needed.
Apply To	Select the relevant component or common entity from the list and click . Once saved, this custom attribute will be added as a metadata field for that component or common entity. A custom attribute will not be available for publishing until it has been assigned to one or more of those objects for use. Clicking the  beside a component or common entity name removes this custom attribute from that object.

6 Click **Save**.

7 Click **Publish** to make the custom attribute available within the chosen component or common entity. Once a custom attribute has been published, it does not need to be republished after edits are made to it.

8 Click **Confirm**.

This custom attribute will appear under the “Custom Fields” section of any components to which it was assigned. For common entities, any custom attribute will appear as an additional field within the standard metadata set.

Note As a best practice, we recommend that you judiciously create and apply custom attributes to your components. This approach avoids potential performance and stability issues that might otherwise arise if an excessive number of custom attributes were used. If you require a large number of additional metadata fields, you should instead create custom components that contain the exact fields that you require. Likewise, the same general

principle applies when adding custom attributes to common entities.

To enforce this best practice, we have restricted the number of custom attributes that may be created in the system to fifty. In addition, you may have no more than five custom attributes per component type.

Editing Custom Attributes

To edit a custom attribute:

- 1 Navigate to **Metadata > Setup > Custom Attributes** to view a list of available custom attributes.
- 2 Click on the underlined name of the custom attribute that you want to edit.
- 3 Make any required changes to the custom attribute.

Note After a custom attribute has been published, only certain fields may be edited. In general, those fields would be the description and default fields. For “Select from list” mode custom attributes, editable fields also include the language and label names. In addition, new keys may be added to “Select from list” mode custom attributes as required.

- 4 Click **Save**.

Deleting Custom Attributes

To delete a custom attribute:

- 1 Navigate to **Metadata > Setup > Custom Attributes** to view a list of available custom attributes.
- 2 Click on the underlined name of the custom attribute that you want to delete.
- 3 Click **Delete**.
- 4 Click **Confirm**.

Note Deleting a custom attribute will remove that information from any components use the custom attribute. Existing feeds, however, will not reflect the removal of the custom attribute until those feeds are regenerated. Feeds will be regenerated once there is a change to a bundle.

Understanding Bundles

Bundles are customizable objects that conform to a template and are created when components, and/or other bundles are combined into a unit.

Managing Bundles

This section describes the various actions involved in creating, editing, and deleting bundle content. Bundles are created by associating various components such as videos, images, or metadata. Once you have completed assembling your bundle, you can mark it as Active. The bundle then becomes available to display in feeds.

Searching for Bundles

One of the most common activities that you will do with bundles is to search for them. The following section explains that process.

To search for bundles:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Apply filters to establish your search parameters. Options include:
 - Bundle Type, which allows you to select one particular bundle that searches will be limited to.
 - Status, which limits searches to Any, Active, or Inactive bundles.
 - Search Filter, which limits searches to a particular type of object, such as a bundle, a subscription code, or to bundles that contain a specific common entity, or custom attribute.
 - A text box, which allows you to search by name or keyword. For details on available options for the text box, see “Searching in Media Suite” on page 10.
 - A date range that indicates the last modified date of the object you are searching for.
- 3 Click **Search**.

Creating Bundles

In this example, we will step through how to manually create a new logical video bundle and then learn how to populate some of its components. This process is typically performed in a more automated fashion by using Binding functionality. For more information on that automated process, see “Binding & Metadata” on page 47.

To create a new bundle:

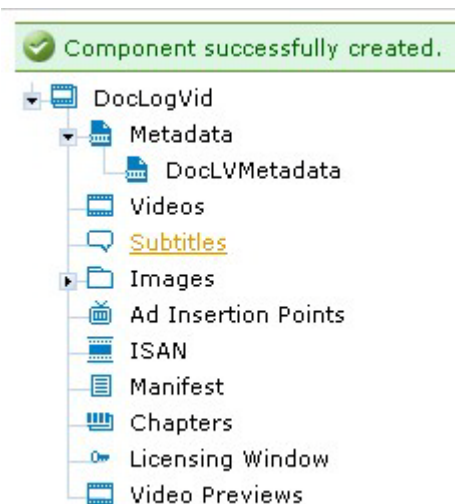
- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Click **Add New** and select a bundle type.
- 3 Type a name and an Alt Code.
- 4 Optionally select a Restriction Key from the drop-down list. If a Restriction Key is selected, it limits viewing and editing of this bundle to administrators that share the same key. For details, see “Understanding Data Restriction” on page 73.

Note Once a Restriction Key has been applied to a bundle, the key cannot be changed.

- 5 Click **Create & Edit**. You will be taken to the bundle structure with options to search or add new components.
- 6 Select the Metadata component on the tree at left. This will form the metadata for the logical video.
- 7 You will be presented with options to populate your bundle with the required components. Options include:
 - **Search** - allows you to search through the folder for any components.

- **Add New** - allows you to create a new component that is added to the listed folder.
 - **Add Selected** - allows you to add selected items from the search results into the current folder.
- 8 Click **Add New**. You will be taken to the CREATE NEW METADATA dialog.
 - 9 Type the metadata component name.
 - 10 Click **Create & Edit**. The metadata details will appear. This includes information such as titles, summaries, and cast members.
 - 11 Type in descriptive metadata. Some fields, such as Category, Genre, and Producer, have a blue underline below the text box. These are common entities that can be referenced in suitable locations across Media Suite. Clicking the plus sign to the right of the field allows you to add additional entries that can be reused in other components. For further information, see “Understanding Bundles” on page 104.
 - 12 Click **Save**. Notice that an entry and component name appear below the Metadata node below. Depending on the bundle template, you may be able to add more than one component. In this instance, you can add multiple component metadata.

Figure 37 Newly Added Logical Video Metadata Component



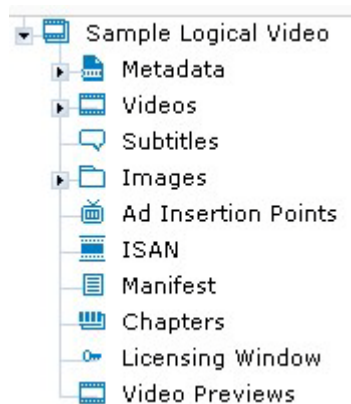
- 13 Select the Videos component on the tree. This will reference the physical asset video for this logical video.
- 14 Enter a video name.
- 15 Click **Add New**. A new video component details page will appear. Notice that the fields differ from the metadata in that they are related to technical details about the video file itself.
- 16 Type relevant information related to the video file.
- 17 Click **Save**. Notice that a new entry and component name appear below the Videos node.
- 18 Select another component from the tree and continue the same process of filling in relevant information and saving it. Repeat this process until you have entered all relevant information for all required components of the logical video bundle.
- 19 Once the logical video bundle has been described to your satisfaction, click **Activate**.

Adding Components to Bundles

To add an existing component to a bundle:

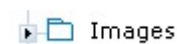
- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle you are looking for. For instructions on finding bundles see “Searching in Media Suite” on page 10. If Restriction Keys are used in your deployment, only bundles with a key that match those of your administrator will be displayed.
- 3 Click the underlined link for the bundle that you want to edit. The bundle edit screen will appear.
- 4 The tree structure of the selected bundle will appear at left. This structure is established and cannot be changed, however components may be added or deleted from within the structure.

Figure 38 Logical Video Structure



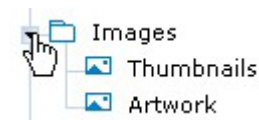
- 5 Component folders that are populated with content or have an underlying folder will have a right-facing arrow.

Figure 39 Collapsed Images Folder



- 6 Clicking that arrow displays any underlying content or available subfolders.

Figure 40 Expanded Images Folder



- 7 Click the folder that you want to add a component to.
- 8 Click **Add New**.
- 9 Populate the required fields. The fields that are displayed will vary based on the type of component you are adding.
- 10 Click **Create** to create a placeholder for the component or **Create & Edit** to enter further component details. If you use the **Create & Edit** option, make sure to click **Save** after entering your values to complete the process.

Removing Components from Bundles

To remove a component from a bundle:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Search for the bundle you want to work with. For instructions on finding bundles see “Searching in Media Suite” on page 10.
- 3 Click the underlined link for the bundle that you want to edit. The bundle edit screen will appear.
- 4 The tree structure of the selected bundle will appear at left. This structure is established and cannot be changed, however components may be added or deleted from within the structure. Component folders that are populated with content or have an underlying folder will have a right-facing arrow. Clicking that arrow displays any underlying content or available subfolders.
- 5 Within the tree, navigate down to the component that you want to edit by clicking down the folder hierarchy until the component name appears.
- 6 Click the component name. The component’s details should appear.
- 7 Click **Remove**.
- 8 If the component has no other associations, a dialog will appear indicating that the component will be orphaned.
 - Click **No** to remove the component from the bundle but keep it in the system
 - Click **Yes** to remove the component from the bundle and delete it from the system.
- 9 Click **Delete** to confirm the action.

Editing Components Within Bundles

When working in a bundle view, for convenience, components may also be edited within the context of the bundle instead of switching to a Manage Components page.

To edit a component within a bundle:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle you are looking for. For instructions on searching, see “Searching in Media Suite” on page 10.
- 3 Click the underlined link for the bundle that you want to edit. The bundle details screen will appear.
- 4 The tree structure of the selected bundle will appear at left. This structure is established and cannot be changed, however components may be added or deleted from within the structure. Component folders that are populated with content or have an underlying folder will have a right-facing arrow. Clicking that arrow displays any underlying content or available subfolders.
- 5 Within the tree, navigate down to the component that you want to edit by clicking down the folder hierarchy until the component name appears.
- 6 Click the component name. The component’s details should appear.
- 7 Make your changes to the component.
- 8 Click **Save**.

Viewing Bundle XML

At any point during the bundle creation process, you have the option of viewing an XML representation of the bundle that is being created. That representation can either be viewed via the default XSL or through a custom XSL template.

To view bundle XML:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Create a new bundle or edit an existing bundle.
- 3 Click **View XML** to see the default XSL output, or **View XML** and select a custom XSL template (if one has been created and made available). For details, see “Understanding Bundle XSLTs” on page 111.

Deleting Bundles

To delete a bundle:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle you are looking for. For instructions on finding bundles see “Searching in Media Suite” on page 10.
- 3 Select the check box beside the name(s) of any bundles you want to delete.
- 4 Click **Delete**.
- 5 Click **Confirm**.

Activating Bundles

If you manually assemble a bundle by assigning components to its predefined structure, it may exist “under construction” until you have added all of the pieces. Once you have finishing adding all components to your bundle you may set the status as Active. Doing so, will make the bundle available for feeds or any plugin that needs to publish the bundle metadata to an external system. That being said, the purpose of Media Suite is to automate this process, so you will rarely, if ever, manually create a bundle. Instead, the bundle will be automatically created through the use of a bind profile and (optionally) marked as active once the bundle template criteria have been satisfied.

To activate a bundle:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Search for the bundle you want to work with. For instructions on finding bundles see “Searching in Media Suite” on page 10.
- 3 Click the underlined link for the bundle that you want to edit. This takes you to the bundle details page.
- 4 Click **Activate**.

Note When you have a bundle that contains another bundle, the active status of the parent bundle supersedes that of the child bundle. For example an active DVD bundle that contains an inactive logical video bundle will cause the logical video to be active within the context of the DVD, but not alone. This means that the logical video will not appear in any feeds by itself, but will appear as an active logical video within the DVD bundle.

Deactivating Bundles

Deactivating a bundle makes it unavailable for publishing.

To deactivate a bundle:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Search for the bundle you want to work with.
For instructions on finding bundles see “Searching in Media Suite” on page 10.
- 3 Click the underlined link for the bundle that you want to activate.
- 4 In the bundle details, click **Deactivate**.
- 5 Click **Confirm**.

Understanding Bundle Snapshots

The bundle snapshot feature allows administrators to save an XML image of a bundle state for future use in feeds. That image includes the bundle and any child bundles. The snapshot feature includes a set of functionality with the ability to create, view, update, and delete bundle snapshots.

Creating Bundle Snapshots

To create a bundle snapshot:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle you want to make a snapshot of.
- 3 Click the bundle name to view the bundle details.
- 4 Click **Create Snapshot**. All bundles require a selected locale prior to saving metadata.

Viewing Bundle Snapshots

The following procedure can be performed only after a snapshot has been created. Bundle snapshots can be viewed either in the Metadata module or in Producer.

To view a bundle snapshot:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle whose snapshot you want to view.
- 3 Click the bundle name to view the bundle details.

- 4 Click **Snapshot > View Snapshot > [XSLT Option]**. The XSLT option can include no XSL transformation or you may apply any XSLT that is active in the system. The resulting bundle snapshot will be shown as XML in a new window. Alternately, you can navigate to **Producer > Manage Bundles**, where you can view the bundle snapshot within a read-only form.

Updating Bundle Snapshots

The following procedure can be performed only after a snapshot has been created. Updating a bundle snapshot will overwrite the existing snapshot XML with the most recent information for that bundle.

To update a bundle snapshot:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle snapshot you want to update.
- 3 Click the bundle name to view the bundle details.
- 4 Click **Snapshot > Update Snapshot**.

Deleting Bundle Snapshots

The following procedure can be performed only after a snapshot has been created.

To delete a bundle snapshot:

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Perform a search for the bundle snapshot you want to delete.
- 3 Click the bundle name to view the bundle details.
- 4 Click **Snapshot > Delete Snapshot**.
- 5 Click **Confirm** in the dialog.

Understanding Bundle XSLTs

Media Suite includes functionality that allows client applications to apply XSL transformations to the output of the GET bundle RESTful Web service. These transformations modify outgoing XML data so that it can be read by client applications.

After importing a previously created XSL transformation into Media Suite, you apply the transformation by calling the get bundle RESTful method and passing the XSLT ID as one of the parameters. For details on the GET bundle method, consult the *Media Suite API Guide*.

Note Media Suite only supports XSL version 1.0 documents.

Creating Bundle XSLTs

The following section explains the process of importing an XSL file into Media Suite to create a bundle XSLT. That transformation can then be referenced by the get bundle REST method or previewed from within the Media Suite user interface as required.

To create a bundle XSLT:

- 1 Navigate to **Metadata > Setup > Bundle XSLT**.
- 2 Click **Add New**.
- 3 Type the Bundle XSLT name and a description.
- 4 Click **Create & Edit**.
- 5 Assign a value to the XSLT ID. The XSLT ID must be a unique value, so you may either accept the default value that was generated by the system or type in your own unique identifier.
- 6 Click **Browse** to select a Custom XSL file that you have previously created.
- 7 Click **Save**.

Figure 41 Bundle XSLT Page

SETUP BUNDLE XSLT > NEW_BUNDLE_XSLT

Save Cancel Activate

XSLT Template successfully created

Name New_Bundle_XSLT *

Description New XSLT bundle for import.

XSLT ID 9fbf1660-e4f8-49d7-84f5-77ce95967e66 *

Custom XSLT Browse

Previewable ☐

- 8 Select the **Previewable** option if you want this transformation available for live previews. You can view the resulting output from within the detail page of any specific bundle. On that page, the **View XML** button will show the standard XML output, while a drop-down list will show any active bundle XSL transformations that you have marked as previewable.

Figure 42 Viewing Bundle Transformations

View XML Delete

Overall Series) SampleBundleXSLT

EPG Stations XSLT Template

- 9 Click **Activate**.

Understanding Audit Trails

Media Suite includes audit trail functionality that automatically tracks changes to bundles, components, common entities, and custom attributes. The audit trail search feature then enables administrators to examine those changes by name, date, or other criteria. Information that is tracked for all component changes includes the:

- Component ID
- Type of component change, either CREATE, UPDATE, or DELETE
- Originator of the component change, whether it be a user interface administrator, Web service, or quartz job
- Identifier for the administrator, Web service, or quartz job
- Audit timestamp

Searching the Audit Trail

There are two primary access points for viewing audit trail information. First, you can navigate to either the bundle or component detail pages. Click **History** to see any audit history information. This method of accessing the audit trail will probably be most convenient in everyday workflows. Secondly, you can navigate to the **Metadata > Audit Trail** page to see audit information for deleted entities, which would otherwise not be visible. The process of working with the audit trail page will be detailed in the following section.

To search for audit information:

- 1 Navigate to **Metadata > Audit Trail**.
- 2 Either click **Search** to display all audit information, or filter your results using the following criteria within the user interface:

Table 30 Audit Trail Search Criteria

Field	Description
Type	A drop-down list for selecting the type of component, bundle, common entity, or custom attribute that should be displayed. If you do not make a selection, then all types will be shown.
Operation	The type operation that should be searched for. Options include: ANY, UNKNOWN, CREATE, UPDATE, and DELETE.
Blank Textbox (for entering keywords)'	Any value entered in this textbox will be searched against the entity name, entity ID, and external ID fields. An asterisk wildcard character may be used before or after your search string.
From/To Dates	Click the calendar date selection icons to the right of these fields to select a last modified date. Click Apply to commit the date.

- 3 A table will appear with the following information for any entities that match your search criteria:

Table 31 Audit Trail Search Result Fields

Field	Description
Entity Name	The name of the entity.
Entity ID	An internally generated unique identifier for this entity.
External Entity ID	An externally generated identifier (from another system) for this entity.
Type	The entity type. For example, Bundle, Metadata DVD, Program Identifier, etc.
Operation	The type of audit operation that was performed, such as CREATE, UPDATE, DELETE.
Modified Date	The date and time of the most recent action that was performed on this entity.

- 4 Click the underlined name of the entity whose audit data you want to examine in more detail.
- 5 A table will appear with the following information showing ALL operations that have been performed related to the entity that you have selected:

Table 32 Audit Trail Entity Detail Fields

Field	Description
Type	The entity type. For example, Bundle, Metadata DVD, Program Identifier, etc.
Entity ID	An internally generated unique identifier for this entity.
Entity Name	The name of the entity.
Operation	The type of audit operation that was performed, such as CREATE, UPDATE, DELETE.
Source	The originating source from which any operations were made. Values will be one of UI, web service, or quartz job.
Account	Identifies the specific user or service that made entity changes. Values will be one of: system (for quartz jobs), the Web service user name, or administrator name.
Additional Info	A clob that contains access URLs, method names, or quartz job class names as appropriate.
Modified Date	The date and time of the most recent action that was performed on this entity.

- 6 Click an underlined Entity Name to view the audit trail details for that operation. If multiple operations exist, you may select two in order to view values side-by-side to see changes. Click **Compare** to bring up the comparison dialog. Note that some sections may be displayed in a collapsed state and might need to be opened up to view details.
- 7 Click **Ok** to close the comparison dialog.

Conversations

The role of the Conversations page is to monitor the status of communications between Media Suite and external systems (such as Merchandiser [formerly VCM] or VBO) for each bundle. To perform that functionality, conversations are initiated that consist of many individual messages to and from those external systems.

To use Conversations functionality:

- 1 Navigate to **Metadata > Conversations**. This information can also be accessed within Producer by clicking the **Conversations** tab when viewing bundle details.
- 2 Select any search criteria if you wish to narrow the scope of your search. Options include:
 - **Type** - which can be either *Any*, *Custom*, *VBO*, or *VCM*. Additional components can be listed according to your deployment. Consult with your AS rep...
 - **Status** - which indicates the purpose of the message that will be displayed. By default, statuses can be one of either *ANY*, *INFO*, *WARN*, *ERROR*, or *FATAL*.
 - **Bundle Name or Conversation ID** - this text field filters results by bundle name or conversation ID. An asterisk wildcard character may be used in the field to broaden the search results.
 - **From and To Dates** - use the calendar control to select a date range for the most recent conversation activity.
 - **Restriction Keys** - specifies any Restriction Key conditions to filter by. This option is not available within Producer as the existing Restriction Key for the current administrator will automatically be applied.
- 3 Click **Search**.
- 4 The displayed fields will show conversation information for each bundle:
 - **Bundle Name**
 - **Bundle UUID** - a universally unique bundle identifier that is generated and used by Media Suite.
 - **Action** - the type of action that was performed on the bundle that caused this message to be generated. Options include: *CREATE*, *UPDATE*, or *DELETE*.
 - **Conversation ID** - a unique identifier for this conversation.
 - **Version** - a bundle version number that is incremented each time a bundle is changed. This number is logged when a conversation is initiated.
 - **Type** - the component with which Media Suite is having a conversation. For example, *VCM*, *VBO*, or *Custom*.
 - **Status** - indicates the current status of the conversation. For example, *INFO*, *WARN*, *ERROR*, *FAILED*, *FATAL*.
 - **Modified** - the date at which the conversation was last modified.

- 5 Click on an underlined bundle name to see the complete message thread for the conversation. The following fields will be displayed:
 - **Conversation ID, Bundle Name, Bundle UUID, Bundle Version, Action, (Conversation) Type** - all fields are as described above.
 - **Message Date** - the date and time the message was created.
 - **Message Type** - indicates whether the message is coming **IN** to Media Suite or being sent **OUT** of Media Suite.
 - **Level Type** - indicates the type of message that was received or sent. Options include **WARN**, **ERROR**, **FAILED**, **NOTIFY**, and **INFO**.
 - **Short Message** - a brief summary of the full message.
 - **Message** - the full XML message text. Click the underlined fragment to open a dialog box containing the complete message contents.
- 6 Click **Refresh** to view the most recent messages, if conversations are still in progress. For conversations that are in an **ERROR** state, you can click **RETRY**. This action should rarely be necessary, unless there is a communication problem between components.

Bundle Warnings

The bundle warnings page within Media Suite offers information related to problems creating, validating, or disseminating bundle information. This diagnostic tool examines errors for various events, such as those related to binding, bundle feeds, and Search Manager activity. In addition, warnings can be reported for bundle problems related to modules external to Media Suite, such as VCM, VBO, or custom components. The same Bundle Warnings page appears in three places, under the Metadata tab, the Producer tab, and also within a Warnings tab when looking at bundle details. The reason for the duplication is that some administrators will perform all of their work from certain pages within Producer, so those additional access point can improve their working efficiency.

To view bundle warnings:

- 1 Navigate to **Producer > Bundle Warnings** (or **Metadata > Bundle Warnings**)
- 2 A list of all bundle warnings will be presented.
- 3 To filter the results, you may optionally, type a part of the name into the textbox. Typing the first letter (or more of the name), or the asterisk wildcard with two letters, will refine your search. To find "Red Tails," for example, you could type **R** or ***Ta**.
- 4 Click **Search**.
- 5 Click the underlined name of any displayed bundles to see the details of the bundle warning.

Figure 43 Bundle Warning Details

BUNDLE WARNINGS > RED TAILS			
Bundle Name Red Tails			
Bundle UUID 7eaece19-b48e-4935-b347-b78be04163c4			
Bundle Version 46			
Warnings Details			
Create Date ↕	Message Date ▼	Event Type ↕	Message
2014-03-27 12:25	2014-03-27 12:25	BINDING	An error occurred attempting to create bundle or componen...
			Results: 1

- 6 Click the underlined bundle name if you want to navigate to the bundle details page.
- 7 Additionally, bundle warning details can be viewed by navigating to the Bundle details page through normal bundle searches. The bundle will open at the General metadata level. In our example, this is when the Red Tails (bundle name) node is selected.

Figure 44 Bundle Details

BUNDLE WARNINGS > RED TAILS

Deactivate

Productize

View XML ▼

Delete

Warning: Changes to this bundle will affect existing products!

Red Tails

- Metadata
- Videos
- Subtitles
- Images
- Ad Insertion Points
- Manifest
- Chapters
- Licensing Window
- Video Previews
- Identifiers
- Related Identifiers
- Availabilities

Related Products»

Related Subscription Codes»

Save

Cancel

Warnings

General

Name

Red Tails *

Alt Code

Provider

-- Please Select -- ▼

Asset ID

VMSA0000000000050102

External ID

UUID

7eaece19-b48e-4935-b347-b78be04163c4

Created

2014-03-14 15:27

Modified

2014-03-27 22:05

Ingest File Path

/XML Ingestion/redtails.xml

Bind ID

redtails

Version

46

Time Shift Content

☐

Publishable

☐

Source Asset ID

- 8 Click **Warnings** (at right).
- 9 A bundle warnings detail page will appear. From within this page you can view all warnings, select and delete listed warnings, or filter results by specific Event Type, using the drop-down list. Options include: All (the default), Binding, Bundle Feed, Search Manager, VCM, VBO, or Custom.

Understanding Retention Policies

Retention policies allow administrators to manage the length of time physical assets and (optionally) bundles will remain within a deployment. This functionality provides you with control over the size and duration of content within your catalog.

Managing Retention Policies

The following section explains the various aspects of managing retention policies within Media Suite.

Searching for Retention Policies

To search for a retention policy:

- 1 Navigate to **Metadata > Setup > Retention Policies**.
- 2 Select a Status from the drop-down list. Options include: Any, Active, and Inactive.
- 3 Click **Search**.
- 4 A list of retention policies that match your selected criteria will be shown.

Creating Retention Policies

To create a retention policy:

- 1 Navigate to **Metadata > Setup > Retention Policies**.
- 2 Click **Add New**.
- 3 Type a Name.
- 4 Click **Create & Edit**.

Figure 45 Adding a Retention Policy

The screenshot displays the 'MANAGE RETENTION POLICIES' interface for 'SAMPLE RETENTION POLICY', which is the 1 of 1 policy. At the top, there are four buttons: 'Save', 'Cancel', 'Activate', and 'Delete'. Below this, the 'General' section contains a 'Name' field with the value 'Sample Retention Policy' and an asterisk, and a 'Description' field. The 'Policy Rules' section includes a 'Delete' label, two radio button options: 'Physical Assets only' (selected) and 'Bundle and all Physical Assets', a numeric input field with the value '7' followed by 'day(s) after*', and four more radio button options: 'License Window Start', 'License Window End' (selected), 'Bundle Activate Date', and 'Inactive Bundle Create Date'. The 'Content Provider Association' section shows a 'Global' label and a checked checkbox for 'applies to all Content providers'.

- 5 Type a description.

- 6 In the Policy Rules section, you choose what you want deleted at the appropriate time. Select either: **Physical Assets only** or **Bundle and all Physical Assets** (within that bundle). The **Bundle and all Physical Assets** option provides you with the ability to select all bundle types or specific types, if required.
- 7 Next, select the time delay: x days after a given time marker (which you will specify next).
- 8 Lastly, select the time event after which deletion will be triggered. Options include: License Window Start, License Window End, the Bundle Activation Date, or Inactive Bundle Create Date, which is the number of days that the bundle is inactive after it has been created.
- 9 Choose the content providers for which this Retention Policy will apply. Options are: Global, which applies the policy to all providers, or you may uncheck the Global checkbox to see a list of individual providers for which no Retention Policies exist. Double clicking a content provider's name in the left pane will select and move that name to the right hand pane. Consequently, double-clicking a provider in the right pane will remove it as a selection.

Note Content providers can be created and managed as common entities on the **Metadata > Common Entities** page. Set the common entity to type "Provider" for this purpose.

- 10 Click **Save**.
- 11 Click **Activate**. The system will periodically delete physical assets and (optionally) bundles according to the dates you have configured.

Editing Retention Policies

To edit a retention policy:

- 1 Navigate to **Metadata > Setup > Retention Policies**.
- 2 Search for the retention policy that you want to edit. For details, see "Searching for Retention Policies" on page 118.
- 3 Click the underlined retention policy name.
- 4 Make any required changes to the name, description, active status, item(s) to be deleted, date of deletion, and affected content providers.
- 5 Click **Save**.

Deleting Retention Policies

To delete a retention policy:

- 1 Navigate to **Metadata > Setup > Retention Policies**.
- 2 Search for any retention policies that you want to delete. For details, see "Searching for Retention Policies" on page 118.
- 3 Select the checkbox to the left of the retention policy name.
- 4 Click **Delete**.
- 5 Click **Confirm**.

Understanding Cleanup

Over time, it is common for Media Suite to accumulate unwanted or invalid bundles or components as a byproduct of incomplete or unfinished operations. Media Suite includes cleanup functionality that enables you to locate and either fix or cull of such objects to keep the system unencumbered by the extra overhead involved with their storage and maintenance. The following section details what aspects of the various objects are examined, and how to use cleanup functionality within the application.

Bundle Cleanup

The bundle cleanup feature within Media Suite will help you find incomplete bundles within your deployment. A complete bundle is one that fulfills all of the mandatory requirements that have been set within the bundle template for that bundle type. Using this feature will help you to view, fix, or delete any invalid bundles that may have been inadvertently created or left within the system.

To search for incomplete bundles:

- 1 Navigate to **Metadata > Bundles > Bundles Cleanup**.
- 2 Select a Bundle Type from the drop-down list. Choose either a specific bundle type, or the “Any” option, which searches across all bundle types.
- 3 Click **Search**. A list of incomplete bundles matching your criteria will be shown.
- 4 Click the underlined bundle name to view the bundle details page.
- 5 Either investigate and fix what is missing for the bundle to be complete, or delete the bundle by clicking **Delete**.

Component Cleanup

Component cleanup functionality within Media Suite is focused on determining whether the requested component is bound to a bundle. This can allow you to easily find, bind, or delete orphaned components, or to know which components are in process within a binding queue.

To search for components according to their bind state:

- 1 Navigate to **Metadata > Components > Components Cleanup**.
- 2 Select a specific Component Type from the drop-down list, or select **Any** to search across all component types.
- 3 Select a component Status from the drop-down menu. Options include:
 - **All**, which shows all components regardless of their status.
 - **Bound**, which shows components that are bound to one or more bundles.
 - **Unbound**, which shows components that are not bound to any bundle.
 - **Bind Queue**, which shows components that are in a queue waiting to be bound to a bundle.
- 4 Click **Search**.
- 5 Click the check boxes to select one or more components and then click **Delete** (if required).

- 6 Optionally, you may click the underlined component name to view the component details. Then you can choose to either bind that component to a bundle, remove it from a bundle, or wait for an existing process to complete. The results are intended to give you a window into the component states so as to provide you operational insights and flexibility.

Bundle Templates

This chapter includes the following topics related to bundle templates:

- "Understanding Bundle Templates"
- "Managing Bundle Templates"

Understanding Bundle Templates

Bundle templates establish a structure and can set limits on the number of components and other bundles that are permitted within a template. Although a number of predefined bundles exist within the system, you are not limited to the default bundles within Media Suite. Whenever you require additional flexibility, you may create custom bundles that have a component structure tailored to your exact needs. Media Suite provides a graphical drag-and-drop interface for users to create and manage custom bundles.

Managing Bundle Templates

This section describes the various procedures involved in managing bundle templates.

Creating Bundle Templates

When creating new bundle templates certain rules must be obeyed with regards to placing entities within the bundle tree hierarchy and creating valid bundles that may be published for use.

The bundle template creation rules are as follows:

- Folders must initially be placed at the highest tree level as no components or bundles may exist directly under the base node.
- Components or bundles must be placed within a folder.
- Prior to publishing a bundle template, each folder must contain either a component or a bundle.

To create a bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click **Add New**. The ADD NEW BUNDLE TEMPLATE dialog appears.
- 3 Type the bundle template name.
- 4 Type a key value that will be used as an internal reference within Media Suite. Once the bundle template has been created, this key cannot be modified.
- 5 Type the bundle template name that should appear as a label for any localized instances of Media Suite.

- 6 Click **Create** to create an undefined placeholder for the bundle or click **Create & Edit** to immediately begin creating the bundle template. Once you start editing the bundle template, see “Editing Bundle Templates” on page 122.

Copying Bundle Templates

The structure of existing (published) bundles may not be modified. You may, however, make a copy and then alter or extend published bundle templates so that the end results match your exact requirements.

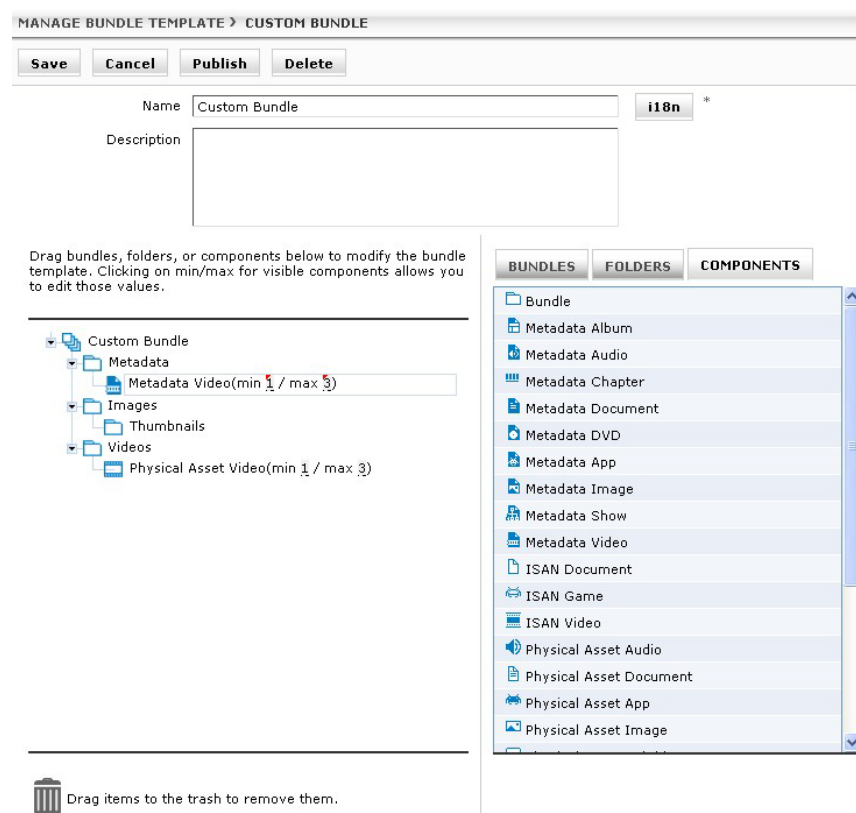
To copy an existing bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click the underlined link for the bundle template that you would like to edit.
- 3 Click **Copy & Edit**.
- 4 Type a name and key for the new bundle template.
- 5 Begin adding and removing components from the bundle template. For further details, see “Editing Bundle Templates” on page 122.

Editing Bundle Templates

Bundles, folders, and components may be added to or removed from unpublished bundle templates.

Figure 46 Manage Bundle Template Page



To edit an unpublished bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click the underlined name of the bundle template that you would like to modify.
- 3 Edit the bundle Name and Description as required.
- 4 (Optionally) click **Labels** to set labels to be displayed for any localized Media Suite instances. Click **Confirm** to set the labels.
- 5 The Edit Bundle template interface uses drag-and-drop functionality to perform its work. To add a folder, bundle, or component to the bundle being edited, drag the image from the repository at right to the bundle tree displayed at left. While you are dragging an entity, there are three states that are indicated by various mouse status icons during the dragging process.

Table 33 Mouse Status Indicators while Dragging

Indicator	Description
	The item being dragged is in transit from one part of the interface to another. Being in transit implies that the item is not currently held over any potential destination location.
	The item being dragged is being held over a bundle location where it may be deposited.
	The item being dragged is being held over a bundle location where it may not be deposited.

- 6 All new bundles start out with Metadata and Images folders. If you would like to add another bundle, or any components to the bundle you are editing, drag a folder in which to store those entities into the bundle.
- 7 To delete a bundle, component, or folder from a custom bundle, drag the item you would like to delete into the trash icon at the bottom of the screen. There is no delete confirmation and you cannot undo the action.
- 8 Drag and drop any required folders, bundles, or components to create your custom bundle. When adding a component to a bundle, you must specify the minimum and maximum possible components that may be added. Valid min/max values include 0, integers, and n, which allows an unlimited number of this component to be added.
- 9 Click **Save** once the bundle is complete.

Publishing Bundle Templates

Once you have finished creating or editing a bundle template it must be published in order to become available as one of the new bundle types for general use.

To publish a bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click on the underlined name of the bundle template you would like to publish.
- 3 Click **Publish** to make the bundle template available to the system for use. If you do not have a bundle or component within each folder, you will receive an error. Once a bundle template is published, its structure cannot be directly edited.

Editing Published Bundle Templates

After a bundle template is published, its structure cannot be directly edited. You may, however, make a copy and edit that copy.

To edit a published bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click on the underlined name of the published bundle you would like to edit.
- 3 Click **Copy & Edit** to make a duplicate bundle template that you may edit.
- 4 Type a Name and Key for the new bundle template. The key is an internal value used to establish a database reference.
- 5 Type a bundle Label for any supported Media Suite language. The Label will be shown whenever Media Suite is run in the specified locale.
- 6 Click **Confirm**.
- 7 Continue as if creating a new bundle template. For details on the process, see “Creating Bundle Templates” on page 121.

Deactivating Bundle Templates

Deactivating a bundle template makes it unavailable for use within Media Suite.

Warning Prior to deactivating a bundle template, ensure that any workflow definitions or binding rules that use this template are manually reset.

To deactivate a published bundle template:

- 1 Navigate to **Metadata > Setup > Bundle Templates**.
- 2 Click on the underlined name of the published bundle template you would like to deactivate.
- 3 Click **Deactivate**.
- 4 A confirmation appears stating the implications of deactivating a bundle template. Click **Confirm**.

Creating Custom Folders

As you know, folders are required at the highest level of the bundle structure in order to place components and bundles into. Custom folders may be created and edited within the bundle template page. When creating a custom folder, the following details should be understood:

- Folders have global scope and can be used by all bundle templates
- Include a label for a new folder or the system will use the key as a label. You will not be able to change the key after folder creation.
- Custom folders cannot be deleted.

To create a custom folder:

- 1** Navigate to **Metadata > Setup > Bundle Templates**.
- 2** Either copy and edit an existing bundle template, or create a new template. In this example, we will click **Add New** to create a new template.
- 3** Type a Name and Key for the new bundle template.
- 4** Click **Create & Edit**.
- 5** Click the **FOLDERS** tab.
- 6** Click the + sign beside **Add Custom Folder**.
- 7** Type a Name, Key, and Label for the new custom folder. The Label is typed for your relevant locale, with the default locale being en_US.
- 8** Click **Create**. The custom folder will appear on the list of available folders.
Click **Edit** to change the folder label.

Feeds

This chapter includes the following topics related to feeds:

- "Understanding Feeds", as shown below
- "Managing Feeds", as shown below

Understanding Feeds

Media Suite can output feeds containing bundle metadata to software and systems capable of consuming that information. Feeds include lists of active bundles along with descriptive and other metadata. To be efficient, feed deltas are generated to account for differences whenever there is a change to a bundle.

To enable feeds in Media Suite, you begin by creating a feed type that uses an XSLT to transform the default Media Suite metadata format into another required format and to display a subset of information from the source material. Once you have created a custom feed type (or chosen a predefined type), you create the actual feed and preview its content.

Note Changes in any custom attributes that you have created will not trigger a feed refresh. This behavior is intended to reduce the demand on server resources. Instead, existing custom attributes will be injected into the feed (as required) while it is being output.

Managing Feeds

The following section explains how to create feed types and feeds as well as how to activate, deactivate, and preview feeds.

Creating Feed Types

A feed type must be created and active within Media Suite prior to creating a feed. The feed type will specify how the source data will be transformed, and what fields will later be displayed within the feed. Three default feed types are available within the system (ATOM, RSS, and Solr VOD), but if you would like to create your own variation, the process is described in this section.

To create a new feed type:

- 1 Navigate to **Metadata > Setup > Bundle Feed Types** (For Bundles).
- 2 Click **Add New**.

Figure 47 Creating Feed Types

The screenshot shows a dialog box titled 'SETUP BUNDLE FEED TYPES' with a sub-header 'SAMPLEFEEDTYPE' and a page indicator '«3 of 4»'. At the top are three buttons: 'Save', 'Cancel', and 'Activate'. Below these are four input fields: 'Name' with the value 'SampleFeedType', 'Description' (empty), 'Custom XSLT' (empty) with a 'Browse' button, and 'Plugin' with a dropdown menu showing 'Entity Feed Plug-in'. Each input field has an asterisk (*) indicating it is required.

- 3 Type the feed type name.
- 4 Select a plugin that will be used for this feed type. The `Entity Feed Plug-in` performs some basic validation that is necessary for this task. The plugin verifies that your bundle is active, and that metadata exists within an existing locale set.

Note Additional feed types may be added using custom plugins, but those need to be added programmatically to Media Suite. For further information, refer to the *Media Suite Developer Guide*.

- 5 Click **Create & Edit**.
- 6 Type the feed type description.
- 7 Click **Browse** to select a Custom XSLT that is local to your computer or network. Custom XSLTs are created using an external tool and they enable source Media Suite feed data to be transformed in a manner that is fully compatible with the feed consumer.
- 8 Click **Save**. Once created, feed types cannot be deleted, but can only be deactivated.
- 9 Click **Activate**.

Creating Feeds

In general, feeds are created by selecting a feed type, optionally choosing an affiliate to output items that only belong to that affiliate, and then optionally selecting the specific bundle types that will be sent by the feed.

To create a feed:

- 1 Navigate to **Metadata > Bundles > Bundle Feeds**.
- 2 Click **Add New**.
- 3 Type the feed name.
- 4 Type the feed description.
- 5 Select the feed type to be used for determining the feed format that will be sent. Default options include ATOM and RSS feed types and whatever custom feed types you have created. Keep in mind that bundles should have their own unique feed types and that they are not interchangeable.

6 Click **Create & Edit**.

Figure 48 Configuring a Feed

MANAGE BUNDLE FEEDS > DOCSBUNDLEATOMFEED

Save Cancel Preview Activate

Feed successfully created.

Name docsBundleAtomFeed *

Description

URL http://{server_path}/feedURL

Affiliate -- None --

Feed Type Bundle ATOM

Output All Bundle Types ☐

Available Bundle Templates

- Album
- Album Collection
- Catalog
- Classification
- Classification Container
- Classification Node Branch
- Classification Node Branch Container
- Classification Node Leaf

Output Bundle Templates

- 7 The Feed Details page appears. Here you can finish configuring the feed, or change settings that you have previously set. A unique feed URL has been generated by a RESTful Web service and will be displayed. The feed output can be customized by appending various options to this URL. For details on these options, see the *Media Suite Developer Guide*.
- 8 Select an Affiliate for whom this feed is intended. If the “None” option is selected, then information for all affiliates will be output by the feed.
- 9 The Feed Type is the one that you have previously selected, though it can be changed in the Feed Type drop-down list, if necessary.
- 10 Check the **Output All Bundle Types** option, if appropriate. When this option is selected, all bundle types are included in the feed. Consequently, individual bundle types will not be displayed for selection.
- 11 If you deselect the **Apply to All Bundle Types** option, you will see a listing of individual bundle types to choose from.

Select one or more bundle types in the “Available Bundle Types” column. Click  to move any bundles into the “Selected Bundle Types” column. This option restricts feed output by allowing you to choose the specific bundle types that will be output by the feed.

- 12 Click **Activate**.

13 Click **Save**.

Note Feed output is limited to 1,000 records at a time. If you require larger feeds, then you will have to divide your output into smaller pieces using the start/count feed output parameters. For further details, refer to the *Media Suite Developer Guide*.

Deactivating Feeds

When you no longer wish to generate a feed, or to send its information outside of Media Suite, you may deactivate it.

To deactivate a feed:

- 1 Navigate to **Metadata > Bundles > Bundle Feeds**.
- 2 Perform a search for the required bundles. Clicking **Search** displays all available objects for that page.
- 3 Click the name of the feed to deactivate. This action will take you to the feed detail page.
- 4 Click **Deactivate**. A deactivated feed may later be activated by navigating to the feed detail page and clicking **Activate**.
- 5 Click **Confirm**.

Previewing Feeds

To preview a feed:

- 1 Navigate to **Metadata > Bundles > Bundle Feeds**.
- 2 Perform a search for the required bundles. Clicking **Search** displays all available objects for that page.
- 3 Click the name of the feed to preview.
- 4 Click **Preview**.

Key Management

Understanding KMS

The Key Management Server is an extensible module that generates, centrally stores, and transmits license keys in a manner that optimizes security for any DRM scheme used by Media Suite.

Configuring Key Management

To give you an example of how KMS is used, we will briefly describe how it can be configured for Capture Manager. This process would also be very similar for other modules. In order to configure KMS for use by Capture Manager you need to setup a client identity for Capture Manager as per the standard KMS configuration process. In this section we will briefly cover that process.

Create a Client Identity within KMS:

- 1 Navigate to **Key Management > Client Identities**.
- 2 Click **Add New**.
- 3 Specify the name of the new identity.
- 4 Click **Create & Edit**.

Figure 49 Manage Client ID

MANAGE CLIENT IDENTITIES > CAPTURE MANAGER CLIENT ID

Save Cancel Activate

Client Identity successfully created.

Name Capture Manager Client ID *

Username admin *

Passphrase

Confirm Passphrase

Certificate

Roles

- ENCRYPTION_SERVER
- KEYSET_ADMIN
- KEYSET_TEMPLATE_ADMIN
- KEY_PROVIDER_ADMIN
- LICENSE_SERVER

Public Key -- Please Select --

5 Configure the following settings:

Table 34 KMS Client Identity Settings

Setting	Description
Name	The Client Identity name that will be used within Media Suite.
Username	The username for Capture Manager Scheduler. Not currently supported. This field is reserved for future use.
Password and confirmation	The password for Capture Manager Scheduler. Not currently supported. This field is reserved for future use.
Certificate	Not currently supported.
Roles	Choose from predefined KMS administrator roles that will be used by this client identity. Roles in the right-hand pane are those that have been selected.
Public Key	Select an existing Public Key that will be used by this client identity. Public keys can be created on the Key Management > Public Keys page.

6 Click **Save**.

7 Click **Activate**.

To configure Key Management Server within system configuration:

1 Navigate to **Admin > Setup > Configuration**.

2 Within the configuration tree, navigate to **modules > lm > webservices**.

3 Configure the following settings:

Table 35 KMS Configuration Settings

Setting	Description
kmsservice.user	Specify the username that you set for the KMS client Identity.
kmsservice.password	Specify the password that you set for the KMS client identity.

4 Click **Save** after setting each value.

Reporting

This chapter includes the following topics related to reporting:

- "Understanding Reporting"
- "Running Reports" on page 134
- "Managing Reports" on page 134
- "Managing Parameters" on page 136

Understanding Reporting

Reporting capabilities within Media Suite provide the ability to generate and manage reports on details related to system content within Media Suite. Each report has specific parameters that can be set to view your required output. To provide additional flexibility, custom parameters and custom reports may be created programmatically. For information on creating custom reports and parameters, refer to the *Media Suite Developer Guide*.

Default Reports

The following table describes the default reports that are available within Media Suite. Parameters are listed for each report and, where necessary, descriptions are given to explain less obvious parameters.

Table 36 Default Media Suite Reports

Name	Description
Bundle Details	Shows the provider and bundle status for each bundle. Parameters: • Provider - select a content provider • Status - choose from All/Active/Inactive bundle status
Bundle Summary: Providers	Shows the number of bundles for each provider. After report generation, you can further specify a range of results that you would like to view on the screen. Parameters: • Provider - select a content provider

Running Reports

The following section describes how to run any reports that exist within Media Suite. Both default and custom reports are run in the same manner.

To run a report:

- 1 Navigate to **Admin > Reports > Run Reports**.
- 2 Click the underlined name for the report you wish to generate.
- 3 Specify the report parameters that you require. Available parameters will vary according to the selected report.
- 4 Click **Run Report**.
- 5 Once the initial report is displayed on the screen, you may have the following additional options:
 - To view a narrowed down range of results, enter values in the “Show only X to Y of Z results” fields. Where X is the starting number for the range, Y is the end number for the range, and Z is the total number of results.

Show only to of 47 results

- To view results in another format (where applicable), click **Grid** or **Chart**. Available options will vary according to the report that is selected because some reports are only suitable to specific report formats.
- To Export to either PDF or CSV format, use the **Export To** drop-down list to select the required option. Afterwards, a dialog will appear prompting you to save the generated report in the requested format.



Managing Reports

The following section explains how to create, edit, and deactivate reports within Media Suite.

Creating Reports

Although new reports may be created and edited within the Media Suite interface, doing so requires programming expertise. For details on creating custom reports, refer to the *Media Suite Developer Guide* or consult with your Cisco Systems representative.

To access the report creation page in the user interface:

- 1 Navigate to **Admin > Reports > Manage Reports**.
- 2 Click **Add New**.
- 3 Type the new report name.

- 4 Click **Create & Edit**.
- 5 The Custom Report Templates page will appear to allow you to create a new report. The two mandatory fields are:
 - **Report Type**, for which you can choose from Catalog Report, Entitlement Reports, or Account Reports.
 - **Source**, for which you can choose from Stored Procedure, SQL Query, or Java Class.

Figure 50 Create Report Page

- 6 After creating the report, click **Activate** to make the report active so that it can be used.

Deleting Reports

Reports cannot be deleted, but they can be deactivated.

To deactivate a report:

- 1 Navigate to **Admin > Reports > Manage Reports**.

- 2 Click the underlined name of the report that you would like to deactivate.
- 3 Click **Deactivate**.

Managing Parameters

Although report parameters may be created within the Media Suite interface, doing so requires programming expertise. For details on creating custom report parameters, refer to the *Media Suite Developer Guide* or consult with your Cisco Systems representative.

Creating Report Parameters

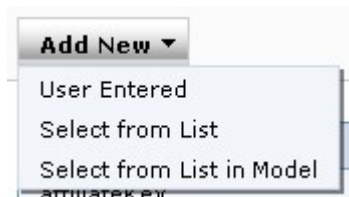
The following section will describe the process of creating custom report parameters.

Creating User Entered Parameters

To create a User Entered report parameter:

- 1 Navigate to **Admin > Reports > Manage Parameters**.
- 2 Click **Add New** to select one of the following parameter-type options: User Entered, Select from List, Select from List in Model. Depending on the option you choose, you will see different parameter creation options. The following example is for the User Entered parameter type.

Figure 51 Report Parameter Types



- 3 Type a parameter name, key, and where applicable, a localized label.
- 4 Click **Create & Edit**.
- 5 Select a **Data Type**. Options are: String, Date, Integer, and Double. Selecting the Date data type will bring up a Default Value option where you can select a date relative to now. Options include:
 - Today
 - Yesterday
 - Last Week
 - Last Month
 - Last Year
 - Tomorrow
 - Next Week
 - Next Month
 - Next Year
- 6 Click **Save**.

Creating Select from List Parameters

To create a Select from List Report Parameter:

- 1 Click **Add New** and choose the **Select from List** option.
- 2 Type a Name and a Key. If required, you can type labels for localized versions of Media Suite.
- 3 Click **Create & Edit**.
- 4 Select a **Data Type**. Options are String, Integer, and Double.
- 5 Click **Add Key**.
- 6 Type a Key value. Select a language. Type a label for that language.
- 7 If necessary, click the plus symbol to add another language and a label for that language. Additional languages can be added as required.
- 8 Click **Add Key** to add another key.
- 9 Once again, type a Key value, select a language, and type a label for that language. Add additional languages as you did with the first key.
- 10 Type a **Default Value**. This should be one of the listed Key values.
- 11 Click **Save**. For your reference, the screen below illustrates sample values for creating a custom parameter using the Select From List parameter type.

Figure 52 Select From List Parameter

The screenshot shows the configuration interface for a 'Select From List' parameter. The 'Name' field is 'Numbers-Parameter-Example' with a version indicator 'i18n *'. The 'Data Type' is set to 'String *'. The 'Default Value' is 'Key_One'. The 'ListValue' section contains a table with two keys, each having two language entries (en_US and fr_FR).

Key	Language	Label
Key_One	en_US	One
	fr_FR	Two
Key_Two	en_US	Two
	fr_FR	Deux

At the bottom of the table is an 'Add Key' button.

Creating Select from List in Model Parameters

Select from List in Model parameters are used to lookup values from database tables. The following steps will refer to a parameter that looks up a list of Affiliates. The example names are not real, but are intended for illustrative purposes only.

To create a Select from List in Model Report Parameter:

- 1 Navigate to **Admin > Reports > Manage Parameters**.
- 2 Click **Add New** and choose the **Select from List in Model** option
- 3 Type a Name and a Key. If required, you can type labels for localized versions of Media Suite.

- 4 Click **Create & Edit**.
- 5 Select a **Data Type**. Options are String, Integer, or Double.
- 6 For **Default Value** type a key value as indicated in the database table.
- 7 Select the **Show “All” Option** to include an “All” option in the parameter drop-down list.
- 8 Select the **Show “None Associated” Option** to include a “None Associated” option in the parameter drop-down list.
- 9 For **SQL Statement**, include the SQL query that will be used to populate the parameter drop-down list.
- 10 For **Key Column Name**, type the name of the key column field in the database table. For example, AffiliatePk.
- 11 For **Label Column Name**, type the name that will be used as a label for the parameter. For example, Affiliate Name.
- 12 Click **Save**.

Figure 53 Select From List In Model Parameter

Name i18n *

Data Type *

Default Value

Show "All" Option ☒

Show "None Associated" Option ☐

SQL Statement

Key Column Name

Label Column Name

Editing Report Parameters

The following section describes how to edit report parameters.

To edit a report parameter:

- 1 Navigate to **Admin > Reports > Manage Parameters**.
- 2 Click the underlined name of the parameter that you would like to edit. The parameter’s detail page appears.
- 3 Make any required parameter changes.
- 4 Click **Save**.

Deleting Report Parameters

The following section describes how to delete report parameters.

To delete a report parameter:

- 1 Navigate to **Admin > Reports > Manage Parameters**.
- 2 Click the underlined name of the parameter that you would like to delete.
- 3 Click **Delete**.
- 4 Confirm the deletion by clicking **Delete** again.

Administering Media Suite

The Admin module provides functionality related to administrator creation and gives the ability to manage some global settings for Media Suite. This chapter includes the following topics related to administering Media Suite administrators and system configuration settings:

- "Managing Administrators", as shown below
- "System Configuration" on page 144
- "Managing Currencies" on page 145
- "Understanding Cache Manager" on page 146

Managing Administrators

Administrators must be created in order to grant appropriate levels of access permissions and functionality to those using Media Suite. These permissions can include the assignment of a Restriction Key in order to specify what content an administrator has the ability to manage.

The following steps are required to set up an administrator:

1. Set up roles that have the required access permissions to various parts of Media Suite.
2. Select a combination of roles to define an administrator's capabilities.

Creating Roles

To create a role:

- 1 Navigate to **Admin > Roles**.
- 2 Click **Add New**.
- 3 Type a Role Name. Spaces cannot be used within roles names.
- 4 Click **Create & Edit**.

Figure 54 Managing Roles - Sample UI Permissions

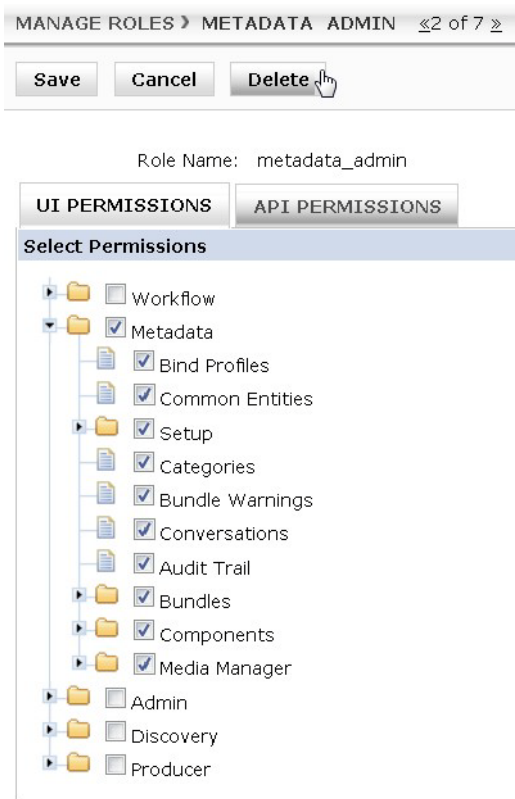
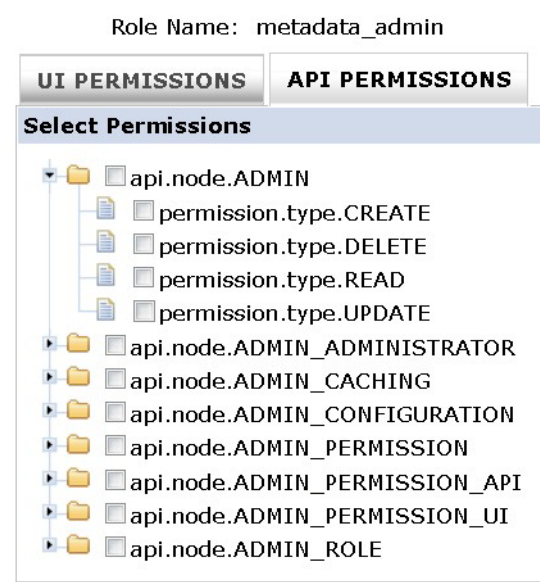


Figure 55 Managing Roles - Sample API Permissions



- 5 Permissions are presented on separate tabs for either user interface or API functionality. They are displayed in a tree hierarchy format and by installed Media Suite module. Click right-facing arrows to open any collapsed part of the hierarchy. Click downward-facing arrows to close any opened parts of the hierarchy.

- 6 Use the check boxes to select any required options for this role.
- 7 Click **Save**.

Deleting Roles

To delete a role:

- 1 Navigate to **Admin > Roles**.
- 2 Select any roles that you would like deleted.
- 3 Click **Delete**.
- 4 Click **Confirm**.

Creating Administrators

Administrators are created by selecting roles that have the required combination of permissions for Media Suite.

To create an administrator:

- 1 Click **Admin > Administrators**.
- 2 Click **Add New**.
- 3 Type a username.
- 4 Type an email address.
- 5 Type a password (with confirmation). Spaces are not permitted.
- 6 Select one or more roles that will define the permissions for this administrator. Roles are a customizable selection of UI and API permissions and vary depending upon what Media Suite modules you have installed and what has been preconfigured. For details, see “Creating Roles” on page 141. The following examples illustrate typical roles within Media Suite:
 - **epg_admin** provides access to EPG module functionality.
 - **webservice** provides access to those who want to write client applications that use Media Suite functionality through SOAP web services.
 - **producer_admin** provides access to Producer module functionality.
 - **snapshot_admin** provides access to bundle snapshot functionality. This includes the ability to manage bundles and components.
 - **super_admin** has unrestricted access to all parts of the application.
 - **workflow_admin** has access to all functionality within the workflow module.
 - **preview_admin** provides access for managing bundles within Producer.
 - **metadata_admin** has access to all functionality within the metadata module.

Note To view permissions that have been assigned to any role, navigate to **Admin > Roles** and click the required role to view its tree structure.

- 7 Select the Account Enabled option for this administrator account to be active upon creation, otherwise change this flag at a later time.

- 8 Select a locale from the drop-down list for this administrator. If no locale is selected, then this administrator applies to all locales.
- 9 Optionally select the timezone for this administrator. If this value is set, then EPG schedules will be displayed according to the selected timezone, instead of the native UTC format that they are stored in.
- 10 Optionally select one or more Restriction Keys. This action limits the administrator's viewing and editing rights to content that has the given Restriction Key applied to it. If you do not specify a Restriction Key, then the administrator will have access to all bundles and components within the system, regardless of what Restriction Keys have been applied to them.

Note An administrator using Restriction Keys would typically only have `producer_admin` and/or `metadata_admin` roles. That is because other points in the system, such as workflows, do not have Restriction Key logic applied to them.

- 11 Click **Save**.

System Configuration

The system configuration page consists of a folder tree that reveals parameters that can be set either globally or for individual components within Media Suite. During the installation process, nodes are created and populated with appropriate values for most deployments, so there should be little need to manually change settings afterwards. That being said, administrators should take care when modifying system configuration settings as incorrect entries may affect the proper operation of application modules. This section discusses how to access and make changes within the system configuration page. For details on specific entries and parameters, consult the *Media Suite Installation Guide*.

To update system configuration settings:

- 1 Navigate to **Admin > Setup > Configuration**. At left, a tree structure will appear that has 3 main nodes:
 - general, which stores settings that globally affect Media Suite
 - modules, which stores settings specific to each module installed in Media Suite
 - services, which stores information related to specific services that support Media Suite, such as single sign-on
- 2 Click on a node to view a (read-only) Name field and an Entry field. You can change the Entry value and click **Save** to confirm the value.
- 3 Click on a right-facing arrow to open a module hierarchy.
- 4 Click underlying nodes to see their (read-only) name and (modifiable) entry fields.
- 5 Click **Save** to confirm any changes.

To add system configuration nodes:

- 1 Navigate to **Admin > Setup > Configuration**. At left, a tree structure will appear that has 3 main nodes.
- 2 Click the `general` node to select it.

- 3 Click **Add New > Child with Entry** or **Add New > Child with Data** to add new nodes. The **Child with Entry** option permits nodes with up to 4K characters, while the **Child with Data** enables data entries far larger than 4K.
- 4 Additionally, a **Clone Child** button allows you to duplicate an entire node hierarchy that is directly under the general root node. The clone and all of its children can be deleted by clicking **Remove**.
- 5 Click **Save** once you have made changes at each node level.

Note Custom nodes can only be added or removed beneath the general node and not under the modules or services nodes.

Managing Currencies

Media Suite comes with a default set of currencies, but new currencies can easily be created when necessary. Once created, currencies may be used within Price Categories. For details on Price Categories, see “Price Category” on page 97.

Figure 56 Manage Currencies Page

MANAGE CURRENCIES					
Add New					
Name ▲	ISO Locale ▲	ISO Currency Code ▲	Status ▲	Default Currency	Modified ▲
British Pounds	en_GB	GBP	Active	☐	2014-12-17 10:29
CDN Dollars	en_CA	CAD	Active	☐	2010-01-01 00:00
Euros	fr_FR	EUR	Active	☐	2010-01-01 00:00
Japanese Yen	ja_JP	JPY	Active	☐	2010-01-01 00:00
US Dollars	en_US	USD	Active	☒	2014-12-17 10:29
					Results: 5

Creating Currencies

To create a currency:

- 1 Navigate to **Metadata > Setup > Currencies**.
- 2 Click **Add New**.
- 3 Type the currency name, an ISO currency code, and an ISO locale. The ISO currency code will be validated against actual codes, so it must be valid in order for the currency to be created.
- 4 Click **Create & Edit**.
- 5 On the currency detail page, you can make edits, save, and deactivate a currency. Additionally, you can set one currency as the default currency for Media Suite.
- 6 Click **Save**.

Editing Currencies

To edit a currency:

- 1 Navigate to **Metadata > Setup > Currencies**.

- 2 Click the line with the currency that you would like to edit.
- 3 Make any required currency changes.
- 4 Click **Save**.

Deactivating Currencies

If a currency is no longer used, it may be deactivated.

To deactivate a currency:

- 1 Navigate to **Metadata > Setup > Currencies**.
- 2 Click the line with the currency that you would like to deactivate.
- 3 Click **Deactivate**.
- 4 A Deactivate Currency confirmation dialog will appear to remind you of any consequences of deactivating the currency.
- 5 Click **Confirm**.

Activating Currencies

By default currencies are activated when they are created within Media Suite. If you deactivate a currency, at some point you may need to reactivate it.

To activate a currency:

- 1 Navigate to **Metadata > Setup > Currencies**.
- 2 Click the line with the currency that you would like to reactivate.
- 3 Click **Activate**.

Understanding Cache Manager

Media Suite caches a diverse set of information to improve performance related to Web service usage. The flush intervals for these caches can be configured within System Configuration, but in certain instances, you may need to manually flush one or more caches. This might occur, for example, if an administrator needs to immediately refresh data when updates are made to existing bundles and if the administrator cannot wait for the next scheduled refresh interval. After clearing information from the relevant cache, Media Suite will replenish the cache with the most recent information that is available during the next request.

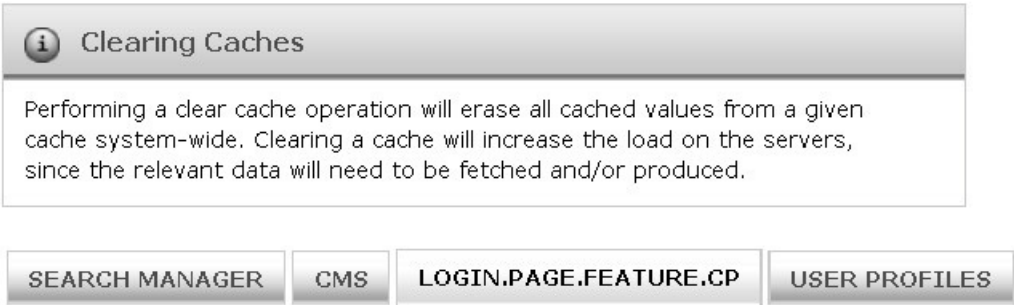
In general, the cache manager pages are used to clear values that were previously cached from Content Manager, Search Manager, or any component with its own tab. Flushing a cache allows any new, updated, or deleted values to be immediately refreshed from Media Suite to any external services for their use. If you do not clear a cache, the system automatically clears it after a set TTL (time to live) interval has lapsed. That interval can be configured on the **Admin > Setup > Configuration** page. For further details on configuring TTL values, refer to the *Media Suite Installation Guide*.

Clearing Cached Values

To clear caches (in general):

- 1 Navigate to **Admin > Cache Management**.
- 2 Click **Clear** for each cache that you would like emptied, or **Clear All** to clear all caches on that tab. Each tab has caches that correspond to that module, and the tab order presented in the user interface will vary depending upon the order in which modules were installed.

Figure 57 Cache Management Tabs



- 3 The system will replenish the cache with the most recent information that is available.

Cache Manager Options

Figure 58 Cache Manager CMS Tab

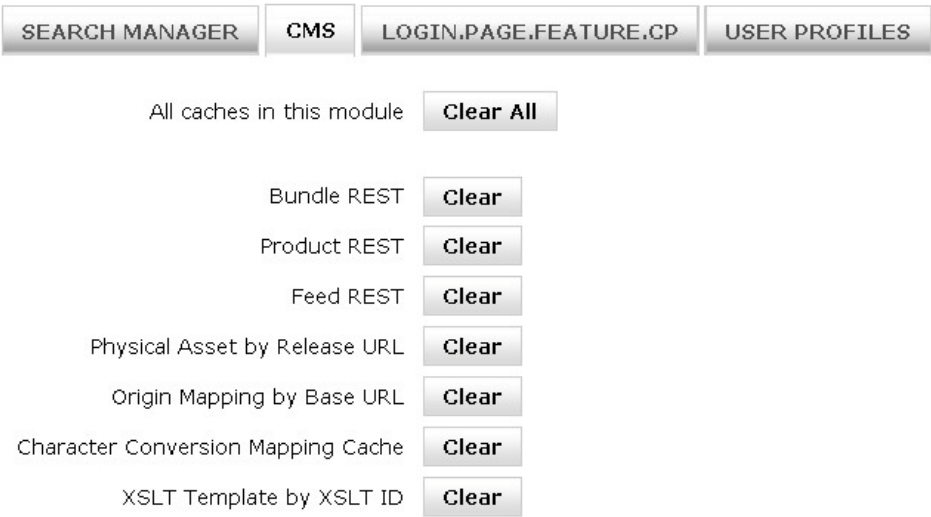


Figure 59 Cache Manager - Search Manager Tab

SEARCH MANAGER	CMS	LOGIN.PAGE.FEATURE.CP	USER PROFILES
----------------	-----	-----------------------	---------------

All caches in this module

Regions	Clear
Stations	Clear
Schedules	Clear
Content	Clear

Clearing URL Signer Values

To ensure that URL Signer values returned by REST calls are the most recent (if you have made changes to those values), you will need to clear the following caches:

- Component by UUID (Entitlement tab)
- Physical Asset by Content ID (Entitlement tab)
- All URL Signing Configurations (Entitlement tab)
- Active URL Signing Configurations (Entitlement tab)
- URL Signing Configuration by Name (Entitlement tab)
- URL Signing Configuration by UUID (Entitlement tab)
- Physical Asset by Release URL (CMS tab)
- Origin Mapping by Origin Base URL (CMS tab)

Clearing Origin Mapping Values

To ensure that Origin Mapping values returned by REST calls are the most recent (if you have made changes to those values), you will need to clear the following caches:

- Component by UUID (Entitlement tab)
- Physical Asset by Content ID (Entitlement tab)
- Physical Asset by Release URL (CMS tab)
- Origin Mapping by Base URL (CMS tab)

A Sample Workflow

This chapter describes a comprehensive set of procedures related to configuring a sample Media Suite Classic workflow. These procedures touch on many key areas of functionality within the application and indicate best practices for creating an automated workflow.

The following topics will be covered:

- "Classic Media Suite Workflow Overview", as shown below
- "Establishing Folder Structures and File Naming Conventions" on page 151
- "Configuring Repository Nodes" on page 152
- "Configuring Actions" on page 155
- "Creating Bind Profiles" on page 161
- "Creating Workflows" on page 163
- "Starting the Workflow" on page 166

Classic Media Suite Workflow Overview

This Classic Media Suite workflow example consists of the following flows that will run in parallel to process a logical video-based product. This flow covers three physical files (an XML file, a WMV file, and a JPG) that will be placed into a hot folder to start a workflow.

Note The concept of "Product" was removed from Media Suite in version 5.7.3. However productization, related ESBs, and other procedures will be shown in this "classic" workflow example. They remain here strictly for illustrative purposes.

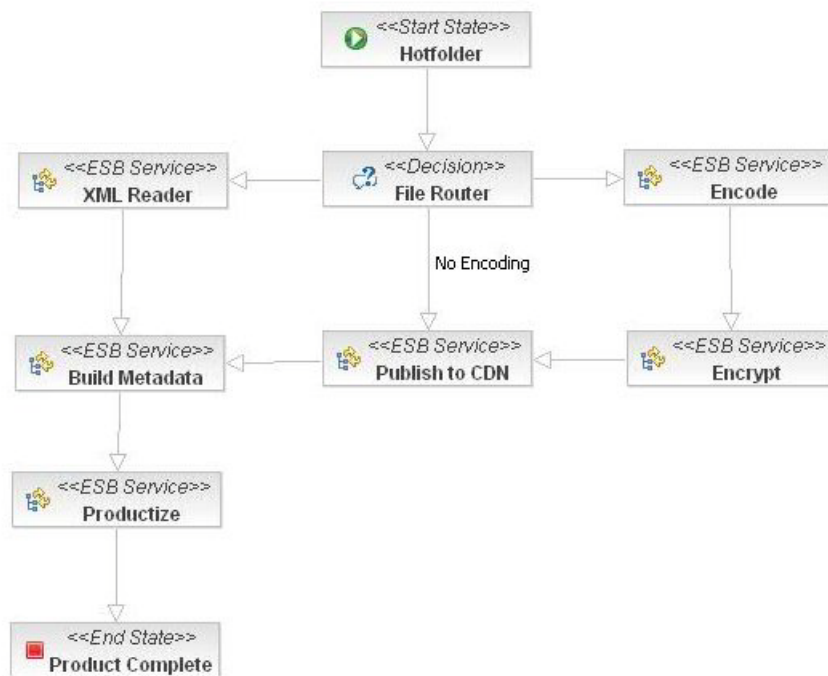
Note Various ESBs, such as the `CDSTVPublisherService`, the `DrmPackagerService`, and the `EncoderService` have been removed from Media Suite as of release 5.7.17. Those ESBs will remain in the documentation in the near term, as they are still relevant from a theoretical perspective in terms of understanding how to set up the various templates and profiles.

The following table should be read from top to bottom:

Table 37 Media Suite Classic Workflow Steps

XML File Flow	WMV File Flow	JPG File Flow
Ingest XML	Ingest WMV File	Ingest JPG
XML Reader Reads XML data into memory.	Transcode Reformats video and audio to match the format of any target devices.	Publish to CDN This file does not need to be processed and can be sent directly to the CDN.
Build Metadata Validates and builds the bundle structure using the bundle metadata and then binds incoming components as they become available.	Encrypt If required, this process locks the video file so that a license will be required in order for the content to be viewed on a device.	Build Metadata Binds the (physical asset image) component to the bundle.
Productize Applies a policy to the logical video bundle to create the product.	Publish to CDN Moves physical files to a content delivery network from where they can be efficiently downloaded. Build Metadata Binds the (physical asset video) component to the bundle.	

Figure 60 Media Suite Classic Workflow Definition



The following steps are required to set up a Classic Media Suite workflow:

1. Establish a folder structure and file naming convention
These conventions enable Media Suite to find content and link it to bundles by using bind profiles. They also enable you to name and structure the repository and incoming content.
2. Create a repository by:
 - Adding a new repository node
 - Creating a hot folder
3. Create action templates using the following ESBs:
 - File (for the Publish to CDN node)
OC_ESB_PROCESSOR_FILE:RepositoryManagerService
This template is provided as a Media Suite default.
 - Transcoder (for the Transcode node)
OC_ESB_PROCESSOR_ENCODER:EncoderService
 - DRM (for the Encrypt node)
OC_ESB_PROCESSOR_DRM:DrmPackagerService
 - Productize (for the Productize node)
OC_ESB_PROCESSOR_PRODUCTIZE:ProductizeService
This template is provided as a Media Suite default.
4. Create action profiles (from the action templates)
5. Create a bind profile (used to create the bundle)
6. Create a DRM profile (of type PlayReady License)
7. Create an entitlement check
8. Create a policy (used to create the product)
9. Import a PAR file to create a workflow template
10. Configure the workflow definition
11. Deploy and activate the workflow definition
12. Initiate the workflow by linking the hot folder to the workflow definition

Establishing Folder Structures and File Naming Conventions

When planning your workflow, it is critical to also plan your folder and naming structures for incoming content. This is important for two reasons:

1. It establishes where your content needs to be placed at the outset and how it should be named.
2. It enables you to plan ahead for creating a bind profile that will attach this content to a bundle.

In each instance, the key is consistency. In this sample, the content should be accessible from a file share that is local to the Media Suite application server.

The incoming content is as follows:

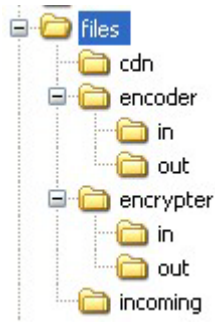
/files/incoming/movie.xml (the bundle XML)

/files/incoming/movie.wmv (the feature video)

/files/incoming/movie.jpg (the product thumbnail)

The folder structure is as follows:

Figure 61 Sample Folder Structure



Configuring Repository Nodes

Repository nodes serve as local or remote locations where files can be accessed by Media Suite for processing. To create a repository node, you must first mount a filesystem and then (optionally) create a hot folder. Supported filesystem protocols include File (local to the network that Media Suite is installed), FTP, SFTP, and PFS (for remote filesystems).

Creating Repository Nodes

To mount a filesystem as a repository node:

- 1 Navigate to **Workflow > Repository Manager**.
- 2 Click **Add New**.
- 3 In the MOUNT REPOSITORY NODE dialog, type a name and description for the repository node.
- 4 Click **Save**.
- 5 On the Edit Repository Node page, populate the available fields.

Table 38 Edit Repository Node Fields

Field	Description
Name	A label naming your repository node.
Description	A more detailed description of your repository node.
URL (and Protocol)	The protocol and URL values are presented by a drop-down list and a text box. The drop-down list shows a protocol that Media Suite uses to transfer files to and from this filesystem. Supported protocols include file:// (local), ftp, sftp, and pfs://. The file:// setting is local to the network upon which Media Suite is installed. pfs is a protocol that Cisco Systems software uses to manage files remotely. The text box stores a URL that is combined with the protocol to establish the full path for the repository node. After the filesystem is mounted correctly, these values become read-only. To change these values, you would need to delete the filesystem and recreate a new one. Note The filesystem URL must have a slash preceding and following it.
Domain	A domain name for filesystems that require access using a domain.
Username	The user name for filesystem access.
Password	The password for filesystem access.
Private Key	Required for a public key encrypted filesystem (for SFTP).
Public URL	The URL that would be used to access the filesystem from the Internet.
Permissions	Select the read-only option so that users cannot write to the filesystem.

Figure 62 Repository Node Details

Edit Repository Node

General

Name *

Description *

Filesystem URL *

Authentication

Domain

Username

Password

Private key

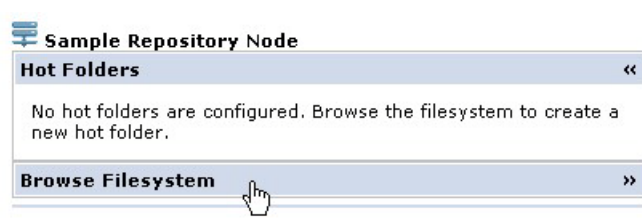
Access

Public URL

Permissions ☐ Read-only

- 6 Click **Save**.
If you do not receive a successful confirmation message, you will need to review the values in your Repository Node fields.
- 7 To create a hot folder, click the **Browse Filesystem** heading.

Figure 63 Browse Filesystem Heading



- 8 Select the folder where you would like to establish a hot folder. Any files within that folder will be displayed at right.

Note Hot folders may not be created within other hot folders.

- 9 Click **Create Hot Folder**.
- 10 In the CREATE HOT FOLDER dialog, type a name and description for the hot folder.
- 11 Click **Save**. This establishes a generic reference to a hot folder.
- 12 On the EDIT HOT FOLDER page, populate the required fields.

Table 39 Edit Hot Folder Fields

Field	Description
Name	The name of this hot folder. This name will later be selected in a workflow definition.
Description	The description of this hot folder.
Host Node	The repository name. This is a read-only value.
Root Path	The path that should be considered the root of the file structure originating at the host node. This is a read-only value.
Active Date	The (mandatory) date when a hot folder should be active for use.
Inactive Date	An optional date when a hot folder should be made inactive.
Process Subfolders	A boolean option that indicates whether processing should also occur for content within subfolders of this hot folder.
Bypass scanning for Filename (Regex)	Filenames that match this regex expression will be excluded from all hot folder operations.
Bypass workflow for Filename (Regex)	Filenames that match this regex expression will not be processed through workflows. These files, although scanned, will not be loaded into the workflow content file and will not be passed into a workflow instance.
Event Plugin	Used for selecting a plugin that will be executed for each hot folder event. As of Media Suite 5.7.2, this drop-down will be removed and its functionality will instead be performed by a custom workflow prioritization plugin.
Related Workflow Definitions	A table that indicates any workflow definitions or workflow templates that are using this hot folder.

Figure 64 Edit Hot Folder Page

Edit Hot Folder

Save

Deactivate

Cancel

Delete

General

Name

Sample Hot Folder

Description

Sample hot folder description

Host Node

Hotfolder-FS

Root Path

testLogicalVideo/

Modified

2015-11-17 11:32

Processing

Priority

5

Process Subfolders

☒

Bypass scanning for
Filename (Regex)

Bypass workflow for
Filename (Regex)

Event Plugin

-- Please Select --

Related Workflow Definitions

Name	Workflow Template

13 Click **Save**. Once created, the hot folder appears under the hot folder listing.

Configuring Actions

Action templates define the general configuration settings for each type of ESB (Enterprise Service Bus), each of which performs a specific function within a workflow. Action profiles provide more detail related to how that work will be performed. Action profiles will later be attached to nodes within a workflow definition where they establish exactly what work will be performed at each node. The following section explains the general process for configuring action templates and action profiles.

Creating Action Templates

To create an action template:

- 1 Navigate to **Workflow > Setup > Action Templates**.
- 2 Click **Add New**.
- 3 In the NEW ACTION TEMPLATE dialog, type the action template name and description. For clarity, the following naming convention will be used: Sample_AT_Name or Sample_AP_Name. The “AT” stands for action template, while the “AP” stands for action profile. This will enable you to identify them at a glance as you will be working with both in the following sample procedures.
- 4 Select the OC_ESB_PROCESSOR_ENCODER:EncoderService.
- 5 Click **Create & Edit**.

Figure 65 Sample Action Template Encoding Configuration

SETUP ACTION TEMPLATE > SAMPLE_AT_ENCODING

Save Cancel Create Action Activate

✔ Action template successfully created.

Name: Sample_AT_Encoding *

Description: Sample description.

ESB Service Address: OC_ESB_PROCESSOR_ENCODER:EncoderService

Web Service

Web Service URL: http://servername/EncoderService/EncodingSvc.asmx?wsdl *

Path Mapping

Repository Path: /Sample_Repository_Node/encoder/ *

Local Path: C:\files\encoder\ *

Directory

Input Directory: in *

Output Directory: out *

Table 40 Transcode Action Template Settings

Field	Description
Name	The name of the action template (in this case, Sample_AT_Encoding). No spaces should be used.
Description	A description for this action template.
ESB Service Address	The transcoding ESB that will perform the action for the workflow node. This is populated from the initial ESB selection when you created the action template placeholder. In this instance, the ESB will be: OC_ESB_PROCESSOR_DRM:
Web Service URL	The URL for the encoding web service. Encoding must be performed on a Windows server. The Web Service URL will follow this naming convention: http://{server}/EncoderService/EncodingSvc.asmx?wsdl
Repository Path	The name of the repository that was mounted (including the encoding subfolder).

Table 40 Transcode Action Template Settings

Field	Description
Local Path	The local path for the encoding folder on the Windows server. All file and folder names are case sensitive as they will be interpreted by a Linux server.
Input Directory	The transcoding input directory within the local path.
Output Directory	The transcoding output directory within the local path.

Table 41 Encrypt Action Template Settings

Field	Description
Name	The name of the action template. No spaces should be used.
Description	A description for this action template.
ESB Service Address	The encryption ESB that will perform the action for the workflow node. This is populated from the initial ESB selection when you created the action template placeholder. In this instance, the ESB will be: OC_ESB_PROCESSOR_DRM:DrmPackagerService
Web Service URL	The URL for the encryption web service that resides on a Windows server. The Web Service URL will follow this naming convention: http://{server}/DrmPackagerService/DrmPackagerWS.asmx?wsdl
Repository Path	The name of the repository that was mounted (including the encoding subfolder).
Local Path	The local path for the encryption folder on the Windows server. All file and folder names are case sensitive as they will be interpreted by a Linux server.
Input Directory	The encryption input directory within the local path.
Output Directory	The encryption output directory within the local path.

Table 42 Armada Action Template Settings

Field	Description
Name	The name of the action template. No spaces should be used.
Description	A description for this action template.
ESB Service Address	The ESB that will perform the action for the workflow node. This is populated from the initial ESB selection when you created the action template placeholder. In this instance, the ESB will be: OC_ESB_PROCESSOR_Armada:ArmadaService
REST Service Host	The name of the server hosting the Armada Web Service.
REST Service Port	The port of the server hosting the Armada Web Service.
Callback Endpoint URL	The URL to be POSTed to once the work order/template completes, either successfully, or due to an error. Use the following naming convention: http://{server}:{port}/opencase/ContentProcessor/resource/rest/armada/callback
Repository Path	The name of the repository that was mounted (including the packaging subfolder).
Local Path	The local path for the content folder on the Windows server. All file and folder names are case sensitive as they will be interpreted by a Linux server.

Table 42 Armada Action Template Settings

Field	Description
Input Directory	The packaging input directory within the local path. This location will contain source material that will be transcoded into multiple streams.
Output Directory	The packaging output directory within the local path. This location will contain the multiple video files that were created by the transcoding process.
Armada Server Version	Refers to the Armada Server (a.k.a. Cisco AnyRes VOD) version that will be used for transcoding. Choosing version 4.5+ will enable you to create HLS/AES assets.

Action templates that use the FileDiscoveryService ESB require no additional details once the placeholder has been established.

6 Click **Activate**.

Activating makes this action template available for use within action profiles. Do not exit this page as the steps will continue in the next section.

Creating Action Profiles

Action profiles are created by adding specific details to the more general settings defined within action templates. In other words, while an action template might only specify to Transcode, the action profile would further specify to Transcode using Expression Encoder. As required, one or more action profiles can be created based on a single action template. These action profiles will later be used to configure workflow nodes within the Workflow Definition.

To create an action profile:

- 1 Continue from the action template details page. Click **Create Action**.
- 2 Configure the following fields for the action profile:

Table 43 Transcode Action Profile Settings

Field	Description
Name	The name of the action profile (in this case, Sample_AP_Encoding). No spaces should be used.
Description	A description for this action profile.
Action Template	A read-only value that displays the action template upon which this action profile is based.
Config Filename	The name of the transcoder configuration file without the XML extension.
Job Name	The transcoder's "provider" information. This value is shown within the XML config file (described above).
Related Workflow Definitions	A table that indicates any workflow definitions that are using this action profile.

Figure 66 Manage Action Profiles Page

MANAGE ACTION PROFILES > SAMPLE_AP_ENCODING

SaveCancelActivate

✔ Action profile successfully created.

Name

Sample_AP_Encoding*

Description

Sample description.

Action Template

Sample_AT_Encoding

Encoding Configuration Settings

Config Filename

expres-encoder-job*

Job Name

OCEXpressionEncoder*

Related Workflow Definitions

Name	Workflow Template

- 3 Click **Save**.
- 4 Click **Activate**.
Activating makes this action profile available for use within workflow definitions.
- 5 Click **Workflow > Setup > Action Templates**
This returns you to the action templates page where you can configure the other ESBs. You will need to repeat the process once again: create an action template; save it; activate it, and then create an action profile; save it; and activate it. The settings for configuring each item are shown below.
- 6 To configure the Encrypt Action template, populate the following fields:

Table 44 Encrypt Action Template Settings

Field	Description
Name	The name of the action template (in this case, Sample_AT_Encrypt). No spaces should be used.
Description	A description for this action template.
ESB Service Address	The encryption ESB that will perform the action for the workflow node. This was populated from your initial ESB selection when you created the action template placeholder.
Web Service URL	The URL for the encrypting web service. Encryption must be performed on a Windows server.
Repository Path	The name of the repository that was mounted (including the encrypter subfolder).

Table 44 Encrypt Action Template Settings

Field	Description
Local Path	The local path for the encrypting folder on the Windows server. All file and folder names are case sensitive as they will be interpreted by a Linux server.
Input Directory	The encryption input directory within the local path.
Output Directory	The encryption output directory within the local path.

- 7 To configure the Encrypt Action profile, populate the following fields:

Table 45 Encrypt Action Profile Settings

Field	Description
Name	The name of the action profile (in this case, Sample_AP_Encrypt). No spaces should be used.
Description	A description for this action profile.
Action Template	A read-only value that displays the action template upon which this action profile is based.
Processor Action Type	Select the type of encryption that will be used (in this case PlayReady).
Key ID	This optional field does not need any input from administrators because it is automatically generated if it is blank.
Key Seed	This is the key seed that will be used in PlayReady packaging if not passed from a DRM Keys record by Media Suite. This value must be generated by a special utility and is a PROTECTED SECRET. Please consult with your ExtendMedia Inc. representative for further assistance.
License Acquisition URL	The license acquisition URL is where consumers will be directed if/when their license expires or becomes invalid.
Individualized Version URL	2.2.0.1 for PlayReady / 2.2 Windows Media Encoder
Related Workflow Definitions	A table that indicates any workflow definitions that are using this action profile.

- 8 You do not need to create a Publish to CDN action template because the Repository Manager service related to that functionality is already provided by default. You must, however, create the action profile.
- 9 To configure the Publish to CDN action profile, populate the following fields:

Table 46 Repository Manager Action Profile Configuration Settings

Field	Description
Name	The name of the action profile (in this case, Sample_AP_Publish_To_CDN). No spaces should be used.
Description	A description for the action profile.
Action Template	A read-only value that displays the action template upon which this action profile is based.

Table 46 Repository Manager Action Profile Configuration Settings

Field	Description
Destinations	One or more destinations for this distribution. Click Add to add a new definition and click  to remove a listed definition.
Command	Options are move, copy, or delete. These options specify how physical files will be relocated from the source directory.
Related Workflow Definitions	A table that indicates any workflow definitions that are using this action profile.

10 You do not need to create a Productize action template because the Productize service related to that functionality is already provided by default. You must, however, create the action profile.

11 To configure the Productize action profile, populate the following fields:

Table 47 Productize Action Profile Configuration Settings

Field	Description
Name	The name of the action profile (in this case, Sample_AP_Productize). No spaces should be used.
Description	A description for this action profile.
Action Template	A read-only value that displays the action template upon which this action profile is based.
Related Workflow Definitions	A table that indicates any workflow definitions that are using this action profile.

12 Save and Activate.

Creating Bind Profiles

Bind profiles are used within workflows to associate incoming content with bundles. The following example uses a simple naming convention to create a bind profile for a logical video. For a more in-depth explanation of bind profiles, see “Binding & Metadata” on page 47.

To create the bind profile:

- 1 Navigate to **Metadata > Bind Profiles**.
- 2 Click **Add New**.
- 3 Type a bind profile name and description, and select the Logical Video bundle template.
- 4 Click **Create & Edit**.
- 5 On the bind profile details page, check “Bundle Activation” so that the bundle automatically activates once the minimum content requirements are met.
- 6 Next, set the Bundle Association rules. For Bind ID, select “partial path” and “filename”. A bind ID is a custom identifier that can be set from parsing the file path of the bundle XML. This ID could be a folder name, or part of the filename.

Figure 67 Setting the Bind ID

Bundle Association

Derived from the original path of the bundle XML, the Bind ID can be modified for targeted associations.

Bind ID

- 7 For the “Find where” option, select “filename” equals “bind ID”. The “find where” option allows the system to group incoming components or files by a common identifier. In this case, any files where the filename equals whatever was set as the bind ID will be grouped together for inclusion into the bundle.

Figure 68 Setting Bundle Associations

Define how OpenCASE should identify that different bits and pieces belong together.

Find where equals

- 8 The Component Association section is used to attach incoming files (that first passed the bundle association rules) to specific folders. Select the Videos folder within the bundle structure to set the rules for content that will be directed to that folder.
- 9 Configure Attach Physical Asset Video where “extension” equals “wmv”. This will cause any file with a wmv extension to be attached to the videos part of the bundle.

Figure 69 Setting Physical Asset Video Association

☐ Logical Video
☐ Metadata
☒ Videos
☐ Subtitles
☐ Images
☐ Ad Insertion Points
☐ ISAN
☐ Manifest
☐ Chapters
☐ Licensing Window
☐ Video Previews

Component Association

Attach Physical Asset Video

where

- 10 Select Images then Thumbnails within the bundle tree structure.
- 11 Configure Attach Physical Asset Image where “extension” equals “jpg”. This will cause all incoming content with a jpg extension to be attached as a thumbnail image.

Figure 70 Setting Physical Asset Image Association

Component Association

Attach Physical Asset Image

where

- 12 Click **Save**.
- 13 Click **Activate**.

Creating Workflows

Media Suite workflows can be created within software such as an Eclipse plug-in called JBoss Tools. This plug-in allows you to create PAR files that can be imported into Media Suite where they become workflow templates. To create PAR files as a basis for workflows, refer to the *Media Suite Developer Guide* or consult with your Cisco Systems representative.

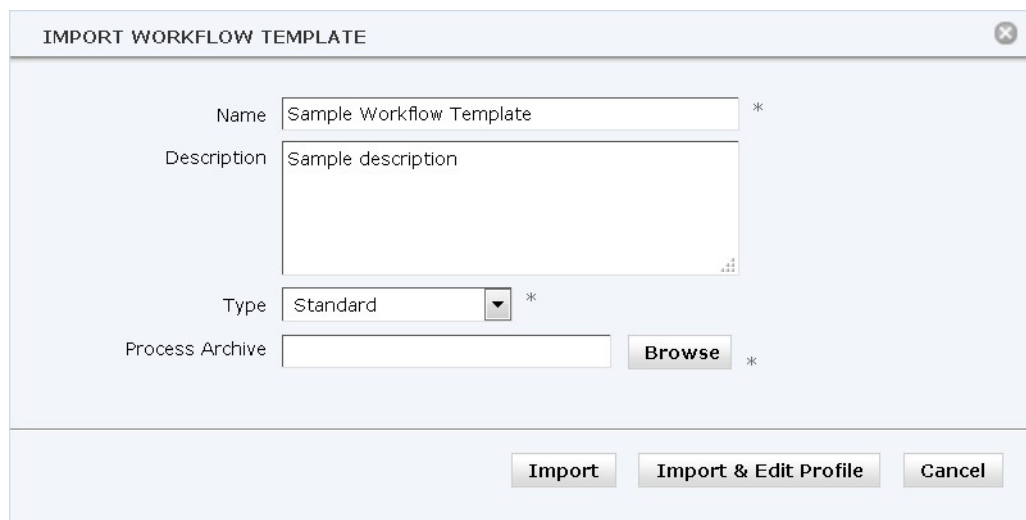
Creating Workflow Templates

A workflow template is created when you import a process definition (PAR file) into Media Suite. Process definitions can be created with programs such as the Eclipse plugin called JBoss Tools.

To create a workflow template:

- 1 Navigate to **Workflow > Setup > Workflow Templates**.
- 2 Click **Import**.
- 3 On the IMPORT WORKFLOW TEMPLATE page, type a name and description for this template.
- 4 Click **Browse** to bring up a file selection dialog. Search for the *.par file that you would like imported. For details on creating a Workflow Template, see “Creating Workflow Templates” on page 35.
- 5 Click **Import & Edit Profile**. The workflow template is now created and in an active state.

Figure 71 Import Workflow Template Dialog



- 6 A page will list the name, description, and workflow archive name. At the top, a number of buttons are shown with the following options:
 - Save - saves the imported workflow.
 - Cancel - exits the current screen and reverts any changes that were made. After a cancel action, you will be taken back to the list page.
 - Create Definition - allows you to create and configure the workflow definition.
 - Activate/Deactivate - allows you to activate or deactivate the existing workflow template. Only active workflow templates can be used in workflow definitions.

- Reimport - Allows you to reimport a process definition (PAR file) after changes have been made.

Figure 72 Setup Workflow Template Page

SETUP WORKFLOW TEMPLATE > SAMPLE WORKFLOW TEMPLATE

Save Cancel Create Definition Deactivate Reimport

✓ Workflow template successfully updated.

Name Sample Workflow Template *

Description Sample description.

Process Archive OpenCASE Classic.par

7 Click Save.

Workflow templates are active by default when created. Stay on this page as you will create a workflow definition from this location.

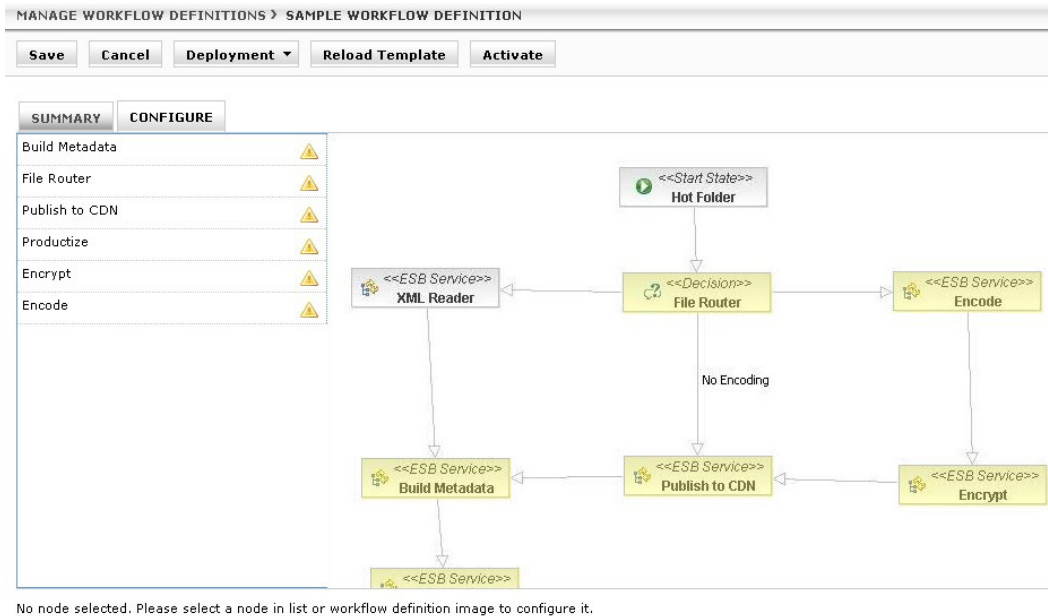
Creating Workflow Definitions

A workflow definition is created by configuring the nodes of a workflow template.

To create a workflow definition:

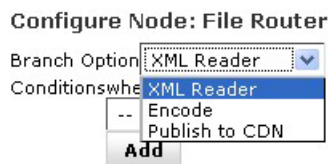
- 1 Click **Create Definition**.
- 2 Type a workflow definition name and description. From the drop-down list, select the workflow template that you previously created.
- 3 Click **Create & Edit**.
- 4 Click the **Configure** tab.
- 5 A graphical representation of the process definition should appear. You will have to click on each node to view its configuration options. At left, is a list of nodes that must be configured.

Figure 73 Manage Workflow Definitions Page



- 6 Click the “Build Metadata” node and scroll down to the bottom of the page to see the configuration options for that node.
- 7 Select the “Sample Bind Profile” processor from the drop-down list.
- 8 Click the “File Router” node and scroll down to the bottom of the page to see the configuration options for that node. This drop-down list will require multiple selections to configure each option.

Figure 74 Configuring the File Router Workflow Node



- 9 Configure the Branch Option drop-down list to “XML Reader” where “Extension” “equals” “xml”. This establishes the decision path for the incoming XML files.

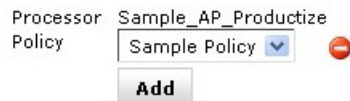
Note Regular expressions, such as (png|jpg|bmp) can be used to provide additional flexibility when specifying conditions for decision nodes.

- 10 Return to the Branch Option drop-down list and select the “Transcode” option. Then configure where “Extension” “equals” and type “wmv”. This establishes the decision path for incoming video files.
- 11 Configure the Branch Option drop-down list to “Publish to CDN” where “Extension” “equals” “jpg”. This establishes the decision path for incoming JPG files. These files do not need any processing and can therefore go directly to the content delivery network.

- 12 Click the “Publish to CDN” node and scroll down to the bottom of the page to see the configuration options for that node.
- 13 Select the “Sample AP Publish To CDN” processor from the drop-down list.
- 14 Click the “Productize” node and scroll down to the bottom of the page to see the configuration options for that node.
- 15 The (Sample AP Productize) processor is already pre-populated for this node and cannot be changed. Select the “Sample Policy”.

Figure 75 Configuring the Productize Workflow Node

Configure Node: Productize



Processor Sample_AP_Productize

Policy Sample Policy

Add

Note Multiple policies may be selected when you need to simultaneously create more than one product from the same bundle. Click **Add** to add additional policies to the list.

- 16 Click the “Encrypt” node and scroll down to the bottom of the page to see the configuration options for that node.
- 17 Select the “Sample AP Encrypt” processor from the drop-down list.
- 18 Click the “Transcode” node and scroll down to the bottom of the page to see the configuration options for that node.
- 19 Select the “Sample AP Transcode” processor from the drop-down list.
- 20 Click **Save**.
- 21 To deploy the workflow, click **Deployment > Deploy**. Then **OK** to confirm.
- 22 Click **Activate** to activate the workflow.
- 23 Click the **Summary** tab.
- 24 Under Trigger Event > Source : Hot Folder click **Add**.
- 25 Select “Sample Hot Folder” from the drop-down list.
- 26 Click **Save**. The workflow should proceed as configured. Despite all the initial set up that is involved, you only need to completely configure a workflow once. Afterwards, when you place new files into the hot folder, the workflow will perform all the work by itself.

Starting the Workflow

Once all the prerequisites for your workflow have been created or configured, you place your bundle XML and all related files within the hot folder that is listed as the first step within the flow. If the HotFolderNewContent option is used as a trigger event, hot folders are frequently polled for new content. That will cause the system will recognize and begin processing any new files during the next scheduled interval. For more information on configuring other workflow trigger events, see “Configuring Custom Workflows” on page 35.

All ingested files will be renamed with a tilde (~) at the front. This will trigger the start of the workflow steps.

After the workflow has been initiated, you may optionally consider additional tasks such as:

- “Monitoring Workflows and Tasks” on page 81
- searching through bundles (see “Managing Bundles” on page 104)
- searching through products (N/A in the current system. Mentioned only as a task example.)
- creating feeds (see “Feeds” on page 127)

Part B

PRODUCER

Producer Overview

Understanding Producer

The following guide sections will explain Producer, a Media Suite module that augments and centralizes updates for bundle metadata, image, and task management. Producer adds the following capabilities and enhancements to Media Suite in a customizable interface:

- efficient management of general and localized metadata, images, videos, categories, licensing windows, licensing, availability, and offer windows, warnings and conversations. Tab availability is customizable, so visible options may vary between deployments.
- video asset preview and editing capabilities
- metadata augmentation
- spell checking
- image processing
- illegal character conversions
- spreadsheet ingestion of bundle metadata
- workflow tasks
- bundle warnings
- metadata source configuration

Note For details on customizing the Producer tabs, consult the Media Suite Developer Guide.

Managing Categories & Genres

Understanding Categories & Genres

At first glance categories and genres may appear to be the same, but in this section we will discuss and differentiate the intent behind each to enable you to use both features effectively within a deployment.

Note Categories will be deprecated in the future. With that in mind, customers should look at migrating existing categories to catalogs and classifications instead.

Categories

Categories are a way of implementing a navigation structure that can later be leveraged by a storefront or other customer facing interface. Typical examples of categories might include New Releases, Oscar Winners, High Definition, Christmas, and Kids. Categories must be assigned to one or more locales.

To further your understanding, categories can be:

- nested into a tree structure
- reordered
- dragged and dropped during creation within the user interface
- multiple categories can be selected for an asset

For more information on creating and managing categories, see “Managing Categories” on page 196.

Note An older version of categories, which has a flat hierarchy, is no longer accessible through the Media Suite user interface. Those legacy categories can, however, be accessed programmatically if required.

Genres

Genres are a type of common entity that serve as content descriptions. Their structure is flat, meaning they cannot be nested. Typical genre examples might include action, comedy, drama, and foreign, and horror.

Producer Workflow Tasks

Producer workflows can utilize a task feature that enables administrators to validate the quality and integrity of bundle data that has been augmented or modified in some manner. When configured, tasks will pause a workflow and send a notification to a specified user, who can then approve or reject the resulting bundle. The workflow will then transition in another direction according to the user's response.

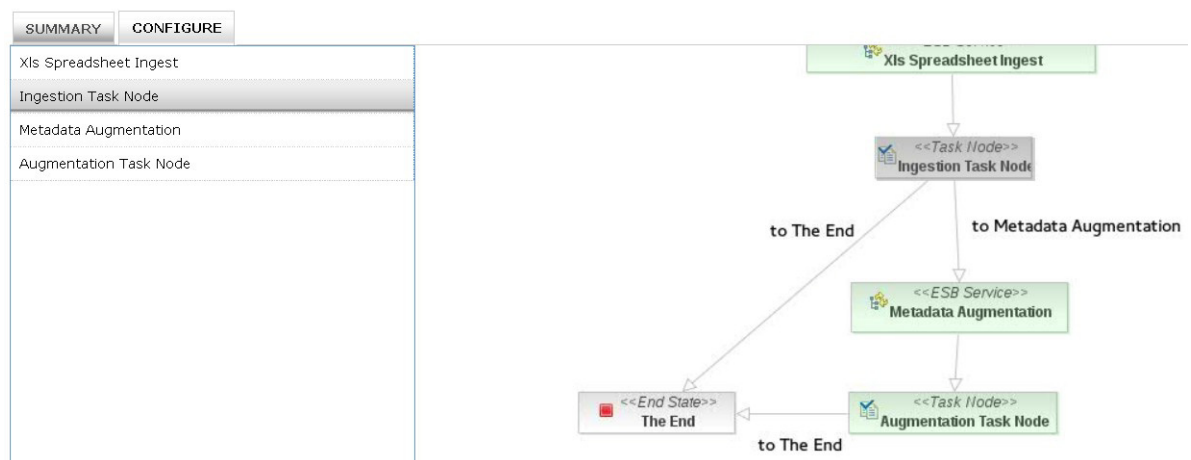
Configuring Producer Workflow Tasks

To configure a Producer Workflow Task:

- 1 Use your JBPM tool to create a PAR file that specifies tasks with transitions for the Accept and Rejection branches of approval. For example:

```
<task-node name="Ingestion Task Node">
  <transition to="Metadata Augmentation" name="to Metadata Augmentation">
  </transition>
  <transition to="The End" name="to The End"></transition>
</task-node>
```
- 2 Next, you will need to configure your workflow as usual, including your task nodes.
- 3 To configure your Workflow Task, navigate to **Workflow > Manage > Workflow Definitions**.
- 4 Select the workflow that you would like to edit.
- 5 Click the **Configure** tab.
- 6 On the Workflow Definition image, click the Task Node that you would like to configure. In the example below, that would be the **Ingest Task Node**.

Figure 76 Selected Task Node



- 7 Scroll to the bottom of the page to configure the node's parameters.

Figure 77 Configuring Producer Workflow Task Parameters

Name	Ingestion Task Node
Instructions	
Is Producer Task	☒
Actor	USER wsuser *
Notify by Email	☐
Accept Transition	Metadata Augmentation *
Reject Transition	The End *

- 8 Type the task instructions, such as “Please reject or accept the results of the XLS ingestion.”
- 9 Check the “Is Producer Task” option to make the Accept and Reject Transition options available.
- 10 Configure the administrator that will be responsible for this task. In the Actor section, choose either:
 - **role**, and then choose the specific role that will be assigned to this task. In this case, anyone under that role can respond to this task

Note Administrators with the super_admin role do not appear in the drop-down list. Plan on never having a super_admin user type assigned to workflow tasks.

or

- **user**, and then select the specific user who will be assigned to this task
- 11 Check the Notify by Email option to send an email to a specific user once the task is available. If the task is the responsibility of a role, then administrators will need to use the Task Monitor to check on the status of the task. That monitoring can be performed by navigating to **Producer > Tasks**.

Note The email template for the Notify by Email option can be configured by navigating to **Admin > Setup > Configuration**. Then, update any required information at these locations:

```
modules > ws > email.configuration > smtp.server.config
modules > ws > email.configuration > mailbox.configuration
```

- 12 Under the Accept Transition drop-down list, select the node to where the workflow will move if the task is accepted.
- 13 Under the Reject Transition drop-down list, select the node to where the workflow will move if the task is rejected.

14 As usual, **Save**, **Deploy**, and **Activate** once your workflow nodes are fully configured.

Viewing and Responding to Tasks

Once you have created and run the workflow that includes the task, the workflow will stop at the appropriate node and will wait for a response from the specified administrator. Depending on how the task node was configured, the administrator will either receive an email or they will manually need to navigate to the task monitor to see which tasks are pending. The following scenario will describe how to use the task monitor to manage a task.

To view and respond to a task:

- 1 Navigate to **Producer > Tasks**.
- 2 A list of all Workflows with will be shown.
- 3 If required, perform a search to find the bundle tasks that you are looking for. This is performed by:
 - a Selecting a specific bundle type from the drop-down list. Alternately, you can choose *Any* to display all bundle types.
 - b Typing any part of the bundle name into the Bundle Name text field.
 - c Selecting a date range during which this bundle was created.
 - d Clicking **Filter** to see results, or **Clear Filter** to reset results and start again.
- 4 Within the given results, opening a specific workflow to show all bundles with tasks.
- 5 On the Task Monitor there are three tabs:
Assigned, which shows tasks which have been assigned to the currently logged in administrator.
Started, which shows tasks that have been started.
Completed, which shows a list of completed tasks.
Under the Task Name heading, the listing first shows the name of the workflow to which this task belongs. When you click the workflow name, a section opens up to show a list of any bundles that need to be approved (see Figure 78).

Figure 78 Expanded Workflow and Bundle Task View

The screenshot shows the TASK MONITOR interface. At the top, there are three tabs: ASSIGNED, STARTED, and COMPLETED. Below the tabs, there are search filters: Bundle Type (a dropdown menu), Bundle Name (a text input field), Create Date from (a date input field), to (a date input field), and buttons for Filter, Clear Filter, Start, and Reassign. The main content area shows a table of tasks under the Task Name heading. The table has columns for Bundle Name, Bundle Type, Task Name, Event File, Assigned To, and Create Date. There are two rows of data: one for 'Avengers' and one for 'Off the Hook/ Never ...'. Both rows show 'Logical Video' as the Bundle Type, 'German Approver Task' as the Task Name, and 'Approvers_de_DE role' as the Assigned To. The Create Date for the first row is '2014-12-16 17:01' and for the second row is '2014-12-12 19:09'. At the bottom right of the table, it says 'Results: 2'.

Bundle Name	Bundle Type	Task Name	Event File	Assigned To	Create Date
Avengers	Logical Video	German Approver Task		Approvers_de_DE role	2014-12-16 17:01
Off the Hook/ Never ...	Logical Video	German Approver Task		Approvers_de_DE role	2014-12-12 19:09

- 6 Selecting a checkbox beside one or more bundles allows you to perform actions that are relevant within the currently active tab. For example the:
Assigned tab allows you to start or reassign a task.
Started tab allows you to reassign the task.
Completed tab only allows you to view task details. You can also navigate into the bundle details or view related event data.
For our purposes, we will click the Assigned tab.

- 7 Select any Bundle Task that you would like to start.
- 8 Click **Start**. At this point the task will disappear from the Assigned tab and move to the Started tab. You will need to open up the task details again where there will be two options:

If this was created as a non-Producer task, then you will have **Reassign** and **Complete** buttons. There will be no active link available to navigate to the bundle. Clicking **Complete** will bring up a dialog that presents any transition options that are allowed in the workflow. At this point, you can select any available option and click **Confirm**.

Figure 79 Task Completion Dialog (non-Producer)



- 9 If this was created as a Producer task, then you also go into the task's details. Click the underlined bundle number, to navigate to the bundle details. On that page you will have **Accept** and **Reject** buttons. Choosing either will cause the workflow to transition to the predefined nodes for each of those decision branches.
- 10 After confirming the transition, the Workflow task will transition to the Completed tab. At this stage you can simply view some basic data related to that completed task.

Rules-Based Workflows

Rules-based workflows are a developer-enabled feature that allows Media Suite to:

1. Autonomously choose a workflow path of execution at runtime, based on metadata or other available information.
2. Modify workflow-related information at runtime.

The following examples show how rules-based workflows might hypothetically be used:

- In one scenario, a bundle contains metadata and a video file. When executed, the rules-based workflow could send the original video to different encoders (high definition, standard definition, or mobile definition) based on the content of a specific metadata field. Alternately, files could be routed to different encoders based on file naming conventions.
- In another scenario, a large catalog of files could be distributed to different types of folders based on the value of the genre field. The workflow could determine whether a movie belonged to the action, drama, comedy, or another category, and then transfer content to its suitable distribution folder at runtime.

Workflow Procedures for Rules-Based Workflows

Creating an Action Template

The process of creating an Action Template for Rules-based Workflows is no different from that of creating any other action template. You simply have to choose a specific ESB service, that provides the appropriate functionality.

To create an action template for Rules-Based workflows:

- 1 Navigate to **Workflow > Setup > Action Templates**.
- 2 Click **Add New**.
- 3 Type a name and description.
- 4 Choose the `OC_ESB_PROCESSOR_MAPPING_SERVICE:MappingRulesService` ESB service.

Note Another ESB (`OC_ESB_PROCESSOR_RULES_SERVICE:GenericRulesService`) is also available, but this one only reads the XSLT and does not include the variable mapping capabilities of the `MappingRulesService`.

- 5 Click **Create & Edit**.
- 6 Click **Save**.
- 7 Click **Activate**. If you wish to immediately create an Action Profile, click **Create Action** to continue.

Creating an Action Profile

To create an action profile that will be used for rules-based workflows:

- 1 Either click **Create Action** immediately after creating your Action Template, or navigate to **Workflow > Manage > Action Profiles**.
- 2 Click **Add New**.
- 3 Type a Name and Description.
- 4 Choose the Action Template that you created for the rules-based workflow from the drop-down list.
- 5 Click **Create & Edit**.

Figure 80 Rules-Based Workflow Action Profile

MANAGE ACTION PROFILES > DOCS RULES BASED WORKFLOW AP

Save Cancel Activate

Name docs Rules Based Workflow AP *

Description A rules-based action profile created for explanation purposes.

Action Template docs Rules Based Sample

Modified Date 2014-05-08 10:07

UUID 72f4e6cf-55da-4dbb-abcb-d0bcfedd7e96

Rule

- 6 In the Rule textbox, developers can include an XSLT that will determine the logic for how decisions are made for this Action Profile (and the resulting node in the workflow). In general, your XSLT must produce a workflow context (i.e. data transferred from one node to another). Transitions must be named, and your XSLT must redirect to one of the specified transitions to be valid. For more detailed information on creating a suitable XSLT, consult the *Media Suite Developer Guide*.
- 7 In the Variable Mappings section, the Name field identifies the variable that will store the relevant information that is found using the regex found in the Path field. This regex will be applied to file paths being processed by the workflow. Select one of the following options, either: File Path, Metadata, ContentFile Metadata, will determine what type of information will be extracted. If you choose the Variable option, the value you set will be available exactly as defined for all workflows that this Action Profile is attached to. Lastly, click **Add** to include the parameters that you have entered as variable mappings criteria. Additional mappings may be added by repeating this process.

Figure 81 Rules Based Workflow Variable Mappings Section

Variable Mappings

Name Variable_Name_1

Path regex_1

Type ☒ File Path ☐ Metadata ☐ Content File Metadata ☐ Variable

Name Variable_Name_2

Path regex_2

Type ☐ File Path ☒ Metadata ☐ Content File Metadata ☐ Variable

Add

Note The maximum number of content files loaded into the Workflow Context can be set in the System Configuration at: modules > cp > rules.esb > mapping rule max file match

- 8 The Static Variable Mappings section allows you to manually inject a static variable into the Workflow Context. This variable can then be used to modify the workflow path of execution or to test a particular scenario. The `Name` field identifies the variable name that will be stored in the Workflow Context and the `Value` field sets the value for that variable. Clicking **Add** allows you add additional variables into the Workflow Context.

Figure 82 Settings Static Variable Mappings

Static Variable Mappings

Name	variablex	-
Value	1	
Name	varialbey	-
Value	2	

Add

- 9 Click **Save**. If your Rule XSLT is invalid, you will be notified by the system at this point and the save operation will abort. Otherwise, all fields and selections on the page will be committed.
- 10 Click **Activate**.

Remaining Workflow Steps

The remaining steps for setting up the workflow are typical of standard workflows. As usual, you should creating the PAR file, but in this case make sure to clearly identify the workflow transitions for any decision points to branch to. Afterwards, you configure all the workflow nodes.

To configure the Mapping Rules node:

- 1 Navigate to **Workflow > Manage > Workflow Definitions**.
- 2 Click the underlined workflow definition name.
- 3 Click the **CONFIGURE** tab.
- 4 Click the node that deals with workflow rules.
- 5 Scroll to the bottom to the Configure Node section and select the appropriate Action Profile.
- 6 Click **Save**.
- 7 Click the **SUMMARY** tab.
- 8 In the Trigger Event section, set the appropriate trigger event. Typically, you would choose the HotFolderNewContent event and then choose the appropriate hotfolder that has been configured and made available in the drop-down list.
- 9 Click **Save**, **Deploy**, and **Activate** as usual.
- 10 The workflow will commence once the trigger event has occurred.

Workflow Enhancements

To accommodate and leverage the new rules-based workflow functionality within Media Suite, several Workflow Enhancements have been incorporated into the system. For details, see “Monitoring Workflow Instances” on page 81.

Managing Bundles

Understanding Bundle Management

Producer streamlines and improves the bundle management experience for areas such as metadata, images, categories, and time-based windows. The specialized user interface has a specific focus, and individuals working in Producer typically may never use other parts of the application. For that reason, small portions of the user interface may appear to be duplicated from other parts of Media Suite. Such duplication, however, is intentional, and provides conveniences that benefit Producer users.

When creating or editing bundles, the following default tabs in Producer provide functionality tailored to specific aspects of bundles:

Bundle - allows administrators to view and edit general bundle information.

Metadata - allows administrators to add, remove, or edit metadata for logical video bundles.

Images - allow administrators to add, edit, or remove thumbnails and artwork images for logical video bundles.

Videos - allows administrators to manage videos, previews, or manifest files.

Categories - allows administrators to manage hierarchical categories.

Licensing Window - allows administrators to manage the bundle licensing window dates.

Availability Windows - allow administrators to manage bundle availability window dates.

Offer Windows - allow administrators to manage bundle offer window dates.

Warnings - offer information related to problems creating, validating, or disseminating bundle information. For details, see “Bundle Warnings” on page 116.

Conversations - monitors the status of communications between Media Suite and external systems (such as Merchandiser) for each bundle. For details, see “Conversations” on page 114.

Note The Producer tabs (and interface) are customizable, so your available tab options may vary from what is depicted in this guide. For details on customizing the Producer interface, refer to the *Media Suite Developer Guide*.

Searching for Bundles

The process of searching for bundles within Producer is identical to that in other parts of Media Suite. Since readers of this section may only be concerned with Producer, the following material explains search functionality in that specific context.

To search for bundles in Producer:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Click **Search** to view all bundles on the system.
- 3 To obtain more refined results, you may use the:
 - **Bundle Type** drop-down list to limit searches to Logical Video type bundles;
 - **Status** drop-down list to limit searches to active or inactive bundles;
 - **Search Filter** drop-down list to limit searches to either “Bundles” or “Subscription Codes”
 - text box to limit search results that match a search string. You may enter the complete name of the desired bundle or you may use an asterisk wildcard character with a partial name. When using the “*” wildcard, a minimum of two characters must be entered. For example, to find “Your Movie”, you can use “Yo*” or “*ie” or, lastly “*ov*.”
 - **From** and **To** calendar widget fields to set a date range that the bundle was last modified.

The other **Add New**, **Bulk Edit**, and **Set Status** button and drop-down lists provide functionality unrelated to searching.

- 4 Click **Search** to perform the search using the criteria you have specified. Any results will be displayed by the system.
- 5 Click any underlined name to see the bundle details.

Managing Bundles

The following section explains how to use Producer to add, edit, and delete logical video bundles including their related components, metadata, and images. This scenario depicts the default tabs available for the most common bundle type. Other bundle types, however, may be customized with tabs specific to a deployment’s implementation.

Creating Bundles

The following section is for illustrative purposes only. Bundle information would typically be added in a more automated fashion via augmentation or through the ingestion of XML or XLS metadata.

To add a bundle via the Producer user interface:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Click **Add New > Logical Video** (or any other required Bundle Type).
- 3 Type a Name and Alt Code.
- 4 Click **Create & Edit**. This creates an empty bundle and displays the **METADATA** edit tab. In addition, other (default) tabs are available to manage **IMAGES**, **VIDEOS**, **CATEGORIES**, and various time-based periods. As required, other tabs, such as **IDENTIFIERS**, may be added via the Wizard Template Configurations page. For details, see page 210.

- 5 The following sections describe how to interact with the various tabs within Producer. These tabs can be customized and configured by using the Producer Wizard Template XML. For further information on the following tabs, see:
 - “Managing Bundle” on page 186
 - “Managing Metadata” on page 186
 - “Managing Images” on page 189
 - “Managing Videos” on page 191
 - “Managing Categories” on page 196
 - “Managing Licensing Windows” on page 198
 - “Managing Availability Windows” on page 199

Editing Bundles

There are four methods with which you can edit bundle information in Producer. The first method is a manual approach, which is described in this section. The second, is to perform a bulk edit. For details, see “Bulk Editing” on page 206. The third, would be to perform metadata augmentation to replace existing data with that from external providers. For details, see “Metadata Augmentation” on page 202. Lastly, you can create workflows to import XLS data into Media Suite. For details, see “Spreadsheet Ingestion” on page 211.

To manually edit bundles in Producer:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 Click the underlined bundle name. By default, you arrive at the Metadata tab on the bundle details page.
- 4 Make any required changes to the available fields.
- 5 Click **Save**.
- 6 Click tabs related to other aspects of the bundle that you want to edit. For example, IMAGES, VIDEOS, CATEGORIES, LICENSING, AVAILABILITY, OFFER WINDOWS, or any custom tabs that might be displayed. If additional instructions are necessary, this guide explains how to work within the user interface available under each tab.
- 7 Click **Save** immediately after editing information related to any tab.

Deleting Bundles

This section will describe how to delete a bundle from within Producer and it will also explain implications on related components.

To delete bundle metadata in Producer:

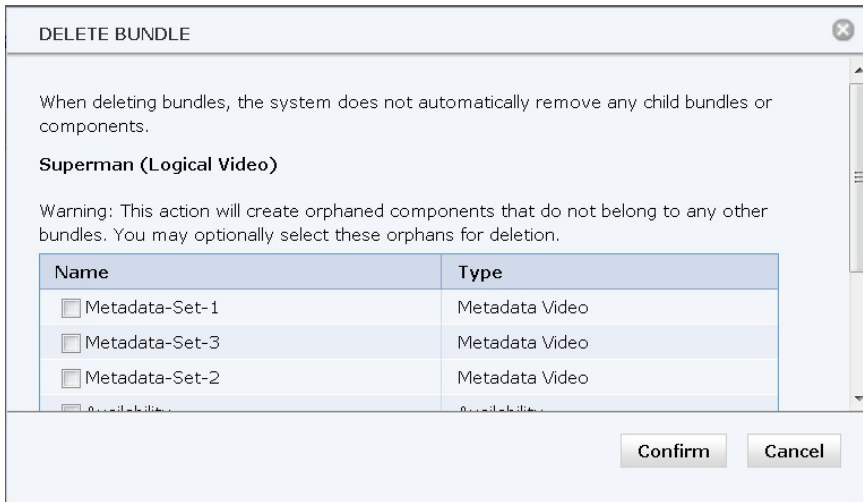
- 1 Navigate to **Producer > Manage Bundles**.
- 2 Search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 Click the underlined bundle name. By default, you will arrive at the Metadata tab on the bundle details page.
- 4 Click **Delete**, which is located near the top of the page.

Figure 83 Delete Button (Visual Context)



- 5 A DELETE BUNDLE dialog will appear showing components that only belong to this bundle. You will have the option of selecting these orphans for deletion.

Figure 84 Related Components Dialog



- 6 Click **Confirm**.

Managing Bundle

The following section describes how to work within the BUNDLE tab within Producer.

To manage bundle information in Producer:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 By default, you should arrive at the Bundle tab, which provides high-level bundle details.
- 4 Enter any required metadata field for this bundle, select a Provider, or mark this content as Time Shift Content or Publishable content.
- 5 Click **Save**.

Managing Metadata

The following section describes how to work within the METADATA tab within Producer. It also describes how to augment all or part of the metadata with data from an external provider.

To manage bundle metadata in Producer:

- 1 Navigate to **Producer > Manage Bundles**.

- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 By default, you should arrive at the Metadata tab on the bundle details page.
- 4 If your bundle does not include any metadata, then you must add one or more locales to start. Click **Add Locale** and then choose `English (en_US)`, or your required locale.
- 5 Enter any required metadata field for this bundle (and locale) in the right-hand pane.
- 6 Click **Save** to commit changes or **Revert** to undo any changes back to the last saved state.
- 7 Alternately, click **Remove** to remove this locale metadata from the bundle.
- 8 Optionally, click **Add Locale** to add additional metadata that will be associated with another locale. Once again, you enter any relevant metadata information at right and click **Save** once you are finished.

Metadata Comparisons

When working with multiple languages and locales, administrators will occasionally need to cross reference different sets of metadata to compare text written in one language against that of another. To assist in this task, Producer provides functionality that allows you to examine and edit two sets of metadata side-by-side.

To compare two sets of metadata:

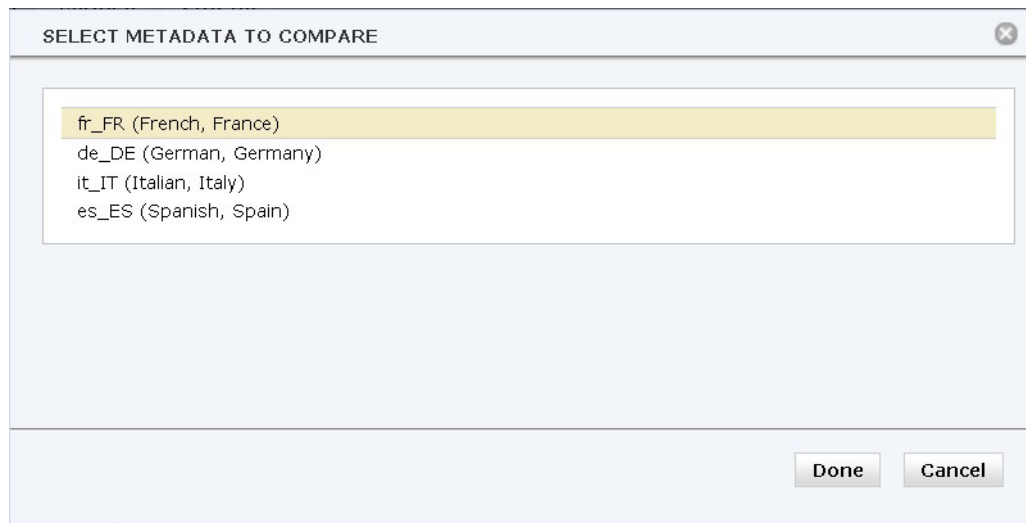
- 1 Navigate to **Producer > Manage Bundles**.
- 2 Perform a search to find the bundle whose metadata you would like to examine.
- 3 Click the underlined bundle name.
- 4 Click the **METADATA** tab.
- 5 Click the locale for the metadata that you would like to edit. In our example, that will be `English (en_UK)`.

Figure 85 Metadata Comparison - Locale Metadata to Edit



- 6 Click **Compare**.
- 7 Click the locale for the metadata that you would like to view (only). In our example, `fr_FR` (French, France).

Figure 86 Metadata Comparison - View-only Locale



- 8 Click **Done**.
- 9 Content for the two metadata locales that you have selected will be displayed in a scrollable dialog.
- 10 Perform any required edits. At this time, you may also copy metadata from one locale to another. See "Copying Metadata Between Locales", below, for further details.
- 11 Click **Save** to commit your changes or click **Revert** to undo any changes that were made since the dialog was opened.

Copying Metadata Between Locales

When comparing metadata, you have the option of copying individual field values or an entire set of field values from one locale to another. This functionality might be useful if you are copying common fields (such as a cast listing) from one locale to another.

To copy metadata between locales:

- 1 Follow the procedure to open the compare metadata dialog within Producer. For details, see "Metadata Comparisons" on page 187.
- 2 In the metadata comparison dialog, click  beside any field(s) that you would like to copy to another locale. Alternately, click **Copy All** to copy all fields in the set.

Figure 87 Metadata Comparison/Copy Dialog

The dialog box is titled "Side By Side Metadata Comparison". It compares metadata for two languages: French (fr_FR) and English (en_US). The fields are organized into two main sections: "General" and "Metadata".

Field	French (fr_FR)	English (en_US)
Name	ebundle-102-FR_FR	ebundle-102-EN_US *
Alt Code		
Asset ID	VMSA0000000000051009	VMSA0000000000051010
External ID		
UUID	f50436ca-2ccd-4857-ac3e-9ff212f9b172	3073e9d1-08f3-4a6d-9521-94056d1bb4a0
Created	2015-06-09 04:34	2015-06-09 04:34
Modified	2015-06-09 04:36	2015-06-09 04:36
Ingest File Path		
Version	3	3
Source Asset ID		
Long Title	long-title-2	long-title-1
Medium Title	medium-title-2	medium-title-1

At the bottom right, there are four buttons: "Copy All", "Save", "Revert", and "Cancel".

- 3 Click **Save** to commit your changes, or click **Revert** to undo them.

Managing Images

The following section describes how to work within the **IMAGES** tab within Producer, where you can add, edit, or remove thumbnails and artwork images for bundles. This process can be performed if you have an existing bundle that you would like to edit, or if you are in the midst of manually creating a new bundle.

Note Prior to working with images in Producer, you will need to configure your Artwork and Thumbnail image repository nodes. For details, see "Image Repository Configuration" on page 210.

To manage images in the Producer user interface:

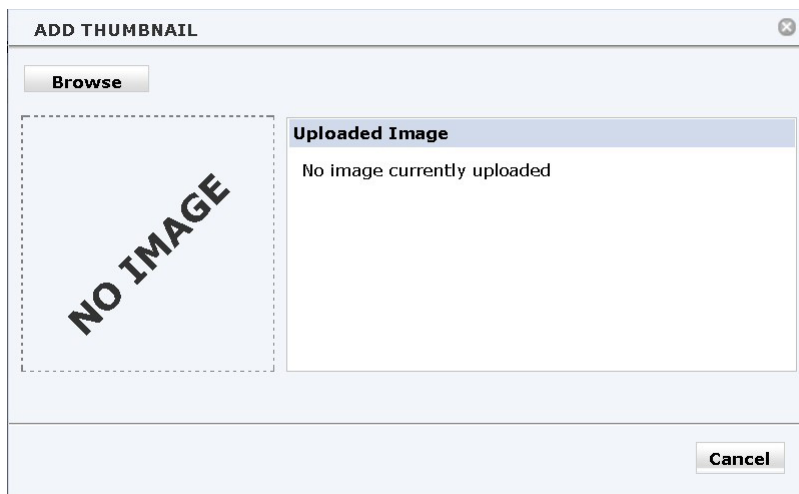
- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see "Creating Bundles" on page 184) or search for an existing bundle (see "Searching for Bundles" on page 183).
- 3 While viewing the bundle details, click the **IMAGES** tab. This is where you add, edit, or remove thumbnails or artwork images from logical video bundles. Otherwise, the process of working with either thumbnails or artwork within Producer is identical.
- 4 Highlight either the Thumbnails or Artwork icon, depending upon the purpose of the image that you would like to add.

Figure 88 Thumbnail Node Selection



- 5 Next, you can either select from images that reside on your local computer, or you may reference existing Media Suite image metadata within the system. In this demonstration we will add a thumbnail image to the logical video bundle.
- 6 Click **Search** to view existing image metadata in Media Suite. Available image metadata will be displayed.
- 7 Use the check boxes to select any images that you would like within this logical video.
- 8 Click **Add Selected** to add the images.
- 9 Alternately, to add new images that reside on your computer, click **Add New**. An ADD THUMBNAIL dialog will appear.

Figure 89 Add Thumbnail Dialog



- 10 Click **Browse** to browse for images on your local system. Select an image.
- 11 Click **Open**.
- 12 Click **Upload File**.
- 13 Click **Add to Bundle** to complete the process of adding the image to the bundle.
- 14 The Thumbnail will be shown in the images tree hierarchy.

Figure 90 New Thumbnail in Logical Video

The screenshot shows the 'IMAGES' tab in the 'Logical Video' interface. On the left, a tree view shows 'Thumbnails' and 'Artwork'. The 'Thumbnails' folder is expanded, showing a thumbnail with ID '3f95c2c5-6ce1-405a...'. To the right, there are 'Save', 'Revert', and 'Remove' buttons. Below these is a 'General' section with fields for Name, Alt Code, Asset ID, External ID, UUID, Created, Modified, Ingest File Path, Version, and Source Asset ID.

15 Click **Save**.

Managing Videos

The following section describes how to work with the **VIDEOS** tab within Producer where you can manage videos, previews, or manifest files. This process can be performed if you have an existing bundle that you would like to edit or if you are in the midst of manually creating a new bundle.

To use Producer to add videos to bundles:

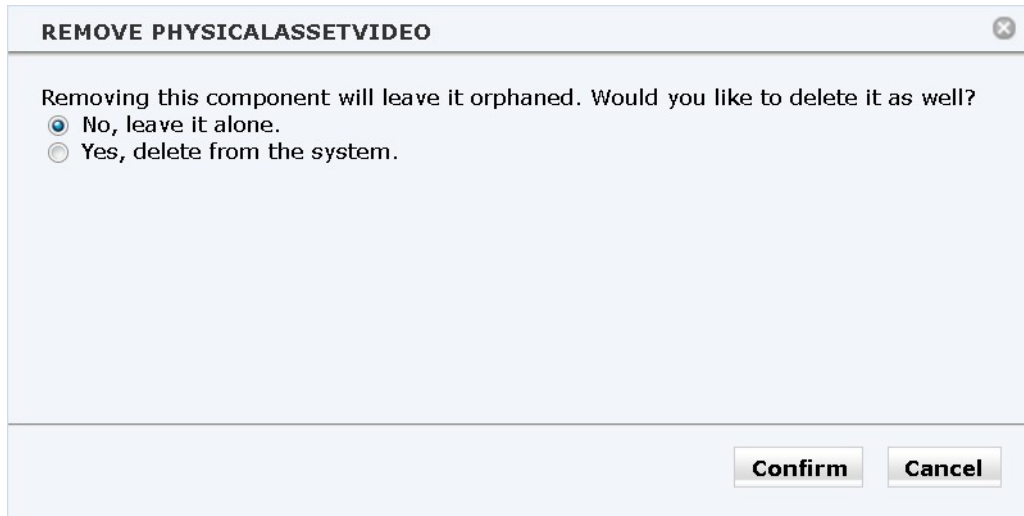
- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 Within the bundle details click the **VIDEOS** tab. This is where you manage videos, previews, or manifest files.
- 4 Highlight either the Videos or Video Previews icon, depending upon the purpose of the video that you would like to add. The process of working with either Videos or Previews is identical.
- 5 Click **Search**. A list of videos within Media Suite will be shown.
- 6 Use the check boxes to select any videos that you would like referenced within this bundle.
- 7 Click Add **Selected**. When you expand upon the relevant “Videos” or “Video Previews” node at left, you will see the newly added video content.

To use Producer to remove videos from bundles:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Click **Search**.
- 3 Click the underlined name of the bundle you would like to edit.
- 4 Click the **Videos** tab.
- 5 Expand either the Videos or Video Previews node, depending upon the type of video you would like to remove from the bundle.
- 6 Highlight the video name.

- 7 Click **Remove**.
- 8 In the **REMOVE PHYSICAL ASSET VIDEO** dialog, you may be given the option to also delete the video from the system if it is not referenced by another bundle.

Figure 91 Optional Video Deletion Prompt



- 9 Once the video is removed from the bundle, you will be presented with a confirmation message. Keep in mind that deleting the reference to the video in the bundle is different from deleting the physical asset itself from the system. One is a reference, which can easily be restored, while another is an asset, which would need to be reprocessed back into the system.

Figure 92 Video Removed Confirmation

Videos

 Component has been successfully removed.

Video Asset Previews

Some HTML 5 video asset formats (presently `mp4` and `ogg`) can be previewed natively within Producer. The following section will explain the process and prerequisites for enabling video preview capabilities for your video assets.

To enable video previews in Producer:

- 1 Set the physical asset video MIME Type as either `video/mp4` or `video/ogg`. This value is set outside of Producer within the component details that can be searched from **Metadata > Components > Manage Components**. For details, see “Managing Components” on page 92.
- 2 Set the asset’s Manual URL to reference the asset location. This can be done either within the Manage Components page or within Producer on the VIDEOS tab.

To perform a video preview:

- 1 Ensure that the MIME Type and Manual URL have been set for the asset that you would like to preview.
- 2 Navigate to **Producer > Manage Bundles**.

- 3 On the Producer VIDEOS tab, select the video asset on the treenode at left.

Figure 93 Selecting a video asset within a bundle



- 4 Click **Preview**.

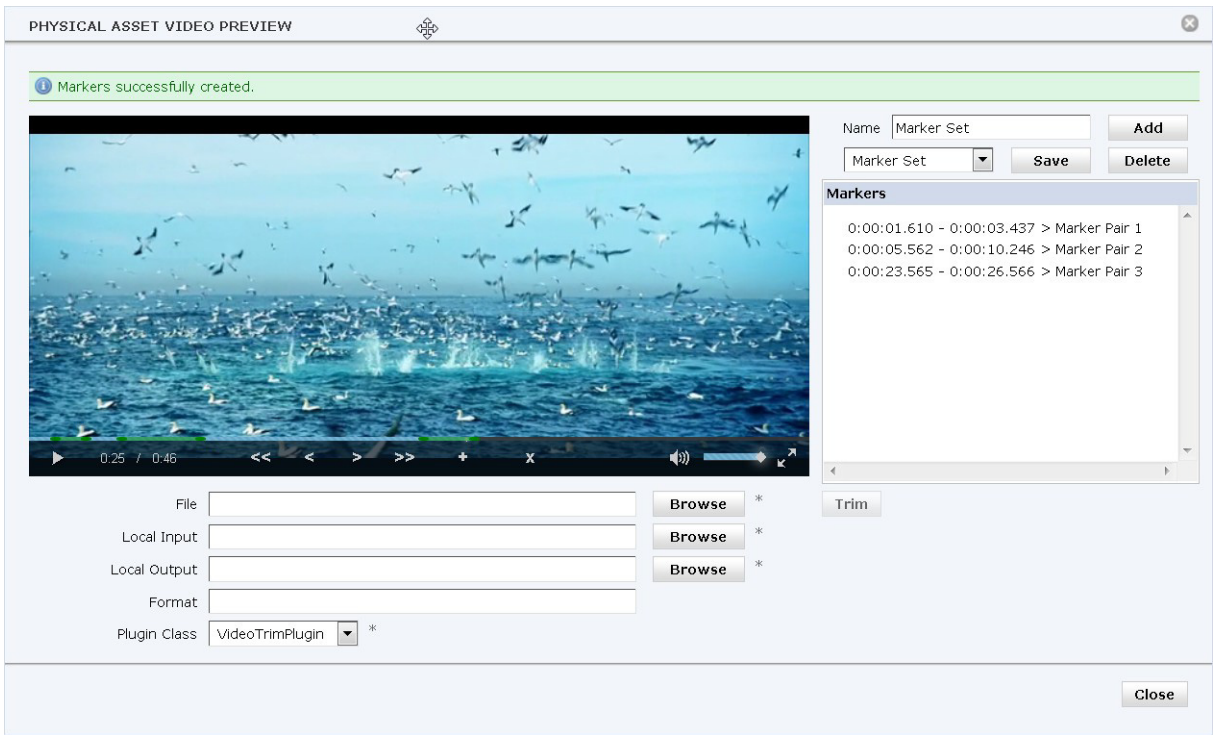
Editing Video Assets

Producer includes a Media Manager component that provides video editing capabilities to remove unwanted footage from assets. This functionality is non-destructive, in that it does not change the original footage. Instead, the feature outputs a processed video file that accounts for all of the edit points specified by the administrator. All video processing can be performed on hardware that is separate from Media Suite so that edit operations do not impact the performance of workflows or other aspects related to the main system.

To edit a video asset:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Perform a search for the required video asset.
- 3 Click the underlined asset name.
- 4 Click the **VIDEOS** tab.
- 5 Open the Videos folder and select the video asset to edit. Files must be in MP4 or another HTML 5 video compliant format with the MIME type set within the component metadata. Additionally, the Manual URL field should be populated with the asset Web server location.
- 6 Click **Preview/Edit**. This will open a dialog in which you can preview and/or edit the video. You may need to resize this window to see all of the options that are mentioned in this section.

Figure 94 Video Editing within Producer



- 7 The process of editing a video begins with setting markers. Markers are named and then assigned in pairs that indicate footage you would like to keep. Clicking the + symbol, at the bottom of the preview window sets an in point. Then navigate to your out point and click + once again to set that. A dialog will appear asking you to name the marker pair.

Table 48 Preview/Edit Navigation Icons

Icon	Description
<<	Moves the current video location back 1 second.
<	Moves the current video location back 1 frame.
>	Moves the current video location forward 1 frame.
>>	Moves the current video location forward 1 second.
+	Adds a marker point to the current location.
x	Removes a marker point from the current location.

- 8 Once you have added one or more pairs, you can save them as a marker set for future use. Click **Add** to create and name a new marker set. Afterwards, any changes to that set can be made by clicking **Save**. To delete an existing marker set, select the name from the drop-down list and click **Delete**.

- 9 To configure Trim functionality, the following fields must be configured at the bottom of the preview dialog.

Table 49 Media Manager Field Configuration

Field	Description
File	Selects a remote source video file that must be brought into the system prior to being edited. To set this field: 1. Browse to a file repository accessible by Media Suite. 2. Click Browse. 3. Navigate the repository path and select the individual file to be edited. 4. Click Select.
Local Input	Selects the folder where the chosen "File:" will be copied.
Local Output	Selects a folder where the results of the Edit operation will be placed. Once a job is in a "Completed" state, the resulting file will be available in this folder.
Format	Specifies the target output file format.
Plugin Class	Select the VideoTrimPlugin for Media Manager. You can also select any other plugins (namely libraries) available to the system. In this section, we will only discuss the standard Media Manager plugin library functionality (namely FFMPEG).

- 10 After all of your markers have been set, click **Trim** to start the process of removing the unwanted footage. After the edit process has been completed, the resulting video will be assigned to a `PhysicalAssetVideo` with the new video file in the preview folder.

Note Adequate role permissions are required to use the video preview/editing features in Producer. For example, `preview_admin` enables previewing capabilities, `producer_admin` enables video editing, while `super_admin` includes all permissions. For details on creating administrator users and assigning roles, see "Managing Administrators" on page 141.

Media Manager Tasks

Once you have initiated editing requests through Media Manager you will want to monitor their progress. The following section describes how to perform that task.

To monitor the progress of Media Manager tasks:

- 1 Navigate to **Metadata > Media Manager > Media Manager Tasks**.
- 2 The Media Manager Task page displays the current status of all relevant tasks within the system. The Media Manager Task page displays the following information about each task in the system:
 - a unique content ID
 - status
 - server processing the request
 - priority

- retry number
- plugin used for the request
- when the task was initially created
- when the task was last modified.

Note Media Manager task history is maintained for a given period and can be changed, if necessary. For details, see `history.days.to.keep` in the System Configuration Appendix in the *Media Suite Install Guide*.

Managing Categories

Note Categories will be deprecated in the future. With that in mind, customers should look at migrating existing categories to catalogs and classifications instead.

The following section describes how to work with the **CATEGORIES** tab within Producer. This section will explain the two main steps involved in Category management:

1. The creation of a set of categories.
2. The tagging of categories to bundles.

First, you must create hierarchical categories that will be applied to your content. These are the same categories that are also managed at the **Metadata > Categories** location within Media Suite. In addition to the button-based functionality mentioned below for moving categories, you can also drag and drop categories to different positions with your mouse.

To create categories in Media Suite:

- 1 Navigate to **Producer > Categories** or **Metadata > Categories**. The interface on each page is identical.
- 2 Categories are locale specific, so click the locale node that you would like to create categories for. The locale will always remain at the highest level of the tree.
- 3 Click **Add Category**. A new top-level category will be created for this locale and the focus will shift to the new category. At this time, you should change the Name (most importantly) and External ID of the category.

Figure 95 Category Edit Page

The screenshot shows the Category Edit Page interface. At the top, there is a row of six buttons: 'Save', 'Revert', 'Delete', 'Add Category', 'Up', and 'Down'. Below these buttons, there are two input fields. The first field is labeled 'Name' and contains the text 'New Category'. To the right of this field is an asterisk (*). The second field is labeled 'External ID' and is currently empty.

- 4 On the category edit page, you will see buttons that present the following options:
 - Save - saves the current values within the Name and External ID fields. Make sure to save any changes prior to moving focus to another node or your changes will be lost.
 - Revert - reverts any unsaved changes to the last saved state.

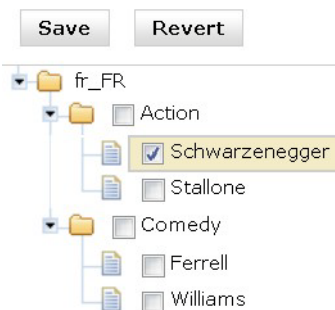
- Delete - deletes the existing category or folder node and any sub nodes. A confirmation message will show all affected nodes.
- Add Category - adds a category node as a child of this node and changes the existing node into a folder where applicable.
- Up - moves the current level (either folder or category up in the tree. Nodes and folders are treated the same with respect to move operations.
- Down - moves the current level (either node or category down in the tree. Nodes and folders are treated the same with respect to move operations.

Note Within the tree, nodes can only be children of folders and not other nodes.

To tag categories to bundles in Producer:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183).
- 3 Click the **CATEGORIES** tab. This is where you tag or remove hierarchical categories to or from your content. These are the same categories that are also managed at **Metadata > Categories** within Media Suite.
- 4 Navigate the category tree and select one or more categories that will be applicable to this bundle. When you select a child category, the parent categories are not automatically selected.

Figure 96 Category Tree



- 5 Click **Save** to commit your changes, or **Revert** to revert to the previously saved state.

Understanding Timeframes

Media Suite offers various date ranges that can be flexibly used in deployments to meet unique customer needs. Although these metadata fields can be viewed and edited within a bundle’s metadata detail, these windows are also available within the Producer user interface for easy access. The following section explains the common usage of the various timeframes within the system.

Licensing Window - is typically one broad timeframe during which a Content Provider has permitted its content (assets) to reside on a Service Provider’s servers. For example, XYZ Studios might allow a 50 year window for its content. Content does not have to be “for sale” during the entire Licensing Window period.

Availability Window - is one or more timeframes within the Licensing Window during which content *can be* made available for sale.

Offer Window - is one or more date ranges during which a unique offering is made available to consumers, for example a \$4.99 Boxing Day Special.

Managing Licensing Windows

The Licensing Window tab within Producer allows you to manage dates related to a bundle's Licensing Window.

Creating Licensing Windows

To add a Licensing Window:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see "Creating Bundles" on page 184) or search for an existing bundle (see "Searching for Bundles" on page 183). In our example, we will edit an existing bundle.
- 3 After performing a search, click the underlined bundle name.
- 4 Click the **LICENSING WINDOW** tab.
- 5 Click **Add New**.
- 6 Open the **Licensing Window** node by clicking the arrow to the left of the key symbol.
- 7 Click the New Licensing Window text.
- 8 Choose a Start Date and an End Date by using the calendar controls or by directly typing the required values. By default, the licensing Window will be set with the current date and time as the Start Date. The End Date will be set 100 years into the future.
- 9 Click **Save**.

Editing Licensing Windows

To edit Licensing Windows simply navigate to the License Window details, make your changes, and click **Save**. Click **Revert** at any time prior to saving in order to revert the Licensing Window to its last saved state.

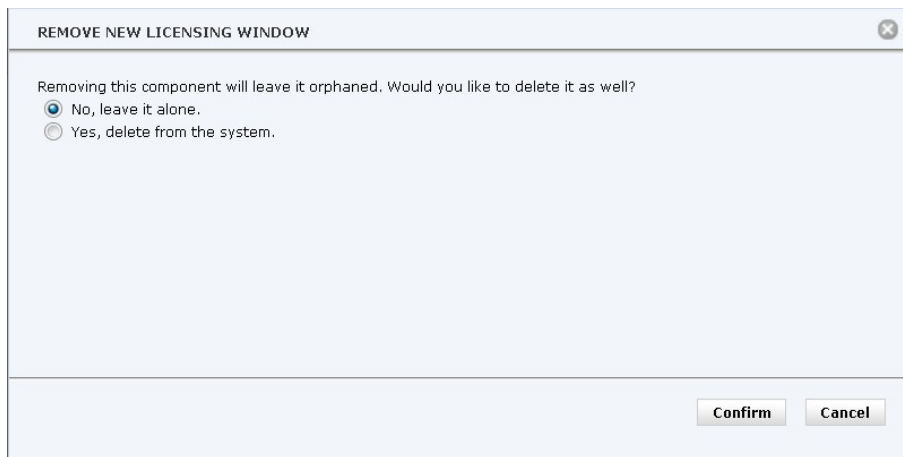
Deleting Licensing Windows

To delete a Licensing Window:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see "Creating Bundles" on page 184) or search for an existing bundle (see "Searching for Bundles" on page 183). In our example, we will edit an existing bundle.
- 3 After performing a search, click the underlined bundle name.

- 4 Click the **LICENSING WINDOW** tab.
- 5 Open the **Licensing Window** node by clicking the arrow to the left of the key symbol.
- 6 Select the New Licensing Window (or renamed) node in the treenode to see the Licensing Window details.
- 7 Click **Remove**.
- 8 Select the “Yes, delete from the system.” option.

Figure 97 Licensing Window Delete Confirmation



- 9 Click **Confirm**.

Managing Availability Windows

The following section describes how to work with the **AVAILABILITY WINDOWS** tab within Producer to manage availability periods that are applicable to certain bundle types. Those bundles can have multiple availability windows, which state the overall date range during which a bundle will be visible to the system for use. Some bundle types may also have multiple offer windows that correspond to unique offerings for the consumer. Superseding both of those timeframes is a licensing window, which is typically a long timeframe during which content is licensed for use from the content owner.

To manage availability windows in the Producer user interface:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183). In our example, we will edit an existing bundle.
- 3 After performing a search, click the underlined bundle name.
- 4 Click the **AVAILABILITY WINDOWS** tab.

5 Click **Add New**.

Note If a licensing window has not been established for this bundle, then an error will be shown and you will need to click the LICENSING WINDOW tab to setup a licensing window before proceeding.

6 An arrow will appear to the left of the “Availability Windows” node. Click on that arrow to open the next level of the tree node.

Figure 98 Availability Windows 1



7 Click the New Availability Window node (or text) to move the focus to it.

Figure 99 Availability Windows 2



8 Metadata fields are shown for the Name, Alt Code, Category, and Start/End dates for the availability window. For dates, use the calendar widget to select a date and then click **Apply** to commit the date.

Note The Category field does not represent the same categories that are managed at the **Metadata > Categories** and **Producer > Categories** pages within Media Suite.

This page also has a **Revert** button to revert values to the previously saved state, and a **Remove** button to remove the currently selected Availability Window.

Figure 100 Availability Window Details

A screenshot of a form titled 'Availability Window Details'. At the top, there are three buttons: 'Save', 'Revert', and 'Remove'. Below the buttons is a section titled 'General' with two fields: 'Name' (containing 'New Availability Window') and 'Alt Code' (empty). Below this is a section titled 'Availability Window' with three fields: 'Category' (empty), 'Start Date' (empty), and 'End Date' (empty). To the right of the 'Start Date' and 'End Date' fields are calendar icons. An asterisk is visible to the right of the 'Name' field.

9 Click **Save**.

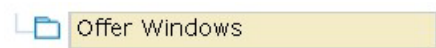
Managing Offer Windows

The following section describes how to work with the **OFFER WINDOWS** tab within Producer to manage offer windows that are applicable to certain bundle types.

To manage offer windows in the Producer user interface:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Either create a new bundle (see “Creating Bundles” on page 184) or search for an existing bundle (see “Searching for Bundles” on page 183). In our example, we will edit an existing bundle.
- 3 After performing a search, click the underlined bundle name.
- 4 Click the **OFFER WINDOWS** tab.
- 5 Click the Offer Windows node to place the focus on it.

Figure 101 Offer Windows 1



- 6 Click **Add New**.

Note If a licensing window has not been established for this bundle, then an error will be shown and you will need to click the LICENSING WINDOW tab to setup a licensing window before proceeding.

- 7 An arrow will appear to the left of the “Offer Windows” label and the tree node will open to show a New Offer Window. Select the New Offer Window label to bring the focus to it.

Figure 102 Offer Windows 2



- 8 The following metadata fields are available for offer windows:

Table 50 Offer Window Fields in Producer

Field	Description
Name	The name of this offer window.
Alt Code	An alternate code, typically this is a foreign key that exists on another system.
Start Date	The start date for this offer window. Use the calendar widget to select a date and then click Apply to commit that date.
End Date	The end date for this offer window.
Rental Period	Specifies a rental duration in DD:HH:MM format.
Price Category	Type the name of an existing Price Category common entity into this typeahead field. For details on creating Price Categories, see “Understanding Common Entities” on page 95.

This page also has a **Revert** button to revert values to the previously saved state, and a **Remove** button to remove the current Offer Window entry.

Figure 103 Offer Window Details

Save

Revert

Remove

General

Name

New Offer Window

*

Alt Code

Offer Window

Start Date



End Date



Rental Period

Price Category

Click to add

9 Click **Save**.

Augmentation

Producer provides capabilities to augment existing metadata and images with information from external data providers. The following section explains how to use that functionality.

Metadata Augmentation

Metadata augmentation is a feature that enables administrators to selectively download and incorporate bundle metadata or images from one or more data providers. This data can either supplement existing data or populate empty fields as required. Prior to using metadata augmentation functionality, you must configure the appropriate metadata source plugin. The following section explains how to use metadata augmentation within your deployment.

Note Metadata providers offer similar, yet unique, types of information. Therefore, in some scenarios you might wish to consider acquiring and leveraging data from multiple providers.

To use metadata augmentation:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Click **Search** or apply filters to display the exact bundle that you would like to augment. For details, see “Searching for Bundles” on page 183.
- 3 Click the underlined name of the bundle whose metadata you would like to augment.
- 4 Click the METADATA tab. For augmentation to work, a locale must be available. If not, click **Add Locale** and select a locale.
- 5 At left is a metadata source and search section. Select your Data Provider. In our example, we will choose TMS.

Figure 104 Metadata Source Selection & Search

Search

Search

☒

LocateTV

☐

EIDR☐☐

Note If your data provider has data fields that cannot be matched to Media Suite fields, you can create custom attributes within Media Suite to incorporate those fields within your deployment.

- 6
- Type one or more letter into the textbox. The first ten matching results will be listed. Scroll and click on the content that you would like. Alternately, type your search text and click **Search**. A large, scrollable dialog will appear showing all results. Those results would typically be a thumbnail, title, release date, and entity type.

Figure 105 Augmented Metadata Lookup

Search

B

Search

 Cecil B. Demented (2000)
Movie (EN)

 Planet B-Boy (2007)
Movie (EN)

 B...h Slap (2009)
Movie (EN)

 B...h Slap (2009)
Movie (EN)

 The B
Show (EN)

 The Freshest Kids: A History of the B-Boy (2002)
Movie (EN)

- 7
- Click the icon for the content whose metadata you would like to use. If using the larger dialog, instead of the typeahead search feature, you will also need to click **Select**.
- 8
- All metadata fields that have been mapped for augmentation will provisionally replace existing fields. The data provider name will appear to the right of any fields along with an **Undo** button in case you need to revert the augmented value to its previous value.

Figure 106 Augmented Metadata

Long Title

New Long Title from augmentation

TMS

Undo

- 9
- Click **Save** to commit all augmented values, or click **Revert** to undo them. If required, you may repeat this process and use another data provider to populate different metadata fields.

Image Augmentation

Producer provides capabilities whereby you can use certain data providers to augment images.

Note The EIDR data provider service will not be available for this purpose as it does not have the ability to augment images within metadata.

To use Producer to augment images:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Click **Search** or apply filters to list the bundle that you would like to augment. For details, see “Editing Bundles” on page 185.
- 3 Click the underlined name of the bundle whose images you would like to augment.
- 4 Click the IMAGES tab.
- 5 Click either the Thumbnails or Artwork node, depending on what kind of image you would like to add to the bundle.
- 6 At left is an image source selection and search feature to be used for augmentation. Select your Data Provider.

Note If you have previously searched for this content within the metadata tab, an underlined hyperlink to any related images will automatically be displayed under the search textbox. Click the underlined link to see those images.

Figure 107 Image Source Selection & Search

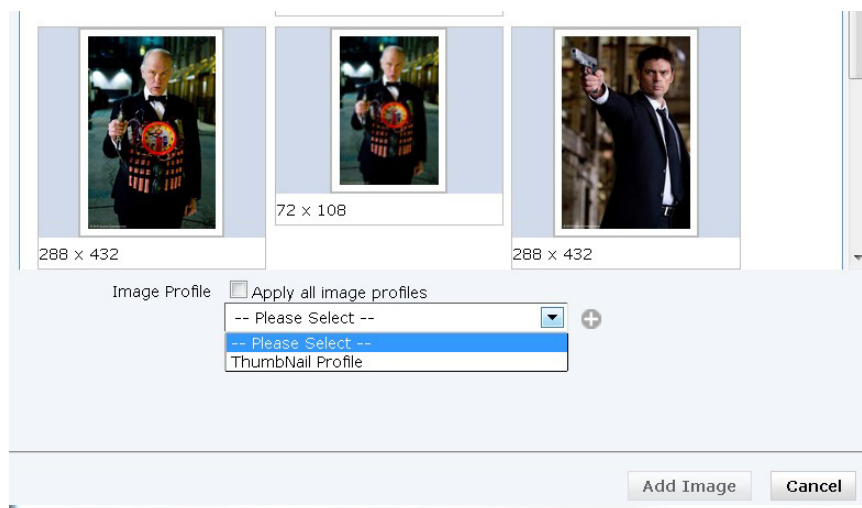


Search

☒ LocateTV
☐ TMS
☐ TMDB

- 7 If required, start typing the name of your content. All available resolutions of images matching the search criteria will be shown in a dialog box.
- 8 Select an image.
- 9 In the Image Profile section at the bottom of the dialog is an image transform profile drop-down list. If you need to adjust the image to match a specific profile size, select one of the available options. Click **+** to add this image profile. Alternately, check the “Apply to all image profiles” option to process the image with all available profiles. If you do not need the image resized, simply select the image and move to the next step.

Figure 108 Selecting an Image and Profile



- 10** Click **Add Image**. The image will be placed into the bundle under the image type node that you had previously selected (Thumbnail or Artwork). Any resulting image physical assets will be placed into the repository node that you specified in “Image Repository Configuration” on page 210.
- 11** To view the image, click its location on the tree node. The image at right will be sized for the user interface, but when you hover your mouse over the image representation, you will see the image’s actual resolution.

Managing Bundle Collections

Within its user interface, Producer provides a high degree of flexibility in dealing with various bundles, asset types, and relationships. The ability to present and edit bundle collections is another example of such flexibility. To simplify, bundle collections may be considered as bundles within bundles. The advantage of bundle collections is that they offer a distinct metadata set for the collection itself in addition to metadata for all underlying bundles and components.

As such, a new user interface tab for each type of bundle collection can be created, customized, and treated differently according to the included bundle types and specific customer requirements.

Some examples of bundle collection tabs include:

- a LOGICAL VIDEOS tab for Show Season and Video Collection bundles
- a SEASONS tab for Show Collection bundles

The following steps describes how to work with a bundle collection tab within Producer.

To manage bundle collections in Producer:

- 1** Navigate to **Producer > Manage Bundles**.
- 2** Create either a new Video Collection or Show Collection or search for an existing bundle of those types. See “Searching for Bundles” on page 183 for details.
- 3** In this example, you should arrive at the LOGICAL VIDEOS tab in the Producer interface. If you only see a METADATA tab, then verify that you are dealing with the correct bundle type. For other bundle types, you may see a different tab, depending on how your system was configured or customized.

- 4 Add, select, and edit the various entities within your bundle collection as necessary. The same Producer user interface procedures and rules apply.

Bulk Editing

The bulk edit feature allows you to modify common field values across multiple components at one time. This process overwrites previous values and cannot be undone, so care should be taken when using bulk edit functionality. Bulk editing is available both within the standard Media Suite user interface as well as within Producer. The functionality is identical, except that customization of available fields within Producer leverages a Bulk Edit Wizard. For more details on customizing bulk edit fields, see “Wizard Template Configuration” on page 210.

To bulk edit components within Producer:

- 1 Navigate to **Producer > Manage Bundles**.
- 2 Perform a bundle search. One requirement for gaining access to Bulk Edit functionality, however, is that you must specify a Bundle Type for your search.

Note A bulk edit wizard must be configured for the specific bundle type that you would like to edit.

- 3 Click **Search**.
- 4 Select the checkboxes to the left of the bundles that you would like to concurrently edit.
- 5 Click **Bulk Edit**.
- 6 The Metadata tab will be displayed showing all configured fields specified by the bulk edit template. At left, is a “View Selected Items,” section that displays all bundles that will be affected by this bulk edit operation.

Figure 109 Producer Bulk Edit

- 7 Click a textbox that you would like to change for all bundles. An edit dialog will appear.

Figure 110 Bulk Edit Dialog

- 8 Type the new text value. Click the checkmark to accept, or the x to cancel. Alternately, you can click **Delete** to remove all values for that field within all bundles selected for this operation.

- 9 After you have made the required changes to all your fields, click **Apply**.

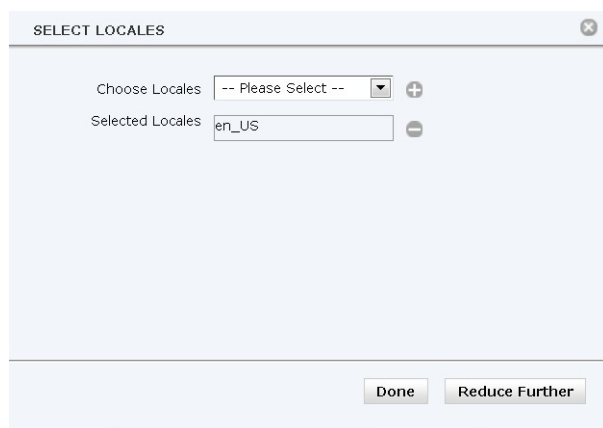
Selecting Components to Bulk Edit

In some instances, you may wish to restrict bulk edit operations to only certain components within a bundle. Producer enables you to quickly perform this action for your current editing session.

To choose specific components for bulk editing:

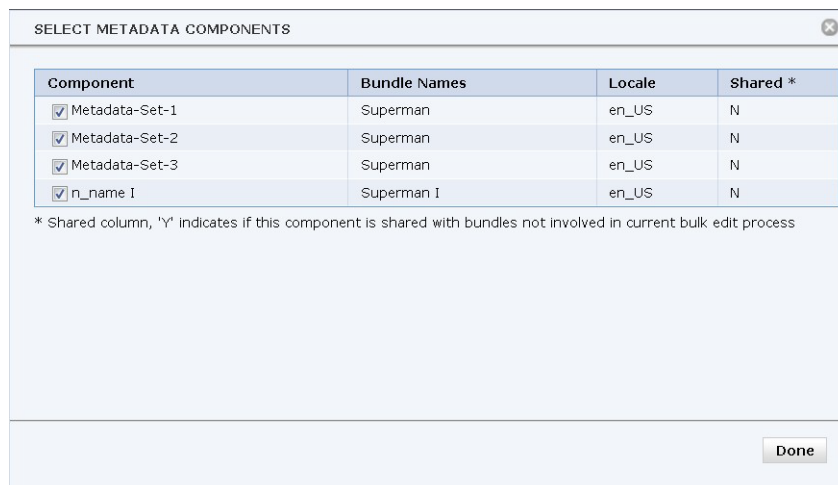
- 1 Navigate to the bulk edit page as shown in “Bulk Editing” on page 206.
- 2 From the Choose Locales drop-down list, select one or more locales. Click  to confirm each selection.

Figure 111 Selecting Locales for Bulk Editing



- 3 Click **Reduce Further** to choose the fields that you would like displayed from the available set.
- 4 A list of components will appear. Click the ones that you would like affected by any bulk edit changes.

Figure 112 Selecting Metadata Components for Bulk Editing



Component	Bundle Names	Locale	Shared *
☒ Metadata-Set-1	Superman	en_US	N
☒ Metadata-Set-2	Superman	en_US	N
☒ Metadata-Set-3	Superman	en_US	N
☒ n_name I	Superman I	en_US	N

* Shared column, "Y" indicates if this component is shared with bundles not involved in current bulk edit process

- 5 Click **Done**. Only the components that were selected will have their metadata affected by the bulk edit operation during this editing session.

Note If you navigate to another page within the Media Suite user interface, any component selections will be lost.

- 6 Click **Apply** to commit any changes.

Spell Check

Producer includes functionality that enables administrators to spell check metadata for bundle pages that are currently in focus in their browser. The following section describes how to setup and use that functionality.

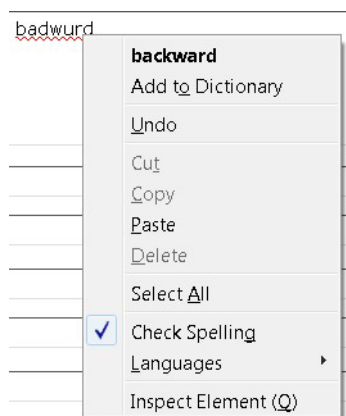
Enabling Spell Check

To enable spell checking to specific fields within Producer, you must add a parameter to fields within the bundle wizard template XML file. The manner in which the xml file works, is that you either specify a general section, in which case all fields for that section will appear, but will not be spell checked. Alternately, you specify a section name with specific fields, which means that only those fields will be shown in the wizard. For each field that you would like spell checked, you will need to add the `spellcheck="true"` option to the bundle wizard template XML for that bundle type. For example: `<field name="longSummary" spellcheck="true"/>`

Using Spell Check

After spell check is enabled, simply navigate to the page within Producer that has the metadata that you would like checked. Any misspelled words will be underlined with a red squiggle. Right-click the word and select the correct option as per standard spell check usage for any browser.

Figure 113 Spell Check Options



Producer Setup

Understanding Producer Setup

The Producer Setup menu exposes functionality that configures illegal character conversions, the available tabs and fields for editing bundle types, and the location of images used for bundle thumbnail or artwork. The following section describes how administrators can to configure Producer setup features.

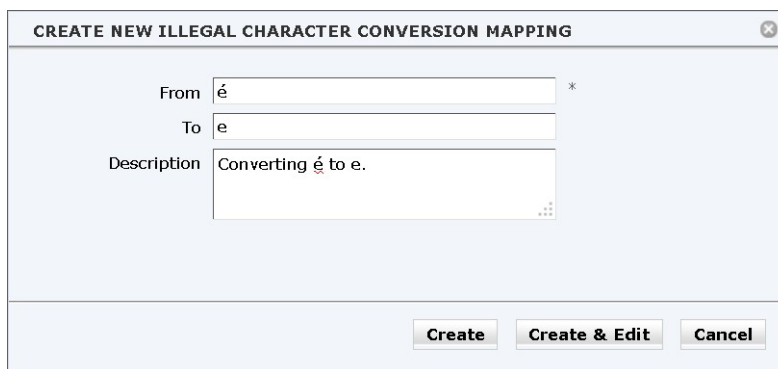
Illegal Character Conversion

Some Service Provider hardware or software may have difficulties displaying characters outside of the standard ASCII set. Especially problematic are non-English characters with accents. As a workaround, the **Illegal Character Conversions** page provides a solution that allows administrators to setup profiles that replace accented characters with non-accented equivalents.

To create an illegal character conversion:

- 1 Navigate to **Producer > Setup > Illegal Character Conversions**.
- 2 Click **Add New**. A dialog will appear to allow you to enter the character conversion parameters.

Figure 114 Illegal Character Conversion Dialog



The dialog box is titled "CREATE NEW ILLEGAL CHARACTER CONVERSION MAPPING". It contains three input fields: "From" with the value "é", "To" with the value "e", and "Description" with the value "Converting é to e.". There are three buttons at the bottom: "Create", "Create & Edit", and "Cancel".

- 3 Type the **From** character that you would like changed.
- 4 Type the **To** character that you would like the character changed into.
- 5 Type a description for the performed action that will be shown when all conversions are listed.

6 Click **Create**.

Once created, any Illegal Character Conversions will be run against any metadata content that is loaded onto any active Producer metadata page that is opened for editing.

Wizard Template Configuration

Producer uses XML Templates and a Wizard that interprets those templates to present a customizable user interface for bundle viewing and editing.

Prior to using Producer to edit a specific bundle type, an XML Template that defines the tabs and fields available for use, must be imported into the system. This action should be performed automatically (for logical videos) during the installation process, but if you require the use of a different template, you will need to first customize the existing XML template to meet your needs, and then perform the following steps to load the new template onto the system for use.

To add a new Wizard Template:

- 1 Navigate to **Producer > Setup > Wizard Template Configurations**.
- 2 Click **Add New**.
- 3 Select a specific Bundle Type from the drop-down list.
- 4 Select the BundleWizard Template Type. Alternately, if you are customizing fields available for bulk edit functionality, select the BulkEditWizard template type.
- 5 Type a Description.
- 6 Click **Create & Edit**.
- 7 Click **Browse** to select an existing XML Wizard Template on your local hard drive. As previously explained, this XML document will specify available tabs and fields for the chosen bundle type.

Note At any point you may click **View Schema** to bring up a read-only window that displays the Wizard Template schema (XSD). This schema is used for validating the template by ensuring that all requested resources exist, and that any template values are acceptable.

- 8 Click **Save**. At this time, the template will be validated against the schema, and will either be accepted, or error messages will be thrown to assist you in making any necessary template adjustments. For saved templates, once a bundle matching the specified type is loaded into Producer, the appropriate template will automatically be loaded to display its data for relevant operations.

Image Repository Configuration

Image repositories are configured to define server destinations where thumbnail and artwork images can be uploaded to, or selected for use. These repositories locations are identical to those found on the standard repository page located at **Workflow > Repository Manager** and the management of these locations is performed in exactly the same manner.

To configure an image repository:

- 1 Navigate to **Producer > Setup > Image Repository Node Configurations**.

- 2 Click **Add New**. A dialog will appear.
- 3 Select a `Folder Type` from the drop-down list to specify whether `Artwork` or `Thumbnails` will be stored at this location. The system can configure one folder for each type of image.
- 4 Type a `Description`.
- 5 Click **Create & Edit**.
- 6 Click **Browse** to select an image repository location (called `Destination`). If no repository is visible, you will need to navigate to **Workflow > Repository Manager** to create one. Afterwards, return to this location to select the new repository.
- 7 Click **Save**. A message will be displayed to confirm that your selection was accepted by the system. When working with images, the specified image repository location will be utilized.

Spreadsheet Ingestion

Producer provides the ability for Media Suite to conveniently ingest bundle metadata from Microsoft Excel spreadsheets in either XLS (or XLSX) formats. The following section provides both a high level and then detailed steps for configuring spreadsheet ingestion within your deployment.

Overview of configuring spreadsheet ingestion:

- 1 Establish your XLS data structure.
- 2 Configure your XLS parser.
The parser will leverage the Apache POI library to read the Microsoft data and map Media Suite field names to spreadsheet column letters. When setting up the parser you will have the option to generate a sample spreadsheet structure for existing BundleWizard template types.
- 3 Populate your XLS spreadsheet structure with required bundle data.
- 4 Upload the XLS file into Media Suite.
- 5 The remainder of these steps follow the typical Media Suite workflow protocol.
Create an Action Template for the XLS ingestion.
- 6 Create an Action Profile by leveraging the Action Template.
- 7 Configure a Workflow Definition to use the Action Profile.
- 8 Run the workflow to perform the bundle ingestion.
- 9 Perform spot checks to confirm that the spreadsheet data has been properly ingested.

Establishing Your XLS Data Structure

Consult with your Cisco advanced services representative to prepare and review the XLS spreadsheet bundle data structure. That discussion should include required fields and data types for your deployment. When creating your spreadsheet structure, keep in mind that fields may be added to import custom attributes along with your default fields.

Configuring an XLS Parser

At any point after deciding upon the spreadsheet field structure, you will need to accept or edit an XML file that maps Media Suite fields to spreadsheet fields. The Media Suite fields are located in the `componentManager.xsd`, while spreadsheet fields are identified by their column letters.

Note The location of the componentManager XSD can be found at:
`http://<hostname>/opencase/ContentManager/resource/rest/schema/contentManager.xsd`

To configure the XLS parser:

- 1 Navigate to **Producer > Setup > XLS Parser Configurations**.
- 2 Click **Add New**.
- 3 Type an XLS Parser name.
- 4 Select a Bundle Type from the drop-down list that will be populated by spreadsheet data.
- 5 Selecting the “From Bundle configuration” option will limit the available Bundle Types to existing BundleWizard template types shown at **Producer > Setup > Wizard Template Configurations**. Choosing one of those types will create a default Parser XML configuration tailored to the selected type.
- 6 Click **Create & Edit**.
- 7 An XML configuration page will be displayed. Make any required edits to the data that will be parsed. Within the XML, a `uniqueIdentifier` field can be set to choose how to identify existing components within bundles for processing updates.
For example, `<bundle type="Logical Video" uniqueIdentifier="externalID">`
- 8 Click **Save**.
- 9 Click **Activate**.
- 10 Click **Create Template**. This will create a default XLS spreadsheet that conforms to the fields listed in your XML configuration page.

Preparing XLS Spreadsheet Bundle Data

In this step you will create a Microsoft Excel spreadsheet that includes the Logical Video bundle data that will be imported into Media Suite. A sample spreadsheet can be generated from within the system.

To create an XLS bundle data spreadsheet:

- 1 Within Excel, open and examine the sample spreadsheet. In column 1 that spreadsheet has field names, data types, and any relevant format information as a guide.
- 2 Customize the field (i.e. column) structure to match your deployment needs. Ensure that you have documented field names, data types, and format information as shown in the sample spreadsheet.

Uploading an XLS File into Media Suite

Once you have finalized your XLS spreadsheet field structure and populated it with all required data, you will need to upload the file into the system for use.

To upload an XLS file into Media Suite:

- 1 Navigate to **Producer > Setup > Spreadsheet Ingestion**.

Figure 115 Spreadsheet Ingestion Page

SPREADSHEET INGESTION

Upload Spreadsheet files to hotfolder

Upload Files **Add File** *

Destination Folder **Browse** *

Upload

- 2 Click **Add File**.
- 3 In the file upload dialog, select the spreadsheet to be uploaded.
- 4 Click **Browse** to select a server repository destination for the spreadsheet.
- 5 Click **Upload**.

Workflow Procedures for XLS Ingestion

Creating an Action Template for XLS Ingestion

The process of creating an Action Template for XLS ingestion is no different from that of creating any other Action Template. You simply choose the specific ESB service that provides XLS ingest functionality.

To create an action template for XLS ingestion:

- 1 Navigate to **Workflow > Setup > Action Templates**.
- 2 Click **Add New**.
- 3 Type a name and description.
- 4 Choose the `OC_ESB_PROCESSOR_CM_INGEST_SPREADSHEET:CMIngestSpreadsheetService` ESB service.

Note `CMIngestSpreadsheetService` will be deprecated as of Media Suite 5.7.3 in favor of the `CompositeIngestSpreadsheetService`.

- 5 Click **Create & Edit**.
- 6 Click **Save**.
- 7 Click **Activate**. If you wish to immediately create an Action Profile, click **Create Action** to continue.

Creating an Action Profile for XLS Ingestion

To create an action profile that will be used for XLS Ingestion:

- 1 Either click **Create Action** immediately after creating your Action Template, or navigate to **Workflow > Manage > Action Profiles**.
- 2 Click **Add New**.
- 3 Type a name and description.
- 4 Choose the Action Template that you created for XLS Ingestion from the drop-down list.
- 5 Click **Create & Edit**.

Figure 116 XLS Ingestion Action Profile

The screenshot shows the 'MANAGE ACTION PROFILES > XLS INGESTION A.P.' interface. At the top are buttons for 'Save', 'Cancel', and 'Deactivate'. Below these are input fields for 'Name' (containing 'XLS Ingestion A.P.') and 'Description'. Further down are read-only fields for 'Action Template' (XLS Ingest A.T.), 'Modified Date' (2014-03-14 14:12), and 'UUID' (9aa7c008-a8c7-4c01-947f-298057d969bb). The 'Spreadsheet Parser' section includes a 'Parser Configuration' dropdown (set to 'XLS Parser Configuration [Logical Video]') and a 'Pattern' text field (containing '*.xls|*.xlsx'). At the bottom is a 'Related Workflow Definitions' table.

Name	Workflow Template
XLS-METADATA_AUGMENTATION-TASKS	XLS-Metadata_Augmentation-Tasks

- 6 From the Parser Configuration drop-down list, select one of the existing active Parser Configurations. For details on XLS Parsers, see “Configuring an XLS Parser” on page 212.
- 7 In the Pattern field, enter a regex pattern that will be used to find files for ingestion. Typically, this pattern would be `*.xls|*.xlsx`
- 8 Click **Save**.
- 9 Click **Activate**. Once you have implemented this Action Profile within any workflows, those workflows will appear in the Related Workflow Definitions section on this page.

Configuring the Workflow Node

Once you have created your Action Profile, you will need to include it within a Workflow Definition as per standard Media Suite workflow procedures. To finalize that process, the workflow nodes will need to be configured. This section explains how to configure the XLS Ingestion node.

To configure your XLS ingestion node:

- 1 Navigate to **Workflow > Manage > Workflow Definitions**.
- 2 Click the underlined name of the XLS Ingestion Workflow Definition that you would like to configure.
- 3 Click the CONFIGURE tab.
- 4 Click the XLS Spreadsheet ingestion node.
- 5 At the bottom, for the Processor field, use the drop-down list to choose the Action Profile that will perform the ingestion work.
- 6 Configure all other Workflow Definition nodes as normally required.
- 7 Click **Save**, then **Deploy**, then **Activate**.

Configuring the XLS Ingestion Workflow Definition

Workflow Definition configuration for XLS ingestion follows exactly the same procedures as standard workflows. The specific parts of configuring XLS ingestion are as follows:

1. When configuring the workflow node you must select the Processor (i.e. the XLS ingestion Action Profile) that you created in “Creating an Action Profile for XLS Ingestion” on page 214.
2. For the Workflow Trigger Event, select `HotFolderNewContent`, and then select the hotfolder that will store the spreadsheet file.

Running the XLS Ingestion Workflow

An XLS Ingestion Workflow will proceed in the exact same manner as other Media Suite workflows. Once you have saved, deployed, and activated your workflow and a trigger event has started the process, here are the some details to keep in mind:

1. When the XLS file starts being used by Media Suite to import data, the system will prepend a tilde (~) to the start of the filename. For example, `~SampleData.xlsx`.
2. Once the ingestion workflow is complete, the bundle data specified within the spreadsheet should appear within Media Suite as per your Parser configuration.

Metadata Source Plugins

Metadata augmentation is a feature that enables administrators to selectively download and incorporate bundle information from one or more data providers. The following section explains how to configure the Metadata Source Plugins, which is required prior to being able to use metadata augmentation functionality. By default, the TMS, TMDB, and EIDR data plugins will be available and partially setup with generic settings. You will need to configure your specific account settings to enable your data provider access. In addition, you will need to configure your local-specific field mappings as shown below.

Creating Metadata Sources

To setup a new metadata source:

- 1 Navigate to **Producer > Setup > Metadata Source Plugins**.

- 2 Click **Add New**.
- 3 Type a unique name for the Metadata source plugin. These names must be unique because workflows will reference them.
- 4 Select the class for the plugin, using the drop-down list. All relevant classes available to Media Suite will be shown, and can only be used one time each. If all classes are already used by existing plugins, or if your instance is missing classes, then an error message will be shown. By default, Media Suite supports TMS, TMDB, and EIDR data providers.

Figure 117 Metadata Augmentation Setup

The screenshot shows a web interface titled "MANAGE METADATA SOURCE PLUGINS" with a sub-header "TMS" and a page indicator "3 of 5". Below the header are four buttons: "Save", "Cancel", "Deactivate", and "Delete". The main configuration area has the following fields:

- Status:** Active
- Name:** TMS
- Class:** com.extend.opencase.pt.plugin.TMSMetadataSourcePlugin
- Field mappings:** A text area containing XML code, with "Browse" and "View Schema" buttons to its right.

The XML code in the field mappings section is as follows:

```
<mapping>
  <component type="Metadata" folder="Metadata Folder">
    <field name="episodeName" type="string" provider_field_name="episodeTitle" />
  />
  <field name="episodeNumber" type="string"
provider_field_name="episodeNum" />
  <field name="numberOfEpisodes" type="int"
provider_field_name="totalEpisodes" />
  <field name="seasonNumber" type="string"
provider_field_name="seasonNum" />
  <field name="titleShort" type="string" provider_field_name="title" />
</mapping>
```

- 5 The Field Mappings section allows you to **Browse** and import XML to map all possible Media Suite fields to data provider fields. Within the XML, the first field is the Media Suite field name, while the second field is the provider field name. This XML is typically set once, and rarely changed. As required, click **View Schema** to examine the schema as you modify your XML. You can add references to common entities in this file, but make sure that you match the Media Suite data type. Your final XML will be validated against this schema.

Note Each data provider has a unique offering of fields that can be imported by Media Suite. In addition, different date formats may be used by the providers. Within the Field Mappings XML, you can specify the exact format that should be used for date-related fields.

- 6 The “Create a new field map” section, allows you to choose which of the available fields will be used for metadata augmentation. Those fields must be present in the Field Mappings XML, and will overwrite any existing values within Media Suite. Selecting a locale will display all available fields (for that locale) in the “Selected fields” column. Those fields are pulled from Content Manager, and can be deselected if required. Any selected fields will be displayed in the “Existing Fieldmaps” table. Clicking **Delete** to remove a specific field from the field mapping. This will cause Media Suite not to augment data for that field.

Figure 118 Selecting Fields That Will Be Augmented

Fields to locale mapping

Existing fieldmaps

Locales ↕	Fields ↕	
en_US	additionalFeatures	DELETE
en_US	advisories	DELETE
en_US	album	DELETE
en_US	artist	DELETE
en_US	locale	DELETE
en_US	lyricists	DELETE
en_US	network	DELETE
en_US	seasonNumber	DELETE
en_US	seriesName	DELETE

Create new field map

Locales

Select ▼

Available fields

➡

▶

◀

⬅

Selected fields

Confirm

- 7 The “Configurations (plugin specific configurations)” section provides a place to select keys and then enter related values that are specific to each data provider’s plugin. Those keys will appear in a drop-down list, depending upon what is exposed by each plugin. For example, an `apiKey`, `imagesBaseUrl`, and `provider URL` are provided for the TMS plugin. Also, be aware that in some instances values requiring security may be obfuscated once you click **Update**.

Note In all cases, an account will need to be arranged and paid for with any data providers that you plan on using.

Figure 119 Plugin-Specific Configuration

Configurations (Plugin specific configurations)

Key ↕	Value ↕	
imagesBaseUrl*	http://yourimagebaseURL	DELETE
url*	http://dataproducerURL	DELETE
apiKey*	123abcyourkey	DELETE

Key ▼ Value

Update

- 8 To set the plugin-specific configuration, select a **Key** from the drop-down list.
- 9 Type a **Value** for the key.
- 10 Click **Update**. Repeat for all required keys.
- 11 Click **Save**.

- 12 Click **Activate**. The data provider plugin can now be used to augment metadata and images within Media Suite.

Image Transformations

Producer has the capability to transform image size and formats into what is required to match the needs of your deployment and that of any devices that will be used to view your storefront. To accommodate this functionality, you must create image profiles that specify the details of how images need to be transformed. Those profiles can then be utilized when you add images to bundles.

You can browse and then preview an image to see what the original and transformed images will both look like.

Creating an Image Transformation Profile

To create an image transformation profile:

- 1 Navigate to **Producer > Setup > Image Profiles**.
- 2 Click **Add New**.
- 3 Type a name, select an image type (either thumbnail or artwork), and type a description.
- 4 Click **Create & Edit**.

Figure 120 Image Transformation Page

The screenshot shows the 'MANAGE IMAGE PROFILES > TESTIMAGETRANSFORMATION' page. At the top, there are four buttons: 'Save', 'Cancel', 'Activate', and 'Delete'. Below these are several input fields and controls:

- Name:** A text field containing 'testImageTransformation' with an asterisk indicating it is required.
- Target Device:** A dropdown menu showing 'iPhone4' with a plus icon to the right.
- Image Type:** A dropdown menu showing 'Artwork' with an asterisk indicating it is required.
- Description:** A large text area containing 'Test image transformation for artwork.'
- Dimensions:** Two input fields for 'Width' (100) and 'Height' (100), both with asterisks indicating they are required.
- Renaming Options:** A text field containing 'newname' with an information icon to the right.
- File Format:** A dropdown menu showing 'PNG' with an information icon to the right.
- Color Depth:** A dropdown menu showing '24'.
- Letterboxing:** An unchecked checkbox.
- Related Thumbnail:** A checked checkbox followed by 'Width' (30) and 'Height' (30) input fields.
- Image Preview:** A text field containing 'red-cross-logo' followed by 'Browse' and 'Preview' buttons.

- 5 Select a Target Device. Default options include, iPhone4, iPad, iPad2, Nexus S, Inspire, WebClient, and Generic Android Phone. After selecting a device, click the  sign to confirm it. To include additional target devices, select them and click  once again. The Target Device value will be stored in the system, but not required by administrators a
- 6 Select an image type. Options include `Artwork` and `Thumbnails`. This selection will direct any transformed images into the appropriate Repository Manager folder.
- 7 Type a Description for this image transformation profile.
- 8 Type the final Dimensions (in pixels) for any images processed by this profile.
- 9 In the Renaming Options field, you can use regex expressions to specify a naming convention for any transformed files. Also, adding `$d` will append the date to the new filenames.
- 10 Select a destination File Format. Options include JPEG, JPG, GIF, PNG, and BMP.
- 11 Select a Color Depth. Options will be restricted to what is available with the destination file format that you have chosen.
- 12 Checking the Letterboxing option will open a small Background Color selection widget (to the right of the text box) where you can select a color that you would like used to surround the transformed graphic (where necessary). Alternately, you can check the Transparent option (with the PNG format only), which will cause any applied letterboxing to become transparent.

Figure 121 Letterboxing Options



- 13 Checking the Related Thumbnail option will open additional text boxes where you can enter the Width and Height (in pixels) of any thumbnails that you would like created to compliment the transformed image.
- 14 The Image Preview option allows you to first **Browse** to the image you would like transformed, then click **Open**, and lastly **Preview** to see the old and new images together side-by-side.
- 15 Click **Save**.
- 16 Click **Activate**. This image profile can now be selected when you add an image to a bundle. For details, see “Managing Images” on page 189.

Part C

EPG

EPG Overview

The EPG (Electronic Program Guide) module works in conjunction with Media Suite to enable deployments that can ingest TV scheduling information and repurpose it for use by various consumer devices or 3rd-party systems. The following chapter explains the EPG module in general, how to work with the module, and then defines relevant terminology.

Topics include:

- “Understanding EPG” on page 223
- “Using the EPG Module” on page 224
- “EPG Terminology” on page 225

Understanding EPG

Modern video consumers want it all: linear TV, on-demand content, universal search, and more. And they want it readily available, through a single, consistent interface, regardless of where the content they seek may be stored. Cisco’s Media Suite is designed to help Service Providers give consumers the unified media experience they want, anywhere, any time, and on any screen. Central to this capability is Media Suite, which is a carrier-grade, cloud-based software platform for powering comprehensive multi-screen media services. Media Suite provides all the capabilities service providers need to integrate content from multiple sources, entitle and stream content across devices, and monetize content through innovative digital bundling.

The Electronic Programming Guide (EPG) module lets you use Media Suite to combine linear video content and on-demand content into a single user experience, accessible through a single, consistent interface across multiple screens. With the EPG module, you can:

- **Manage live content for multiple screens:** The EPG module can act as a central source of channel listings and program information for a wide variety of devices, including personal computers, smartphones, tablets, game consoles, connected TVs, and set-top boxes. It also lets you control entitlement for linear and on-demand programming through a single digital rights locker.
- **Create a superior consumer experience:** On-demand content libraries are a powerful differentiator for service providers, but why make customers access them as a standalone service? The EPG module lets consumers browse and search both linear programming and on-demand content through a single interface, quickly bringing them the content they want, regardless of its source.
- **Simplify operations:** Maintaining separate linear and on-demand platforms can be burdensome for service providers. The EPG module lets you consolidate the management and

entitlement of linear and on-demand services into a single platform, simplifying administration and lowering costs.

- **Effectively monetize content:** With the EPG module's capability to automatically link linear programming with related on-demand content, you can better position premium on-demand offers for purchase or rental. For example, a subscriber watching a TV show live can also be presented with other episodes or supplementary features for on-demand purchase.
- **Customize the live service:** The EPG module supports considerable customization and third-party extensibility, allowing it to integrate easily with your existing and planned solutions.
- **Scale services as needed:** Media Suite is a modular platform that lets you scale critical elements of EPG ingestion, searching, and caching independently, as your user base and business requirements grow. As a result, you can invest in capacity expansion strategically and cost effectively.

Ultimately, Media Suite and the EPG module make more live and on-demand content readily accessible to your subscribers. Together, they allow you to create multi-screen media experiences that are richer and more mobile than what "over-the-top," or standalone online video services can deliver.

Using the EPG Module

Depending on your immediate needs, the EPG module can be used in a number of different ways. At a high level, however, the typical order of workflow processes and related tasks may be described as follows:

1. **Ingest Stations and Channel Line-ups**
This task is performed infrequently to set up the stations and lineups that will be leveraged during the other workflow steps. Channel line-ups may also be manually created if required.
2. **Manually Activate Channel Line-ups**
This task only needs to be performed once after ingesting or creating new channel line-ups.
3. **Ingest Schedules and Program Metadata**
This process is done on an ongoing and daily basis.
4. **Create Blackouts and Corrections**
These processes ensure that any schedule corrections or required blackouts will be included within feeds.
5. **Publish or Republish EPG Data**
This task ensures that the published version of feed data (consumed by client devices) always includes the latest manual edits, blackouts, and corrections.

EPG Terminology

The following table defines Media Suite-related terminology. Although some of these words have common English usage, those terms are defined within the context of the EPG module.

Table 51 EPG Terminology

Term	Definition
blackout	A blackout is a specific period of time during which regularly scheduled programming for a station may not be viewed. Blackouts may be set for either one or more channel line-ups, and are commonly required due to licensing or other legal restrictions.
channel	Channels are stations (such as NBC) that have been assigned a channel number and mapped to a channel line-up.
channel line-up	Channel line-ups are a set of channel mappings created for each service provider's geographical or virtual region. Channel line-ups may be further segregated by device type.
channel mapping	A channel mapping is when a station is assigned to a channel number within a line-up. For example, assigning the station NBC to channel 91 within the RogersTorontoHD line-up.
EPG	Electronic Program Guides are used to deliver TV scheduling information for a given period of time to an end user. EPGs are targeted to various devices, such as settop boxes (STBs), smartphones, and PCs.
external station	External stations are used as basis to create channel line-ups. They are managed externally to Media Suite and must be imported via a feed. External stations are synonymous with "stations".
feed	In our context, this is electronic program guide data (XML or otherwise) that is ingested into the EPG module. Example feed formats include Tribune Media Services' On™ TV, and TV Schedules, as well as GLF, TV-Anytime, and Red Bee. Note Although the Media Suite module supports different data formats, only one format can be ingested into the system at any time. The option to set your EPG data ingest format is specified during the installation process and, once a format is established, there is no reason to change it unless you change data providers. If such a procedure is required, consult the <i>EPG Installation Guide</i> for details.
feed fragment	Feed fragments are a portion of a feed that holds a particular aspect of the complete feed. Feed fragments may include data such as schedules, program information, stations, line-ups, or regions. Custom feed fragment types may also be specified within Media Suite.
ingestion	Ingestion is the process of importing feeds into Media Suite through the use of a workflow.
line-up	See <i>channel line-up</i> .
PAR File	A PAR file is an archive of files that encapsulates the steps and decision nodes of a workflow. PAR files are imported into Media Suite where they become Workflow Templates, and are later configured as Workflow Definitions. See "Understanding Workflows" on page 227 for more details on PAR files. Sample EPG PAR files are available on the Media Suite Documentation Portal at: http://www.cisco.com/web/videoscape/docs.html
product	Products are no longer supported in Media Suite as of version 5.7.3 and higher. At this point, the existence or creation of products, if required, will be implemented differently for each deployment. Such functionality would reside externally to Media Suite.
program	Content metadata managed by the EPG module. This may include movie, television, or radio shows.
publish	Publishing a feed makes the current EPG dataset publicly available to client devices.

Table 51 EPG Terminology

Term	Definition
schedule	A schedule (or event) is a single program occurring on a specific station at a specified time.
station	Stations are identified by call signs (such as CTV or NBC). A station becomes a channel once it has been assigned a channel number (such as 9) and mapped into a specific channel line-up. Stations are synonymous with “external stations”.
station bundle	Is a bundle that is comprised of station information.
UTC	The EPG module uses UTC (coordinated universal time) as a common frame of reference for all feed-related information. “Created” and “Modified” dates that are displayed in the user interface, however, continue to be relative to server time and are non-UTC.
workflow	A collection of steps or decision branches that may span one or more Media Suite modules or 3rd party applications.

Configuring EPG Workflows

This chapter covers information related to EPG-specific workflows. It will also cover theory related to Workflow Definitions, Workflow Nodes, and the monitoring of EPG workflows. Topics include:

- “Understanding Workflows” on page 227
- “Workflow Definition Lifecycles” on page 228
- “Understanding Workflow Nodes” on page 229
- “Understanding Typical GLF Workflows” on page 235
- “Configuring TMSON Workflows” on page 239
- “Configuring TMS TV Schedules Workflows” on page 240
- “Configuring Red Bee Workflows” on page 242
- “Monitoring Work Status” on page 243

Understanding EPG Workflow Configuration

EPG data is ingested into Media Suite and processed using mechanisms that have been set and configured within workflows. The following section describes the steps involved in configuring and deploying workflows that are required to enable EPG functionality.

Understanding Workflows

Workflows are a collection of steps or decision branches that may span one or more Media Suite modules or 3rd party applications. The key principle behind workflows is flexibility.

Creating a workflow within Media Suite is a multi-step process that involves calling on ESB services that provide general functionality and then combining and configuring those ESBs until they perform the desired work.

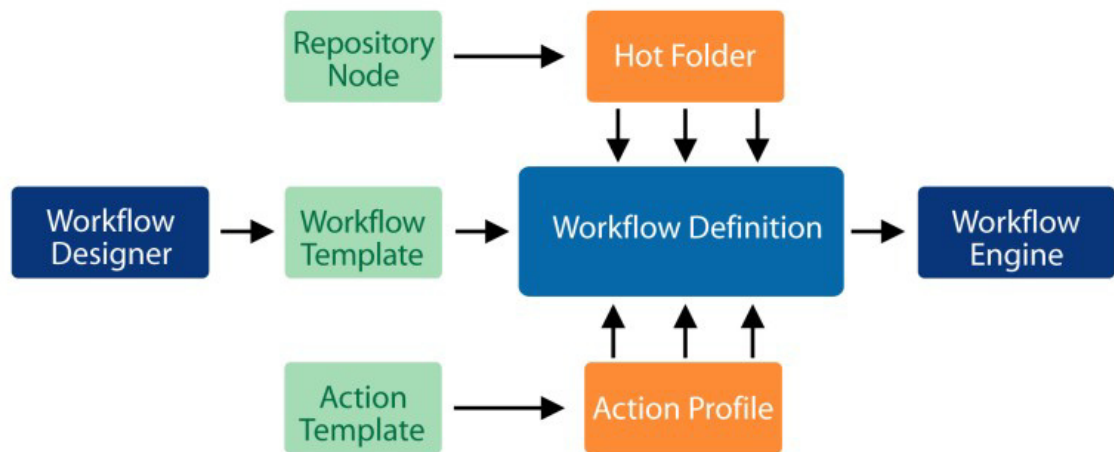
In general, the following steps are required to configure a workflow:

- 1 Create a repository
A repository consists of a reference to a filesystem with zero or more hot folders beneath it.
- 2 Create a workflow
Workflows are created within a workflow design tool (such as the JBoss tools plugin for Eclipse), and establish the decision branches and steps that are required to process your EPG data. Individual steps within a workflow are called workflow nodes. Workflows are saved as PAR files.

Note Sample PAR files are available on the Media Suite Documentation Portal at this location:
<http://www.cisco.com/web/videoscape/docs.html>

- 3 Import the PAR file into Media Suite
Once imported, the workflow (PAR) file becomes a workflow template.
- 4 Create action templates
Action templates establish general actions that process, transform, or transport a file. Examples of action templates include File Discovery, Ingest Feed Fragment, or Publish.
- 5 Configure action templates
Action templates are used as a basis to create instances of action profiles. Those action profiles may then be configured to provide specific functionality for workflow nodes. For example, the Ingest Feed Fragment action template may be configured with the option to ingest station information only. Afterwards, Action Profiles are then used within a workflow.
- 6 Create a workflow definition
Workflow definitions are created by assigning action profiles to workflow nodes.
- 7 Configure triggers for the workflow
Workflows are initiated by configuring one or more trigger options. Common trigger options include linking a hot folder to a workflow definition so that new content triggers the workflow. Another common option is to trigger a workflow at a scheduled interval.

Figure 122 Configuring a Workflow



Note After a workflow definition has been configured, it must first be saved, then deployed, and lastly activated in order to take effect.

Workflow Definition Lifecycles

The following section describes general rules that will prove useful for those managing workflow definitions.

New Workflow Definition Lifecycle

The lifecycle for a workflow definition is:

create - deploy - activate

Note Incomplete workflows may be saved in progress, but they cannot be deployed, and therefore cannot be made active.

Existing Workflow Definition Lifecycle

The lifecycle for modifying an existing (deployed) workflow definition is:

undeploy - modify - redeploy - reactivate

Note Undeploying a workflow makes it inactive and unavailable for use.

When workflows are modified:

- Changes do not take effect until the workflow is redeployed. Redeployed workflows remain active if they were previously active.
- Any active workflow instances will continue (unchanged) until their processes are complete.

Changing a Workflow Template for an Existing Workflow Definition

The lifecycle for changing a workflow template for an existing workflow definition is:

reload template - reconfigure nodes - redeploy

You do not need to reactivate a workflow definition as the activation status will remain the same as it was before. The update workflow definition (using the new workflow template) will take effect once the workflow definition is redeployed.

Understanding Workflow Nodes

Workflow nodes form the building blocks of workflows. Each node performs a function, and the various nodes, collectively, perform all duties required by the EPG module. Workflow nodes may perform tasks such as ingesting a feed, performing data transformations, publishing the feed for consumption by target devices, or perform any required cleanup procedures. The following section describes how to create and configure workflow nodes.

Note Workflow PAR file node names are arbitrary and should only act as a guide for which action profile should be attached to the workflow node. For details on creating EPG-specific action templates and profiles, refer to “Common ESBs Used for EPG Workflows” on page 231.

Creating Workflow Nodes

Workflow nodes are action templates that have been created by selecting a particular ESB. The action templates are then configured as action profiles. Those action profiles will become workflow nodes once they are chosen for use within a workflow definition.

To create a workflow node:

- 1 Create an action template that establishes the general work that must be performed.
- 2 Create an action profile, which is based on an action template, which is then configured to specify the details of the work that needs to be performed.
- 3 In the Workflow Definition, select the action profiles to use for each node.

Common ESBs Used for EPG Workflows

The following section describes common ESB services that are used to create EPG-specific action templates that will be used to create action profiles, which will later become workflow nodes.

Table 52 EPG-Specific Services

ESB Category Name	Details
OC_ESB_PROCESSOR_EPG_INGEST_FEED_FRAGMENT	Used to ingest EPG feed fragments or a complete feed. When configuring an Action Profile that is based on this ESB, you specify the type of feed fragment that you would like to ingest. Additionally, at the Action Profile stage, an option is available to error out of the workflow if there is no file to process. Fragment types that may be processed include: - SINGLE Feed Types: GLF Ingests all feed information at once (except for channel line-ups). - SCHEDULE Supported Data Types: All (GLF, TMS, TVS, Red Bee, TVA) Ingests schedule information only from the feed data. - PROGRAM Supported Data Types: All Ingests program information only from the feed data. - PROGRAM_EXTRA Feed Types: TMS Ingests additional metadata related to programs. For example, TMS data has “showcards” that contain series information. You can parse that, if required, to extract program images. - STATION Supported Data Types: All Ingests station information only from the feed data. - LINEUP Supported Data Types: TMS, TVS Ingests lineup information only from the feed data. - REGION Supported Data Types: TVS Ingests region information only from the feed data. Note Custom fragment types may only be specified if you are writing your own custom parser.

Table 52 EPG-Specific Services

ESB Category Name	Details
OC_ESB_PROCESSOR_EPG_FINALIZE_INGEST	Step for finalizing an EPG ingestion. One of these finalize steps is performed after the INGEST FEED FRAGMENT process. The step that you choose will vary depending upon the data and format of the EPG feed that is being ingested. Finalize steps that may be specified include: • GET_CM_STATION_INFO Optional step Retrieves station bundle and related product information and matches a copy of that information with EPG data. The information is then made available for use in the public search manager APIs. • FINISH_LINEUP_INGEST Required step Used to commit line-up changes. If this step is not run, then any changes will be reverted at the next EPG feed ingest. • FINISH_PROGRAM_SCHEDULE_INGEST Required step Used strictly for schedule-related workflows. Signals to the system that no more data will be coming for schedules and programs. All new schedules are then promoted to be “publishable. Failure to execute this step in a workflow where schedule ingestion is present, will revert all new changes. • PUBLISH Optional (because you can always publish manually instead) Publishes the processed EPG data to a repository from which it will be made accessible to be queried by the required client devices via the search manager APIs. • FLUSH_ALL_CACHES Optional step All caches are self-managing, so this option should never be used unless recommended by Cisco support personnel. Flushes all EPG related caches. • FINISH_EPG_WORKFLOW Required step for all EPG workflows. Notifies the EPG module that all EPG module work has completed. If this step is not included at some point, the workflow will be considered defunct. On the WORK STATUS page, this work will show as “Terminated”. • FAIL_ON_ERROR Optional step If any errors (critical or acceptable) occur, this node triggers the workflow to fail and stop processing. If you place this node before a FINISH_PROGRAM_SCHEDULE_INGEST node and any error occurs, then the schedule information will be reverted to its former state.

The following non-EPG specific ESBs are also commonly used within EPG workflows:

Table 53 Non-EPG-Specific Services

ESB Category Name	Details
OC_ESB_PROCESSOR_FILE_DISCOVERY	Provides the ability to search a repository path for specific files. Options include the ability to search subfolders within a given path and to use regular expressions to find required files. Some feed providers only allow read-access to their servers, so move and copy operations are not permitted. In addition, feed files from multiple time periods are left on the provider’s server. In order to filter out irrelevant files, you need to implement Reg Ex logic against the available filenames to choose the feed files that you require. The desired feed files would typically be those that are generated on the day of ingestion. For details on setting regular expressions that use date range tokens, see “Implementing Reg Ex Date Tokens In Search Patterns” on page 233.
OC_ESB_PROCESSOR_FILE	A file-related service that performs a wide range of file processing activities via the Repository Manager. File processing actions that may be configured include: • Copy - copies one or more specified files from one location to another. • Move - moves one or more specified files from one location to another. • Delete - deletes one or more specified files. • Copy & Unzip - copies a specified archives from one location to another and unzips it at the target location. • Move & Unzip - moves a specified file from one location to another and unzips it at the target location.

Implementing Reg Ex Date Tokens In Search Patterns

For file discovery search, users may need to enter a pattern that will search for a file name containing a specified date (such as the current date) or a relative date range. The date tokens are relative to the workflow execution date. The following section explains how to implement regular expression date tokens within search patterns.

Simple Date Token Replacement

The date operator requires that you specify a format for the date.

Date formats are expressed using the following date pattern characters:

Table 54 Standard Java Date Letter Designations

Letter	Definition
d	Day in the month
M	Month in the year
y	Year
H	Hour in the day (0-23)
h	Hour in am/pm (1-12)
m	Minutes in hour
s	Seconds in minute

For additional date format letter designations, refer to the Oracle's Java documentation.

An example of a specified date format:

```
{date(yyy-MM-dd)}
```

A real-world example that would require usage of this token might be:

```
on_usa_lineups_cable_{date(yyyyMMdd)}.xml.gz
```

If the service was executing on December 22nd, 2011, the date token would be displayed as:

```
on_usa_lineups_cable_20111222.xml.gz
```

You can use the date tokens within regular expressions to create your file filters. The following regex search pattern matches any file name that starts with any characters and that ends with “_lineups_cable_(specified date).xml.gz”:

```
.*_lineups_cable_{date(ddMMyy)}.xml.gz
```

Date Range Token Replacement

If you are interested in specifying a date range (instead of an individual day), then you can use the date range operator that is described in this section. Keep in mind that in all cases, the date variables will automatically be substituted with the workflow run date and time.

```
{daterange(yyyyMMdd) + (number of days)}
```

```
{daterange(yyyyMMdd) - (number of days)}
```

The following example searches for a date 3 days forward from the current date:

```
{daterange(yyyyMMdd) + 3}
```

For the previous pattern, if the date of execution is assumed to be March 11, 2011, the example substitutes the following regular expression clause into the search pattern, to match any of the dates in the desired range:

```
(20110311|20110312|20110313|20110314)
```

Standard EPG Workflows

The following section describe the types of typical EPG workflows that may be configured for different feed types. It also runs through the procedures that are required to enable those workflows. For information on creating and configuring workflows in general, see “Understanding Workflows” on page 227.

Note Although Media Suite supports different EPG data formats (such as TMSON and Red Bee), only one format can be ingested into the system at any time. The option to set your EPG data ingest format is specified during the installation process and, once a format is established, there is no reason to change it unless you change data providers. If such a procedure is required, consult the *EPG Installation Guide* for details.

Understanding Typical GLF Workflows

The following section describes typical workflows for ingesting and processing GLF EPG feed data. Regardless of which method is used, the results are the same.

Two approaches for importing and processing EPG GLF feed data:

1. One workflow is configured, and multiple passes of ingestion and processing are performed using the same workflow. During the first pass, stations (only) are ingested. No schedule or program information is ingested because stations and channel line-ups must already exist and be active for other information to be associated to them. After channel line-ups have been created and activated, schedule and program information can automatically be ingested and associated to those stations during a second pass of this workflow. For details on this approach, see the "GLF Station Workflow" section.
2. Two workflows may be configured: one for ingesting station data, and another to ingest and process schedule and program data. This approach is not covered in this documentation, however, the Red Bee workflow is virtually identical. The only difference is that the regex for find files in action profiles must be suitably modified to search for the correct filenames.

GLF Station Workflow

The following typical GLF workflow must be run twice. Initially, it is used to ingest station information into Media Suite. The workflow node names that follow are based on what was created within the PAR file and are subject to change. Keep in mind that their defined purpose is more important than the arbitrary name they have been assigned.

The GLF Station workflow follows this progression:

- 1 **GLF Ingest** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the regex expression that was set for this node.
- 3 **Copy** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers so that it is available for processing.

- 4 **Ingest Single** - ingests a feed into Media Suite for processing. Stations will be ingested during this pass. If an active line-up exists, then schedules for all referenced stations will be ingested in addition to station information.

Note After they have been created, stations cannot be deleted, but only deactivated.

- 5 **Finalize Program Schedule Ingest** - this node executes, but will not perform any actions during this iteration. This node signals to the system that no more data will be coming for schedules and programs. All schedules are then promoted to be “publishable”.
- 6 **Fail On Error** - (optional) if any errors occur, this node triggers the workflow to fail and stop processing. If this node is not used, the workflow continues processing EPG data until it is finished, while ignoring any non-critical errors. At the end of processing, any errors will be presented on the errors tab of the workflow monitor.
- 7 **Link Stations to Products** - links stations to bundles representing stations.
- 8 **Publish** - this node executes, but will not perform any actions during this workflow iteration. This node publishes the processed EPG data to a repository from which it will be accessible to the required client devices.
- 9 **Cleanup** - deletes the processed feed file from the local server.
- 10 **EPG Ingest Complete** - a workflow node that notifies the EPG module that no other EPG-related work is to be expected for this workflow.
- 11 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Creating and Activating Channel Line-ups

After performing the station processing workflow for GLF data, you will need to create and activate a GLF channel line-up.

GLF Schedule and Program Workflow

The following workflow can be performed after station and channel line-up information have been imported and set:

- 1 **GLF Ingest** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.
- 3 **Copy** - copies the discovered EPG data file from the source location (on the provider’s server) to a location that is local to the Media Suite servers so that it is available for processing.
- 4 **Ingest Single** - ingests a feed into Media Suite for processing the schedule and program data.
- 5 **Finalize Program Schedule Ingest** - signals to the system that no more data will be coming for schedules and programs. All schedules are then promoted to be “publishable”.

- 6 **Fail On Error** - (optional) if any errors occur, this node triggers the workflow to fail and stop processing. In addition, this node will revert schedules to their previous states. If this node is not used, the workflow continues processing EPG data until it is finished, while ignoring any non-critical errors. At the end of processing, any errors will be presented on the errors tab of the workflow monitor.
- 7 **Link Stations to Products** - links stations to station products (and consequently to the related station bundles.
- 8 **Publish** - publishes the processed EPG data to a repository from which it will be accessible to the required client devices.
- 9 **Cleanup** - deletes the processed feed file from the local server.
- 10 **EPG Ingest Complete** - a workflow node that notifies the EPG module that no other EPG-related work is to be expected. for this workflow.
- 11 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Configuring a Typical GLF Workflow

The configuration of a possible GLF workflow will be described in this section. Afterwards, other EPG data types will only have the node functionality described as configuring those workflows follows the same standard procedures as configuring all other Media Suite workflows.

To ingest and process a GLF feed:

- 1 Create a source repository for the originating EPG feed data located at a remote server location.
- 2 Create destination repository for EPG feed data that will be local to Media Suite. This repository location will be used to store the file that will be copied and processed.
- 3 Create PAR files that represent each workflow that is required or modify one of the standard Cisco PAR files to suit your deployment.
- 4 Create a workflow template from `YourWorkflow.par`.

Create action templates to perform work for each node in your workflow. Each action template references the relevant ESB for the task that needs to be performed.

The File Discovery Service can be used to implement the following nodes:

Find Feed Files

The source repository will be searched for files matching desired regex patterns and found files will be copied to the local repository for processing.

The Repository Manager service can be used to implement the following nodes:

- Copy
- Copy & Unzip
- Cleanup
- Move
- Move & Unzip
- Delete (for cleaning up local files)

The Ingest Feed Fragment service can be used to implement the following nodes:

- Ingest Stations
- Ingest Lineups (currently not applicable to GLF feeds)
- Ingest Schedules
- Ingest Programs
- Ingest Single (feeds)
- Ingest Custom (feeds)
- Ingest Program Extra Info (currently not applicable to GLF feeds)
- Ingest Regions (currently not applicable to GLF feeds)

Note Each Ingest action profile will need to utilize regular expressions to choose the correct feed files to act upon. These feed files would have been discovered from a broader set of files.

The Finalize Ingest service can be used to implement the following nodes:

- Link Stations to Products
- Finish Lineup Ingest (Promote)
- Finalize Program Schedule Ingest
- Publish
- EPG Ingest Complete
- Fail on Error

- 5 Create action profiles that reference each action template.
- 6 Activate each action profile.
- 7 Create a workflow definition by referencing the workflow template.
- 8 Configure each node of the workflow definition.
- 9 Save, deploy, and then activate the workflow definition.
- 10 Create a trigger action.
- 11 The workflow will commence once the trigger action has occurred.
- 12 As the workflow proceeds, its progress may be tracked on the **EPG > Monitor > Work Status** page. Details on this page are only visible for EPG-specific work.

Configuring TMSON Workflows

The following section describes the two workflows that must be performed for TMSON EPG data processing.

Configuring TMSON Station & Lineup Workflows

The following typical TMSON workflow must be performed initially to ingest station and channel line-up information into Media Suite. Afterwards, if no manual changes have been performed, this workflow may be rerun on occasion to insert any new stations that have been added.

Warning Rerunning this workflow overwrites all manual changes to all channel line-ups. To be clear, if you have made manual changes to your channel line-ups, you will lose them after running this workflow.

The typical TMSON workflow for stations and channel line-ups follows this progression:

- 1 **Lineup Ingest Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.
- 3 **Copy and Unzip** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers, and then unzips the file so that it is available for processing.
- 4 **Ingest Stations** - ingests all station information from the feed into Media Suite for processing.
- 5 **Ingest Lineups** - ingests all channel line-ups information from the EPG data into Media Suite for processing.
- 6 **Finish Lineup Ingest (Promote)** - commits the channel line-up changes. If you do not run this step, any changes will be reverted at the next EPG feed ingest.
- 7 **Link Stations to Products** - links stations to bundles representing stations.
- 8 **Cleanup** - deletes the processed feed file from the local server.
- 9 **EPG Ingest Complete** - signals to the EPG module that all EPG-specific work is completed for this workflow. This allows other EPG work to commence as only one EPG workflow may run at one time.
- 10 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Configuring TMSON Schedules and Programs Workflows

The typical TMSON workflow for schedules and programs follows this progression:

- 1 **Schedules and Programs Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.

- 3 **Copy and Unzip** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers, and then unzips the file so that it is available for processing.
- 4 **Ingest Schedules** - ingests all schedule information from the EPG data into Media Suite for processing.
- 5 **Ingest Programs** - ingests all program information from the EPG data into Media Suite for processing.
- 6 **Ingest Showcards** - ingests all program showcard feed information (if available).
- 7 **Finalize Schedule-Program Ingest** - signals the system that no more data will be coming for schedules and programs.
- 8 **Publish** - publishes the processed EPG data to a repository from which it will be accessible to the required client devices.
- 9 **Cleanup** - deletes the processed feed file from the local server.
- 10 **EPG Ingest Complete** - a workflow node that notifies the EPG module that no other EPG-related work is to be expected. for this workflow.
- 11 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Configuring TMS TV Schedules Workflows

This feed data type requires more than one workflow to fully process and utilize all of its data. Station line-up ingestion is the first workflow that is performed for this data type. This workflow is performed at the outset when setting up your deployment to ingest the stations into the EPG module.

The typical TMS TV Schedule workflow for station line-up ingest is performed in the following sequence:

- 1 **Lineup Ingest Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.
- 3 **Copy and Unzip** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers, and then unzips the file so that it is available for processing.
- 4 **Ingest Stations** - ingests all station information from the feed into Media Suite for processing.
- 5 **Ingest Regions** - ingests a TV Schedule feed fragment which contains generic information for the geographic regions, such as postal codes or other identifiers.
- 6 **Ingest Lineups** - ingests all channel line-up information from the EPG data into Media Suite for processing.
- 7 **Finish Lineup Ingest (Promote)** - commits the channel line-up changes. If you do not run this step, any changes will be reverted at the next EPG feed ingest.
- 8 **Link Stations to Products** - This optional workflow links stations to station bundle products in the Content Manager module within Media Suite.

- 9 **Cleanup** - deletes the processed feed file from the local server.
- 10 **EPG Ingest Complete** - signals to the EPG module that all EPG-specific work is completed for this workflow. This allows other EPG work to commence as only one EPG workflow may run at one time.
- 11 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

The final workflow for the TMS TV Schedules data format, is the Program Ingest workflow. This workflow ingests and then publishes program schedules and metadata.

The Schedules & Program Ingest workflow is performed in the following sequence:

- 1 **Schedules & Programs Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.
- 3 **Copy and Unzip** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers, and then unzips the file so that it is available for processing.
- 4 **Ingest Schedules** - ingests all schedule information from the EPG data into Media Suite for processing.
- 5 **Ingest Programs** - ingests all program information from the EPG data into Media Suite for processing.
- 6 **Finalize Schedule & Program Ingest** - signals the system that no more data will be coming for schedules and programs.
- 7 **Publish** - publishes the processed EPG data to a repository from which it will be accessible to the required client devices.
- 8 **Cleanup** - deletes the processed feed file from the local server.
- 9 **EPG Ingest Complete** - signals to the EPG module that all EPG-specific work is completed for this workflow. This allows other EPG work to commence as only one EPG workflow may run at one time.
- 10 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Lastly, a workflow can be utilized to copy images for stations, programs, and movies from the TMS servers to your destination content delivery network. These images can then be referenced and used in the publicly available EPG feeds.

Processing TMS Images

For TMS workflows (such as TMSON and TMS TV Schedules) images may be processed to be made available to clients by using the following workflow nodes:

The image copy workflow contains two nodes:

- 1 **Full Image Transfer** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.

- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.
- 3 **Copy to CDN** - a Repository Manager copy node should be configured with the source pointing to TMS' image repository server and the destination set as your local content delivery network. The action profile requires a configuration with the following settings:
 - For the destination file path, select the "reproduce original" option.
 - For path processor, select "TMSImagePathProcessor".
 - For the file collisions parameter, select the "overwrite" option.
- 4 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Configuring Red Bee Workflows

This feed data type requires one workflow to ingest stations. Channel line-ups must be manually created. Next, schedules and program metadata are ingested, processed, and published.

The Station Ingest Workflow is performed as follows:

- 1 **Station Ingest Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder on the provider's server (at a scheduled interval) to choose files that match the RegEx expression that was set for this node.
- 3 **Copy Feed File** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers so that it is available for processing.
- 4 **Ingest Stations** - ingests EPG data into Media Suite for processing. In this pass, station information will be processed.

Note After they have been created, stations cannot be deleted, but only deactivated.

- 5 **Link Stations to Products - an optional node** links stations to station products (and consequently to the related station bundles).
- 6 **Cleanup** - deletes the processed feed file from the local server.
- 7 **EPG Ingest Complete** - signals to the EPG module that all EPG-specific work is completed for this workflow. This allows other EPG work to commence as only one EPG workflow may run at one time.
- 8 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. Remember to manually create your channel line-up after running the previous workflow. After the Station Ingest workflow has been run, and channel line-ups have been manually created, the Schedule & Program Ingest workflow should be run.

The Schedules and Programs Ingest workflow is performed in the following sequence:

- 1 **Schedules & Programs Start** - the name for the start node in the workflow from a PAR file perspective. This node has no practical application otherwise.
- 2 **Find Feed Files** - searches through the source folder to choose files that match the RegEx expression that was set for this node.

- 3 **Copy and Unzip** - copies the discovered EPG data file from the source location (on the provider's server) to a location that is local to the Media Suite servers, and then unzips the file so that it is available for processing.
- 4 **Ingest Schedules** - ingests all schedule information from the EPG data into Media Suite for processing.
- 5 **Ingest Programs** - ingests all program information from the EPG data into Media Suite for processing.
- 6 **Finalize Schedule & Program Ingest** - signals the system that no more data will be coming for schedules and programs.
- 7 **Publish** - publishes the processed EPG data to a repository from which it will be accessible to the required client devices.
- 8 **Cleanup** - deletes the processed feed file from the local server.
- 9 **EPG Ingest Complete** - signals to the EPG module that all EPG-specific work is completed for this workflow. This allows other EPG work to commence as only one EPG workflow may run at one time.
- 10 **Completed** - signifies the end of the end of the workflow from a PAR file perspective. No other work will be performed after this step.

Monitoring Work Status

Once an EPG workflow has commenced, its progress may be monitored on the Work Status pages. These pages will show the status of any current or historic EPG-specific work that is being performed within Media Suite. This work may include the generation of placeholder station bundles as performed by the EPG "automation" feature. For details, see "Generating Placeholder Station Bundles" on page 275.

Prior to viewing work status, however, it is important to understand the basic concepts related to EPG work. In short, work is comprised of one or more processes, which are comprised of one or more steps. Although in some ways similar to Media Suite workflows, EPG work may be initiated through various means. For EPG example, work may be initiated through the Media Suite interface, automatically through a workflow, or through SOAP web services.

To summarize:

Work consists of one or more **processes**.

Processes consist of one or more **steps**.

Work is only considered complete once all its processes are complete. Similarly, processes are only considered complete once all related steps are complete.

Understanding Statuses

Each of Work, Processes, and Steps all have statuses, which are defined as follows:

Complete, which indicates that the step completed with no errors.

Failed, which indicates that the step was not able to complete due to any errors.

Terminated, which indicates that the step was forcibly halted because it was considered defunct. A defunct step is one that does not return a heartbeat within a specified amount of time. This time period can be customized.

Statuses propagate up the hierarchy from lowest to highest. For example, a critical error at a step will trigger a failed state. This state will also cause the parent process to be in a failed state, which will consequently place the work in a failed state.

Note Non-critical errors do not trigger a failed state. With those errors, any steps, processes, or work will display a “Complete with errors” state.

Monitoring Work In Progress

The WORK STATUS page provides functionality to view the status of work that is in progress.

To view EPG work status:

- 1 Navigate to **EPG > Monitor > Work Status**.
- 2 The MONITOR WORK STATUS page appears showing any activity on the IN PROGRESS tab. This page will display the following:
 - Work UUID** - a unique identifier for the work being performed. The prefix for this identifier indicates the manner in which the work was started. Work started manually through the Media Suite user interface begins with “MANUAL”. Work that is started via a workflow has no prefix, while work that is started with SOAP web services will use the “SOAP” prefix. For example, SOAP:c60d89b1-b48f-42a8-a4f9-3927c5f6294c.
 - Errors** - the number of step errors that have occurred. If errors have occurred, click the error number to see additional details on those errors.
 - Start Time** - the date and time that the work commenced.
 - Current Process** - if the work is not complete, the process that is currently being performed.
 - Heartbeat** - the most recent time that the process has checked in to Media Suite to confirm that it is running.

Figure 123 Work Status - IN PROGRESS Tab

MONITOR WORK STATUS				
IN PROGRESS HISTORY				
Refresh				
Work UUID ▲	Errors	Start Time	Current Process	Heartbeat
dbdc60d9-2cc8-45e1-98c5-b5d05e36552a	0	2012-01-09 14:18		2012-01-09 14:18
Results: 1				

- 3 Click **Refresh** to see the most recent work that is in progress. Even if the button is not clicked, this work status will automatically refresh every 10 seconds.
- 4 Click the underlined **Work UUID** to see more detailed information on the work processes in question. The page will display a panel for each process. Within each panel, the steps for the process will be listed.
 - Each step table lists the following:
 - Step** - the name of the step being performed.

Processed - the number of items that have been processed.

Status - the status of the process. The types of statuses are:

- Complete, which indicates that the step completed with no critical errors.
- Failed, which indicates that the step was not able to complete due to a critical error.
- Terminated, which indicates that the step was manually halted because it was considered defunct. A defunct step is one that does not return a heartbeat within a specified amount of time. This time period can be customized.

Duration - the duration of the step.

Figure 124 Work Status - IN PROGRESS Tab: Processes

FINALIZE.GET_CM_STATION_INFO			
Status : COMPLETE Start Time : 2012-01-09 14:18:40 End Time : 2012-01-09 14:18:45 Process Id : 3			
Step	Processed	Status	Duration
<u>GET_CM_STATION_INFO</u>	5 of 5	COMPLETE	00:00:04

- 5 Hovering your mouse over the step name shows information that will prove useful for troubleshooting. That information includes the step's Start Time, End Time, Clustered Node name, and Thread ID. Clicking the step name will not perform an action.

Monitoring EPG Work History

The WORK STATUS page provides functionality to view the history of work that was completed, has failed, or was terminated.

To view EPG work history:

- 1 Navigate to **EPG > Monitor > Work Status**.
- 2 Click the **History** tab.
- 3 To perform a search, select a Status option, such as Any, Completed, Failed, or Terminated. Optionally select Start and End times for viewing work status. Click **Search**. If you do not choose any search options, then all work history entries within the system will be displayed.
- 4 The Work Status History page displays the following information:
 - Work UUID** - a unique identifier for the work being performed.
 - Errors** - the number of errors that have occurred.
 - Status** - the work status. For example, Completed, Failed or Terminated.
 - Start Time** - establishes the start boundaries of a window where work has commenced.
 - End Time** - establishes the end boundaries of a window where work has commenced.

MONITORING WORK STATUS

Figure 125 Work Status History page

IN PROGRESS HISTORY

Status Start Time End Time Search

Work UUID	Errors	Status	Start Time	End Time
5a80a8a1-362e-4ed7-9c5f-0c122f4569de	0	Completed	2012-01-09 13:46	2012-01-09 13:46
a6c8e811-9b59-41f6-9904-5b2b65e57fac	0	Completed	2012-01-09 13:44	2012-01-09 13:44
76854668-2e6e-4280-a4b1-5f28a675f167	0	Completed	2012-01-09 13:43	2012-01-09 13:43
dbdc60d9-2cc8-45e1-98c5-b5d05e36552a	0	In Progress	2012-01-09 14:18	

Results: 4

- Click **Delete History** to clear the history of any work prior to today. As a safety measure, the current day's history cannot be deleted.
- Clicking the Work UUID allows you to view process-level details of the work being performed.

Figure 126 Process-level Detail of a Single EPG Work Item

FINALIZE.FINISH_EPG_WORKFLOW

Status : COMPLETE Start Time : 2012-01-09 13:46:18 End Time : 2012-01-09 13:46:18
 Process Id : urn:jboss/esb/message/UID#24932147-6695-4b12-9da3-42388912b049

Step	Processed	Status	Duration
FINISH_EPG_WORKFLOW	N/A	COMPLETE	00:00:00

FINALIZE.PUBLISH

Status : COMPLETE Start Time : 2012-01-09 13:46:11 End Time : 2012-01-09 13:46:15
 Process Id : urn:jboss/esb/message/UID#1969bdb6-6a16-4e8e-81d9-cd4e0ca8c250

Step	Processed	Status	Duration
PUBLISH.OPTIMIZE	N/A	COMPLETE	00:00:00
PUBLISH.REGION	5 of 5	COMPLETE	00:00:00
PUBLISH.PROGRAM	11 of 11	COMPLETE	00:00:00
PUBLISH.SCHEDULE	15 of 15	COMPLETE	00:00:01
PUBLISH.STATION	5 of 5	COMPLETE	00:00:00
PUBLISH.PREPARE_CACHE	5 of 5	COMPLETE	00:00:00
PUBLISH.REMOVE_STALE_DATA	0 of 0	COMPLETE	00:00:00

- Hovering your mouse over the Step name shows the step's Start Time, End Time, Clustered Node name, and Thread ID. Clicking the underlined step name will not perform an action.
- Click **Done** to return to the main WORK STATUS page (IN PROGRESS tab).

Channel Line-ups

This chapter includes the following information related to channel line-ups:

- “Viewing Channel Line-ups” on page 247
- “Creating Channel Line-ups” on page 248
- “Editing Channel Line-ups” on page 253

Understanding Channel Line-ups

Channel line-ups are a set of channel mappings that are typically created for each service provider’s geographical (or virtual) region and may be specific to a device type. Channel line-ups are commonly created at the outset of establishing an EPG deployment and are thereafter updated infrequently.

Managing Channel Line-ups

The following section describes the procedures for creating, viewing, and editing channel line-ups.

Viewing Channel Line-ups

To view channel line-ups:

- 1 Navigate to **EPG > Setup > Channel Line-ups**.
- 2 Click **Search**. If you do not select any filter parameters, all channel line-ups within the system will be displayed. If you like, you may view only active or inactive channel line-ups by selecting the appropriate option from the Status drop-down list. You can also filter by specifying text within the Name, External ID, and Location fields by entering the required text in the text box prior to performing the search.

Figure 127 Channel Line-up Listing

MANAGE CHANNEL LINE-UPS					
Status ▾		Search	Set Status ▾	Add New	
Name ▲	External ID ↕	Location	# CH	Status	Modified Date ↕
☐ New Test Region	NewTestRegionId		0	Active	2011-11-09 02:31
☐ Region 0	TestRegion000		2	Inactive	2011-11-09 02:35
☐ Region 1	TestRegion001		2	Active	2011-11-09 02:35
☐ Region 2	TestRegion002		2	Active	2011-11-09 02:35
☐ Region 3	TestRegion003		2	Active	2011-11-09 02:35
☐ Region 4	TestRegion004		2	Inactive	2011-11-09 02:35
					Results: 6

The following fields are displayed when viewing channel line-ups:

Name - The name that was given to the channel line-up when it was created.

External ID - A unique identifier that can either be manually typed or extracted from a feed.

Location - An optional field set by the feed provider. This field usually specifies where the cable operator's headend is located.

CH - The number of stations within the channel line-up.

Status - The active status of the channel line-up.

Modified Date - The date and time when the channel line-up was last modified.

Creating Channel Line-ups

The following section describes the process for manually creating channel line-ups.

To create a channel line-up:

- 1 Navigate to **EPG > Setup > Channel Line-ups**.
- 2 Click **Add New**.
- 3 On the ADD NEW CHANNEL LINE-UP dialog, type a name, external ID, and description for the region.
- 4 Click **Create & Edit**.
- 5 The MANAGE CHANNEL LINE-UPS page contains three tabs: SUMMARY, CHANNEL LINEUP, and AREA SERVED. The sections that follow describe what needs to be configured for each tab.
- 6 Click **Save** after editing all the required fields.
- 7 Click **Activate**. The channel line-up becomes publishable, which means that it can be made accessible outside of Media Suite.

Note Channel line-ups cannot be deleted, but they can be deactivated by setting their status to "Inactive".

The SUMMARY Tab

The SUMMARY tab shows all the information that was initially entered to create the channel line-up, and also includes the following free-form text fields:

- Timezone** - The time zone that the headend is located in. For example, Eastern Standard Time.
- System** - The name of the cable system.
- Device Type** - A device identifier. This can be as generic or as specific as you need. For example, web, HD, or iPhone.

The CHANNEL LINE-UP Tab

The CHANNEL LINE-UP tab is where you manage channel mappings within the channel line-up.

Adding Channels

The following section explains how to manually add a channel mapping to a channel line-up using the EPG interface.

To add a new channel mapping:

- 1 On the channel line-up tab click **Add New Channel**. The add channel mapping dialog appears.

Figure 128 Add Channel Mapping Dialog

The screenshot shows a dialog box for adding a channel mapping. It contains several input fields: 'CH' with the value '6', 'External Station' with 'TH', 'EPG ID', 'Label', 'Effective Date (UTC)', and 'Expiration Date (UTC)'. Below these fields is a dropdown menu labeled 'Select your station' which is currently open, showing two options: 'GOLFHD' and 'The Golf Channel HD'. To the right of the date fields are calendar icons. In the top right corner, there are checkmark and X icons.

- 2 Type the channel number to assign to this station.
- 3 Start typing the name, call sign, or external ID of the external station. The text box automatically looks up any active external stations that exist within the system. Select one of those stations.
- 4 The EPG ID and Label will be automatically populated for the station that you have chosen.

Note The revert symbol  is displayed beside the EPG ID and Label text boxes. Any override values that you type will be shown in those boxes, but if you need to revert to the original station information, you can click this symbol to bring back the original values for any field.

- 5 Type a label that will be displayed to client devices. By default, this is the station call sign.
- 6 Click the Effective Date and Expiration Date fields to select the appropriate dates when this channel mapping will come into effect and then expire. These dates may also be set via the EPG feed ingestion process.
- 7 Click  to save the channel mapping.
- 8 Repeat the process above if you need to create additional channel mappings.

Channel Mapping Validation

The following rules pertain to channel mappings within a channel line-up:

- Expiration dates cannot occur before effective dates.
- Setting an effective date is recommended for new channel mappings that rely on auto publish functionality. In that case, once an effective date is specified, then a channel mapping immediately becomes active at the channel switchover time that was specified during EPG module installation.
- If you fail to set the effective or expiry dates, the automated process will not implement the change, but those changes will take effect during the next publish operation.
- The expiration date is optional. If an expiration date is not set, then the channel mapping will never expire.
- Two different stations in the same channel line-up cannot occupy the same channel on the same date.

Editing Channels

The following section explains how to manually edit a channel mapping within a channel line-up.

To modify a channel mapping within a channel line-up:

- 1 Navigate to **EPG > Setup > Channel Line-ups**.
- 2 Click **Search** to view all channel line-ups, or select an active/inactive status state, a name, external ID, or location to filter by prior to the search. A list of matching channel line-ups will be shown.
- 3 Click the underlined name of the channel line-up that you would like to modify.
- 4 Click the CHANNEL LINE-UP tab. Channel mappings will be displayed for all dates, and color coded based on the type of date range they are valid for.
- 5 To filter channel mappings by date range, click the “Select dates” drop-down list. The available options are:
 - All dates - displays all channel mappings regardless of effective or expiration dates.
 - Current dates - displays channel mappings whose active date range is in the present.
 - Future dates - displays channel mappings that will become active in the future. These future channel mappings can be defined in advance and will transition automatically on the effective date at a pre-defined time. That channel switchover time can be set when installing the EPG module. Future channel mapping changes can be ingested via a feed, or pre-programmed using the EPG user interface.
 - Expired dates - displays channel mappings that were active in the past.

After you have selected your desired date range, only channel mappings matching that criteria will be displayed.

Figure 129 Filtering Channel Mappings by Date Range

SET UP CHANNEL LINE-UPS > NEW TEST REGION 2 of 2

Save Cancel Deactivate Unlock

SUMMARY CHANNEL LINE-UP AREA SERVED

Select dates

All dates

Current dates

Future dates

Expired dates

	External Station	EPG ID	Label	Effective Date (UTC)	Expiration Date (UTC)
	<u>The Golf Channel HD</u>	61854	GOLFHD	2010-12-24	
	<u>The Golf Channel HD</u>	61854	GOLFHD	2010-12-24	2015-12-26
4	<u>Aboriginal Peoples Television Network H</u>	61998	APTND		
5	<u>The Golf Channel HD</u>	61854	GOLFHD	2015-12-24	
6	<u>The Golf Channel HD</u>	61854	GOLFHD	2015-12-24	2016-12-20

Results: 5

Legend: Expired dates | Current dates | Future dates

- 6
- Click on the underlined **External Station** name on the channel mapping that you would like to edit. An edit dialog will appear.

Figure 130 Edit Channel Mapping Dialog

CH

External Station

EPG ID

Label

Effective Date (UTC)

Expiration Date (UTC)

✓✗

2

The Golf Channel HD

61854

GOLFHD

2012-05-01

Edit new values or select DELETE to remove this channel map entirely.

Delete

- 7
- Modify the channel line-up settings as necessary.
- 8
- Click  to accept the values that you have entered. Click  to cancel any changes. Click **Delete** to remove the channel from the line-up entirely.

Locking Channel Line-ups

Channel lineups are automatically locked whenever any changes are made to them and saved. This lock prevents changes from being overridden by a scheduled EPG feed ingestion process. The following locking behaviors and rules should always be considered:

- Channel line-ups may only be unlocked one at a time as there is no bulk-unlocking feature.
- For channel mappings, you can change the external ID and label, unlock the channel line-up, and then allow the ingestion of new EPG data. The modified external ID and station label will remain intact as long as the station exists, but all other information will be subject to change.
- Channels mappings may be deleted by an EPG feed update, but only if their related channel line-up is unlocked.
- Effective and expiry dates for channel mappings will always be respected regardless of whether a channel line-up is locked.

Deleting Channels

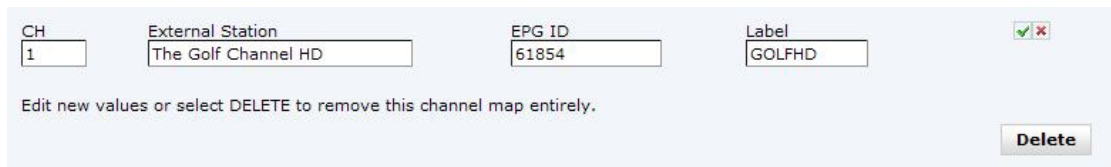
After channels have been created within channel line-ups, either manually, or by feed ingestion, they may be deleted.

To delete a channel:

- 1
- Navigate to **EPG > Setup > Channel Line-ups**.

- 2 Click **Search** to view all channel line-ups, or select an active status, a name, external ID, or location to filter by before performing the search. A list of matching channel line-ups will be shown.
- 3 Click the channel line-up that contains the channel you would like to delete.
- 4 Click the CHANNEL LINE-UP tab.
- 5 On the channel that you would like to delete, click on the underlined External Station.
- 6 A channel details dialog appears.

Figure 131 Channel Details



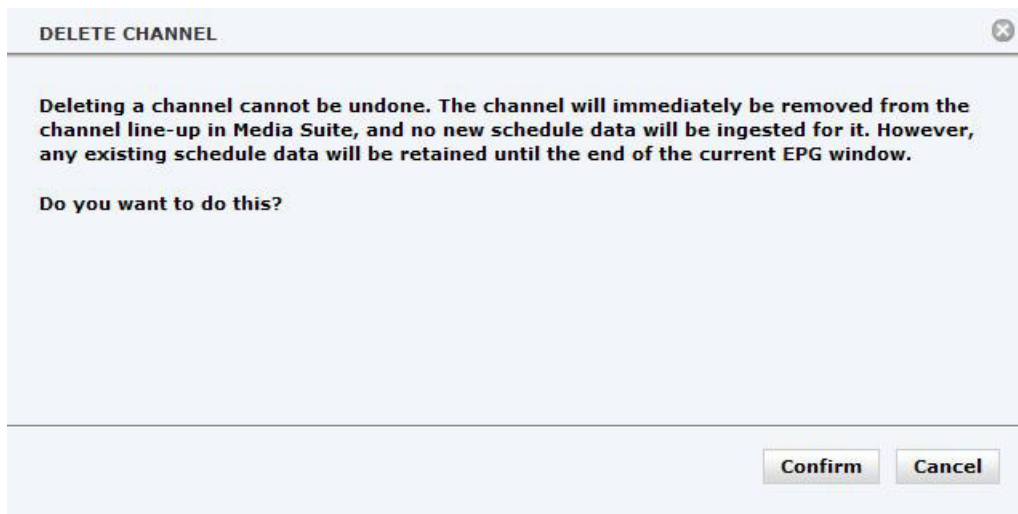
CH External Station EPG ID Label 

Edit new values or select DELETE to remove this channel map entirely.

Delete

- 7 Click **Delete**.
- 8 A DELETE CHANNEL dialog appears.

Figure 132 Delete Channel Confirmation



DELETE CHANNEL 

Deleting a channel cannot be undone. The channel will immediately be removed from the channel line-up in Media Suite, and no new schedule data will be ingested for it. However, any existing schedule data will be retained until the end of the current EPG window.

Do you want to do this?

Confirm **Cancel**

- 9 Click **Confirm**. The channel will be removed from the system.

The AREAS SERVED Tab

The AREAS SERVED tab is where you specify ZIP codes, area served identifiers, or IP addresses that designate the geographic (or virtual) region that will be served by the channel line-up. Identifiers can be added by typing them in, by importing comma delimited files with the identifier information, or by populating them from an available feed.

To manually set the area served:

- 1 Type a new identifier into the “Add new Identifier” field. Identifiers are free form to provide flexibility, but they are commonly ZIP codes, postal codes, or terms such as “web” when dealing with a virtual area that is served.

- 2 Click **Add**. The identifier will be added to the list of identifiers.

To import a list of identifiers:

- 1 Click either the **Upload and Add** or **Upload and Replace** button. The **Upload and Add** button will import the identifiers and add them to an existing list, while the **Upload and Replace** button will import the identifiers and replace any existing identifiers with the new ones.

Editing Channel Line-ups

After channel line-ups have been created; either manually, or by feed ingestion, they may be edited.

To edit a channel line-up

- 1 Navigate to **EPG > Setup > Channel Line-ups**.
- 2 Click **Search** to view all channel line-ups, or select an active/inactive status state, a name, external ID, or location to filter by prior to performing the search. A list of matching channel-line-up will be shown.
- 3 Click the underlined name of the channel line-up that you would like to edit.
- 4 Make the required changes on either the SUMMARY, CHANNEL LINE-UP, or AREA SERVED tabs.
- 5 Click **Save**.

Programming Guides

This chapter includes the following information related to the EPG programming guide, which consists of Station Schedules and Programming Metadata:

- “Understanding Programming Guides” on page 255
- “Managing Station Schedules” on page 255
- “Managing Schedule Corrections” on page 256
- “Managing Program Metadata” on page 259
- “Publishing” on page 262

Understanding Programming Guides

After EPG station data has been ingested, channel line-ups have been created and activated, and programs and schedules have been ingested, you may work with the programming guide items. Programming guide items include:

1. **Station Schedules**, which are start and end times for programs.
2. **Programming Metadata**, which provide details for the programs in the schedules.

The following chapter explains all functionality for programming guide items.

Managing Station Schedules

The Station Schedules page allows you to view programming data for a particular station. It also allows you to make corrections to that programming data.

Viewing Station Schedules

The following section describes the procedures for viewing station schedule information.

To view station schedules:

1. Navigate to **EPG > Manage > Schedules & Corrections**.
2. Two fields appear on the Station Schedule page. For the left-hand textbox, you should start typing the name, call sign, or ID of the station for which you would like to view scheduling data. As you begin typing, the box will automatically populate station entries that match the characters that you have typed. Alternately, you can type an asterisk (*) to see a list of existing stations. Only stations that are mapped to an active channel line-up will be shown.

Figure 133 Station Auto-Lookup

The screenshot shows a web interface titled "STATION SCHEDULE". It has a search bar with a dropdown menu showing "The Golf Channel HD". To the right of the search bar is a date field set to "2011-01-03" and a "Search" button. Below the search bar, there is a "Select your station" dropdown menu.

- 3 At right, click on either the textbox, or the calendar icon to bring up a calendar widget for selecting a specific day. After selecting your day, make sure to click **Apply** for the value to be accepted.
- 4 Click **Search**. The regular schedule should appear for the station you have chosen for the day that you specified.

Managing Schedule Corrections

It is not always possible to anticipate last-minute changes to programming. Live events can run long, breaking news can come in, or other unforeseen events can force unplanned changes in programming. Media Suite not only supports automatic ingest and processing of program guide information, it allows you to manually edit guide information when necessary through the EPG module user interface. On this page, you can change the programming for specific timeslots as well as change the start and end times for programs.

Adding Schedule Corrections

The following section describes the procedures for adding schedule corrections.

To add a correction to a schedule:

- 1 Navigate to **EPG > Manage > Schedules & Corrections**.
- 2 Search for a station schedule. For details on searching for a station schedule, see "Managing Station Schedules" on page 255.
- 3 Click **Add New Correction**. A corrections dialog will appear.

Figure 134 Adding a Schedule Correction

The screenshot shows a dialog box for adding a schedule correction. It has fields for "Start Time (UTC)" (22:30) and "End Time (UTC)" (23:00). Below these fields are "Create" and "Create & Edit" buttons. To the right is a "Program" search bar with a dropdown menu showing "La pique" and a list of other programs. The list includes "Playing Lessons From the Pros" and "PGA Tour Golf" with their respective IDs.

- 4 Type (or use the arrow widgets) to enter the correction Start Time (UTC) and End Time (UTC).
- 5 Start typing the program name (or program ID) that requires a correction. The text box automatically shows matching entries. Select the required program.

- 6 To save the correction, click **Create** or **Create & Edit**. In either instance a confirmation message will appear stating “Correction successfully created.”
 - a If you click **Create**, you will be returned to the Schedule & Corrections page.
 - b If you click **Create & Edit**, you will be taken to the Edit Correction page. See “Editing Schedule Corrections” on page 257.

Figure 135 An Added Schedule Correction

Regular Schedule		
Time ▲	Title	Program ID
21:30 - 22:00	Top 10	105897
22:00 - 22:30	Golf Central	6666
22:30 - 23:00	Playing Lessons Fr...	6734
23:00 - 23:30	The Haney Project	96160
23:30 - 00:00	The Haney Project	100560
00:00 - 00:30	Being John Daly	113171
00:30 - 03:30	PGA Tour Golf	114396

Schedule Correction		
Time ▲	Title	Program ID
<u>22:30 - 23:00</u>	PGA Championship...	113172
Results: 1		

Add New Correction

- 7 Click **Add New Correction** for each additional correction that you need to add. For each entry, you can add a Start Time, End Time, Program Name (with typeahead functionality), and External Event ID. The External Event ID is a permanent event identifier that is supported by the EPG feed provider.

The following behaviors should be taken into consideration when working with corrections:

- 1 Any corrections that you have created, are stored within Media Suite, but must be published to be made available to client devices that utilize the EPG data.
- 2 You cannot create corrections longer than 24 hours.
- 3 Corrections can span a day boundary, but to find a correction, you need to search for its start date and time.
- 4 The system does not validate against conflicting corrections.

Editing Schedule Corrections

Schedule corrections can be edited in the following manner:

- 1 Navigate to **EPG > Manage > Schedules & Corrections**.
- 2 Search for a station schedule. For details on searching for a station schedule, see “Managing Station Schedules” on page 255. Any schedule corrections will appear to the right of the Regular Schedule listing.

Figure 136 Schedule Correction Listing

MANAGE SCHEDULES & CORRECTIONS

Station Date (UTC) 

Regular Schedule		
Time (UTC)	Title	Program ID
No results found.		

Schedule Correction		
Time (UTC)	Title	Program ID
<u>01:00 - 01:30</u>	The Light	9890039
<u>02:00 - 03:00</u>	The Spa	9890038
Results: 2		

- Click the underlined schedule correction Time (UTC). A schedule correction edit dialog will appear.

Figure 137 Schedule Correction Edit

Start Time (UTC) : End Time (UTC) : Program

Edit new values or select DELETE to remove this correction entirely.

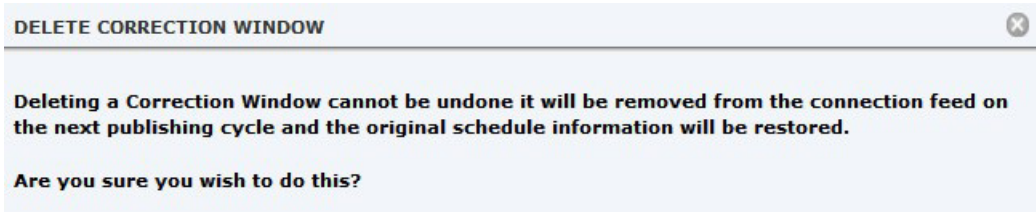
- Click **Edit**. The edit correction page will appear showing language fields and attributes that can be selected or deselected.
- Make any required edits.
- Click **Save**.

Deleting Schedule Corrections

To delete a schedule correction:

- Navigate to **EPG > Manage > Schedules & Corrections**.
- Search for a station schedule. For details on searching for a station schedule, see "Managing Station Schedules" on page 255. Any schedule corrections will appear to the right of the Regular Schedule listing.
- Click the underlined schedule correction Time (UTC). The schedule correction edit dialog will appear.
- Click **Delete**. A confirmation dialog should appear.

Figure 138 Schedule Correction Deletion Confirmation



- 5 Click **Confirm**. The schedule correction will be removed from the refreshed schedule correction listing.

Managing Program Metadata

The Program Metadata page allows you to view and edit metadata for specific programs. The following section explains how to perform those procedures.

Viewing Program Metadata

The following section describes the procedures for viewing program metadata.

To view program metadata:

- 1 Navigate to **EPG > Manage > Program Metadata**.
- 2 Click **Search** to view a complete page of program results. Typing any part of a string contained within the program name will filter results according to that string. If available results exceed the space on the page, scroll down to use the paging widget to navigate across the recordset.

Figure 139 Filtering by Program Name

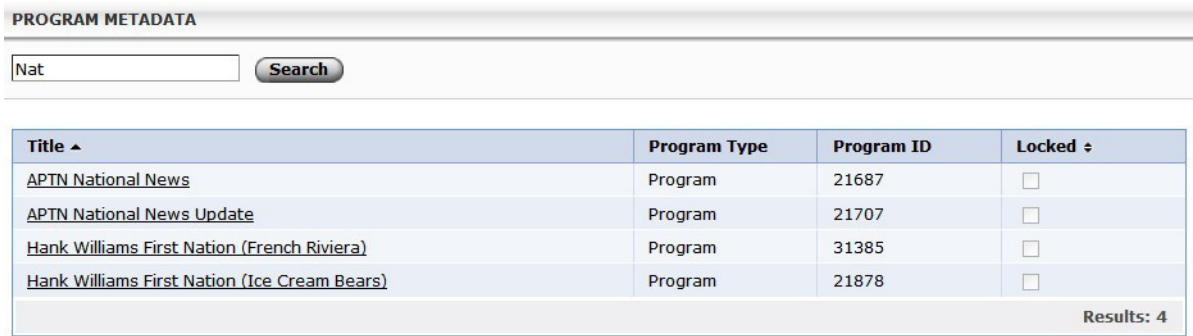


Table 55 Program Metadata Search Result Fields

Name	Description
Title	The title of a program.

Table 55 Program Metadata Search Result Fields

Name	Description
Program Type	The program type is an arbitrary string that is set by the feed provided and that can be edited. This field is not restricted to a given set of program types.
Program ID	A unique identifier for the program.
Locked	A boolean field that indicates the locked status of a specific program. A locked program cannot be updated by the EPG data ingestion process, whereas unlocked programs can have their metadata overridden.

- 3 To view a program’s details, click the underlined program name.
- 4 Click **Done** once you are finished viewing the data.

Editing Program Metadata

The following section describes the procedures for editing program metadata.

To edit program metadata and protect it against automated updates:

- 1 Navigate to **EPG > Manage > Program Metadata**.
- 2 Click **Search** to view a complete page of program results. Typing any part of a string contained within the program name will filter results according to that string. If available results exceed the space on the page, then scroll down to use paging widget to navigate across the recordset.
- 3 To view a program’s details, click the underlined program name.
- 4 Click **Lock**. This locks the record for editing.
- 5 Make any necessary metadata changes. General metadata edit options are as follows:
 - Metadata such as the “Contributors” and “Genres” contain fields that will lookup existing values and allow to you reuse them or add new values.

Figure 140 Editing Contributors

Contributors

Role	First Name	Last Name	Rank	
D *	First Name1	Last Name1	1 *	−
Select Role				
Director				

Figure 141 Editing Genres

Genres

Series	−
Other	−

- “Images” metadata fields will allow you to specify an image type, URL, and width and height.

Figure 142 Images Metadata

Images

Type	URL	Width	Height	
Type2	test2.com *	2	2	⊖

Add

- “Attributes” metadata contains checkboxes for the selection of those attributes.

Figure 143 Updating the Attributes

Attributes

☒ Animated

☐ Black and White

☒ Movie

☒ Sports

☐ Made for TV

☐ Kids

☒ Adults

- “Custom Fields” and “Additional IDs” contain name/value pairs that can be populated.

Figure 144 Custom Fields and Additional IDs

Custom Fields

Name	Value	
CustomName2 *	CustomValue2 *	⊖

Add

Additional IDs

Name	Value	
AdditionalName1 *	AdditionalValue1 *	⊖

Add

- 6 Click **Save** once all required metadata values have been updated. Any changes you have made must be published in order to propagate to target devices that read the EPG data.

To allow automated updates to program metadata:

- 1 Navigate to **EPG > Manage > Program Metadata**.
- 2 Click **Search** to view a complete page of program results. Typing any part of a string contained within the program name will filter results according to that string. If available results exceed the space on the page, then scroll down to use paging widget to navigate across the recordset.
- 3 To view a program’s details, click the underlined program name.
- 4 Click **Unlock**.

- 5 Click **Confirm**. This releases the record and permits the program to be updated the next time new program metadata is ingested.

Warning When you unlock a program whose metadata has been edited, your changes may be overridden during the next scheduled EPG metadata ingestion. If you need to keep the metadata changes intact, then you must leave the program in a locked state. The program will, however, be automatically removed once it is no longer referenced in any future or past schedule.

- 6 Click **Done** to exit back to the search page.

Publishing

The Publishing menu item leads to a page that displays republishing options for schedule and program data. That republish option will be explained in the following section. Depending on the option that you choose, republishing an EPG feed will upload either all or part of the feed.

To republish an EPG feed:

- 1 Navigate to **EPG > Manage > Publishing**.
- 2 The MANAGE REPUBLISHING page allows you to choose the type of EPG data republishing that you would like to perform. Options are as follows:
 - “Everything” allows you to republish the entire feed. This option is the most time consuming, and is only recommended when needing to update stations or channels line-ups, or if you need to manually publish EPG data outside of the context of a workflow.
 - “Changes only” publishes corrections and allows late-breaking schedule corrections, blackout data, and manual program metadata changes to be released as soon as possible.
 - “Future only” publishes any corrections that will occur in the future.
 - “Reverse EPG Future Only” publishes corrections that will occur in the future in a Reverse EPG context, meaning that this is pre-recorded content that will appear on an EPG grid. Therefore any programs occurring at a future grid date will be published.

Figure 145 Republish Option



- 3 Click **Republish**.
- 4 Click **Confirm**.

Full Auto Publish

EPG support a job that performs automatic publishing. On a daily basis, at a time that was specified during installation, a check is performed to see if there is a scheduled channel mapping change in at least one channel line-up. If there are changes, a full publish will be initiated to implement the switchover. If an ingest is already running, the job will wait until completion before commencing. The channel mapping switchover will occur for all channel lineups at the same time.

Blackouts

This chapter includes the following information related to blackouts:

- “Understanding Blackouts” on page 265
- “Managing Blackouts” on page 265

Understanding Blackouts

In some cases, contractual terms prohibit showing some programming in certain regions. These “blackout rules” most often apply to local sports broadcasts. The Media Suite EPG module is a centralized system that allows you to black out channels in certain timeslots to comply with blackout requirements.

From the blackout menu, you can configure a substitute program on an alternate channel in place of blacked-out content and direct the software client to tune automatically to the alternative stream or to present a blackout message to the customer. All blackout rules for managed channel maps are fully configurable from one central location in the EPG module. You can apply blackout rules for specific channel maps, or globally across all channel maps.

Managing Blackouts

The following section describes the procedures for creating, editing, and deleting blackouts.

Viewing Blackouts

To view blackouts:

- 1 Navigate to **EPG > Manage > Blackouts**.
- 2 To restrict your results, type one or more characters that are at the start of the desired blackout name or station. The asterisk wildcard may be used to filter for characters that are inside of the Name or Station. Typing no letters will display all blackouts.
- 3 Click **Search**.

Creating Blackouts

To create a blackout:

- 1 Navigate to **EPG > Manage > Blackouts**.
- 2 Click **Add New**.

- 3 Type a name, call sign, or external ID, and click within the station field. The system will look up any available stations that match the information you have typed in and that are mapped to at least one active channel line-up.

Figure 146 Station Name Auto-lookup

The screenshot shows a web interface with two input fields. The first field, labeled 'Name', contains the text 'Golf Blackout'. The second field, labeled 'Station', contains the text 'The G'. Below the 'Station' field, a dropdown menu is open, displaying the text 'Select your station' and 'The Golf Channel HD'.

Note Stations (also called external stations) are imported from EPG data. Stations cannot be created within the EPG module, but can be activated or deactivated as required. For more details on stations, see “Managing External Stations” on page 273.

- 4 Click **Create & Edit**. The blackout creation screen appears.
- 5 Type a blackout description.
- 6 Select a Substitution option of either “External Station” or “Managed URL”. Choosing “External Station” will use an alternate station identifier for blackout so that a different managed stream can be shown to user if a stream is defined. When selected, this option brings up an inline search/selection tool. Choosing “Managed URL” will allow you to type a URL that is the location for an unmanaged video stream to tune to.
- 7 Click **Add New Schedule**. Fields will appear that allow you to set the blackout range. Set a range by clicking in the Stop Broadcast field to select a date and time for stopping the original broadcast. Repeat the process for selecting the Resume Broadcast field to select a date and time when the regular station programming will commence. Select **Apply** to confirm your date/time choices.
- 8 Under the Coverage section, choose **National** to apply the blackout to all channel line-ups, or choose **Regional** to bring up a drop-down to select an individual channel line-up. Only active channel line-ups will be appear for selection.
- 9 Click **Save**. The blackout name will appear in a schedule as a title and the description will appear (as the schedule description).

Editing Blackouts

To edit a blackout:

- 1 Navigate to **EPG > Manage > Blackouts**.
- 2 Search for the blackout that you would like to delete. You may either enter part of the blackout name, or simply click **Search** to view all blackouts.
- 3 Click the underlined blackout name.
- 4 Make any changes that you require for the blackout.
- 5 Click **Save**.

Deleting Blackouts

To delete a blackout:

- 1 Navigate to **EPG > Manage > Blackouts**.
- 2 Search for the blackout that you would like to delete. You may either enter part of the blackout name, or simply click **Search** to view all blackouts.
- 3 Click the underlined blackout name.
- 4 Click **Delete**.
- 5 Click **Confirm**.

Linking EPG Content to Bundles

The following chapter explains the process for creating a link between station or program objects contained in EPG data and existing Media Suite bundles. The sections that are covered include:

- “Understanding Linking” on page 269
- “Linking EPG Stations to Media Suite” on page 269
- “Manually Linking EPG Programs to Media Suite” on page 270

Understanding Linking

At times you will need to link an EPG entity to a Media Suite bundle. For example, an external station in EPG may need to be linked to a logical station bundle in Media Suite so that customers can view the on-demand stream associated with the station.

Linking EPG Stations to Media Suite

The following section describes the procedure for linking an existing external station within EPG to Media Suite. This process must be performed manually.

To link an EPG station to a Media Suite Logical Station bundle:

- 1 Navigate to **EPG > Setup > External Stations**.
- 2 Search for the external (EPG) station that you need to link to a Media Suite logical station. For details on searching for external stations, see “Viewing External Stations” on page 273.

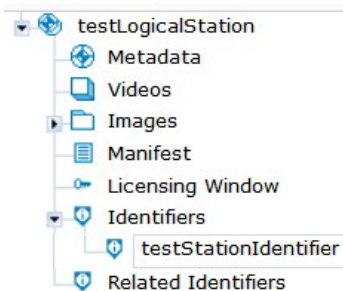
Figure 147 EPG External Station Listing

SET UP EXTERNAL STATIONS		
Status ▾	Fox	Search Set Status ▾
Name ▾	Call Sign ▾	External ID ▾
☐ Fox Sports West - FSW2	FSW2	10883
☐ Fox Sports HD North - Milwaukee	FXHDNO2	47009

- 3 Copy or make note of the External ID for the station.
- 4 Navigate to **Metadata > Bundles > Manage Bundles**.
- 5 Search for Logical Station bundle that matches the EPG station.
- 6 Click the underlined station name.

- 7 Click the triangle beside **Identifiers** to view any available identifiers. If no identifiers exist, you will need to click **Add New > Station Identifier** to create one.
- 8 Click the identifier name.

Figure 148 Logical Station Structure



- 9 In the EPG Service ID field at right, type or paste the External ID for the EPG Station that you would like to link to.

Figure 149 Logical Station Identifier Fields

General Components

Name	testStationIdentifier
Alt Code	
External ID	
UUID	76730ddd-6624-44fa-b011-614ef903ac4d
Created	2011-11-22 20:13
Modified	2011-11-22 20:49
Ingest File Path	

Station Identifier

EPG Service ID	10883
----------------	-------

- 10 Click **Save**.
- 11 Lastly, to complete the link between the EPG station and the Logical Station bundle, the following steps must be performed in Media Suite:
 - The station bundle must be productized.
 - One or more active products referencing this bundle must be active.
 - The bundle must have a metadata component.

Manually Linking EPG Programs to Media Suite

The following section describes the procedure for linking an existing program within EPG to a Logical Video bundle within Media Suite.

To link an EPG Program to a Media Suite Logical Video bundle:

- 1 Navigate to **EPG > Manage > Program Metadata**.

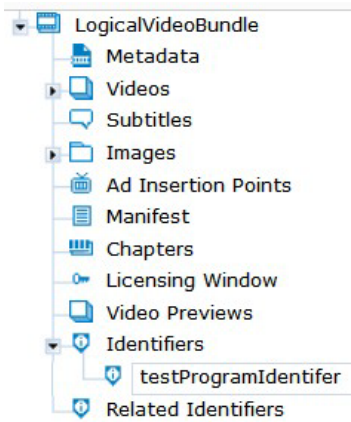
- 2 Search for the EPG program that you need to link to a Media Suite logical video. For details on searching for programs, see “Viewing Program Metadata” on page 259.

Figure 150 EPG Program Listing

PROGRAM METADATA			
Nat Search			
Title ▲	Program Type	Program ID	Locked ▴
APTN National News	Program	21687	☐
APTN National News Update	Program	21707	☐
Hank Williams First Nation (French Riviera)	Program	31385	☐
Hank Williams First Nation (Ice Cream Bears)	Program	21878	☐
			Results: 4

- 3 Copy or make note of the Program ID.
- 4 Navigate to **Metadata > Bundles > Manage Bundles**.
- 5 Search for Logical Video bundle that matches the EPG program.
- 6 Click the underlined Logical Video name.
- 7 Click the triangle beside **Identifiers** to view any available identifiers. If no identifiers exist, you will need to click **Add New > Program Identifier** to create one.
- 8 Click the identifier name.

Figure 151 Logical Video Structure



- 9 In the EPG Program ID field at right, type or paste the Program ID for the EPG program that you would like to link to.

Figure 152 Logical Video Program Identifier Fields

General Components

Name

testProgramIdentifier

*

Alt Code

External ID

UUID

c68637cc-4618-40e0-81bf-6c61e1a6a2ac

Created

2011-11-22 22:28

Modified

2011-11-22 22:28

Ingest File Path

Program Identifier

EPG Program ID

21687

EPG Season ID

EPG Series ID

10 Click Save.

The link between the EPG program and the Logical Video bundle has been created.

EPG Setup

This chapter includes the following information related to EPG module setup:

- “Understanding EPG Setup” on page 273
- “Managing External Stations” on page 273
- “Setting Global EPG Options” on page 276

Understanding EPG Setup

The Setup menu contains two different areas of functionality: External Stations and Publishing. The following chapter will cover the functionality within each of these areas. In addition, this chapter will explain parameters that may be customized globally for running the EPG module.

Managing External Stations

EPG station data ingested into the Media Suite can be filtered so that it is viewed by state or stations can be made active or inactive. Stations can only be imported from EPG data, and thus cannot be manually created or edited within the system.

Viewing External Stations

To view external stations:

- 1 Navigate to **EPG > Setup > External Stations**.
- 2 Click **Search** to view all available EPG stations. If you wish to restrict the stations that you are viewing, the following options are available:
 - a Selecting a particular station state by choosing **Status > Active/Inactive** allows you to filter results by that state prior to performing a search.
 - b Typing one or more characters in the text box will filter results by station names or call signs that begin with those characters.
 - c Typing an asterisk followed by a minimum of three characters will filter results by station names or call signs that contain the specified string.

Changing External Station Status

External station details may not be edited within Media Suite, but their Active/Inactive state may be changed if required.

To change external station statuses:

- 1 Navigate to **EPG > Setup > External Stations**.
- 2 Select a station state (if required), and click **Search**.
- 3 Check the box to the left of one or more station names.
- 4 Click **Set Status > Active** or **Set Status > Inactive** to change the station status. If you are making stations inactive, a warning will appear to indicate any dependant channel maps that will be affected.
- 5 Click **Confirm** to change the station state.

Deactivating Unmapped Stations

When workflows are run to ingest EPG data, all active stations will have their data processed by the system. In some cases, service providers may have thousands of stations, so it is prudent to deactivate any active stations that are not mapped to active channel line-ups so that those stations are ignored during EPG ingestion, and unnecessary work is not performed. A feature within the EPG module allows you to deactivate all unmapped stations to speed up the ingestion process. The following section describes that deactivation functionality.

To deactivate unmapped stations:

- 1 Navigate to **EPG > Setup > External Stations**.
- 2 In the **Status** drop-down, select **Active Unmapped**.

Figure 153 Selecting Active Unmapped Stations



- 3 Click **Search** to view all active EPG stations that are not mapped to an active channel line-up. If you want to further restrict the stations that are displayed, the following options are available:
 - a Typing one or more characters in the text box filters results by station names or call signs that begin with those characters.
 - b Typing an asterisk followed by a minimum of three characters filters results by station names or call signs that contain the entered string.
- 4 If the result set returns unmapped stations, you may click **Deactivate All Unused Stations**. A warning appears to confirm deactivation for all those stations. The warning indicates that stations will remain deactivated within the system so that future feed data is not ingested for them.
- 5 Click **Confirm**.

Generating Placeholder Station Bundles

The EPG module contains functionality that can automatically generate Content Manager station bundles for stations that will be mapped to a channel line-up. This “automation” feature generates these placeholder bundles using all available information within the EPG data. That information includes an EPG station identifier that is matched to a corresponding Content Manager EPG Service ID. This bundle generation may be performed from the user interface, but it may also be initiated via a workflow or the by using the SOAP APIs.

The following rules apply to the station bundle generation process:

- Only new bundles are created.
- Existing bundles are not updated.
- Newly created station bundles are marked as inactive and are incomplete because they will be missing information such as physical asset URLs and over-the-top data that is not available in an EPG feed.
- Bundle generation progress may be viewed on the EPG Work Status Monitor page located at **EPG > Monitor > Work Status**. In addition, bundles that are generated using a Media Suite workflow may have the overall workflow progress tracked on the **Workflow > Monitor > Workflow Instances** page.

New stations are created infrequently, and after any placeholder station bundles have been created, administrators will need to manually edit the bundles to add any additional information that may be required. Lastly, the new bundles will need to be activated once they are considered complete.

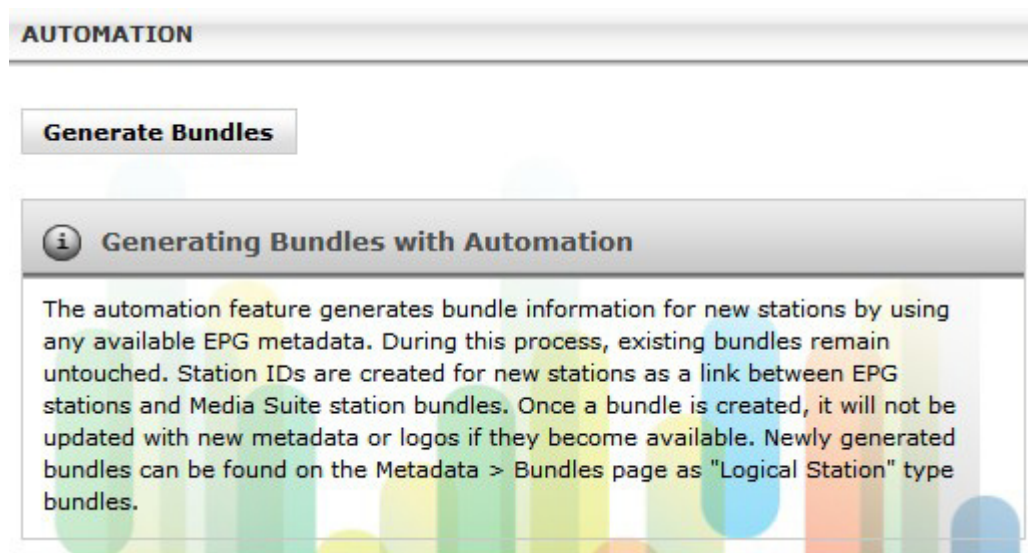
Note In addition to the manual process, workflows may also be utilized to automatically populate the station bundles with any required information and, later, to productize those bundles.

After the Content Manager station bundles have been created, completed, and activated, if there are any changes to those bundles, you will need to run the **StationsProductInfoUpdate** PAR file workflow to update related EPG information.

To generate Content Manager station bundles:

- 1 Navigate to **EPG > Setup > Automation**.
- 2 Click **Generate Bundles**. A message will confirm the successful start of the station bundle generation process.

Figure 154 Generating Content Manager Station Bundles

**To manually edit generated station bundles:**

- 1 Navigate to **Metadata > Bundles > Manage Bundles**.
- 2 Select the "Logical Station" bundle type. Click **Search**.
- 3 Click the underlined name of the station that you need to edit.
- 4 Make any necessary changes to the bundle.
- 5 Click **Save**.
- 6 Click **Activate**.

Setting Global EPG Options

After the EPG module has been installed, but prior to its first time use, there are a couple of settings that you may wish to configure on the main Media Suite configuration page. These settings will affect certain global aspects of the EPG module.

To set global EPG module settings:

- 1 Navigate to **Admin > Setup > Configuration**. At left, a tree structure will appear that has three nodes. The module node stores settings specific to each module that is installed in Media Suite.
- 2 Click on the triangle to the left of each module node to open that node. Start by opening the modules node. This will reveal all modules that are installed for Media Suite.
- 3 Open the **lm** node, which previously represented Linear Manager, but now represents the EPG module.

- 4 Open the **ingest** node. The following nodes become available:
 - **batchSize**, which is used for advanced performance tuning. See your Cisco Systems Inc. representative if this is required for your deployment.
 - **max.history.days**, which specifies the number of days back that your feed is maintained. The larger this number, the more time feed processing will take.
 - **image.url.prefix**, which specifies the base URL that is applied to a relative path for all client image retrieval.
 - **override.schedule.with.program**, this informs the system about what matching data fields to copy from programs to schedules.
Options include: ALL, MISSING, and NONE.
When ALL is selecting, then all matching fields will be copied from programs and will replace current information. Preference is given to program information.
MISSING, copies only fields that are not present in the schedule. This option will increase ingestion time. Preference is given to schedule information.
NONE, does not copy any fields and leaves the schedule unchanged.
Preference is given to schedule information.

Note Other EPG settings listed on the configuration page should not be changed. Changing default settings may negatively impact EPG module performance or result in unpredictable behavior.

Parser Plugins

EPG Parser Plugins are used to parse incoming data feeds from various providers and to ingest and transform that data into a format suitable for Media Suite. The following section details how to configure a new parser for use.

Creating Parser Plugins

To setup parser plugins:

- 1 Navigate to **EPG > Setup > Parser Plugins**. You will be taken to the parser plugins page where all default EPG parsers within the system are displayed.
- 2 Click **Add New**.
- 3 Type a name and description for the required parser.
- 4 Click **Create & Edit**.

5 Configure the following fields as required:

Table 56

Field	Description
Name	The name of the plugin.
Description	A description for this plugin.
Configuration	The configuration text box allows you to set filtering criteria on any incoming data feed, such as establishing the preferable size for mapping data to fields within Media Suite. For example: <pre>mediumTitle.preferable.size=100 shortTitle.preferable.size=60</pre> In the previous example, any Title data that is closest to 60 characters would be mapped to the short title, any Title data that is closest to 100 characters would be mapped the medium title. Other filtering parameters include: <pre>region.name.filter=.*someregion.*</pre> In that example, regular expressions can be used to filter the region. Lastly, other filters include a list of comma-separated values that, when set, will turn their respective fields to true for those values. Here is an example of such a field: <pre>kidsFlag.rating.identifiers=G,TV-Y,TV-Y7,TV-G</pre> Note Comments are included within the existing TMSON Parser configuration text to guide you through the process of configuring your plugin to match your deployment needs.
Plugin	Click Upload to browse to and select a plugin JAR file that contains your parsing class.
Class Name	Once your plugin JAR file has been uploaded, select the relevant parsing class from the drop-down list or manually type in the full class path.
Modified	A timestamp showing when this plugin was last modified.

6 Click **Save**.

7 Click **Activate**. Only one EPG feed parser can be activate at a time.

Deleting Parser Plugins

The process of deleting an EPG parser plugin, is performed within the parser plugin detail page. The following section explains the exact steps.

To delete an EPG parser plugin:

- 1 Navigate to **EPG > Setup > Parser Plugins**.
- 2 Click the underlined name of the parser plugin that you would like to delete.
- 3 Click **Delete**.
- 4 Click **Confirm**.

Multi-Language Support

The EPG module supports the inclusion of multiple sets of language metadata. To support this functionality, EPG RedBee and TVA parsers now have the ability to process multiple languages, regardless of whether the metadata for those languages is provided in single or multiple files.

Multiple-language support has been provided for the following entities:

- Schedules Metadata
- Schedule Custom Fields
- Schedule Corrections
- Blackouts (name & description)
- Programs (metadata, custom fields)
- Genres
- Contributors

In addition, the Media Suite user interface and indexing/Search Manager functionality have been updated to support those multiple languages.

To view metadata in different languages:

- 1 Choose a supported entity whose metadata you would like to examine. In our case, we will look at Program metadata. Navigate to **EPG > Manage > Programs**.
- 2 Optionally enter criteria into the textbox.
- 3 Click **Search**.
- 4 Click an underlined Program name to see the program details.
- 5 Open the Metadata node to see the available locales/languages for the metadata.

UNDERSTANDING MEDIA SUITE COMPONENTS

Components are comprised of name-value pairs, common entities, and custom attributes that form the reusable basic building blocks for bundles. The structure of components cannot be edited using the Media Suite user interface. This appendix lists the fields that make up the default components that are defined within Media Suite.

This appendix includes the following topics:

- ["Types of Components"](#), shown below
- ["Component Composition"](#) on page 281
- ["Component Fields"](#) on page 284

Types of Components

To make them easier to grasp conceptually as well as to see their relative importance, the default Media Suite components may be grouped into one of the following types:

- ad insertion points (1 component)
- identifiers (4 components)
- ISAN (3 components)
- licensing windows (1 component)
- Merchandiser-related (2 components)
- metadata (11 components)
- physical assets (8 components)
- program schedules (1 component)

Component Composition

All components of a similar type include very similar information. This section lists the following fields (or groupings of fields) for each component:

- ["General Components Fields"](#) on page 282
- ["URL Fields"](#) on page 282
- ["Metadata Fields"](#) on page 282
- ["Physical Asset Fields"](#) on page 283

General component and metadata fields are included within many Media Suite components. Those fields will be fully listed at this location and merely referenced later on.

General Components Fields

The general components fields are generic fields that are included within all components. Those fields are:

Figure 155 General Components Fields

General Components

Name	Sample_Component	*
Alt Code		
External ID		
UUID	a620eefd-596b-49a1-971b-b54c6f4b6540	
Created	2010-08-19 12:28	
Modified	2010-08-19 12:28	

URL Fields

The URL fields section is displayed for all physical asset components. For explanations on specific fields, see “Origin Mappings” on page 20.

Figure 156 URL Fields

URLs

Origin Base URL	
Origin Resource URL	
Delete URL	
Manual URL	
Manual CDN URL	
Public URL	http://video/8190a35a-4f75
Public CDN URL	http://video/8190a35a-4f75

Metadata Fields

The metadata components fields are:

Figure 157 Metadata Fields

Metadata

Locale

-- Please Select --

Long Title

Medium Title

Short Title

Sorting Title

Long Summary

Medium Summary

Short Summary

Notes

Keywords

Release Date



Physical Asset Fields

The following fields are generic fields that are available for various physical assets:

Figure 158 Generic Physical Asset Fields

Physical Asset

URL

File Size

Checksum

MIME Type

PC Filename

Is Encrypted

☐

Encryption Data

Encryption Implementation Technology

License Request Data

Content ID

Content File UUID

CDN URL

URL Signer Configuration

-- None --

Target Device

Click to add

Asset Format

Click to add

Component Fields

This section lists the following fields for all default components within Media Suite:

- “Ad Insertion Point” on page 285
- “ISAN Document” on page 285
- “ISAN Game” on page 286
- “ISAN Video” on page 286
- “Licensing Window” on page 287
- “Metadata” on page 287

- “Metadata Album” on page 288
- “Metadata App” on page 288
- “Metadata Audio” on page 288
- “Metadata Chapter” on page 289
- “Metadata Document” on page 289
- “Metadata DVD” on page 290
- “Metadata Image” on page 290
- “Metadata Show” on page 291
- “Metadata Station” on page 292
- “Metadata Video” on page 292
- “Physical Asset” on page 293
- “Physical Asset App” on page 293
- “Physical Asset Audio” on page 294
- “Physical Asset Document” on page 294
- “Physical Asset Image” on page 294
- “Physical Asset Manifest” on page 294
- “Physical Asset Subtitle” on page 295
- “Physical Asset Video” on page 295
- “Program Identifier” on page 296
- “Program Schedule” on page 296
- “Station Identifier” on page 296
- “TMS Program Identifier” on page 296
- “TMS Station Identifier” on page 297

Ad Insertion Point

The following fields are available within the Ad Insertion component:

- General Component fields plus

Figure 159 Ad Insertion Point Metadata

Ad Insertion Point Metadata

Timeslot

Note

ISAN Document

The following fields are available within the ISAN Document component:

- General Component fields plus

Figure 160 ISAN Document Metadata

ISAN Document Metadata

ISBN 10 Identifier	
ISBN 13 Identifier	

ISAN Game

The following fields are available within the ISAN Game component:

- General Component fields plus

Figure 161 ISAN Game Fields

ISAN Game Metadata

Identifier	
User Experience	
Online Experience Features	
Supported Players	
Supplementary Information	

ISAN Video

The following fields are available within the ISAN Video component:

- General Component fields plus

Figure 162 ISAN Video Metadata

ISAN Video Metadata

Identifier	
Root Identifier	
Type	
Action Type	
Version Descriptive Name	
Version Supplementary Information	
ISBN Identifier	

Licensing Window

The following fields are available within the Licensing Window component:

- General Component fields plus

Figure 163 Licensing Window Fields

Licensing Window

Start Date		
End Date		

Metadata

The following fields are available within the generic metadata component:

- General Component fields plus
- Metadata fields

Metadata Album

The following fields are available within the metadata album component:

- General Component fields plus
- Metadata fields plus

Figure 164 Metadata Album Fields

Album Metadata

Album Artist	
Album Title	
Album Producer	
Album Label	
Year Produced	
Year Released	
Credit	
ISRC	
Genre	+

Metadata App

The following fields are available within the metadata app component:

- General Component fields plus
- Metadata fields plus

Figure 165 Metadata App Fields

App Metadata

Developer	
Publisher	
Genre	+
Style	+
Advisory	+
Rating	+

Metadata Audio

The following fields are available within the metadata audio component:

- General Component fields plus
- Metadata fields plus

Figure 166 Metadata Audio Fields

Audio Metadata

Album		
Original Album		
Track		
Year		
Copyright		
BPM		
Language		
Length		
Genre		+
Composer		+
Lyricist		+
Rating		+

Metadata Chapter

- The following fields are available within the metadata chapter component:
- General Component fields plus
 - Metadata fields plus

Figure 167 Metadata Chapter Fields

Chapter Metadata

Chapter Title	
Chapter Summary	
Chapter Number	
Start Time	
Duration	

Metadata

Locale	-- Please Select --
--------	--------------------------------

Metadata Document

- The following fields are available within the metadata document component:
- General Component fields plus
 - Metadata fields plus

Figure 168 Metadata Document Fields

Document Metadata

Publisher

Author

Metadata DVD

The following fields are available within the metadata DVD component:

- General Component fields plus
- Metadata fields plus

Figure 169 Metadata DVD Fields

DVD Metadata

Additional Features

Color Type

Format

Region

Category

Genre

Producer

Director

Writer

Cast Member

Rating

Metadata Image

The following fields are available within the metadata image component:

- General Component fields plus
- Metadata fields plus

Figure 170 Metadata Image Fields

Image Metadata

Credit

Publisher

Metadata Show

The following fields are available within the metadata show component:

- General Component fields plus
- Metadata fields plus

Figure 171 Metadata Show Fields

Show Metadata

Additional Features

Number of Episodes

Creator

Click to add

General Video Metadata

Color Type

Series Name

Season Number

Country

First Air Date

Publisher

Publish Date

Distributor

Provider

Advisory

Click to add

Category

Click to add

Genre

Click to add

Producer

Click to add

Director

Click to add

Writer

Click to add

Cast Members

Click to add

Rating

Click to add

Metadata Station

The Metadata Station component stores relevant information about a specific station. The following fields are available within the Metadata Station component:

- General Component fields plus
- Metadata fields plus

Figure 172 Metadata Station Fields

Station Metadata

Display Name

Call Sign

Station Ident

Network

Service Type

Time Zone

Community Of License

Contact

Web Site

Facebook

Twitter

Address

Street 1

Street 2

City

State

Zip Code

Country

Metadata Video

The following fields are available within the metadata video component:

- General Component fields plus
- Metadata fields plus

Figure 173 Metadata Video Fields

General Video Metadata

Color Type		
Series Name		
Season Number		
Country		
First Air Date		
Publisher		
Publish Date		
Distributor		
Provider		
Advisory	Click to add	
Category	Click to add	
Genre	Click to add	
Producer	Click to add	
Director	Click to add	
Writer	Click to add	
Cast Members	Click to add	
Rating	Click to add	

Video Metadata

Episode Name	
Episode Number	
Duration	
Copyright Notice	
Work Type	
Creator	Click to add

Physical Asset

The following fields are available within the generic physical asset component:

- General Component fields plus
- Physical Asset fields

Physical Asset App

The following fields are generic fields that are available for various physical asset app component:

- General Component fields plus
- Physical Asset fields

Figure 174 Physical Asset App Fields

App

Platform

Physical Asset Audio

The following fields are available within the physical asset audio component:

- General Component fields plus
- Physical Asset fields plus

Figure 175 Physical Asset Audio Fields

Audio

Audio Codec

Audio Bit Rate

Audio Sample Rate

Audio Bit Rate Type

Audio Channel Count

Delivery Type

-- Please Select --

Physical Asset Document

The following fields are available within the physical asset document component:

- General Component fields plus
- Physical Asset fields

Physical Asset Image

The following fields are available within the physical asset image component:

- General Component fields plus
- Physical Asset fields

Figure 176 Physical Asset Image Fields

Image

Height

Width

Physical Asset Manifest

The following fields are available within the physical asset manifest component:

- General Component fields plus
- Physical Asset fields

Figure 177 Physical Asset Manifest Fields

Manifest

Type	-- Please Select --
------	---------------------

-- Please Select --
Adobe Multi-Bitrate
Apple HLS
Microsoft Adaptive Streaming

Physical Asset Subtitle

The following fields are available within the physical asset subtitle component:

- General Component fields plus
- Physical Asset fields

Figure 178 Physical Asset Subtitle Fields

Subtitle

Locale	-- Please Select --
Format	-- Please Select --

Physical Asset Video

The following fields are available within the physical asset video component:

- General Component fields plus
- Physical Asset fields

Figure 179 Physical Asset Video Fields

Video

Video Bit Rate Type	
Video Codec Type	
Video Codec Name	
Frame Count	
Display Aspect Ratio	
Video Bit Rate	
Frame Height	
Frame Width	
Audio Codec	
Audio Sample Rate	
Audio Bit Rate	
Audio Bit Rate Type	
Audio Channel Count	
Frame Rate	
Pixel Aspect	
Wrapper Format	
Is Progressive	☐
Delivery Type	-- Please Select --

Program Identifier

The Program Identifier component stores a unique identifier to be used by the optional Media Suite Linear module.

The following fields are available within the program identifier component:

- General Component Fields plus

Figure 180 Program Identifier Field

Program Identifier

Linear Program ID

Program Schedule

The Program Schedule component stores program information, such as the program name along with start and end dates and times.

The following fields are available within the program schedule component:

- General Component fields plus

Figure 181 Program Schedule Fields

Program Schedule

Start Date

End Date

Station Identifier

The Station Identifier component stores a unique identifier to be used by the optional Media Suite Linear module.

The following fields are available within the Station Identifier component:

- General Component fields plus

Figure 182 Station Identifier Fields

Station Identifier

Linear Service ID

TMS Program Identifier

Note Tribune Media Services (TMS) is a leading provider of electronic program guide (EPG) data. The optional Media Suite Linear module is capable of integrating with TMS feeds via a series of unique identifiers to provide program-related information to consumers.

The following fields are available within the TMS Program Identifier component:

- General Component fields plus

Figure 183 TMS Program Identifier Fields

TMS Program Identifier

TMS ID

Root ID

Connector ID

Television

Series ID

Season ID

Movie

Version ID

Alternate Film ID

TMS Station Identifier

The following fields are available within the TMS Station Identifier component:

- General Component fields plus

Figure 184 TMS Station Identifier Fields

Station Identifier

Linear Service ID

TMS Station Identifier

Programming Service ID

Alternate Source ID

UNDERSTANDING MEDIA SUITE BUNDLES

Bundles are objects that conform to a template and are created when various components or other bundles are combined into a unit. A bundle template specifies the composition of a bundle, and how many components may be included within the bundle. Components in a bundle template that have a 0 minimum are optional, while components with a minimum of one or higher are mandatory.

This appendix describes the fixed structure and min/max component limits of the following default bundles that are included within Media Suite:

- "Album", as shown below
- "Album Collection" on page 300
- "Chapter" on page 300
- "DVD" on page 301
- "Logical App" on page 301
- "Logical Audio" on page 301
- "Logical Document" on page 302
- "Logical Game" on page 302
- "Logical Image" on page 303
- "Logical Station" on page 303
- "Logical Video" on page 304
- "Ringtone" on page 305
- "Show Collection" on page 305
- "Show Season" on page 305

Album

An album may contain multiple physical versions of logical audio bundles (representing tracks and previews) as well as associated album metadata and images.

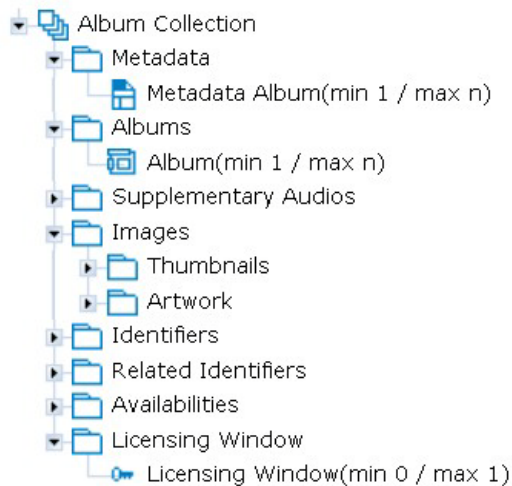
Figure 185 Album Bundle Structure



Album Collection

An album collection allows for the manual grouping of albums into a set. All items that have not been expanded in the structure below are min 0 to max n.

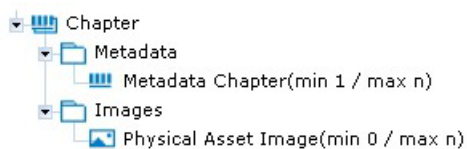
Figure 186 Album Collection Structure



Chapter

A chapter delineates chapter time points within a video and stores metadata and references to chapter thumbnail images.

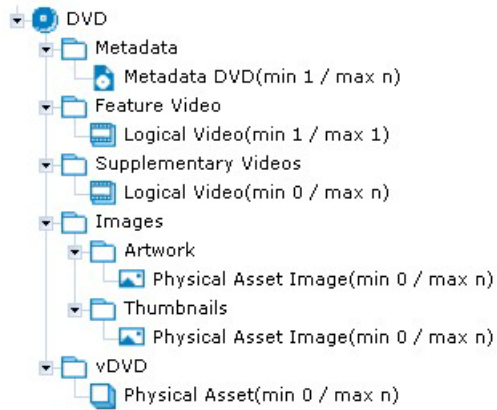
Figure 187 Chapter Bundle Structure



DVD

A DVD may contain multiple physical versions of logical video bundles as well as associated DVD metadata and images. For structural details on logical videos, see [“Logical Video”](#) on [page 304](#).

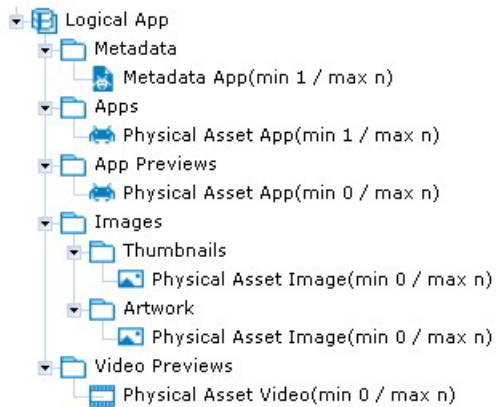
Figure 188 DVD Bundle Structure



Logical App

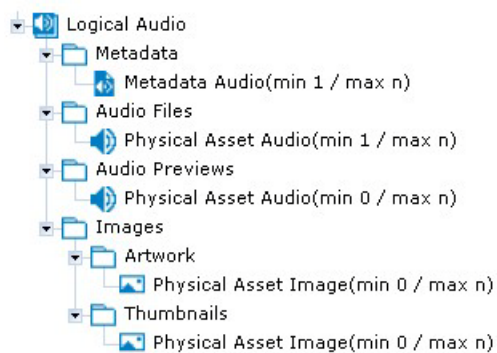
A logical application bundle consists of a physical application file with related metadata. Images, application previews, and image previews are all optional.

Figure 189 Logical App Bundle Structure



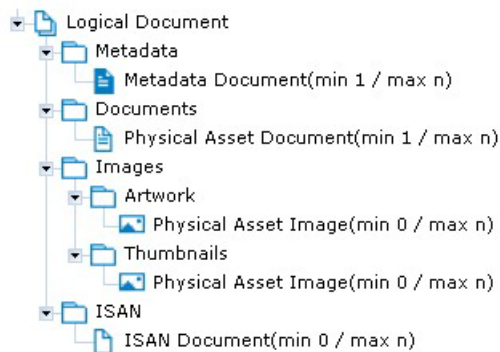
Logical Audio

A logical audio bundle may contain multiple physical versions of an audio file along with audio previews, associated metadata, and images.

Figure 190 Logical Audio Bundle Structure

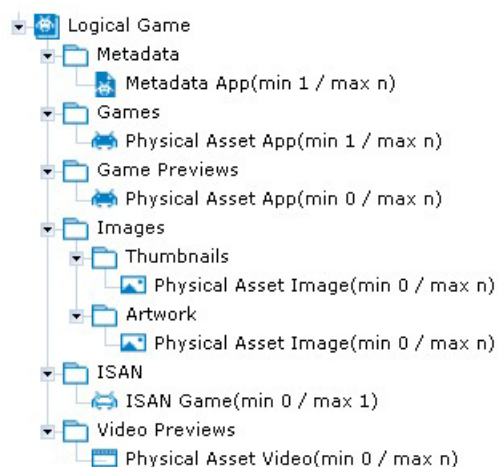
Logical Document

A logical document may contain multiple physical versions of document files along with associated metadata, images, and other objects.

Figure 191 Logical Document Bundle Structure

Logical Game

A logical game bundle may contain multiple versions of a game file (for different platforms) along with associated metadata and images.

Figure 192 Logical Game Bundle Structure

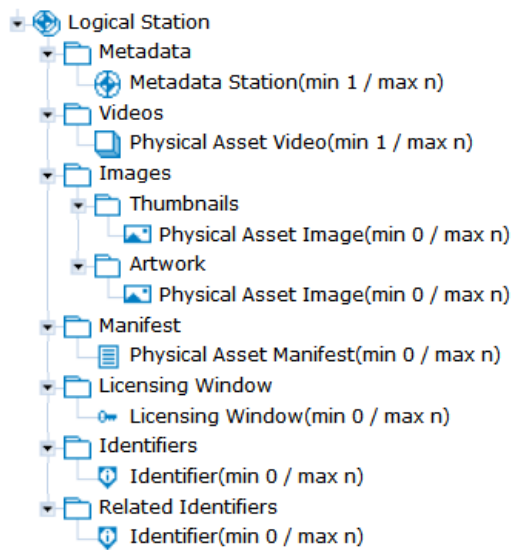
Logical Image

A logical image bundle may contain multiple physical versions of an image along with associated metadata.

Figure 193 Logical Image Bundle Structure

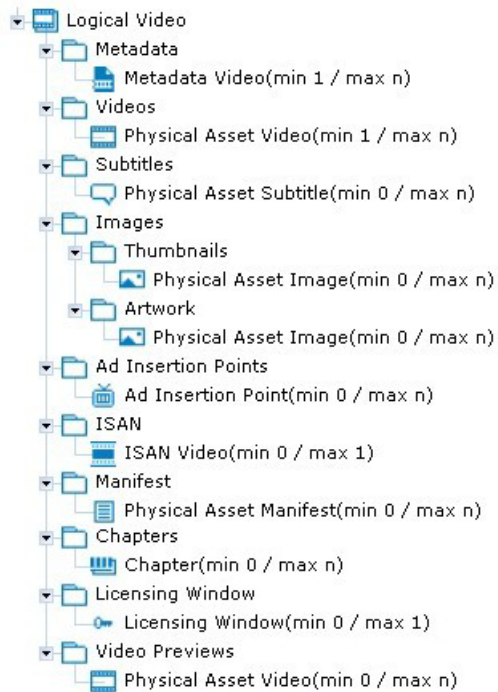
Logical Station

A logical station bundle can contain multiple stations with associated videos, images, manifests, and other components. This bundle is used with the optional EPG module.

Figure 194 Logical Station Bundle Structure

Logical Video

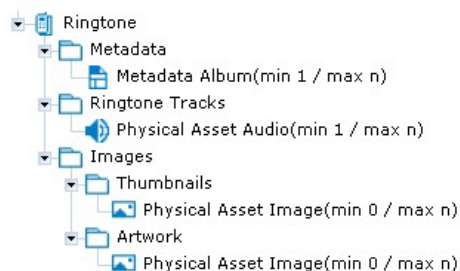
A logical video bundle can contain multiple versions of a video file with associated metadata, images, and other components.

Figure 195 Logical Video Bundle Structure

Ringtone

A ringtone may contain multiple physical versions of logical audio bundles (representing ringtones and possibly previews) as well as associated ringtone metadata and images.

Figure 196 Ringtone Bundle Structure



Show Collection

A show collection may contain multiple show seasons. It may also contain bonus video material as well as associated metadata and images.

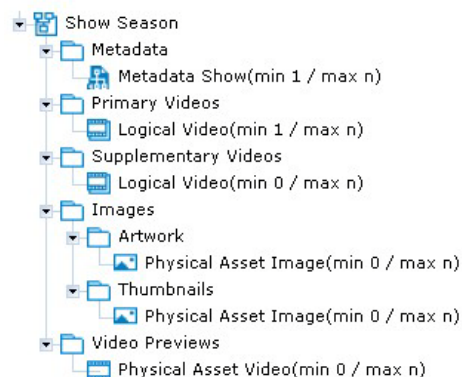
Figure 197 Show Collection Bundle Structure



Show Season

A show season may contain multiple physical versions of logical video bundles that represent each show episode. It may also contain bonus video material as well as associated metadata and images.

Figure 198 Show Season Bundle Structure



BUNDLE XML SAMPLES

This appendix provides sample XML for the two common types of logical video scenarios:

- Where unprocessed assets will be going through a workflow and will be bound by Media Suite. These assets are undistributed and are therefore not located on a content delivery network.
- Where assets that were processed externally to Media Suite will not go through a workflow or the bind process. These assets are already located on a content delivery network.

Additionally, the two above scenarios can be combined where a logical video contains a mix of processed (distributed) and unprocessed (undistributed) assets.

Note All folders specified within a bundle template must be present within the bundle XML.

Undistributed Assets

The following logical video bundle XML provides the structure for unprocessed and undistributed assets. Any references relating to an asset's physical characteristics or location (such as a URL or file size) should remain blank as they will be filled in by Media Suite after distribution.

Figure 199 Logical Video with Undistributed Assets

```
<?xml version="1.0" encoding="UTF-8"?>
<cm:opencase xmlns:cm="http://opencase.extend.com/cm"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://opencase.extend.com/cm contentManager.xsd">
  <cm:component xsi:type="cm:Logical_Video">
    <cm:altCode></cm:altCode>
    <cm:externalID></cm:externalID>
    <cm:name></cm:name>
    <cm:Metadata_Folder>
      <cm:MetadataVideo>
        <cm:altCode></cm:altCode>
        <cm:externalID></cm:externalID>
        <cm:name></cm:name>
        <cm:keywords></cm:keywords>
        <cm:locale>
          <cm:country></cm:country>
          <cm:language></cm:language>
        </cm:locale>
        <cm:notes></cm:notes>
        <cm:summaryLong></cm:summaryLong>
        <cm:summaryMedium></cm:summaryMedium>
        <cm:summaryShort></cm:summaryShort>
        <cm:titleLong></cm:titleLong>
        <cm:titleMedium></cm:titleMedium>
```

```

<cm:titleShort></cm:titleShort>
<cm:titleSortable></cm:titleSortable>
  <cm:castMembers>
    <cm:castMember>
      <cm:person>
        <cm:displayName></cm:displayName>
        <cm:firstName></cm:firstName>
        <cm:lastName></cm:lastName>
      </cm:person>
    </cm:castMember>
    <cm:castMember>
      <cm:person>
        <cm:displayName></cm:displayName>
        <cm:firstName></cm:firstName>
        <cm:lastName></cm:lastName>
      </cm:person>
    </cm:castMember>
  </cm:castMembers>
  <cm:categories>
    <cm:category>
      <cm:categoryName></cm:categoryName>
    </cm:category>
  </cm:categories>
  <cm:country></cm:country>
  <cm:directors>
    <cm:director>
      <cm:person>
        <cm:displayName></cm:displayName>
        <cm:firstName></cm:firstName>
        <cm:lastName></cm:lastName>
      </cm:person>
    </cm:director>
  </cm:directors>
  <cm:distributor></cm:distributor>
  <cm:genres>
    <cm:genre>
      <cm:genreName></cm:genreName>
    </cm:genre>
  </cm:genres>
  <cm:producers>
    <cm:producer>
      <cm:person>
        <cm:displayName></cm:displayName>
        <cm:firstName></cm:firstName>
        <cm:lastName></cm:lastName>
      </cm:person>
    </cm:producer>
  </cm:producers>
  <cm:provider></cm:provider>
  <cm:publishDate></cm:publishDate>
  <cm:publisher></cm:publisher>
  <cm:ratings>
    <cm:rating>
      <cm:ratingName></cm:ratingName>
    </cm:rating>
  </cm:ratings>
  <cm:seriesName></cm:seriesName>
  <cm:writers>

```

```

        <cm:writer>
          <cm:person>
            <cm:displayName></cm:displayName>
            <cm:firstName></cm:firstName>
            <cm:lastName></cm:lastName>
          </cm:person>
        </cm:writer>
      </cm:writers>
      <cm:duration></cm:duration>
      <cm:episodeName></cm:episodeName>
      <cm:episodeNumber></cm:episodeNumber>
      <cm:workType></cm:workType>
    </cm:MetadataVideo>
  </cm:Metadata_Folder>
  <cm:Videos></cm:Videos>
  <cm:Subtitles></cm:Subtitles>
  <cm:Images>
    <cm:Thumbnails></cm:Thumbnails>
    <cm:Artwork></cm:Artwork>
  </cm:Images>
  <cm:Ad_Insertion_Points>
    <cm:AdInsertionPoint>
      <cm:name></cm:name>
      <cm:timeslot></cm:timeslot>
    </cm:AdInsertionPoint>
  </cm:Ad_Insertion_Points>
  <cm:ISAN></cm:ISAN>
  <cm:Manifest></cm:Manifest>
  <cm:Chapters></cm:Chapters>
  <cm:Licensing_Window></cm:Licensing_Window>
  <cm:Video_Previews></cm:Video_Previews>
</cm:component>
</cm:opencase>

```

Distributed Assets

This type of bundle XML provides the structure for logical videos that have already been processed (externally to Media Suite) and distributed to a CDN. In addition, this XML provides details for physical assets, such as URL (location) and other file-related information for any distributed physical assets. The unique fields for the physical asset video are bolded in the following example:

Figure 200 Logical Video with Distributed Assets

```

<?xml version="1.0" encoding="UTF-8"?>
<cm:opencase xmlns:cm="http://opencase.extend.com/cm"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://opencase.extend.com/cm contentManager.xsd ">
  <cm:component xsi:type="cm:Logical_Video">
    <cm:altCode></cm:altCode>
    <cm:externalID></cm:externalID>
    <cm:name>Sample</cm:name>
    <cm:Metadata_Folder>
      <cm:MetadataVideo>
        <cm:altCode></cm:altCode>
        <cm:externalID></cm:externalID>
        <cm:name>Sample</cm:name>

```

```

<cm:keywords></cm:keywords>
<cm:locale>
  <cm:country>US</cm:country>
  <cm:language>en</cm:language>
</cm:locale>
<cm:notes></cm:notes>
<cm:summaryLong>Sample</cm:summaryLong>
<cm:summaryMedium>Sample</cm:summaryMedium>
<cm:summaryShort>Sample</cm:summaryShort>
<cm:titleLong>Sample</cm:titleLong>
<cm:titleMedium>Sample</cm:titleMedium>
<cm:titleShort>Sample</cm:titleShort>
<cm:titleSortable></cm:titleSortable>
<cm:castMembers>
<cm:castMember>
<cm:person>
  <cm:displayName>Gerard Butler</cm:displayName>
  <cm:firstName>Gerard</cm:firstName>
  <cm:lastName>Butler</cm:lastName>
</cm:person>
</cm:castMember>
<cm:castMember>
<cm:person>
  <cm:displayName>Lena Headey</cm:displayName>
  <cm:firstName>Lena</cm:firstName>
  <cm:lastName>Headey</cm:lastName>
</cm:person>
</cm:castMember>
</cm:castMembers>
<cm:categories>
  <cm:category>
    <cm:categoryName>Novel</cm:categoryName>
  </cm:category>
</cm:categories>
<cm:country>Canada</cm:country>
<cm:directors>
  <cm:director>
    <cm:person>
      <cm:displayName>Zack Snyder</cm:displayName>
      <cm:firstName>Zack</cm:firstName>
      <cm:lastName>Snyder</cm:lastName>
    </cm:person>
  </cm:director>
</cm:directors>
<cm:distributor>Warner Bros. Pictures</cm:distributor>
<cm:genres>
  <cm:genre>
    <cm:genreName>Drama</cm:genreName>
  </cm:genre>
</cm:genres>
<cm:producers>
  <cm:producer>
    <cm:person>
      <cm:displayName>Rodrigo Santoro</cm:displayName>
      <cm:firstName>Rodrigo</cm:firstName>
      <cm:lastName>Santoro</cm:lastName>
    </cm:person>
  </cm:producer>

```

```

</cm:producers>
<cm:provider>Warner Bros. Pictures</cm:provider>
<cm:publisher>Warner Bros. Pictures</cm:publisher>
<cm:ratings>
  <cm:rating>
    <cm:ratingName>R</cm:ratingName>
  </cm:rating>
</cm:ratings>
<cm:seriesName></cm:seriesName>
<cm:writers>
  <cm:writer>
    <cm:person>
      <cm:displayName>Vincent Regan</cm:displayName>
      <cm:firstName>Vincent</cm:firstName>
      <cm:lastName>Regan</cm:lastName>
    </cm:person>
  </cm:writer>
</cm:writers>
<cm:duration>00:01:46</cm:duration>
<cm:episodeName></cm:episodeName>
<cm:episodeNumber></cm:episodeNumber>
<cm:workType></cm:workType>
</cm:MetadataVideo>
</cm:Metadata_Folder>
<cm:Videos>
  <cm:PhysicalAssetVideo>
    <cm:altCode></cm:altCode>
    <cm:externalID></cm:externalID>
    <cm:name>Video Name</cm:name>
    <cm:fileSize>164673031</cm:fileSize>
    <cm:mimeType>video/x-ms-wmv</cm:mimeType>
    <cm:pcFileName>filename.wmv</cm:pcFileName>
    <cm:url>http://url/filename.wmv</cm:url>
    <cm:frameHeight>1080</cm:frameHeight>
    <cm:frameWidth>1920</cm:frameWidth>
    <cm:videoBitRate>2000000</cm:videoBitRate>
    <cm:videoCodecName>wmv</cm:videoCodecName>
    <cm:videoCodecType></cm:videoCodecType>
    <cm:wrapperFormat></cm:wrapperFormat>
  </cm:PhysicalAssetVideo>
</cm:Videos>
<cm:Subtitles></cm:Subtitles>
<cm:Images>
  <cm:Thumbnails>
    <cm:PhysicalAssetImage>
      <cm:altCode></cm:altCode>
      <cm:externalID></cm:externalID>
      <cm:name>image</cm:name>
      <cm:fileSize>164673031</cm:fileSize>
      <cm:pcFileName>filename.jpg</cm:pcFileName>
      <cm:url>http://image name</cm:url>
      <cm:height>35</cm:height>
      <cm:width>35</cm:width>
    </cm:PhysicalAssetImage>
  </cm:Thumbnails>
  <cm:Artwork></cm:Artwork>
</cm:Images>
<cm:Ad_Insertion_Points></cm:Ad_Insertion_Points>

```

```
<cm:ISAN></cm:ISAN>
<cm:Manifest></cm:Manifest>
<cm:Chapters></cm:Chapters>
<cm:Licensing_Window></cm:Licensing_Window>
<cm:Video_Previews></cm:Video_Previews>
</cm:component>
</cm:opencase>
```

The following fields are mandatory for distributed physical video assets if they are to be viewed by a player:

- pcfilename
- filesize (in bytes)
- URL
- mimeType

Mixed Assets

In another scenario, a logical video would contain a mix of processed (distributed) and unprocessed (undistributed) assets. The XML for this type of bundle would contain information that is suitable to each physical asset.

MEDIA SUITE ESBs

This appendix provides a listing and brief description of the default ESBs that are available within Media Suite. For details on inputs, outputs, dependencies or other configuration values, consult the *Media Suite Developer Guide* (“Configuring ESB Services” section).

Table 57 ESBs within Media Suite

Name	Description
Armada Service	Handles requests to and responses from Cisco AnyRes VOD, which encodes and encrypts digital assets. This service was formerly called Armada, thus the name.
Binding Service	Executes binding for files specified in the bindFileset fields of a provided workflow context or executes binding for context map variables.
CDSTV Publisher Service	Enables integration between Media Suite and the CDSTV (Content Delivery System TV) Publisher to deliver VOD content via the QAM protocol.
CM Ingest Spreadsheet Service	Enables the ingestion of specified data from XLS or XLSX spreadsheets into Media Suite. This ESB creates one workflow instance for the entire spreadsheet that is being ingested. For details, see “ Spreadsheet Ingestion ” on page 211 . Note This service will be deprecated in favor of the Composite Ingest Spreadsheet Service as of Media Suite 5.7.3.
Collator Service	Extracts the repository path and asset base name from an existing file. This information is then used to search for other files in a desired fileset.
Composite Ingest Spreadsheet Service	Enables the ingestion of specified data from XLS or XLSX spreadsheets into Media Suite. This ESB creates one workflow instance for each spreadsheet row being ingested and then sends the resulting information to Content Manager for binding. This opens the possibility of using rules-based workflows to examine and modify the incoming data, if necessary. For details, see “ Spreadsheet Ingestion ” on page 211 . New as of Media Suite 5.7.3.
Custom Service	A generic ESB template that contains an infrastructure to speed the development and deployment of client ESBs.
Custom Asynch Service	A generic ESB template to speed the development and deployment of asynchronous client ESBs. Asynchronous services send a request to another service and only continue processing after they have received a callback from that service.
Dynamic Queue Services	A set of ESBs that form a framework to enable easy configuration and throttling capabilities for custom queue scenarios. This feature can integrate with existing Workflow Prioritization functionality to leverage advanced prioritization and de-queueing logic.
EPG Ingest Feed Fragment Service	Used to ingest data feeds into the EPG module. Fragment types include: Single (all information in one file), Schedules, Programs, ProgramsExtended, Stations, and Lineups.
EPG Finalize Ingest Service	Performs actions that need to occur after an ingestion operation. These actions vary depending upon the type of information that is ingested.
File Discovery Service	Finds fully qualified file paths using regular expressions to search within specified repositories. All fully qualified file paths are saved into the CurrentFileset field in the workflow context.

Table 57 ESBs within Media Suite

Name	Description
Generic Rules Service	Enables the redirection of execution pathways of several parallel workflow nodes based on XSLT rules that are specified at runtime.
HLS Collator Service	Validates an HLS fileset against a master manifest file for completeness.
Image Transformation Service	Used to transform image dimensions and formats according to one or more image profiles.
Load Existing Component XML	Add this ESB to a workflow node (via a PAR file) to load existing component/bundle XML into a workflow context. This ESB service is not configured by using an action template or action profile. The Load Existing Component XML Service can search for components by UUID, External ID, or Asset ID, by setting specific variables within the workflow context. Those variables can be set by other ESBs, or via a rule mapping node in a workflow.
Manage Component Service	Provides a mechanism by which to control how components and bundles are created and updated within Media Suite.
Mapping Rules Service	Extends the Rules Based Workflow Service to provide the ability to inject addition information into the Workflow Context XML prior to any XSL transformations occurring.
Media Manager Service	Provides video asset trimming functionality within workflows. For details, see “Editing Video Assets” on page 193.
Metadata Augmentation Service	Used to populate metadata fields within Media Suite with data from third-party services.
MOSVOD Service	Enables integration between Media Suite and MOS (Media Origination Suite) for VOD content. MOS takes input from media encoding systems and produces assets that are distributed by CDNs and consumed by client devices at different bit rates.
Repository Manager Service	Provides functionality to copy to, move, or delete assets from a content delivery network. Features include the ability to work with zip file archives and HLS files.
Rhozet Service	Manages requests and responses from the Rhozet encoding and encryption service.
Source Data Service	Enables the loading CLOB data within Workflows. This information is stored within the Action Profile and can be passed to the workflow context for use.
Workflow Join Service	An ESB service that can join different workflow instances of the same or different workflow definitions. This service is not, however, used to join workflow paths within the same workflow instance. This ESB is particularly useful for bulk processing jobs or to provide aggregate data to an external system, rather than to send files individually.
XLS Ingest Service	Used to import and parse spreadsheet data into Media Suite primarily to augment existing metadata.
XML Reader Service	Reads an XML file and saves it in the content file table.
XML Transformation Service	Applies XSL transformations to XML files to change their format. For example, CableLabs ADI format can be transformed into the default Media Suite format via an XSL transformation.

Note Media Suite only supports version 1.0 XSL documents.
