Videoscape Media Suite
User Guide

Release 5.6.1
Includes: Media Suite, Producer, and EPG

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Part A

MEDIA SUITE

Chapter 1

Media Suite Overview

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

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. It can provide all this for a diverse set of devices using a range of DRM technologies. 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, Entitlement, and Admin. If you purchase any additional optional modules, such as EPG, you will see those tabs as well.

Browser Requirements

All Videoscape Media Suite applications have the following browser requirements:

Table 1 Supported Browsers for VMS

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 101.

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. Bundles can be later productized by applying policies, which specify business rules, such as offer windows, affiliate designations, offer types, subscription polling, DRM restrictions, entitlement checks, charge information, and ad support details.

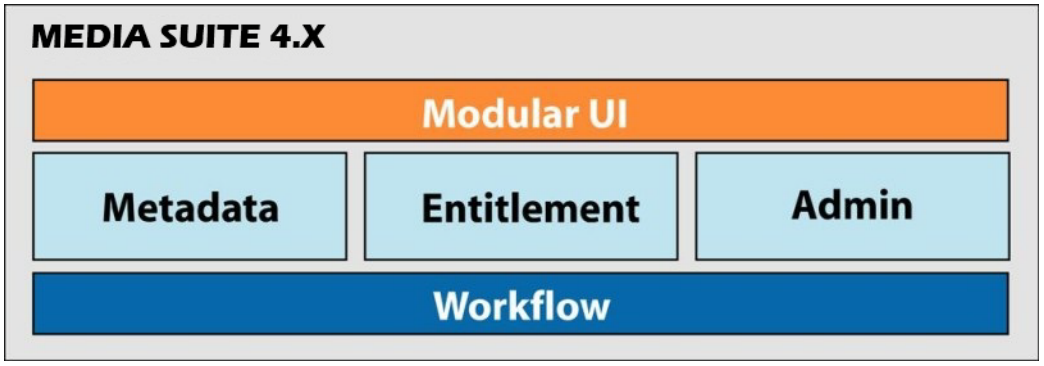
Understanding Media Suite Modules

This section defines the various modules that are present within a default Media Suite installation. The modules are:

- Workflow
- Metadata
- Entitlement
- Admin

The following diagram shows the high-level relationship between various Media Suite modules:

Figure 1 Media Suite Modules at a High Level



Modular UI

Media Suite's user interface serves as a framework that is used by all core and any third party modules that may be configured with it.

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 pre-defined 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.

Entitlement Module

The Entitlement module's main purpose is to enable the creation of policies that specify business rules, and then to apply those policies to bundles in order to create products. Related functionality includes DRM setup, the ability to manage syndication, advertising, and users. Other module functions include the ability to manage currencies and feeds.

EPG Module

The optional Videoscape EPG (Electronic Program Guide) 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 VMS release 4.1.4 and higher, the EPG release numbers have been harmonized with Media Suite to make it simpler to match compatible versions.

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.

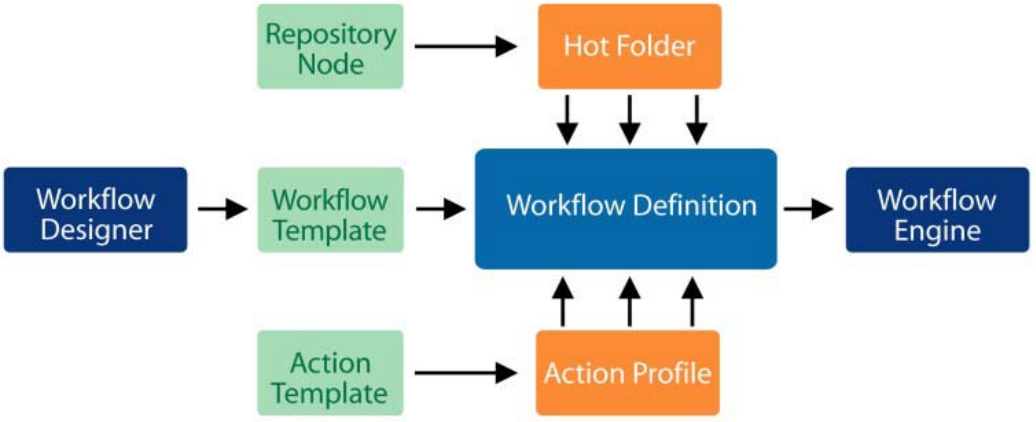
6. Create a workflow definition.

   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 2 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, entitlement, 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. The term "users", on the other hand, refers to people that consume products that have been created by Media Suite.
AUTOMATION	All workflow processes are inherently automated within Media Suite and, once initiated, 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 319.
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.)

Table 2 General Media Suite Terminology

Term	Definition
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 108.
DOMAIN	Establishes a grouping of PCs and devices that can share licensed content within the group. Depending on the DRM technology capabilities, Media Suite can set registration limits for PCs or devices within individual or groups of DRM types.
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 September 2010.
USER	The people that consume products that have been generated by 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.

Entitlement Terminology

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

Table 4 Entitlement-specific Terminology

Term	Definition
POLICY	Policies are a mechanism to establish a set of business rules that will be applied to bundles to create a product. A policy encompasses product aspects such as offer windows, offer types, DRM characteristics, ad support, and charges.
PRODUCTIZATION	Is the process of applying a policy to a bundle to create a product.
RIGHTS LOCKER	A centralized repository for rights tokens for a user account. Rights tokens grant users the permission to purchase or obtain a product.

Workflow Terminology

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

Table 5 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 Transcode.
CISCO TRANSCODE MANAGER (CTM)	Cisco Transcode Manager is the new name for what was previously called Armada. The product is an enterprise-class transcode workflow solution that eases the complexities of encoding large volumes of content. At present, references to Armada still exist within ESBs and various 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.
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).

Table 5 Workflow-specific Terminology

Term	Definition
MERCHANDISER	Merchandiser (formerly VCM) is an external Cisco component that integrates with Media Suite to manage catalog content, create site navigation structures, and to aid in the monetization of content. Consult the Merchandiser User Guide for more information.
REPOSITORY	The collection 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	See *Merchandiser*.
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 (for each file) it creates a unique workflow instance.
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
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.

Chapter 2

Getting Started

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

Logging In and Out

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

Logging In to Videoscape Media Suite

To log into Videoscape Media Suite:

1. Type the Videoscape Media Suite URL into your browser address bar. The URL will vary depending on where Videoscape 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 Videoscape 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 should be created.

Logging Out of Videoscape Media Suite

After you have finished working with Videoscape 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 Videoscape 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 Videoscape Media Suite. Logging into more than one instance of Videoscape Media Suite within the same browser will cause you to log out of any previous instance.

Understanding the Interface

The following section explains recurring functionality in the Videoscape Media Suite user interface.

Navigating Videoscape Media Suite

To navigate within Videoscape 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 point 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 Videoscape Media Suite

Search functionality is standardized within Videoscape 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 Videoscape 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 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.

---

3 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 Videoscape Media Suite components.

Table 6 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 7 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 8 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 bundles, components, and products. 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"

Create and Create & Edit

In many dialogs within Videoscape 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 Videoscape 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 Videoscape 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:

Chapter 3

Repositories

This chapter includes the following topics related to repositories:

Understanding Repositories

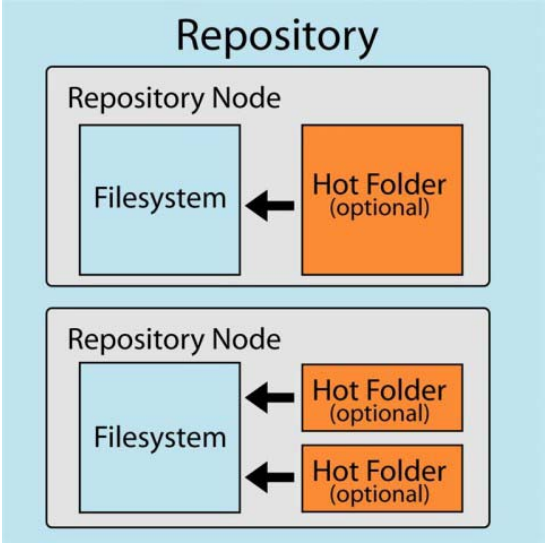
The repository is the collection of all repository nodes in your Media Suite deployment. In the following section, the constituent pieces of a repository are defined:

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 3 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 9 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 http://, https://, sftp://, smb://, ftp://, file:// (local), and pfs://. The file:// 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 `file://` protocol so that Media Suite regards the mount as a local folder.

Table 9 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 4 Fields for CDS Versions 0 & 1

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.

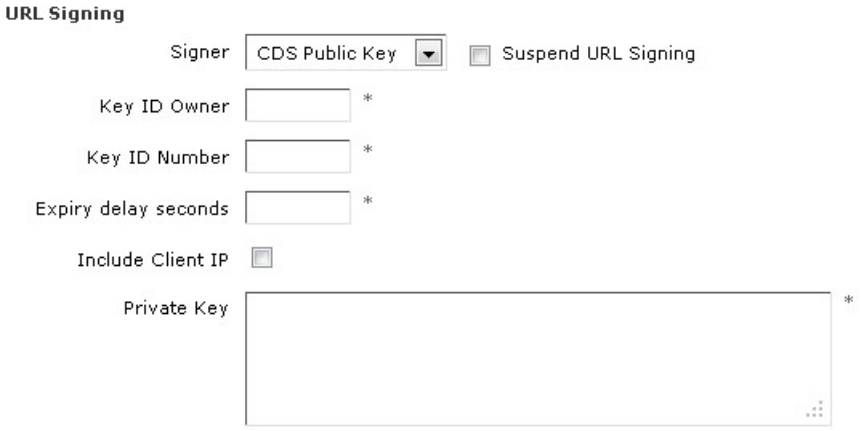
Key ID Number - provides the second index into the key matrix.

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 5 Fields for CDS Public 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.

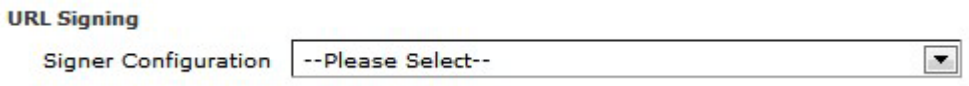
To select URL signing configuration:

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 6 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 10 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 11 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 11 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 12 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.

Table 12 Hot Folder Fields

Field	Description
Inactive Date	The date this hot folder will become inactive.
Process Subfolders	A boolean option that indicates whether processing should also occur for content within subfolders of this hot folder.
Related Workflows	Indicates any workflows that are dependant on 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 7 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. Also, an **Exclude Filename** textbox is available where you can specify a RegEx expression to exclude hot folder files that match the stated condition.

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.

Chapter 4

Configuring Workflows

This chapter includes the following topics related to configuring workflows:

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 required).
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. The following default ESB services can be leveraged for workflow usage:
   - Armada Service (also called CTM) - Handles requests to and responses from the Cisco Transcode Manager which can encode and encrypt digital assets.
   - Binding Service - Executes binding for files specified in the bindFileset fields of a provided Workflow Context or executes binding for context map variables.
   - Collator Service - Extracts the repository path and asset base name from an existing file. This information will be used to search for other files in a desired fileset.
   - EPG Ingest Service - the work of this service is now performed by the EPG Ingest Feed Fragment and EPG Finalize Ingest Services.
   - EPG Ingest Feed Fragment Service - Used to ingest data feeds into the EPG module.
   - EPG Finalize Ingest Service -
   - 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.
   - 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.
   - 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.
   - Metadata Augmentation Service - Used to populate metadata fields within Media Suite with data from third-party services.
   - Productize Service - Productizes the files that are specified in the Workflow Context.
   - Repository Manager Service - Provides functionality to copy to, move, or delete assets from a content delivery network.
   - Rhozet Service - Manages requests and responses from the Rhozet encoding and encryption service.
   - XLS Ingest Service - Used to import and parse spreadsheet data into Media Suite.
   - XML Reader Service - Reads an XML file and saves it in the content file table.

- XML Transformation Service - Used to apply XSL transformations to XML files to change their format. For example, CableLabs ADI format can be transformed into the internal VMS format via an XSL transformation.

Note Media Suite only supports version 1.0 XSL documents.

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 13 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.
DRM:DrmPackagerService	Name	A name for this action template.
	Description	A description for this action template.
	ESB Service Address	Pre-populated with ESB name (at left).

Table 13 Action Template Fields to Configure

ESB Service	Field	Description
	UUID	A universally unique identifier (for this service) that is generated and used by Media Suite.
	Web Service URL	The URL for calling this functionality using web services.
	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 encrypted.
	Output Directory	The output directory for content that has been encrypted.
Encoder Service	N/A	This service has been deprecated. Use the ArmadaService instead for transcoding assets.
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: EPGIngestFeedFragmentService	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: FinalizeEPGIngestService	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)

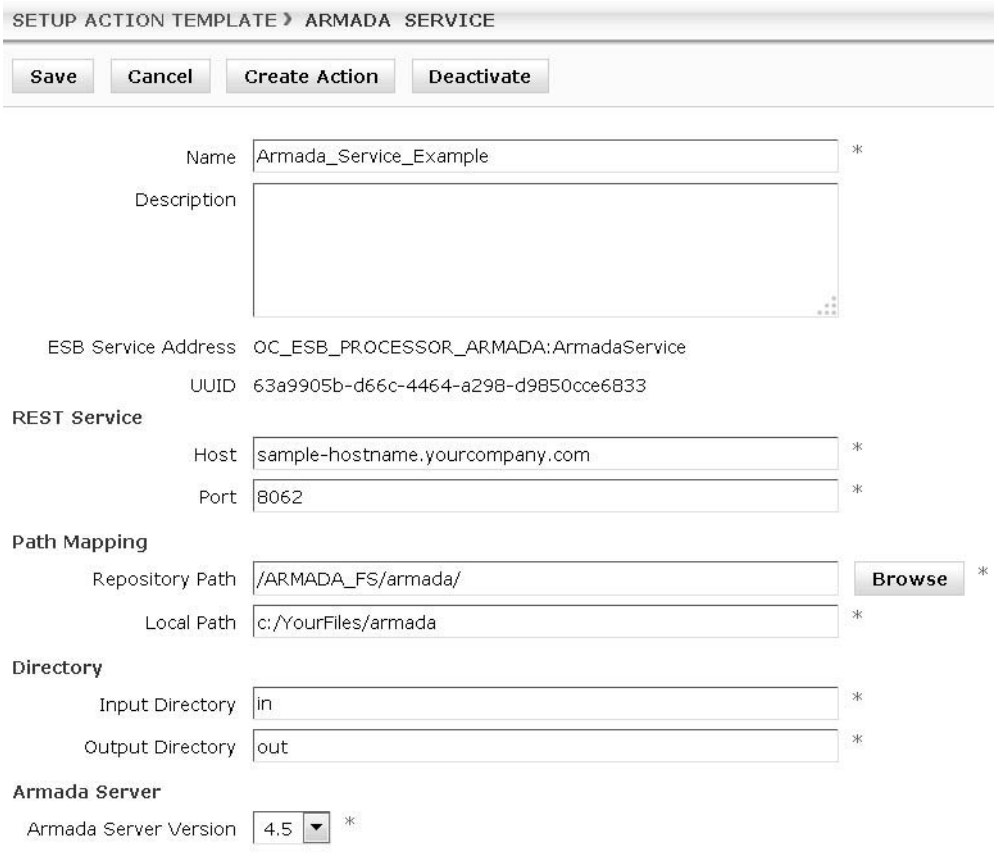
Table 13 Action Template Fields to Configure

ESB Service	Field	Description
	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.
	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.
Productize 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.

Table 13 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.
XLS Ingest Service	N/A	No configurable user interface options are available for action template creation.
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 8 Action Template Details



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 each type of action profile.

Table 14 Action Profile Listing

Profile	Type	Description
ARMADA_SERVICE-BASED ACTION PROFILE **NOTE: ARMADA TRANSCODER IS ALSO CALLED THE CISCO TRANSCODE MANAGER (CTM)**		
	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.

Table 14 Action Profile Listing

Profile	Type	Description
	Processor Action Type	Enables the selection of predefined transcoding options. Options include: **Work Order** - specifies a list of predefined transcode settings (on the CTM server) that provide no encryption. **Work Order PlayReady** - specifies list of predefined transcode settings (on the CTM server) with PlayReady encryption. **Work Order HLS/AES** - specifies a list of predefined HLS transcode settings (on the CTM server) with AES encryption. **Work Order HLS/ABRe** - specifies a list of predefined transcode settings (on the CTM server) with ABRe encryption. **Work Order XTVE** - specifies a list of predefined transcode settings (on the CTM server) with XTVE encryption. **Template** - specifies one predefined transcode configuration on the CTM server.
	Work Order	Displays a listing of transcoding options. **Note** Whenever the Cisco Transcode Manager is reinstalled, any work order selection within the Media Suite action profile will be lost. Consequently, after reconfiguring the Cisco Transcode Manager, 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 (CTM task file) and passed to the Cisco Transcode Manager. The Customer Content ID is then saved to the AltCode field of the physical asset.
	Filename Macro	Defines a macro that will establish a file naming template for all files output by the Cisco Transcode Manager. 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.

Table 14 Action Profile Listing

Profile	Type	Description
	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.
DRMPACKAGERSERVICE-BASED ACTION PROFILE		
	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.
	Processor Action Type	Select from one of the available encryption types installed in Media Suite. Specific DRM Settings will vary according to the DRM being used. The following fields are examples of parameters for WMRM & PlayReady DRMs.
	Key ID	This optional field does not need any input from administrators because it is automatically generated if it is blank.
	License Acquisition URL	This URL specifies where users will be directed at license expiry.
	Individualized Version	Refers to the lowest WMRM individualization level that will be accepted. Check with your content provider for guidance on setting this number.
	Public Key and Private Key	(WMRM only) These keys are used to encrypt video content so that a license is required to decrypt it for viewing. If not supplied, the default keys for the Windows Media Encoder will be used.
	License (Key) Seed	The license key seed is a shared secret between the content packager and Windows Media License Service. When you have specified the key ID and the license key seed, you can use the WMRMKeys.GenerateKey method to create a key.
	Related Workflow Definitions	A list of workflow definitions that are using this action profile. This list is generated by Media Suite.
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.

Table 14 Action Profile Listing

Profile	Type	Description
	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.
PRODUCTIZESERVICE-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.
	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.
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 destination while leaving the source file intact. **Move** - moves the source file from the source to the destination. **Delete** - is used for a workflow that deletes files from a content delivery network after a component is removed from Media Suite. **Copy & Unzip** - copies the source file and unzips its contents at the destination. **Move & Unzip** - moves the source file and unzips its contents at the destination.

Table 14 Action Profile Listing

Profile	Type	Description
	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**.
	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.

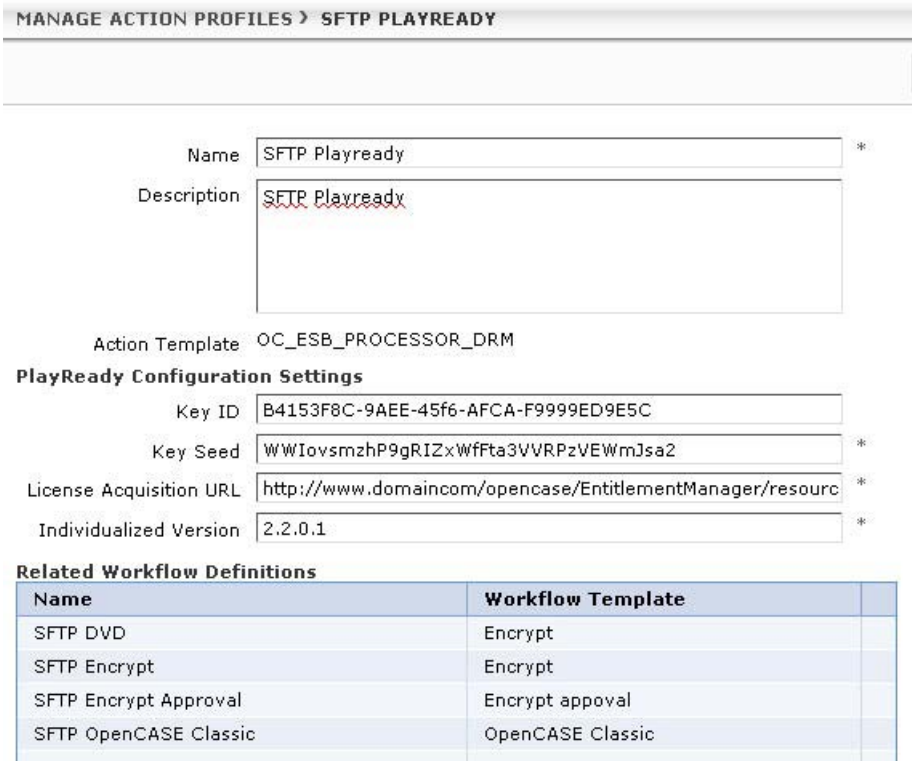
Table 14 Action Profile Listing

Profile	Type	Description
	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 9 Action Profile Details



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 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 15 Collators within Media Suite

Collator	Details
Adobe Multi-Bitrate Ingestion Service	This collator reads a `smil` 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 `smil` file are available.
Smooth Streaming Ingestion Service	This collator reads an `ism` 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 ism file is used as the configuration file, which then points to an `ismc` file and related video files. The files will not proceed to the next node until all files specified within the `ism` 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**.

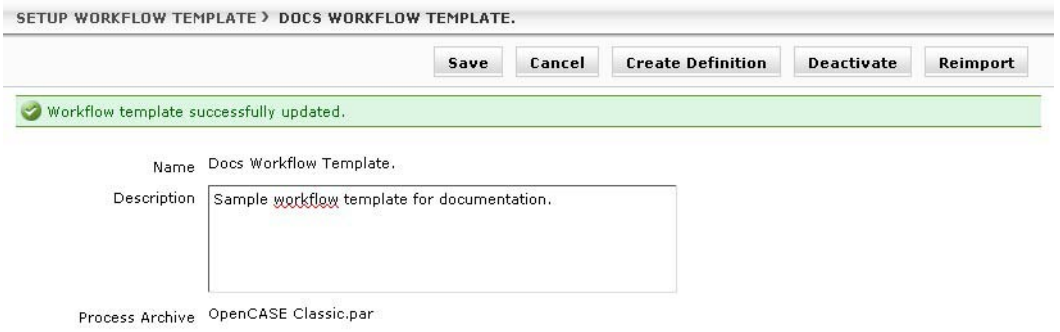
3 Type a name and description for the workflow template.

4 Click **Browse** to select your workflow archive (PAR file).

5 Click **Import & Edit Profile**.

6 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 10 Workflow Template Details Page



7 At this point, 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.

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**.

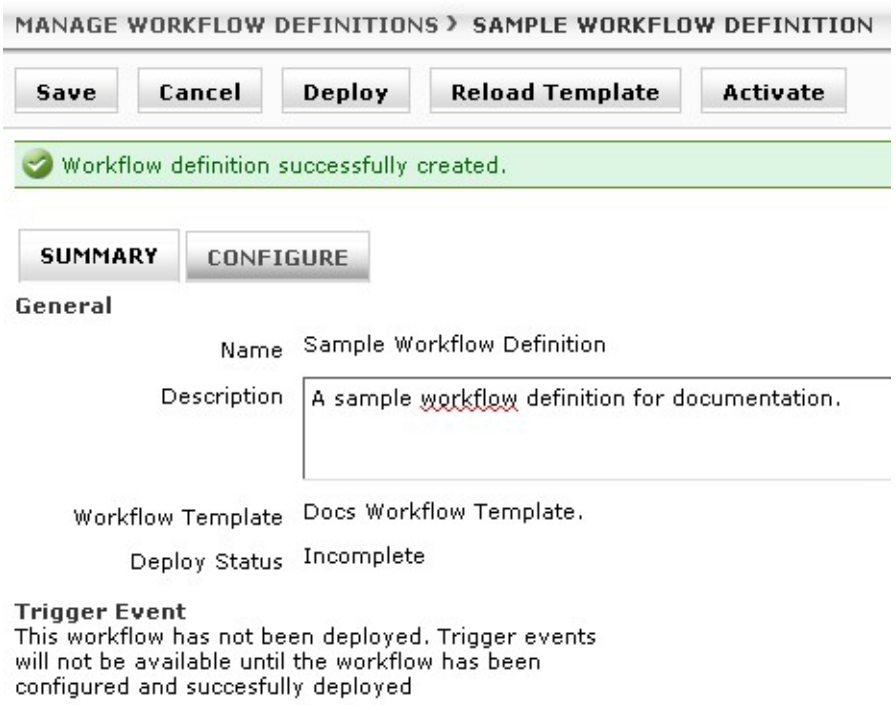
6 At this point, the following buttons are available:

- **Save** (saves any changes that have been made to the description.)
- **Cancel** (returns to the workflow definition list page.)
- **Create Definition** (creates a workflow definition using the current workflow template.)
- **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:

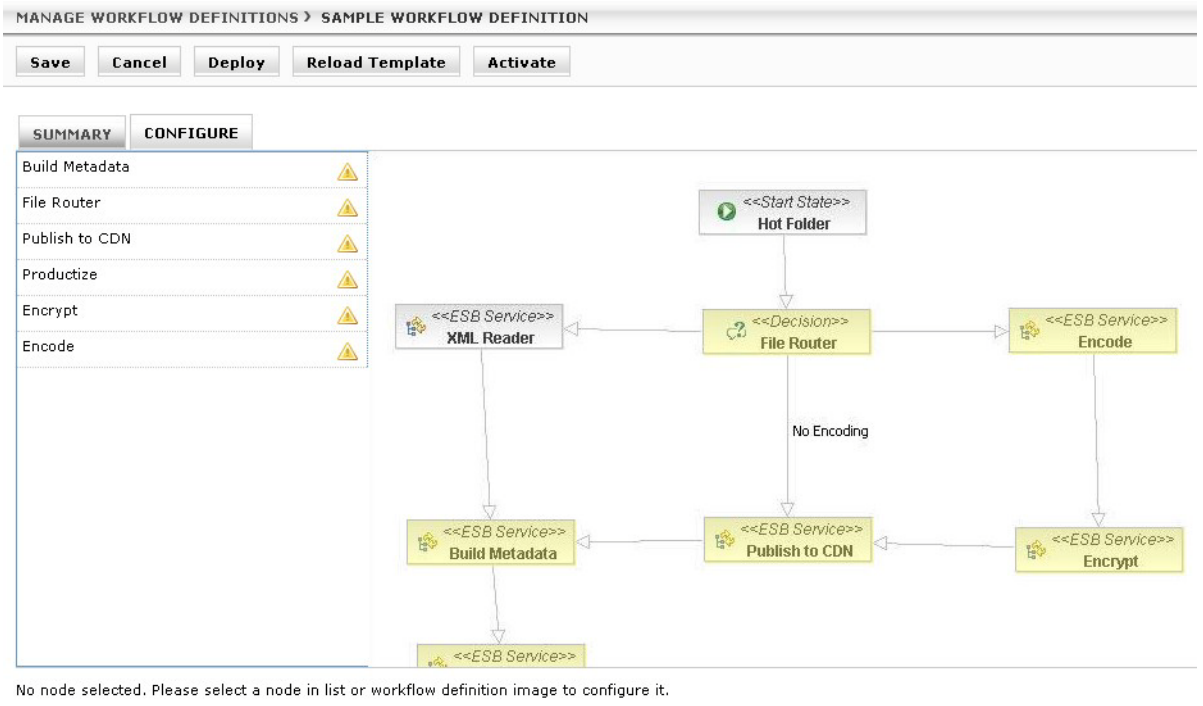
- **Summary** (allows you to change the workflow definition description.)
- **Configure** (takes you to a screen where you can configure the individual workflow nodes while viewing a graphical representation of the workflow definition.)

Figure 11 Manage Workflow Definitions Page



7 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 12 Configuring a Workflow Definition



8 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 16 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.
Productize Productize Service	Select a policy to productize with.

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

10 Click **Deployment > Deploy** to deploy the workflow definition.

11 Click **Activate** to activate the workflow definition.

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

12 Click the **Summary** tab.

13 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 specifying workflow definition trigger events.

Table 17 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:
	`{server}/ContentProcessor/resource/rest/triggerworkflow`
	
	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 `workflowTriggerId` parameter value.
	Predefined TriggerIDs are comma delimited, and can be viewed at the system configuration node located at:
	`modules > cp > http.workflow.trigger > predefined.workflow.trigger.Ids`
	
	2 A `triggerworkflowservicerest.trigger.id.parameter` can be used to substitute the default Media Suite `workflowTriggerID` 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.

Table 17 Workflow Definition Trigger Events

Trigger Event	Description
PhysicalAssetDelete	Replaced by `HTTPWorkflowTrigger` as of Media Suite 5.6. **To delete physical assets:** 1 Set the Trigger Event to **HTTPWorkflowTrigger**, and the TriggerID to `physicalAssetDeleteWorkflow`. Doing so, causes that workflow to run when a physical asset needs to be deleted from a Media Suite repository. 2 Within the System Configuration, you must change: `modules > cm > component > record.deleted.physicalasset.xml` to `true`.
ProductCreate	Triggers a workflow once a new product has been created.
ProductUpdate	Triggers a workflow when a change is committed to a product. This could be used, for example, with CDS-TV so that any product changes would also propagate to the content delivery network.
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.

3 Click **Save**. The workflow should proceed as it was 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**.

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.

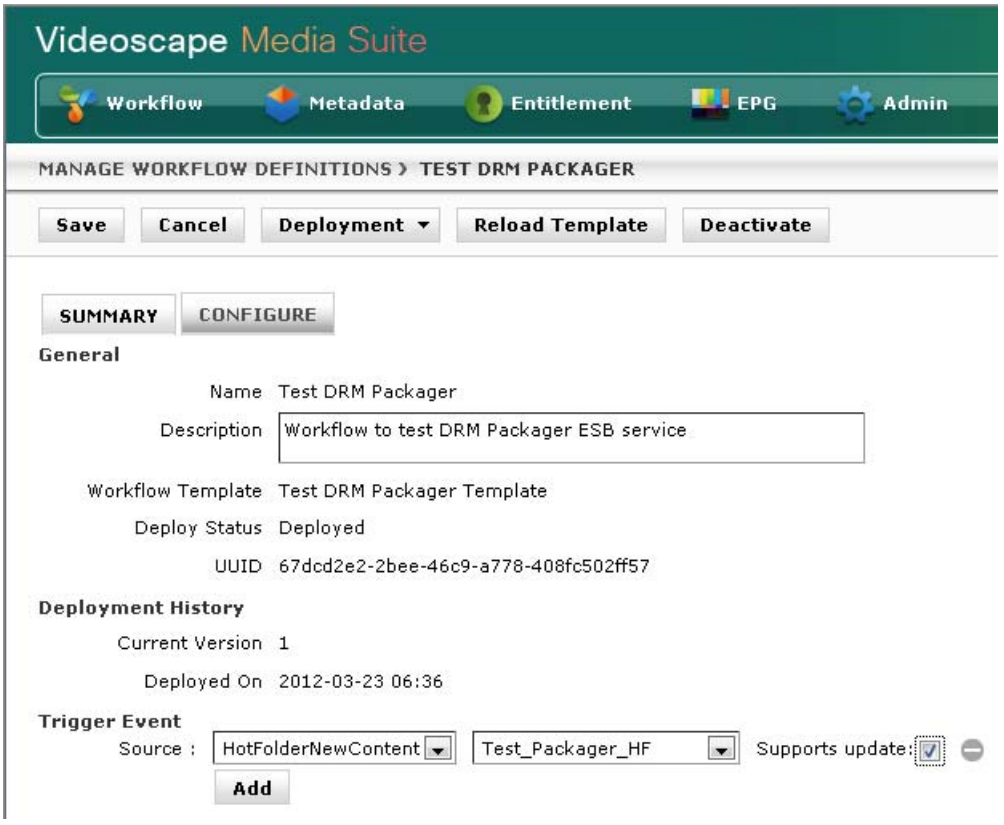
Related details are updated along with any physical asset updates. For example, if encryption or license information is updated for the new asset, those new values will be reflected in the physical asset metadata.

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 13 Supports update option on Workflow page



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**.

Chapter 5

Binding

This chapter includes the following information related to binding:

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 319.

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/Rocker_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/Rocker_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/Rocker_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/Rocker_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.

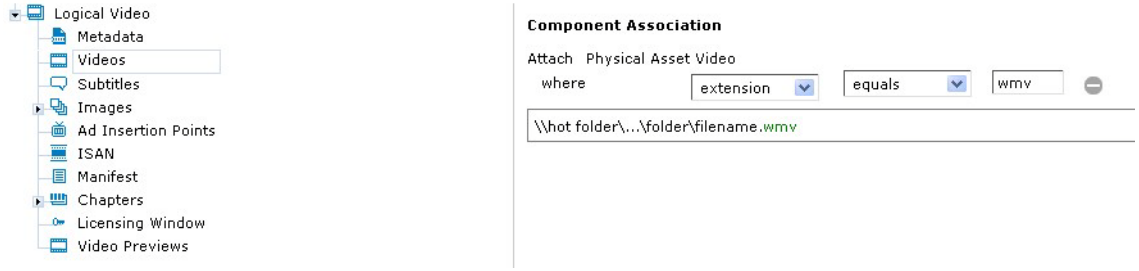
```
//hotfolder/bind ID/folder2/token1_token2.xml
//hotfolder/folder1/bind ID/token1_token2.xml
//hotfolder/bind ID//folder1/folder2/bind ID_token2.xml
//hotfolder/bind ID/folder1/folder2/token1_bind ID.xml
```

Figure 14 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 15 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 16 Setting Child Bundle Association Rules

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 127.
7. Set the bundle association rules.
   For more information, see “Bundle Association Rules” on page 48.
8. (Optionally) set a bind ID if it is required by your bind profile.
   For more information, see “Bind ID Association Rules” on page 48.

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 48.

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 49.

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 1and 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”.

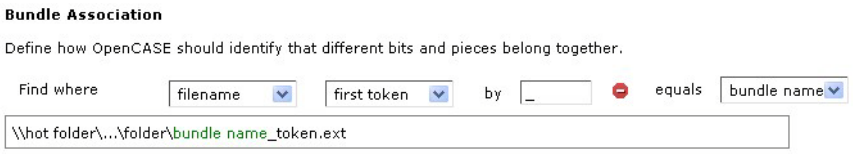
2 Click the plus sign to make the token choice options appear.

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 17 Setting Find Where Parameters



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 18 Setting the Bind ID

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 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.

Note Regular expressions, such as (pns|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 51. 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:

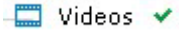
1. Click **Videos** on the bundle tree.
2. For **Attach Physical Asset Video where** select **extension** and **equals**.
3. Type `wmv`.

Figure 19 Physical Asset Video Component Association Rule

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.

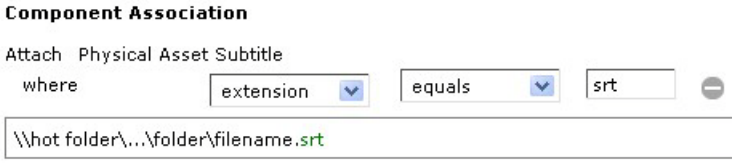
Figure 20 Successfully Configured Component Association Rule



6 At right, in “Attach Physical Asset Subtitle where” select "extension" equals.

7 Type "srt".

Figure 21 Physical Asset Subtitle Component Association Rule



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.

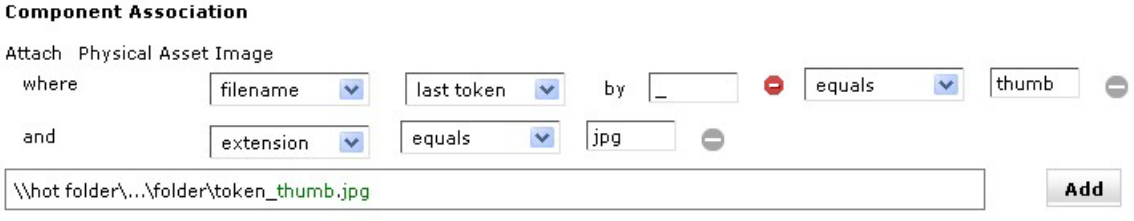
14 Select "equals".

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 22 Physical Asset Image Thumbnail Component Association Rule



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 23 Physical Asset Image Poster Component Association Rule

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.

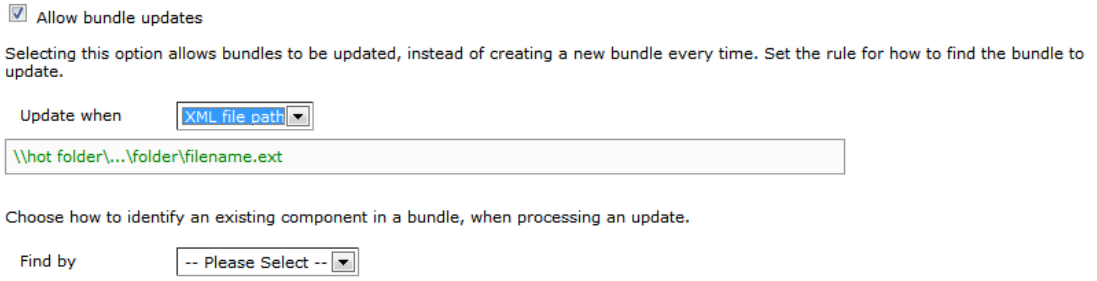
Updating Metadata with Bind Profiles

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 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 24 Update Bundle Metadata Options



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.

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 18 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, sbt, jss, ttxt, 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.
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, for example, to create products that are related to other products. This section will explain a sample scenario that uses bind functionality, but keep in mind that, given Media Suite's customizability, 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 principals 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 products:

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

The bind chaining process can automate the creation of the above three types of videos products, or the creation of any products 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 63.) 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 Products (individual episodes)
- Season Products
- Series Products

The workflows should adhere to the following rules:

- Each workflow should have its own bind profile. (You are binding by bundle type.)
- Each workflow does not need to have its own policy (for productization), but in our example we will use separate policies for video, season, and series products.
- Productization must be performed separately for bundles and subbundles.

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 VMS 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 VMS 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 VMS 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.

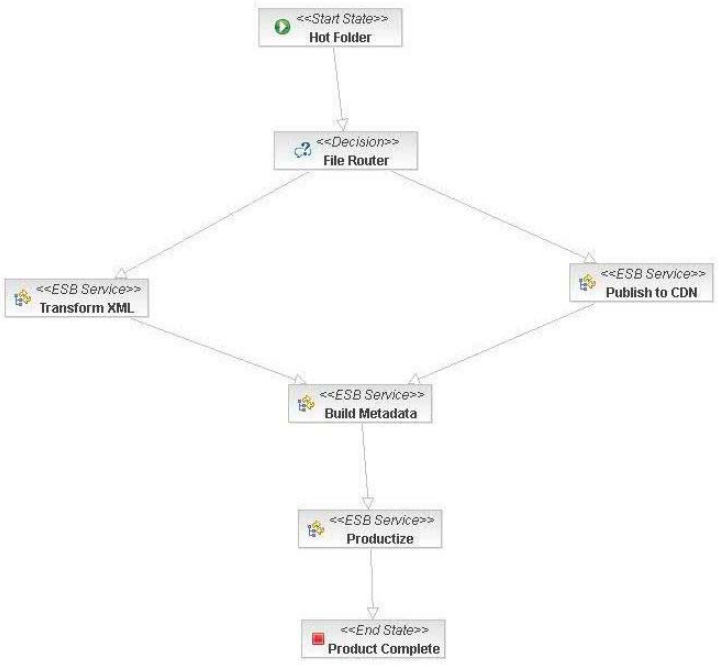
Build Metadata Node

- Runs Bind Profile #1 (Video Bind)

Productize Node

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

Figure 25 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="VZNX0000000000641566" 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"/>
         <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_PMRS843_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_PMRS843_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_PMRS843_641566_PV.mpg"/>
      </Asset>
   </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: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>
```

Chapter 6

Syndication

Syndication functionality allows distributors to deliver feeds that designate products in their catalog to one or more affiliates for sale on or distribution from multiple storefronts or web portals. The following chapter includes topics related to syndication:

- "Managing Affiliates", as shown below
- “Designating Products” on page 72

Managing Affiliates

An affiliate account must be created in order to syndicate content to related affiliate storefronts, and to authenticate and manage users of that affiliate.

In general, the steps for creating an affiliate are as follows:

1. Create the affiliate itself by entering the contact information.
2. (Optionally) set the authentication management custom class that will perform entitlement checks on all affiliate users. Provide initialization data for the custom class if necessary.
3. Create one or more affiliate administrator’s to manage this affiliate’s work.
4. Create the affiliate feed.

Creating Affiliates

To create an affiliate account:

1 Navigate to **Entitlement > Accounts > Affiliate**.

2 Click **Add New**.

3 Type an affiliate name.

4 Type an affiliate description.

5 Click **Create & Edit**.

6 On the MANAGE AFFILIATES page, enter the affiliate’s contact information (name, e-mail, and phone number).

7 Authentication management enables affiliates to optionally specify a custom authentication class and initialization data for that class. This initialization data is different from the data that you will pass to the entitlement check profile (within a policy) to evaluate a user’s eligibility for a rights token. For further information on entitlement checks, see “Entitlement Checks & Plugins” on page 81.

8 If applied in a policy, this authentication class will enforce the entitlement check for this affiliate.

9 Create an affiliate administrator to manage specific duties related to this affiliate. For details on creating affiliate administrators, see "Creating Affiliate Administrators" on page 72.

10 Create an affiliate feed to make catalog information specific to this affiliate available from Media Suite. For details on creating an affiliate feed, see "Creating Affiliate Feeds" on page 74.

11 Click **Save**.

12 Click **Activate**.

Creating Affiliate Administrators

Affiliate administrators are used to manage specific duties related to affiliates. Functionality may include access to web services or access to user management aspects of Media Suite for this affiliate's users.

To create an affiliate administrator:

1 Navigate to **Entitlement > Accounts > Affiliate**.

2 Go to an affiliate details page by either creating a new affiliate or by clicking an existing affiliate on the list.

3 At the affiliate administrator section, click **Add New**.

4 Type the desired username and password (with confirmation).

5 Select the roles that this affiliate administrator will need for their duties, as follows:
- affiliate_webservice (grants this administrator access to web services)
- affiliate_customer_support_admin (grants this administrator access to customer support functionality for this affiliate's users)

6 Select Account Enabled to make this account active.

7 If required, select a locale for this administrator.

8 Click **Save**.

Designating Products

Products from a catalog can be assigned to multiple affiliates so that they may be sold through multiple storefronts, web portals, or by other means. Prior to designating products, affiliates must be created within Media Suite. For details on creating affiliates, see "Managing Affiliates" on page 71.

Three ways in which products can be designated to affiliates:

1. By establishing affiliations within a policy prior to applying it to a bundle using a workflow. This is the main way in which products are designated to affiliates. For further details, see "Creating Policies" on page 87.
2. By selecting multiple products after a search. Click **Designate** to open a designate product dialog. This method is used for designating multiple products to one or more affiliates at once.

3. By iterating through multiple products after a search. Click into the details of one product within a result set. This allows you to cycle through the product set to make individual affiliation changes to each product within the set.

To designate products to the same set of affiliates:

1 Navigate to **Entitlement > Catalog > Products > Manage Products**.

2 Perform a search for the products that you would like to designate to affiliates. Wildcards are implied before and after your entered value.

3 Click **Search**.

4 Select the check boxes of the products to designate.

5 Click **Designate**.

Figure 26 Designate Product Dialog

6 From the drop-down list, select the first affiliate to which this product will be designated.

7 Click **Add**.

8 To add additional affiliates, click **Add** and select another affiliate.

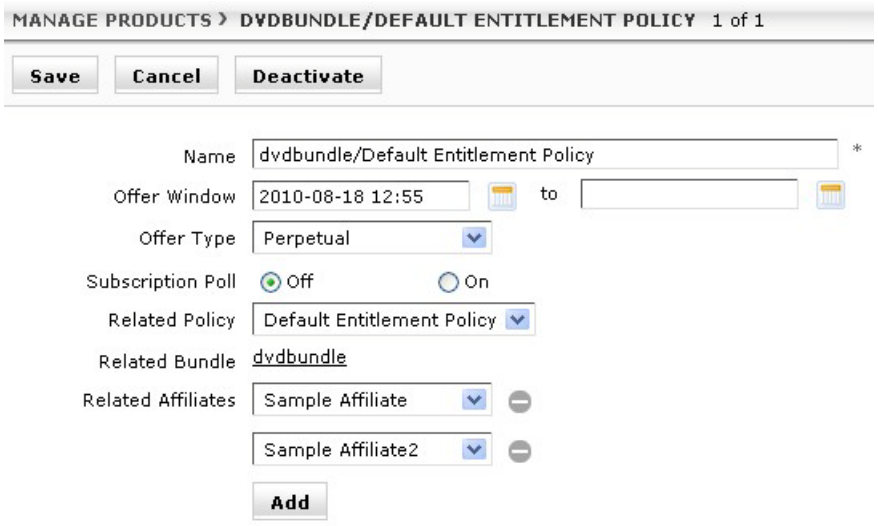
9 Click **Confirm** once all the required affiliates have been added.

To designate products within a list to different affiliates:

1 Search for the products that you would like to designate.

2 Click any underlined product name in the resulting list to view that product's details.

Figure 27 Manage Product Page



3 Click **Add**.

4 From the drop-down list, select the affiliate to which this product will be designated.

5 To select additional affiliates, and click **Add** and select another affiliate.

6 Once all the required affiliates have been added, click **Save**. A confirmation message will appear.

7 Click << to move back a record in the set or >> for move forward one record in the set. Records within the set are indicated by an X of Y naming convention (for example, record 3 of 10).

8 Make any require designation changes to each record.

9 Click **Save** to commit your changes. Once you have edited all the required products, you may click **Cancel** to return to the product listing or click any menu item to navigate to another part of the application.

Creating Affiliate Feeds

Affiliate feeds are used to send affiliates their specific catalog information. This information can then be repurposed for use on affiliate storefronts or web portals. Feeds can also be created within the **Entitlement > Catalog > Product > Product Feeds** menu. There is no difference between creating a feed in one location or another.

To create an affiliate feed:

1 Navigate to **Entitlement > Accounts > Affiliate**.

2 Go to an affiliate details page by either creating a new affiliate or by clicking an existing affiliate on the list.

3 At the affiliate feeds section, click **Add New**.

4 On the CREATE FEED dialog, type a name, description, and select a feed type. Feed types can be one of either, ATOM, RSS, Media Suite Classic ATOM, or any custom feed types that have been created.

5 Click **Create & Edit**.

6 The affiliate feed detail page will show the URL to access the feeds, as well as give you options to **Save**, **Preview**, or **Deactivate** the current feed.

Figure 28 Manage Feeds Page

Chapter 7

Digital Rights Management

The following chapter includes the following topics related to digital rights management:

- "Configuring DRM Types", as shown below
- “Creating DRM Profiles” on page 79

Understanding DRM

A domain refers to a collective group of personal computers or devices that can share licenses within the group. PCs and devices must be added to and removed from domains by either the domain server or by client storefront functionality.

Digital rights management within Media Suite is a two-step process that involves the assignment of DRM types to a domain (with PC and device restrictions), and then the detailed configuration of each DRM type within one or more DRM profiles. These DRM profiles will eventually be used in a policy to apply DRM settings to products.

Configuring DRM Types

The following section covers DRM configuration that must be set up prior to using any DRM within a policy. Three types of domains are available within Media Suite: unrestricted, interoperable, and inactive. Each DRM type may exist within only one domain.

The DRM domains within Media Suite are defined as follows:

Unrestricted Domains allow administrators to configure PC and mobile device registration limitations independently for each DRM type. Settings for each DRM type do not affect other DRMs that have also been assigned to the unrestricted domain. In addition, licenses are not shared between DRM types. The controller that manages this type of domain resides within the user’s ecosystem.

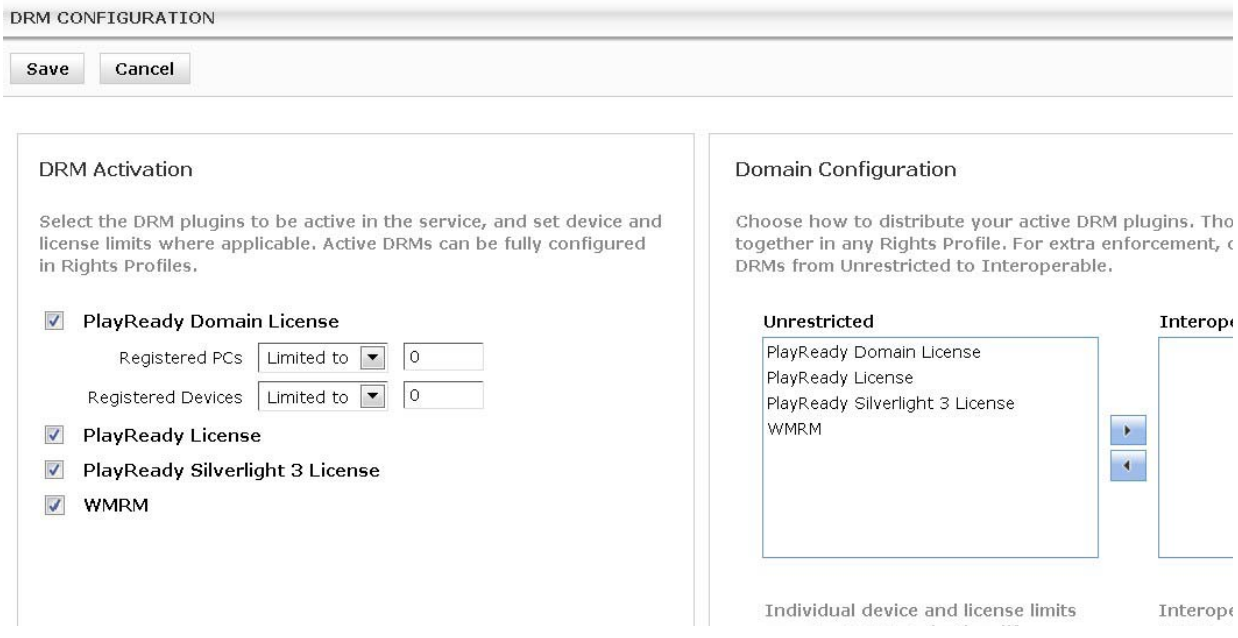
Interoperable Domains are an Media Suite construct that allows disparate DRM technologies to operate under a common set of restrictions. The restrictions apply to the number of PCs and mobile devices that can be collectively registered under those DRMs. Some DRM technologies do not inherently possess domain capabilities. When those DRM types are assigned to the interoperable domain, they must obey the overall device registration restrictions that have been specified across all DRM types assigned to that domain. The controller that manages this type of domain resides within Media Suite.

Inactive DRMs any DRM that is not assigned to either an unrestricted or interoperable domain may be considered inactive. Inactive DRMs cannot be assigned for use in profiles (and consequently policies).

To configure domains for DRM types:

1. Navigate to **Entitlement > Setup > DRM Configuration**. All DRM types that are available within Media Suite are listed at the left side of the page with options to select them for domain assignment. Unchecked DRM types are considered inactive.
2. Selecting a DRM type's check box makes the DRM type active on one of the domain panes at right. DRM types will be placed either in the Unrestricted or Interoperable column.
3. Select the DRM type name and click either the left or right facing triangle to move the DRM type between the Unrestricted and Interoperable domains.
4. To configure each active DRM type, you may specify the maximum limit for Registered PCs or registered portable devices that are permitted. The options are "unlimited" or you may limit registrations to a specific number. For Unrestricted domains, the PC and Device restrictions are displayed at left (where applicable). For Interoperable domains, the restrictions are listed below the Interoperable pane and will apply collectively to all DRM types.
5. Click **Save**.

Figure 29 DRM Configuration Page



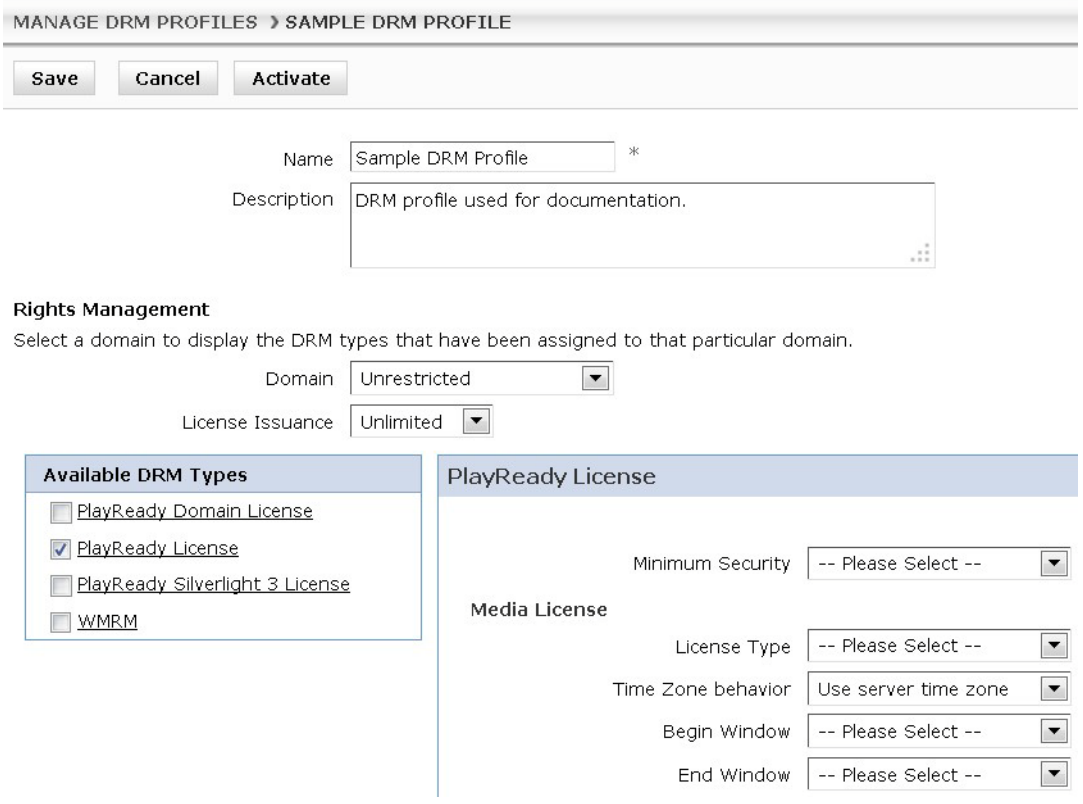
Creating DRM Profiles

Once you have configured your DRM types, you may use them within the creation of DRM profiles. DRM profiles provide a mechanism with which to customize specific digital rights management licensing options for any DRM encryption technologies that are installed with Media Suite. The specific parameters that you set on the rights DRM profile screen will establish the particular behaviors of that DRM type in this instance. As required, additional DRM profiles may be created to represent different behaviors for a given DRM. In addition, individual or groups of DRM technologies can be configured to work together for later inclusion within policies.

To create a DRM Profile:

1. Navigate to **Entitlement > Productization > Profiles > DRM Profiles**.
2. Click **Add New**.
3. Type a name and description for the DRM profile.
4. Click **Create & Edit**.
5. On the MANAGE DRM PROFILES page, select a domain type. Options are “Unrestricted” or “Interoperable”. When you select a domain, only the active DRM types assigned to that domain will appear for configuration purposes. If all DRM types in Media Suite are assigned to one domain, then this drop-down list will not appear.
6. Select a License Issuance option of either “Unlimited” or “Limited to”.
   - Choosing the “Limited To” option displays a text box so that you can restrict the number of persistent licenses (i.e. download licenses) that can be issued to each device within a domain. Also, checking the related “Include non-persistent licenses” option will include streaming licenses within the License Issuance limit.
7. (For the unrestricted domain only.) Select check a specific DRM type to make it active within this profile. Clicking an underlined DRM type name will display that type’s details.
8. Type or select the appropriate options for each DRM type. Configuration settings will vary for each type, but one option in particular is specific to Media Suite. For PlayReady Domain License, PlayReady License, and WMRM License profiles, a Time Zone Behavior option may be set. Parameters for this option include:
   - **Select time zone**, which displays a list of available time zones. Choosing a Time Zone will have the system use that zone for DRM license purposes.
   - **Use server time zone**, which uses the Media Suite server time zone.
   - **Use client time zone**, which uses the time zone specified by the client.

Figure 30 DRM Profile Details Page



9 Click **Save**.

10 Click **Activate**. This DRM profile will now be available for use within policies.

Note The previous example simply shows how to create a DRM Profile from within the Videoscape Media Suite user interface. For details on the specific settings and parameters available with the PlayReady or Windows Media Rights Manager DRMs, visit the Microsoft website.

Chapter 8

Entitlement Checks & Plugins

This chapter includes the following topics related to the creation and management of entitlement check profiles, entitlement plugins, and other Media Suite plugins:

Understanding Entitlement Checks

Entitlement checks are a set of requirements that determine whether or not a user fulfills certain criteria to purchase or obtain digital media from a particular affiliate or from Media Suite in general. These checks are created on their own screens, but selected for use within a policy.

Once users have passed an entitlement check, they are granted rights that are not rechecked or revoked for existing licenses that have already been issued. These rights are, however, rechecked and can be revoked prior to issuing future licenses. Keep in mind that entitlement checks are the general rights to purchase a product from a storefront, and that they must not be confused with DRM licenses that may be separately granted for individual products.

Note In the context of this guide and on the Media Suite interface, users are consumers that will be viewing or consuming products that have been created within Media Suite.

Default Entitlement Checks

The following default entitlement checks are included within Media Suite:

Table 19 Default Media Suite Entitlement Checks

Name	Description
RIGHTS LOCKER TOKEN	Checks whether: • the relevant Account is active • the requested Product is active • an entitlement exists for the Product for the specified Account • the entitlement status is NEW or REISSUED • the subject Component is in the Bundle that is linked to the entitled Product • for license requests, it tests that the license issuance limit has not been reached for the subject component.

Table 19 Default Media Suite Entitlement Checks

Name	Description
SIMPLE RIGHTS LOCKER TOKEN	A simplified implementation of the rights locker token entitlement check. This checks whether: • the relevant Account is active • an entitlement exists for the Product for the specified Account • the entitlement status is NEW or REISSUED
LICENSE ISSUANCE LIMIT EXCEEDED	Checks whether the license issuance limit has not already been reached for the relevant Component.
VERIFY COMPONENT IN PRODUCT BUNDLE	Checks whether the subject Component is in the Bundle that is linked to the entitled Product.
PRODUCT ACTIVE CHECK	Checks whether the relevant Product is active.
REQUIRE INTEROPERABLE DOMAIN REGISTRATION	Checks whether the user credentials include the device ID of an active device that is registered to an authenticated account.
TARGET DEVICE	Checks if the TargetDevice common entity (of the Physical Asset specified by the component ID in the user credentials) matches a list that is loaded on plugin initialization.
ASSET FORMAT	Checks if the AssetFormat common entity (of the Physical Asset specified by the component ID in the user credentials) matches a list that is loaded on plugin initialization.
LICENSE WINDOW - USE SERVER TIME ZONE	Product license windows will be evaluated relative to the server time zone.
LICENSE WINDOW - USE CLIENT TIME ZONE	Product license windows will be evaluated relative to the client time zone.

Managing Entitlement Check Profiles

This section details procedures related to managing entitlement check profiles.

Creating Entitlement Check Profiles

Entitlement checks can be performed for all of Media Suite and/or for specific affiliates by selecting default plugins or adding custom plugins to Media Suite. Entitlement plugins may accept and assess name/value pairs or other criteria to perform user requirement validation. For example, DRM = PlayReady, or user = Gold Member. Custom entitlement plugins must be programmatically added to Media Suite prior to being made available. For additional assistance on creating custom entitlement check plugins, consult with your Cisco Systems Advanced Services representative and reference the *Media Suite Developer Guide*.

To create an entitlement check profile:

1 Navigate to **Entitlement > Productization > Profiles > Entitlement Checks**.

2 Click **Add New**.

3 Type a name and description for your new profile.

4 Click **Create & Edit**.

5 Select the logic that will be applied to the list of plugins that you will configure. Options are: ANY or ALL. Selecting ANY means that the user will pass the entitlement check if any global or affiliate-specific criteria evaluate to TRUE. The ALL option mandates that all specified criteria must be TRUE in order for the user to receive entitlements.

6 Click the topmost **Add New** to add a new row showing all available default and custom entitlement checks. For details on the default entitlement checks, see "Default Entitlement Checks" on page 81. For information on creating custom entitlement checks, consult the *Media Suite Developer Guide*.

7 Select an entitlement check from the drop-down list.

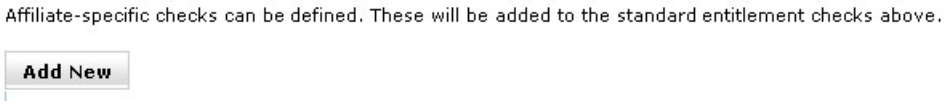
8 Click the + sign to the right of the plugin name. Criteria specific to that entitlement check will be presented. Depending on the plugin, you may have to select a value from a drop-down list, or enter a name/value pair.

- Clicking the + sign to the right of the name value pair adds additional criteria to be evaluated by the plugin. The specific criteria will vary depending on the entitlement check that has been selected.
- Clicking the ✖ sign removes the criteria on that line.
- Clicking the ⊖ sign removes all of the current plugin's criteria checks.

9 Add additional sets of plugins and criteria as required.

10 To create optional affiliate-specific entitlement checks, click the **Add New** button closest to the bottom of the page and repeat the same process that you performed for the global entitlement checks above.

Figure 31 Adding Affiliate-specific Entitlement Checks



11 Select an affiliate from the drop-down list.

12 Select an entitlement check plugin name from the drop-down list.

13 Click the + sign to the right of the plugin name to add criteria specific to the plugin. In the following example, a name/value pair of member="gold-tier" will be evaluated by the plugin.

14 Add additional sets of affiliate-specific plugins and criteria (if required).

15 Add more Affiliates with their own plugins and criteria (if required).

16 Click **Save**.

17 Click **Activate**. Activating an entitlement check makes it available for use within policies.

Editing Entitlement Check Profiles

When you make changes to entitlement checks, they will propagate to all products that were created by the policy.

To edit an entitlement check profile:

1 Navigate to **Entitlement > Productization > Profiles > Entitlement Checks**.

2 Click the underlined entitlement check profile name to see the entitlement check details page.

3 Make your changes to the entitlement check profile.

4 Click **Save**.

5 A confirmation dialog will appear. Read the warning and be aware of products or rights tokens that might be affected by the change.

6 Click **Confirm**.

Deactivating Entitlement Check Profiles

Entitlement checks cannot be deleted, but they can be deactivated. Deactivating an entitlement chain profile prevents it from being applied to policies in the future. Existing policies and previously granted rights, however, are not affected.

To deactivate an entitlement check profile:

1 Navigate to **Entitlement > Productization > Profiles > Entitlement Check**s.

2 Click the underlined entitlement check profile name.

3 Click **Deactivate**.

4 Click **Confirm**.

Media Suite Plugins

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

- **Product-Change Plugins**, which notify the system when changes have occurred in a product entity so that actions can be performed.
- **Notification Plugins**, which notify the system when non-product entities, such as components or bundles have been changed.
- **Entitlement Check Plugins**, which perform custom verifications to ensure that a consumer is entitled to view requested content.

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.

To configure plugins within Media Suite:

1 Navigate to **Entitlement > Setup > Plugins > Entitlement Check Plugins | Entitlement Notification Plugins |Product Resolution 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 20 Entitlement Check Plugin Fields

Field	Description
Name	The name of the Entitlement Check plugin.
Description	A description of the plugin.
UUID	A universally unique identifier that is generated by Media Suite.
Plugin Class	The full Java plugin class name, including the package.
Affiliate	Select the affiliate to which this entitlement check class will be applicable.

Table 21 Entitlement Notification Plugin Fields

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

Table 22 Product Resolution Plugin Fields

Field	Description
Status	Displays the Active or Inactive state of this plugin.
Name	The name of the Product Resolution plugin.
Plugin Class	The full Java plugin class name, including the package.
Modified	A date stamp indicating when this plugin was last modified.

5 Click **Save**.

6 For “Product Change” and “Notification” plugins, click **Activate**. Once activated, the plugin should be ready for use. For the Entitlement Check Plugin, you will need to further configure your Entitlement Check as described in “Creating Entitlement Check Profiles” on page 82.

Chapter 9

Policies

This chapter includes the following topics related to policies.

Understanding Policies

Policies are a mechanism to establish a set of business rules that will be applied to bundles to create a product. When a policy is applied to a bundle, some of the characteristics of that policy become stamped onto the product at the time of creation, while others continue to be dynamically linked to the policy.

Within policies, you can configure the following options:

- offer windows
- affiliate designations
- offer types
- subscription polling
- DRM profiles
- entitlement checks
- charge types
- ad support

Once each of the previous options is configured according to your requirements, you need to activate the policy so that it can be used for productization.

Managing Policies

The following section explains how to create, activate, and deactivate policies.

Creating Policies

To create a policy:

1 Navigate to **Entitlement > Productization > Policies**.

2 Click **Add New**.

3 Type a policy name and description.

4 Click **Create & Edit**.

5 Populate the policy fields with relevant values. The following table illustrates the available fields for a policy:

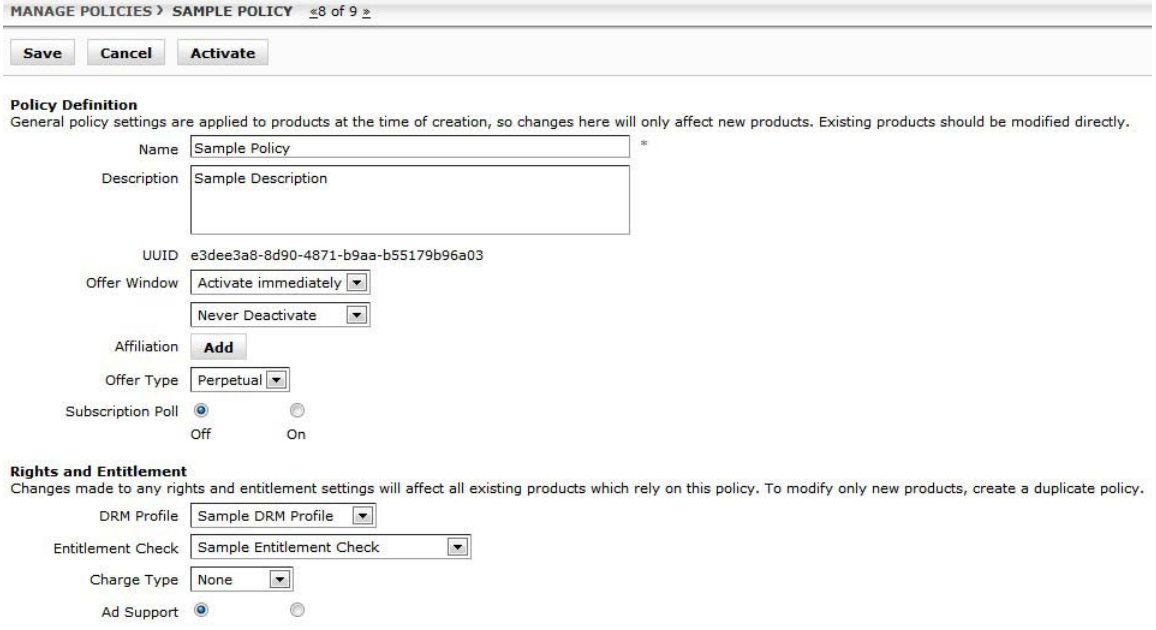
Table 23 Policy Fields

Field	Description
Name	The name of the policy. This should already be populated with your initial values. A sample name might be: 2-screen 3-view VOD / $4.99 with ad support
Description	The policy description. This should already be populated with your initial values.
Offer Window	Sets a start and end offer period for any products that will be created using this profile. Active products within an offer window will be output to any feeds requested from Media Suite. The following product activation options are available: • Activate immediately, which activates the product from the moment of creation. • Activate in, which provides additional options to activate products in a specified number of days at a specific time. Time units are entered using a 24hr clock. • Activate on, which provides a calendar control for entering a specific date. • Activate on license start, will activate the product to coincide with the start date specified by the Licensing Window component within the bundle. The following product deactivation options are available: • Never deactivate, which is where the product never expires. • Deactivate after, which provides additional options to deactivate products in a specified number of days at a specific time. Time units are entered using a 24hr clock. • Deactivate on, which provides a calendar control for entering a specific date. • Deactivate on license end, will deactivate the product to coincide with the end date specified by the Licensing Window component within the bundle. **Note** If the Licensing Window component does not exist, a fail-safe exists where Media Suite will set the offer window in the past.
Affiliation	Click **Add** to set the affiliates that will receive this product. After this profile has been used to create products, affiliates can later be added or removed directly within the product detail page. For information on creating affiliates, see “Syndication” on page 71.
Offer Type	Sets the type of offer, which is a field value that is used within feeds for categorization purposes. Functionally, these field values have no purpose within Media Suite. Options are “perpetual” and “rental”. Offer types may be changed at any time within the product detail page.

Table 23 Policy Fields

Field	Description
Subscription Poll	Sets whether a downstream system should periodically poll for new content.
DRM Profile	Select a previously created DRM Profile. DRM profiles provide a centralized location to set the underlying details pertaining to each type of rights management technology. For further information, see “Digital Rights Management” on page 77.
Entitlement Check	Select a previously created Entitlement Check. Entitlement checks are criteria that must be fulfilled in order for a user to have the right to purchase a product. These requirements may be customized for each affiliate. For further information, see “Entitlement Checks & Plugins” on page 81.
Charge Type & Charge Amount	Options are “None”, “OneTime”, and “Repeating”. If you select one time, you must enter in a decimal value for the charge as well as select a pre-defined currency that the charge will be billed in. The charge amount is a suggested price and is not in any way enforced by Media Suite. Billing aspects are intended to be managed externally to Media Suite. If you select a repeating charge option, then you must additionally select the number of iterations that the specified charge will repeat for. For further information, see “Configuring Charges” on page 91.
Ad Support	Turning Ad Support on brings up additional options to specify the maximum number of advertisements that can be designated for pre rolls (played before the content), mid rolls (played within the content), and post rolls (played after the content). Ad insertion points are specified as part of the bundle.

Figure 32 Policy Details Page



6 Click **Save**.

7 Click **Activate**. Activating a policy makes it available for use in creating products.

Editing Policies

Polices may be edited after creation. This section explains how to make policy changes and indicates the possible implications of those changes to existing products.

Note For Media Suite release 4.1.2 (and newer), policy changes will not trigger internal feed regeneration.

When applying a policy to a bundle, keep in mind that some policy settings are stamped into the product. To make changes to those settings, you will need to edit the product details directly. Other parameters, however, are dynamically associated to the policy and will only change if the policy itself is modified. Those policy changes will then propagate to all products that were created using the policy.

Policy settings that are fixed within products include:

- Name
- Description
- Offer Window
- Affiliations
- Offer Type
- Subscription Polling

Rights and Entitlement settings are dynamically linked to the original policy. These settings include:

- DRM Profile
- Entitlement Check
- Charge Type
- Charge Amount
- Currency
- Ad Support
- Number of ads per roll

Warning Prior to making changes to rights and entitlement settings, you should consider the implications of those changes as they may effect existing products. For example, changing a DRM Profile may have no effect on a purchase-to-own product as the product will continue to work as it did with its previous license. Changing a DRM Profile for a 5-play product, however, may break existing products if a new DRM technology is used, as the user may have to download updates to their system.

To edit a policy:

1. Navigate to **Entitlement > Productization > Policies**.
2. Click the underlined policy name.
3. Make any required policy changes.
4. Click **Save**.

5 Click **Confirm** after reading the policy update dialog. The dialog will indicate any products and workflow definitions that are affected by your changes.

Deactivating Policies

Policies may not be deleted, but they may be deactivated.

To deactivate a policy:

1 Navigate to **Entitlement > Productization > Policies**.

2 Click the underlined policy name.

3 Click **Deactivate**. A warning message will appear.

4 Click **Confirm**.

Configuring Charges

Charges establish a suggested price for a product. They are set within profiles, and are not enforced in any way within Media Suite. Once a charge is set or changed within a profile it will propagate across any products that were created using the profile.

To configuring a charge:

1 Navigate to **Entitlement > Productization > Policies** and either create a new policy or click an underlined policy name to edit an existing policy.

2 Select a charge type. If you select “None” then no other values need to be entered. When selecting “OneTime”, you will need to also select a predefined currency and then enter a decimal value. If you select “Repeating”, then you will need to specify how many times to repeat the charge, the value of the charge, and the predefined currency that the charge will be made in. If the repeating value for a charge is left blank, then the charge will recur indefinitely until the subscription is terminated.

3 Set all other policy parameters.

4 Click **Save**.

Understanding Ad Support

Profiles provide the ability to enable and define ad support for products. This causes ad-specific information, such as the roll count/position and ad insertion points (starting positions) to be included within feeds, which can then be managed by a third party system.

The general process for implementing advertising is as follows:

1. Turn ad support on within the policy.
2. Specify the recommended number of pre rolls, mid rolls, and post rolls.
3. Create ad insertion point components.
4. Media Suite binds the ad insertion points to the bundle.
5. Media Suite generates a feed that contains advertising (and other) information.

6. An external system interprets the feed's ad information and inserts advertising where specified.

Configuring Advertising

Advertising is configured within the context of a policy.

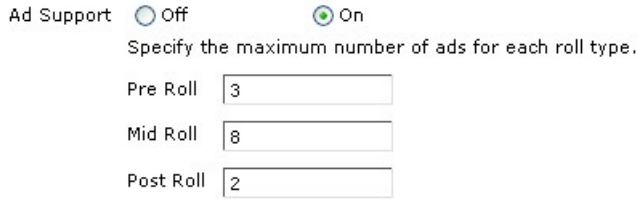
To set advertising for a product:

1 Navigate to **Entitlement > Productization > Policies**.

2 Enable the Ad Support option by selecting "On". This will display ad roll text boxes.

3 Type the required number of pre roll, mid roll, and post rolls.

Figure 33 Ad Support Options



4 Click **Save** once all policy options are configured.

5 Click **Activate** to make the policy available for use in productization.

Chapter 10

Monitoring Workflows and Tasks

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

Monitoring Workflow Instances

With the implementation of rule-based functionality within Videoscape Media Suite, a need has arisen to enhance workflow representations and control within the Media Suite user interface. These enhancements will 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, of completed) 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 modified to address errors Activity can then be resumed, or terminated, as required.

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

Workflow instances can be viewed at a high level in three different states, each of which has its own tab. The three states are: IN PROGRESS, ERROR, AND COMPLETED. This section describes how to view workflows, and how to use the resulting options that are available in each state.

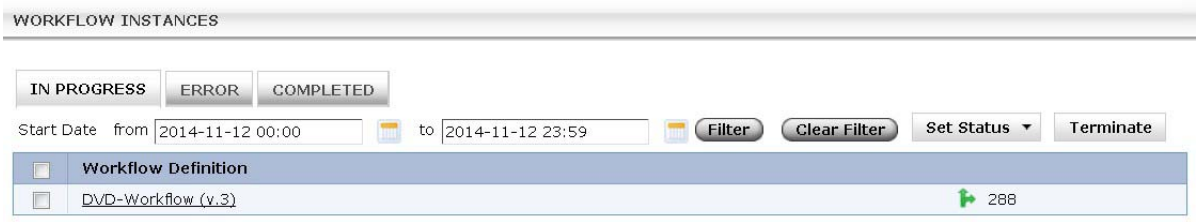
Viewing In Progress Workflows & Instances

In progress workflows can be viewed in two different ways: on an initial list page, which shows the workflows that are in progress, and in a more detailed manner where workflow instances are shown.

To view in-progress workflows and workflow instances:

1. Navigate to **Workflow > Monitor > Workflow Instances**.
2. Click the **IN PROGRESS** tab. You will see a view of all workflows that are in progress as of the current day. Optionally clicking **Clear Filter** will clear the date time filter and shows you all records in the system.

Figure 34 Workflows In Progress View



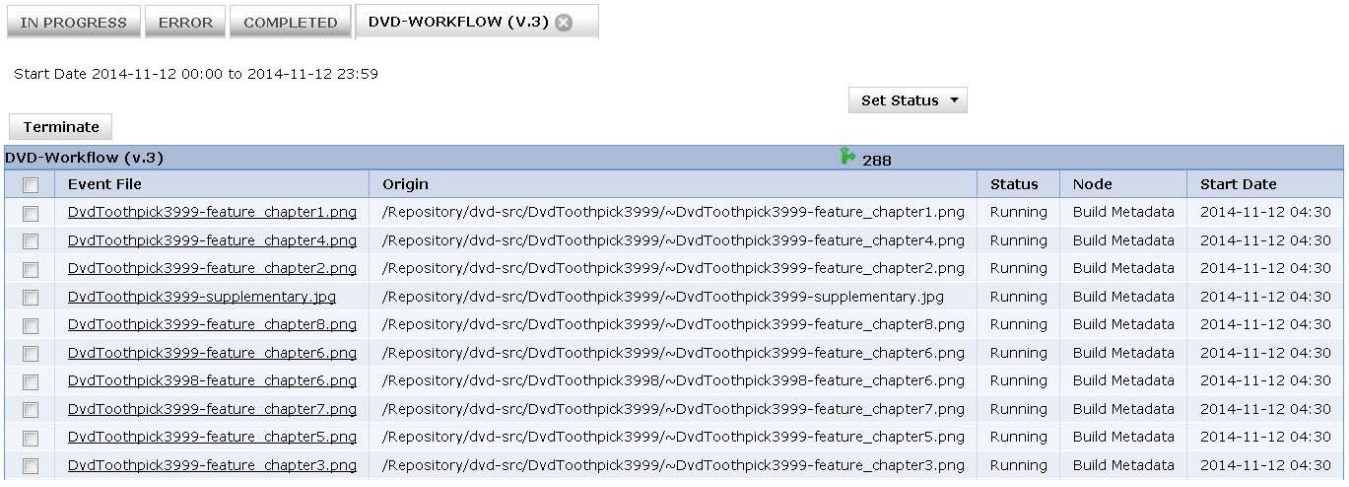
The status indicator show that 288 instances are currently running. Hover your mouse over any status indicators to see an explanation of their meaning.

Check the box to the left of one or more workflow definitions to control the running state of the workflow. 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 be typically resumed after making changes to the workflow context.
- **Terminate** - to terminate a workflow that is in progress

3 Click any underlined workflow definition name to open a new tab showing all workflow instances that are in progress.

Figure 35 Workflow Instances in progress for a Workflow Definition



4 As with the workflow definitions, workflow instances that are in progress may either be suspended (if running), resumed (if suspended).

5 Click an underlined instance name to display the workflow instance details. For more information on viewing and working with workflow instance details, see “Viewing Workflow Instance Details” on page 95. When viewing workflow instances, the same tabs (WORKFLOW IMAGE, DETAILS, EVENT DATA) will appear, regardless of state. Only

Viewing Workflow Instance Details

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

- 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 will depend on the state of the workflow and will be the same options that are available for the workflow definition and workflow instance listings. Options per workflow state are:

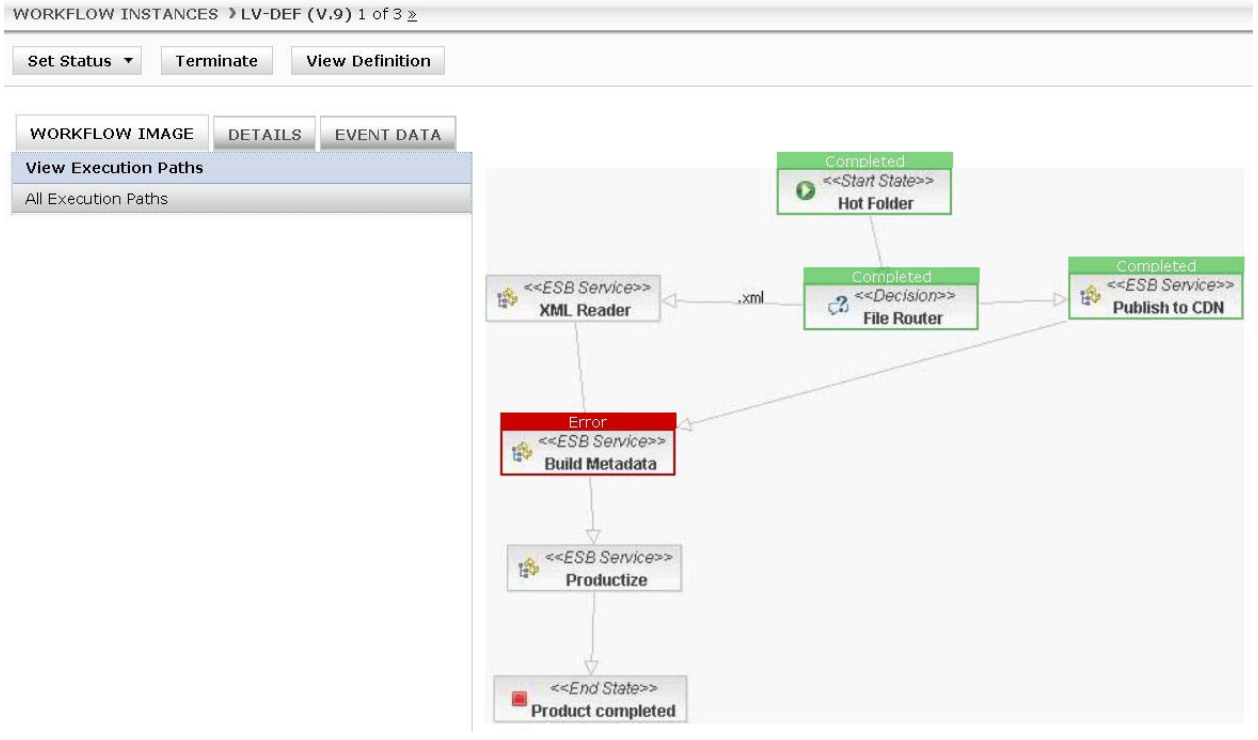
  In Progress - has **Set Status > Suspend**, **Set Status > Resume**, and **Terminate** options. Terminate is used to permanently stop in progress workflows or instances.

  Error - has **Set Status > Suspend**, **Set Status > Resume**, and **Delete** options.

  Completed - has the **Delete** option for removing complete workflow instances. The **Set Status** options on this page are not relevant for completed workflows.

Note All workflow instance pages will have the **View Definition** option, with which you can automatically navigate 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 38.

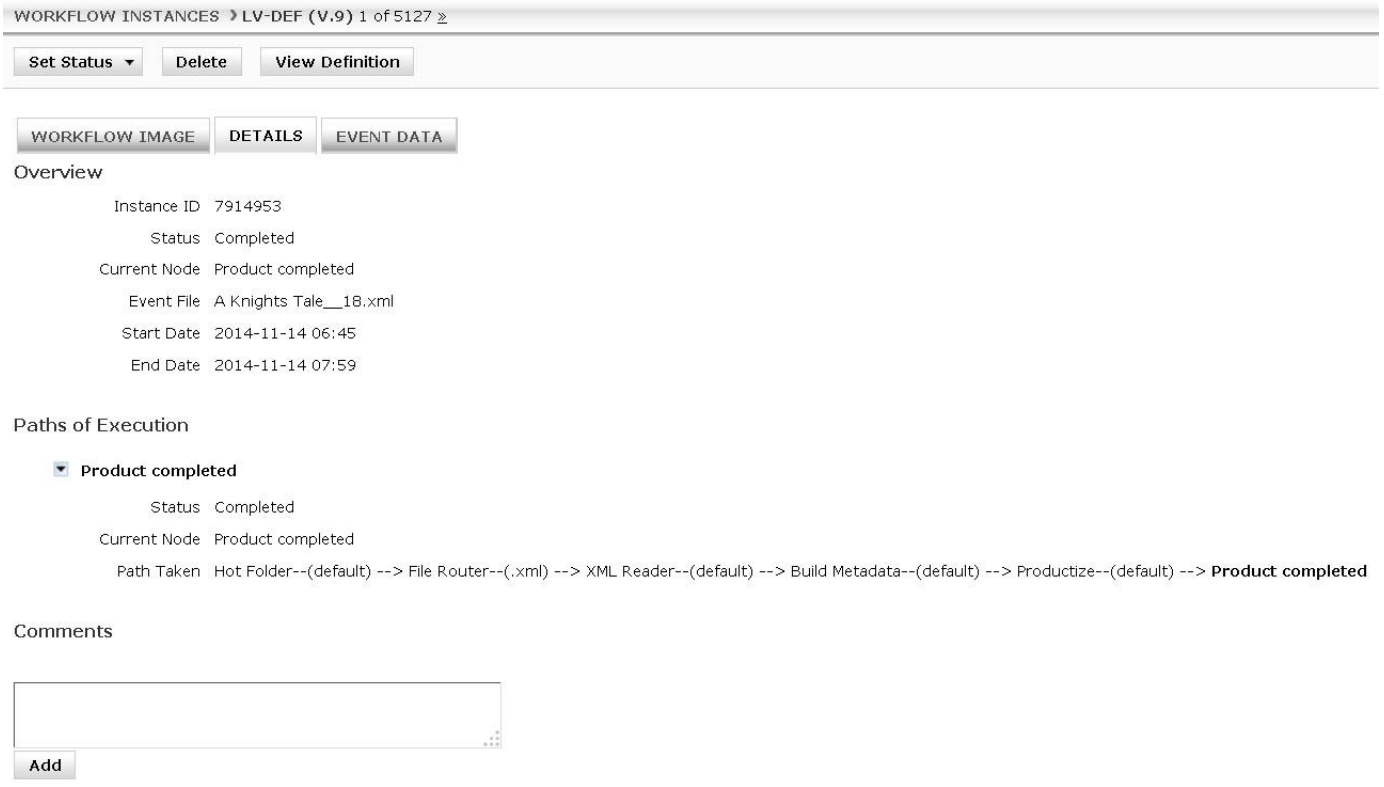
Figure 36 Workflow Image Tab for a Workflow Instance



- 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.

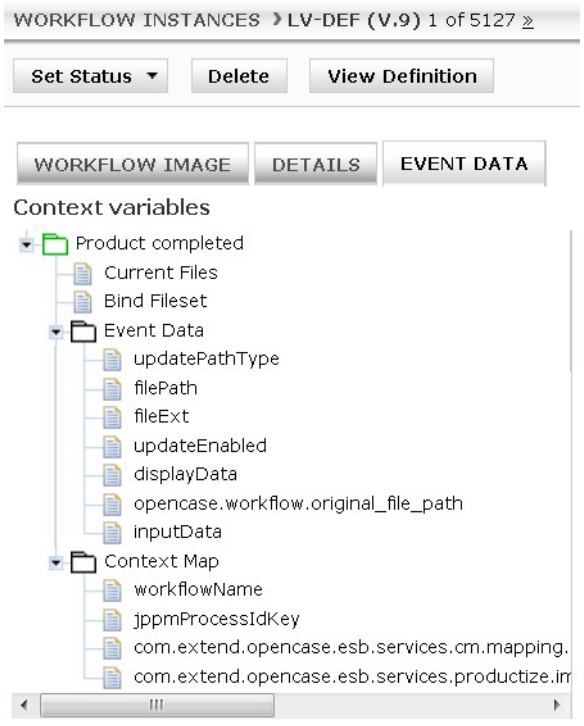
Figure 37 DETAILS Tab for a Workflow Instance



- Event Data

  Shows context variables related to the current workflow instance. That 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 38 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**

  Deletes a workflow instance from the page listing.

- **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 Terminate the workflow or workflow instance.

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 95.

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 95.

Note When a workflow is deleted, any tasks associated with that workflow are automatically deleted from the task monitor. For more information, see Table 24 below, named "Effect of Various Workflow Instance Actions on Workflow Tasks".

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 24 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.

Chapter 11

Objects

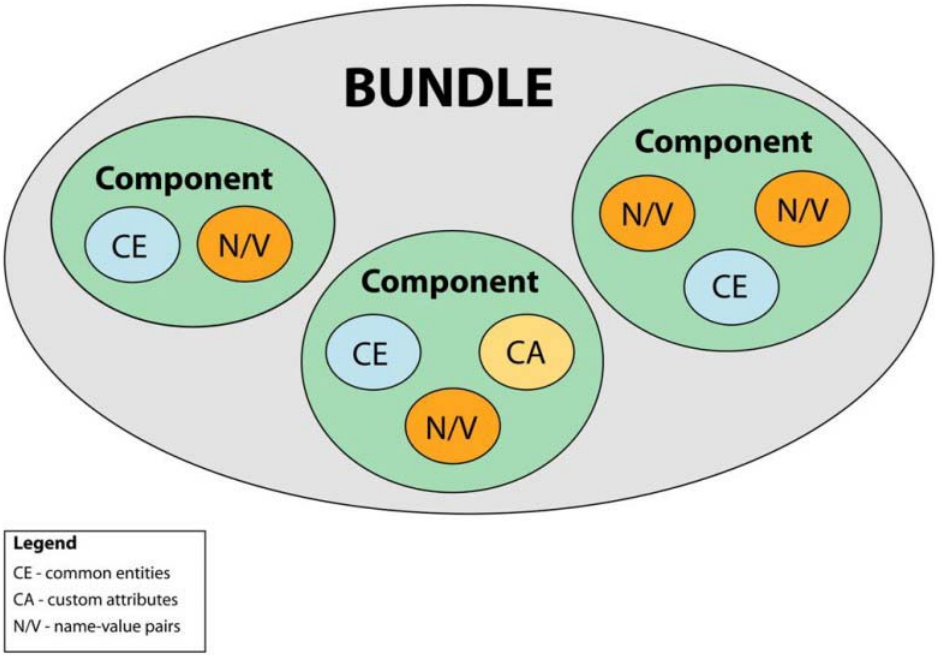
This chapter provides the following topics related to Media Suite objects:

- "Understanding Media Suite Objects", as shown below
- “Understanding Bundles” on page 112
- “Managing Custom Attributes” on page 108
- “Managing Components” on page 102
- “Managing Bundles” on page 112

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 39 Bundle Composition



In short:

- Components are comprised of name-value pairs, common entities, and custom attributes.
- Bundles are comprised 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 a large number of 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 need to be displayed. Deleted objects, however, do not exhibit this behavior, and are automatically updated once a deletion occurs.

Note Object caching is controlled by "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, and are located in the System Configuration tree at `Modules > EM > caching > {ItemName}.ttl`. After changing any caching values, JBoss must be restarted in order for the new values to take effect. For further details, see "System Configuration" on page 166.

Understanding Components

Components are comprised 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 will need to 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, file name, and MIME type. Whether other component fields are populated depends on your workflow. If you transcode within your workflow, for example, then Media Suite will add 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 is explained mostly 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. Click **Create & Edit**.

5 Populate the component fields with required information. Available fields will vary from component to component, but in general, physical asset component types will contain a link to the physical file, while metadata component types include descriptive information about the related media. Mandatory fields are indicated by 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 25 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 will be 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	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 112
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.

6 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. If you need to edit common metadata for multiple components, then you should 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 would like to edit. For instructions on searching, see "Searching in Videoscape Media Suite" on page 10.
3. Click the underlined name of the component you would like to edit.
4. Make the required changes to the component metadata.
5. Click **Save**. The modified date field within the component will automatically be updated to indicate when your changes were made.

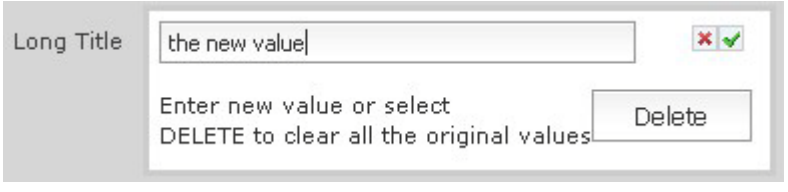
Bulk Editing Components

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 care should be taken when using bulk edit functionality.

To bulk edit components:

1. Navigate to **Metadata > Components > Manage Components**.
2. Select the Component Type that you would like to search for. If this selection is not performed, then the **Bulk Edit** button will not be enabled when the search results are shown.
3. Search for the components that you would like to bulk edit by entering your search criteria and then clicking **Search**. For instructions on searching, see "Searching in Videoscape Media Suite" on page 10.
4. Select the components that have fields that you would like 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 on 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.
   - Click the x to close the text box.
   - Click **Delete** to clear all values that presently exist in the field across all selected components.

Figure 40 Bulk edit new value dialog



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 would like to delete. For instructions on searching, see "Searching in Videoscape Media Suite" on page 10.

3 Select the components that you would like 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 language-selection options. Common entities can be one of the following:

- 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.

- Genre

  Accepts a text string as a content genre.

- Price Category

  Accepts a numerical value as a price. Additionally, Tier and Region codes may be selected from existing values. Lastly 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.

Note Tier and Region codes can be managed within the 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.

- 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 a 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, director, lyricist, producer, or writer. In addition, localize settings must be chosen that specify whether the talent is available for all Media Suite languages or one or more specific languages. An example of a talent entity would be: Stephen King (Writer & 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. The options are: Any (which searches all types), Advisory, Category, Genre, Rating, Style, and Talent.
3. Type a string for the common entity name that you would like to find. For instructions on performing a search, see "Searching in Videoscape Media Suite" on page 10.
4. Click **Search**.

Creating Common Entities

Common entities may be created either on a dedicated common entity page (as described below) or within the Metadata of a component by pressing the symbol.

To create a common entity:

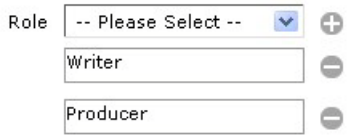
1. Navigate to **Metadata > Common Entities**.
2. Click **Add New** and select the desired entity type. The following example will create a common entity of type Talent, but each type will have its own requirements. See "Understanding Common Entities" on page 105 for details on entity types and required values.
3. Type a Display Name. This is the name that will appear when this common entity is chosen in a form.

4 Type the talent's first name.

5 Type the talent's last name.

6 Choose one or more roles from the drop-down list. After making a selection, click ⊕ to add the selection to the list. Click ⊖ to remove a selection from the list.

Figure 41 Multiple Common Entity Roles



7 Choose a Localize option, which specifies any languages that the common entity will be available for. 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 you must select one or more languages by using the same drop-down list and button mechanism that was used when selecting roles.

8 Click **Save**.

Editing Common Entities

To edit a common entity:

1 Navigate to **Metadata > Common Entities**.

2 Search for the common entity that you would like to edit. For instructions on performing a search, see "Searching for Common Entities" on page 106.

3 Click the line showing the common entity that you would like to edit.

4 Make the desired changes to the common entity.

5 Click **Save**. If you edit a common entity that consists of multiple entries, for example a person that is a producer as well as an actor, then any changes you save will propagate to all entries in Media Suite.

Deleting Common Entities

To delete a common entity:

1 Navigate to **Metadata > Common Entities**.

2 Search for the common entity that you would like to delete. For instructions on performing a search, see "Searching for Common Entities" on page 106.

3 Select the check box to the left of the common entity that you would like 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 specific components with custom metadata fields. These fields can be populated with values entered by an administrator; by a default value; or by selecting a value from a list. Once defined, these values should be included as part of the specified component's standard metadata set.

As a best practice, we recommend that you judiciously create and apply custom attributes to your components. 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.

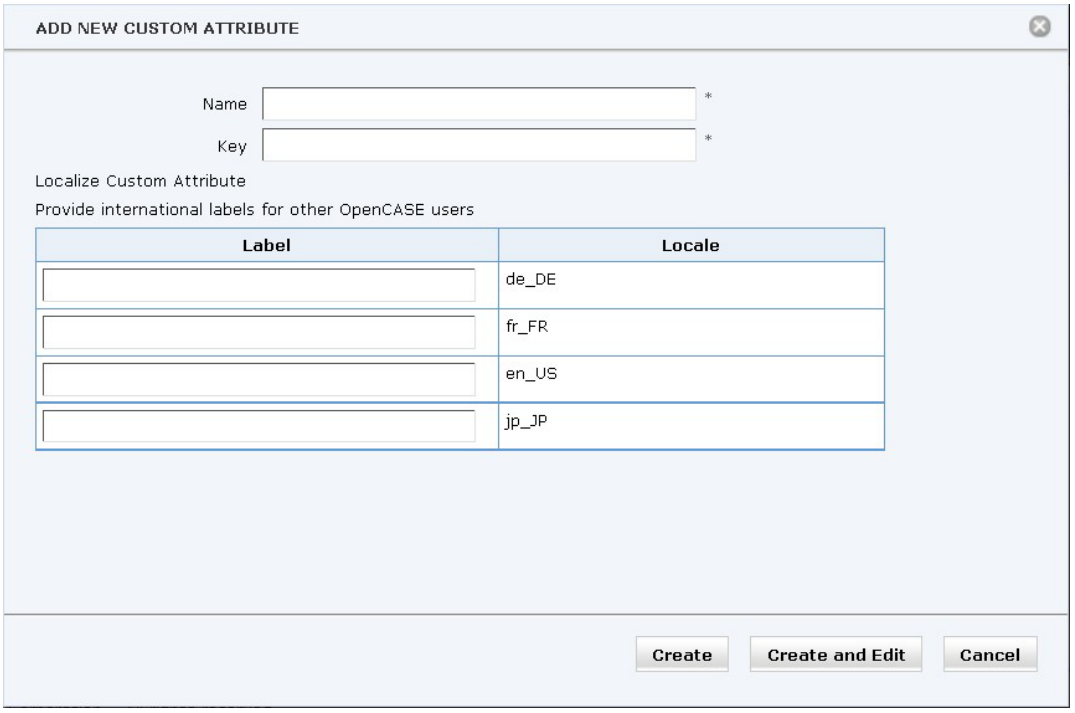
Creating Custom Attributes

To create a custom attribute:

1 Navigate to **Metadata > Setup > Custom Attributes**.

2 Click **Add New**.

Figure 42 Adding a New Custom Attribute



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. 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 26 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.
Type	Assign a data type to the custom attribute. Available options include: string, integer, date, double, and clob.

Table 26 Custom Attribute Fields

Field	Description
Mode	Select a mode that dictates the behavior of the custom attribute field. Options include: "User entered", and "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. **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.
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 dependant on 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 a component from the list and click ⊕. Once saved, this custom attribute will be added as a metadata field for that component. A custom attribute will not be available for publishing until it has been assigned to one or more components for use. Clicking the ⊖ beside a component name removes this custom attribute from that component.

6 Click **Save**.

7 Click **Publish** to make the custom attribute available within the chosen components. 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.

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.

To enforce this best practice, in this release 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 would like 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 would like 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 or product.

Understanding Bundles

Bundles are customizable objects that conform to a template and that are created when components, and/or other bundles are combined into a unit. Bundles can be later productized by applying policies, which specify many of the properties of the products that you would like to create.

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 be productized.

Creating Bundles

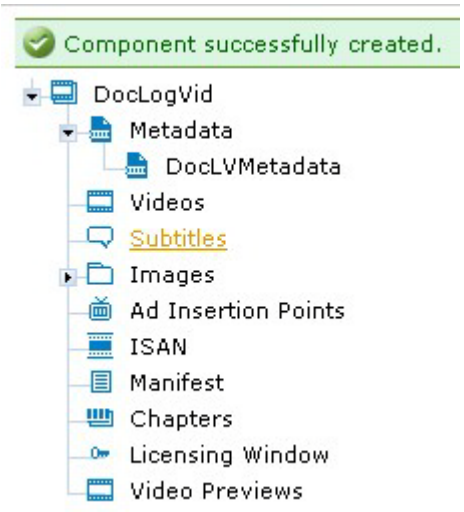
In this example, you will manually create a new logical video bundle and learn how to populate some of its components. This process is normally performed automatically by using Binding functionality. For more information, see “Binding” on page 45.

To create a new bundle:

1. Navigate to **Metadata > Bundles > Manage Bundles**.
2. Click **Add New** and select a bundle type.
3. Enter a name and an Alt Code.
4. Click **Create & Edit**. You will be taken to the bundle structure with options to search or add new components.
5. Select the Metadata component on the tree at left. This will form the metadata for the logical video.
6. 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.
7. Click **Add New**. You will be taken to the CREATE NEW METADATA dialog.
8. Type the metadata component name.
9. Click **Create & Edit**. The metadata details will appear. This includes information such as titles, summaries, and cast members.
10. 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 references in suitable locations across Media Suite. Clicking the plus sign to the right of the field will allow you to add additional entries that can be reused in other components. For further information, see “Understanding Bundles” on page 112.

11 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 43 Newly Added Logical Video Metadata Component



12 Select the Videos component on the tree. This will reference the physical asset video for this logical video.

13 Enter a video name.

14 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.

15 Type relevant information related to the video file.

16 Click **Save**. Notice that a new entry and component name appear below the Videos node.

17 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.

18 Once the logical video bundle has been described to your satisfaction, click **Activate**. This will make the bundle active so that it can be productized.

Adding Components to Bundles

To add a component to a bundle:

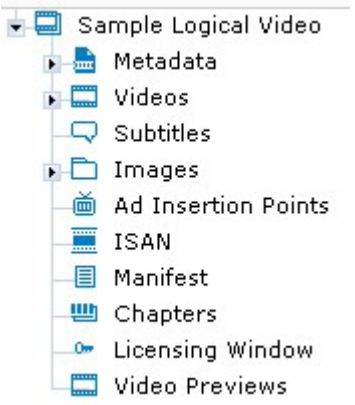
1 Navigate to **Metadata > Bundles > Manage Bundles**.

2 Perform a search for the bundle you are looking for. For instructions on finding bundles see “Searching in Videoscape Media Suite” on page 10.

3 Click the underlined link for the bundle that you want to edit. The bundle edit screen will appear.

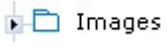
4 The tree structure of the selected bundle will appear at left. This structure is established and cannot be changed, however components may be added or deleted from within the structure.

Figure 44 Logical Video Structure



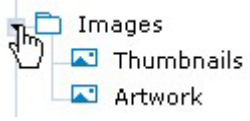
5 Component folders that are populated with content or have an underlying folder will have a right-facing arrow.

Figure 45 Collapsed Images Folder



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

Figure 46 Expanded Images Folder



7 Click the folder that you would like 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 would like to work with. For instructions on finding bundles see “Searching in Videoscape 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 would like 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 Videoscape 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 would like 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 117.

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 Videoscape Media Suite" on page 10.
3. Select the check box beside the name(s) of any bundles you would like 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 productization. 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 automatically be created through the use of a bind profile and (optionally) be marked as active once the requirements of the bundle template have been met.

To activate a bundle:

1. Navigate to **Metadata > Bundles > Manage Bundles**.
2. Search for the bundle you would like to work with. For instructions on finding bundles see "Searching in Videoscape 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 productization.

To deactivate a bundle:

1. Navigate to **Metadata > Bundles > Manage Bundles**.
2. Search for the bundle you would like to work with.
   For instructions on finding bundles see "Searching in Videoscape 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 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.

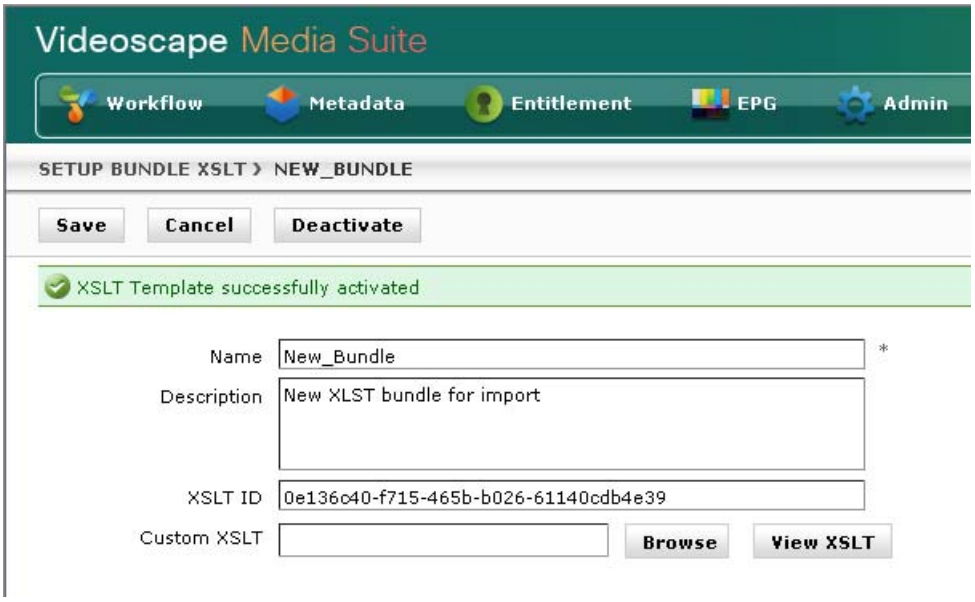
Creating Bundle XSLTs

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 47 Bundle XSLT Page



8 Select the **Previewable** option if you would like 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 dropdown will show any active bundle XSL transformations that you have marked as previewable.

Figure 48 Viewing Bundle Transformations

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 27 Audit Trail Search Criteria

Field	Description
Type	A dropdown 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.

Table 27 Audit Trail Search Criteria

Field	Description
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 28 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 would like 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 29 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 are comprised of many individual messages to and from those external systems.

To use Conversations functionality:

1 Navigate to **Metadata > Conversations**.

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.

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 related to various events, such as binding, Product and Bundle Feeds, and Search Manager. In addition, it can report bundle problems related to modules external to Media Suite, such as VCM, VBO, or custom components. The same Bundle Warnings page appears in two places, both under the Metadata tab and the Producer tab. The reason it is duplicated in the Producer tab is that some administrators will perform all of their work from that location, so an additional access point improves their 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**.

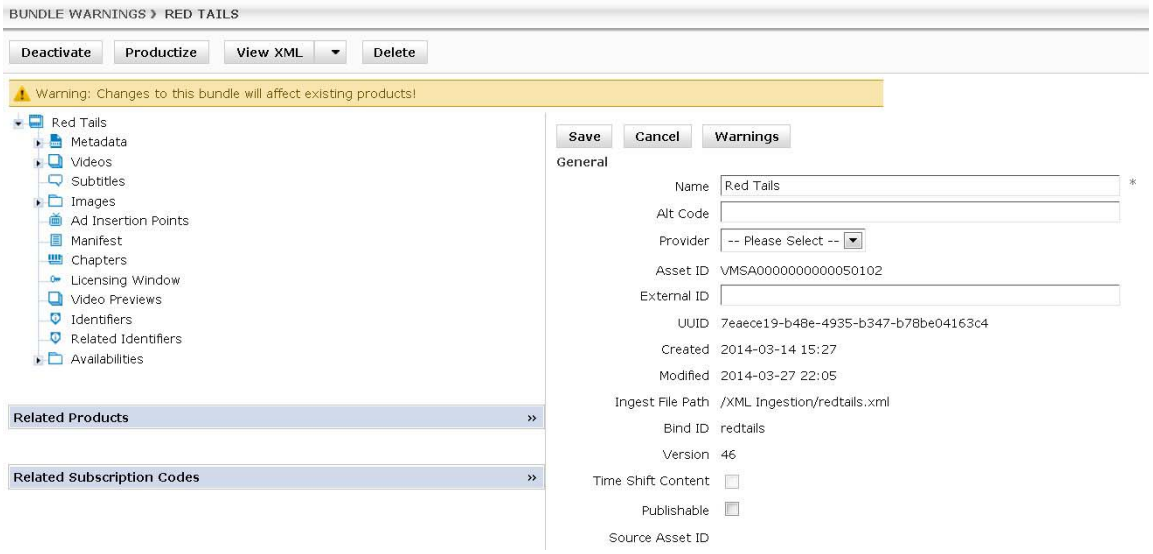
5 Click the underlined name of any displayed bundles to see the details of the bundle warning.

Figure 49 Bundle Warning Details

6 Click the underlined bundle name if you would like 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 50 Bundle Details



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 Types, using the drop-down list. Drop-down options include: All (the default), Binding, Product Feed, 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:

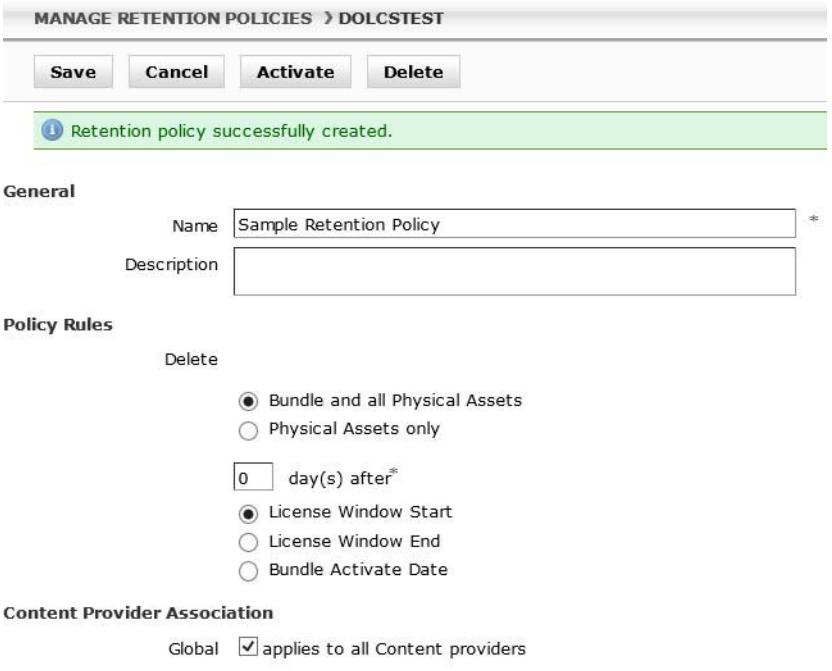
1. Navigate to **Metadata > Setup > Retention Policies**.
2. Select a Status from the drop-down list. Options include: Any, Active, and Inactive.
3. Click **Search**.
4. A list of retention policies matching your selected criteria will be shown.

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 51 Adding a Retention Policy



5. Type a description.
6. In the Policy Rules section, you will choose what you would like deleted at the appropriate time. Select either: Bundle and all Physical Assets (within that bundle), or Physical Assets only.

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, or the Bundle Activation Date.

9 Choose the content providers for which this Retention Policy will apply. Options are: Global, which applies 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 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 delete physical assets and (optionally) bundles relative 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 would like to edit. For details, see "Searching for Retention Policies" on page 123.

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 would like to delete. For details, see "Searching for Retention Policies" on page 123.

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, products, 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.

Product Cleanup

Product cleanup functionality within Media Suite is focused on seeking out one of three types of product scenarios:

1. Products that contain a deactivated bundle.
2. Products that contain a deactivated policy.
3. Duplicate products.
   For a product to be considered a duplicate of another product, the following criteria must be identical for each:
   - bundles within the product
   - policies
   - offer window start AND end dates
   - offer types
   - subscription polling setting
   - charge type
   - charge amount
   - charge currency
   - charge repeat count

To run a Product Cleanup query:

1 Navigate to **Entitlement > Catalog > Products > Products Cleanup**.

2 Select an option from the **Select Search Types** drop-down list.
Available options include:
- **Products with Deactivated Bundle**, which shows a list of products that contain one more deactivated bundles.
- **Products with Deactivated Policy**, which shows a list of products that contain one more deactivated policies.
- **Duplicate Products**, which shows a list of products that are considered to be a duplicate of another product. The names of those products may not, necessarily match, but many other criteria will be identical. See “Either investigate and fix what is missing for the bundle to be complete, or delete the bundle by clicking **Delete**.” on page 126 for more details on the criteria that is evaluated.

3 Click **Search**. A list of any products matching the search criteria will be shown.

4 Select one or more products and click **Deactivate** or **Delete** as required.

Optionally, you may click the underlined product name to edit the product details so that the product becomes unique.

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.

Chapter 12

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 128.

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**.

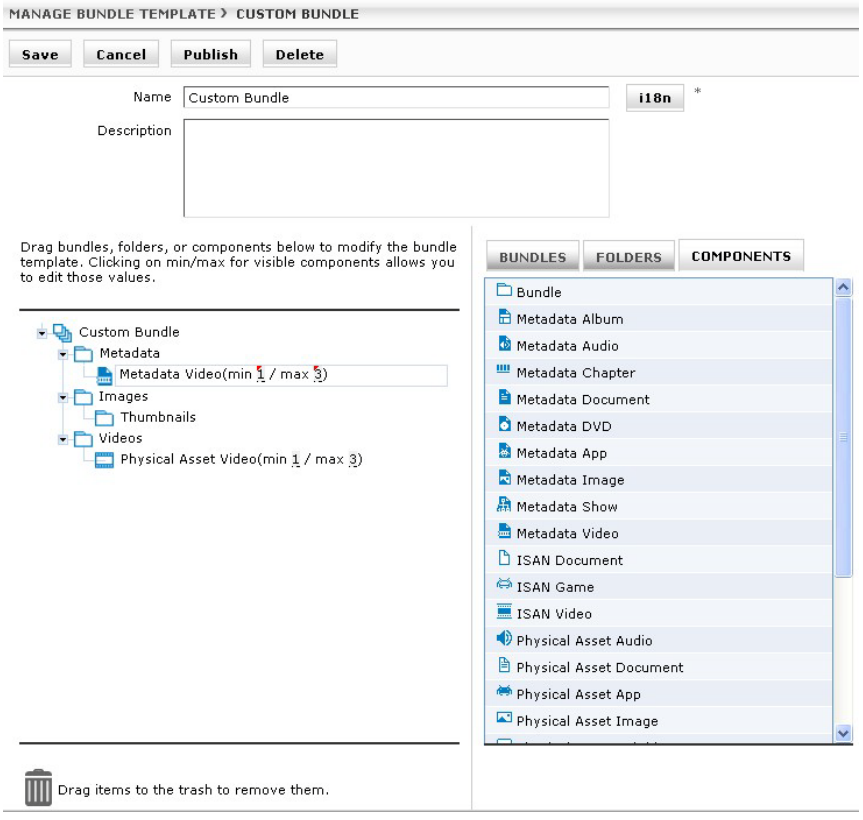
4 Type a name and key for the new bundle template.

5 Begin adding and removing components from the bundle template. For further details, see “Editing Bundle Templates” on page 128.

Editing Bundle Templates

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

Figure 52 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 **i18n** 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 30 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 127.

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.

Chapter 13

Products

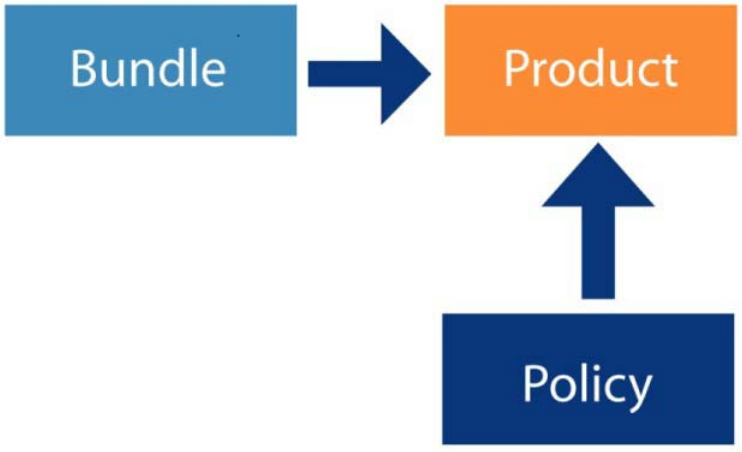
This chapter includes the following topics related to products:

- "Understanding Products"
- "Managing Products"

Understanding Products

Products are created by applying one or more policies to bundles to create monetizable offerings that can be output in feeds and may be presented on storefronts or web portals. Keep in mind that some policy characteristics are stamped onto the product and must be changed by editing the product's details, while others are dynamic and change when the original policy is modified. For more detail on policies, see "Policies" on page 87.

Figure 53 Bundle and Policy to Product Relationship



Managing Products

The Manage Products page presents a range of functionality related to all aspects of product management. Within the Manage Products page you can perform the following tasks:

- Basic product searches using product names
- Advanced product searches using various criteria such as status, affiliations, policies, and offer windows

- Review a list of products with their relevant details, such as related policies, affiliations, statuses, and offer windows
- Designate one or more products to one or more affiliates
- Set product statuses

Creating Products

Products are created by applying policies to bundles. There are two ways in which to productize bundles: through a workflow, and through the Manage Bundles page. To learn how to productize bundles through a workflow, refer to "A Sample Workflow" on page 171. The following section explains how to productize bundles manually through the user interface.

To create a product:

1. Navigate to **Metadata > Bundles > Manage Bundles**.
2. Perform a search for the bundles you wish to productize. For instructions on searching, see "Searching in Videoscape Media Suite" on page 10.
3. Select the bundles to productize. To be productized, a bundle must be active.
4. Click **Productize**.
5. Your bundle(s) will be listed within the Productize Bundle dialog. Click **Add**. You must now select policies to apply to these bundles. Choose policies from the drop-down list. To remove a policy, click the - (minus) sign.
6. Click **Confirm**.

Searching for Products (Basic)

A basic product search allows you to display a list of products (and related details) based on the product name.

To perform a basic product search:

1. Navigate to **Entitlement > Catalog > Products > Manage Products**.
2. Type all or part of the product name that you are searching for. Wildcards are implied before and after the value you have entered.
3. Click **Search**.

Searching for Products (Advanced)

An advanced product search allows you to display a list of products (and related details) based on multiple criteria, such as the product name, status, assigned affiliates, assigned policies, and offer windows.

To perform an advanced product search:

1. Navigate to **Entitlement > Catalog > Products > Manage Products**.
2. Type all or part of the product name that you are searching for. Wildcards are implied before and after the value you have entered.
3. Select a Status to filter by. Options are "any", "active", or "inactive".

4 Select an Affiliate to filter by.

5 Select a Policy to filter by.

6 Click in the From and To text boxes to use a calendar tool to set offer window dates.

7 Click **Search**.

Viewing Product Listings

Administrators can view important product information within lists generated from product searches. The following table explains the fields that are displayed for search results:

Table 31 Product Listing Fields

Field	Description
Name	The name of the product. Product names are initially established within the system by combining the bundle and policy names separated by a forward slash. Afterwards, the initial product names can be modified by viewing the product details when searching for a product. An example product name could be “BundleName/PolicyName”.
Policy	The name of the policy that was applied to a bundle to create this product.
Affiliates	Any affiliates to whom the product is assigned.
Status	Can either be “active” or “inactive”. This state is used by administrators to make products available or unavailable based on their readiness for use in the system. An active status allows the product to be designated, sent in feeds, and have rights tokens issued for it. A product must be “active” for its offer window to be valid.
Offer Window	The date range during which this product is available to feeds. Products must be “active“ as well as within their offer window to appear within feeds.

Editing Product Details

After products are created, you may edit their details.

To edit a product:

1 Navigate to **Entitlement > Catalog > Products > Manage Products**.

2 Search for the product(s) that you would to edit. For information on searching for products, see “Searching for Products (Basic)” on page 134.

3 Click on any underlined product from the search results. This will take you to the product details page. On this page, you can change the product name, offer window, or affiliates. Changes will take effect immediately and be reflected in any feeds.

Warning Changing the related policy that is applied to a product may have unwanted consequences. For example, changing to a policy that uses different DRM technology or different licensing terms may cause existing products to stop functioning for users. For more details on possible implications of Policy changes, see “Policies” on page 87.

---

4 Once you have made all the required to the current product, you may cycle through any other products that were in the search result set. To scroll through other records, click the left or right-facing chevrons surrounding the X of Y record indicator at the top of the page. For example: «10 of 20 »

5 Click **Save**.

Updating Product Status

Products can be made active or inactive either within the product detail or within the product listing.

To update product status within a list:

1 Navigate to **Entitlement > Catalog > Products > Manage Products**.

2 Type all or part of the product name that you are searching for. Wildcards are implied before and after your entered value.

3 Click **Search**.

4 Select the check boxes of the products whose status will be changed.

5 Select an active or inactive status from the drop-down menu.

6 Click **Confirm**. (A confirmation dialog will only appear when making products inactive.)

Warning Making a product inactive has a number of implications. Inactive products cannot be designated, will not appear in feeds, and cannot have new rights tokens issued to them. Products that have previously had rights tokens issued to them will remain valid for the consumers that have received them.

Chapter 14

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 to software and systems that are capable of consuming that information. Feeds are generated whenever there is a change to a product or bundle. They include information including a list of active products, descriptive metadata, advertising, and suggested pricing for a specific affiliate, or for anyone polling the feed. Feed functionality in Media Suite begins with the ability to create a custom feed type that transforms the Media Suite feed format into your own required format. This process is performed through the creation of XSLT (XSL transformations) to customize outgoing feed information. Once you have created your custom feed type (or chosen one of the predefined types), you may create the actual feed and preview its content. Lastly, feeds may not be deleted, but they can be activated or deactivated.

Note Changes in any custom attributes that you have created will, by themselves, 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 deactivate, reactivate, and preview feeds.

Creating Feed Types

A feed type must be created and active within Media Suite prior to creating a feed.

To create a new feed type:

1. Navigate to **Entitlement > Setup > Product Feed Types**.
2. Click **Add New**.
3. Type the feed type name.

4 Select the “Generic Feed” plug-in that will be used for this feed type. This option uses a R4.X-specific format that provides a feed with concise bundle information.

Note Additional feed types may be added using custom plugins, but those will 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 description.

7 Click **Browse** to select a custom XSLT that is local to your computer or network. Media Suite 4.1.x provides three standard XSL transformations that can be used. They are `atom_w_fix.xslt`, `classic_w_fix.xslt`, and `rss_w_fix.xslt`. Custom XSLTs can be created within an external tool and enable source Media Suite feed information to be transformed in a manner that is compatible with the feed consumer.

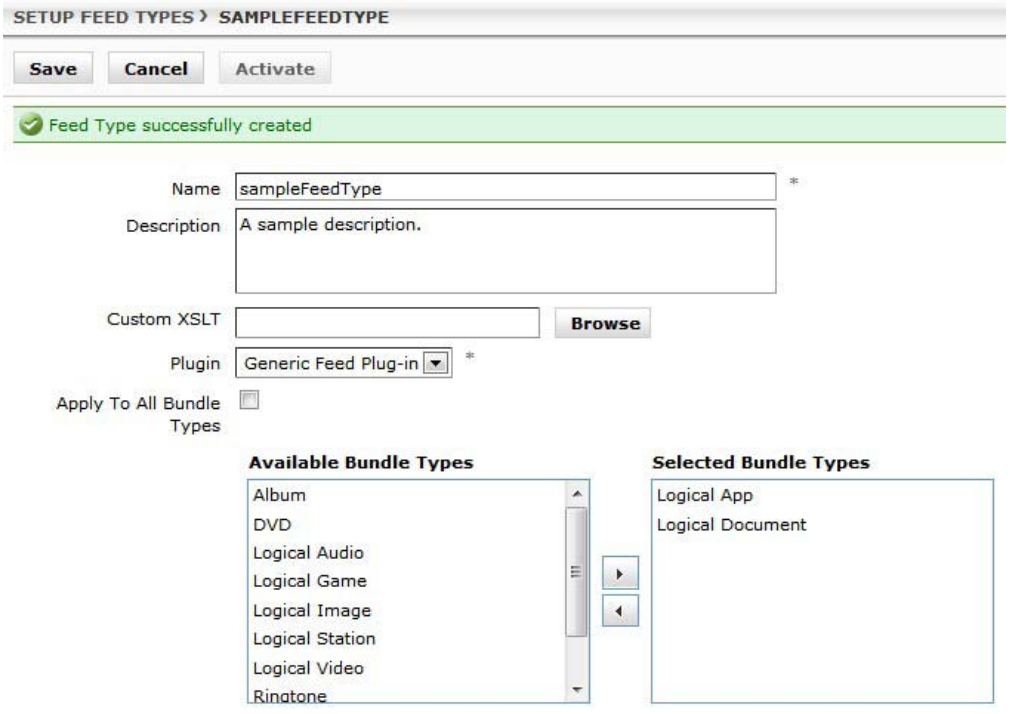
Note Feed types may be saved, but may not be activated, until they have a custom XSLT selected for use.

8 Check the **Apply to 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.

9 (Assuming that the **Apply to All Bundle Types** option is deselected.)

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.

Figure 54 Setup Feed Types Page



10 Click **Save**.

11 Click **Activate**.

Creating Feeds

To create a feed:

1 Navigate to **Entitlement > Catalog > Products > Product Feeds**.

2 Click **Add New**.

3 Type the feed name.

4 Type the feed description.

5 Select the feed type to be used for transmitting the feed. Options are RSS, ATOM, Media Suite Classic ATOM, or any custom feed types that you might have installed on your system.

6 Click **Create & Edit**.

7 On the Feed Details page, you can finish configuring the feed or change settings that you have previously established. The feed URL will be predefined by the system. The manner in which feed output is transmitted can be customized by appending various options to this URL. Feed output customizations will be discussed at "Customizing Feed Output" on page 140. Lastly, you can select an Affiliate for whom this feed is intended. If no affiliate is selected, then information for all affiliates will be output by the feed.

8 Click **Activate**.

9 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, see "Customizing Feed Output" on page 140.

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 **Entitlement > Catalog > Products > Product Feeds**.

2 Click the name of the feed to deactivate.

3 Click **Deactivate**.

4 Click **Confirm**.

Note If necessary, a deactivated feed may be activated on the same feed detail page by clicking **Activate**.

Previewing Feeds

To preview a feed:

1. Navigate to **Entitlement > Catalog > Products > Product Feeds**.
2. Double-click the name of the feed to preview.
3. Click **Preview**.

Customizing Feed Output

Feeds are generated by RESTFul web services and may be customized. For information on customizing feed output, refer to the *Media Suite Developer Guide*.

Chapter 15

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.

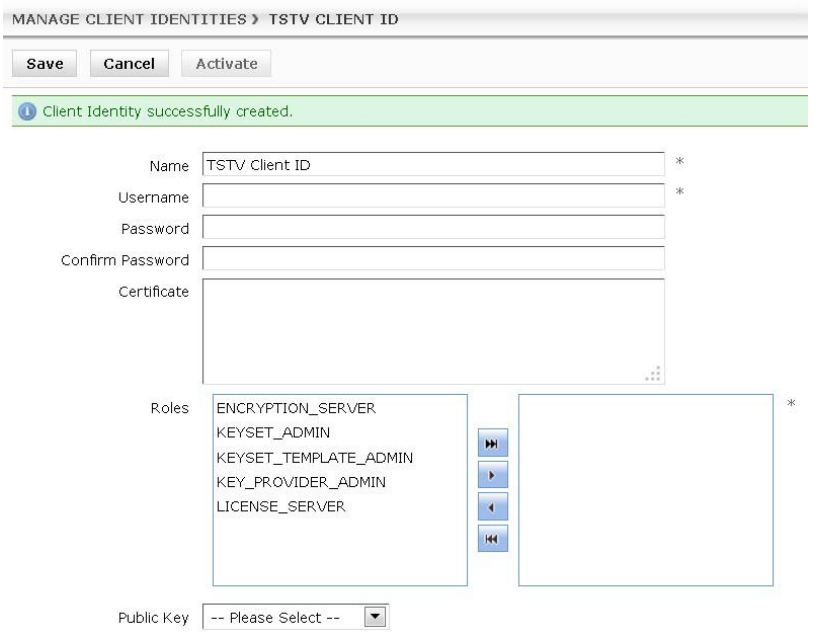
Configuring Key Management

To give you an example of how KMS is used, we will briefly describe how it can be configured for Timeshift TV. This process would also be very similar for other modules. In order to configure KMS for use by Timeshift TV you need to setup a client identity for TSTV 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 55 Manage Client ID



5 Configure the following settings:

Table 32 KMS Client Identity Settings

Setting	Description
Name	The Client Identity name that will be used within VMS.
Username	The username for TSTV Scheduler. Not currently supported. This field is reserved for future use.
Password and confirmation	The password for TSTV Scheduler. Not currently supported. This field is reserved for future use.
Certificate	Not currently supported.
Roles	Choose from predefined KMS administrator roles that will 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 33 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.

Chapter 16

Household Accounts

This chapter includes the following topics related to household accounts:

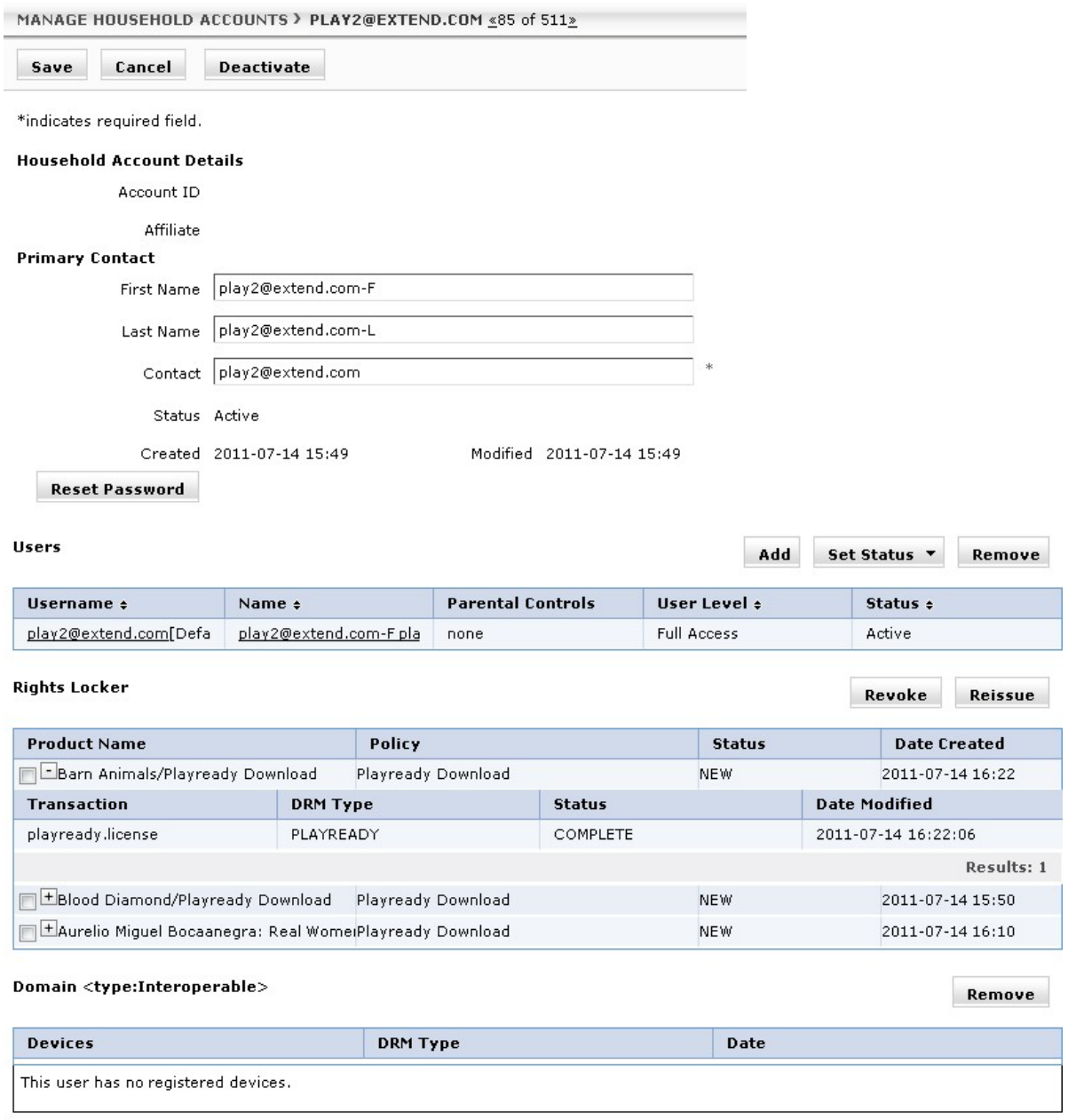
Understanding Household Accounts

Users are consumers who will be viewing or using products that have been created within Media Suite. Household accounts may be defined as a collection of one or more users that share common rights, but not necessarily common access, toward a set of products. A household account consists of a primary user who controls all account permissions, and one or more optional users that are managed under that account. Household accounts may be created through Videoscape Media Suite or by using web services or an external customer management system. Depending on the deployment, accounts can also be managed by any combination of the above.

When managing household accounts, the following general sections are available:

- Users - is used to manage users that are under the control of the primary user. Settings can be edited related to credentials, parental controls, authorization levels, and user status.
- Rights Locker - is a centralized repository used to manage the rights that a household account has for specific products. The rights locker tracks what products all members of a household account are entitled to receive.
- Domain - is used to manage devices under a domain that has been established for the household account. All devices that are registered under this account will belong to the same domain.

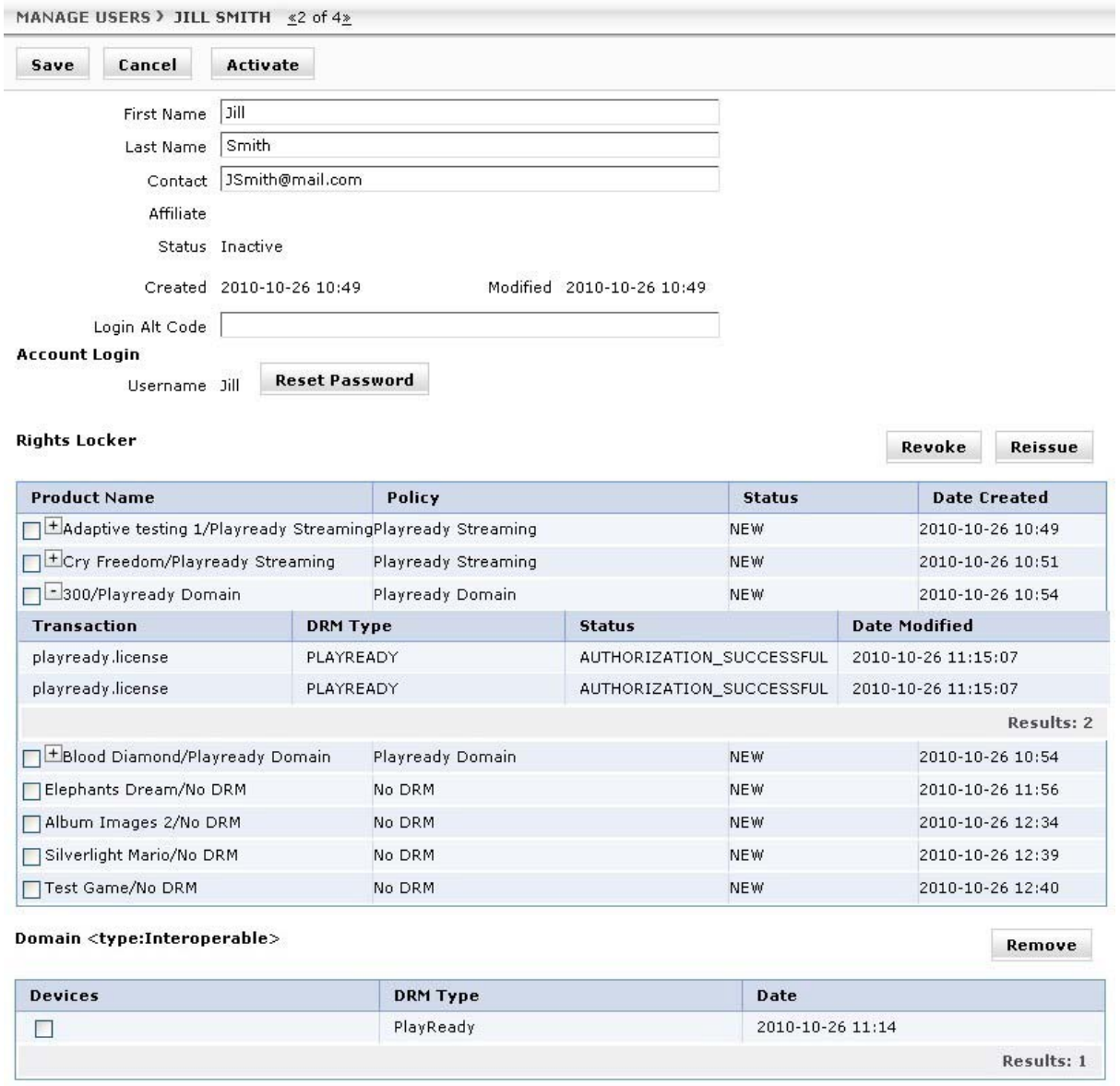
Figure 56 Household Account Details



Managing Household Accounts

This section explains functionality related to managing household accounts through the Videoscape Media Suite user interface.

Figure 57 Manage Users Page



Searching for Household Accounts

To search for a household account:

1. Navigate to **Entitlement > Accounts > Household**.
2. Type all or part the user's name. Wildcards are implied before and after the value you have entered.
3. Optionally, you may narrow the search criteria by selecting the affiliate to which the user belongs. You may also choose to filter results by Active or Inactive account statuses.
4. Click **Search**.

Creating Household Accounts

The process of creating a household account creates a primary contact for the account as well as a default user that has authority over that account and any users that are added to it. Household accounts are also assigned to an affiliate, where applicable.

To create a household account:

1 Navigate to **Entitlement > Accounts > Household**.

2 Click **Add New**.

3 Populate the following fields for the primary contact.

Table 34 Primary Contact Fields

Field	Description
Affiliate	Select any affiliate that the account belongs to.
First/Last Names	First and last names of the Primary Contact.
Contact	Any contact information. This is commonly an email address, but is not validated and can be anything else such as a telephone number.

4 Populate the following fields for the default user for this account. The default user and the primary contact may or may not be the same. This default user has the ability to add other users and to set authorization levels and any parental control restrictions that are required.

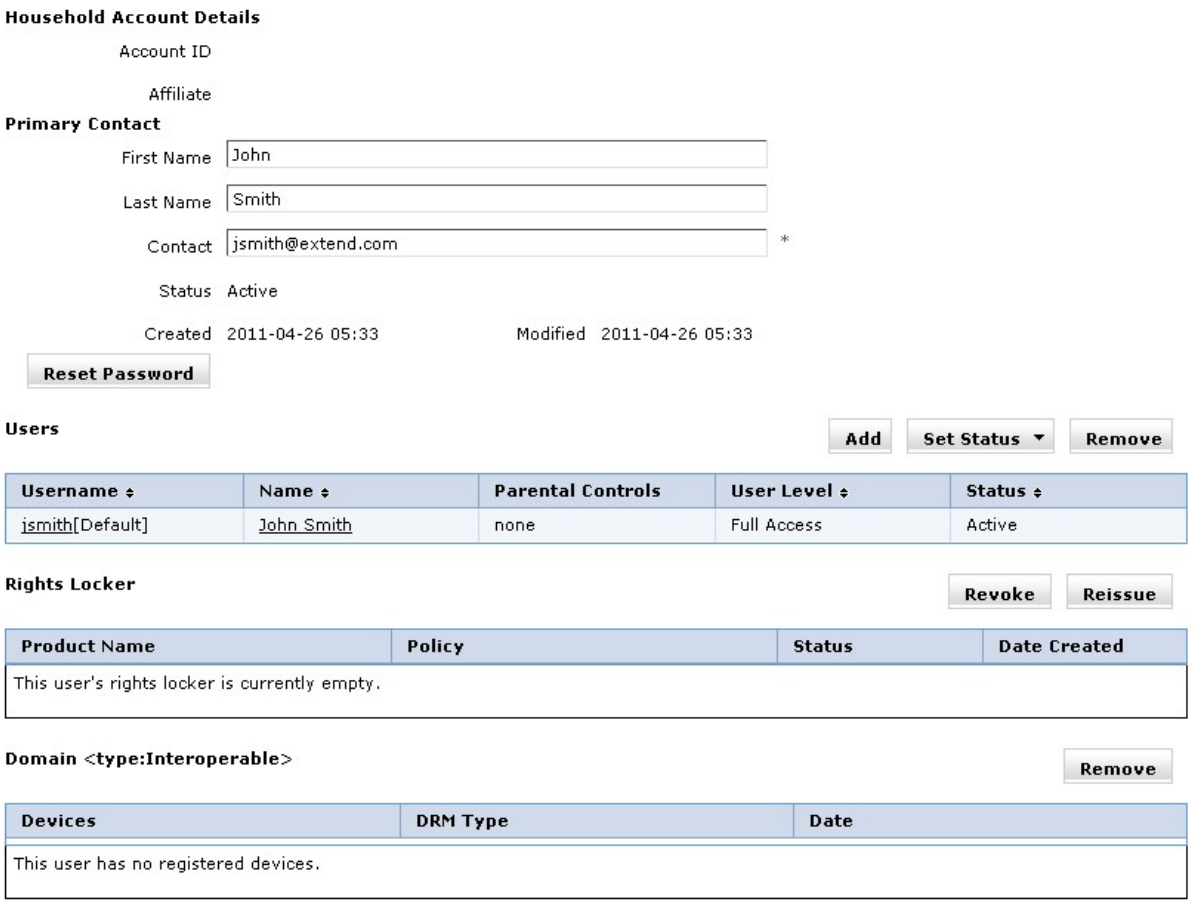
Table 35 Default User Fields

Field	Description
First/Last Names	First and last names of the Primary Contact.
Contact	Any contact information. This is commonly an email address, but is not validated and can be anything else such as a telephone number.
Username & Password	Set the default user's username and password credentials.

5 Click **Save**.

6 Click **Activate**.

Figure 58 Newly Created Household Account



Editing Household Accounts

To edit a household account:

1. Navigate to **Entitlement > Accounts > Household**.
2. Perform a search for the household account that you need to edit.
3. Click the underlined Name or Primary Contact field.
4. Edit the available fields. Options include first and last names, and contact information. You may also reset the user's password. Other options involve the ability to revoke or reissue rights tokens for specific products. Lastly, devices can be removed from the account.
5. To reset an account's password click **Rest Password**.
6. Enter and confirm the new password.
7. Click **Confirm**.
8. Click **Save**.

Deactivating Household Accounts

Household accounts cannot be deleted, but an account, or the users under that account, may be deactivated. Deactivating a household account does not effect the active status of its users, but may prevent those users from passing entitlement operations.

Note Any restrictions that are placed upon users under a deactivated household account are entirely dependant upon the implementation.

To deactivate a household account:

1. Navigate to **Entitlement > Accounts > Household**.
2. Search for the household account to deactivate.
3. Click the underlined (Primary Contact) name.
4. Click **Deactivate**.
5. Click **Confirm**.

Managing Users

Household accounts are created with only one primary user, but may have one or more users that are also managed under the account. Those users can be created, edited, deleted, and made active or inactive. Parental controls may be set to restrict content access for specific individuals under an account. This section explains the process of managing users that are the children of a household account (i.e. not the default user).

Creating Users

The process of creating users involves entering basic contact and password information as well as setting an authorization level to determine the user's capabilities. Lastly, you can set parental controls that determine the user's access to content with various ratings. Parental controls are established by setting a list that either blocks or allows a set of content ratings.

To create a user:

1. Navigate to **Entitlement > Accounts > Household**.
2. Click **Add**.
3. Populate the following fields:

Table 36 New User Fields

Field	Description
First/Last Names	First and last names in separate fields.
Contact	Any contact information. This is typically an email address, but can be set to a value such as the user's telephone number.

Table 36 New User Fields

Field	Description
Affiliate	The affiliate that was previously chosen for the household account will be displayed in this field. The affiliate cannot be changed once it has been established during the creation of a household account.
Username	Set the user's username.
Password	Set the user's password and confirm it in a separate field.

4 Select a user authorization level. The choices are:
- Full Access - grants the highest permission for a user. Full access users have the ability to create and delete users as well as to set authorization levels and parental controls for those users.
- Controlled Access - grants a user the ability to view and edit their own account settings.
- Basic Access - grants a user the ability to view their own account settings, but not to make any changes.

5 Select whether Parental Controls will be enabled.

6 If parental controls are enabled, you will need to set those controls by choosing to either allow or deny specific program ratings.

7 Next, select one or more ratings on the left pane and move them to the right pane by clicking the right facing arrow. Multiple ratings can be selected by pressing the Ctrl key. Chosen ratings will either be allowed or denied depending on the Block/Allow option that you have selected in the drop-down list.

Figure 59 Setting Parental Controls

8 Click **Save**.

Editing Users

This section explains how to edit the various aspects of a user's profile.

To edit a user:

1 Navigate to **Entitlement > Accounts > Household**.

2 Search for the household account that contains the user to edit.

3 Click the underlined (Primary Contact) Name for the household account.

4 Click the underlined Username or Name.

5 Change the user name, contact information, or username as required.

6 Click **Reset Password** to reset the password for this user. A dialog appears prompting you for the new password. Click **Confirm**.

7 Select a new User Authorization Level if required. For details on authorization levels, see "Creating Users" on page 148.

8 Change the parental controls as required. For details on parental controls, see "Creating Users" on page 148.

To change a user account's activation status:

1 Navigate to **Entitlement > Accounts > Household**.

2 Search for the household account with the user to edit.

3 Click the underlined (Primary Contact) Name for the household account.

4 Select the check box beside the name of the user to edit.

5 Click **Set Status > Active** or **Set Status > Inactive** to change the user's status.

6 Under the **Set Activation** drop-down list, select either **Activate** or **Deactivate**. If you are deactivating, a confirmation dialog will appear.

Deleting Users

The default user for a Household Account cannot be deleted, but may be deactivated. Other users, however, may be deleted.

To deactivate the default user:

1 Navigate to **Entitlement > Accounts > Household**.

2 Search for the household account with the user to delete.

3 Click the underlined Username or Name field.

4 Click **Deactivate**.

5 Click **Confirm**.

To delete regular users:

1 Navigate to **Entitlement > Accounts > Household**.

2 Search for the household account with the user you would like to deactivate.

3 Click either the underlined Name or Primary Contact information for the household account.

4 Select the check box beside the name of the user that you would like to delete.

5 Click **Remove**.

6 Click **Confirm**.

Understanding Rights Lockers

Rights lockers are a centralized mechanism used to store optional rights tokens that establish whether or not users are entitled to a particular product. Once a user has been assessed as entitled to a product (by passing any required entitlement checks), the system may then proceed to provision a license for that product. Rights locker details are visible on the MANAGE HOUSEHOLD ACCOUNTS page.

Managing Rights Lockers

The following section explains the rights locker functionality offered within Videoscape Media Suite. This functionality involves the revocation and reissuance of rights tokens (but not licenses). Licenses are provisioned and revoked by the relevant license server.

Figure 60 Managing the Rights Locker

Revoking Rights

When a rights token has been issued in error or needs to be retracted, Videoscape Media Suite allows administrators to revoke them. Revoking a rights token denies the provision of future licenses for that product. Previous licenses that have been issued for the product, however, will continue to be valid until the expiration of the stated license terms.

To revoke a rights token:

1. Navigate to **Entitlement > Accounts > Household**.
2. Search for the relevant household account.
3. Click the underlined Name or Primary Contact information to view account details.
4. Under the Rights Locker section, select the check box to the left of the product name.
5. Click **Revoke**.

Reissuing Rights

If a rights token was not successfully received for a specific product, Videoscape Media Suite allows administrators to reissue the rights token.

To reissue a rights token:

1. Navigate to **Entitlement > Accounts > Household**.
2. Search for the relevant household account.
3. Click the underlined Name or Primary Contact information to view account details.
4. Under the Rights Locker section, select the check box to the left of the product name.
5. Click **Reissue**.

Understanding Devices

Videoscape Media Suite provides the ability to manage devices within a user's domain. The following section explains how to interpret the device information shown in Media Suite as well as how to delete devices that belong to a household account.

Managing Devices

Devices may be added to a household account's domain via web services. Device management within the Media Suite user interface is limited to removing devices from a domain. Once a device is removed, the device may not receive new content but (depending on the DRM type) may still be able to play previously acquired content.

Devices are listed on the Household Account Details page. The displayed information includes the device name, the DRM Type that is being used by the device, and the date that the device was registered within Media Suite.

Removing Devices

The following section explains how to remove devices from domains.

To remove a device from a domain:

1. Navigate to **Entitlement > Accounts > Household**.
2. Search for the household account that has a device that you would like to remove.
3. Click the underlined Name or Primary Contact information to view account details.
4. Under the Domain section, select the check box beside the name of the device that you would like to remove from the domain.
5. Click **Remove**.

Chapter 17

Reporting

This chapter includes the following topics related to reporting:

Understanding Reporting

Reporting capabilities within Media Suite provide the ability to generate and manage reports on details related to system content, household accounts, or provisions issued by 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 37 Default Media Suite Reports

Name	Description
Product Details	Shows provider, affiliate, and status details for each product within a specified date range. **Parameters:** • Provider - select a content provider • Affiliate - select an affiliate • Product Status - choose from All/Active/Inactive • Date Range From • Date Range To • Offer Window - the “Show Content Entering Window” option shows content within the specified date range as well as content for a number of days before The “Show Content Leaving Window” option shows content within the specified date range as well as content for a number of days after.

Table 37 Default Media Suite Reports

Name	Description
	• Days Before or After - sets the number of days before or after the specified date range that should be included in the report results.
Product Summary: Providers	Shows the number of products belonging to each provider for a given time period. **Parameters:** • Provider - select a content provider • Product Status - choose from All/Active/Inactive • Date Range From • Date Range To • Offer Window - the "Show Content Entering Window" option shows content within the specified date range as well as content for a number of days before The "Show Content Leaving Window" option shows content within the specified date range as well as content for a number of days after. • Days Before or After - sets the number of days before or after the specified date range that should be included in the report results.
Product Summary: Affiliates	Shows the number of products assigned to each affiliate for a given time period. **Parameters:** • Affiliate - select an affiliate • Product Status - choose from All/Active/Inactive • Date Range From • Date Range To • Offer Window - the "Show Content Entering Window" option shows content within the specified date range as well as content for a number of days before The "Show Content Leaving Window" option shows content within the specified date range as well as content for a number of days after. • Days Before or After - sets the number of days before or after the specified date range that should be included in the report results.
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. These bundles are filtered by products with a particular status. 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 • Product Status - choose from All/Active/Inactive product status

Table 37 Default Media Suite Reports

Name	Description
Product & Bundle Details	Shows bundles with a list of products that they are in. Affiliate, provider, and product status is shown for each product. **Parameters:** • Provider - select a content provider • Affiliate - select an affiliate
Product & Bundle Summary: Providers	Shows the number of products and 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
Productized Bundles: Affiliates	Shows the number of products and bundles for each affiliate. 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

Table 38 Default Entitlement Reports

Name	Description
Licenses Issued	Shows an aggregate number of licenses that were provisioned. **Parameters:** • License Type - choose from available license types such as All/ PlayReady/WMRM10. License types will vary by deployment. • Date Range From • Date Range To
License Issuance Times	Shows an aggregate listing of times that licenses were provisioned. **Parameters:** • License Type - choose from available license types such as All/ PlayReady/WMRM10. License types will vary by deployment. • Date Range From • Date Range To

Table 39 Default Account-Related Reports

Name	Description
Account Summaries	Shows the number of accounts by affiliate and account type for a particular date range. **Parameters:** • Affiliate - select an affiliate • Account Type - choose from All/Active/Inactive • Date Range From • Date Range To

Table 39 Default Account-Related Reports

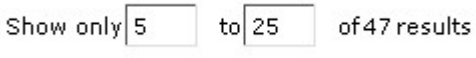
Name	Description
User Summaries	Shows the number of users by affiliate and user type for a particular date range. **Parameters:** • Affiliate - select an affiliate • User Type - choose from All/Active/Inactive • Date Range From • Date Range To
Device Summaries	Shows the number of devices by affiliate for a particular date range. **Parameters:** • Affiliate - select an affiliate • Date Range From • Date Range To
Rights Locker Summaries	Shows the number of entitlements per affiliate for a specific date range. **Parameters:** • Affiliate - select an affiliate • Entitlements - choose from All/Issued/Revoked • Date Range From • Date Range To

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.



   - 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.

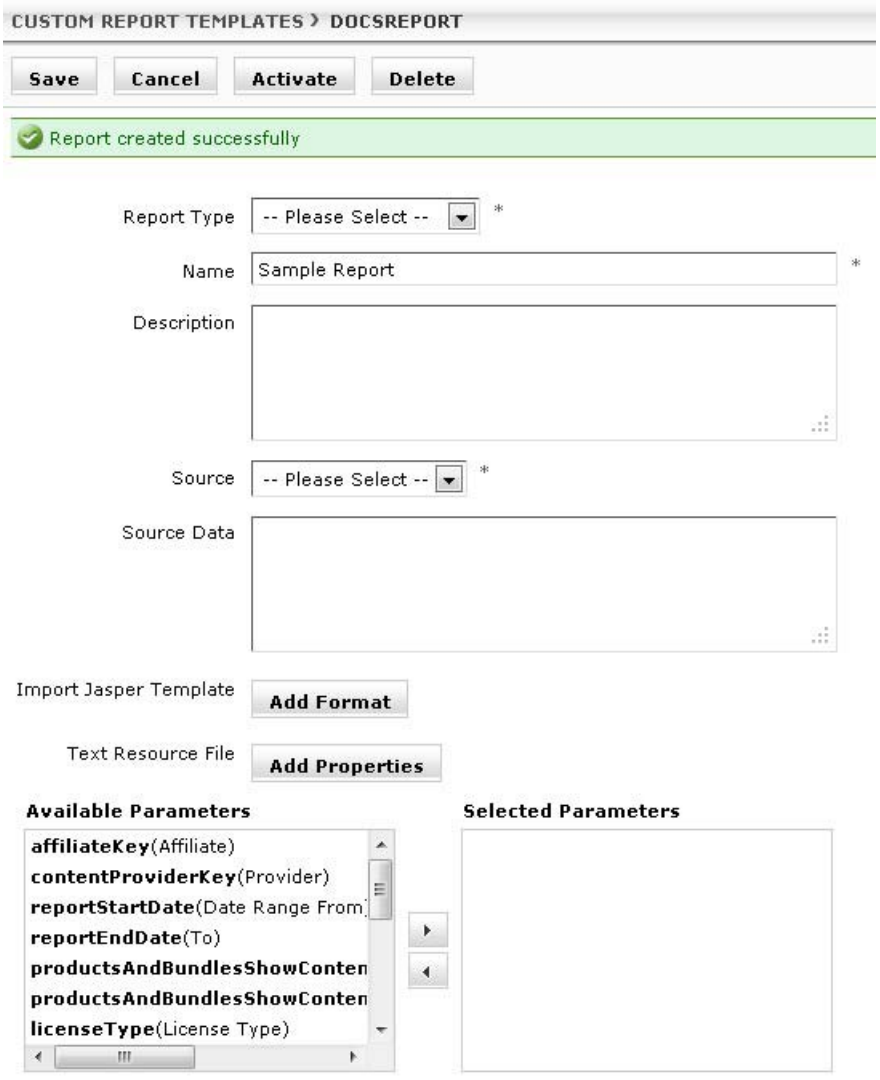
Creating Reports

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 61 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

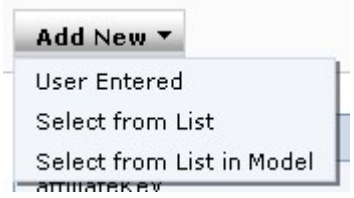
The following section will describe the process of creating custom report parameters.

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 62 Report Parameter Types



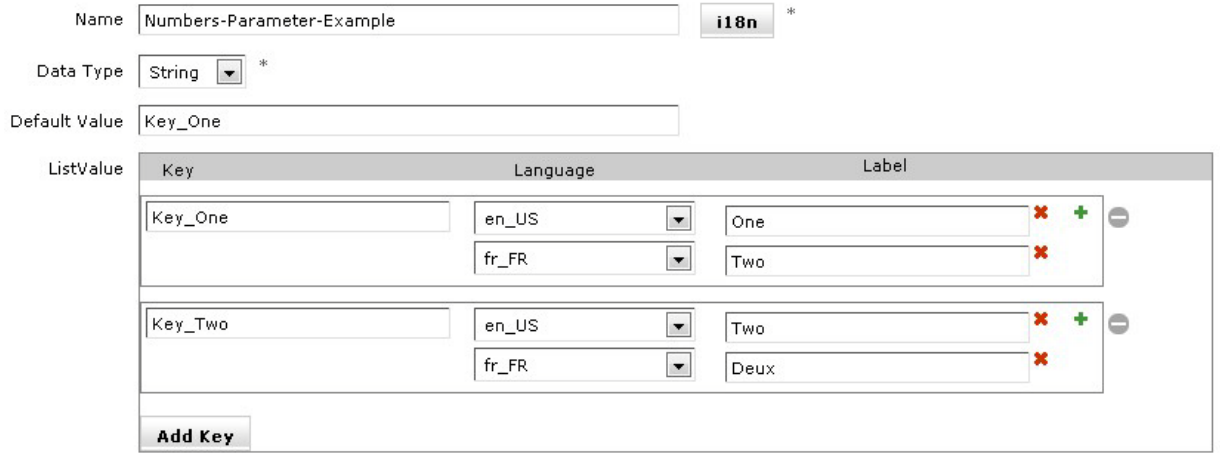
3. Type a parameter name, key, and where applicable, a localized label.
4. Click **Create & Edit**.
5. Select a **Data Type**. Options are: String, Date, Integer, and Double.
   Selecting the Date data type will bring up a Default Value option where you can select a date relative to now. Options include:
   - 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 63 Select From List Parameter



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.

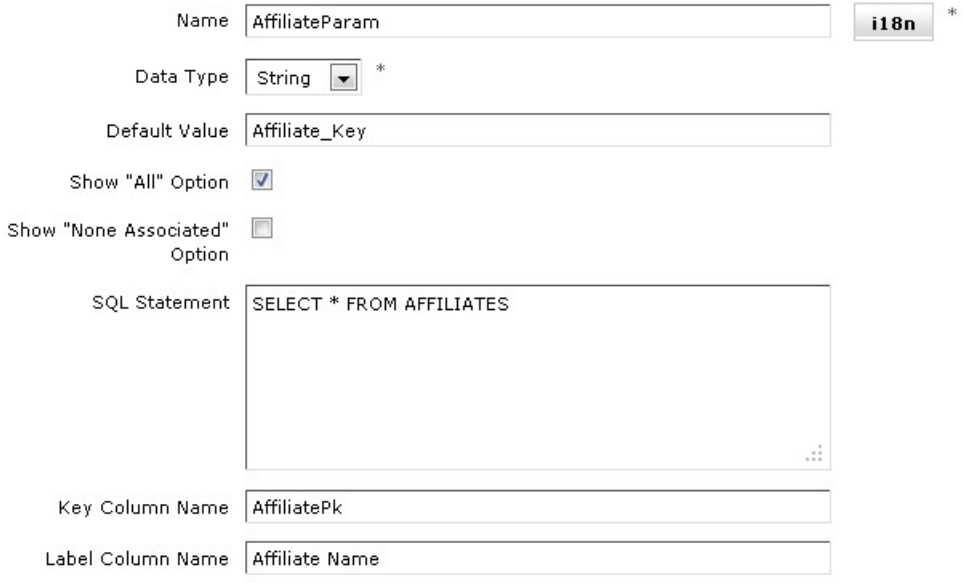
9 For **SQL Statement**, include the SQL query that will be used to populate the parameter drop-down list.

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 64 Select From List In Model Parameter



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.

Chapter 18

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 166
- “Time Zone Support” on page 166
- “Understanding Cache Manager” on page 168

Managing Administrators

Administrators must be created in order to grant appropriate levels of access permissions and functionality to those using Media Suite.

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 65 Managing Roles - Sample UI Permissions

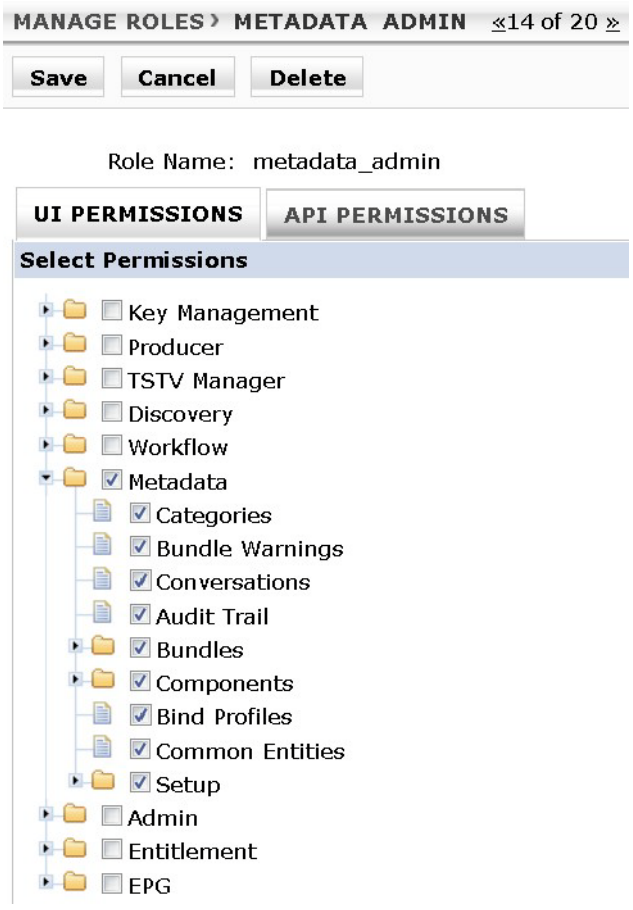
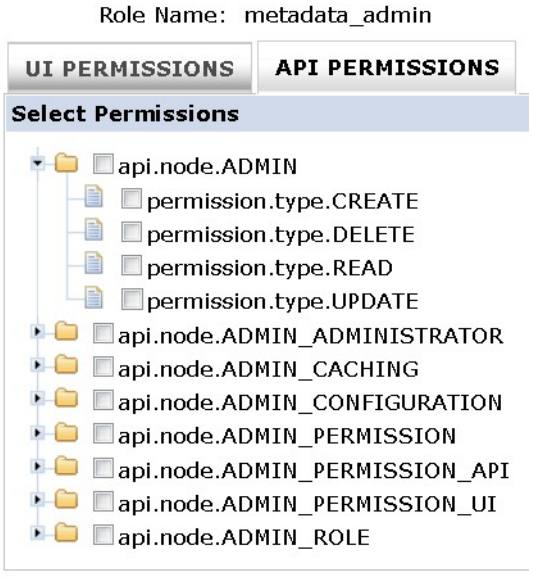


Figure 66 Managing Roles - Sample API Permissions



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 modules. Click right-facing arrows to open any collapsed parts 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 Enter a username and a password (with confirmation). No spaces are allowed in either.

4 The following default roles are available within Media Suite:

- The super_admin has unrestricted access to all parts of the application.
- The workflow_admin has access to all functionality for the workflow module.
- The metadata_admin has access to all functionality for the metadata module.
- The customer_support_admin has access to all entitlement module functionality.
- The affiliate_customer_support_admin has access to all functionality related to managing users.

5 Select one or more roles that will make up the permissions for this administrator.

6 Select the Account Enabled option for this account to be active.

7 Select a locale from the drop-down list for this administrator. If no locale is selected, then this administrator will apply to all locales.

8 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.

9 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.

Note For nodes under the general node, and in other places where it has been determined as useful, an **Add Child** button will be available. You may add custom nodes with custom parameters in any place that displays this button.

Time Zone Support

Media Suite allows administrators to specify a time zone rule that affects time-bound parameters for product availability via entitlement checks and DRM policy windows. You can use this feature to establish behaviors relative to server time, client time, or a designated time offset.

This functionality would be used when a deployment has multiple clients accessing the system from different geographic regions. Establishing a set time zone enables the provider to synchronize product availability and DRM access in a manner best suited to that deployment.

More specifically, time zone functionality is set in Media Suite when:

- Creating an Entitlement Check Profile. For details, see “Default Entitlement Checks” on page 81.
- Creating a DRM Profile. For details, see “Creating DRM Profiles” on page 79.

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 added to Media Suite for use in policies and for eventual use within products.

Figure 67 Manage Currencies Page

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 so that it can no longer be used in an entitlement profile. 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 the consequences of deactivating the currency. Read the warning and be aware of products that might be affected by your change.

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 internal 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 products 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 (for performance reasons) from Entitlement, Content Manager, or Search Manager - each of which has a tab. Flushing a cache allows any new, updated, or deleted values to propagate from Content Manager to Entitlement Manager for external use. If you do not clear a cache, the system will automatically clear 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 68 Cache Management Tabs

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

Cache Manager Options

Figure 69 Cache Manager - CMS Tab

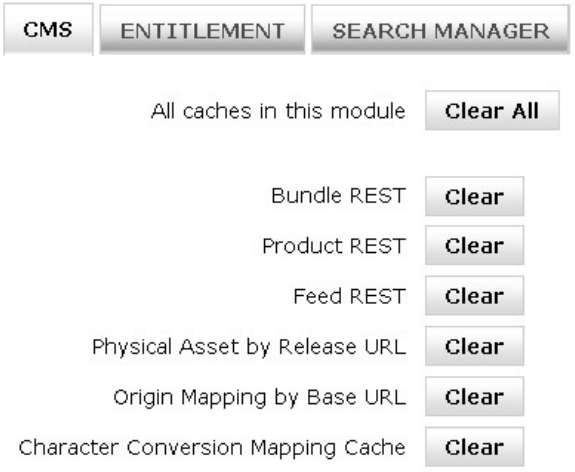


Figure 70 Cache Manager - Entitlement Tab

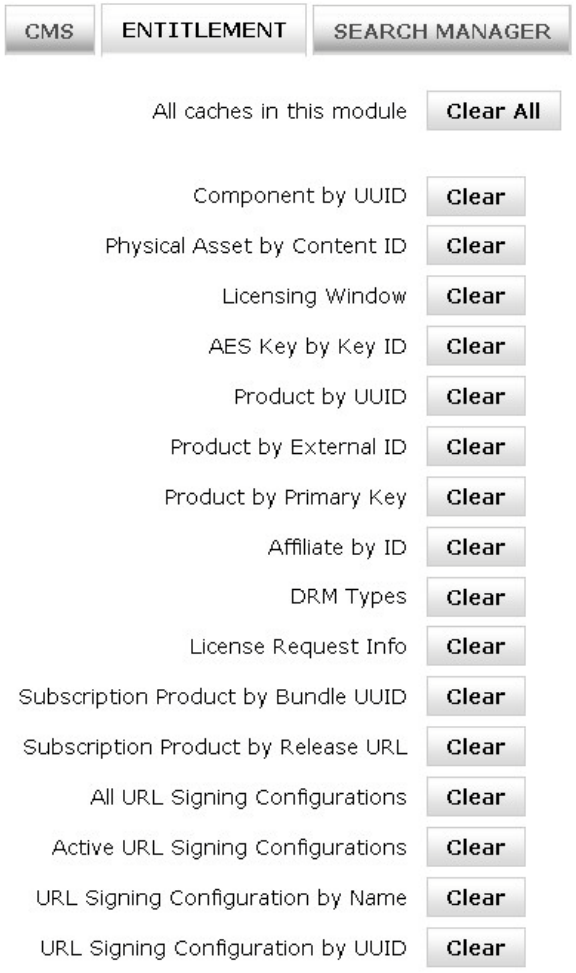
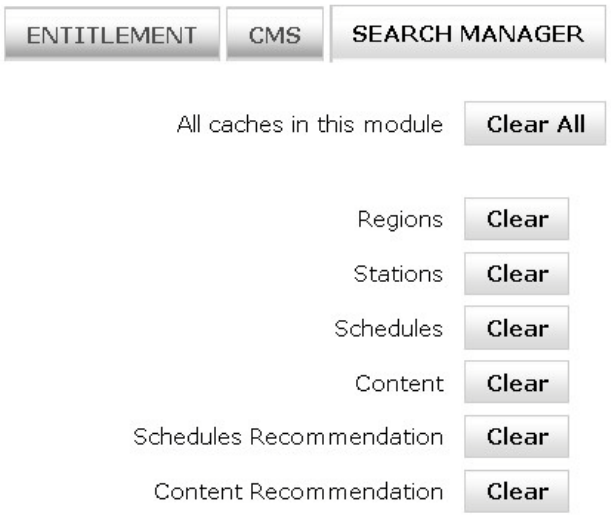


Figure 71 Cache Manager - Search Manager Tab



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)

Chapter 19

A Sample Workflow

This chapter describes a comprehensive set of procedures related to configuring a sample Videoscape 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.

This following topics will be covered:

- "Classic Media Suite Workflow Overview", as shown below
- “Establishing Folder Structures and File Naming Conventions” on page 173
- “Configuring Repository Nodes” on page 174
- “Configuring Actions” on page 177
- “Creating Bind Profiles” on page 183
- “Creating DRM Profiles” on page 185
- “Creating Entitlement Checks” on page 186
- “Creating Policies” on page 186
- “Creating Workflows” on page 187
- “Starting the Workflow” on page 191

Classic Media Suite Workflow Overview

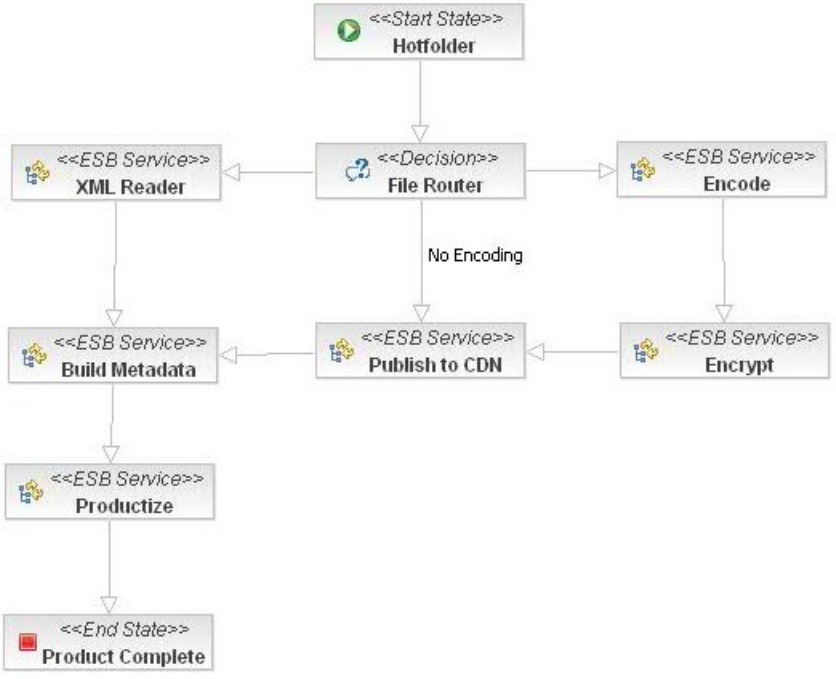
This Classic Media Suite workflow example consists of the following flows that will run in parallel to process a logical video-based product. This flow covers three physical files (an XML file, a WMV file, and a JPG) that will be placed into a hot folder to start a workflow.

The following table should be read from top to bottom:

Table 40 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 72 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 an 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 an 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:

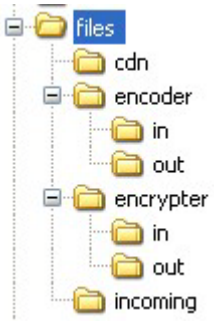
/files/incoming/movie.xml (the bundle XML)

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

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

The folder structure is as follows:

Figure 73 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

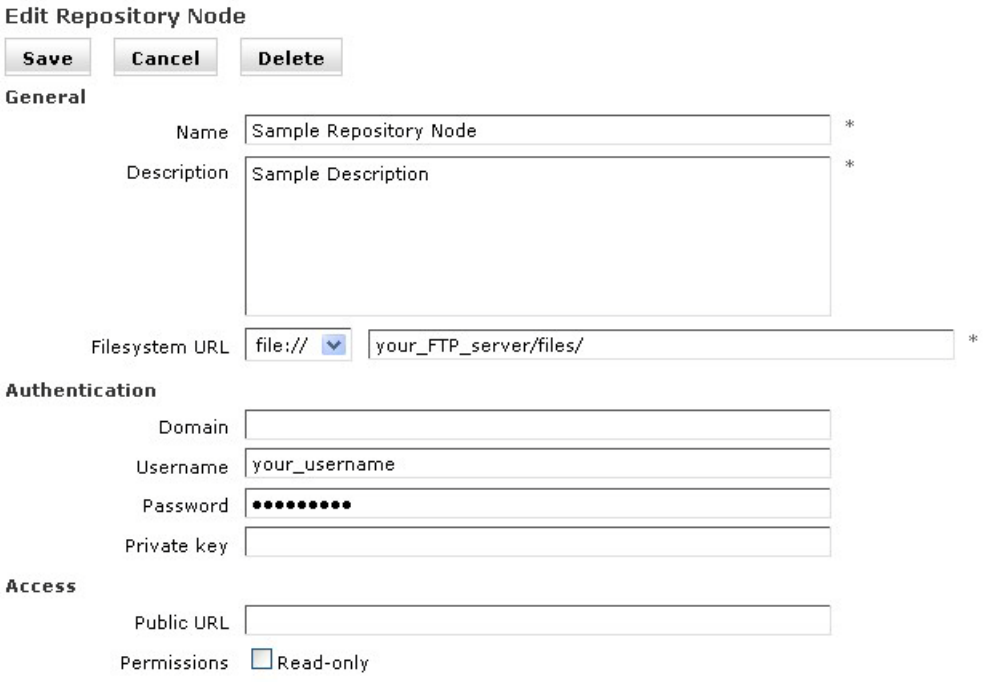
To mount a filesystem as a repository node:

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 41 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.

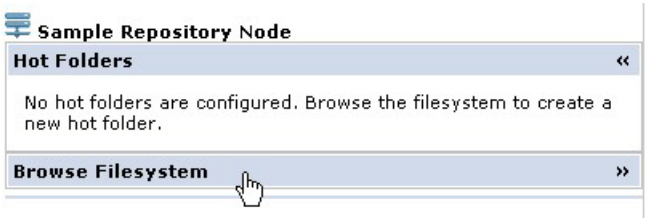
Figure 74 Repository Node Details



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 75 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.

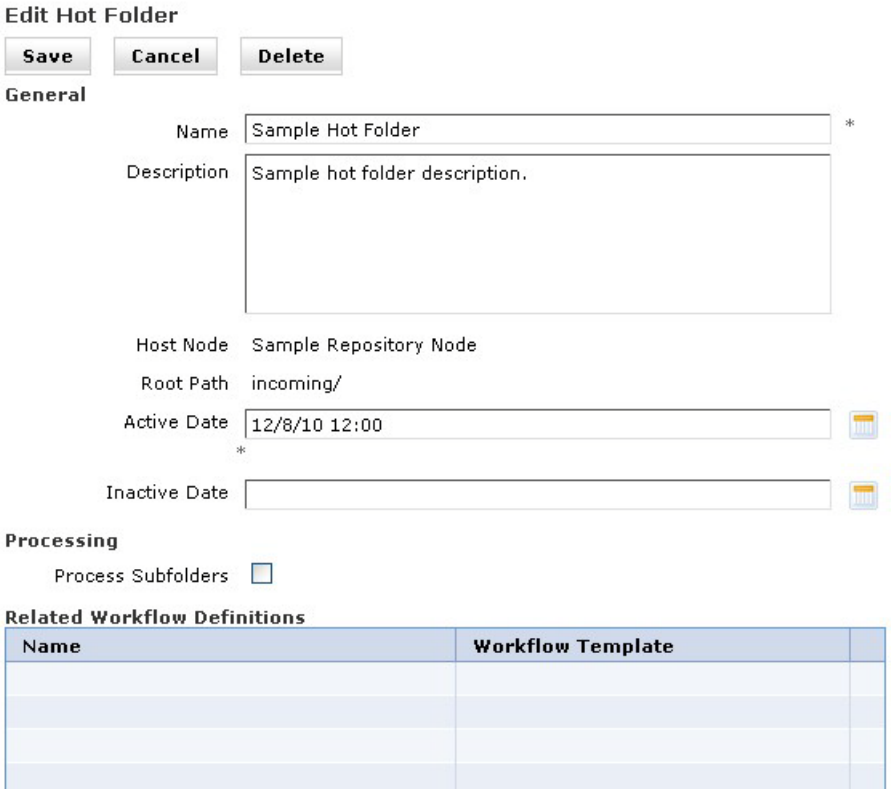
11 Click **Save**. This establishes a generic reference to a hot folder.

12 On the EDIT HOT FOLDER page, populate the required fields.

Table 42 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.
Related Workflow Definitions	A table that indicates any workflow definitions that are using this hot folder.

Figure 76 Edit Hot Folder Page



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 77 Sample Action Template Encoding Configuration

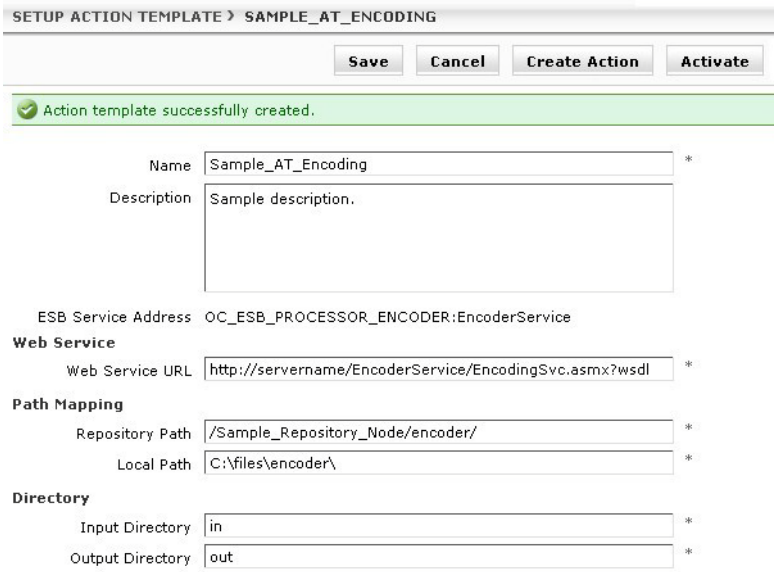


Table 43 Transcode Action Template Settings

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).
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 44 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 45 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.
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 Transcode Manager) version that will be used for transcoding. Choosing version 4.5 will enable you to create HLS/AES assets.

Action templates that use the following ESBs require no additional details once the placeholder has been established:

- CDSTVPublisherService
- FileDiscoveryService

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:

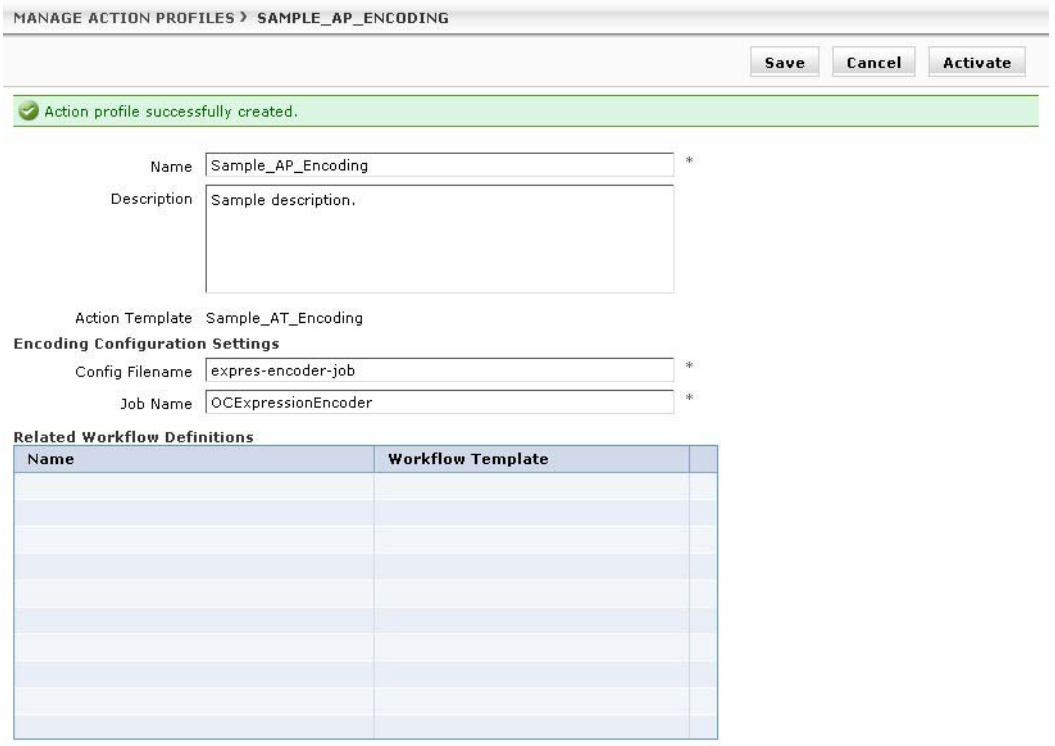
1 Continue from the action template details page. Click **Create Action**.

2 Configure the following fields for the action profile:

Table 46 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 78 Manage Action Profiles Page



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 47 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 47 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 48 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 49 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 49 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 50 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” on page 45.

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**.

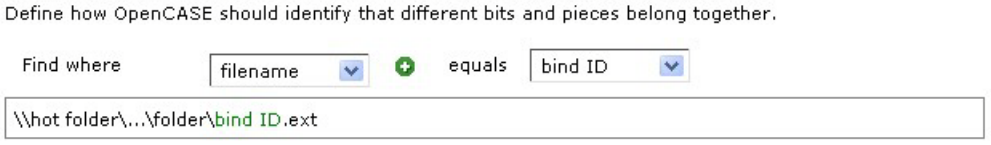
5 On the bind profile details page, check “Bundle Activation” so that the bundle automatically activates once the minimum content requirements are met.

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 79 Setting the 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.

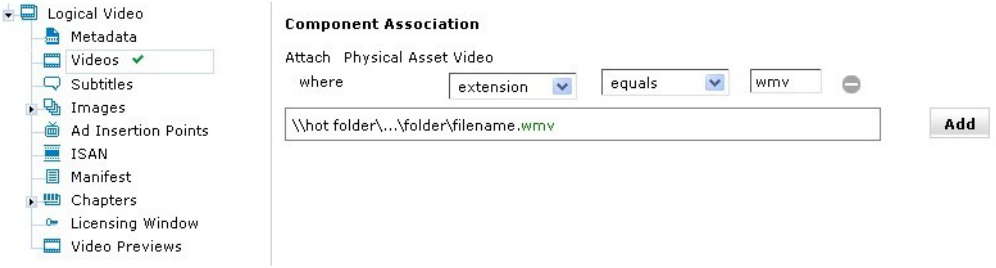
Figure 80 Setting Bundle Associations



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 81 Setting Physical Asset Video Association



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 82 Setting Physical Asset Image Association

12 Click **Save**.

13 Click **Activate**.

Creating DRM Profiles

In this sample, you will create a PlayReady License DRM profile. For a more in-depth explanation of this topic, see “Digital Rights Management” on page 77.

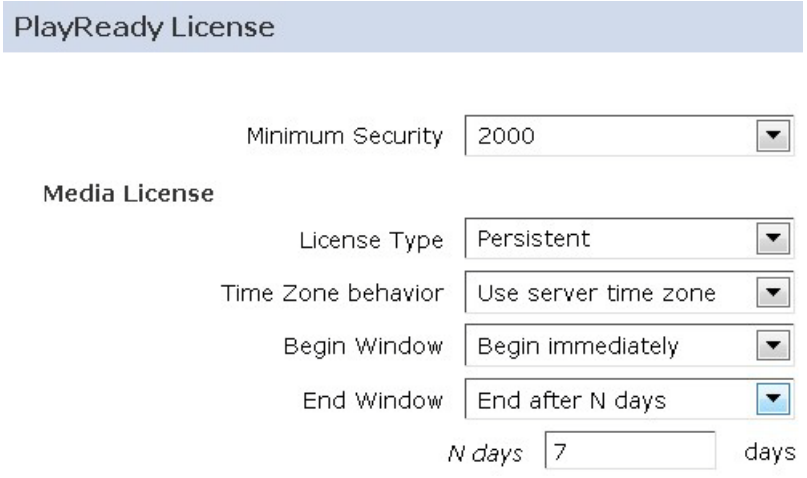
To create a DRM profile:

1. Navigate to **Entitlement > Productization > Profiles > DRM Profiles**.
2. Click **Add New**.
3. Type a profile name (Sample DRM Profile) and description.
4. Click **Create & Edit**.
5. Select the Unrestricted Domain. All DRM technologies that are available within this domain will be shown for possible configuration.
6. For License Issuance, select “Unlimited”.
7. Select the “PlayReady License” option and open up the details by clicking the underlined DRM name.

Figure 83 Selecting a DRM Type

8. For Minimum Security, select “2000”.
9. For License Type, select “Persistent”.
10. For Time Zone Behavior, select “User server time zone”.
11. For Begin Date, select “Immediately”.
12. For End Date, select “n days later” and after “7” days.

Figure 84 PlayReady License Settings



13 Click **Save**.

14 Click **Confirm**. Since this is a new profile, there are no implications to existing products or rights tokens.

15 Click **Activate**. Activating a DRM profile makes it available for use within policies.

Creating Entitlement Checks

Next, you must create an Entitlement Check that will automatically grant a rights token so that (when required) users can request a license for encrypted content. Since no entitlement plugins are configured, you will simply create a blank check that grants the rights token automatically.

To create an Entitlement Check profile:

1 Navigate to **Entitlement > Productization > Profiles > Entitlement Checks**.

2 Click **Add New**.

3 Type an entitlement check name (Sample Entitlement Check) and description.

4 Click **Create & Edit**.

5 For the purpose of this sample, nothing needs to be done here. Click **Save**.

6 Click **Confirm**.

7 Click **Activate**.

Creating Policies

The workflow will later apply this policy to active bundles to create products.

To create a policy:

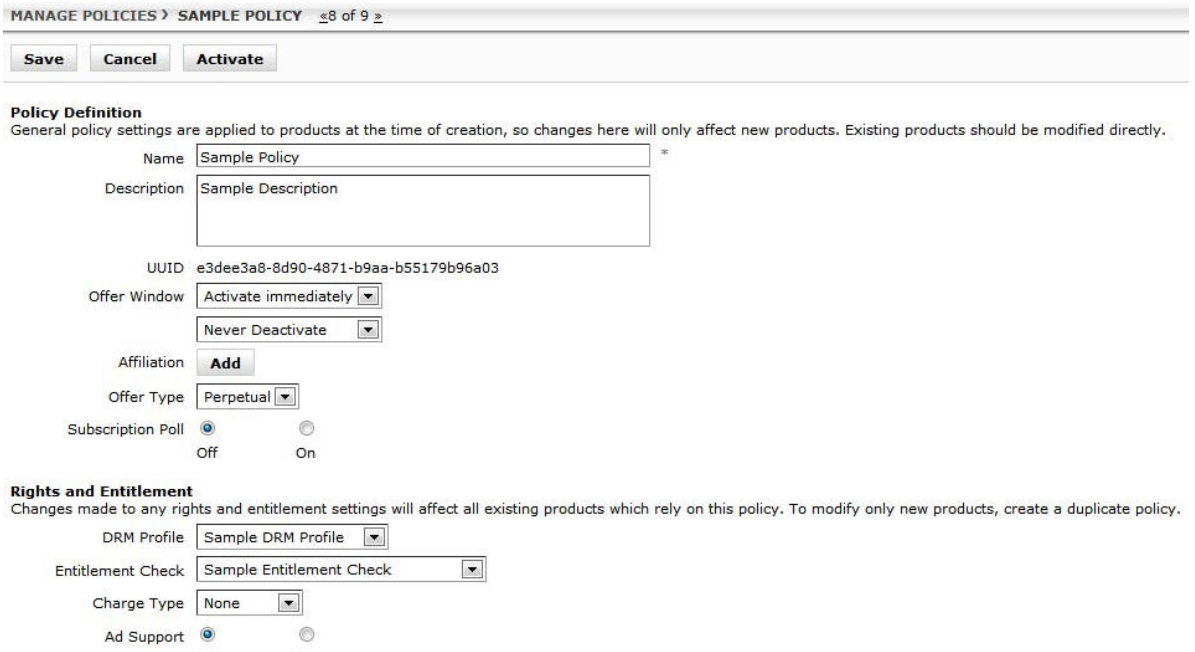
1 Navigate to **Entitlement > Productization > Policies**.

2 Click **Add New** on the MANAGE POLICIES page.

3 Type a policy name and description.

4 Click **Create & Edit**.

Figure 85 Policy Details Page



5 Select the DRM Profile that you previously created (Sample DRM Profile).

6 Select the Entitlement Check that you previously created (Sample Entitlement Check).

7 Accept all other defaults for this policy.

8 Click **Save**.

9 Click **Confirm**.

10 Click **Activate**.

Creating Workflows

Videoscape 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**.

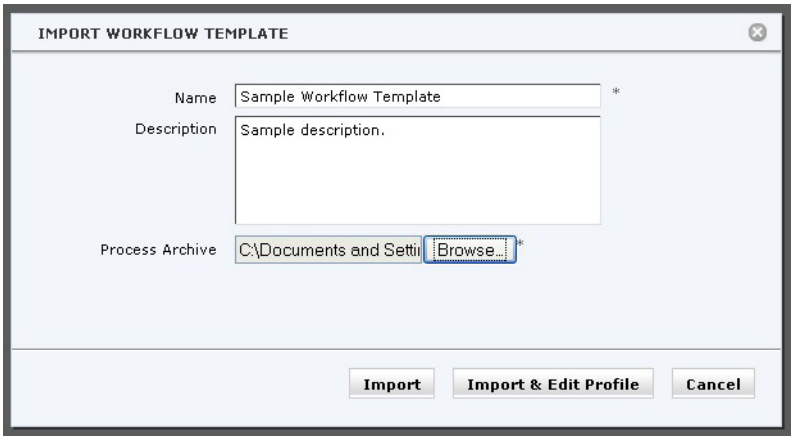
2 Click **Import**.

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.

5 Click **Import & Edit Profile**. The workflow template is now created and in an active state.

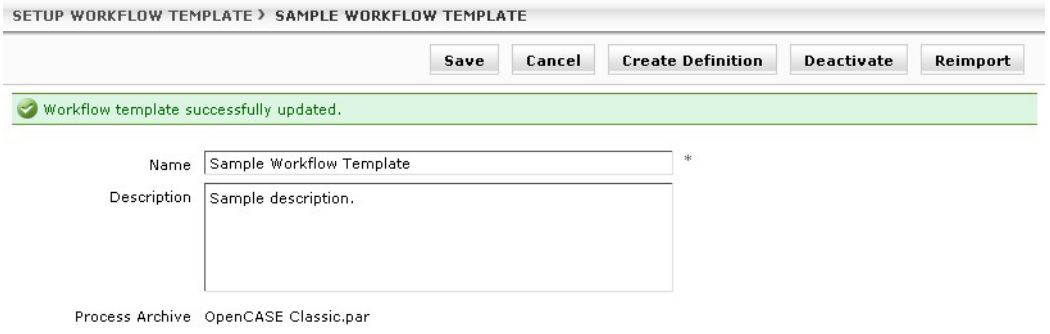
Figure 86 Import Workflow Template Dialog



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 87 Setup Workflow Template Page



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.

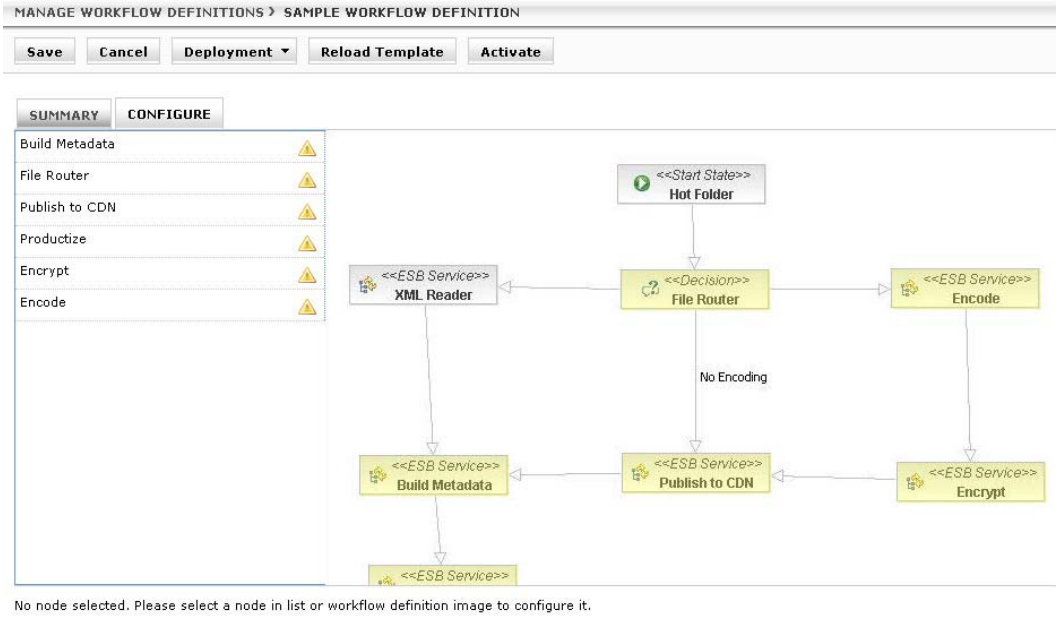
Creating Workflow Definitions

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

To create a workflow definition:

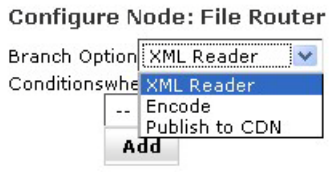
1. Click **Create Definition.**
2. Type a workflow definition name and description. From the drop-down list, select the workflow template that you previously created.
3. Click **Create & Edit**.
4. Click the **Configure** tab.
5. A graphical representation of the process definition should appear. You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

Figure 88 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 89 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 (pns|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.

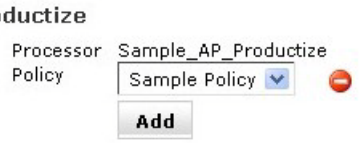
12 Click the “Publish to CDN” node and scroll down to the bottom of the page to see the configuration options for that node.

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 90 Configuring the Productize Workflow Node



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.

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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 37.

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 93
- searching through bundles (see “Managing Bundles” on page 112)
- searching through products (see “Searching for Products (Basic)” on page 134)
- creating feeds (see “Feeds” on page 137)

Part B

PRODUCER

Chapter 20

Producer Overview

Understanding Producer

The following guide sections will explain Producer, a Videoscape 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, and availabilities
- 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 Plugin Guide.

Chapter 21

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.

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 216.

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, on the other hand, are tags 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

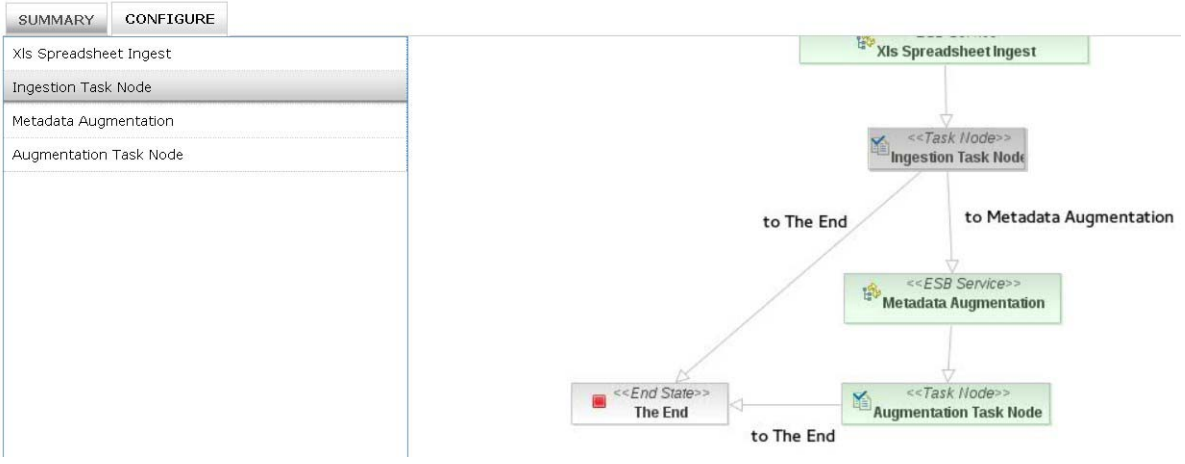
To configure a Producer Workflow Task:

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>
```

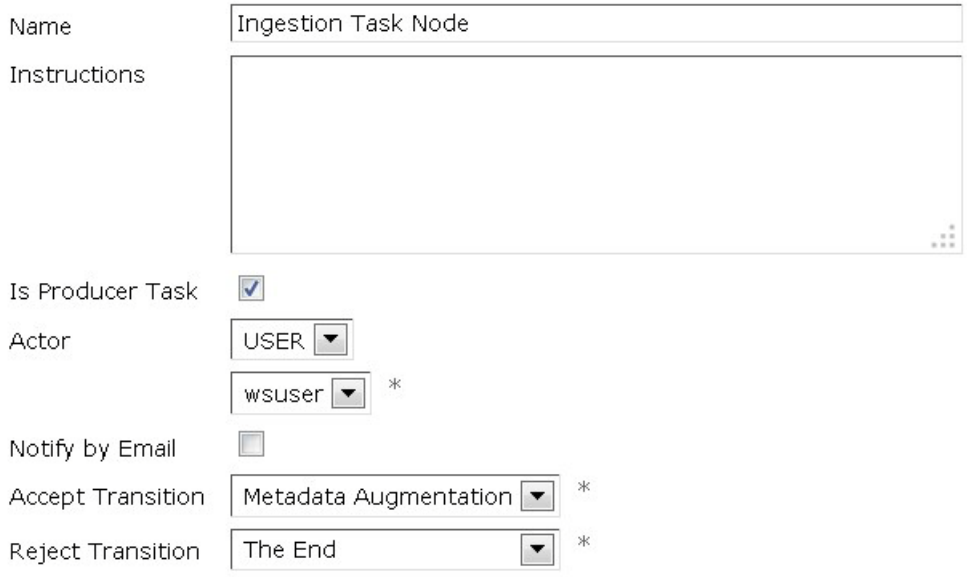
2. Next, you will need to configure your workflow as usual, including your task nodes.
3. To configure your Workflow Task, navigate to **Workflow > Manage > Workflow Definitions**.
4. Select the workflow that you would like to edit.
5. Click the **Configure** tab.
6. On the Workflow Definition image, click the Task Node that you would like to configure. In the example below, that would be the **Ingest Task Node**.

Figure 91 Selected Task Node



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

Figure 92 Configuring Producer Workflow Task Parameters



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_amin 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.

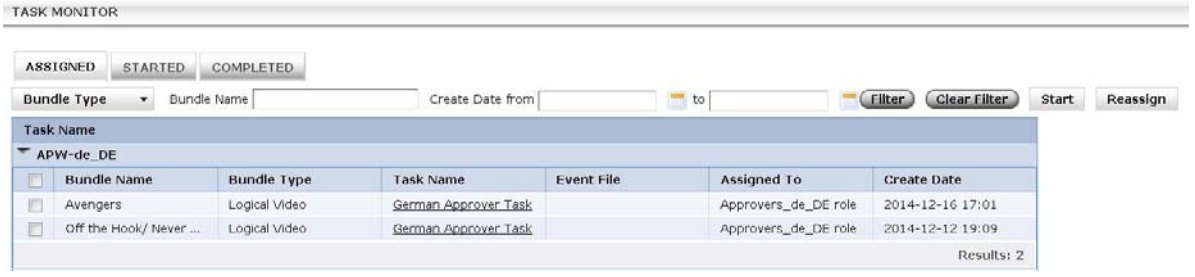
3 If required, perform a search to find the bundle tasks that you are looking for. This is performed by:

- **a** Selecting a specific bundle type from the dropdown 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 93).

Figure 93 Expanded Workflow and Bundle Task View



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 94 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`.

---

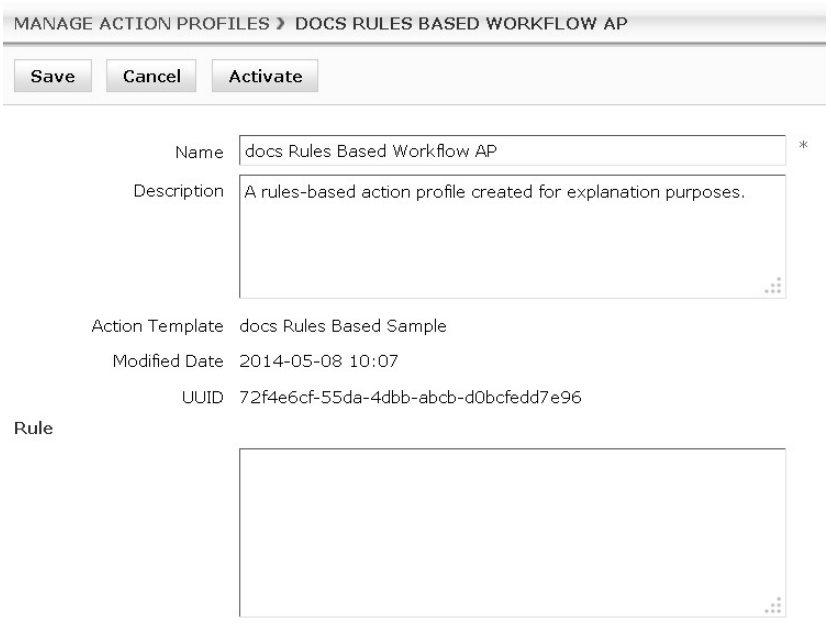
5. Click **Create & Edit**.
6. Click **Save**.
7. Click **Activate**. If you wish to immediately create an Action Profile, click **Create Action** to continue.

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**.

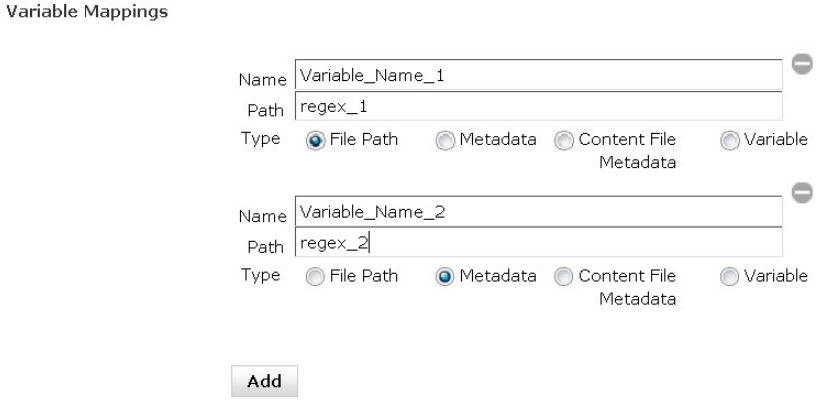
Figure 95 Rules-Based Workflow Action Profile



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 96 Rules Based Workflow Variable Mappings Section



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 97 Settings Static Variable Mappings

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 93.

Chapter 22

Managing Bundles

Understanding Bundle Management

Producer is intended to streamline and improve the bundle management experience for administrators who work extensively with managing various aspects of bundles, such as metadata, images, categories, and availabilities. The specialized user interface has an specific focus, and individuals working in Producer typically may never use other parts of the application. For that reason, a small portion of the user interface may appear to be duplicated from another part of Media Suite, however any such duplication is intentional and serves a specific purpose that benefits Producer users.

When creating or editing bundles, the following default tabs in Producer provide specific functionality:

Bundle - allows administrators to view and edit general bundle information.

Metadata - allows administrators to add, remove, or edit metadata for logical video bundles.

Images - allows 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 license windows for bundles.

Availabilities - allows administrators to manage availability dates and offer windows for logical video bundles.

Searching for Bundles

The process of searching for bundles within Producer is virtually identical to that in other parts of Media Suite. Since readers of this section may only be concerned with Producer, the following section will explain 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 might 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 will create an empty bundle and display the **METADATA** edit tab. In addition, other tabs are available to manage **IMAGES**, **VIDEOS**, **CATEGORIES**, and **AVAILABILITIES**. As required, other tabs, such as **IDENTIFIERS**, may be added via the Wizard Template Configurations page. For details, see page 230.

5 The following sections will 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 210
- "Managing Metadata" on page 210
- "Managing Images" on page 213
- "Managing Videos" on page 215
- "Managing Categories" on page 216
- "Managing Licensing Windows" on page 218
- "Managing Availabilities" on page 220

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 225. The third, would be to perform metadata augmentation to replace existing data with that from external providers. For details, see "Metadata Augmentation" on page 221. Lastly, you can create workflows to import XLS data into Media Suite. For details, see

To manually edit bundles in Producer:

1 Navigate to **Producer > Manage Bundles**.

2 Search for an existing bundle (see "Searching for Bundles" on page 207).

3 Click the underlined bundle name. By default, you will arrive at the Metadata tab on the bundle details page.

4 Make any required changes to the available fields.

5 Click **Save**.

6 Click on tabs related to other aspects of the bundle that you need to edit. For example, IMAGES, VIDEOS, CATEGORIES, AVAILABILITIES, and 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 and products.

To delete bundle metadata in Producer:

1 Navigate to **Producer > Manage Bundles**.

2 Search for an existing bundle (see "Searching for Bundles" on page 207).

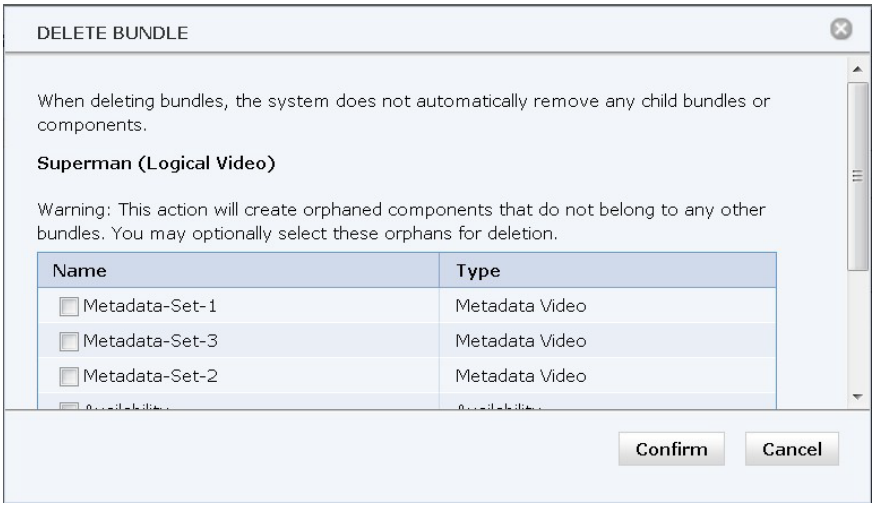
3 Click the underlined bundle name. By default, you will arrive at the Metadata tab on the bundle details page.

4 Click **Delete**, which is located near the top of the page.

Figure 98 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. In addition, related products that will be deleted along with this bundle will also be shown.

Figure 99 Related Components and Products 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 208) or search for an existing bundle (see "Searching for Bundles" on page 207).

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 208) or search for an existing bundle (see “Searching for Bundles” on page 207).

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.

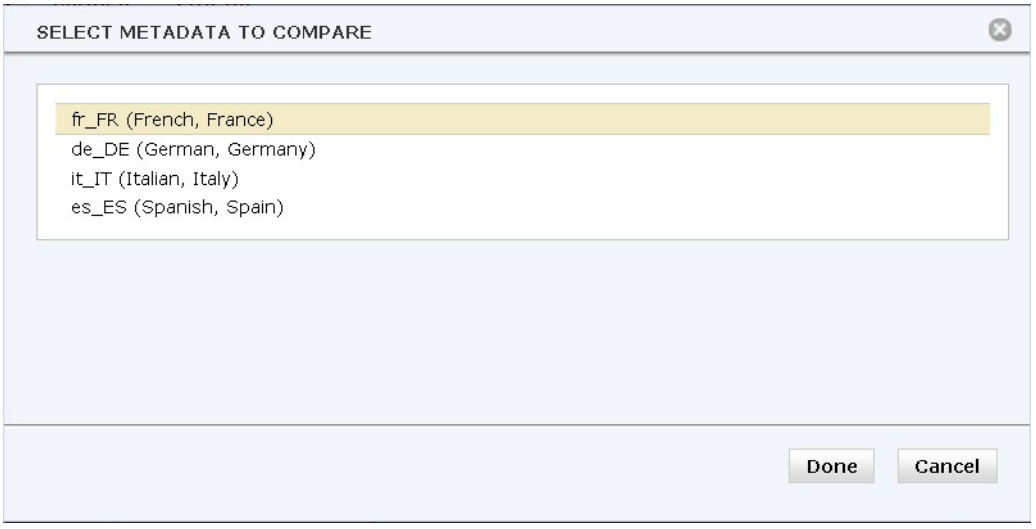
5 Click the locale for the metadata that you would like to edit. In our example, that will be `English (en_UK)`.

Figure 100 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 101 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

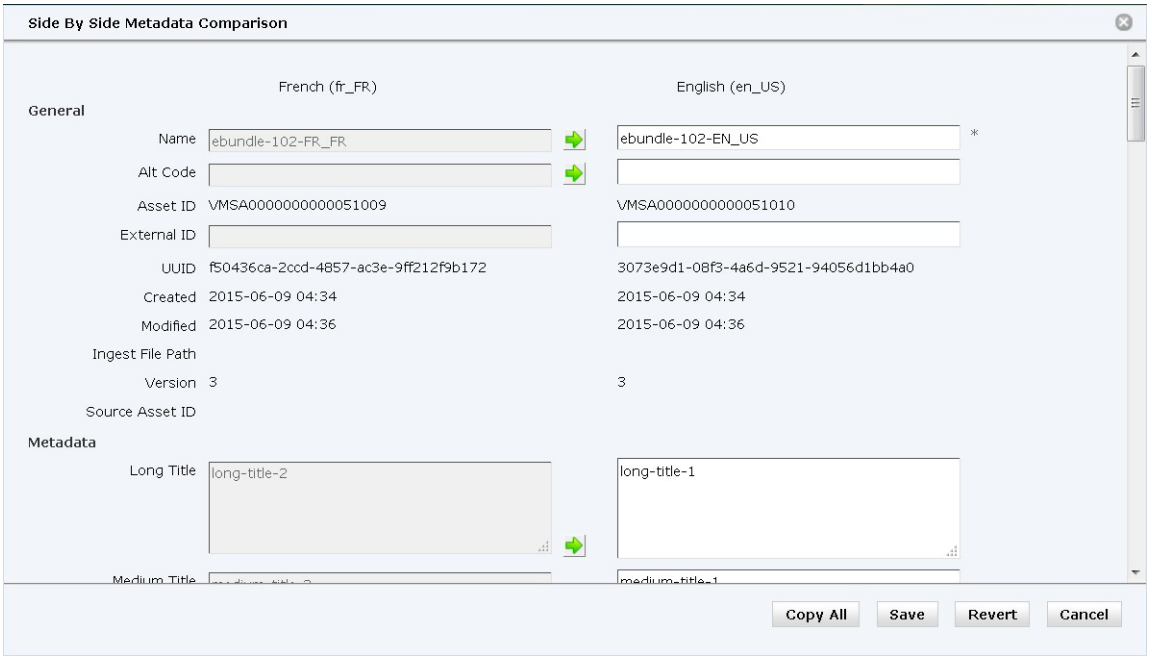
When comparing metadata, you have the option of copying individual field values or an entire set of field values from one locale to another. This functionality might be useful if you are copying common fields (such as a cast listing) from one locale to another.

To copy metadata between locales:

1 Follow the procedure to open the compare metadata dialog within Producer. For details, see “Metadata Comparisons” on page 211.

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 102 Metadata Comparison/Copy Dialog



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 230.

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 208) or search for an existing bundle (see “Searching for Bundles” on page 207).

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 103 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.

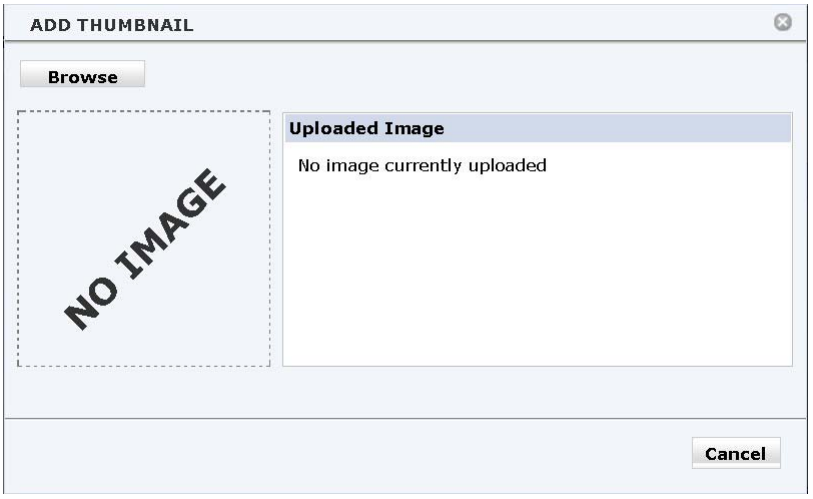
6 Click **Search** to view existing image metadata in Media Suite. Available image metadata will be displayed.

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 104 Add Thumbnail Dialog



10 Click **Browse** to browse for images on your local system. Select an image.

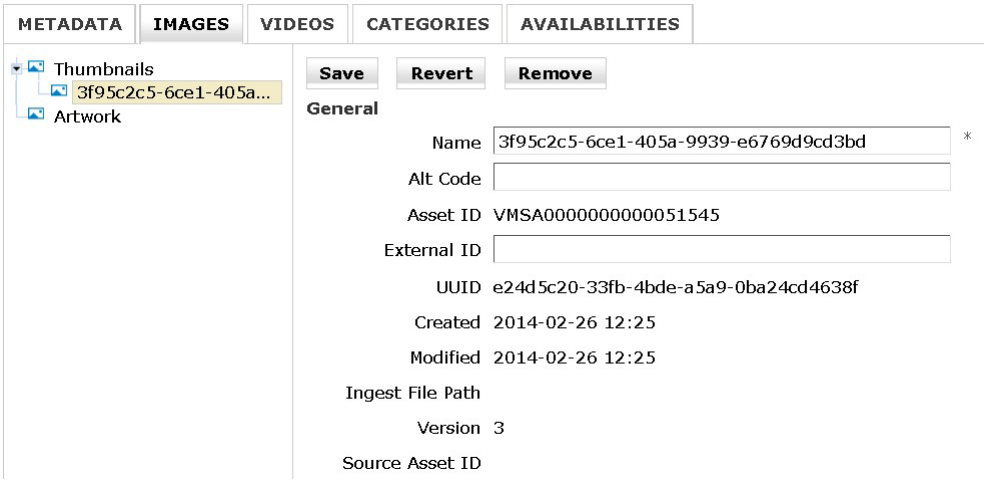
11 Click **Open**.

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 105 New Thumbnail in Logical Video



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 208) or search for an existing bundle (see “Searching for Bundles” on page 207).

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.

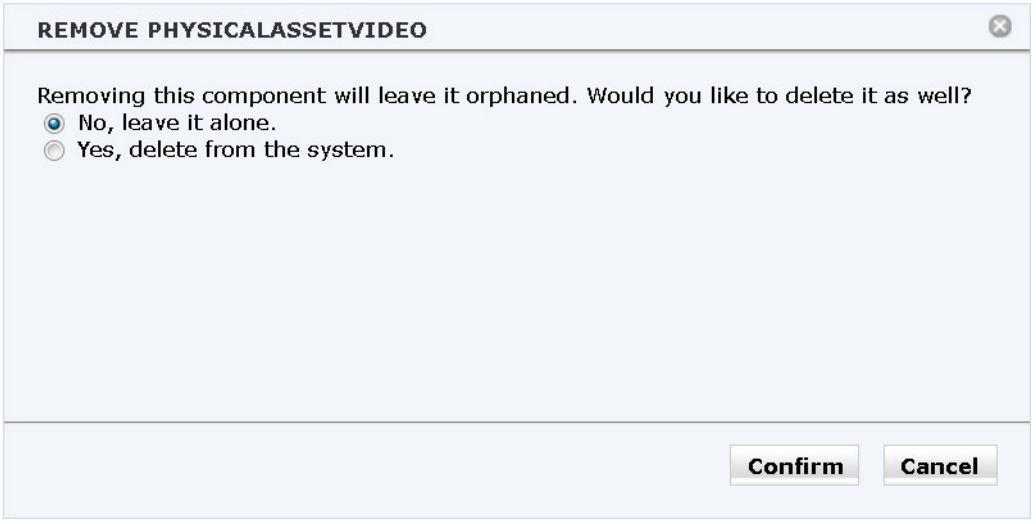
5 Expand either the Videos or Video Previews node, depending upon the type of video you would like to remove from the bundle.

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 106 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 107 Video Removed Confirmation

Managing Categories

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 108 Category Edit Page

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 be shown showing 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:

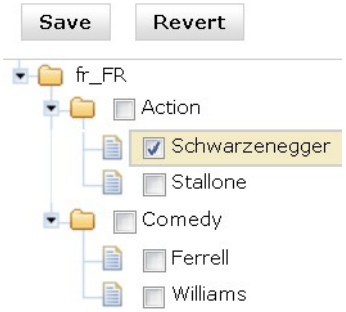
1 Navigate to **Producer > Manage Bundles**.

2 Either create a new bundle (see “Creating Bundles” on page 208) or search for an existing bundle (see “Searching for Bundles” on page 207).

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 109 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. The following section explains the generic usage of these terms.

Licensing Window - is typically one broad time frame 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 time frames 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.

License Window - is one or more date ranges during which a customer will have access to content they have purchased or rented. This concept pertains to products.

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 208) or search for an existing bundle (see "Searching for Bundles" on page 207). 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.

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 208) or search for an existing bundle (see "Searching for Bundles" on page 207). 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 110 Licensing Window Delete Confirmation

9 Click **Confirm**.

Managing Availabilities

The following section describes how to work with the **AVAILABILITIES** tab within Producer, which manages date-based periods that are applicable to bundles. While a bundle can have only one availability window, which states the overall date range during which a bundle will be available to the system for use, it may have multiple offer windows that correspond to unique product offerings for the consumer.

To manage availabilities in the Producer user interface:

1. Navigate to **Producer > Manage Bundles**.
2. Either create a new bundle (see "Creating Bundles" on page 208) or search for an existing bundle (see "Searching for Bundles" on page 207). In our example, we will edit an existing bundle.
3. After performing a search, click the underlined bundle name.
4. Click the **AVAILABILITIES** tab. This is where you manage hierarchical categories that are applied to your content. These are the same Categories that are also managed at the **Metadata > Categories** location within Media Suite.

Figure 111 Showing Availabilities Progression 1

5. Click **Add New**.
6. An arrow will appear to the left of the "Availabilities" label. Click on the arrow to open up the next level of the tree node.

Figure 112 Showing Availabilities Progression 2

7. Click again to make the "Availability Window" and "Offer Windows" nodes visible.

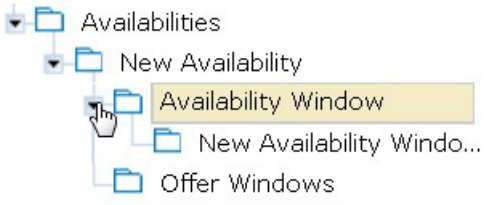
Figure 113 Showing Availabilities 3

8. Click one of those labels to move the focus to it. In our example, we will click "Availability Window" node text.

Figure 114 Showing Availabilities 4

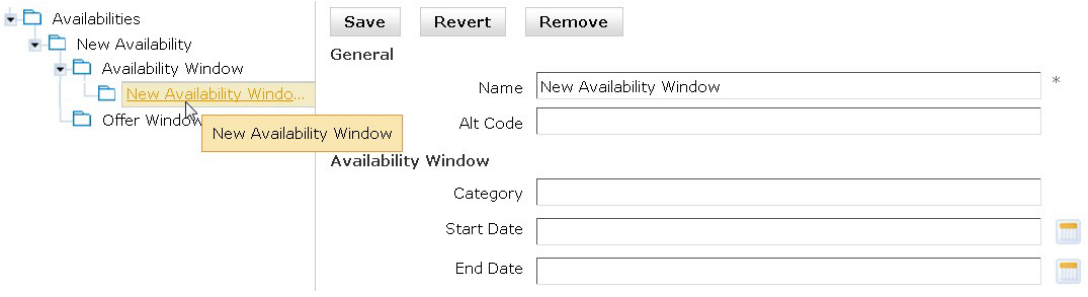
9 Click the arrow to open up the node.

Figure 115 Showing Availabilities 5



10 Click **Add New**. Metadata fields will appear for you to populate any required dates and codes. Use the calendar widgets to select a date and then click **Apply** to commit the date.

Figure 116 Showing Availabilities 6



11 Click **Save**.

12 This page also has **Revert** button to revert values to the previously saved values and a **Remove** option to remove the current Availability or OffWindow entry.

13 There can only be one availability window per bundle, but you may repeat the above process to create one or more Offer Windows.

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 207.

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.

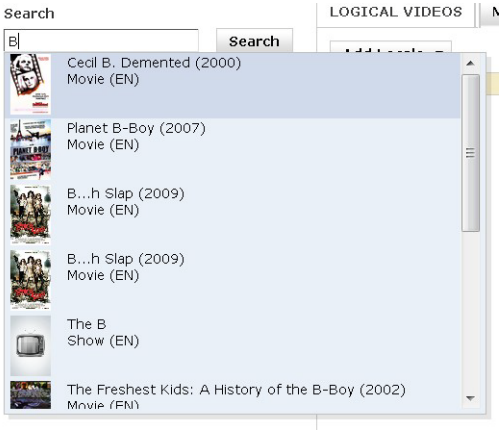
5 At left is a metadata source and search section. Select your Data Provider. In our example, we will choose TMS.

Figure 117 Metadata Source Selection & Search

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 118 Augmented Metadata Lookup



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 119 Augmented Metadata

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 209.

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.

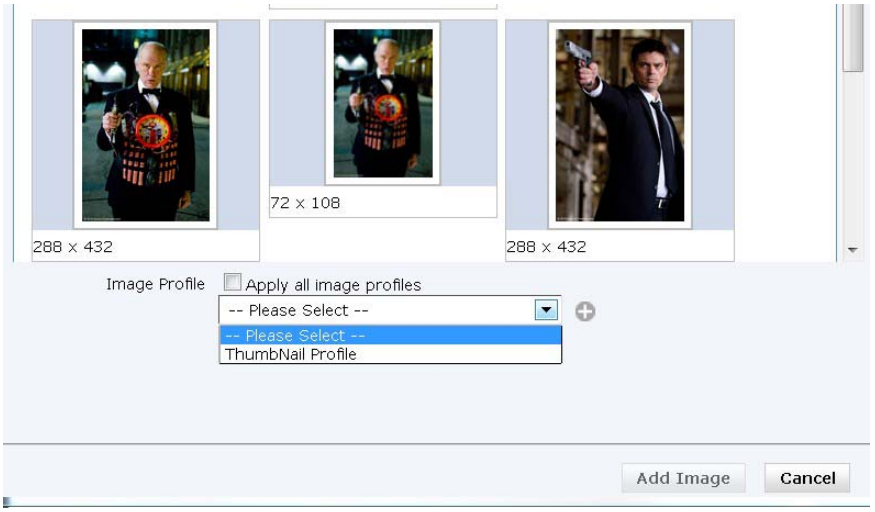
Figure 120 Image Source Selection & Search

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 121 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 230.

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 207 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 230.

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.

---

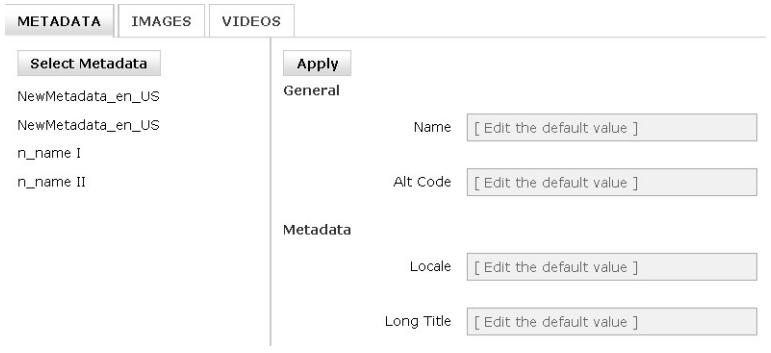
3 Click **Search**.

4 Select the checkboxes to the left of the bundles that you would like to concurrently edit.

5 Click **Bulk Edit**.

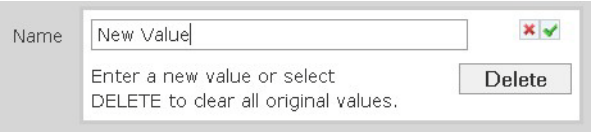
6 The Metadata tab will be displayed showing all configured fields specified by the bulk edit template. At left, is a “View Selected Items,” section that displays all bundles that will be affected by this bulk edit operation.

Figure 122 Producer Bulk Edit



7 Click a textbox that you would like to change for all bundles. An edit dialog will appear.

Figure 123 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

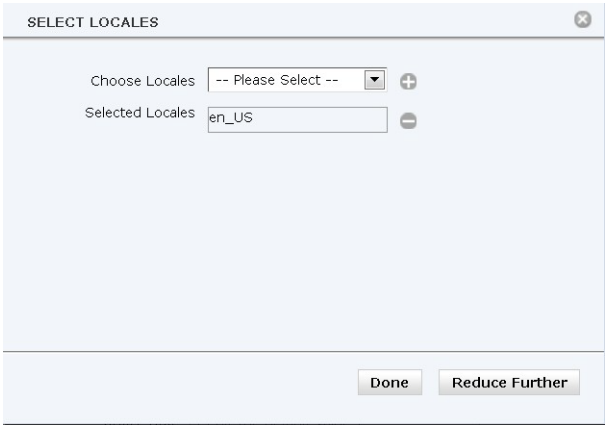
In some instances, you may wish to restrict bulk edit operations to only certain components within a bundle. Producer enables you to quickly perform this action for your current editing session.

To choose specific components for bulk editing:

1 Navigate to the bulk edit page as shown in “Bulk Editing” on page 225.

2 From the Choose Locales drop-down list, select one or more locales. Click ⊕ to confirm each selection.

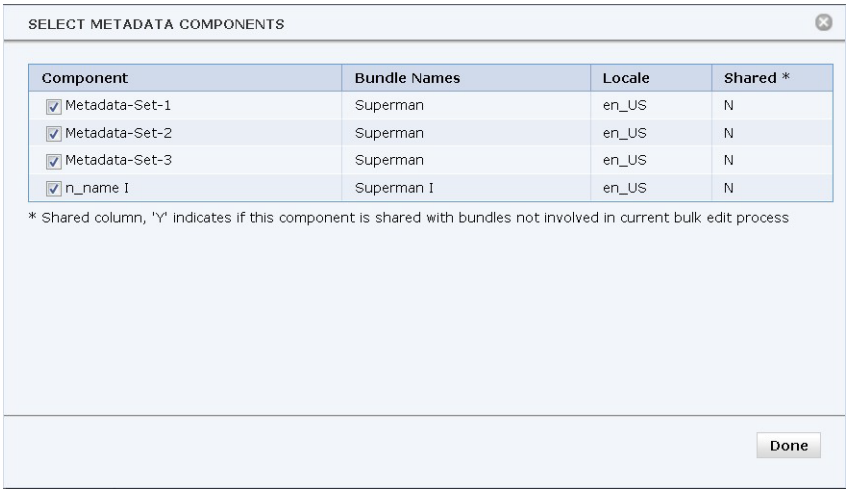
Figure 124 Selecting Locales for Bulk Editing



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 125 Selecting Metadata Components for Bulk Editing



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.

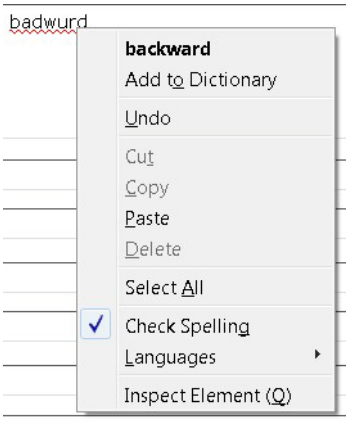
Enabling Spell Check

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 126 Spell Check Options



Chapter 23

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 administers can to configure Producer setup features.

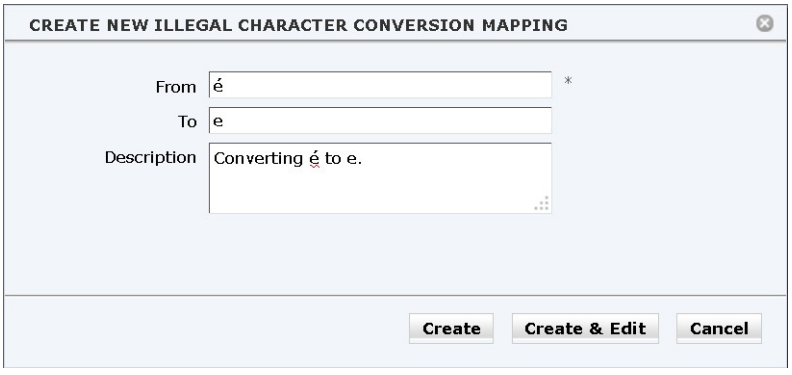
Illegal Character Conversion

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 Conversion**s.
2. Click **Add New**. A dialog will appear to allow you to enter the character conversion parameters.

Figure 127 Illegal Character Conversion Dialog



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 spec ified 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 will describe both the high level and 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 of generating 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 Configuration**s.
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.

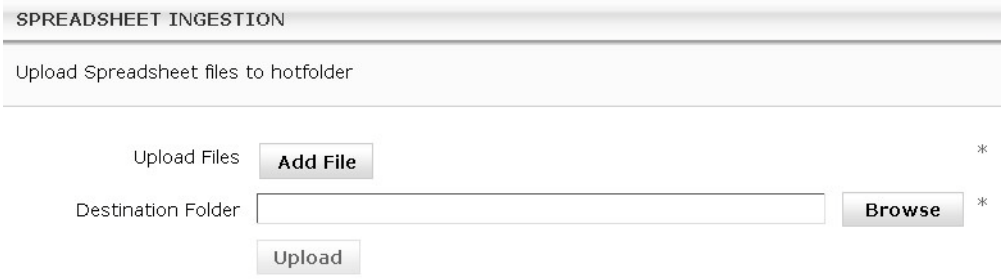
Uploading an XLS File into Media Suite

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 128 Spreadsheet Ingestion Page



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 have to choose a 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.

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**.

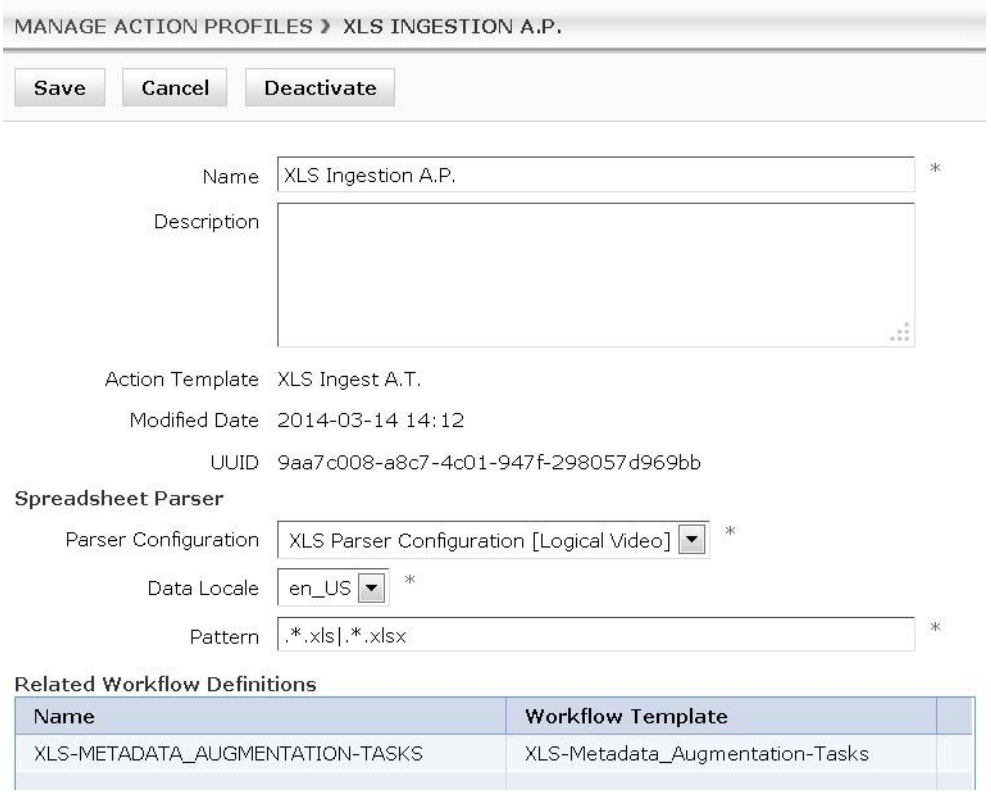
2 Click **Add New**.

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 129 XLS Ingestion Action Profile



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 232.

7 From the Data Locale drop-down list, select your locale, such as `en_US`.

8 In the Pattern field, enter a regex pattern that will be used to find files for ingestion. Typically, this pattern would be `.*.xls|.*.xlsx`

9 Click **Save**.

10 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

One 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 will explain 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 233.
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 my 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.

To setup a new metadata source:

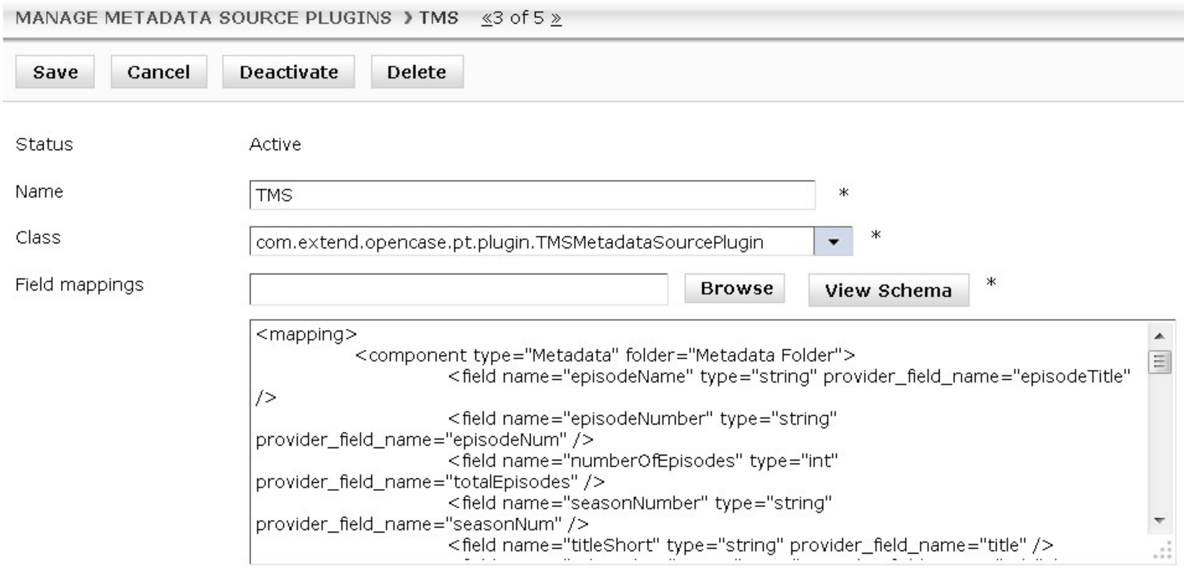
1 Navigate to **Producer > Setup > Metadata Source Plugins**.

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 130 Metadata Augmentation Setup



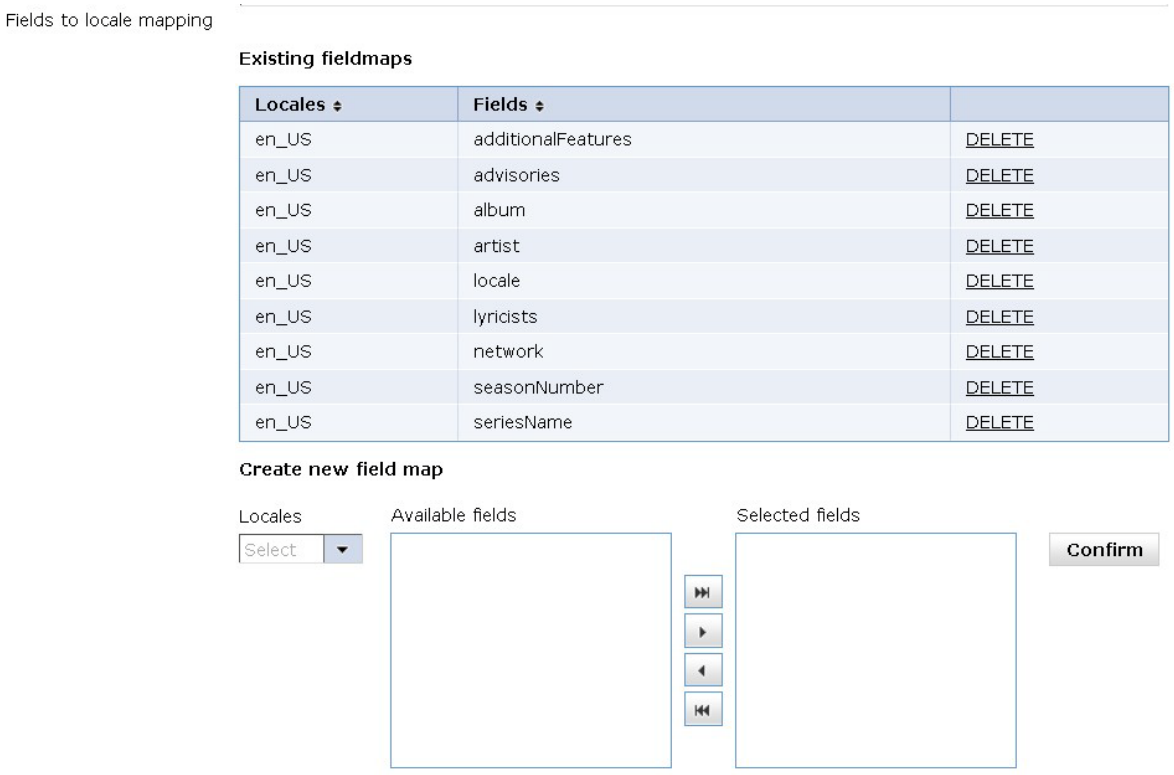
5 The Field Mappings section allows you to **Browse** and import XML to map all possible Media Suite fields to data provider fields. Within the XML, the first field is the VMS field name, while the second field is the provider field name. This XML is typically set once, and rarely changed. As required, 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.

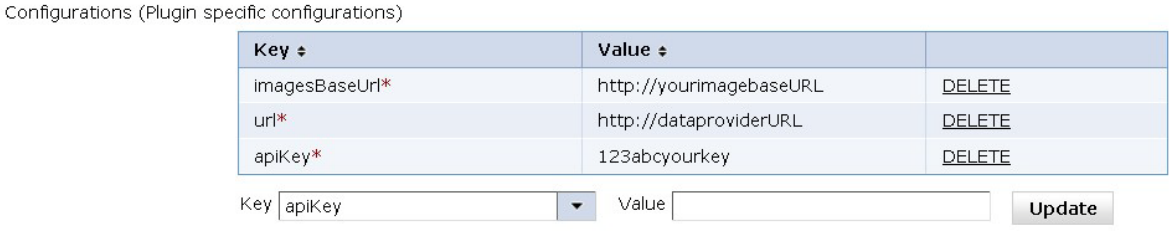
Figure 131 Selecting Fields That Will Be Augmented



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 132 Plugin-Specific Configuration



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.

To create an image transformation profile:

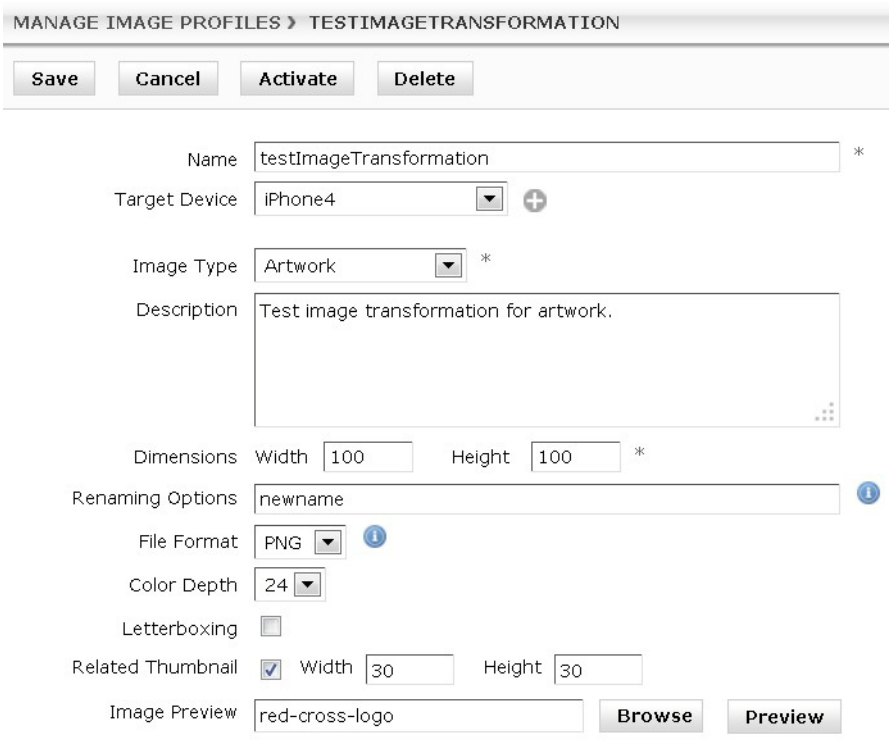
1 Navigate to **Producer > Setup > Image Profiles**.

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 133 Image Transformation Page



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.

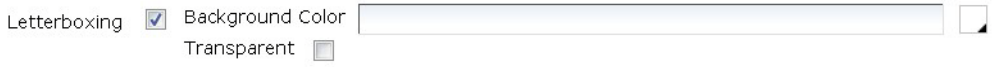
9 In the Renaming Options field, you can use regex expressions to specify a naming convention for any transformed files. Also, adding $d will append the date to the new filenames.

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 134 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 213.

Part C

EPG

Chapter 24

EPG Overview

The Videoscape 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

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 Videoscape™ 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 Cisco Videoscape Media Suite, the industry's first 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 is the latest addition to the Cisco Videoscape platform. This 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, Videoscape 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.

Terminology

The following table defines EPG-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 91within 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 external 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 EPG 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 *EPG Installation Guide* 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 *channel line-up*.
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 247 for more details on PAR files. Sample EPG PAR files are available on the Videoscape Media Suite Documentation Portal at: http://www.cisco.com/web/videoscape/docs.html
product	Products are created within Media Suite by applying policies containing business rules to bundles that encapsulate content and related metadata. Content can be sold only if it is defined within a product. See also, *station bundle*.
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. A station bundle is required in order to productize a station. Productization is performed applying a policy (namely business rules) to a bundle (namely a content entity).
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.

Chapter 25

Configuring 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 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 Videoscape 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.

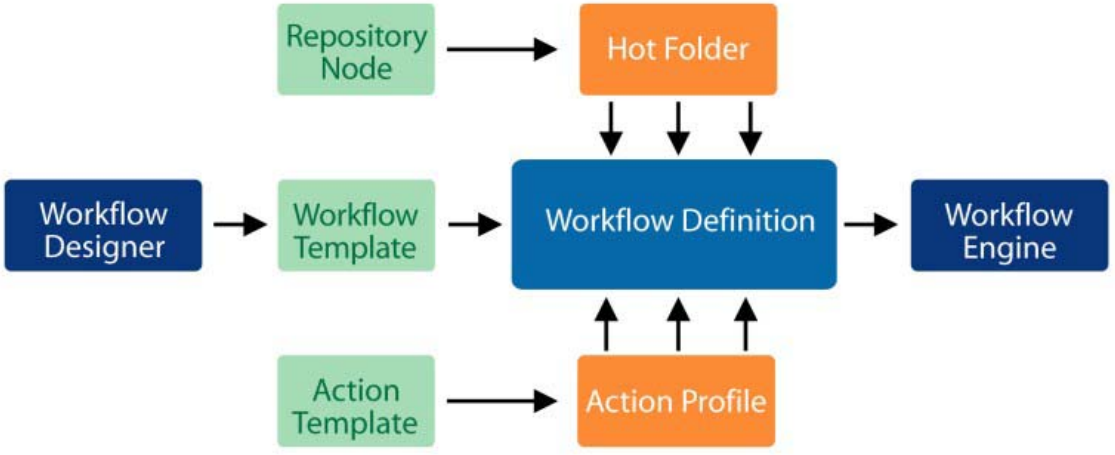
4 Create action templates
Action templates establish general actions that process, transform, or transport a file. Examples of action templates include File Discovery, Ingest Feed Fragment, or Publish.

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 135 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 250.

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. 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 252.
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":

```
.*_linueups_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 247.

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 station products (and consequently to the related station bundles).

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 station products (and consequently to the related station bundles).
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 Lineup**s - 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.

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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 295.

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.

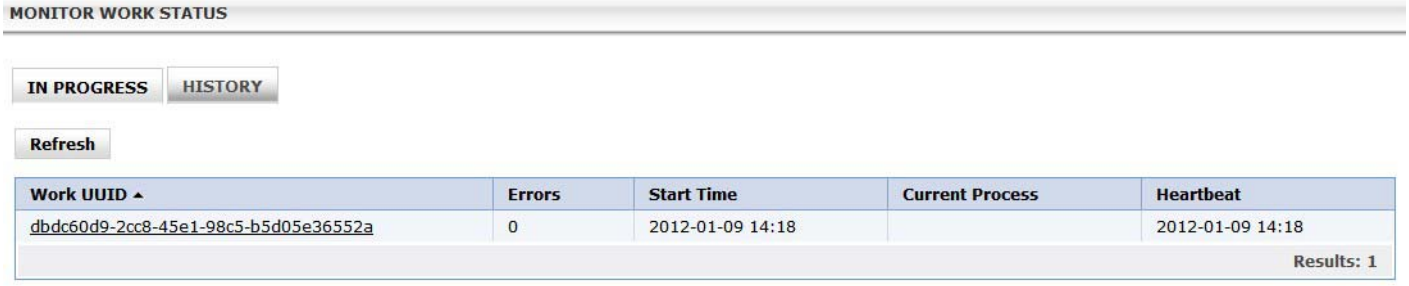
To view EPG work status:

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 VMS to confirm that it is running.

Figure 136 Work Status - IN PROGRESS Tab



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.

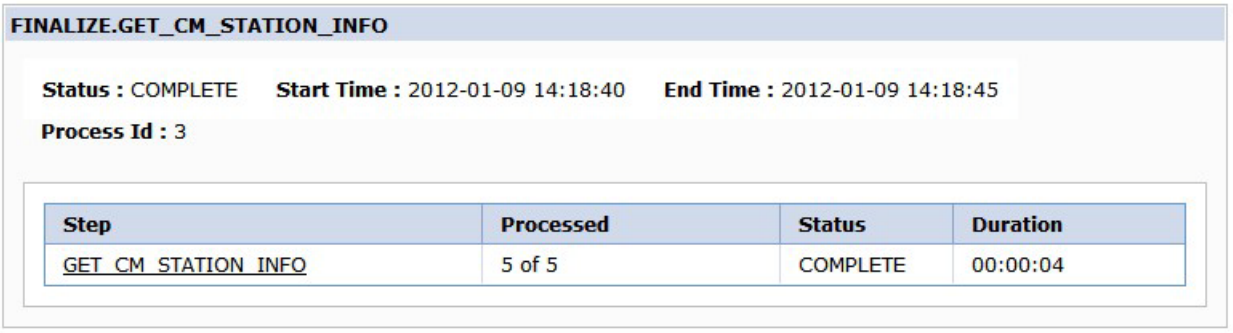
Each step table lists the following:
Step - the name of the step being performed.

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 137 Work Status - IN PROGRESS Tab: Processes



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:

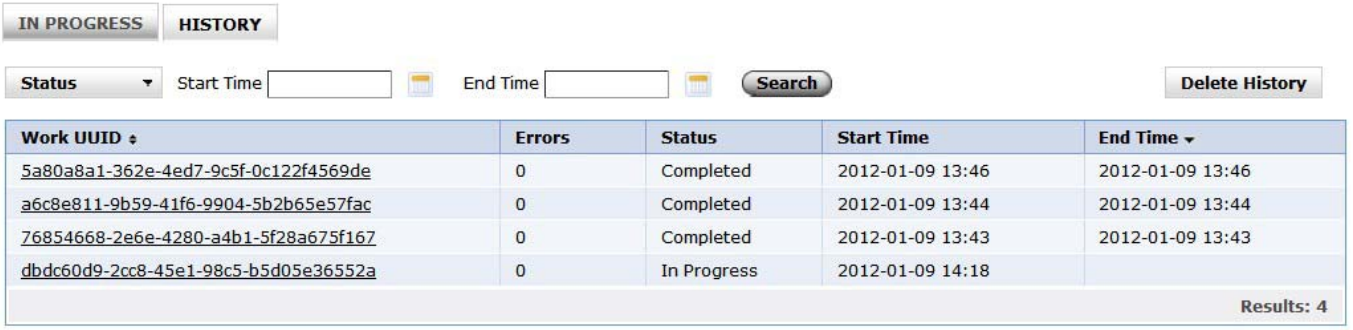
1 Navigate to **EPG > Monitor > Work Status**.

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.

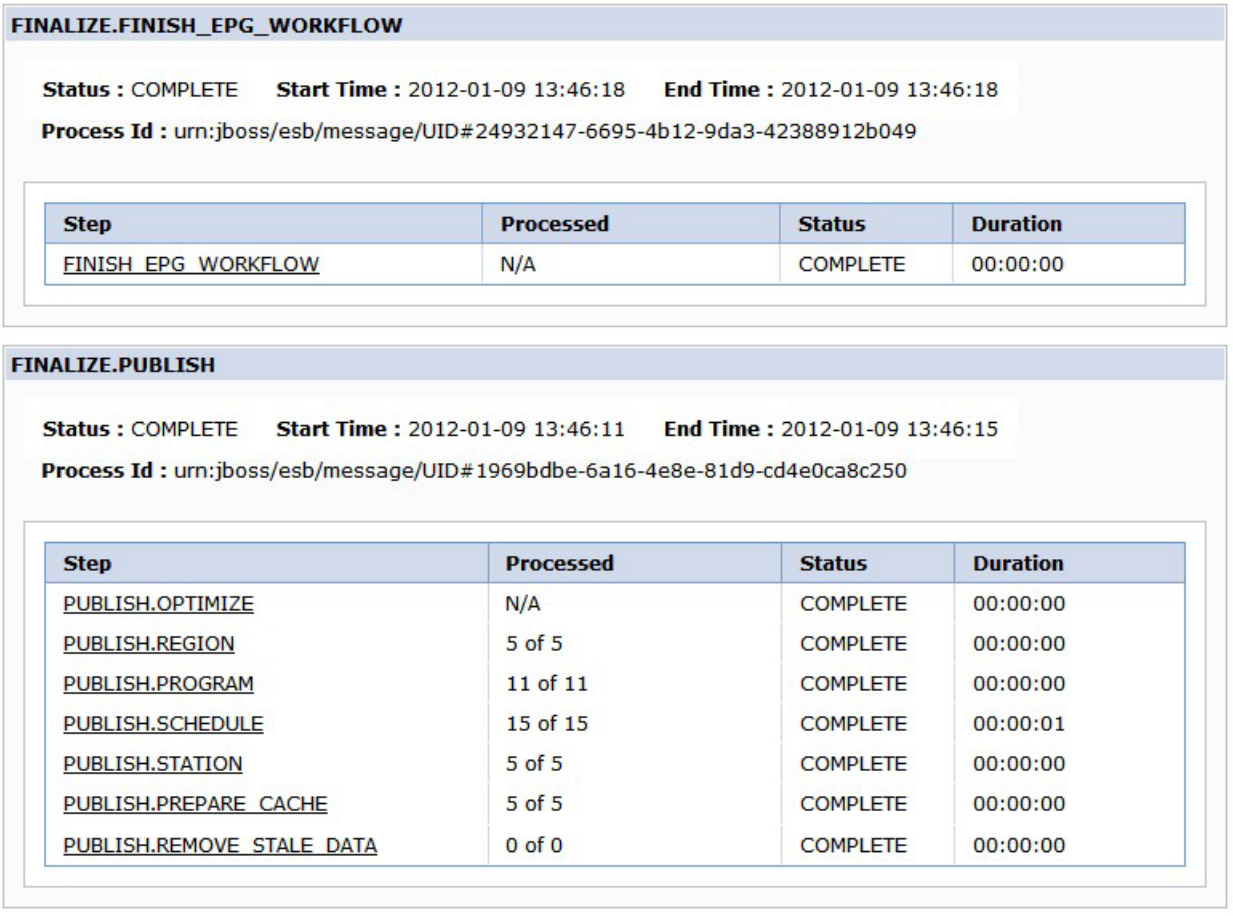
Figure 138 Work Status History page



5 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.

6 Clicking the Work UUID allows you to view process-level details of the work being performed.

Figure 139 Process-level Detail of a Single EPG Work Item



7 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.

8 Click **Done** to return to the main WORK STATUS page (IN PROGRESS tab).

Chapter 26

Channel Line-ups

This chapter includes the following information related to channel line-ups:

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

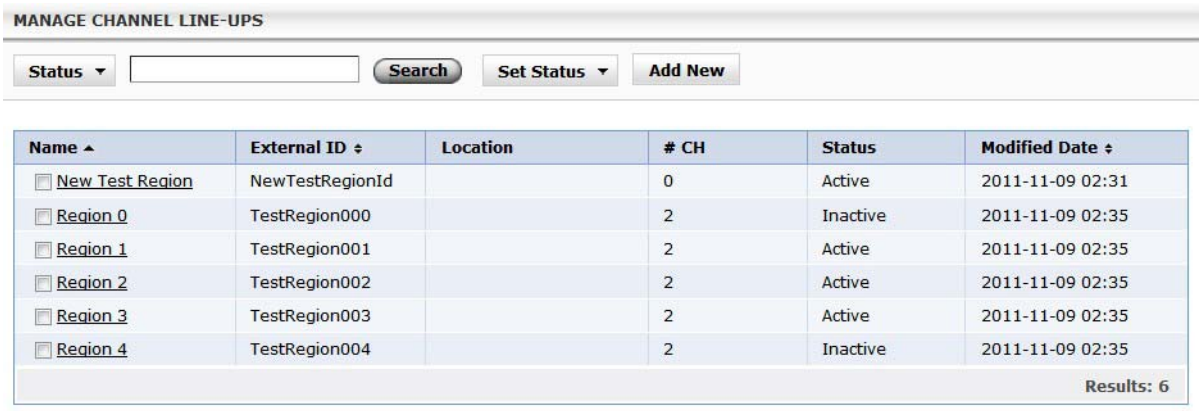
The following section describes the procedures for creating, viewing, and editing channel line-ups.

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 140 Channel Line-up Listing



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 141 Add Channel Mapping Dialog

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.

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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

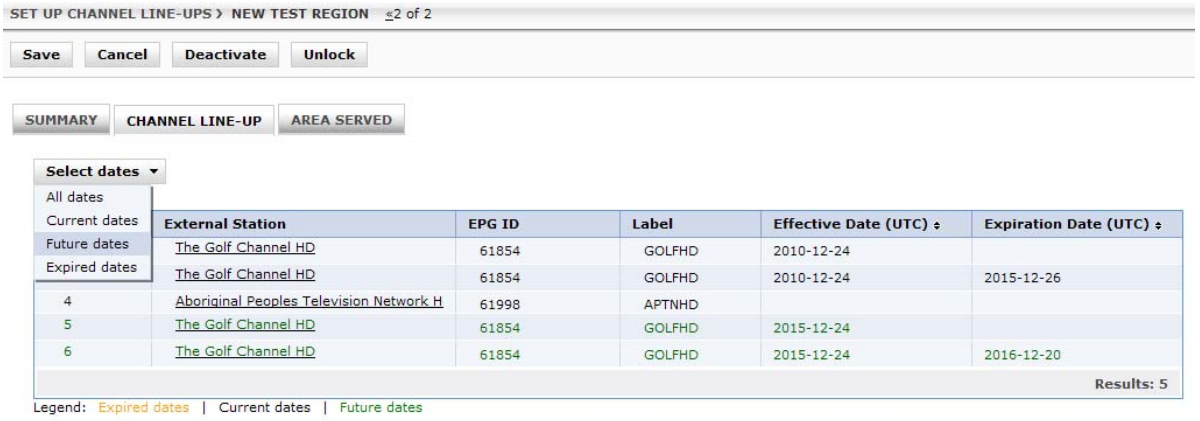
The following section explains how to manually edit a channel mapping within a channel line-up.

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 142 Filtering Channel Mappings by Date Range



6 Click on the underlined **External Station** name on the channel mapping that you would like to edit. An edit dialog will appear.

Figure 143 Edit Channel Mapping Dialog

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.

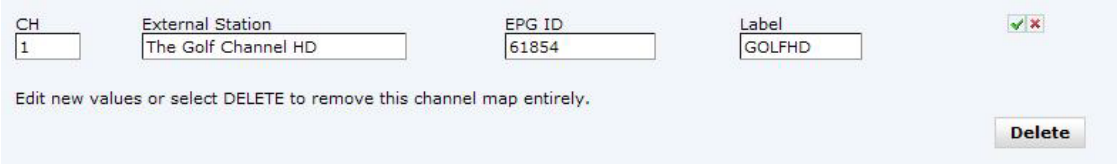
3 Click the channel line-up that contains the channel you would like to delete.

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.

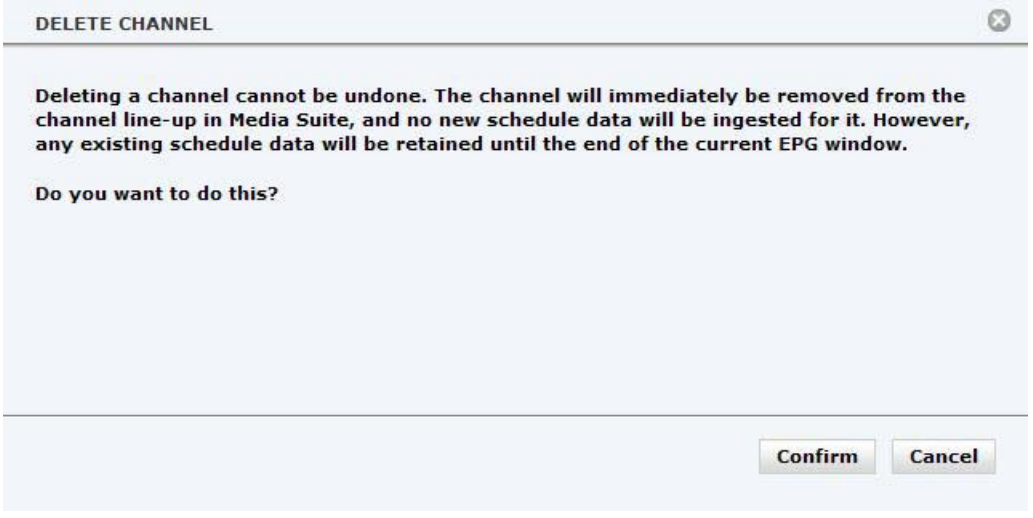
Figure 144 Channel Details



7 Click **Delete**.

8 A DELETE CHANNEL dialog appears.

Figure 145 Delete Channel Confirmation



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**.

Chapter 27

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

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

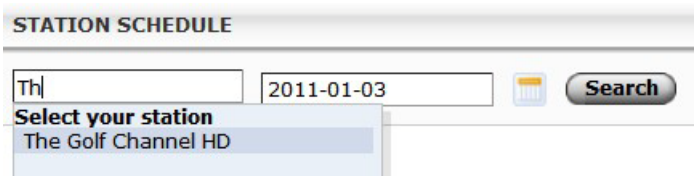
The following section describes the procedures for viewing station schedule information.

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. Only stations that are mapped to an active channel line-up will be shown.

Figure 146 Station Auto-Lookup



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.

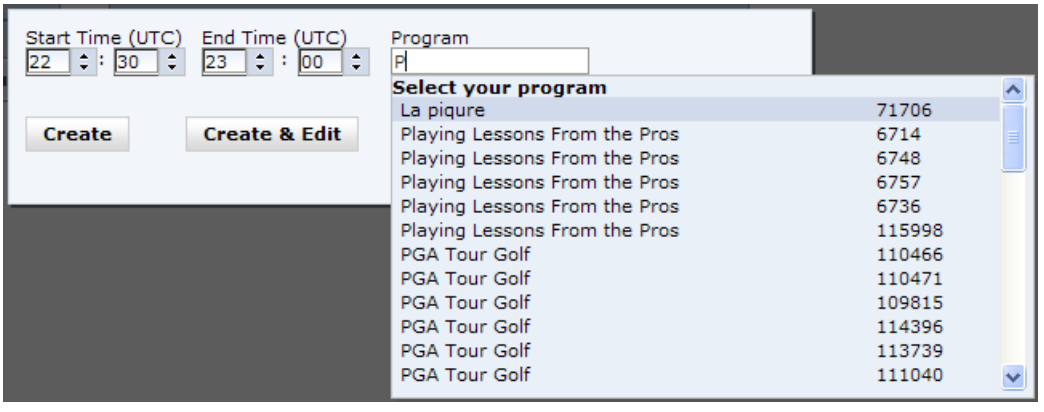
To add a correction to a schedule:

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 275.

3 Click **Add New Correction**. A corrections dialog will appear.

Figure 147 Adding a Schedule Correction



4 Type (or use the arrow widgets) to enter the correction Start Time (UTC) and End Time (UTC).

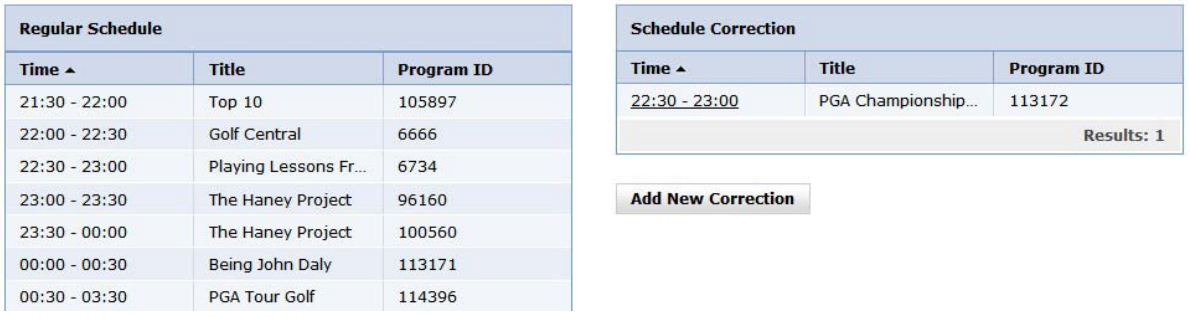
5 Start typing the program name (or program ID) that requires a correction. The text box automatically shows matching entries. Select the required program.

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 277.

Figure 148 An Added Schedule Correction



7 Click **Add New Correction** for each additional correction that you need to add.

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.

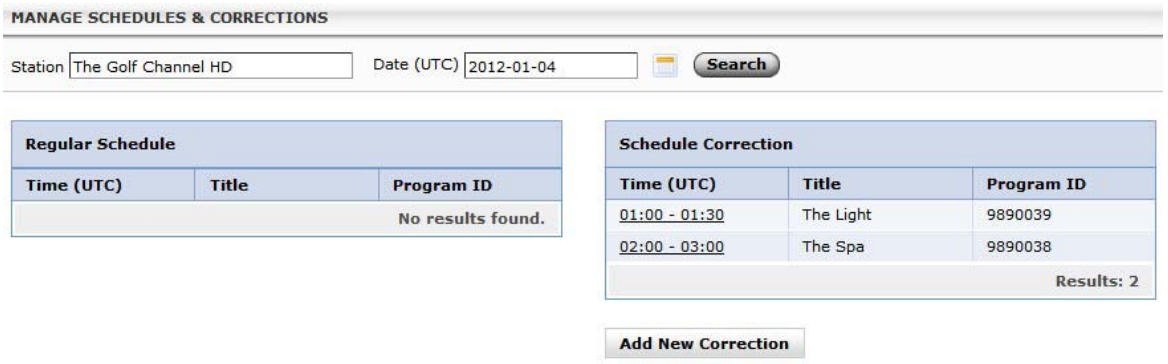
Editing Schedule Corrections

Schedule corrections can be edited in the following manner:

1 Navigate to **EPG > Manage > Schedules & Corrections**.

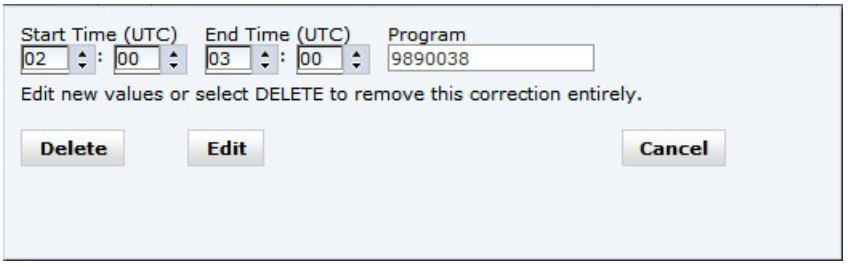
2 Search for a station schedule. For details on searching for a station schedule, see "Managing Station Schedules" on page 275. Any schedule corrections will appear to the right of the Regular Schedule listing.

Figure 149 Schedule Correction Listing



3 Click the underlined schedule correction Time (UTC). A schedule correction edit dialog will appear.

Figure 150 Schedule Correction Edit



4 Click **Edit**. The edit correction page will appear showing language fields and attributes that can be selected or deselected.

5 Make any required edits.

6 Click **Save**.

Deleting Schedule Corrections

To delete a schedule correction:

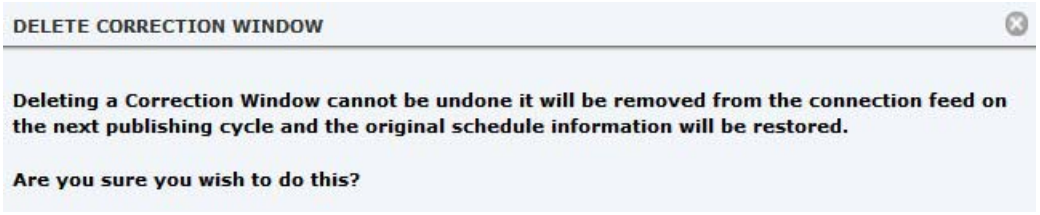
1 Navigate to **EPG > Manage > Schedules & Corrections**.

2 Search for a station schedule. For details on searching for a station schedule, see "Managing Station Schedules" on page 275. Any schedule corrections will appear to the right of the Regular Schedule listing.

3 Click the underlined schedule correction Time (UTC). The schedule correction edit dialog will appear.

4 Click **Delete**. A confirmation dialog should appear.

Figure 151 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 152 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 153 Editing Contributors

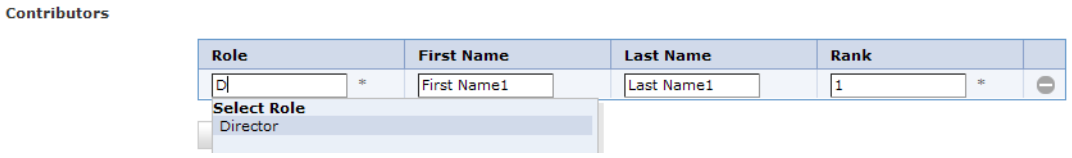
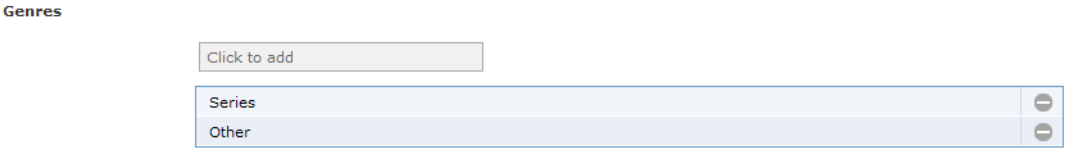
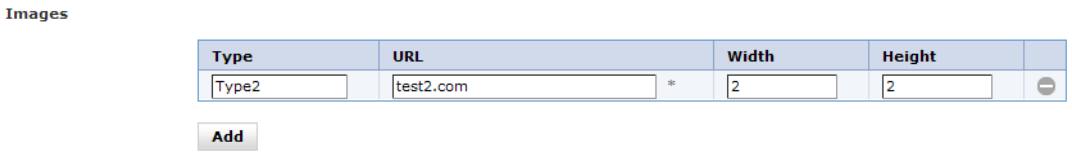


Figure 154 Editing Genres



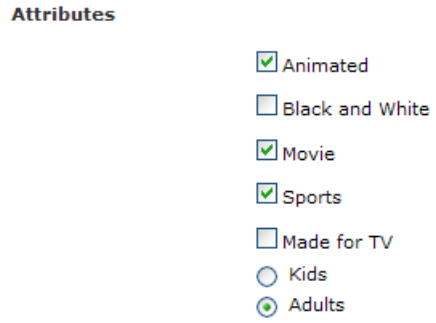
- "Images" metadata fields will allow you to specify an image type, URL, and width and height.

Figure 155 Images Metadata



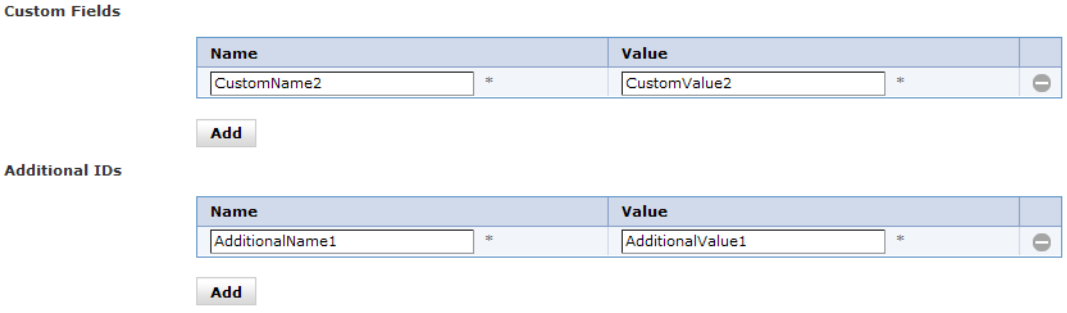
- "Attributes" metadata contains checkboxes for the selection of those attributes.

Figure 156 Updating the Attributes



- "Custom Fields" and "Additional IDs" contain name/value pairs that can be populated.

Figure 157 Custom Fields and Additional IDs



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 158 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.

Chapter 28

Blackouts

This chapter includes the following information related to blackouts:

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**.

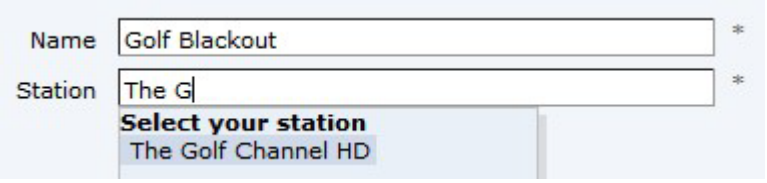
Creating Blackouts

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 159 Station Name Auto-lookup



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 293.

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**.

Chapter 29

Linking EPG Content to Bundles & Products

The following chapter explains the process for creating a link between station or program objects contained in EPG data and existing Media Suite bundles and products. The sections that are covered include:

Understanding Linking

At times you will need to link an EPG entity to a Media Suite entity. 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

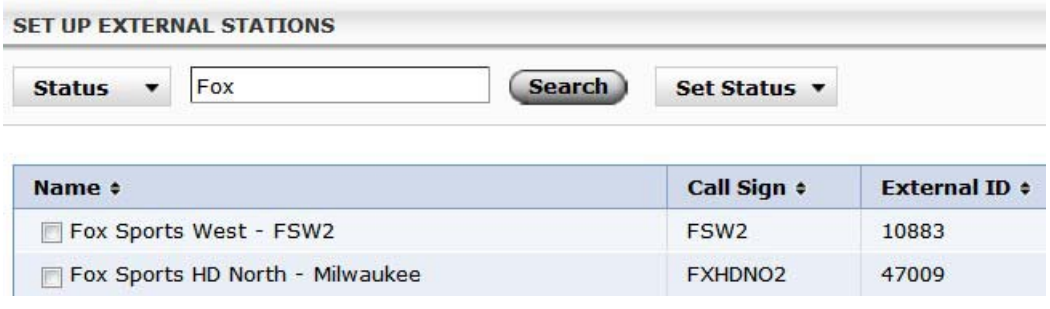
The following section describes the procedure for linking an existing external station within EPG to Media Suite. This process must be performed manually.

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 293.

Figure 160 EPG External Station Listing



3 Copy or make note of the External ID for the station.

4 Navigate to **Metadata > Bundles > Manage Bundles**.

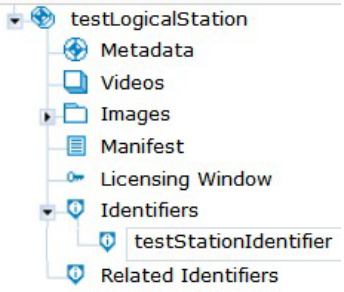
5 Search for Logical Station bundle that matches the EPG station.

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.

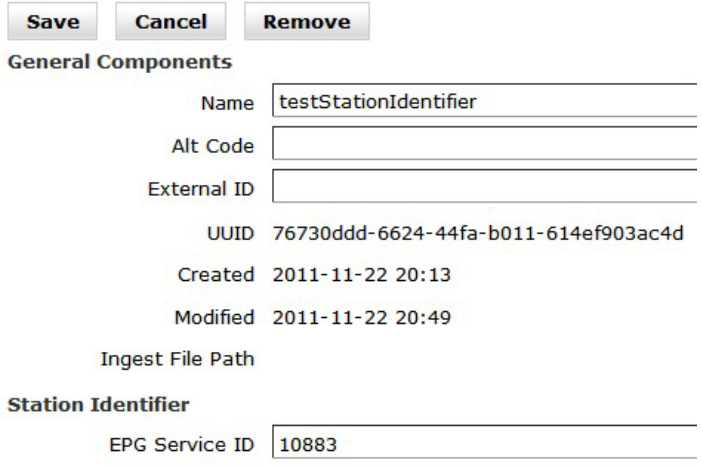
8 Click the identifier name.

Figure 161 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 162 Logical Station Identifier Fields



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 279.

Figure 163 EPG Program Listing

3 Copy or make note of the Program ID.

4 Navigate to **Metadata > Bundles > Manage Bundles**.

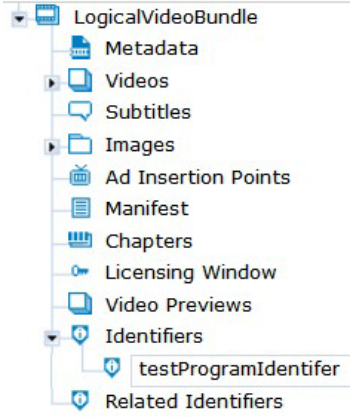
5 Search for Logical Video bundle that matches the EPG program.

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.

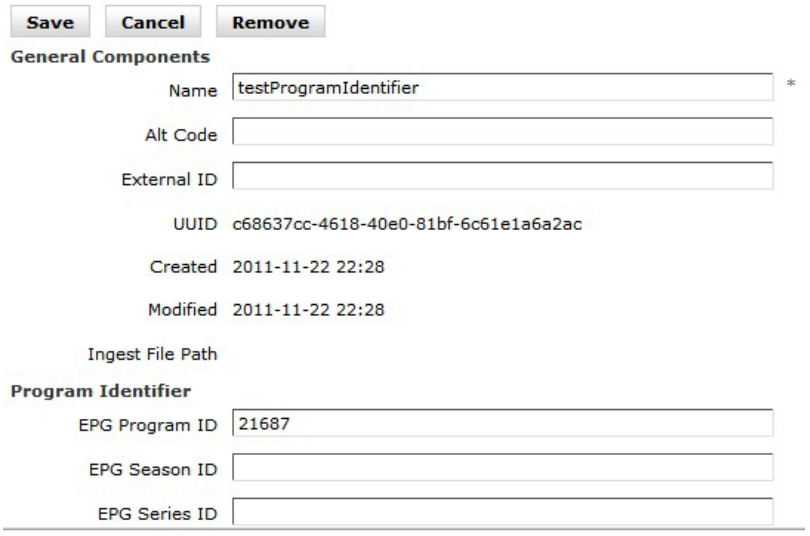
8 Click the identifier name.

Figure 164 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 165 Logical Video Program Identifier Fields



10 Click **Save**.
The link between the EPG program and the Logical Video bundle has been created.

Chapter 30

EPG Setup

This chapter includes the following information related to EPG module setup:

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 166 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.

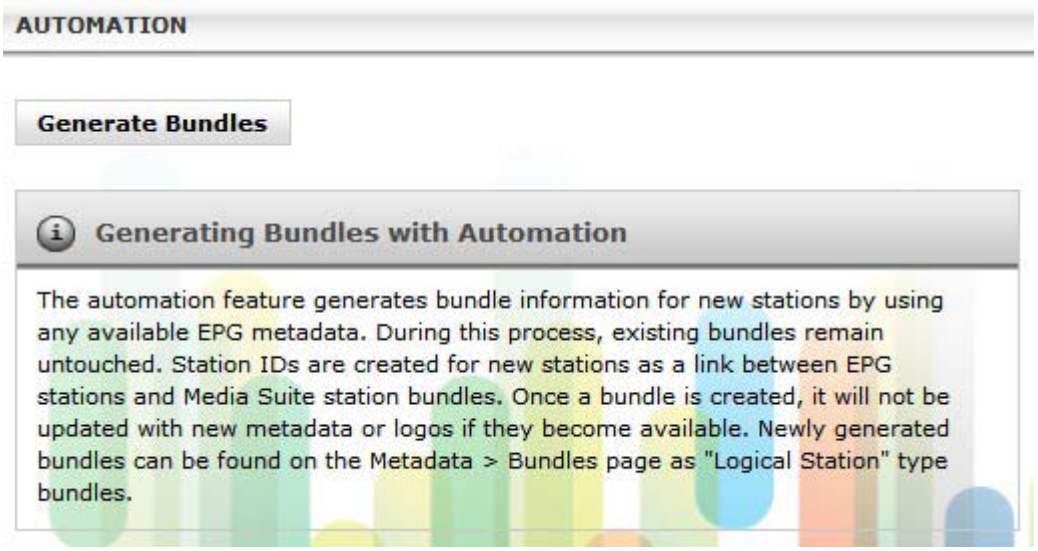
Note In additional to the manual process, workflows may also be utilized to automatically populate the station bundles with any required information and, later, to productize those bundles.

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 167 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:
	`mediumTitle.preferable.size=100`
	`shortTitle.preferable.size=60`
	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:
	`region.name.filter=.*someregion.*`
	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:
	`kidsFlag.rating.identifiers=G,TV-Y,TV-Y7,TV-G`
	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 VMS 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.

Appendix A

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

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)
- metadata (11 components)
- physical assets (8 components)
- program schedules (1 component)

Component Composition

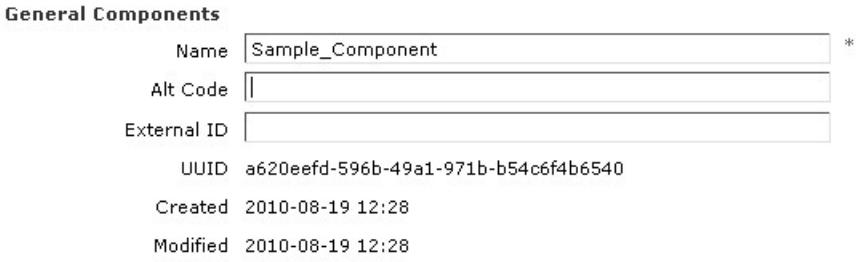
All components of a similar type include very similar information. This section lists the following fields (or groupings of fields) for each component:

General 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:

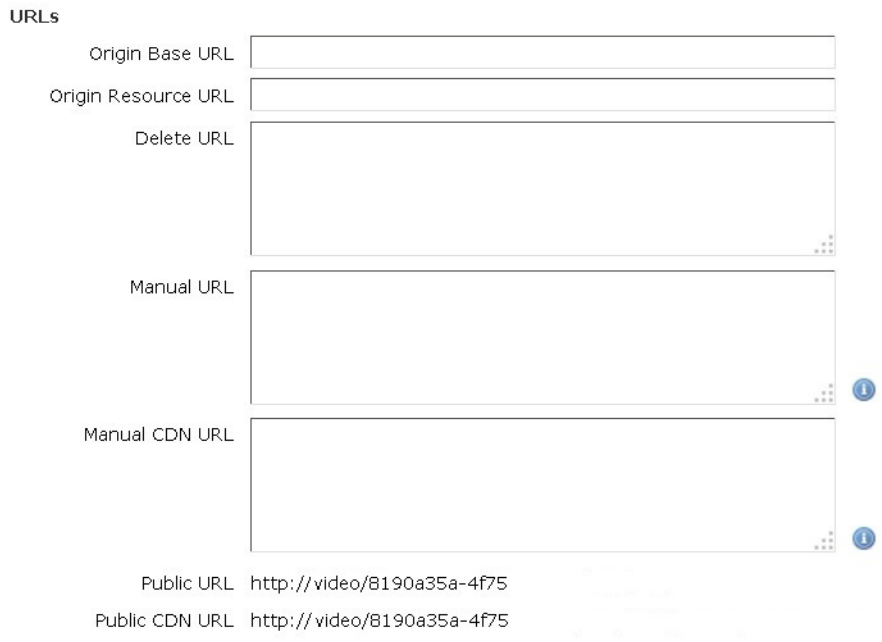
Figure 168 General Components Fields



URL Fields

The URL fields section is displayed for all physical asset components. For explanations on specific fields, see "Origin Mappings" on page 20.

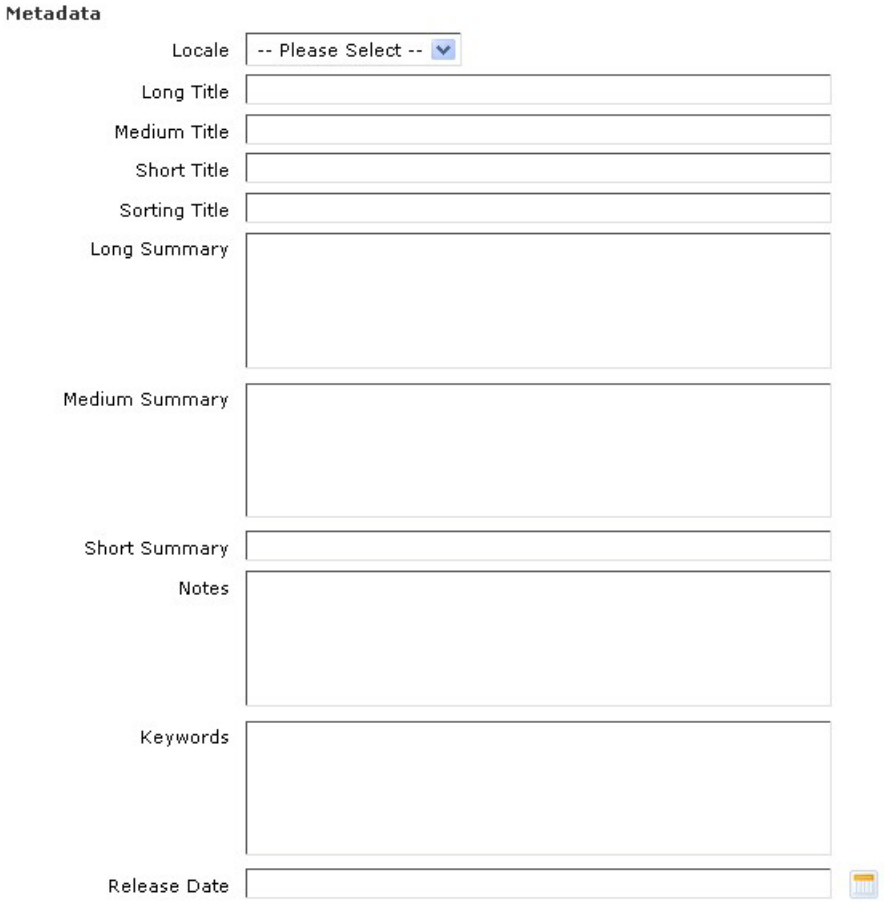
Figure 169 URL Fields



Metadata Fields

The metadata components fields are:

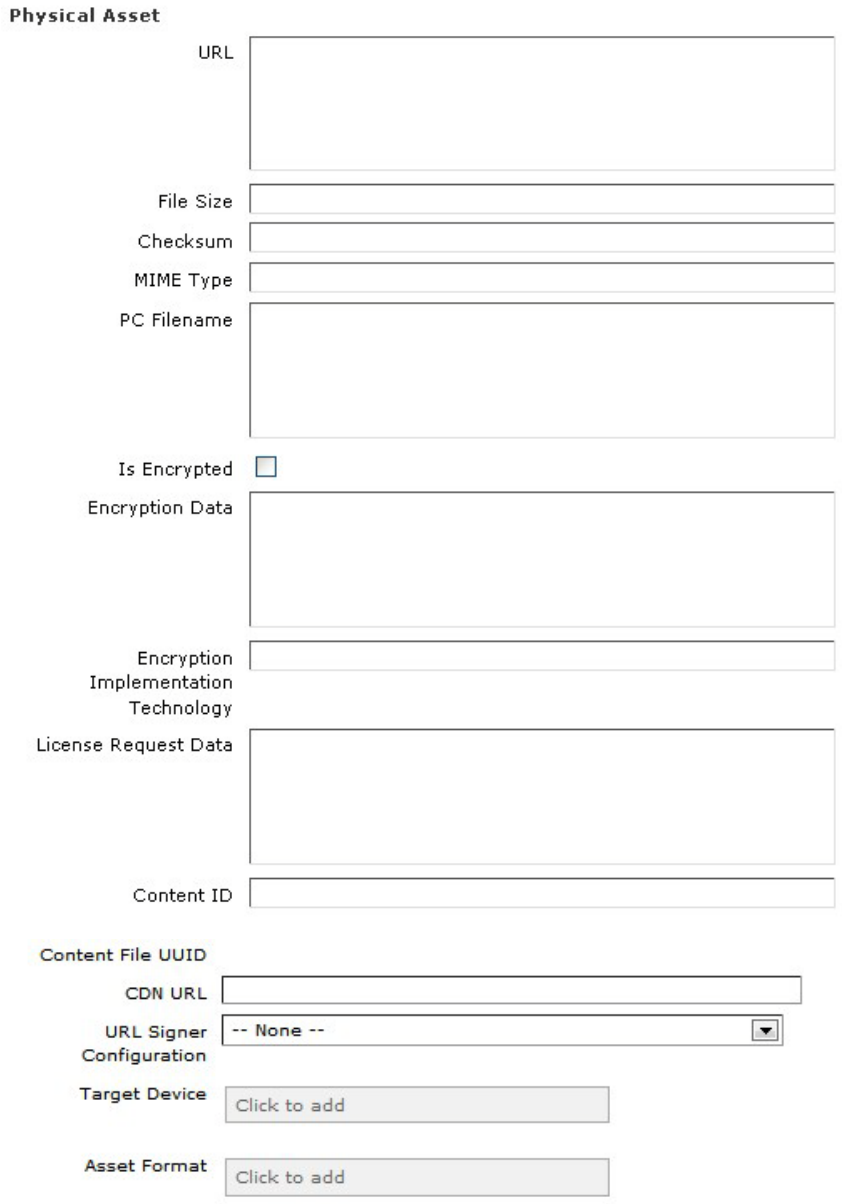
Figure 170 Metadata Fields



Physical Asset Fields

The following fields are generic fields that are available for various physical assets:

Figure 171 Generic Physical Asset Fields



Component Fields

This section lists the following fields for all default components within Media Suite:

Ad Insertion Point

The following fields are available within the Ad Insertion component:

- General Component fields plus

Figure 172 Ad Insertion Point Metadata

ISAN Document

The following fields are available within the ISAN Document component:

- General Component fields plus

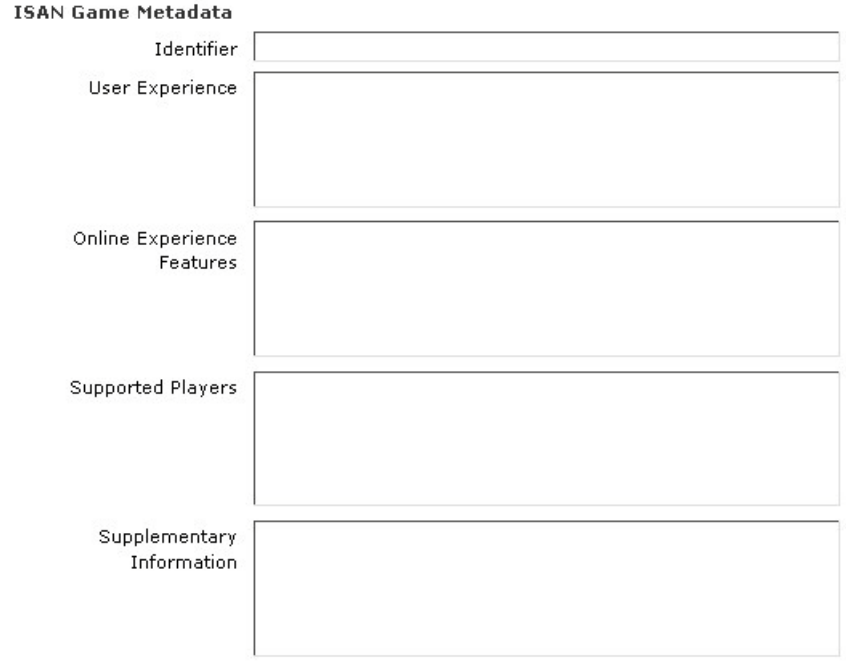
Figure 173 ISAN Document Metadata

ISAN Game

The following fields are available within the ISAN Game component:

- General Component fields plus

Figure 174 ISAN Game Fields



ISAN Video

The following fields are available within the ISAN Video component:

- General Component fields plus

Figure 175 ISAN Video Metadata

Licensing Window

The following fields are available within the Licensing Window component:

- General Component fields plus

Figure 176 Licensing Window Fields

Metadata

The following fields are available within the generic metadata component:

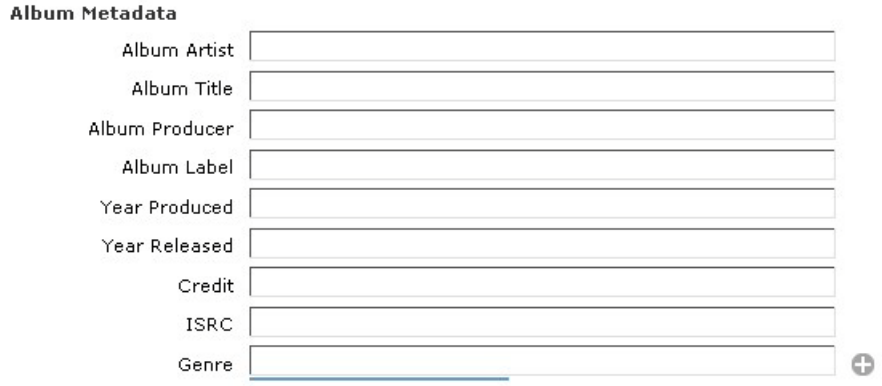
- General Component fields plus
- Metadata fields

Metadata Album

The following fields are available within the metadata album component:

- General Component fields plus
- Metadata fields plus

Figure 177 Metadata Album Fields



Metadata App

The following fields are available within the metadata app component:

- General Component fields plus
- Metadata fields plus

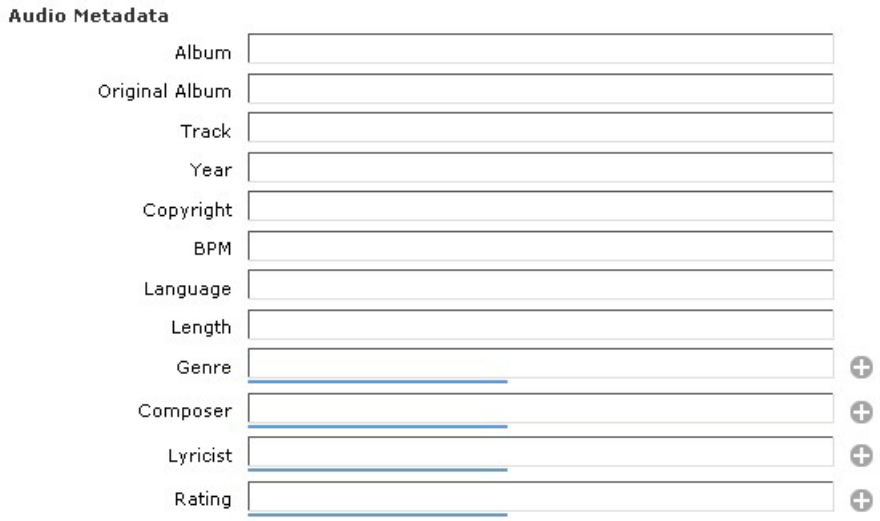
Figure 178 Metadata App Fields

Metadata Audio

The following fields are available within the metadata audio component:

- General Component fields plus
- Metadata fields plus

Figure 179 Metadata Audio Fields

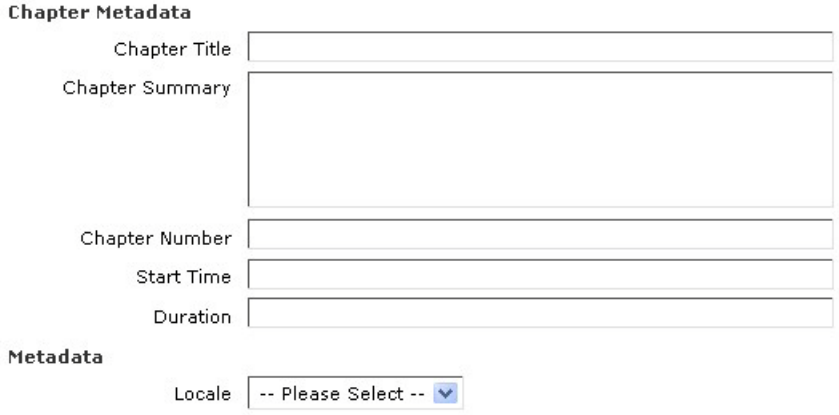


Metadata Chapter

The following fields are available within the metadata chapter component:

- General Component fields plus
- Metadata fields plus

Figure 180 Metadata Chapter Fields



Metadata Document

The following fields are available within the metadata document component:

- General Component fields plus
- Metadata fields plus

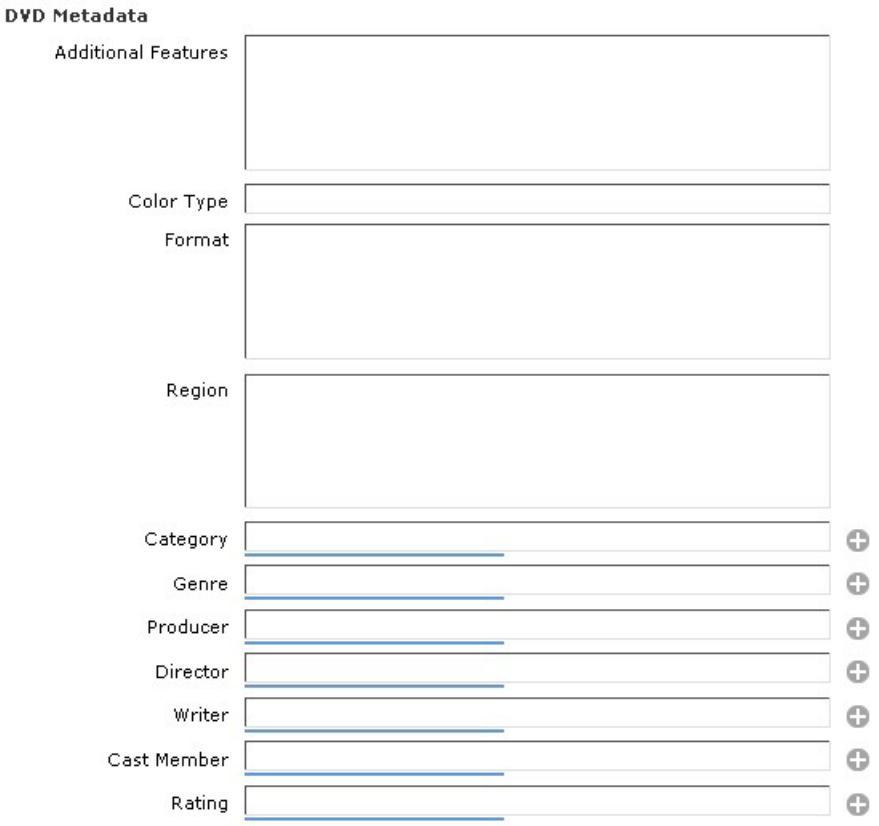
Figure 181 Metadata Document Fields

Metadata DVD

The following fields are available within the metadata DVD component:

- General Component fields plus
- Metadata fields plus

Figure 182 Metadata DVD Fields



Metadata Image

The following fields are available within the metadata image component:

- General Component fields plus
- Metadata fields plus

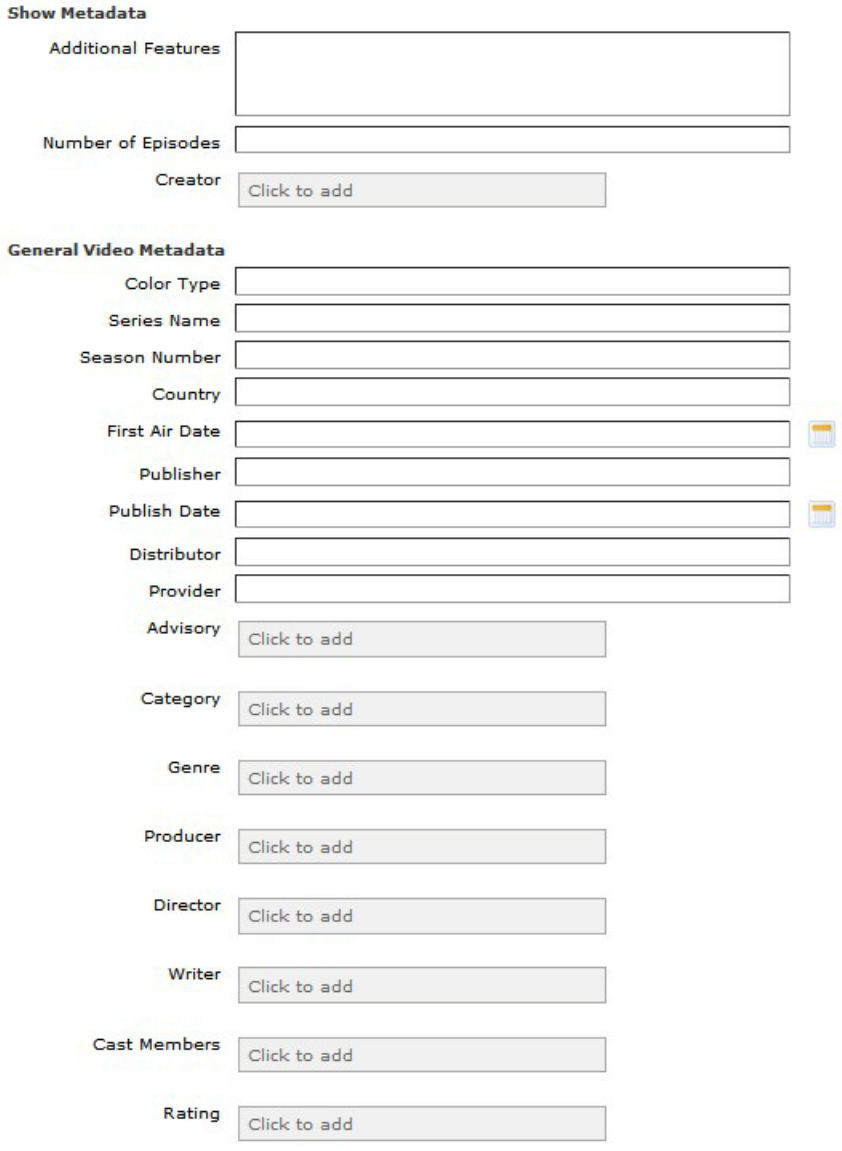
Figure 183 Metadata Image Fields

Metadata Show

The following fields are available within the metadata show component:

- General Component fields plus
- Metadata fields plus

Figure 184 Metadata Show Fields



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

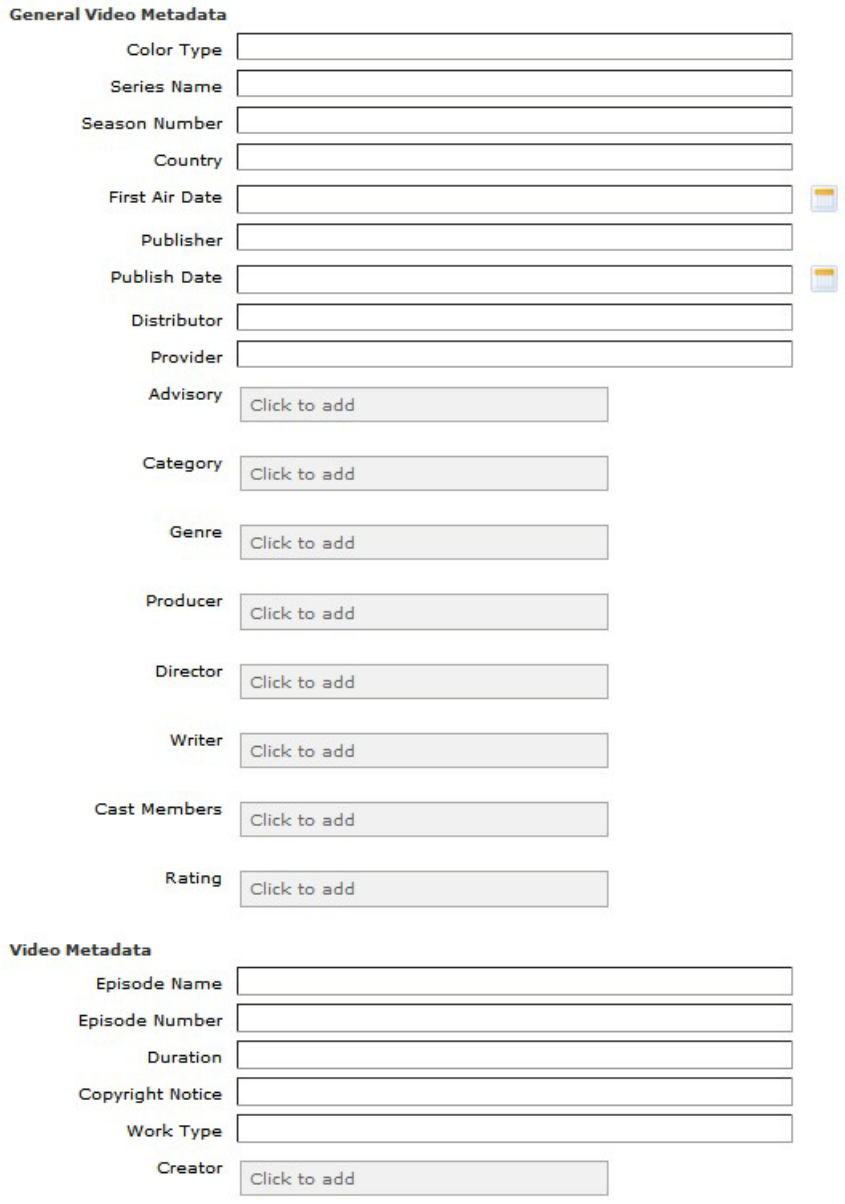
Figure 185 Metadata Station Fields

Metadata Video

The following fields are available within the metadata video component:

- General Component fields plus
- Metadata fields plus

Figure 186 Metadata Video Fields



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 187 Physical Asset App Fields

Physical Asset Audio

The following fields are available within the physical asset audio component:

- General Component fields plus
- Physical Asset fields plus

Figure 188 Physical Asset Audio Fields

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

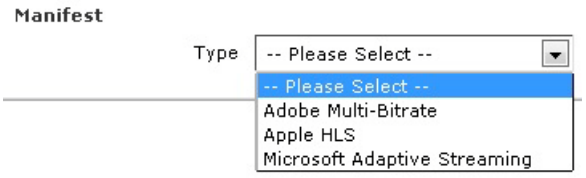
Figure 189 Physical Asset Image Fields

Physical Asset Manifest

The following fields are available within the physical asset manifest component:

- General Component fields plus
- Physical Asset fields

Figure 190 Physical Asset Manifest Fields

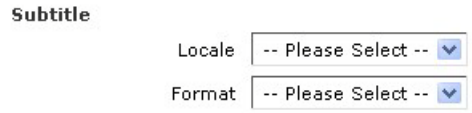


Physical Asset Subtitle

The following fields are available within the physical asset subtitle component:

- General Component fields plus
- Physical Asset fields

Figure 191 Physical Asset Subtitle Fields

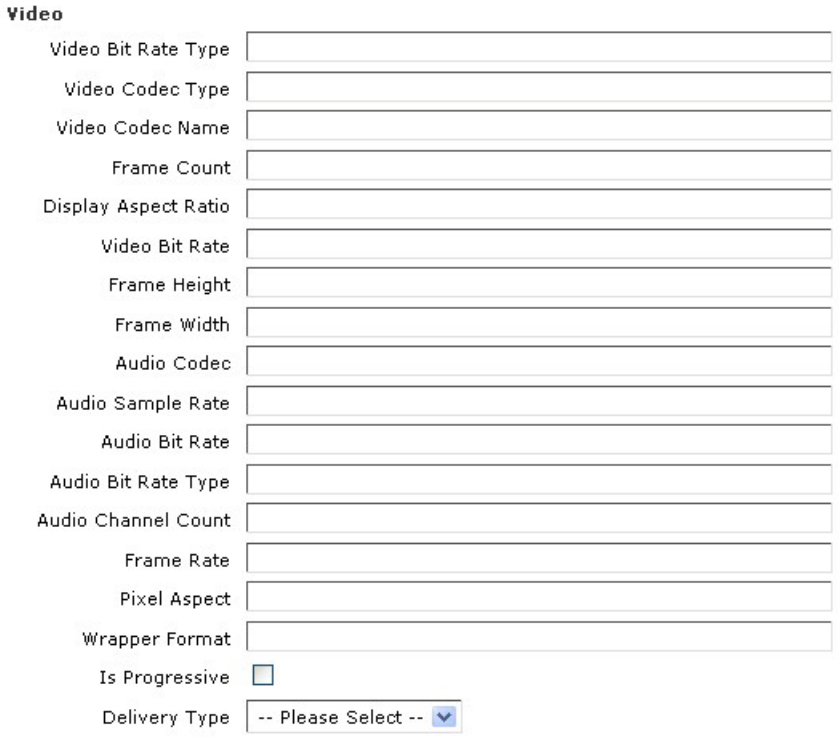


Physical Asset Video

The following fields are available within the physical asset video component:

- General Component fields plus
- Physical Asset fields

Figure 192 Physical Asset Video Fields



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 193 Program Identifier Field

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 194 Program Schedule Fields

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 195 Station Identifier Fields

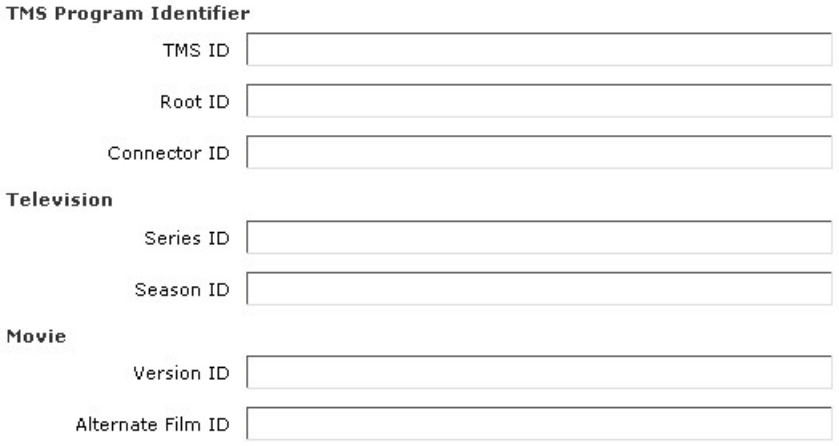
TMS Program Identifier

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 196 TMS Program Identifier Fields



TMS Station Identifier

The following fields are available within the TMS Station Identifier component:

- General Component fields plus

Figure 197 TMS Station Identifier Fields

Appendix B

UNDERSTANDING MEDIA SUITE BUNDLES

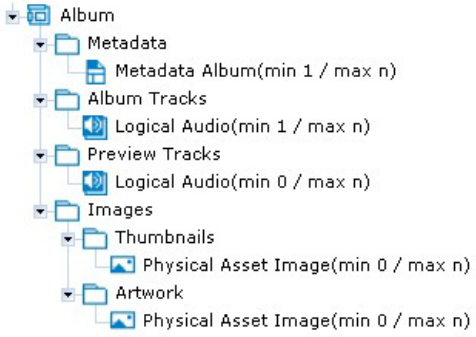
Bundles are objects that conform to a template and are created when various components or other bundles are combined into a unit. A bundle template specifies the composition of a bundle, and how many components may be included within the bundle. Components in a bundle template that have a 0 minimum are 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

An album may contain multiple physical versions of logical audio bundles (representing tracks and previews) as well as associated album metadata and images.

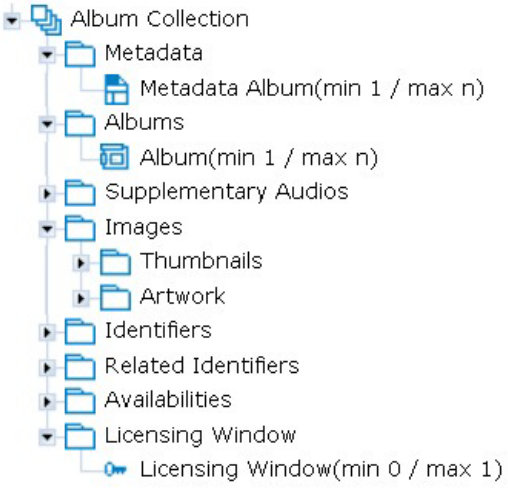
Figure 198 Album Bundle Structure



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 199 Album Collection Structure



Chapter

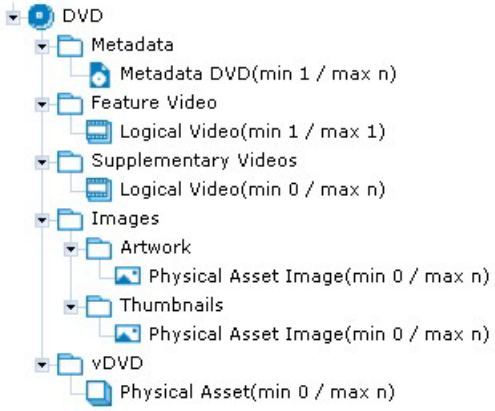
A chapter delineates chapter time points within a video and stores metadata and references to chapter thumbnail images.

Figure 200 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 324.

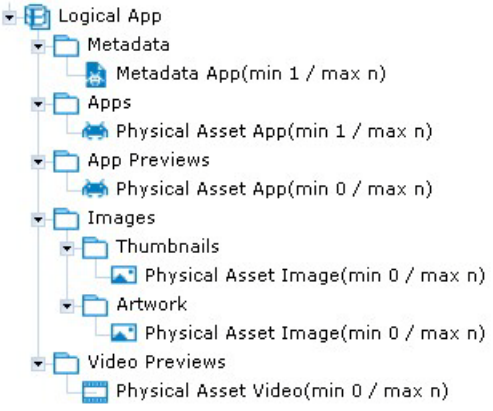
Figure 201 DVD Bundle Structure



Logical App

A logical application bundle consists of a physical application file with related metadata. Images, application previews, and image previews are all optional.

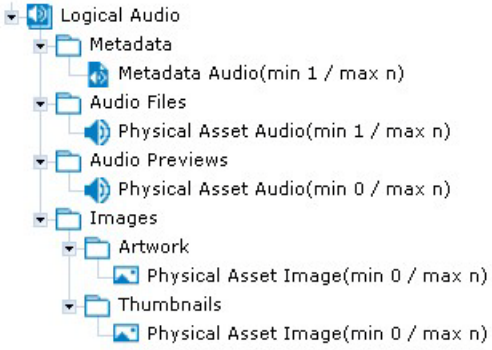
Figure 202 Logical App Bundle Structure



Logical Audio

A logical audio bundle may contain multiple physical versions of an audio file along with audio previews, associated metadata, and images.

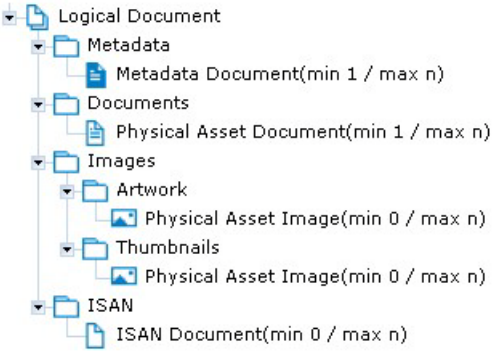
Figure 203 Logical Audio Bundle Structure



Logical Document

A logical document may contain multiple physical versions of document files along with associated metadata, images, and other objects.

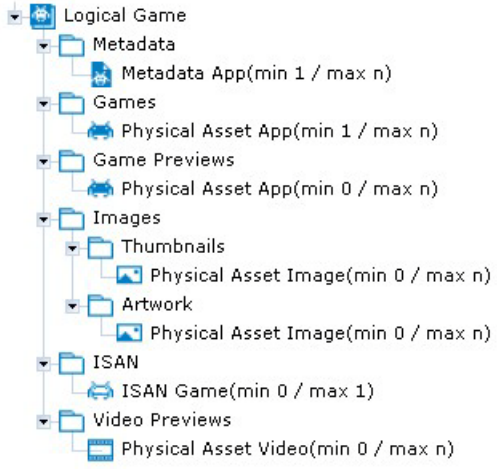
Figure 204 Logical Document Bundle Structure



Logical Game

A logical game bundle may contain multiple versions of a game file (for different platforms) along with associated metadata and images.

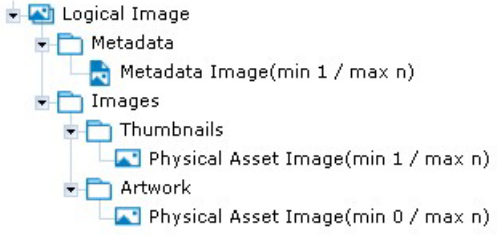
Figure 205 Logical Game Bundle Structure



Logical Image

A logical image bundle may contain multiple physical versions of an image along with associated metadata.

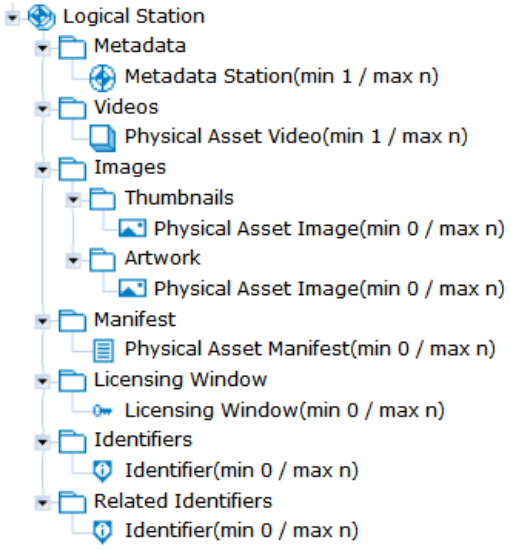
Figure 206 Logical Image Bundle Structure



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.

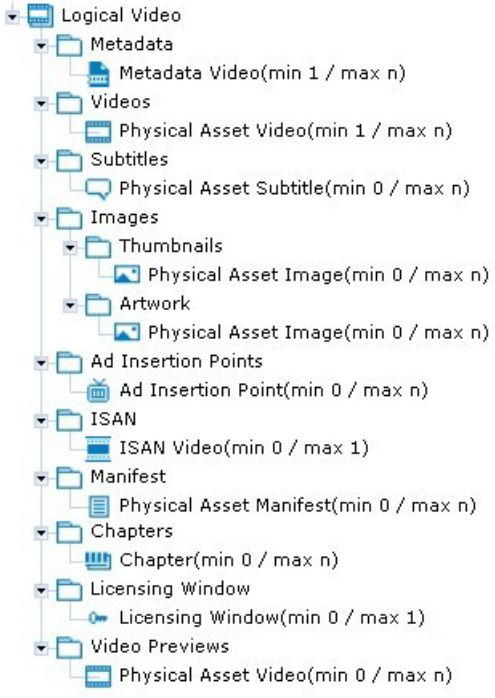
Figure 207 Logical Station Bundle Structure



Logical Video

A logical video bundle can contain multiple versions of a video file with associated metadata, images, and other components.

Figure 208 Logical Video Bundle Structure



Ringtone

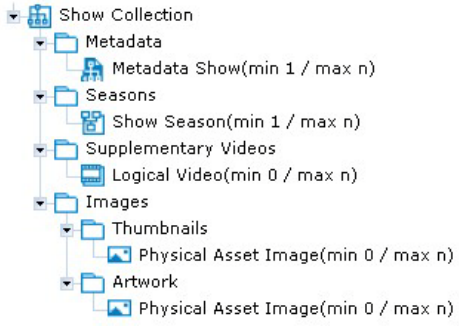
A ringtone may contain multiple physical versions of logical audio bundles (representing ringtones and possibly previews) as well as associated ringtone metadata and images.

Figure 209 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.

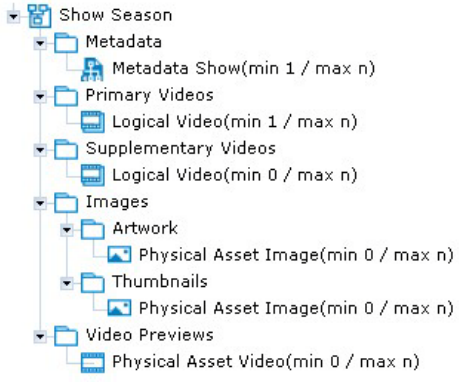
Figure 210 Show Collection Bundle Structure



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 211 Show Season Bundle Structure



Appendix C

CONFIGURING ESB SERVICES

Most ESB services require some type of configuration in order to use their capabilities. In all cases, ESBs must be referenced in a Workflow Definition node. The following section lists inputs, outputs, and any dependencies for you to consider when configuring specific ESB services for use.

The following ESB Services are detailed in this section:

Table 57 ESB Service Configuration Requirements

ESB Service	Details
Armada	**Description:** Handles requests to and responses from the Cisco Transcode Manager (CTM), which can encode and encrypt digital assets. **Input:** Source files that are sent to the Armada/CTM server. **Output:** A list of encoded or encrypted files and metadata saved in the content files field of the Workflow Context. **Configuration:** An action template that defines Armada service parameters, and an action profile that defines the work order used for encoding and encryption.

Table 57 ESB Service Configuration Requirements

ESB Service	Details
Binding	**Description:** Executes binding for files specified in the bindFileset field of a provided Workflow Context or executes binding for context map variables. **Input:** Context map variables or bindFileSet. **Output:** Bound bundle or component primary key. **Configuration:** In the action profile, specify the configured bind profile that will be used.
Collator	**Description:** Extracts the repository path and asset base name from an existing file. This information will be used to search for other files in a desired fileset. **Input:** The repository path from an existing file. **Output:** None **Configuration:** Collator configuration files, which are located at: `/opt/cisco/vms/var/jboss/server/vms/deploy/OpenCASE_ESB-Collator.esb`
EPG Ingest Feed Fragment	**Description:** Used to ingest data feeds into the EPG module. **Input:** A list of fully qualified file paths from the File Discovery Service. **Output:** A `WORKFLOW_UUID` that is put into the ContextMap of the WorkflowContext. **Configuration:** An action profile that defines the feed fragment type and regular expression pattern. The file pattern will be used to match incoming files to a specific fragment type.
	Fragment types include: • Single - all information is contained in one file • Schedules - a file that contains Schedule data • Programs - a file that contains Program information • ProgramsExtended - a file that contains additional information for EPG programs • Stations - a file that contains Station information • Lineups - a file that contains Channel Map information

Table 57 ESB Service Configuration Requirements

ESB Service	Details
EPG Finalize Ingest	**Description:** Step for finalizing an EPG ingestion. For details, see "Common ESBs Used for EPG Workflows" on page 250. **Input:** WorkflowContext from EPG Ingest Service that contains WORKFLOW_UUID in ContextMap. **Output:** None **Configuration:** Configure the action profile with the finalize step that will need to be performed.
	Finalize options include: • GENERATE_CM_STATION_INFO - Part of the ingest process that generates bundles in Content Manager based on EPG station and channel information. • FINISH_PROGRAM_SCHEDULE_INGEST - This step should be called after all feed fragments for schedules and programs have been processed. • GENERATE_CAPTURE_SCHEDULES - This step should be called when TSTV capture schedules must be generated. Schedules data has to be previously ingested, and all recording settings must be configured. A log error will be thrown in cases where the TSTV module is not installed. • FINISH_LINEUP_INGEST - This step should be called after all feed fragments for channel lineups have been processed. • PUBLISH - The final ingestion-process step that must be executed to make recently imported EPG information available to end users. • FLUSH_ALL_CACHES - This step can be called to flush the Search Manager cache. It is *automatically* called after the PUBLISH step. • FINISH_EPG_WORKFLOW - This step should be called once all EPG-related steps are executed and the workflow is completed. • FAIL_ON_ERROR - (optional) If any (critical or acceptable) errors occur, this node triggers the workflow to fail and stop processing. If you place this node before a FINISH_PROGRAM_SCHEDULE_INGEST node and an error occurs, then all schedule information will revert to its former state.
File Discovery	**Description:** Finds fully qualified file paths using regular expressions to scan specified repositories. All fully qualified file paths are saved into the CurrentFileset field in the Workflow Context. **Input:** None **Output:** A list of fully qualified file paths. **Configuration:** The action profile can define several repository locations and regular expression patterns.
Generic Rules	**See:** Rules Service (Generic)

Table 57 ESB Service Configuration Requirements

ESB Service	Details
HLS Collator	**Description:** Validates a HLS fileset against a master manifest file for completeness. **Input:** The repository path of the fileset. **Output:** None **Configuration:** A collator configuration file, which can be found at: `/opt/cisco/vms/var/jboss/server/vms/deploy/OpenCASE_ESB-Collator.esb`
Image Transformation	**Description:** A workflow service that is used to transform image dimensions and formats according to one or more profiles. This functionality is also available from within the Media Suite user interface. **Input:** An image file from a hot folder. **Output:** One or more images that have been transformed according to the parameters within the selected image profiles. **Configuration:** This ESB is installed along with the Producer module. An action profile, which references the image transform profile that will be used and specifies the repository path and output directory for images.
Load Component XML Service	**Description:** Add this ESB to a workflow node (via a PAR file) in order to load existing component/bundle XML into a Workflow Context. This ESB service does not require configuring an action template or action profile. The Load 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 either by other ESBs or via the Rule Mapping node in a workflow.
Mapping Rules	**Description:** Extends the Rules Based Workflow Service to inject additional information into the Workflow Context XML before any XSL transformation. That information is added via the variables described in the Configuration section. **Input:** WorkflowContext's previous workflow node. **Output:** RuleContext that contains information about subsequent nodes that can be forked to.

Table 57 ESB Service Configuration Requirements

ESB Service	Details
	Configuration: An Action Profile with the following: • XLS source code that will be applied against the WorkflowContext XML Variable key to value mappings. Variable types include: • **File Path** - Populates `WorkflowContext/ContextMap` with paths from `WorkflowContext/CurrentFileset` and filtered by a regular expression found in the variable value. • **Metadata** - Populates `WorkflowContext/ContextMap` with file content specified in `WorkflowContext/CurrentFileset` and filtered by a regular expression found in the variable value. • **Content File Metadata** - Populates `WorkflowContext/ContextMap` with ContentFileMetadata from the Content Processor module specified by the `WorkflowContext/CurrentFileset` path and filtered by a regular expression found in the variable. • **Variable** - Populates `WorkflowContext/ContextMap` with a key-value pair taken from the variable key and value.
Metadata Augmentation	**Description:** A service that is used to augment existing bundle data with other data from a third-party data provider. **Input:** Bundles containing asset metadata. **Output:** A workflow instance containing the augmented bundle metadata. **Configuration:** An action profile that references a metadata source plugin. This plugin contains all the information required to pull data from a third-party data provider and to map that data to Media Suite fields. For details, see "Augmentation" on page 221.
Productize	**Description:** Productizes the files that are specified in the Workflow Context. **Input:** Files within a bindFileset. **Output:** Productized files. **Configuration:** A Workflow Definition node that is configured with a policy that includes a DRM profile, entitlement check, an offer window, and other options that fulfill content requirements for a service.
Repository Manager	**Description:** Provides functionality to copy to, move, or delete assets from Media Suite asset repositories. **Input:** A list of files defined in currentFileset. **Output:** A list of any files that were created, deleted, or modified by this service. **Configuration:** An action profile that defines the command type, options, and any destinations.

Table 57 ESB Service Configuration Requirements

ESB Service	Details
Rhozet	**Description:** Manages requests and responses from the Rhozet transcoding and encryption service (by Harmonic Inc.). **Input:** Source files that are sent to the Rhozet service. **Output:** A list of transcoded or encrypted files and metadata that are saved in the content files. **Configuration:** An action template that defines the Rhozet service server information. An action profile then defines the workflow service that will be used for the transcode operation.
Rules Service (Generic)	**Description:** Enables the redirection of execution pathways of several parallel workflow nodes based on XSLT rules that are specified at runtime. **Input:** WorkflowContext from the previous Workflow node. **Output:** RuleContext that contains information about sequent nodes to fork to. **Configuration:** Action profile that requires the following: • XLS source code that will be applied against a WorkflowContext XML
XLS Ingest	**Description:** Used to import and parse spreadsheet data into Media Suite. For details, see "Spreadsheet Ingestion" on page 231. **Input:** An XLS file from a hot folder. **Output:** Multiple workflow instances for each bundle specified within the XLS spreadsheet. **Configuration:** An action profile that references a parser configuration, locale, and pattern. The parser configuration contains mappings for each spreadsheet column and Media Suite field. The pattern selects which files to use in the hot folder.
XML Reader	**Description:** Reads an XML file and saves it in the content file table. **Input:** An XML file as an input string. **Output:** XML in the content file table. **Configuration:** No action profile is required.
XML Transformation	**Description:** Used to apply XSL transformations to XML files to change their format. For example, CableLab's ADI format can be transformed into the internal Media Suite format via an XSL transformation. **Input:** An XML file as an input string. **Output:** XML in the content file table. **Configuration:** An action profile that includes the XSL code that will be applied to the incoming XML.

Appendix D

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.

Lastly, 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 212 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 213 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.