Cisco Vision Operations Guide

Dynamic Signage Director, Release 6.4

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Contents

About This Guide

This document describes how to operate Cisco Vision Dynamic Signage Director including the concepts and tasks that you need to understand to deliver your content to a screen, run an event, and monitor and maintain the operation of Cisco Vision software.

In the documentation for Cisco Vision Dynamic Signage Director, we changed the terms "master" to "lead, leader, or primary," the term "slave" to "secondary," the term "whitelist" to "allowlist," and the term "blacklist" to "blocklist." There are currently no changes to the product's syntax, so these terms are still present in the documentation where the current code requires their use. Where an industry standard exists, such as IEEE terminology, we cannot alter the term until the standards change.

Revision History

provides information about changes to this document.

Table 1   Revision History

Date	Description
2021-08-05	Initial publication of Release 6.4 SP1 document. The following updates and enhancement were made to Cisco Vision Dynamic Signage Director: ■ SNMP Configuration capabilities. See More Grid (Hamburger), page 32. ■ New default template available for luxury suite display. See Quad Video Default Template for the CV-UHD and CV-UHD2 DMPs, page 112. ■ USB and SD Card Restrictions on DMPs, page 274. See Cisco Vision Dynamic Signage Director Release Notes for Release 6.4.

Revision History

Before You Begin

This guide focuses on the background information and tasks for standard operation and maintenance of Cisco Vision Dynamic Signage Director. It can be used with the companion Cisco Vision Director Operations Playbook for your release, which documents a venue and role-based workflow approach with the appropriate timelines for running a Cisco Vision Dynamic Signage Director event.

Network administrators and those responsible for the installation and deployment of the Cisco Vision network and Cisco Vision Dynamic Signage Director system should also refer to the documents in Table 1 on page 17.

Note: The links provided in Table 1 on page 17 are to the cisco.com listing pages. Select the document that corresponds to your release.

Table 1   Related Documentation for Cisco Vision Dynamic Signage Director

Document	Purpose
Cisco Vision Release Notes	This document provides information about the Cisco Vision Dynamic Signage Director solution including hardware and software requirements, new and changed features, installation and upgrade information, known issues, and defects.
Cisco Vision Network, Server, and Video Headend Requirements Guide	This document is available to qualified Cisco Vision partners and provides information about how to design and implement a Cisco Vision video headend. It includes hardware and software requirements, recommended physical layouts, recommended configuration settings, as well as deployment caveats and considerations.
Cisco Vision Dynamic Signage Solution Operation and Network Requirements	This document is available to qualified Cisco Vision partners and provides a detailed description of the Cisco Vision Solution. This solution provides the wired infrastructure specifically designed to support the various applications used in Sports and Entertainment venues. As such, it describes the design decisions including relevant samples of configuration and accompanying descriptions of the features within the network elements.
Cisco Vision Product Deployment Requirements	This document is available to qualified Cisco Vision partners and provides a detailed description of the Cisco Vision Dynamic Signage Director installation and deployment requirements from a product perspective.
Cisco Vision Director Software Installation and Upgrade Guide	This document describes the requirements and tasks to install and upgrade the Cisco Vision Director software and media player firmware.

Document	Purpose
Cisco Vision Dynamic Signage Director Administration Guide	This document describes the tasks involved in setting up and maintaining the Cisco Vision Director and Cisco StadiumVision Director Remote servers. The content is intended for Cisco Vision system administrators and technical field engineers who are responsible for designing and deploying Cisco Vision solutions. It is expected that readers of this document are familiar with basic IP networking and Linux.
Cisco Vision Deployment Guide for Digital Media Players: Dynamic Signage Director	This document provides information about both the physical installment and initial configuration of the Cisco digital media players with TV displays.
Cisco Vision Local Control Areas Design and Implementation Guide	This document provides information about how to design and implement a Cisco Vision local control area, which includes luxury suites, clubs, bars, restaurants, and back offices. It includes hardware and software requirements, recommended physical layouts, best practice configuration settings, as well as deployment guidelines and considerations.

Getting Started with Cisco Vision Dynamic Signage Director Operation

Note: This guide shows Administrator-level privileges only.

This section provides an introduction to some of the basic information to get started using Cisco Vision Director. It includes the following topics:

Introduction to the Cisco Vision Director User Interface

This section provides an introduction to various pieces of the UI. Global navigation consists of the following seven icons:

Next is the **More** drop-down that provides the following topics:

Stricter Password Policies

From Release 6.1 and later, Cisco Vision Dynamic Signage Director users must set stronger passwords. When setting a new password, use the following rules:

- Must have at least 1 lower case character (a-z).

- Must have at least 1 upper case character (A-Z).

- Must have at least 1 numerical character (0-9).

- Must have at least 1 special character. Special characters are ! @ # $ %

- Must be 8-20 characters.

- Must not contain any of the following characters: space tab newline linefeed backslash (\).

- Must not contain a character sequence from a predefined list maintained in a dictionary.

- Must not have 3 sequential characters (for example: abc5#pqr is not allowed).

- Must not have a character repeat 4 times (for example: aaaa#2020! is not allowed).

Figure 1   Login Screen
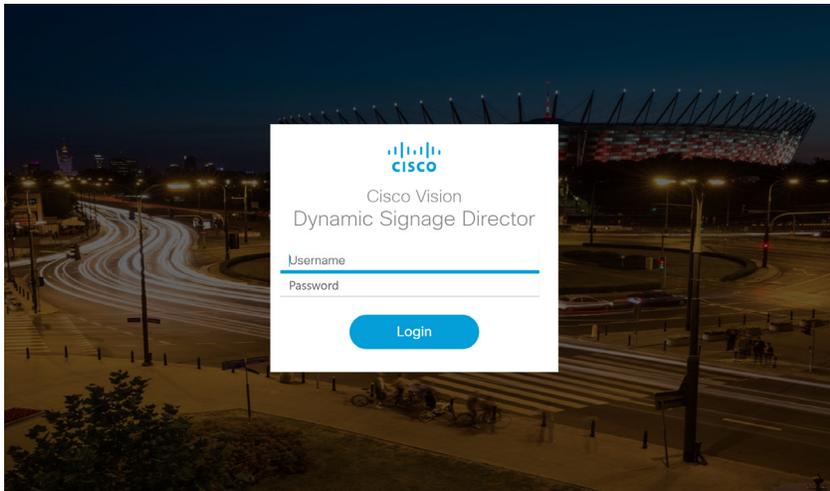
Note: There are two **Generate Password** buttons: when user first logs in and in the **User** screen to create a user (**Configuration > User**). The button provides a random password that meets the password rules. Use the "eye" icon to see the new password.

- After logging in to Cisco Vision Director, the UI displays a brief message about when you last logged in, successfully or not.

- If you try to login with failed passwords 5 times in 1 minute or less, your account is temporarily locked for 30 minutes. Upon next successful login, the message shows that the account was locked due to too many failed attempts.

- In **User** interface, the "admin" role cannot be deleted.

Notes:

1. Every user can change their own password by entering the current one as a challenge.

2. The Administrator can change anyone's password without any challenge.

3. Except password, other fields of the user's, like email, can be changed without any challenge.

4. Now password entry has an expiry notification.

> **Information** ×
> Last successful login on 07-16-2020 at
> 10:16 pm from 10.65.47.91.
> **Your password is going to expire in
> 0 day(s).**
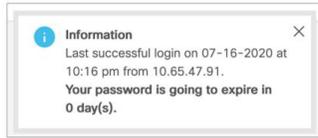
5. Whenever a user is created or a password gets changed, the change date is logged.

New Default Passwords

There is a default web UI administrator user password and there is a DMP administrator password.

The default password for web UI administrator is: **C-V1$i0n**

Passwords after Upgrading

When upgrading an existing installation, existing passwords are kept.

Passwords after Fresh Install

Role: Administrator

After fresh install, the default administrator user is prompted to change the password on the first login. Starting with Release 6.1, the new password must adhere to the password policies or the password is rejected.

DMP Admin Password

The new default password for the DMP administrator is randomly generated. During a full installation the password isn't reset.

To find the random DMP password value:

1. Click **Configuration > System Configuration > Advanced Registry Settings**.

2. In the Keys list of Registry Data, scroll down to **defaultDmpAdminPwd** (Figure 2 on page 22). The random value displays.

3. To change the value, click **Edit**. The Edit – Configuration Setting dialog box appears.

4. Type a new password in the **Value** field. Click **Save**.

Figure 2   DMP Administrator Password Random Value
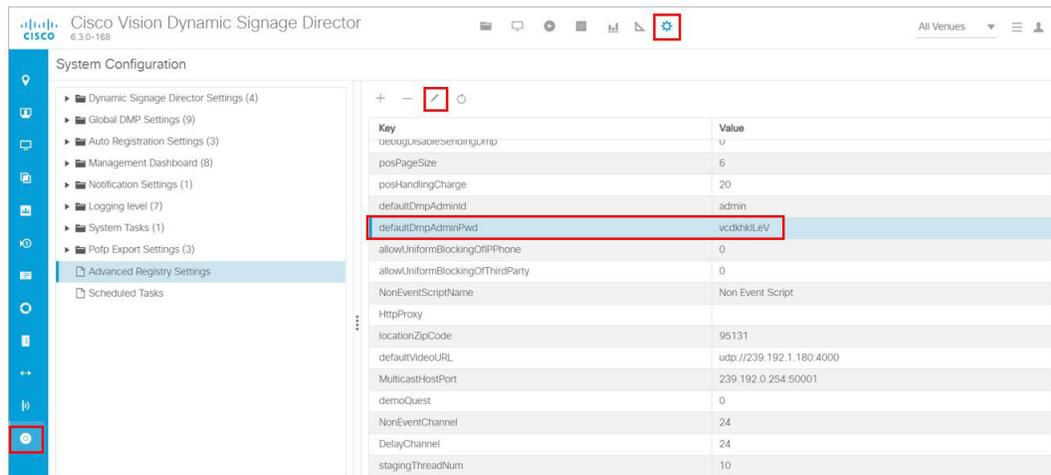
The primary element to make updating the DMP password easier is **defaultDmpAdminPwdBackup**. This registry key will be used as a fallback password when a request to reboot the DMP fails. This fallback password is ignored if not set or is set to the same value as **defaultDmpAdminPwd**.

Best Practice: Prior to changing **defaultDmpAdminPwd**, set **defaultDmpAdminPwdBackup** to the value of **defaultDmpAdminPwd**.

On full installation of Release 6.2, or when data from Release 6.1 is migrated, **defaultDmpAdminPwdBackup** is set to empty value.

To change the DMP password:

1. Click **Configuration > System Configuration > Advanced Registry Settings**.

2. Copy the registry value in **defaultDmpAdminPwd** to **defaultDmpAdminPwdBackup** registry value.

3. Change the value of **defaultDmpAdminPwd** to the new DMP password you want.

4. Click **Save**.

5. Reboot the DMPs.

You can choose to keep or clear the value in **defaultDmpAdminPwdBackup** after the DMPs reboot and update their password.

Enable/Disable Browser Inspector

In Release 6.2, we added a number of security enhancements. One of them includes disabling the DMPs browser inspector, by default. This prevents network access to the DMPs. If you choose to add the registry setting to enable the browser inspector, it stays enabled until and unless you remove the registry data completely and reboot the DMPs.

To enable browser inspector:

1. Click **Configuration > System Configuration > Advanced Registry Settings** ().

2. In the **Key** panel, click **Edit**. The **Create – Configuration Setting** dialog box appears.

3. Type **device.SvDmp.browser.inspector.addresses** in the **Name** field.

4. In the **Value** field, type the IP address of DMP on which you want to enable the browser inspector function.

Figure 3   Adding Browser Inspector Address to Registry Data

5. Reboot the DMP for changes to take effect.

To disable browser inspector capabilities:

1. Remove IP address from list.

2. Empty list or remove key to disable completely.

3. Reboot the DMP for changes to take effect.

Library

When you log into Cisco Vision Director, the **Library** is a web-based portal landing (Figure 4 on page 24). Hover over the icons in the top middle banner. These icons are the central point of operation for the following seven areas:

- Library—Manipulate and upload all assets/content (images, videos, widgets, channels, and external content), create playlists, add tags to content, and organize your content into folders.

- Device Management—Control your devices and TVs, set channels, filter/search for DMP state, health, models, TV status or health, device Location, Wifi Enabled, or Power over Ethernet, Power On and Off devices, Refresh the set criteria for the TVs and Reboot devices.

- Script Management—Create, control and stage new event scripts. Centrally control the display of emergency or delay signage for designated areas. Change content "ad hoc" on displays during such things as a touchdown or home run.

- Event Management—Schedule and set the scripts to whichever devices you choose, whenever you choose.

- System Status—Displays a dashboard Overview of the servers and DMPs and shows the Monitor and Status details of all services.

- Designer—Widget and Template designer to help you create snappy content to display to devices.

- Configuration—Global navigation for managing and monitoring the services and status of the DMPs, TVs, and the Cisco Vision Dynamic Signage Director Server.

Library displays a list view of the assets (content).

Figure 4   Cisco Vision Director Library Screen
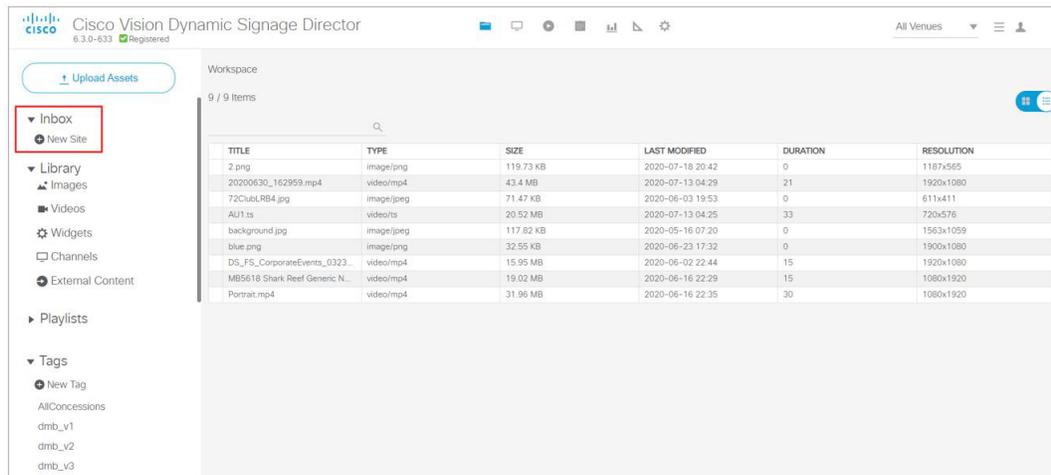
The **Library** interface allows you to manage file-based content, external URL content, playlists, and sub-folders. There are separate menus (not part of **Library**) for managing event scripts, scheduled events, and screen templates/widgets.

These options are available to the Cisco Vision Dynamic Signage Director Administrator, Content Manager, and Event (and venue) Operator roles.

The **Library** UI contains:

■ Adjusting bars to size the panels (available in playlist interface)

■ Click an asset (content) or playlist to see the detail panel

■ Upload, List View and Trash icons in detail panel

■ Down-sized thumbnails for better visibility (accessible from List View)

■ Size, Last Modified, Duration and Resolution columns to give you greater granularity for your assets

■ The ability to drag and drop tagged content to a playlist

Note: In the left panel of the **Library** interface, the **Library** drop-down menu shows **All Assets** only when the registry setting for **multiVenueDeployment** is set to **false**. If **multiVenueDeployment** is set to **true**, **All Assets** is not visible. See Asset Items Panel, page 164 for detailed information.
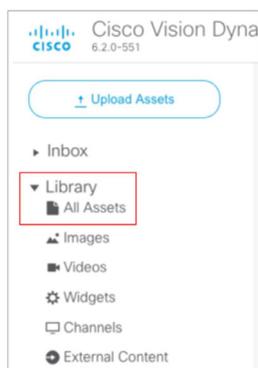
For detailed information on the new **Inbox** feature to automate import of content, see Library Inbox, page 161.

We enhanced the Playlist interface with a **Randomize** icon (see red box Figure 5 on page 25). Hover over these icons for Tool Tips. **Randomize** allows you to add content to your playlist and "shuffle" the content that displays.

Figure 5   Adjusting the Library Screen While in Playlist Detail View
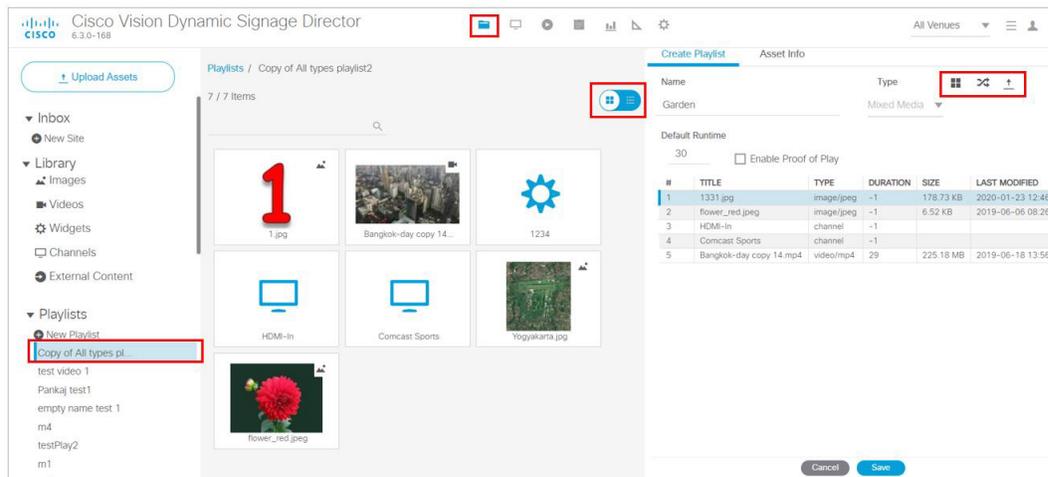
To see more metadata on your content:

1. Click **Asset Info** at the top of the right panel (Figure 5 on page 25). The metadata appears for the content you chose (Figure 6 on page 25).

2. Preview your content.

Figure 6   Metadata for an Asset (Content)
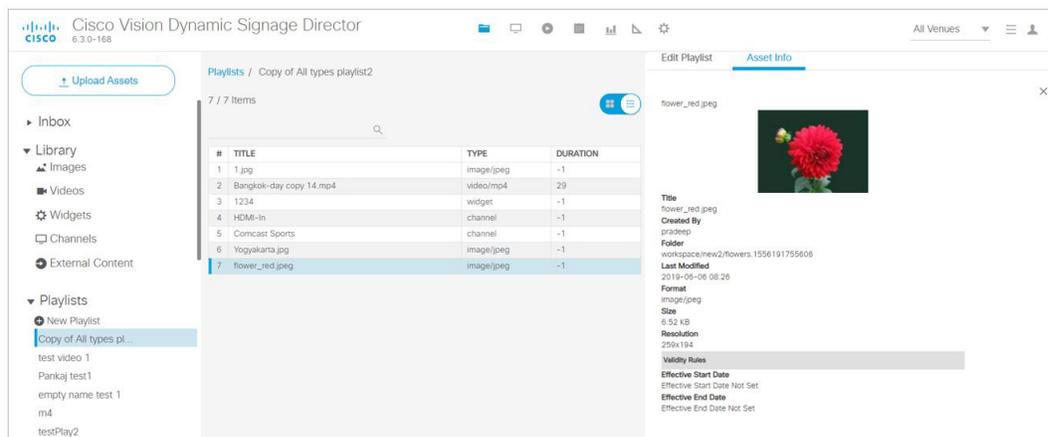
Login Notification Screens and Lockout

For Release 6.2, we made our customer experience more secure by adding lockout protection. Now, if someone attempts to login and fails five times in 1 minute, they are locked out for 30 minutes.

The login information always appears now. Periodically check if the time stamp is accurate for your login information. Here is an example of the information that displays.
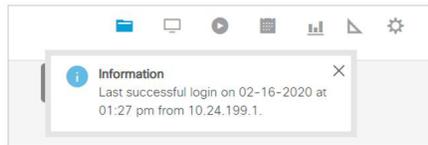
Main Menu Logout Only

For added usability, you logout from the Main Menu only.

To log out of Cisco Vision Director:

1. Go to the Main Menu in Cisco Vision Director.

2. Click **Account profile > Logout** (Figure 7 on page 26).

Figure 7   Logging Out of Cisco Vision Director
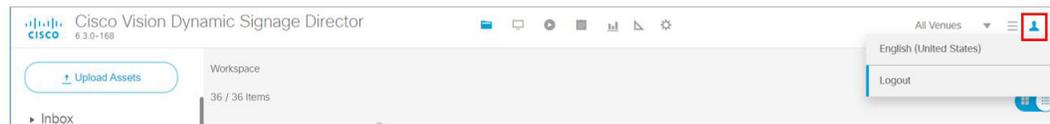
Device Management

Device Management (icon accessFigure 8 on page 26) shows at-a-glance device status information for media players and their attached TV displays during an event. Select the TV/monitor icon for access (Figure 9 on page 26). For this release, we moved a lot of **DMP and TV Control** and **Monitor and Status > Services** information from the retired **Management Dashboard** to this interface. See Monitoring Media Player Operation During an Event Using Device Management, page 237 for full details on what's new.

Figure 8   Device Management

Figure 9   Accessing Device Management
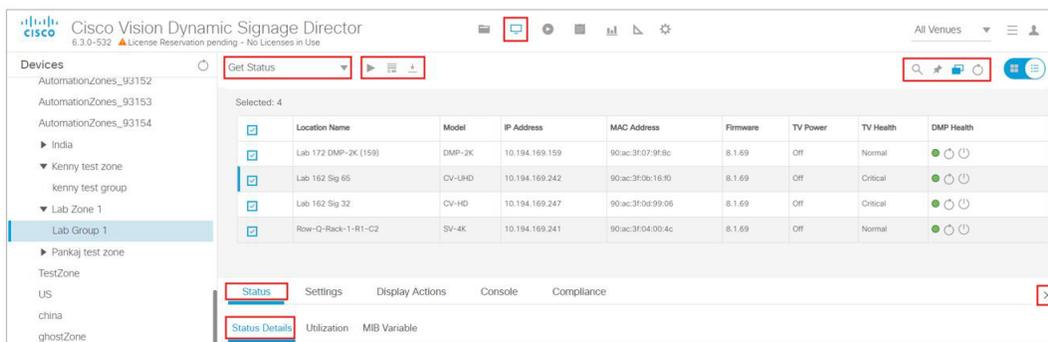
Device Management Application Highlights

■   Is accessible from the Main Menu.

- Supports multi-venue site selection.

- Allows you to select media players that you want to monitor by Zones and Groups, Luxury Suites, Auto Registered, or All Devices. We further enhanced this interface by allowing Search, Find, or Filter on devices by Location Name, Model, IP or MAC Address, Firmware, TV Status, Status, and Description. See Monitoring Media Player Operation During an Event Using Device Management, page 237 for full details on what's new.

- Allows you to pin devices to the list, toggle to a tree view, refresh the screen and gets you to TV control.

- Provides a fast way for Administrator to reboot digital media players.

Note: Not all commands or display areas apply to all digital media players. Some features are unique to media player type. Some areas might not report the information for a particular device.

Script Management

Script Management is the place to create, control, stage and run fabulous scripts to engage your audiences and make your venues pop. Here are some highlights of the UI updates:

- Global navigation from the Main Menu to **Script Management**.

- Added customizable color schemes for your UI experience.

- Added hover on rows, added **Start** and **Stop** icons for event scripts, and new "State of my Stuff" icons.

- Improved search and filters for your scripts.

- Status "icons" telling you the precise instance of your scripts.

- At a glance, you see: the script name, the status, when it was started, a description, and the running state. All these rows are editable on hover or right click.

- Added dragging and resizing everything to maximize real estate on your screen, columns are even collapsible.

- Added an **Instance** tab in the center panel to control instances. Instances are now visible after you select a script from the Summary panel.

Here's the new screen for *managing* scripts (Figure 10 on page 28).

Figure 10   Script Management
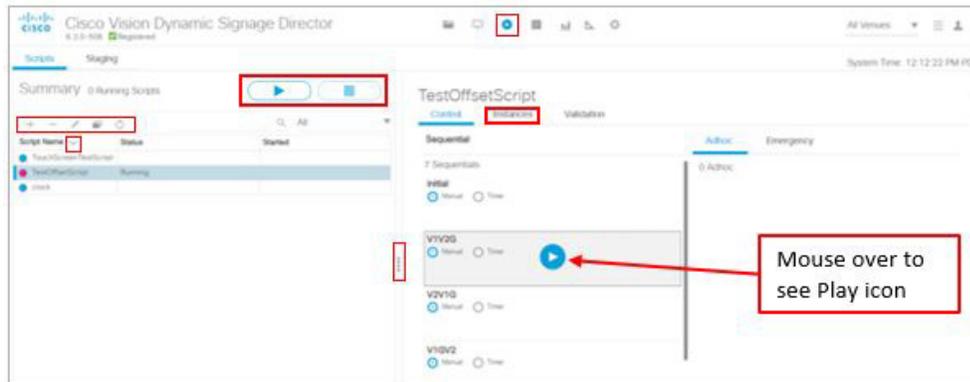
Note: We consolidated script control and script editing. More information on scripts is covered later in this document.

Event Management

The Scheduler application provides a calendar-based script scheduling function that you access from the Cisco Vision Dynamic Signage Director **Main Menu > Event Management**.

Note: The Scheduler Application is only available to Administrator and Event Operator roles.

The application opens a calendar (Figure 11 on page 29) that allows you to perform the following tasks:

- Schedule a single occurrence or recurring event series in advance.

- Modify and/or cancel a single occurrence, recurring event series, or an occurrence within a recurring event series.

- Automate the start and stop of an event script.

- Define event script parameters when scheduling an event script.

- View scheduled event scripts by day, week, and month.

- Schedule a state within a script.

Figure 11   Schedule a Script

System Status

We added a new icon for some of the retired **Management Dashboard** access. A lot of the services are now available through **Configuration > System Configuration**.

System Status displays a dashboard **Overview** of the servers and DMPs (Figure 12 on page 29). This is top-level view showing Server Utilization and a DMP Summary. This is informational only; you cannot troubleshoot or access the devices here. For detailed information, see Managing Server Resources in Cisco Vision Director, page 259.

Figure 12   System Status and DMP Summary
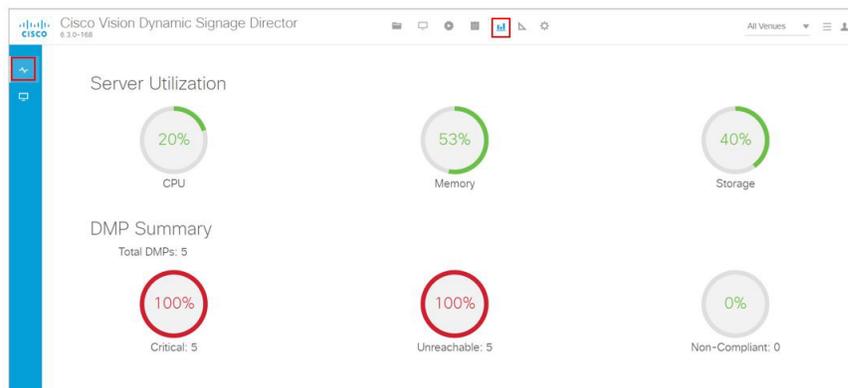
Click the **Monitor and Status** icon to check on the overall status of your devices (Figure 13 on page 30). In this example, it shows venue 1. You can choose which venue to view. For detailed information, see Managing System Services in Cisco Vision Director, page 257.

Figure 13   Monitor and Status of Services Interface
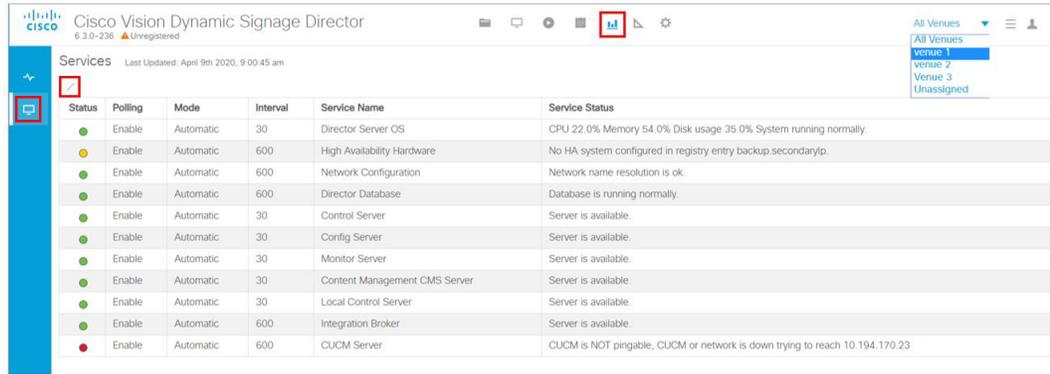
Detailed status for devices and monitored services is easily accessible from the **System Status** interface to help you pinpoint and troubleshoot issues occurring on the network.

Designer

The updated Designer interface is the gateway for creating your displays in regions with interesting and engaging ads, tickers, menus, videos and graphics. This interface allows you to edit widgets and templates.

This interface is now fully searchable, sortable, and scalable, shows the resolution values of each of your templates, and shows if it is locked with a padlock icon. The padlock indicates this template cannot be altered. For more detailed information on using the widgets or templates, see Working with Screen Templates in Cisco Vision Director, page 105.

Figure 14   Designer Interface—Widgets and Templates

Configuration

30
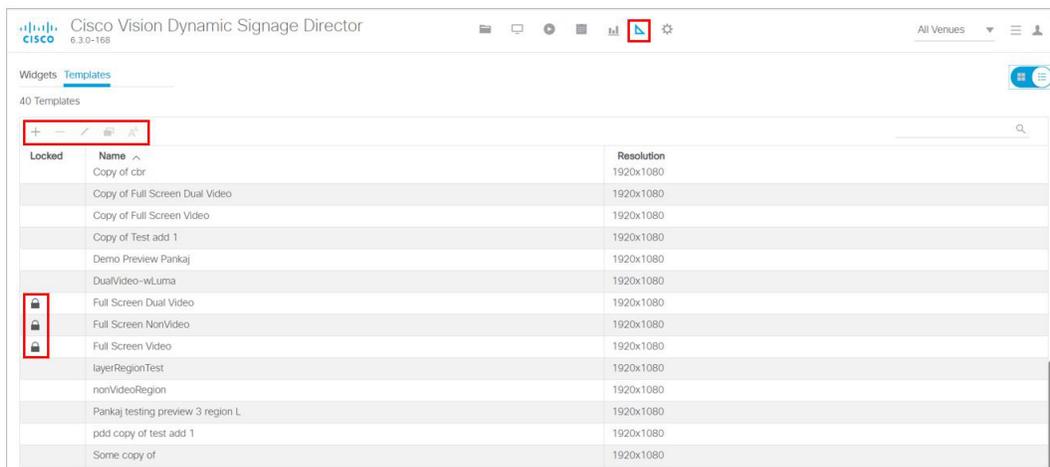
This interface is the powerhouse for configuring your venue zone by zone, group by group, and location by location. You can set up channels and create channel guides. You can quickly tabulate your types of devices, create luxury suite groupings and assign types of devices to them. You can work with your input and output triggers and ingest external data. Figure 15 on page 31 shows the Configuration UI options. Hover down the left blue banner for tool tips.

Figure 15   Configuration Interface
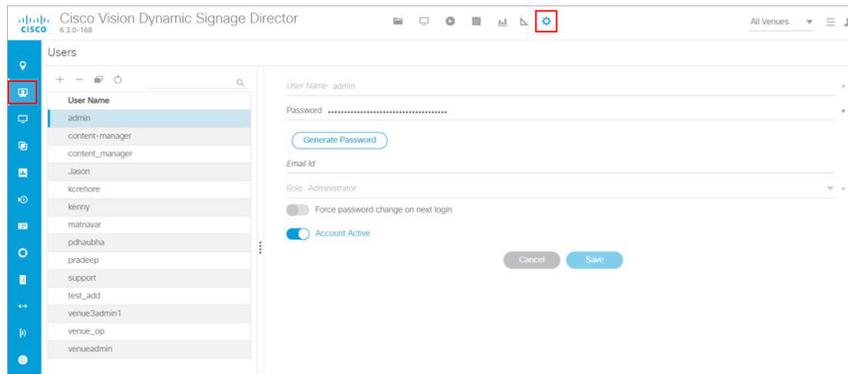
The **Configuration** interface replaces **Control Panel > Setup**. **Configuration** provides a comprehensive interface for setting up device and venue controls for content display in Groups&Zones, Luxury Suites, Channels, Devices, Triggers, Proof of Play and Data Integration. Each of these tabs has a multitude of options to aid in setting up your venue experience.

Here are the icon highlights of the **Configuration** interface:

■ Venues—Assign your content by venue location. This interface is visible after it is enabled and is role specific.

■ Users—Create users and manage their roles from the drop-down menu.

■ Devices—Add, edit, import and export devices to your venue set up. Devices can be configured by Locations and DMPs, Location-DMP Mapping, IP Phones, Local Control, and Display Specifications.

■ Groups & Zones—Sets the Zone and Group names in the venue "areas" so you can track and organize what devices are connected to what TV displays.

■ Luxury Suites—Map the suites of your venues to the DMPs to ensure an engaged experience for the guests.

■ Channel Definitions—Create channels and video channel profiles. We added a new **DMP Encoding Profiles** tab.

■ Channel Guide—Create and assign channel guides to associate to specific devices in the luxury suites.

■ Data Integration—Integrate data from external sources to Cisco Vision Director.

■ Proof of Play—When selected, compiles a record of the exact content that displayed per DMP.

■ Triggers—Configure the input and output triggers here.

■ TV Off Configuration—The Turn TVs Off application allows a Facility Operator or Administrator to control the power to all TVs within one or more zones, or across the entire venue.

■ System Configuration—Provides a comprehensive interface for managing and monitoring the services and status of the DMPs, TVs, the Cisco Vision Dynamic Signage Director Server, and DMP-to-switch connections for your deployment.

Note: For Facility Operator, the TV Off Configuration will show a special TV Off screen with one large **Turn TVs Off** button.

More Grid (Hamburger)

Use the **More** drop-down menu to access the following options (Figure 16 on page 32):

- Dynamic Menu Boards—Provides dynamic control of the content on menu boards in the concession stands during an event.

Figure 16   More Menu
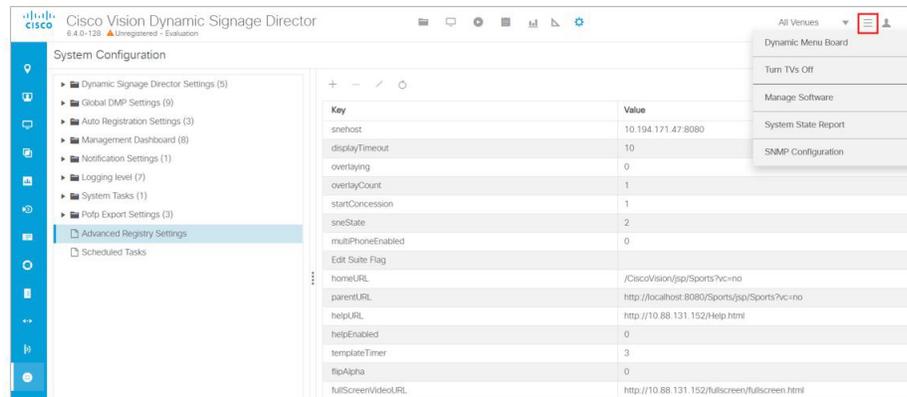
- Turn TVs Off—Provides for quick control and to power off the TVs.

- Manage Software—Provides interface to upload the latest DMP firmware, upgrade the latest software or Service Pack, upload the latest language packs available, control the fonts you use, manage the DMP, Data Integration, and DSD certificates, upload a new DSD login background image, a DMP background image, or a channel guide background image, manage your DSD software licensing information, and perform system backups.

- System State Report—Provides easy capture and export of system state data for the Cisco Vision Director server. This information can be sent to a remote support engineer to help troubleshoot any issues that occur with the system.

- SNMP Configuration—Enables Cisco Vision Director to respond to Simple Network Management Protocol (SNMP) information requests sent from a Network Management Server.

Dynamic Menu Boards Application

The Dynamic Menu Board (DMB) Application is now completely contained within Cisco Vision Director and allows you to add your own content for display in a particular menu theme and layout. The default configuration of the DMB application provides sample menu themes. You can copy a sample theme to create menus of your own items that will use the predefined format and layout of that theme. The DMB menu themes support background graphics and both textual and graphical content depending on the predefined format for the selected theme and layout.

You can add content to a menu, or you can link to content that are already defined in Cisco samples in Cisco Vision Director. The benefit of linking to content in a store is that you can make a change within the store, such as hiding a menu item or changing its price, and populate the change across all menus that are appropriately configured with a link to that item.

Note: For a new installation, there are no content samples of images, layouts, and themes included.

For a summary of these menu board creation methods, see Menu Board Content, page 102. Figure 17 on page 33 shows the interface with the **Themes** tab displayed. For a details on how to use the new interface, see .Cisco Vision Director Dynamic Menu Board Configuration Guide.

Figure 17   Dynamic Menu Boards UI
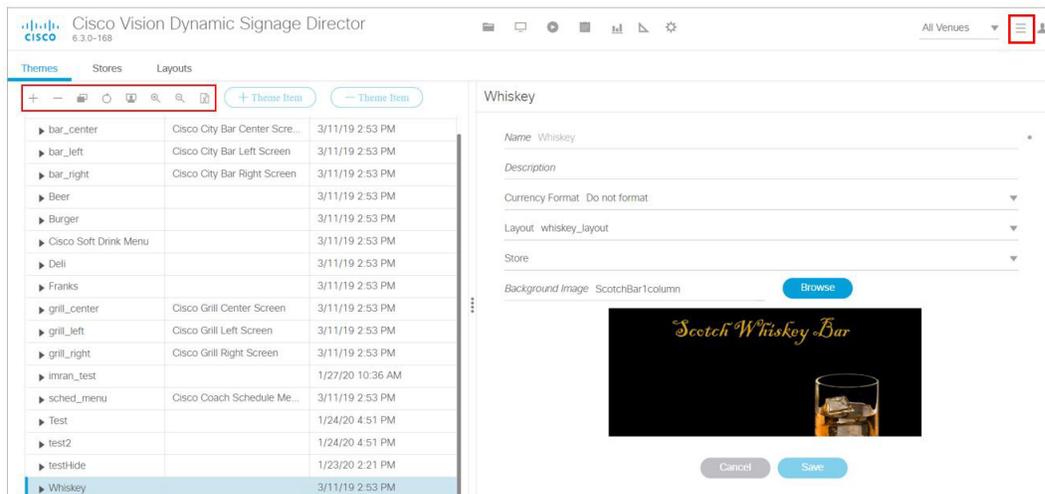
Turn TVs Off Application

Note: Turn TVs Off function is only available to Administrator and Facility Operator roles.

With so many TVs in each Cisco Vision Director deployment, it is important to turn all TVs off after use. The Turn TVs Off application allows an Administrator to control the power to all TVs within one or more zones, or across the entire venue. Only authorized users can access the Turn TVs Off application (Figure 18 on page 33). For detailed information on the roles and their access privileges, see Role-Based Access Control, RBAC, page 42.

Figure 18   TVs Off Interface
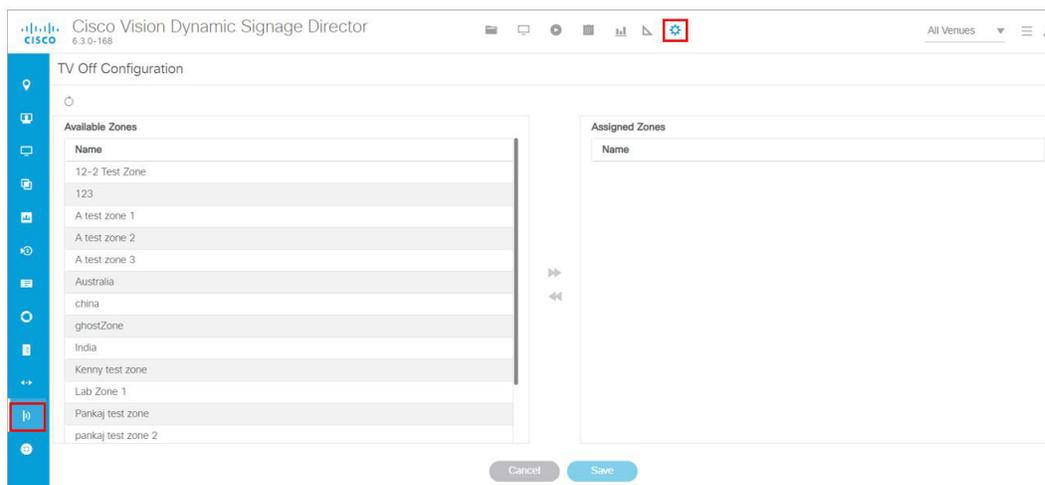
The Turn TVs Off application provides the following functionality:

■   Administrators can define zones, allowing bulk numbers of TVs to be controlled.

■   TVs in unassigned zones cannot be controlled by the Turn TVs Off application.

■   Administrators can exclude certain TVs, for example those in the back offices, from being controlled by the Turn TVs Off application.

■ A non-IT person, for example the Facility Operator, can access the page to turn off the TVs (as defined by the Administrator, Figure 19 on page 34).

Figure 19   Facility Operator Access to Turn TVs Off
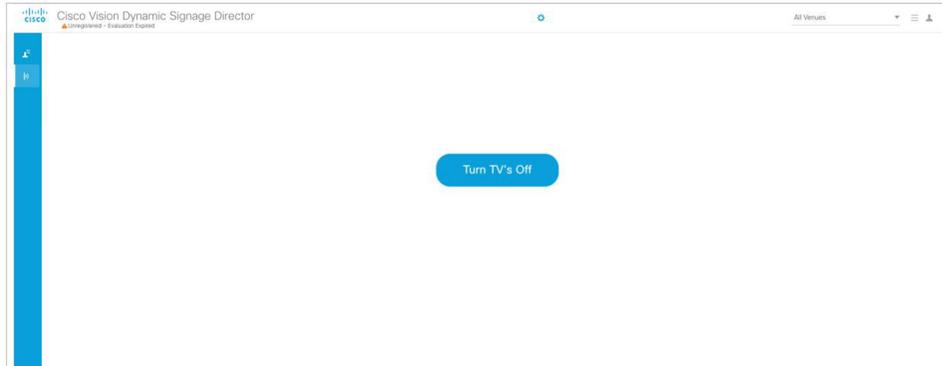
■ Email notifications, similar to Status notifications, are sent to configured email IDs in Management Dashboard.

When the Turn TVs Off button is clicked from the Main Menu:

■ Commands to turn the TVs off are sent to the DMPs attached to all TVs in the configured zones.

■ An email notification is sent to a pre-defined set of users.

■ The change in TV status is logged in Cisco Vision Dynamic Signage Director.

Manage Software Application

The Manage Software application (Figure 20 on page 35) is used only by the Administrator to:

■ Upload and install the latest DMP firmware

■ Upgrade Cisco Vision Director software

■ Upload and install language packs for user interface (UI) localization.

■ Install custom fonts to use in widgets

■ Install DMP, Data Integration, or DSD certificates

■ Upload a custom image for the login background screen, DMP background or Channel Guide background

■ Manage and upload the licensing information for Cisco Vision Director

■ Perform system backups

Configuration

Figure 20   Manage Software Interface
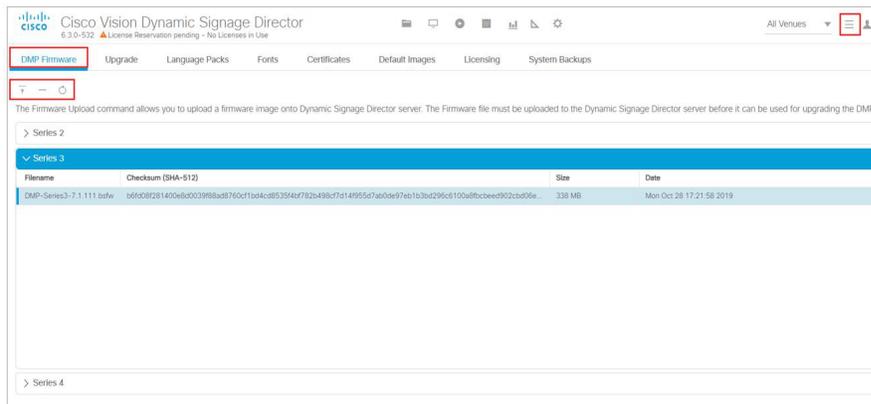
For more information about how to use the Manage Software application, see the *Cisco Vision Software Installation and Upgrade Guide: Dynamic Signage Director*. For information on what's new in the Manage Software interface, see the Release Notes for 6.4.

System State Report Application

The System State Report application (Figure 21 on page 35) enables easy capture and export of system state data for the Cisco Vision Director server. This information can be sent to a remote support engineer to help troubleshoot any issues that occur with the system.

Figure 21   System State Report Interface

For more information, see the System State Reports module of the *Cisco Vision Administration Guide, Dynamic Signage Director*.

SNMP Configuration

Release 6.4 allows you to enable Cisco Vision Director to respond to Simple Network Management Protocol (SNMP) information requests sent from a Network Management Server.

To enable SNMP to Director:

1. Click **More > SNMP Configuration** (Figure 22 on page 36). The screen updates showing the configuration and trap thresholds.

2. Click the slider to **SNMP enable** (Figure 23 on page 36). Use the scroll bar to see all the **Trap Threshold Configurations**.

Figure 22   Accessing SNMP for Director
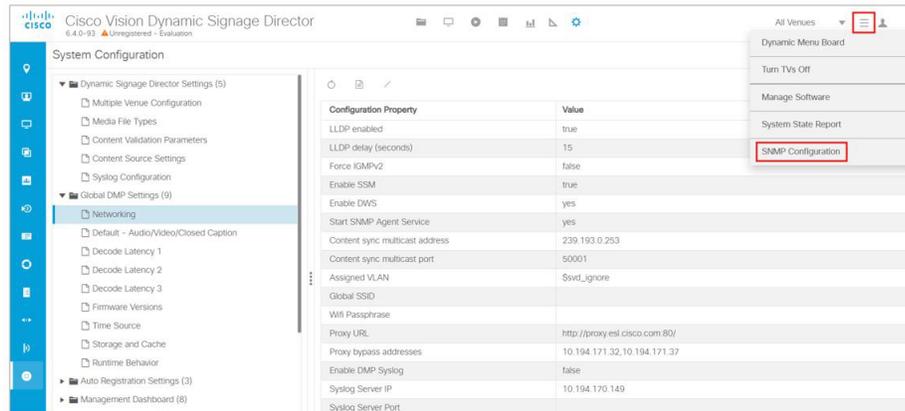
Roll over any fields and see the arrows appear. Make changes, if necessary.

Figure 23   Set SNMP Configuration Information
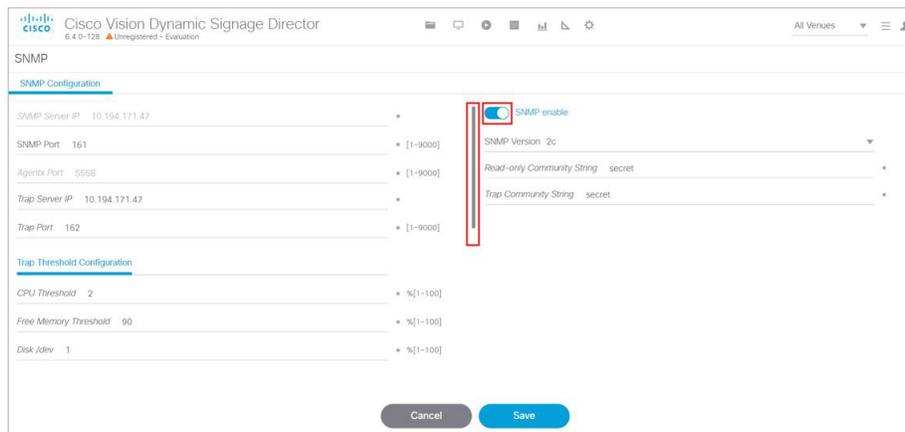
3. Click **Save**.

Note: By default this is not configured. You must enable SNMP and choose settings. Then choose the trap threshold values.

Introduction to Cisco Vision Director APIs

This section summarizes the Application Programming Interfaces (APIs) that are supported in Cisco Vision Director.

- Event Trigger API, page 37

- Media Planner Import API, page 37

- User Control API, page 38

Note: All APIs in the Cisco Vision Dynamic Signage Director are made available by special agreement. Contact your Cisco Systems representative for more information.

Event Trigger API

Cisco Vision Dynamic Signage Director supports an inbound HTTP-based Representational State Transfer (REST) API that a third party can use to trigger one or more actions by the Cisco Vision Dynamic Signage Director software. Cisco Vision Dynamic Signage Director can also send an HTTP-based command to a downstream third-party system.

For more information about support for external input triggers, see the *Configuring Cisco Vision Dynamic Signage Director for External Triggers* guide. Event Trigger API is not supported by Cisco Technical Assistance Center personnel.

Note: If you want to control external triggers from a software application, you can contact your Cisco Systems representative to obtain the Event Trigger API that is made available by special agreement. "TriggerSVD" is an example of a third-party demo application for the Event Trigger API on iOS (supporting Apple iTouch, iPhone, and iPad products) and is available as a free download from the iTunes store.

Media Planner Import API

Cisco Vision Director supports the Media Planner Import API that is used to import external, third-party generated playlists. The API can be used to support automatic updates to an already imported playlist that has been placed in a script, or an external playlist can be manually imported.

The Media Planner API supports the following features:

Import Playlist Functionality

- Automatically creates playlist and populates it with existing content.

- Automatically links missing content to playlist after each missing content item is uploaded.

- Updates to playlists tied to a script that have all content items requires no human intervention.

Special User Interface Indications

- Imported playlist are easily identifiable as "external playlist."

- Indicates playlist with missing content.

- Warn user when trying to assign a missing content playlist to template.

- Warn user when starting a script with missing content playlist.

Proof of Play Addition

- Works in the same way as a manually created playlist, but with more granularity.

- Automatic insertion of Proof of Play (POP) tag for each time slot play.

User Interface Example

The API automatically creates the playlist, which you can easily identify by an icon that tags it as an external playlist source (Figure 24 on page 38).

Figure 24   External Playlists in Content Screen
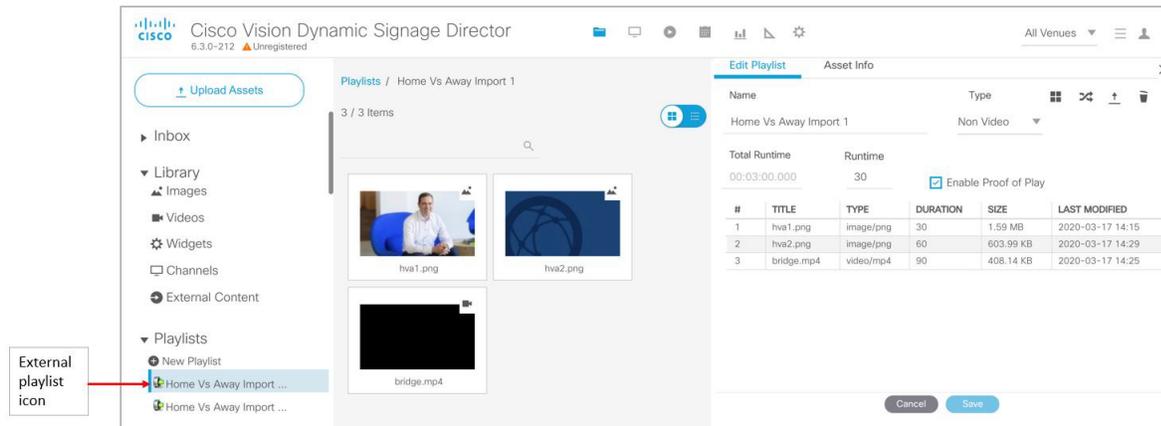
The playlist is populated with existing content in Cisco Vision Director and you are alerted to any missing content in the playlist. The missing content item is identified with a question mark. Once you import any missing content, it is automatically linked to the external playlist.

Current proof of play reporting is fully supported for external playlist sources and PoP tags are automatically created for specified sponsor IDs. Any missing content is not included in the PoP report.

For more information about how to use the POS integration with Data Integration, see the *Release 6.4: Cisco Vision Director Data Integration Guide*.

User Control API

Cisco Vision Director supports the in-suite API, which allows querying as well as sending control information to Cisco Vision Director.

The API supports the following areas:

- HDMI-In Control, page 38

- Information Retrieval, page 38

- Security, page 39

- TV Control, page 39

For more information about Local Control APIs, contact your local or Cisco representative for details.

HDMI-In Control

The following API HDMI-In controls are available on the DMPs:

- Start HDMI-In streaming

- Stop HDMI-In streaming

Information Retrieval

The API information capabilities include:

- Query of which suites that can be controlled.

- Query of all players that can be controlled.

- Query of all players with in a suite that can be controlled.

- Query control features that exist within all suites.

- Query control features that exist within a specific suite.

- Query control features that exist for all players.

- Query control features that exist for a specific player.

- Query A/V inputs that exist for all players.

- Query A/V inputs that exist for a specific player.

- Query of closed captioning capabilities of Vision Director.

- Query the channel guide for a specific suite. If a channel is marked as a favorite, the favorite order is included.

- Query the status of all players that can be controlled.

- Query the status of a specific player.

- Detailed HTTP POST response messages in XML.

Security

The API security capabilities include:

- Unique permanent PIN for each suite in order to access and control the devices within.

- Temporary PIN for each suite that changes per event script run, can be displayed on TV. The temporary PIN is changed every day at 4 a.m. (default) based on the default scheduled task in Cisco Vision Director. It also can be changed on demand using the UI.

- Common universal PIN for administrative control.

TV Control

The API TV control capabilities include:

- Power on and off of the TV.

- Channel change to a channel within the guide.

- Channel change up or down from the current channel in the guide.

- Channel favorites and favorite order.

- Volume change to a specific value.

- Volume change up or down from current value.

- Mute the audio with a specific on or off.

- Mute and unmute the audio with a toggle.

- Closed caption on with specific CC setting.

- Closed caption off.

- A/V input change with specific input setting.

■ Show and hide of the information banner on the TV.

Video Replay

Beginning in Cisco Vision Dynamic Signage Director Release 5.0, the User Control API is enhanced to support video replay functions on suite TVs using a mobile application.

The API video replay capabilities include:

■ Start the replay application.

■ Stop the replay application.

■ Load the replay application on multiple DMPs or group of DMPs.

■ Start playback of the replay video from encoded URL on specified devices.

■ Stop playback of the replay video on specified devices.

■ Pause playback of currently running replay video.

■ Resume playback of currently running replay video.

Understanding User Roles

Before you begin to work with Cisco Vision Director, it is important that you understand Role-Based Access Control (RBAC).

Cisco Vision Director deployments normally have a team of people who are responsible for different aspects of the site setup and event operation. For example, in addition to a System Administrator, there is usually an Event Operator, a Content Manager, and a Technical Support person, among other personnel. Each person has different skills and needs for working with the Cisco Vision Director software.

The Cisco Vision Director software implements RBAC to control permissions and user access to only the portions of the system for which they are trained and authorized to use. More than one user can be assigned to the same role in the software. However, only a single role can be assigned to each user name.

For more details about RBAC in a multi-venue environment, see Role-Based Access Control for Hierarchical Management of Multiple Venues in the Cisco Vision Administration Guide: Dynamic Signage Director, 6.4.

Administrator Role

Note: This section describes the primary (or central) Administrator role in a Cisco Vision Director system.A Venue Administrator has a subset of administrative permissions that are authorized on a per-venue basis.

The primary Administrator role has unrestricted access to the Cisco Vision Director software and is the only role that can add users and assign RBAC privileges to them. The Administrator role is pre-configured in Cisco Vision Director and cannot be deleted. However, you can change the password. You also can have more than one user assigned with Administrator privileges.

The Cisco Vision Administrator is the person who is responsible for deploying the Cisco Vision solution throughout the venue.

Note: Administrators have global access to all venues in a multi-venue environment. Venue Administrators only have access to those venues for which they are authorized by a primary Cisco Vision Director Administrator.

The primary administrator has sufficient permissions to do all functions and is the only role able to do the following tasks:

■ Use the Software Manager to install language packs, fonts, all certificate types, all default image types, upload DMP firmware, upgrade software, manage licenses on Cisco Vision Director products, and perform system backups

- Configure multiple venue support and Cisco Vision Director Remote servers

- Associate objects to venues

- Create additional users and assign roles

- Add devices to Cisco Vision Director

- Configure local control areas such as luxury suites, back offices, and bars

- Configure Point of Sale (POS)

- Configure the Dynamic Menu Board (DMB) application

- Configure external triggers

- Configure Device Manager and reboot DMPs

Adding Users by Role

Create new users and assign their roles. This is very important for the Administrator to have people to assign levels of access to venues, folders (content), or locations in a venue.

To create a new user:

1. Click **Configuration > Users**. The User interface appears ().

2. Click **+** (**Add**). New User appears in the field.

3. Type a **User Name**.

4. Type the **Email ID**.

Figure 25   Creating a New User

5. Choose a **Role** from the drop-down menu.

6. Click **Generate Password**. The color bars appear under the Password field.

7. Click the **eye icon** to see the actual password and add more characters to increase the password strength.

   Best practice: the password bars are all green.

8. Click **Save**.

In this example, a Facility Operator can turn the TVs on and off, after they are added and assigned venues and locations, etc., by the Administrator. See Figure 19 on page 34.

Assigning Users

Once a user has been created, the Administrator can assign that User to certain items in a venue, such as a location or folder (Dynamic Menu Board content).

To assign a user to a venue:

1. Click **Configuration > Venues**. The Venues interface appears (Figure 26 on page 42).

2. Click the **Users** tab. Now the **Assigned Users** and **Available Users** panels appear.

3. Select an available user from the list using the check box.

4. Click the motion arrows to move that user to the **Assigned Users** panel.

5. Click **Save**.

Figure 26   Assign a User to a Venue
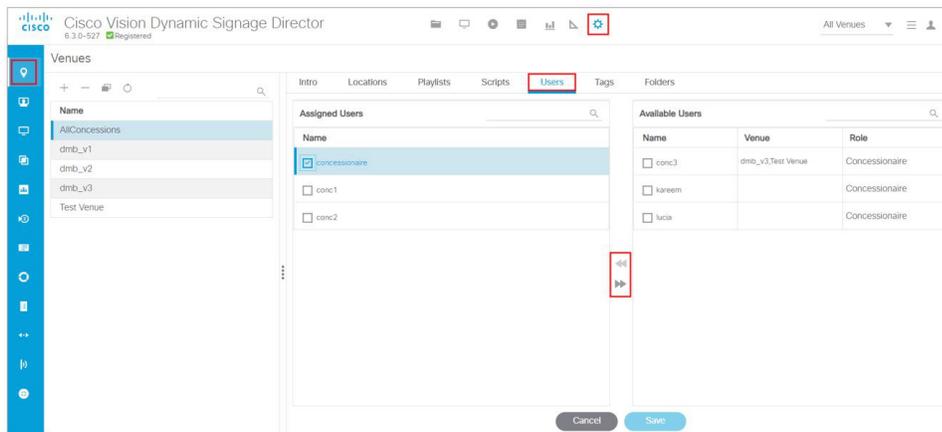
In this example, Concessionaire was assigned to AllConcessions (in all the venues).

RBAC

Table 1 on page 43 provides an overview of the roles that can be assigned by the Administrator in Cisco Vision Dynamic Signage Director.

Table 1   Cisco Vision Dynamic Signage Director Roles

Role	Description
Concessionaire	Concessionaires have access to the Dynamic Menu Board application, to create menus. They can associate menu item images and menu board background images using existing content from the library. All content uploaded by the Concessionaire is available to all users that have sufficient permissions based on the roles assigned to them. **Note:** The Concessionaire role does not have permissions in the **Script Management** or the **System Configuration** and they can only see the DMB themes that they create.
Content Manager	Content Managers are responsible for uploading content and ads. They create event scripts so that the correct content displays in the proper area of the venue and the proper area of the TV screen according to the specified schedule. The Content Manager role has permissions in Cisco Vision Director to configure event states/scripts, zones, groups, screen templates, playlists, and tickers. Content Managers can also create and assign widgets for custom menus and playlists for those menus.
Event Operator	Event Operators run the Cisco Vision Director event scripts during an event. The event operator role has permissions to schedule scripts using the Scheduler application, start and stop scripts, and modify their states. They can change the transition of an event state from time-based to manual, move an event into one of the three ad hoc states (Inside Emergency, Outside Emergency, or Delay), and approve ticker content (legacy version). Additionally, the Event Operator can execute state changes and is responsible for performing the pre-game walk-through. Event Operators also can use the TV Off application.
Facility Operator	Facility Operators have access only to the **TV Off** and **Users** applications under Configuration.
Help Desk	Help Desk users have read-only permissions to view and monitor information on the **System Configuration** and to use **Device Management**. This role does not have permissions in the **Configuration** interface, except to change their own password.

Table 1   Cisco Vision Dynamic Signage Director Roles

Role	Description
Support	Support users are responsible for first-level technical support. They have limited access to the **System Configuration** to monitor DMP status, troubleshoot, and manage the DMPs on the Cisco Vision network. They also have access to **Device Management**. The Support role does not have permissions in the **Configuration**, except to change their own password.
Venue Administrator	(Release 5.0 and later) Venue Administrators have limited permissions at the venues authorized by the central Administrator for that user for the following areas of Cisco Vision Director: **Script Management.** **System Configuration**—Read-only access with limited command support. **Device Management**—Read-only access. **Devices** (Display specifications only); Read-only access to Zones Groups, Channels, Luxury Suites.
Venue Operator	(Release 3.1 and later). Venue Operators have script control for venues authorized by the Administrator for that user. In the **System Configuration**, Venue Operators can view and monitor information on the **System Configuration** with read-only access to the venues for which permissions are granted. They also have access to Device Management.

Note: Venue Administrators, Venue Operators, and Concessionaires are the only roles that have venue-specific permissions. For more information, see Configuring Cisco Vision Dynamic Signage Director for Multiple Venue Support in the Cisco Vision Administration Guide: Dynamic Signage Director, 6.4.

Access Summary By Role

provides a summary of the areas of access in the Cisco Vision Director software by each user role.

Table 2   Role Access Summary by Functional Area of Cisco Vision Dynamic Signage Director

Functional Area	Admin	Concessionaire	Content Manager	Event Operator	Facility Operator	Help Desk	Support	Venue Admin	Venue Operator
Device Management	Yes	–	–	–	–	Read only	Read only	Yes	Read only
Configuration									
Channel Definitions	Yes	–	Yes	–	–	–	–	Read only	–
Channel Guide									
Data Integration	Yes	–	Yes	–	–	–	–	–	–
Devices	Yes	–	–	–	–	–	–	Limited[1]	–
Groups & Zones	Yes	–	Yes	Yes	–	–	–	Read only	–
Menus	Yes	–	Yes	–	–	–	–	–	–
My Profile	–	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proof of Play	Yes	–	–	–	–	–	–	–	–
Stores	Yes	–	–	–	–	–	–	–	–
Luxury Suites	Yes	–					Limited[2]	Read only	–
System Configuration	Yes	–	–	–	–	Limited[5]	Yes	Limited[7]	Limited[8]
Triggers	Yes	–	–	–	–	–	–	–	–
User Admin	Yes	–	–	–	–	–	–	–	–
Venues	Yes	–	–	–	–	–	–	–	–
Script Management									
Content	Yes	–	Yes	–	–	–	–	Limited[3]	–
Control	Yes	–	–	Yes	–	–	–	Limited[4]	Limited[5]
Staging	Yes	–	–	Yes	–	–	–	Yes	–
Scheduling	Yes	–	Yes	–	–	–	–	Yes	–
Templates	Yes	–	Yes	–	–	–	–	–	–
Widgets	Yes	–	Yes	–	–	–	–	–	–
Dynamic Menu Boards	Yes	Yes	Yes	–	–	–	–	–	–
System Status	Yes	–	–	–	–	Limited[5]	Yes[6]	Limited[7]	Limited[8]
Scheduler Application	Yes	–	–	Yes	–	–	–	–	–
Software Manager	Yes	–	–	–	–	–	–	–	–

Table 2   Role Access Summary by Functional Area of Cisco Vision Dynamic Signage Director (continued)

Functional Area	Admin	Concessionaire	Content Manager	Event Operator	Facility Operator	Help Desk	Support	Venue Admin	Venue Operator
System State Reports	**Yes**	–	–	–	–	–	–	–	–
TV Off Application	**Yes**	–	–	**Yes**	**Yes**	–	–	–	–

1. Venue Administrators can only edit the Display Specifications panel.

2. Support users can set up TV control PINs and channel guides for suites.

3. Venue Administrators can delete content associated (tagged) to the venues for which that venue admin is authorized. External content, channels, and Dynamic Menu Board (DMB) content items are global to all venues. Therefore, these global content items also can be deleted by the venue admin.

4. Venue Administrators and Venue Operators have script control only, and only for venues authorized by the Administrator for that user.

5. Help Desk users can view and monitor information on the System Status with read-only access. They also can run Get Status, Ping, Display IP, and Ping Test commands for DMPs in the System Status.

6. Support users can run Get Status, Ping, Display IP, Ping Test, TV On/Off, Set Display Input, Set Display Banner, Set Closed Captions, Set Video Channel, Cabling Test using TDR, and Show TDR Test Results commands.

7. Venue Administrators can view and monitor information on the System Status with read-only access to the venues for which permissions are granted. They also can run Get Status, Ping, Display IP, and Ping Test commands in the System Status for the DMPs in the venues at which that Venue Administrator is authorized.

8. Venue Operators can view and monitor information on the System Status with read-only access to the venues for which permissions are granted. They also can run Get Status, Ping, Display IP, and Query Syslog commands in the System Status for the DMPs in the venues at which that Venue Operator is authorized.

Working with TV Displays

User Role: Administrator, Venue Administrator

This module provides information about setting up TV displays in Cisco Vision Director.

User TV Control

Support for all methods of user TV control is enabled by default in Cisco Vision Director for all media player types. This includes control of TV displays using local control devices and applications, IP phones, touch screens and infrared remote (IR) control.

Some venues have a need to disable user TV control for certain events or suites, or to limit the TV to display a particular channel or control its volume.

TV Control Access

Quickly access TV power control using **Configuration > TV Off Configuration** (Figure 1 on page 47). This interface is particularly powerful when you have zones and groups of devices to power off. Using the Zones & Groups interface is discussed fully in Working with Zones, Groups, and Locations, page 67.

Figure 1   TV Off Interface
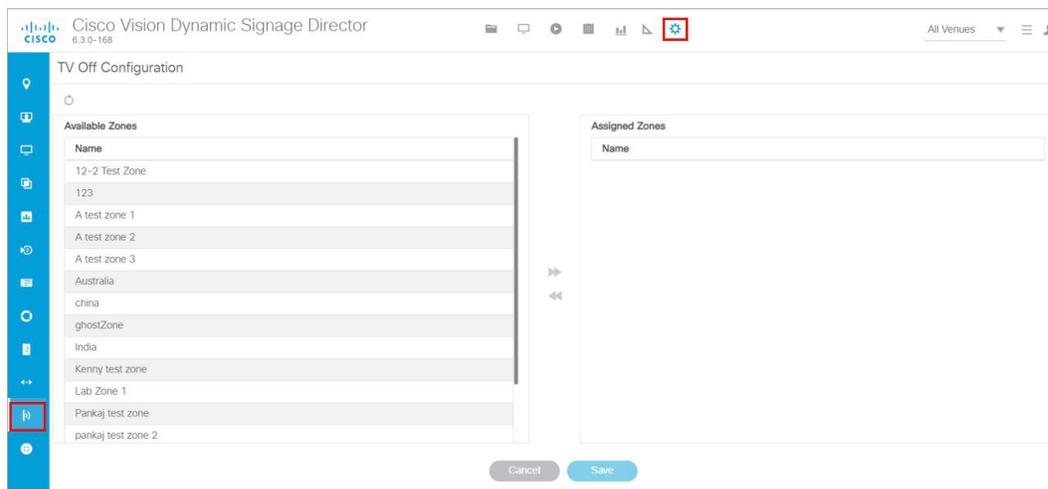
To power off zones of TVs:

1. Select an **Available Zone** from the list in the left panel.

2. Click the Right motion arrow to **Assign** that **Available Zone** to the **Assigned Zones** list. Use the **Control** and **Shift Control** keys to select specific zones or ranges of zones to move from one list to the other.

User TV Control

3. Click **Cancel** to undo recent changes.

4. Click **Save**. If you do not click **Save**, all your changes are lost. No warning box appears.

If the changes do not appear, click the **Refresh** icon in the top left. A **Confirmation Refresh** box appears ().

Both lists are fully sortable. Click **Name** to sort.

Figure 2   Confirm Refresh of Assigning Zones
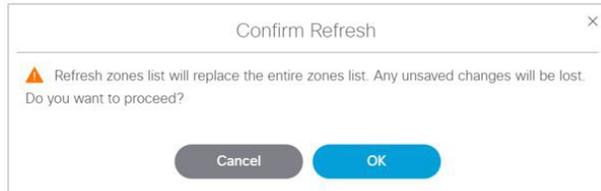
To turn off the TVs in a zone:

1. Select **More > Turn TVs Off** (). The Confirmation dialog box appears ().

2. Click **OK**.

Figure 3   More > Turn TVs Off
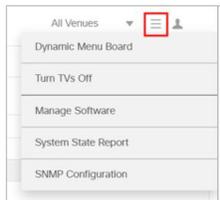
Figure 4   Confirm Turn TVs Off

The Info dialog box appears to tell you the Turn TVs Off command was sent successfully to Cisco Vision Director. Following that, an auto-generated email is sent to the role that performed the action ().

Figure 5   Notification Email of TV Off
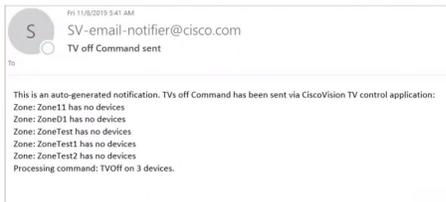
TV Display Specification

Cisco Vision Director requires that you configure certain commands and attributes for the TVs used in the venue to ensure proper communication between the media player and the TV. This configuration is defined in what is called a *display specification*.

By default, Cisco Vision Director includes display specifications for several common TV display models. If your TV display model is not included in the default specifications, add and configure it.

A different display specification is required for each unique TV type, based on which commands are used to control the TVs. In some cases, all TVs from a certain manufacturer can use the same display specifications. In other cases, different TV models from the same company might require different display specifications.

Note: As a best practice, configure your TV display specifications before configuring Locations in Cisco Vision Director. You must select the "Display Spec" for the type of TV (brand/model) that is physically installed when you configure a Location.

Closed Captioning

The standard for closed captioning (CC) in North America, which all digital TV broadcasters typically follow, is the Consumer Electronics Association (CEA)-608 and CEA-708 closed captioning standard. Figure 6 on page 49 shows US CC standards.

IMPORTANT: Closed Captioning will not work in Europe or anywhere outside of North America.

Figure 6   Closed Captioning Support in Cisco Vision Dynamic Signage Director
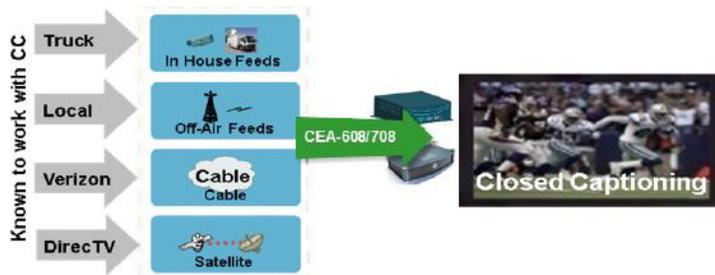
This standard is generally supported on all broadcast channels from service providers. Cisco Vision Director is automatically configured to enable closed captioning CC1-CC4 support on the Cisco devices.

Content Orientation

The default orientation for all content in Cisco Vision Director is landscape mode.

You can manually create content in vertical format (*static graphics* only) and rotate it. Set auto-rotation of content in portrait mode in the TV Display Specification.

Guidelines for Portrait Mode Auto-Rotation

- Allows DMPs to automatically rotate content for proper orientation on vertically-positioned displays.

- Supported for all content sources for a *single* TV display.

- Scaling of content across multiple display screens in portrait mode is only supported for multicast streaming video.

- Enabled using the "dmp.portrait=true" **Display Parameter** when configuring TV **Display Specifications** in the **Configuration > Devices** interface (Figure 7 on page 51).

Note: DMP portrait mode is not available for UHD (4K) videos. See the Cisco Vision Content Planning and Specifications Guide, Release 6.4 for complete information about using portrait mode and auto-rotation.

IMPORTANT: When planning for portrait video playout, consider all other secondary system tasks such as:

- Graphics operations like tickers, HTML graphics, and large image files

- Network traffic (doing large/frequent networked updates)

- USB audio

These tasks interact with the hardware restrictions on your DMP. Reduce or eliminate these secondary tasks or upgrade to a higher performance DMP model.

Content rotation requires a significant amount of processing, so playback performance is not equal to landscaped display. Table 1 on page 50 shows some basic guidelines for the Cisco Vision DMPs.

Table 1   Playback Guidelines for the DMPs

DMP Model	Portrait Playback
CV-UHD2 CV-UHD	Can output portrait HD video (1080x1920) at 60p. Up to two portrait video windows are supported (up to 60p for both the source file and the output), but the total area of all video windows should not exceed 1080x1920.
CV-HD2 CH-HD	Can output portrait HD video (1080x1920) at 60p. The frame rate of the source video should not exceed 30p.

Note: Portrait mode is not recommended for CV-HD and CV-HD2 DMPs. For the CV-UHD and CV-UHD2 players, single or dual video playback will likely perform well, but may exhibit playback issues.

IMPORTANT: Test your video sources against your players to ensure that video dimensions and video encoding are satisfactory during playback.

Content Orientation

Table 2   Portrait Mode Parameters

DMP Model	Region	Parameter
All Models	Single Region	Multicast Video, Local Video, Full Screen Portrait Web Application (Kyoto Signage Application), Full Screen Portrait Video Files (1080x1920) **Note:** Known issue when using UHD mode (3840x2160) and full screen portrait videos. Full Screen Portrait Images (1080x1920) Full Screen Mixed Playlist (External Content, Video Files in 1080x1920, Images in 1080x1920) **Note:** Known issue when using UHD mode (3840x2160) and full screen portrait videos.
All Models	Dual Region	Multicast Video + Static Images Playlist
All Models (Except CV-HD and CV-HD2	Dual Region	Multicast Video + Multicast Video Local Video Files Playlist + Local Video Files Playlist

Flexible DMP Content Rotation

You can rotate content 90 degrees and –90 degrees (or +270 degrees). This works for all content like videos, static images, widgets, local and multicast video, and external URLs. Rotate content for situations where the display monitor has already been installed in a portrait position and to show your content in the proper orientation.

To rotate content to portrait mode:

1. Click **Configuration > Devices > Display Specifications.**

2. Choose the specific display from the list on the left panel and click the **Display Parameters** tab in the right panel ().

3. Click **+** to add a new Display Parameter. The Create Display Parameter dialog box appears ().

Figure 7   Adding Content Rotation Specifics to Display Parameters
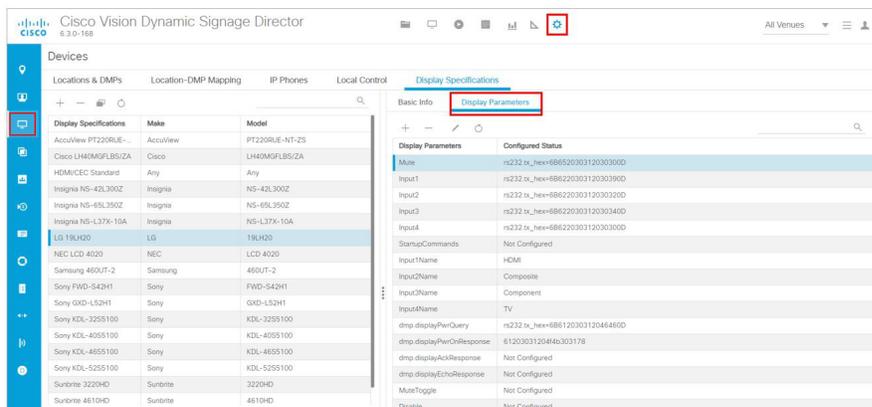
4. Type **dmp.portrait** or **dmp.portrait.clockwise** and set it to **"true"** to achieve the proper rotation value you need.

By default, if you use dmp.portrait and set "true" to your content, it rotates the content 90 degrees. If you set dmp.portrait.clockwise to "true," it will rotate the content 270 degrees (or -90 degrees).

Note: Reboot the DMPs to set this parameter. Click **Configuration > System Configuration > System Tasks > Reboot DMP Task.**

Below is a figure displaying rotated content 90 and -90 degrees. Use clockwise and counterclockwise.

Clockwise   Counter clockwise

Note: DMP portrait mode is not available for UHD videos.

Distorted Portrait Mode Displays

IMPORTANT: When the DMP is in portrait mode and you are streaming a multicast video, you may notice that the display is distorted. If this happens, it may be because the DMP registry of **scaleToFit.video** is set to "**true**." The default is this registry is not present or it is set to "false." If there is an outstanding reason to have the registry set to true, then change the default from a multicast stream with portrait mode URL to something else, like a web page instead.

To set a separate default URL for portrait-oriented displays:

1. Click **Configuration > System Configuration > Dynamic Signage Director Settings**.

2. Change the **Value** of the **Default portrait content URL** to use HTML so the content is not stretched.
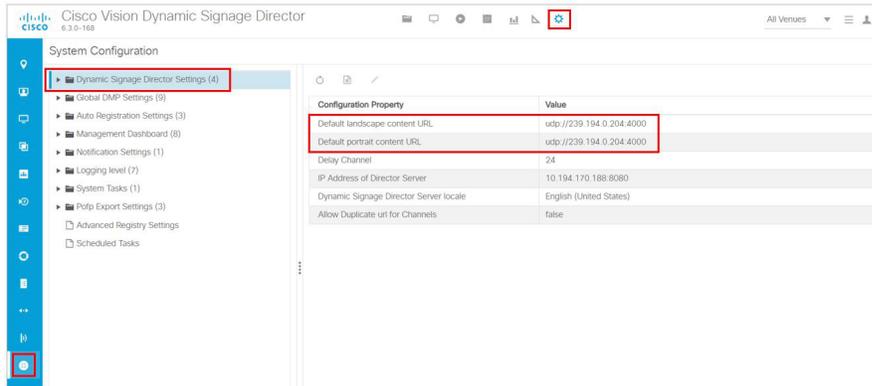
HDMI-CEC

Support for HDMI Consumer Electronics Control (CEC) allows you to control the following three TV functions:

- Power On

- Standby (Power Off)

- Power Status

When HDMI CEC TV control is enabled, HDMI CEC is used instead of RS-232 for TV control functions. To control TVs, run the **TV On** and **TV Off** commands from the **Device Management** interface. Use the **Get Status** drop-down arrow.

Configure a TV display for HDMI-CEC TV control using one of two methods:

- Apply the HDMI/CEC Standard display specification for new TVs, where the HDMI-CEC display parameters are automatically enabled and set to default values.

- Modify an existing display specification to set the HDMI-CEC display parameters manually.

The following commands are used by HDMI/CEC TV control:

- **dmp.powerQueryByCEC**—Enables powerQuery to get TV Power status using HDMI/CEC instead of RS-232.

- **dmp.TVControlbyCEC**—Enables TV control using HDMI/CEC instead of RS-232.

- **dmp.monitorAPIDelay**—Frequency of power query command sent by Dynamic Signage Director over HDMI CEC to the TV. The default is 120000 ms (2 minutes). This command is also supported when using TV control with RS-232.

- **dmp.monitorPower**—Enables Dynamic Signage Director to run a power query to the TV using the Get Status command from **Device Management**. This command is also supported when using TV control with RS-232.

- **dmp.hdmiStreamingDelay**—Indicates the amount of time (units in ms) that the DMP will stop streaming from the time it receives the command. If not defined, the default is 500 (ms). Typically, you do not need to define this parameter.

For HDMI Streaming operations initiated via IR Remote, this parameter prevents too frequent commands from crashing the DMP. If no value is set for this parameter through the Display Specifications, the default is 5000 milliseconds.

This is similar to the parameter "Ratelimit.Frequency.High." The only difference being that this parameter is for HDMI Streaming operations issued through local control API.

TV Qualification for HDMI-CEC Support

Note: Not all TVs support the standard HDMI-CEC commands. Test the TV models that you plan to install for support of HDMI CEC. Turn on HDMI-CEC. TV manufacturers refer to CEC by different trade names. For example, Anynet+ (Samsung), BRAVIALink (Sony), EasyLink (Phillips), and SimpLink (LG).

Note: HDMI-CEC does not support the same command set as RS-232 due to proprietary links.

For more information about the successfully tested TV for HDMI CEC, see the Cisco Vision Dynamic Signage Director Release Notes for Release 6.0.

Display Parameters for RS-232 Communication

RS-232 commands can be used to control TV functions such as On/Off, mute, volume and external input. In more specialized scenarios they might also be used to configure TV tile matrix capabilities.

RS-232 responses are used to retrieve the current status of a TV. Currently Cisco Vision Director uses responses only when querying a TV for its current power on/off status.

For situations where a TV cannot be controlled via RS-232 or otherwise, volume and mute can be controlled by the media player instead. This is behavior is indicated by configuring volume and mute commands that start with sigma=.

Display Parameters for RS-232 TV Control

Table 3 on page 55 shows a summary of the display parameters and RS-232 commands for the DMPs with their *example* values. These values are provided as an example of the type of data you would enter.

Note: Different TV display models may support only certain RS-232 commands. The commands in this table are supported by the LG 19LH20 TV display. Each model and even software version of a display may require a different configuration.

IMPORTANT: Check with the TV display manufacturer for the appropriate values to enter.

Table 3   DMP Display Parameters

Command Name	Value
dmp.AVInputQuery	rs232.tx_hex=6B622030312046460D
dmp.displayPwrOnResponse	rs232.tx_hex=61203031204f4b303178
dmp.displayPwrQuery	rs232.tx_hex=6B612030312046460D
dmp.hdmiStreamingDelay	5000
dmp.Input1response	rs232.tx_hex=62203031204F4B303878
dmp.Input2response	rs232.tx_hex=62203031204F4B303278
dmp.Input3response	rs232.tx_hex=62203031204F4B303478
dmp.Input4response	rs232.tx_hex=62203031204F4B303078
dmp.monitorAPIDelay	120000
dmp.monitorAVInput	true
dmp.monitorMute	true
dmp.monitorPower	true
dmp.monitorVolume	true
dmp.muteOnResponse	rs232.tx_hex=65203031204F4B303078
dmp.muteQuery	rs232.tx_hex=6B652030312046460D
dmp.portrait	true
dmp.powerQueryByCEC	false
dmp.quadVideo	true
dmp.SerialDelay	250
dmp.SupportsTouchScreen	false
dmp.TVControlByCEC	false
dmp.volumeQuery	rs232.tx_hex=6B662030312046460D
dmp.volumeResponseFormat	rs232.tx_hex=66203031204F4B5F5F78
Input1	rs232.tx_hex=6B622030312030390D
Input1Name	HDMI
Input2	rs232.tx_hex=6B622030312030320D

Volume Control

Input2Name	Composite
Input3	rs232.tx_hex=6B622030312030340D
Input3Name	Component
Input4	rs232.tx_hex=6B622030312030300D
Input4Name	TV
Mute	rs232.tx_hex=6B652030312030300D
Off	rs232.tx_hex=6B612030312030300D
On	rs232.tx_hex=6B652030312030310D
Unmute	s232.tx_hex=6B652030312030300D
Volume1	rs232.tx_hex=6B662030312030350D
Volume10	rs232.tx_hex=6B662030312035300D
Volume11	rs232.tx_hex=6B662030312035350D
Volume12	rs232.tx_hex=6B662030312036300D
Volume2	rs232.tx_hex=6B662030312031300D
Volume3	rs232.tx_hex=6B662030312031350D
Volume4	rs232.tx_hex=6B662030312032300D
Volume5	rs232.tx_hex=6B662030312032350D
Volume6	rs232.tx_hex=6B662030312033300D
Volume7	rs232.tx_hex=6B662030312033350D
Volume8	rs232.tx_hex=6B662030312034300D
Volume9	rs232.tx_hex=6B662030312034350D
VolumeCount	12

Volume Control

When properly configured in Cisco Vision Director, volume changes can be made from methods such as the IP phone, IR remote, **Device Management,** or event script state change. Volume changes for the primary video audio can be controlled for the SPDIF (on the SV-4K, CV-UHD, and CV-UHD2 only), analog audio, and HDMI out ports only when the TV display specification volume strategy is set to *internal*.

Volume Strategy Option

Cisco Vision Director supports three Volume Strategy settings, see .

To choose the volume for the device:

1. Go to **Configuration > Devices > Display Specifications > Basic Info**.

2. Use the **Volume Strategy** pull-down arrow to choose a volume.

3. Click **Save**.

Figure 9   Display Specifications—Volume Strategy Option
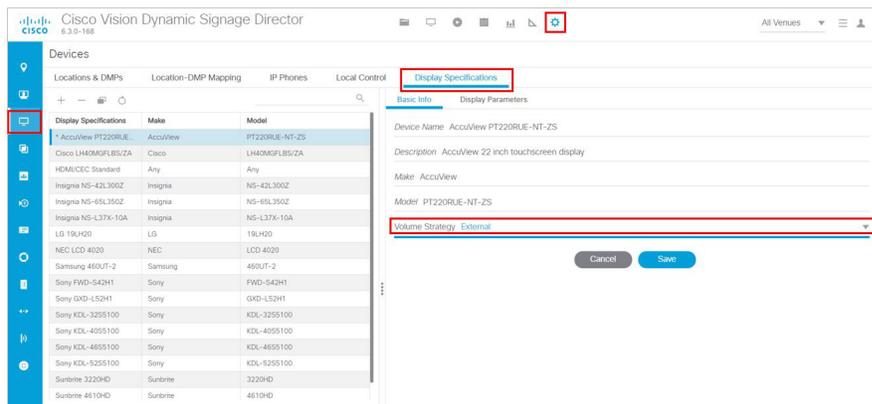
Internal—The audio feed volume level is controlled by telling the DMP how loud to send the signal. Internal allows volume change control of the audio feed by Cisco Vision Director (such as by the IP phone, IR remote, **Device Management**, or event script state).

External—Using External, the level sent by the DMP remains the same and the DMP sends commands to change the volume level on the attached TV, via RS-232.

Note: We recommend external volume strategy because most TVs have better audio range than the DMP and many TVs show a visual indicator of the volume as it changes. This strategy also avoids problems if someone changes the volume using the TV panel buttons or the TV remote.

None—The volume cannot be adjusted. This is useful for TVs that are used for video only where audio (if any) is provided separately (such as in a bar where an overhead system provides the audio).

How to Configure TV Display Specifications

This section includes the following topics:

- Guidelines for RS-232 Command Configuration, page 57
- Configuring Basic Information for TV Display Specifications, on page 58
- Configuring Touchscreen Support, page 60
- Configuring Touchscreen Support, page 60

Guidelines for RS-232 Command Configuration

Consider the following guidelines when configuring RS-232 commands in TV display specifications:

- Cisco Vision Director supports only one RS-232 command per event state.
- All RS-232 commands configured in Cisco Vision Director must use the prefix rs232.tx_hex=.
- RS-232 responses are used to retrieve the current status of a TV.
- RS-232 responses are always configured without a prefix.
- Cisco Vision Director uses responses only when querying a TV for its current power on/off status.

■ For situations where a TV cannot be controlled via RS-232 or otherwise, volume and mute can be controlled by the media player instead.

Configuring Basic Information for TV Display Specifications

User Role: Administrator

To configure basic information for TV display specifications:

1. Go to **Configuration** > **Devices** > **Display Specifications** (Figure 9 on page 57).

2. Do one of the following:

■ Select an existing display specification.

■ Click the **+** icon to add a new display specification.

3. Refer to Table 4 on page 58 to specify the options in the **Basic Info** panel.

Table 4   Basic TV Display Specification Options

Option	Description
Name	Name that appears in the Display Spec drop-down list when you are adding TV Types to Locations. **TIP**: Be sure that this name is unique and easily identifies the type of TV that it defines.
Description	Any text string to describe the TV display specification.
Make	TV manufacturer/brand name.
Model	Model(s) of the brand to which this display specification applies. This can be a single module type, a group of models, or "All" to specify that all TVs of this brand use the same display specification.
Volume Strategy	Specifies how the TV volume is controlled. The possible values are: Internal—Volume is controlled using IP phone, IR remote, and so on. External—Volume is controlled by sending serial commands from the media player to the TV using RS-232. None—Fixes the volume so that it cannot be adjusted. For more information, see Volume Control, page 56.

4. Click **Save**.

5. Apply configuration to the DMPs.

   Note: Reboot the DMP(s).

Configuring HDMI-CEC TV Control in TV Display Specifications

User Role: Administrator, Venue Administrator

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You can apply the HDMI/CEC Standard display specification for new TVs, or you can modify an existing display specification to add the display parameters commands independently.

If you use the HDMI/CEC Standard display specification, the four related HDMI-CEC commands for TV control are enabled and set to any corresponding default value.

To configure HDMI-CEC display parameters:

1. Go to **Configuration > Devices > Display Specifications.**

2. Select an existing display specification or add a new one.

3. Click **Display Parameters** tab**.**

4. Find and set the following parameters:

Display Parameter	Value
dmp.powerQueryByCEC	True– Enables powerQuery to get TV power status using HDMI-CEC instead of RS-232. False–Disables powerQuery using HDMI-CEC. Note: This command is not supported by all TV models.
dmp.TVControlbyCEC	True–Enables TV control using HDMI-CEC instead of RS-232. False–Disables HDMI-CEC TV control.
dmp.monitorAPIDelay	Number (in ms) for the frequency of power query command to be sent by Dynamic Signage Director. The default in HDMI/CEC Standard display specification is 120000 ms (or 2 minutes).
dmp.monitorPower	True–Enables Dynamic Signage Director to run a power query to the TV using the Get Status command from Device Management. False–Disables the option.
dmp.SupportsTouchScreen	True–Enables Dynamic Signage Director to support USB HID devices plugged in to the DMP. False–Disables the option.
dmp.hdmiStreamingDelay	Value (in ms) determines the delay.

Note: You can run the **Get Status** command from **Device Management** to get the latest TV health status known to the DMP. This information can be up to two minutes old, or a few seconds depending on when the power query last ran.

If the "**dmp.monitorPower**" parameter is set to false then you will not get the correct TV health status.

5. Click **Save**.

6. Reboot the DMPs.

Configuring Touchscreen Support

For proper touchscreen operation with HTML5 pages, be sure that your touchscreen devices are human interface device (HID)-compliant and are using standard HID drivers.

Note: Some manufacturers claim support for HID while using custom drivers. Verify that standard HID drivers are used.

By default, the display parameter is set to *false* for Cisco Vision Director. To enable touchscreen capability between your device and the DMP, you must change that.

To enable touchscreen capabilities for your specific device:

1. In Cisco Vision Director, go to **Configuration > Devices > Display Specifications** (Figure 10 on page 60).

Figure 10   Setting Display Specifications
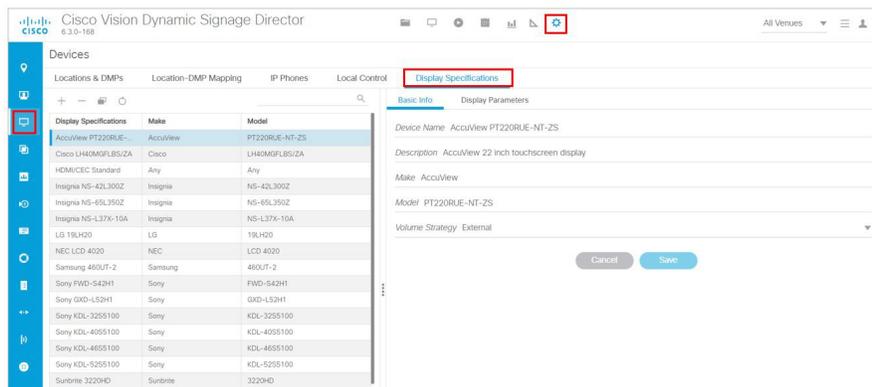
2. Create a display specification for your device screen. See the device specifications for this information. Use the **+** icon to create a new spec.

Or, scroll down the list of devices. Find your Make and Model and select it.

3. Click the **Display Parameters** tab.

4. Scroll down to **dmp.SupportsTouchScreen** and select it.

5. Click the **Edit** icon. The Edit Display Parameter box appears (Figure 11 on page 60).

6. In the Display Parameter Edit box, change false to "**true**" for your device.

Figure 11   Edit Display Parameter Dialog Box
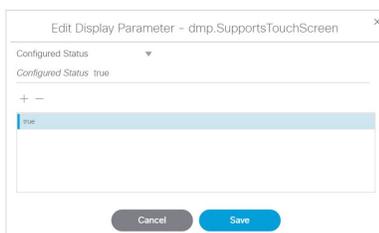
7. Click **Save**.

By enabling this feature, you are giving touch screen support to a state or a channel to your content (generally an HTML page).

To connect the DMP to your device:

Use a USB A to B-type cable that connects from the DMP USB port to your device.

Configuring Display Parameters for External Volume Support

User Role: Administrator

When using the external volume strategy, configure RS-232 commands to send to the TV to change the volume (Figure 12 on page 61).

Click **Configuration > Devices > Display Specifications > Basic Info > Volume Strategy > External**.

Figure 12   External Volume Strategy
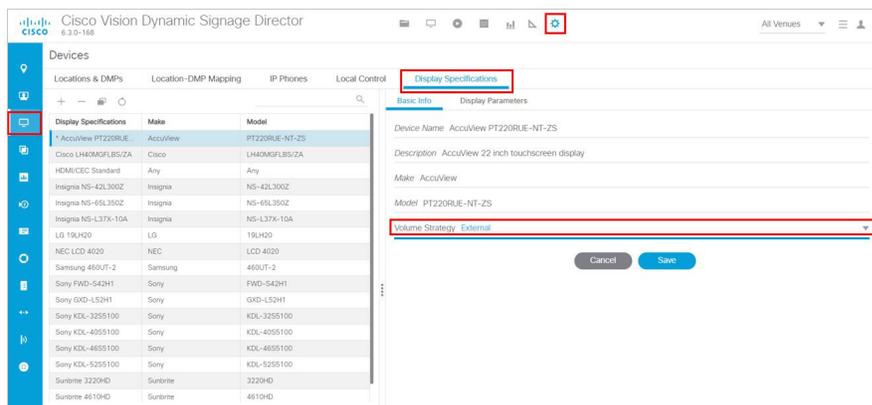
Note: When using **internal** volume strategy, volume commands do not need to be configured.

Cisco Vision Director allows you to configure two types of volume controls:

■ Relative—Depends on the volume increments set in the TV, which vary from model to model.

■ Absolute—Preferred method. Defines a number of increments that are used to control the volume between the minimum and maximum volume levels.

– For the SV-4K—Absolute volume is configured only by the series of Volume*n* commands only.

Table 5 on page 62 provides information about the display parameters used to configure the Relative and Absolute types of external volume control.

Table 5   Display Parameters for External Volume Support

Display Parameters	Volume Type	Description
Volume*n*	Absolute	Specifies the volume increment level, where n is a number from 1 to the total number of volume levels supported. Configure multiple Volume*n* commands for the number of increments being supported. Specify whole numbers for "n." For example specify "1"—not 01. **TIP**: The best practice is to set Volume1 to a value greater than zero. A zero volume level is treated as a mute command, and when the user adjusts the volume up, some displays show the status bar as if their volume is turned up, but the display remains muted.
VolumeUp	Relative	Specifies an incremental volume setting determined by internal settings in the TV.
VolumeDown	Relative	Specifies an incremental volume setting determined by internal settings in the TV.
VolumeCount	Absolute	Total number of volume levels available.
For some TVs, the increase/decrease in volume is very slight requiring multiple VolumeUp or VolumeDown commands to achieve the desired effect. For these TVs, use the **dmp.RelativeVolumeSteps** display parameter.		
dmp.RelativeVolumeSteps	Relative	Specifies the number of times the RS-232 command for VolumeUp or VolumeDown is repeated each time that you press up or down on the IR remote (or on the phone). The default is 1. For example, if the value is set to 8, then a VolumeUp or VolumeDown command sends 8 copies of the RS-232 string.
dmp.SerialDelay	Relative	Specifies the delay between sending repeated serial commands from the media player. The default is 5000 ms. This command can be used for certain TV displays that discard repeated serial commands that are sent too close together.

Table 6 on page 62 shows an example of RS-232 command strings defined for Absolute volume control using 12 increments.

Table 6   Volume Count Command Example for One Model of LG TV Display

Serial Command	String
Volume1	rs232.tx_hex=6B662030312030350D

Serial Command	String
Volume2	rs232.tx_hex=6B662030312031300D
Volume3	rs232.tx_hex=6B662030312031350D
Volume4	rs232.tx_hex=6B662030312032300D
Volume5	rs232.tx_hex=6B662030312032350D
Volume6	rs232.tx_hex=6B662030312033300D
Volume7	rs232.tx_hex=6B662030312033350D
Volume8	rs232.tx_hex=6B662030312034300D
Volume9	rs232.tx_hex=6B662030312034350D
Volume10	rs232.tx_hex=6B662030312035300D
Volume11	rs232.tx_hex=6B662030312035350D
Volume12	rs232.tx_hex=6B662030312036300D

How to Configure the TV Display Banner

This section includes the following topics:

■ Setting the Display Input Name, page 63

■ Disabling the TV Display Banner, page 64

Setting the Display Input Name

The TV display banner is a graphical banner that temporarily appears at the top of the display to provide information about the TV that received a TV command (Figure 15 on page 64).

To set the TV display name so it appears on screen:

1. Click **Configuration > Luxury Suites.**

2. Click the **+** icon to add a luxury suite or select an existing one.

3. Fill in the required fields.

4. Click **Save**.

5. Click the **Location Assignment** tab (Figure 13 on page 64). The screen shows the Assigned Locations and the Available Locations panels.

6. Highlight a **Location Name** from the right panel and click the **Assign Location**. Now that Location appears in the **Assigned Locations** panel.

7. Click the **Edit** (pencil icon). The Edit Display Label box appears (Figure 14 on page 64).

8. Type a name in the **Display Label** field, in our example "Main" (Figure 15 on page 64).

Figure 13   Assign the Location of the Luxury Suite
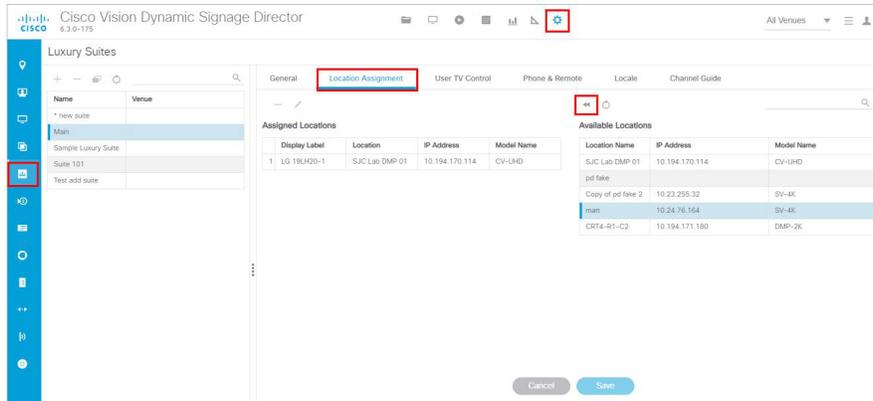
Figure 14   Setting the Display Name

9. Click **Save** to close the dialog box.

10. Click **Save** for the suite configuration.

Note: The change will not reflect on the DMP until the next content push or a DMP restart.

The display banner is enabled by default with a duration of 5 seconds when controlled via the IR Remote (Figure 15 on page 64).

Figure 15   TV Display Banner and Screen Identification

Disabling the TV Display Banner

User Roles: Administrator

For a better visual experience for video wall displays, disable the TV display banner. The TV display banner is enabled by default for all TV displays.

To disable the TV display banner globally:

1. Click **Configuration > System Configuration > Advanced Registry Settings.**

   Scroll to see if **localControl.banner.disable** has been added. If it has and the value is not **true**, click **Edit**.

2. In the Registry Data box, click **+** (**Add)**. The **Create Configuration Setting** dialog box appears.

3. In the Key field, type **localControl.banner.disable**.

4. In the Value field, type **true**.

5. Click **Save**.

How to Configure the TV Display Banner

Working with Zones, Groups, and Locations

User Roles: Administrator, Content Manager

This module provides an overview of the Cisco Vision Director hierarchy of zones, groups, and locations to manage content delivery in a venue.

Information About Zones, Groups, and Locations

Cisco Vision Director supports reliable delivery of content to thousands of endpoints, providing venues the flexibility to place numerous TVs throughout the concourses, in locations such as:

- Bars and restaurants

- Luxury suites

- Locker rooms

- Concession areas

- Restrooms

- Back offices

Digital content, in the form of still or animated graphics and video ad insertions, can be targeted and delivered—with accompanying event video in HD or separately—to any display or group of displays throughout the venue.

When you have hundreds or thousands of TVs on which you want to display different video signage, sponsored content, TV channels, and menus, you need a way to automate the configuration and manage the endpoint locations.

Cisco Vision Dynamic Signage Director defines a hierarchical architecture that allows you to easily identify the location of the displays and manage the content that they are playing.

To provide a logical way of organizing the hundreds to thousands of endpoints in a venue, Cisco Vision Director implements a hierarchy of the following entities shown in :

- Zones

- Groups

- Locations

Figure 1   Zones, Groups, Templates, and Locations Hierarchy
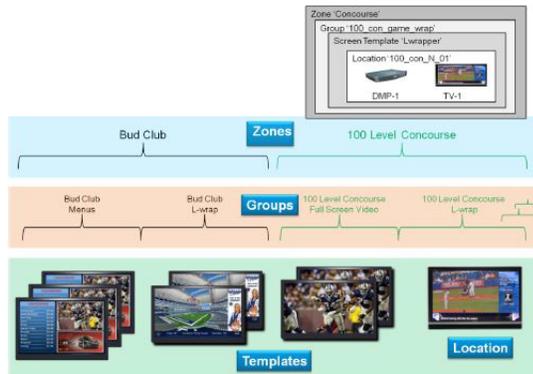
Zones

A *zone* is typically a physical area in the venue. Examples of zones include concourses, clubs, and team stores. Figure 2, on page 68 shows the nested hierarchy with a zone named 'Concourse' at the top level.

Figure 2   Nested Hierarchy with Zone at Top Level
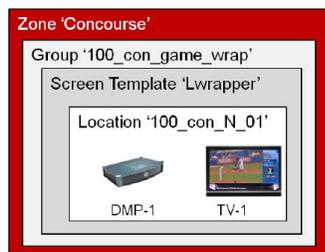
Groups

Groups are the second level in the hierarchy. You can think of groups as "children" or subsets of a zone. A *group* defines a collection of devices (DMPs/TVs) that all display the same content, using the same template. Groups consist of a set of *locations* in the hierarchy.

Example

Consider the case of TVs in a concourse area on which you want to show a game feed with sponsored advertising. Rather than configure each individual TV to show this content, you can configure them as a group and change all of the TVs with a single action. You can then associate the group to a zone to identify the area of the stadium where they are located.

Figure 3, on page 69 shows a group named " 100_con_game_wrap" that is part of the " Concourse" zone. As indicated by the name of the group, this is for all of the TV displays using the game wrap format (from a screen template) in Concourse 100 of the venue.

Figure 3   Group within a Zone

Locations

Locations are the lowest level in the Cisco Vision Director hierarchy. A *location* defines a specific place in the venue where a TV and DMP reside.

Figure 4, on page 69 shows a location named " 100_con_N_01" which indicates that the TV-1 and DMP-1 are located on the North Concourse 100 level.

Figure 4   Location Example

Locations help you keep track of exactly where a TV and DMP is physically located in the stadium. For example, if someone tells you that a TV in a restroom at the concourse 100 level is not working, you can refer to the location information to quickly find the TV and fix it.

Default Zones from Legacy Cisco Vision Dynamic Signage Director Releases

Note: In older Cisco Vision Director Releases, the following default zones were provided:

- Delay_zone

- Emergency_zone

- Non-event_zone

These zones will only appear in your system if you have upgraded from a release where they were introduced, and if they were used.

Consider the following guidelines for these default zones:

- Assign a group to each of the default zones.

- Default zones cannot be renamed.

- To assign all media players to one of these zones, create a new group, add all media players to that group, and then add that group to the zone.

- Any media players that do not have an action in the emergency/delay state will have Proof of Play disrupted in the emergency/delay state.

- All TVs assigned to the emergency_zone will display the configured Emergency message when the Emergency ad hoc state is started by the Event Operator.

DMP and Location Relationships

Under **Configuration > Devices,** Cisco Vision Director identifies three object types for DMPs and Locations.

- DMP

- Location

- DMP+Location

After DMPs are deployed, they must be linked to **Locations** to change their state to **Ready** and to be able to stage content to them.

These object types can be created manually using the Cisco Vision Director web interface or uploaded using the Bulk Administration Tool (BAT). For more information about BAT, see the Cisco Vision Director Bulk Administration Tool document.

For information about adding Locations, see Adding Locations Manually, page 74.

DMP Type

The DMP object type specifies the following information about the media player. This object can be manually added or automatically created by the device auto-registration process.

- Name—If you auto-register the device, then the name is automatically created from the MAC address (e.g., AUTO-00-0f-44-01- a5-ec).

- Unassigned—When a Location+DMP object is unlinked, the DMP object has name "Unassigned-xx-xx...".

- Description—(Optional) Any additional information about the media player.

- IP Address—IP address of the media player.

- MAC Address—MAC address of the media player.

- Disabled—Device status. A value of "Yes" disables the device.

- Unicast Only—Use this in case you cannot use multicast.

- DMP Model—Type of media player model.

- Wifi Enabled—Yes or No enables the wifi capability on the device.

Location Type

The Location object type defines the physical location where the digital media player is installed in the venue, with the following information:

- Name—Location of the media player in the venue.

  Note: Best practice: use a naming convention that allows an operator to easily identify where the TV is physically located in the venue.

- Description—(Optional) Any additional information about the location.

- Location ID—(Optional) Identifier for the location. This field is typically not used.

- Display Spec—Type of TV display at the location.

DMP+Location Type

DMPs must be linked to **Locations** to establish this object type and to put the digital media player in **Ready** state.

- Name—If you auto-register the device, then the name is automatically created from the MAC address (e.g., AUTO-00-0f-44-01- a5-ec).

- Unassigned—When a Location+DMP object is unlinked, the DMP object has name "Unassigned-xx-xx...".

- Description—(Optional) Any additional information about the media player.

- IP Address—IP address of the media player.

- MAC Address—MAC address of the media player.

- Location ID

- Disabled—Device status. A value of "Yes" disables the device.

- Unicast Only—Use this in case you cannot use multicast.

- Display Spec—Use the drop-down to choose.

- DMP Model—Type of media player model.

- Wifi Enabled—Yes or No enables the wifi capability on the device.

For more information, see Linking DMPs to Locations or Ready State, page 74.

Zones & Groups Screen

From the **Zones & Groups** screen you can:

- Add, remove, and edit groups and zones.

- Add and remove multiple locations to / from groups and zones.

- View and manage zone, group, and location associations.

- View and search on the Location Name, IP Address, MAC Address, TV Details and TV Description, and number of groups to which the Location is assigned.

- Traverse the zones/groups and locations hierarchy. For example, you can view information top ↓down (from zones to groups to locations) and bottom ↑ up (from locations to groups to zones).

- Move multiple locations between groups ("re-grouping") and move multiple groups between zones ("re-zoning").

- View overlaps such as groups that share the same location or zones that share the same group.

- Find the group and zone to which a TV Location belongs.

- Find the group and zone by venue.

The **Zones & Groups** screen has a dividing bar so that you can display more information on the screen at once without having to jump back and forth between separate screens. Any items with a blue underline are a hyperlink (Figure 5, on page 71.)

Figure 5   Zones & Groups Screen

71
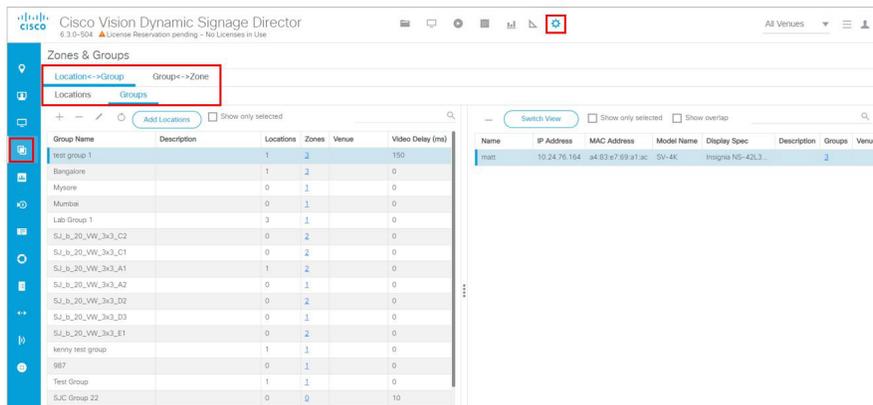
Search and Show Selected Functions

Each panel in the **Zones & Groups** screen includes a search feature to help you find, filter and narrow the information displayed on the screen. You can search by:

- Location, zone, group, or venue name

- IP address

- MAC address

- TV details

- TV description

Type the search criteria (text strings or numbers) in the search box and click the magnifying glass. For example, if you type 'bar' in the search box on the Locations screen, all the locations with the word 'bar' in their name will display. Narrow the list and display only selected entries using the CTRL-click and SHIFT-click keyboard functions. Select the entries and then enable the checkbox next to **Show only selected** (Figure 6, on page 72).

Figure 6   Search and Show Functions
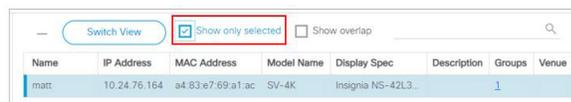
You can also sort a list by clicking on the column headings.

To clear the search criteria and display all items on the screen, uncheck the **Show only selected** option.
To refresh the list, click the **Refresh** icon.

There are a number of ways to switch the view on the Zones & Groups screen. Click the **Switch View** option to flip the right and left panels on the screen. Depending on the information you are looking for or the operation you are performing, this can make it easier to transcend the hierarchy and find the different relationships between a location, a group, and a zone.

Another way to switch the view on the screen is to click the number links in the #Groups, #Locations, #Zones columns. For example, you can select a Location Name and then click the numbered link under #Location to show all the locations for a selected Group. Only the numbers with an underline are active links (Figure 7, on page 72).

Figure 7   Switching the View on the Zones & Groups Screen

Information About Zones, Groups, and Locations
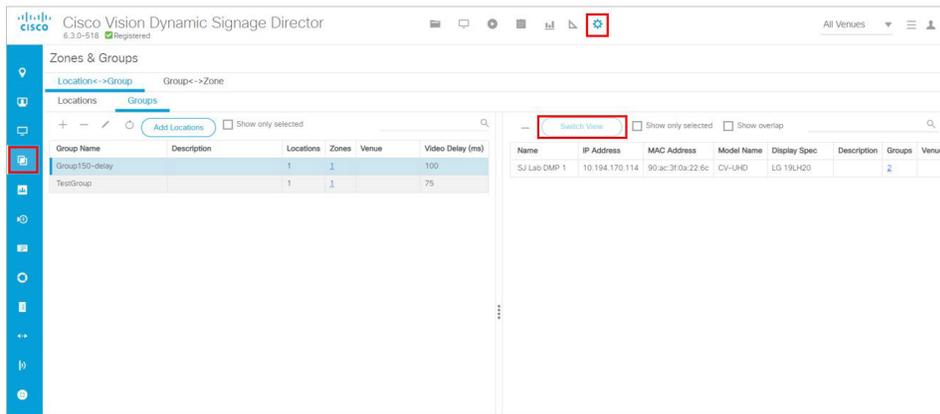
Showing Overlaps

You can easily see whether a zone, group, or location contains the same DMPs by selecting multiple entries and clicking the **Show Overlap** checkbox (Figure 8, on page 73). This is useful to identify and resolve conflicts that occur when actions are being assigned to DMPs that are in the same location, group, or zone. For example, in the following screen, there is no overlap between these three devices.

Figure 8   Showing Overlaps

How to Configure Locations

This section includes the following topics:

- Guidelines for Naming Locations, page 73

- Adding Locations Manually, page 74

- Linking DMPs to Locations or Ready State, page 74

Guidelines for Naming Locations

The optimal naming convention will vary from venue to venue, depending on size and layout. However, some recommendations can be provided for how to best create a systematic naming convention.

" 100-NE-020" is an example of a good Location Name for the 20th display in the North East corner of Concourse 100.

Consider the following guidelines to create a systematic Location naming convention:

- Names should only use "A-Z'" "a-z," "0-9," space ( ), underscore (_), and dash (-).

IMPORTANT: Do not use % * , : ? = / \ " ' { } ( ) +

- Include floor or concourse levels.

- Include directional references such as (N) North, (S) South, (E) East and (W) West.

- Use a numeric suffix to differentiate between otherwise identical locations.

■ Use generic names that are unlikely to change over time.

TIP: Use the Location Description if you want to refer to sponsor and room names. You can modify the description at any time without affecting the Location-to-Group mappings.

■ Attach labels with Location Name to each TV in the venue. This simplifies identifying a problem TV and searching for it in the Cisco Vision Dynamic Signage Director.

TIP: Print the Location Name on the label as both text and in bar code so the label can be scanned during installation.

Adding Locations Manually

User Roles: Administrator, Content Manager, Event Operator

TIP: As a time saver, use the Bulk Administration Tool (BAT) to manage multiple configuration changes at once. For more information, see the Cisco Vision Director Bulk Administrator Tool document.

To add Locations manually:

1. Click **Configuration > Devices**.

2. Click **Locations & DMPs**.

3. Click **+Add**.

4. In the **Create New** dialog box, complete the following fields:

   a. Type—Select **Location**.

   b. Name—Naming convention for the location of the media player in the venue.

   IMPORTANT: Do not use % * , : ? = / \ " ' { } ( ) +

   For more information, see Guidelines for Naming Locations, page 73.

   c. Description—(Optional) Any additional information about the location, or more readable form of the naming convention used in the Name field.

   d. Location ID—(Optional) Identifier for the location. This field must be unique per location.

   e. Display Spec—Select the type of TV display at the location.

5. Click **OK**. The added groups or locations are displayed in the adjoining panel view.

Linking DMPs to Locations or Ready State

User Role: Administrator, Content Manager, Event Operator

Linking or mapping a DMP with a Location is the final step in preparing a DMP to be able to stage content. Once a DMP is linked, it goes to "Read" state. Then, when content is staged it changes to "In Production" state.

This task describes how to manually link digital media players to locations. A faster method when you have multiple media player/location updates is to use the Bulk Administration Tool (BAT). For more information about BAT, see the Cisco Vision Director Bulk Administration Tool document.

Note: Mapping an AUTO DMP to a Location that already has a DMP mapped will overwrite the existing mapped DMP/Location assignment with the new DMP/Location assignment. The former mapped DMP will then return to the pool of AUTO/unassigned DMPs.

To manually link DMPs to Locations:

1. Click **Configuration > Devices**.

2. Click **Location-DMP Mapping**.

3. In the Available Devices list, select the MAC address of the DMP that you need to link.

4. In the Locations list, select the Location Name that you want to link to the selected DMP.

5. Click the **Link** icon (top left in the Locations panel).

Figure 9   Linking Devices
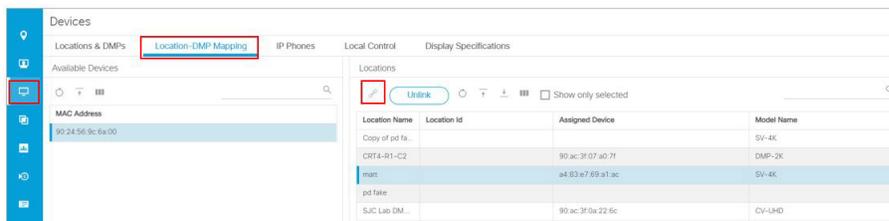
Unlinking DMPs from Locations

User Role: Administrator, Content Manager, Event Operator

Unlinking DMPs from their assigned locations is required when you need to replace a failed device. For details about how to replace a failed device during an event, see Replacing a Failed Media Player While an Event Script is Running, page 274.

This task describes how to manually unlink media players to locations. A faster method when you have multiple media player/location updates is to use the Bulk Administration Tool (BAT). For more information about BAT, see the Cisco Vision Director Bulk Administration Tool document.

To manually unlink DMPs from Locations:

1. Click **Configuration > Devices**.

2. Click **Location-DMP Mapping**.

3. In the Available Devices list, select the MAC address of the DMP to unlink.

4. In the Locations list, select the Location Name from which you want to unlink an associated DMP.

5. Click **Unlink**.

Figure 10   Unlinking Devices from Locations
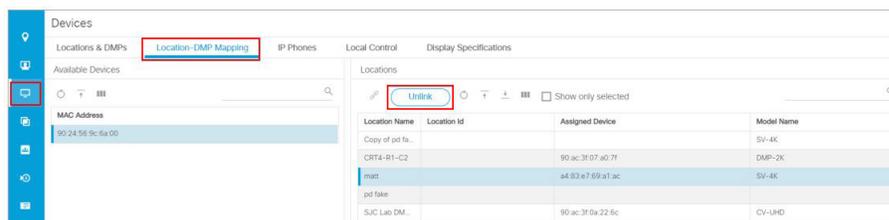
Associating Venues to Locations for Multiple Venue Support

Locations can be associated with venues in a multi-venue environment.

For details about configuring multiple venue support in Cisco Vision Director, including associating locations to venues,

see the Configuring Cisco Vision Director for Multiple Venue Support module of the Release 6.4: Cisco Vision Dynamic Signage Director Administration Guide.

How to Configure Zones and Groups

You can create a zone and group hierarchy and event script before you have added a single device in Cisco Vision Director. The locations and templates can be associated later. This can be useful, as usually you will know where devices will be before they are actually installed, allowing you to organize your TV locations in parallel with installation.

This section includes the following topics:

Best Practices for Zones and Groups

Here are some helpful tips:

- The more groups and zones you have, the more complicated the deployment becomes.

- Do some careful planning to make your organization both simple and useful.

- Create groups of media players of the same model type. For example, the group contains all Cisco CV-UHD2s or all CV-HD2s.

- Create zones of like-model groups for best results. Applying the same state across multiple groups of different media player types can be problematic due to the differences in content support among different media player models.

- Quad-region template design is best utilized in a more private area, such as a luxury suite.

Note: If you must mix model groups in a zone, be sure the content reflects the lowest common denominator of support for the devices that you are mixing. Test your content for expected behavior. Consider many things such as dual video and video walls.

Figure 11, on page 76 shows an example of how a DMP (indicated by the solid red circle) can fit into three different groups within one zone.

Note: Use careful judgment when creating single-DMP groups to reduce any extra processing for Cisco Vision Dynamic Signage Director. Good cases for single-DMP groups are video walls or suites where you need to control the content on individual TV displays.

Figure 11   Group and Zone Diagram Example
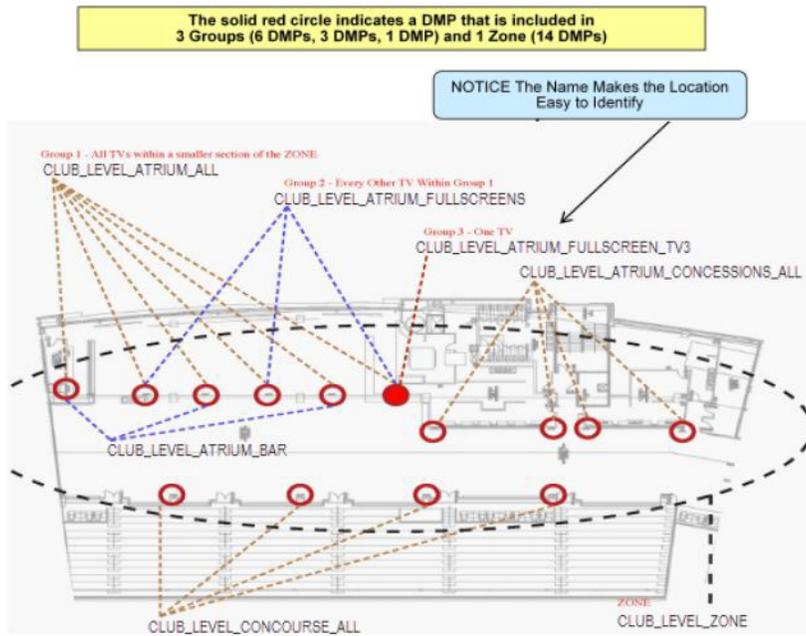
- Maintain easy-to-read naming conventions for groups using a logical and systematic naming convention.

   Example: CLUB_LEVEL_ATRIUM_ALL = Group containing all of the DMPs in the Pucket Atrium of the Club Level. For more details, see Guidelines for Naming Zones and Groups, page 78 or the guide that corresponds

to your release on Cisco.com.

■ Improve your DMP names whenever you come across one that is not clear.

■ Keep the number of unique advertising areas, exit directions, and welcome screens to a minimum.

■ Limit the number of screen templates for a given zone.
  While it is possible for a zone to have different screen templates throughout the course of an event, the more screen templates you use, the more complex the deployment and administration becomes.

Guidelines for Zones and Groups

Consider the following guidelines when creating zones and groups:

■ A DMP can be in different zones during each event.

■ A DMP that is in multiple zones and groups cannot have more than one action assigned to it for a given event state.

■ A DMP can be in only one group at a given state. However, a DMP can switch groups when in a different event state.

■ Only one DMP type should be used in any zone and in the groups belonging to any zone. This ensures all media assigned to that zone or its groups has the same media playback capabilities.

■ The maximum number of groups supported in a venue is 500.

■ The maximum number of groups that is supported for a zone is 20; however, typically you'll have three or four groups for a given zone.

■ The maximum number of zones supported in a venue is 100; however, 20 zones is typical for a given venue.

■ The background for an RSS ticker can change per group/zone.

■ All zone and group names must be unique.

Guidelines for Naming Zones and Groups

With thousands of displays and hundreds of zones and groups, naming is especially important.

A good way to keep your zones and groups organized is to use a text-based convention and then assign prefixes so that you can sort by similar groups and zones in the interface. This makes it easy to find devices by geographical or logical groupings.

Group Name

Make the group name the same as the DMP name so you have a ratio of 1:1 of DMPs to Groups.

Zone Name

These are truncated versions of the location names that make up the zone.

Level_Type_Name_Sec/Suite_Size (7SW_VW_CoorsBar_732_2x2 or 4NE_Con_HubBar_3x1_Menu)

Description Naming

Site specific, usually an IT naming structure or construction naming structure.

■ Using long form names can complicate dashboard searches.

■ An alphanumeric structure can be used here to add a second option when searching in Dashboard. (This is site specific and often used with new builds that have in depth blueprint plans.)

Playlist Naming

Each descriptor should only be used when appropriate to reduce playlist name length. (i.e., a playlist that runs all game doesn't require a "TIME" descriptor.)

- General

    - Script – Type Area *Size Screen* Time (VENUE – FS Concourse Pregame)

- Video Wall

    - Script – Type Area Size Screen *Time* (VENUE – VW HelixBar 3x3 A1)

Content Naming

Source_Type_Name_Subname.filename (SPON_Lwrap_COMPANYmp4 or CON_FS_HubBar_Menu.png)

- This is the basic structure for naming content. Some venues like to include dates, expiry dates, etc.

- Keeping names of content consistent and generic to the brand can assist in content replacement via upload. For example, a new piece of content for COMPANY can be uploaded to replace all running "old" content if the names are the same.

Template/Region Naming

Concession templates start with CON_ (CON_Menu_FS or CON_Menu_Right)

- Layer names are descriptors related to what content or playlist will be assigned to that layer in the script (background or widget).

VW templates can start with VW_ or just the size_ (3x3_B1).

- Layer names are the same as template names.

- Template names should include the venue in a multi-venue environment.

Examples:

100_Club_A_zone

100_Club_A _menus_group

100_Club_A _bar_group

100_Club_B_zone

100_Club_B _menus_group

100_Club_B _bar_group

If you have a very large club with hundreds of DMPs, you might have a zone called "Club A Menus" and then have individual groups with each group showing a different menu.

Consider the following guidelines to create a systematic Location naming convention:

- All group and zone names must be unique.

- Assign names to zones and groups that reflect the area where the display is located and the screen template or advertising playlist you will be using for that display.

- Names should only use "A-Z'" "a-z," "0-9," space ( ), underscore (_), and dash (-).

IMPORTANT: Do not use % * , : ? = / \ " ' { } ( ) +

■ When naming zones, consider adding a prefix for the concourse level at the venue.

For example, add '100' to all clubs on the 100 level. This makes it easy to find and manage these clubs in Cisco Vision Director as they are sorted alphabetically.

■ When naming groups, consider adding a suffix to identify where or what content will be displayed in the group.

■ Add abbreviations to the group name to identify which screen template is being played by a given group.

This allows you to quickly identify what type of content is supposed to play on each group of TVs in the suite or other location in the stadium. Figure 12, on page 80 shows abbreviations for identifying the different types of screen templates.

Figure 12   Abbreviation Examples for Identifying Templates in Groups

Server Profile Limitations

Limits for Deploying Zones and Groups for a for Mini-Scale Server Profile

Table 1, on page 80 defines the limits for deploying zones and groups in a mini/small scale server profile.

Table 1   Limits for Deploying Groups and Zones in a Mini/Small-Scale Server Profile

Specification	Limit Mini/Small
Maximum number of all media player devices in the system	1250
Maximum number of zones	25
Maximum number of groups	125
Maximum number of groups per zone	5
Maximum number of event states in a script	12
Maximum number of templates you can have in different groups and zones for a single script state	12
Maximum number of regions in a template	5
Maximum number of luxury suites	125
Maximum number of channel guides	125
Maximum number of contents in an entire script	300
Maximum number of playlists	250

Table 1   Limits for Deploying Groups and Zones in a Mini/Small-Scale Server Profile

Specification	Limit Mini/Small
Maximum number of playlists per group	25
Maximum number of items per playlist	300
Maximum number of scripts	50
Maximum number of simultaneously running scripts	5/25
Maximum number of venues	0
Maximum number of groups in a venue	125
Maximum number of data sources	50
Maximum number of DMPs that have widgets pulling data from Director	50
Maximum number of DMPS that have widgets in the system	50
Maximum data feed size sent over multicast	16KB

Table 2, on page 82 defines the limits for deploying zones and groups in a standard-scale server profile.

Table 2   Limits for Deploying Groups and Zones in a Standard-Scale Server Profile

Specification	Limit
Maximum number of all media player devices in the system	5000
Maximum number of zones	250
Maximum number of groups	5000
Maximum number of groups per zone	20
Maximum number of event states in a script	50
Maximum number of templates you can have in different groups and zones for a single script state	50
Maximum number of regions in a template	5
Maximum number of luxury suites	500
Maximum number of channel guides	500
Maximum number of contents in an entire script	1200
Maximum number of playlists	1000
Maximum number of playlists per group	100
Maximum number of items per playlist	1200
Maximum number of scripts	200
Maximum number of simultaneously running scripts	100
Maximum number of venues	25
Maximum number of groups in a venue	100
Maximum number of data sources	100
Maximum number of DMPs that have widgets pulling data from Director	200
Maximum number of DMPS that have widgets in the system	200
Maximum data feed size sent over multicast	16KB

Table 3, on page 82 defines the limits for deploying zones and groups in a large-scale server profile.

Table 3   Limits for Deploying Groups and Zones in a Large-Scale Server Profile

Specification	Limit
Maximum number of all media player devices in the system	5000
Maximum number of zones	250
Maximum number of groups	5000
Maximum number of groups per zone	20
Maximum number of event states in a script	25
Maximum number of templates you can have in different groups and zones for a single script state	50
Maximum number of regions in a template	5

Table 3   Limits for Deploying Groups and Zones in a Large-Scale Server Profile

Specification	Limit
Maximum number of luxury suites	500
Maximum number of channel guides	500
Maximum number of contents in an entire script	1200
Maximum number of playlists	2200
Maximum number of playlists per group	100
Maximum number of items per playlist	1200
Maximum number of scripts	500
Maximum number of simultaneously running scripts	250
Maximum number of venues	250
Maximum number of groups in a venue	100
Maximum number of data sources	250
Maximum number of DMPs that have widgets pulling data from Director	200
Maximum number of DMPS that have widgets in the system	200
Maximum data feed size sent over multicast	16 KB

Accessing the Zones & Groups Screen

User Roles: Administrator, Content Manager, Event Operator

To access the Zones & Groups screen:

1. Click **Configuration > Groups & Zones**. The Zones & Groups screen displays (Figure 13, on page 84).

Figure 13   Zones & Groups Screen
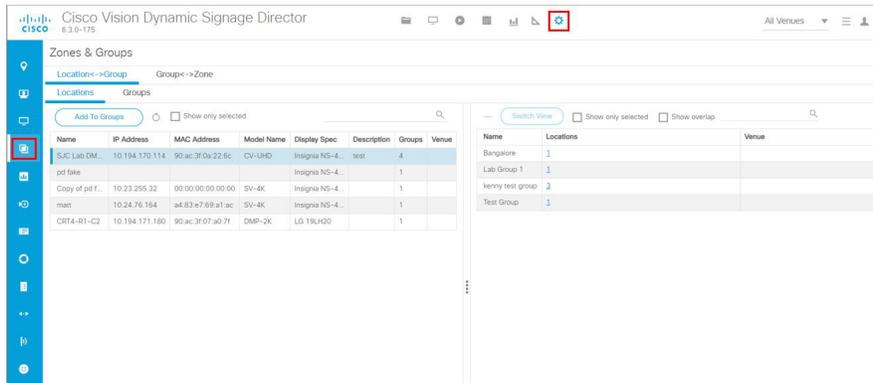
Adding Zones

User Roles: Administrator, Content Manager, Event Operator

To add a zone:

1. Click **Configuration > Groups & Zones**.

2. Click the **Group<->Zone** tab.

3. Click **Zones** (Figure 14, on page 84).

Figure 14   Group<->Zone, Zone Tab
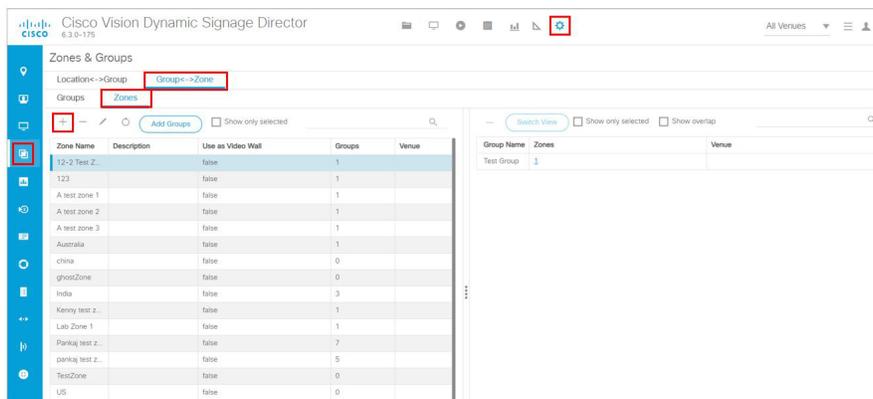
4. Click the **+** icon. The New Zone dialog box appears (Figure 15, on page 84).

Figure 15   Creating a New Zone

5. In the New Zone dialog box, do the following:

    a. Type a name for the group.

    b. Type a description of the group.

        TIP: You can leave the description for the group blank and add it later.

    c. (SV-4K, CV-UHD and CV-UHD2 only) To configure zone-based video wall synchronization, select the **Use as Video Wall** checkbox.

    IMPORTANT: DMPs for a video wall must be 4K/UHD only.

    For more information, see How to Configure Video Walls with the Digital Media Players, page 204.

6. Click **OK**. The new zone appears in the Zone Name list.

Adding Groups

User Roles: Administrator, Content Manager, Event Operator

To add a group:

1. Click **Configuration > Groups & Zones**.

2. Click either the **Location<->Group** or **Group<->Zone** tab.

3. Click **Groups** (Figure 16, on page 85).

Figure 16   Location<->Group, Group Tab
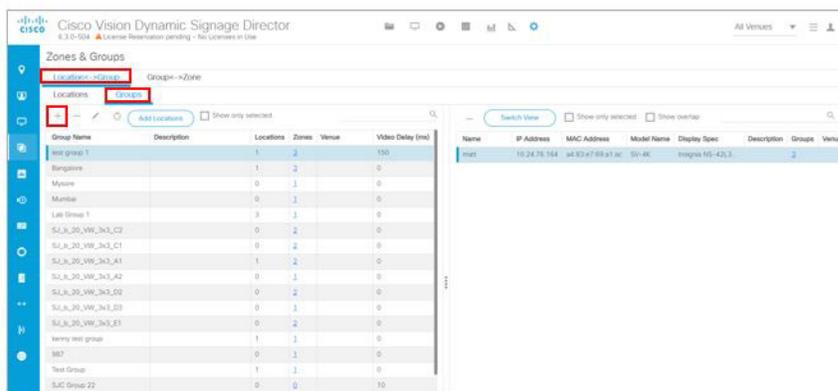
4. Click the **+** icon. The New Group dialog box appears (Figure 17, on page 86).

5. In the New Group dialog box, type a name, description, and a video offset value if you plan to use this group in a video wall. It's important to compensate for video offset delay.

    For more information of video offset values, see Configuring Groups and Zones for Zone-Based Video Wall Synchronization for the DMPs, page 207.

6. Click **OK**. The new group appears in the Group Name List.

    TIP: Do not use spaces in group names.

Figure 17   Creating a New Group

Adding Groups to Zones

User Roles: Administrator, Content Manager, Event Operator

To add groups to zones:
1. Click **Configuration > Groups & Zones**.

2. Click **Group<->Zone**.

3. Do one of the following:

    a. To select by group(s) and add zones to those groups, click **Groups**.

    b. To select by zone(s) and add groups to those zones, click **Zones**.

4. Select the group(s) or zone(s) depending on the panel view that you are using.

TIP:

- To narrow the display listing, use the search function.
- To select multiple items in the list, use Ctrl-click or Shift-click keyboard/mouse sequence.

5. Do one of the following:

    a. If using Groups view, click **Add to Zones**.

    b. If using Zones view, click **Add Groups**.

6. Do one of the following:

    a. In the **Select Zones** dialog box, select the zones to which the selected group(s) are added.

    b. In the **Select Groups** dialog box, select the groups to be added to the selected zone(s).

7. Click **OK**. The added zones or groups are displayed in the adjoining panel view.

Removing Groups from Zones

User Roles: Administrator, Content Manager, Event Operator

To remove groups from zones:
1. Click **Configuration > Groups & Zones**.

2. Click **Group<->Zone > Groups** ().

Note: Remove groups from zones by clicking **Zones** and selecting the zone and corresponding groups to be removed from that zone. Click **Remove from Zones**.

Figure 18   Removing Groups from Zones
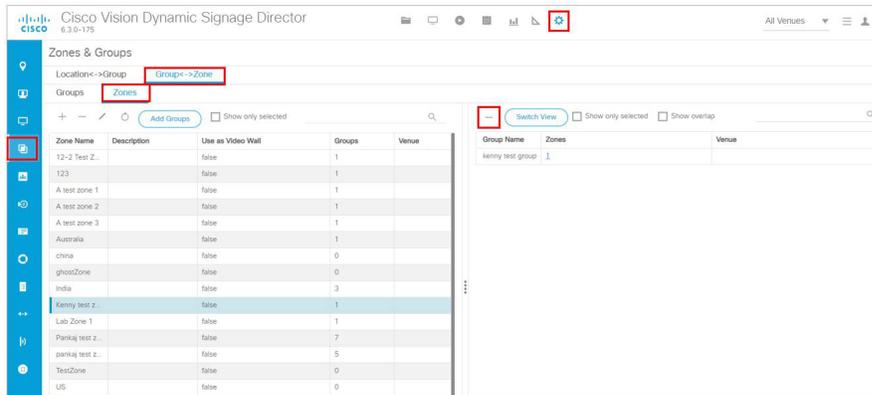
3. In the Groups panel, select the group.

4. In the Zones panel, select the zone to be removed from the group.

5. Click **Remove**.

6. In the confirmation dialog box, click **Delete** (Figure 19, on page 87).

Figure 19   Confirm Deletion and Remove Association
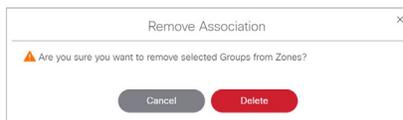
Adding Locations to Groups

User Roles: Administrator, Content Manager, Event Operator

IMPORTANT:

■ Before you can add locations to groups and zones, you must add the device location in **Configuration > Devices**.

■ If you are migrating deployed devices from a single venue to a multi-venue system, follow the required steps for proper location association in the Configuring Cisco Vision Dynamic Signage Director for Multiple Venue Support, page 35 of the Cisco Vision Administration Guide: Dynamic Signage Director, 6.4.

To add locations to groups:

1. Click **Configuration > Groups & Zones**.

2. Click **Location<->Group** (Figure 20, on page 87).

Figure 20   Adding Locations to Groups
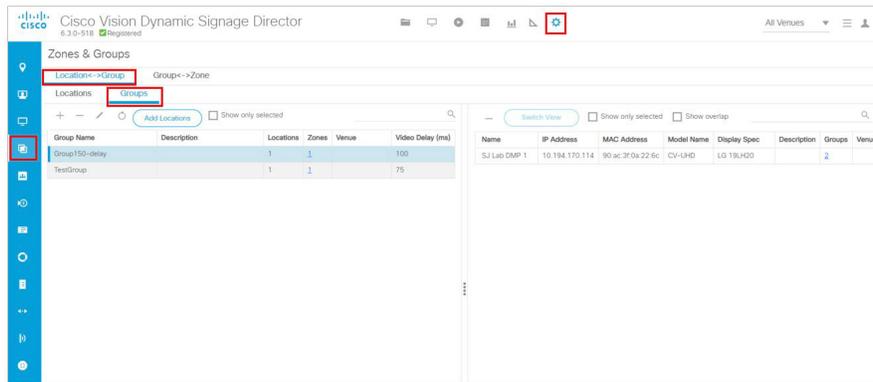
3. Do one of the following:

   a. To select by location(s) and add groups to those locations, click **Locations**.

   b. To select by group(s) and add locations to those groups, click **Groups**.

4. Select the location(s) or group(s) depending on the panel view that you are using.

TIP:

■ To narrow the display listing, use the search function.

■ To select multiple items in the list, use Ctrl-click or Shift-click keyboard/mouse sequence.

5. Do one of the following:

   a. If using Locations view, click **Add to Groups**.

   b. If using Groups view, click **Add Locations**.

6. Do one of the following:

   a. In the **Select Groups** dialog box, select the groups to which the selected location(s) are added (Figure 21, on page 88).

   b. In the **Select Locations** dialog box, select the locations to be added to the selected group(s). (Figure 22, on page 88).

Figure 21   Select Group
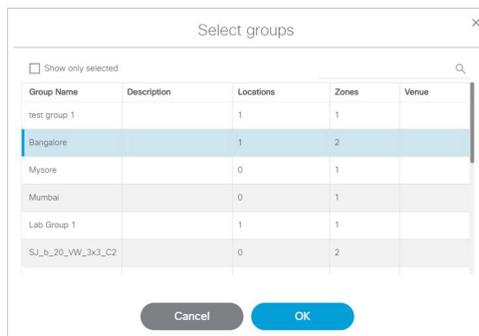
Figure 22   Select Locations
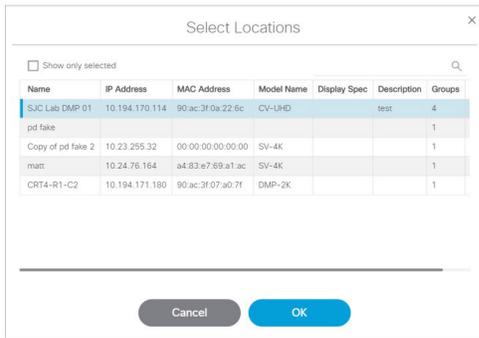
7. Click **OK**. The added groups or locations are displayed in the adjoining panel view.

Managing Zones, Groups, and Locations

Once you have added zones, groups, and locations in Cisco Vision Director, you can use the Zones & Groups screen to display, manage, and edit information on the selected zone, group, or location as described in this section.

Editing the Name and Description of Zones and Groups

User Roles: Administrator, Content Manager, Event Operator

To edit the name and description of a zone and group:

1. Click **Configuration > Groups & Zones**.

2. Click **Group<->Zone**.

3. Do one of the following:

    a. To edit a group, click **Groups** (Figure 23, on page 89).

    b. To edit a zone, click **Zones** (Figure 24, on page 89).

Figure 23   Edit Group
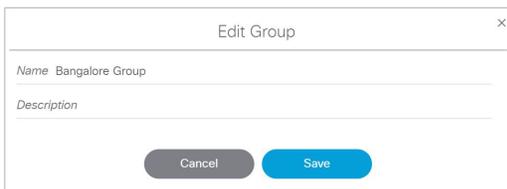
Note: Be aware if the zone is part of a video wall. If so, check the box.

Figure 24   Edit Zone
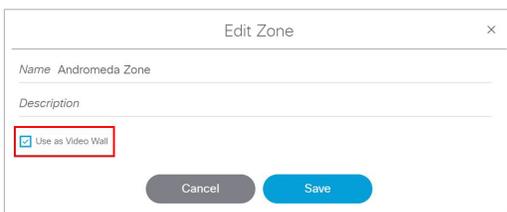
4. In the left panel view, select the group or zone that you want to edit.

5. Select **Edit** (pencil icon) to open the Edit dialog box.

6. Change the name and description as needed.

7. Click **Save**.

Viewing Zone, Group, and Location Associations

Click the Zones, Groups, and Locations tabs on the Zones & Groups screens to display the zones, groups, and location lists in the left column of the Zones & Groups screen. To view information about an item in the list, select it. The associated information will display in the right column on the screen. The numbers in each column indicate the number

of zones, groups, and locations are associated with the selected item. Numbers that are underlined in blue are hot links that you can click to display more details about the selected item. The details display in the opposite side of the screen (Figure 25, on page 91).

In the example shown below, there is 1 zone for the Lab Group 1 group. When you click the number '1' link, the screen displays the Zone Name, the Description (if any), if it's used as a video wall, the number of Groups this Zone is part of, and the Venue. The information displays in the Zones panel on the right (Figure 26, on page 91).

Figure 25   Locations Detail Panel
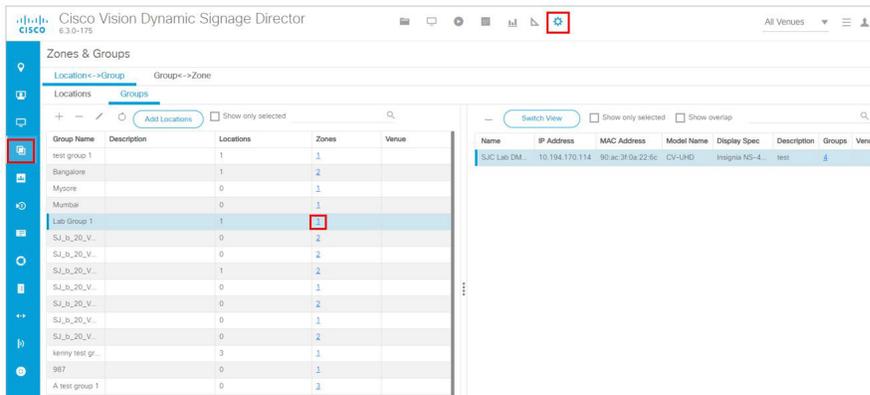
Figure 26   Zones Detail Information
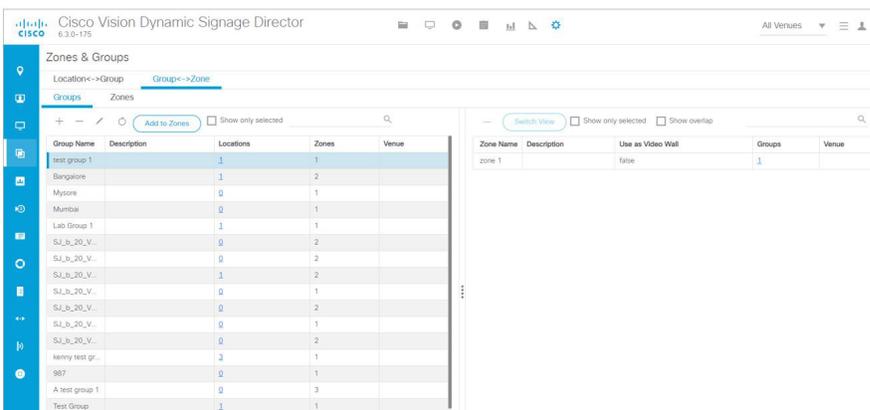
Finding the Group and Zone to Which a TV Belongs

1. Click **Configuration > Groups & Zones**.

2. Select the **Location <-> Group** tab and select the **Locations** tab.

3. Select a location name. In this example, SJC Lab DMP 01 is selected. The number of groups to which this location belongs shows under the Groups column (in this example, there are 4groups). The names of the groups to which this location belongs display in the Groups panel at the right (Figure 27, on page 91).

Figure 27   Finding the Group and Zone for a TV
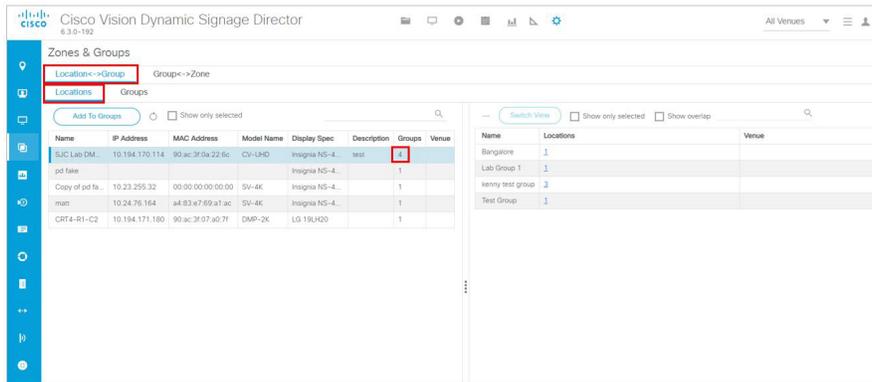
4. Select a group from the Groups panel and click **Switch View**. The number of Zones for the selected group displays (Figure 28, on page 92) under Zones (in this example, there is 1 zone).

Figure 28   Number of Zones
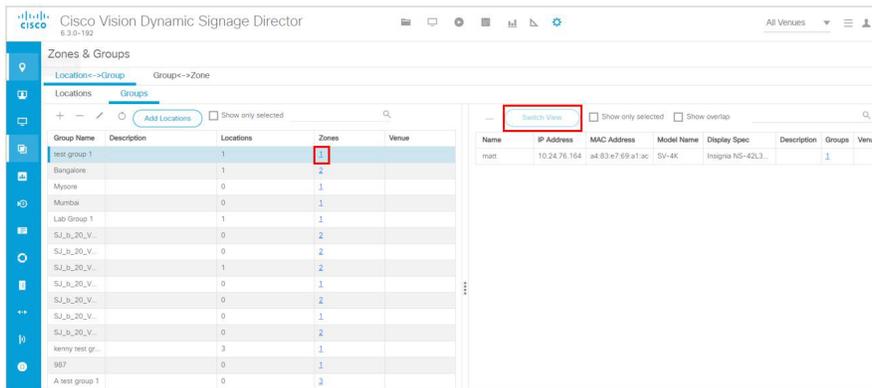
5. With the Group name selected, click on the number link in the #Zones column to show the zones (Figure 29, on page 92) to which the selected group belongs (in this example, test group 1 belongs to 1 zone).

Figure 29   Zones a Selected Group Belongs
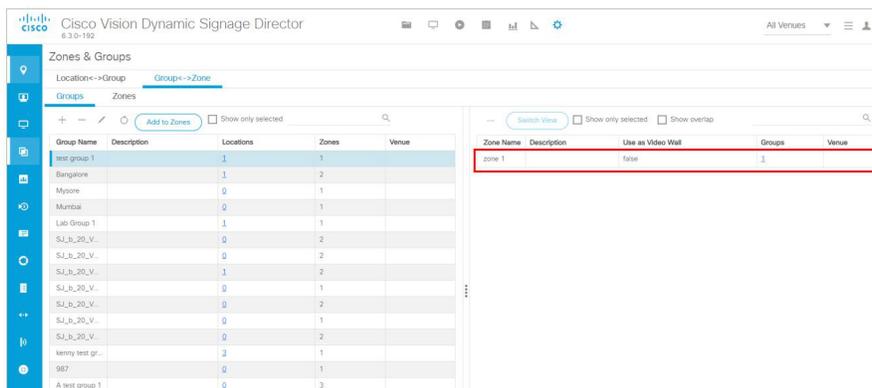
6. Click the **Location<->Group** tab and click the **Locations** tab.

7. Select the locations from the left column and the groups from the right column and click **Remove** (Figure 30, on page 93).

Figure 30   Removing a Group
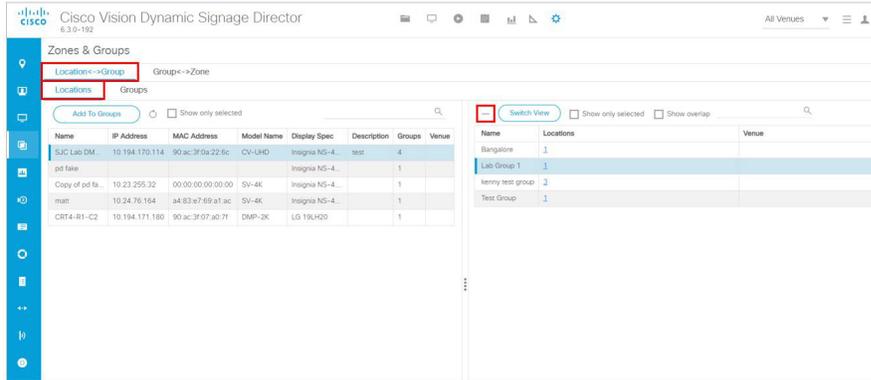
A confirmation dialog box appears for you to confirm or cancel the operation.
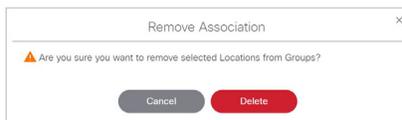
Click **Delete** to remove the locations from the selected groups. Once removed, they will no longer show in the groups list for those locations.

Regrouping and Rezoning Locations

Once you have added and assigned locations to groups, you can regroup them by removing all the locations from the selected groups and then re-assigning the locations to other groups as described here.

1. Click **Configuration > Groups & Zones**.

2. Select the **Location<->Group** tab and the **Locations** tab (Figure 31, on page 94).

3. Select the locations that you want to re-group. The Groups panel on the right will display the groups assigned to the selected DMPs.

4. Select the groups from the Groups panel. You can use the shift click keyboard function to select a block of groups. The selected groups and locations are highlighted on both the Locations and the Groups panels.

5. Click **Remove** to remove all the locations from the selected groups. A warning dialog displays for you to confirm or cancel the operation.

Figure 31   Regrouping or Rezoning a Device

6. Click **Delete**. The selected groups will be removed from the Groups panel.

7. Select the **Location<->Group**> tab and select **Groups** tab.

8. Select a group. You can use the search function to quickly find the group you are looking for.

9. Select the locations you want to add to the selected group from the Locations panel.

10. Click **Add Locations** (Figure 32, on page 94).

Figure 32   Adding a Location to a Group

11. Select the locations you want to add from the Select Locations screen (Figure 33, on page 95) and click **OK**. The locations are added to the list of locations for the selected group(s). The Locations column indicates how many locations are now in the selected group.

Information About Zones, Groups, and Locations

Figure 33   Select Locations
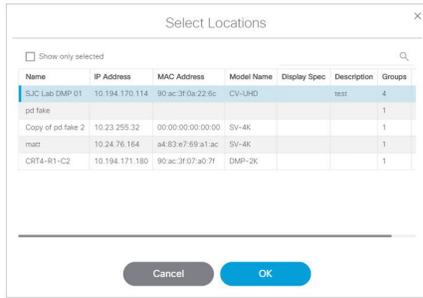
How to Migrate Deployed Devices From a Single Venue to a Multiple Venue System

There are very specific requirements when you migrate devices that have already been deployed in a venue to a multiple venue configuration in Cisco Vision Director.

For more information, see Configuring Cisco Vision Dynamic Signage Director for Multiple Venue Support, page 35 in the Cisco Vision Director Administration Guide: Dynamic Signage Director, 6.4.

Information About Zones, Groups, and Locations

Working with Content Deployment

Cisco Vision Director provides both basic and more advanced methods of content ingestion to achieve high levels of visual impact at your venue. This module provides a high-level introduction to the content types and data sources supported in Cisco Vision Director.

Before you begin to deploy content at your venue, it is important that you understand all of the requirements for the types and methods of content that you want to deploy.

There are limitations and specifications for the content size and formats supported by Cisco Vision. These vary depending upon a number of factors including the TV display resolution, the media player used in the venue, the screen template region layout, and the TV proximity to the fans.

Note: For a full range of content planning and design services available by Cisco Systems, contact the Cisco Creative Services team.

Understanding Content and TV Resolution

There are several factors that determine the final resolution of your content on a TV display, including the model of media player deployed.

Physical and Signal Resolution

Physical resolution is the actual number of pixels supported by the TV display. **Signal** resolution is the resolution communicated between the media player and the TV display. These signal resolutions are negotiated between the media player and the display.

The physical resolution of the TV display and the negotiated signal resolution do not necessarily have to match. However, the signal resolution from the display and the media player must match for successful communication under almost all circumstances.

TVs smaller than 1920 x 1080 in physical resolution also can support a signal resolution of 1920 x 1080.

For TV-based tile-matrix video walls, the physical resolution is defined as the combined resolution of all of the displays. However, the signal resolution is likely to be different. For example, in a 2x2 video wall with TV displays of 1920x1080 resolution, the physical resolution of the video wall is 3840x2160, but the signal resolution would be 1920x1080.

For the digital media players, you can override the negotiated signal resolution by configuring a requested signal resolution in the Cisco Vision Director **Configuration > Devices** interface. See the Configuring Resolution in Display Specifications on page 99.

Canvas and Template Resolution

Canvas resolution is the area on which the web browser draws, which ultimately determines what area can be shown on the display.

The canvas resolution is represented by the configurable **template** resolution in Cisco Vision Director. To be visible on the display, the template resolution must be able to fit within the canvas resolution.

Cisco Vision Director Template Resolution

Cisco Vision Director supports the same template resolution on all media players: 1920 x 1080.

Canvas and Template Resolution Behavior on the DMPs

For the SV-4K, the canvas resolution is mapped to signal resolution for resolutions below 1920 x 1200. For more information about signal resolution, see Physical and Signal Resolution, page 97.

For example, with content resolution of 1280 x 720, the SV-4K canvas and signal resolution also will be 1280 x 720.

Any content greater than this resolution (for example, anything at pixel 1281 and beyond) will not be displayed. Higher resolution content will **not** shrink to fit the canvas.

If you are using a 1920 x 1080 template for a TV that has a signal resolution of 720p, the SV-4K template canvas will be cropped, **not** shrunk. Therefore:

■ **You must specify the correct template to match your signal resolution.**

■ **Your content must match the template.**

Guidelines for TV and Content Resolution with the Digital Media Players

The DMPs are set to run in full high-definition (HD) 1920 x 1080 mode by the runtime software.

Note: The Series 4 DMPS have greater content playback capabilities.

    – CV-HD2 can playback 4K video

    – CV-UHD2 can playback Dolby Vision, HDR10, 4K HTML content, and can handle dual 4K video decoders.

If you plan to display higher resolution content, be sure your monitors are capable.

IMPORTANT: It is highly recommended that your TV supports a minimum of 1080p HD resolution. Lower resolution displays might need some additional configuration of the TV Display Specification configuration in Cisco Vision Director to attempt to optimize the display. In some cases these TVs might cut off an area of the screen.

The quality and expected resolution for video and graphics display for the DMPs can be affected by several things:

■ The resolution of the TV display and its ability to negotiate to 1080p.

■ The configuration of the sv4k.videoMode display parameter in **Configuration > Devices > Display Specifications > Display Parameters** area of the interface.

■ When set to a resolution, this value specifies the signal resolution of the DMPs.

■ If the resolution is set to auto-detection, then the TV negotiates the signal resolution with the DMPs as long as the TV supports negotiation.

IMPORTANT NOTES:

If you are using a UHD display, you must configure a fixed resolution value of 3840 x 2160 x 60p in the `sv4k.videoMode` serial command in the TV display specification.

If you plan to play Dolby Vision on the CV-UHD2, you must append `:dbv` to the video mode setting. For example: 3840X2160:dbv.

■ The template region size.

■ The size of the original graphic and whether to scale content.

■ Quad-region default template does not support Dolby Vision or HDR 10 content.

For more information about content and template guidelines, see the Cisco Vision Content Planning and Specification Guide: Dynamic Signage Director, Release 6.4.

Restrictions for TV Display Specifications with the DMPs

Before you configure TV display specifications for use with the digital media player, consider the following restrictions: The following Basic Info options are not supported:

- X Position / Y Position

- X Scaling / Y Scaling

Configuring Resolution in Display Specifications

The Display Specification for a TV can either be configured for auto-detection of resolution by the TV, or set to a fixed resolution in Cisco Vision Director (see Figure 1 on page 99).

Figure 1   DMP and Display Signal Resolution
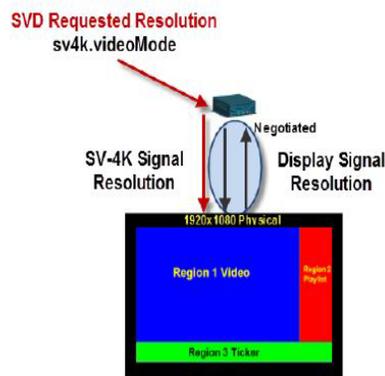
- If the resolution is set to auto-detection, then the TV and the DMP negotiate the signal resolution, as long as the TV supports auto-negotiation (Figure 1 on page 99).

- If a resolution is specified in **Configuration > Devices**, then the content is resized according to that setting. This is the requested signal resolution shown in red in Figure 1 on page 99.

- If the signal resolution of the DMP is set below 1920x1080 for any reason, video content will be resized according to the template in use.

- The template in use and the corresponding content must match the signal resolution.

To set the resolution for a display:

1. Click **Configuration > Devices > Display Specifications** tab **> Display Parameters** tab.

2. Select the TV that you want to configure (Figure 2 on page 100).

Figure 2   Resolution Setting in Display Specifications
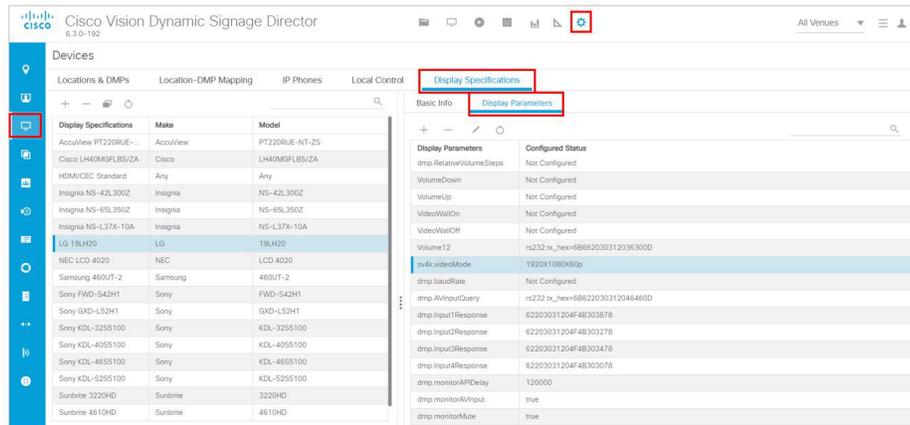
3. Find the **sv4k.videoMode** command. Click the **Edit** icon. The Display Parameter for sv4K.videoMode box appears (Figure 3 on page 100).

4. Click **Configured Status** from the drop-down arrow.

Figure 3   Adding Configured Status
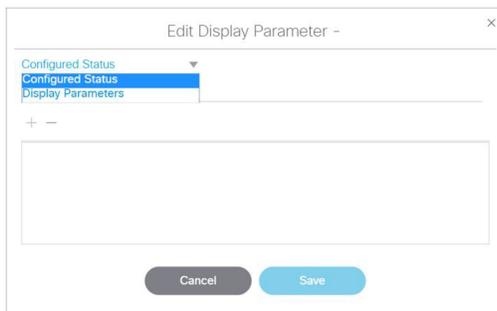
5. Specify one of the values in Table 1 on page 100 according to the desired resolution behavior.

Table 1   CV-UHD2, CV-UHD, and SV-4K Resolution Values

sv4k.videoMode Value	Resolution
3840x2160x60p[1]	Fixed at 2160p
1920x1080x60p	Fixed at 1080p
1280x720x60p	Fixed at 720p
Not Configured	Auto-detected
Auto	Auto-detected

1.   This specification is required for UHD TV displays in Release 4.1 and later.

6. Click **Save**.

7. Reboot the device.

Understanding Content Types and Sources in Cisco Vision Director

Content is defined as any digital media that is presented on a TV display using a digital media player in Cisco Vision Director. Cisco Vision Director supports a variety of content types and data sources to create an impressive presentation of digital content at your venue.

External and Internal Data Sources

This section summarizes the external and internal data sources that are supported using the Data Integration interface to bring additional content into Cisco Vision Director.

For more information, see the Cisco Vision Director Data Integration Guide.

Data Feeds

- Atom Feed

- RSS Feed (RSS 2.0)

Generic Data Sources

Cisco Vision Director also can support Generic Data Sources from the following source types:

- Database

- Supports automatic translation of MySQL and SQLServer database formats to XML data in Cisco Vision Director.

- FTP

- HTTP/HTTPS

- JSON

- TCP

- UDP

NFL Data

- National Football League (NFL) Game Statistics and Information System (GSIS) Cumulative Statistics

- NFL GSIS Game Clock

Other Data Sources

- Table Lookup (internal or external data source)

- The Table Lookup feature for data integration allows users to create multiple tables, each having multiple key-value mappings. Users can upload tables from a TSV file or create tables and mappings from the Cisco Vision Director UI.

- Once tables are created, a custom XPath function can be defined to look up values from these tables for specified keys.

- The Table Lookup feature for data integration supports the following primary use cases:

    - Custom Suite Welcome Messages

    - Translation of Point-of-Sale (POS) codes to names for menu boards.

    - System (internal data source)

POS Data Sources

- Generic POS

- Internal Database POS (internal data source)

- Menu Theme (internal data source)

Scoreboard Controllers

- Daktronics All Sport 5000 Scoreboard Controller (basketball, NFL™ football, and hockey only)

- OES ISC9000 Intelligent Scoreboard Controller (basketball and hockey only)

HTML Pass-Through Content

Cisco Vision Director allows you to render simple HTML browser content (with some restrictions) on the Cisco DMPs by including an external URL in a playlist and scheduling it in a script.

The content is not actually stored in the Cisco Vision Director content repository (CMS), and any changes to the content on the external site page are dynamically updated on the DMP when the script restarts.

Menu Board Content

IMPORTANT: The DMP does not support deployment of menu board data using the DMB gadget archive (GAR—now obsolete) or for in-suite ordering. However, stores data and DMB menu theme data can be deployed on the DMP using data integration and widgets.

Cisco Vision Director supports three overall methods of Point of Sale (POS) integration for menu board implementation:

- Hybrid DMB and Data Integration—Integration using internal DMB data integration and widgets.

- Data Integration Only—Third-party POS vendor integration using the POS API and data integration and widgets.

For More Information:

- Cisco Vision Director Dynamic Menu Board and Store Configuration Guide—Describes how to work with stores, menu themes, and create menu boards in the DMB application.

- Cisco Vision Director Data Integration Guide—Describes the differences between the DMB application and using POS data sources for menu board creation, deployment guidelines and configuration tasks, and widgets tool information and examples.

RSS Ticker Feeds

A ticker is a region that displays content received from an RSS feed (news, weather, or other dynamic information) over a customizable background. RSS feeds can come from external or internal sources. Venue operators can use RSS feeds to publish their own in-house promotions or other proprietary messaging.

Data Integration Method

IMPORTANT: This is the only method supported by the digital media players.

The Data Integration method was introduced in Cisco Vision Director to add RSS data sources and modify their layout using the Widgets tool.

For more information, see the Cisco Vision Director Data Integration Guide.

Static Graphic Sources

Static graphics are images used for advertisements or informational messages that do not require motion.

Add static graphics to Cisco Vision Director using the **Library** interface.

Video Sources

Cisco Vision Director supports the basic sources of video content:

- Video from the headend (in-house, terrestrial TV, satellite and cable providers feeds, typically multicast).

- Video locally stored and played through a video playlist or a mixed media playlist.

- Video streamed from a laptop or other supported device connected to the HDMI-In port.

For more information, see the Cisco Vision Network, Server, and Video Headend Requirements Guide.

Video Content Sourced Using HDMI-In

Cisco Vision Director supports two ways to source local video content using the HDMI-In port on the digital media player:

- Encoding streamed video as a channel in Cisco Vision Director.

  Encoded HDMI-In video on the DMP can be started and stopped using multiple local control methods, as well as within Cisco Vision Director:

  – IP phone

  – IR remote

  – Advanced Registry Settings

  – Script states

  – User Control API

- Configuring Local HDMI-In as a video source in a region that is controlled using script states only.

IMPORTANT: The HDMI-In port on the digital media player can only be supported either as a source to video region or source to encoder as a channel, but not both.

Therefore, you cannot have a script in a state which tunes to the HDMI-In as video source in a region, and then transitions to the next state where you are streaming video from HDMI-In.

Workflow Summary to Deploy Content in Cisco Vision Director

Table 2 on page 103 provides a summary of the tasks and related information to deploy content in Cisco Vision Director.

Table 2   Content Deployment Task Summary

Content Deployment Task	For more information see:
Plan the type of content that you want to create.	Understanding Content Types and Sources in Cisco Vision Director, page 101
Plan where it will be deployed.	Working with Zones, Groups, and Locations, page 67

Content Deployment Task	For more information see:
Understand the content guidelines and best practices.	Cisco Vision Content Planning and Specification Guide: Dynamic Signage Director Also refer to the related content-specific guides for the content types that you plan to support, including: Cisco Vision Director Dynamic Menu Board and Stores Configuration Guide Cisco Vision Director Data Integration Guide
Plan and create the screen template and region sizes for your content.	Working with Screen Templates in Cisco Vision Director, page 105
Create your content and get it into Cisco Vision Director.	Getting Content Into Cisco Vision Director, page 170
Create a playlist for your content.	Working with Playlists in Cisco Vision Director, page 177
Create a script to define when your content is displayed.	Working with Event Scripts, page 211

Working with Screen Templates in Cisco Vision Director

User Role: Administrator / Content Manager

This module provides information about how to set up the layout of content on a TV display by defining regions for the screen using predefined or custom templates.

Information About Screen Templates

Screen templates define the video and non-video regions and layout of a display. Screen templates are used to create various layouts for the presentation of different types of content. Screen templates are assigned to zones or groups and apply to all locations within them.

Figure 1 on page 105 shows three basic templates. The "L-wrap" template divides the screen into three sections where you have video in the top left of the screen, advertising along the right side, and a ticker across the bottom that might be showing scores and a news feed.

Figure 1   Three Basic Templates

Cisco Vision Director allows you to create the following types of screen templates:

- Custom template—Specifies the size and arrangement of regions on the screen.

- Overlay template—Specifies a video region that overlaps a secondary video region or non-video region that overlaps a video region in the template.

Default Screen Template Dimensions

The dimensions for the default screen templates are fixed and cannot be changed.

Alternatively, you can create custom screen templates (where you specify different sizes for the screen template regions) and overlay screen templates (where you have a non-video or video region overlapping a video or mixed media region).

Table 1 on page 106 defines the default screen templates that are included with Cisco Vision Director **4.0 and later. Installing a full ISO image removes previously available templates.**

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Table 1   Default Screen Templates

Template Name	Content Type	Dimensions	Region Layout
Full Screen Video	Displays full-screen video.	Video: 1920 x 1080	
Full Screen NonVideo	Displays full-screen graphic.	Graphic: 1920 x 1080	
3-Region Lwrapper	Displays live video footage or video replay in Region 1, a playlist of advertisements in Region 2, and a ticker with scores or news in Region 3. Also referred to as an "Lwrapper."	Video: 1624 x 914 Ads: 296 x 914 Ticker: 1920 x 166	
Full Screen Dual Video	Displays a full screen video in each video region (video 1 and video 2). Using luma keying on video region 2, you can enable select areas of video region 1 content to be visible through video region 2. For video content with UHD resolution on the SV-4K, CV-UHD, and CV-UHD2 digital media players, luma key cannot be applied. Luma keying is only supported for dual video when an HD video in the secondary region uses a luma key over a UHD video in the primary region.	Video 1: 1920 x 1080 Video 2: 1920 x 1080	
Quad-Region Template	■ Fixed 2x2 template on each screen, taking up the entire screen in four, equal parts. ■ No adjustable template/positioning, z-layer ordering or overlap. ■ No luma key support. ■ Each region can play HD video or a playlist only. ■ One quadrant of audio at a time is supported; select the active audio via local control API only.	Video 1 (top left region): 1920x1080 Video 2 (top right region): 1920x1080 Video 3 (bottom left region): 1920x1080 Video 4(bottom right region): 1920x1080	
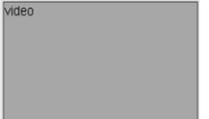
Note: Obsolete templates (such as 3-Region, Welcome, Exit, Emergency, Outside Emergency, 3-Region, 3-Region double) might still appear in your system if you have upgraded from earlier releases.

Note: Release 6.3 introduces UHD video support on the CV-HD2 DMPs and dual UHD video support on the CV-UHD2 DMPs.

Note: Release 6.4 SP1 introduces quad-region video template design only available on CV-UHD and CV-UHD2 DMPs.

Full Screen Default Templates

The full screen templates that come with the Cisco Vision Director software are used to display full-screen video (or mixed media) or full-screen graphics. Figure 2 on page 108 shows an example of a video (or mixed media) in the full screen template. Figure 3 on page 108 shows an example of a graphic in the full screen template. Both are fixed screen templates and cannot be customized. Table 2 on page 108 and Table 3 on page 108 show the template dimensions.

Figure 2 **Full Screen Video (or Mixed Media) Template Example**

Table 2 **Full Screen Video or Mixed Media Template Dimensions**

Content Type	Dimensions
Region 1: Video or Mixed Media	Region 1: 1920 x 1080
Full Screen Video	1920 x 1080

Figure 3 **Full Screen Graphic Template Example**
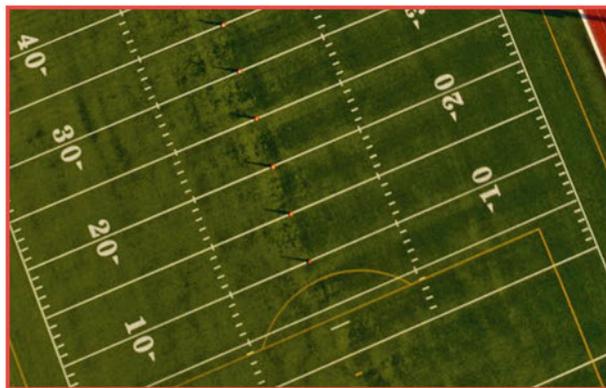
Table 3 **Full Screen Graphic Template Dimensions**

Content Type	Dimensions
Region 1: Graphic	Region 1: 1920 x 1080
Full Screen Graphic	1920 x 1080

3-Region Lwrapper Default Template

Figure 4 on page 109 shows an example of the content for the 3-Region Lwrapper template that comes standard with Cisco Vision Director. This is a fixed screen template and cannot be customized. Table 4 on page 109 shows the template dimensions. Click on the regions and see the Properties in the right panel update with dimensions and layer names.

Figure 4   3-Region Lwrapper Template
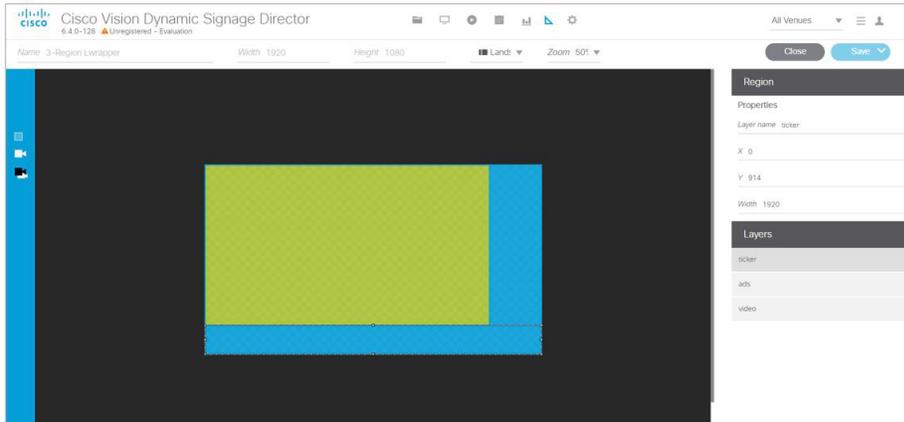
Table 4   Standard Lwrap Template Dimensions

3 Region Lwrap	x	y	width	height
Ticker	0	914	1920	165
Ads	1628	0	296	914
Video (feed)	0	0	1624	914

shows an example of the content for the 3-Region Lwrapper template that comes standard with Cisco Vision Director. This is a fixed screen template and cannot be customized. shows the template dimensions.

Figure 5   3-Region Lwrapper Template

Table 5   3-Region Lwrapper Region Template Dimensions

Content Type	Dimensions
Region 1: video or mixed media	Region 1: 1624 x 914
Region 2: non-video	Region 2: 296 x 914
Region 3: non-video	Region 3: 1920 x 166

Table 6 on page 111 lists the characteristics of the 3-Region Lwrapper screen template.

Table 6   3-Region Lwrapper Screen Template Characteristics

Region	Description
Region 1	■ 16:9 aspect ratio. ■ Supports live video broadcasts or video replay. For more details on video formats, refer to the Cisco Vision Network, Server, and Video Headend Requirements Guide for your release (available to qualified Cisco Vision partners).
Region 2	■ Supports playlists of advertisements. ■ Due to the small dimensions of region 2, use graphic-intensive ads rather than ads that have a lot of small text in this region.
Region 3	■ Designed for displaying a graphic and/or information in the form of a ticker. ■ The ticker content can be from a compatible RSS feed approved by the venue. ■ The ticker region can be customized with the venue logo (with the ticker content playing in the remaining space).

Full Screen Dual Video Default Template

A full screen dual video default template is available for the DMPs. Dual video regions allow you to overlay two video regions; a secondary local or multicast video region and a primary video region.

The dual video template provides the following capabilities:

■ Show two video feeds at the same time.

■ Place video-based advertisements.

■ Promote a moment of exclusivity during an event.

■ Apply luminance (luma) keying to the secondary video region.

For video content with UHD resolution on the SV-4K, CV-UHD, and CV-UHD2 digital media players, you cannot apply a luma key. Luma keying is only supported for dual video when an HD video in the secondary region uses a luma key over a UHD video in the primary region.

Table 7 on page 112 lists the specifications of the dual video regions.

Table 7   **Full Screen Dual Video Template Specifications**

Region	Specification
Video 1	■ Can be controlled using an infrared remote (IR) remote or local control. ■ In the template, video region 1 appears as the bottom or primary layer. ■ Supports audio. ■ Source: Local or multicast video.
Video 2	■ Cannot be controlled through an IR remote or local control. ■ In the template, video region 2 fully overlaps video region 1. ■ Luminance (luma) keying is applied to second video region (it cannot be disabled or changed in the template). ■ Does not play audio. ■ Source: Local or multicast video.

Note: The luma key default is set to #ff2000. To enable luma keying, scroll down the Properties panel and click the checkbox (Figure 6 on page 112).

Figure 6   **Enable Luma Keying in the Properties Panel**
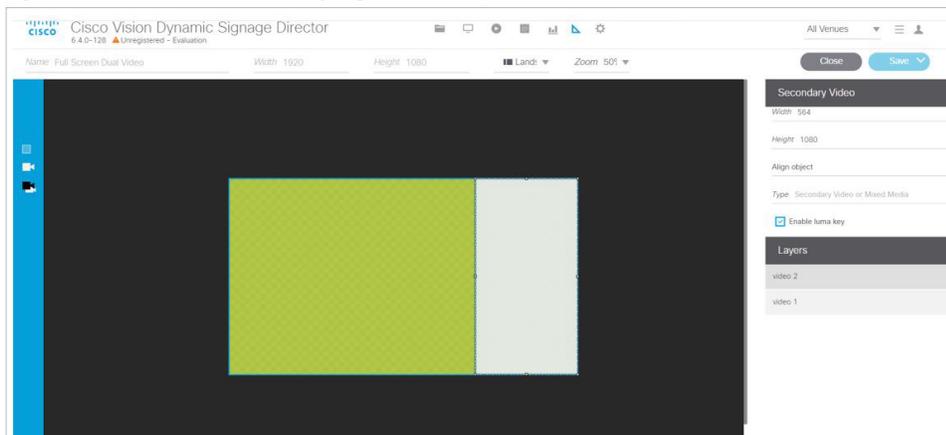
To change the global luma key value:

1. Click **Configuration > System Configuration > Global DMP Settings > Default - Audio/Video/Closed Caption**.

2. Select **Luma key** from the **Configuration Properties**. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears. See Modifying the Default Luma Key Value, page 123.

Quad Video Default Template for the CV-UHD and CV-UHD2 DMPs

Release 6.4 SP1 introduces the four-region video streaming feature. This feature is available *only* on the CV-UHD and CV-UHD2 DMPs. We included a new default template called Quad Template. You cannot edit this template, but you can copy it and use it to create your own design. The default template splits the screen into four, equal 16:9 video quadrants/regions. The top left area is Region 1, the top right area is Region 2, the bottom left area is Region 3, and the bottom right area is Region 4. When you click into a region, the Layer information highlights (Figure 7 on page 113).

Figure 7   Quad Template for Four Video Regions
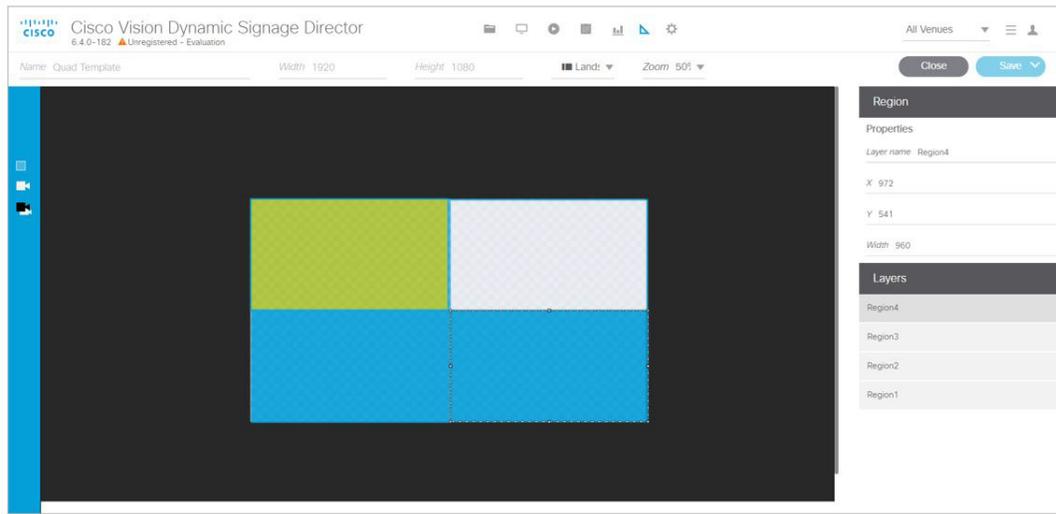
All these regions use local control for the audio volume and channel changing. Contact the third-party application developer of the device you are using (i.e., touch screen or remote) to determine if your device is compatible. This feature works best in a more private area, such as a luxury suite.

Work with the third-party device integrator to determine how the channel changing and volume controls operate on the third-party touch panels.

Quad Video Template Specifications for the CV-UHD and CV-UHD2 DMPs

Here are the specs:

■   Quad template video will be a fixed 2x2 template on each screen, taking up the entire screen in four, equal parts. That means there is no adjustable template/positioning, z-layer ordering or overlap.

■   No luma key support.

■   No support for use in scripting other than to put the display into quad video mode.

■   Local control API controls video regions to change channels and switch audio to a different region.

■   One quadrant of audio at a time is supported; select the active audio via local control API only.

■   No support for images, widget text overlay, or external URLs while in quad video mode.

Note: The quad-region default template does not support Dolby Vision or HDR10 content.

Custom Screen Templates

Custom screen templates allow you to change the size and arrangement of content regions on the screen to fit your sponsor and venue needs. Figure 8 on page 114 shows an example of some custom screen templates.

Figure 8   Custom Screen Template Example

Custom Overlay Screen Templates

Overlay screen templates are custom templates that allow a non-video region (graphics) to overlap a video (or mixed media) region on the DMPs.

TIP: On the DMP, you can also create a custom template that allows for dual video regions or you can use the default full screen dual video template. See Full Screen Dual Video Default Template, page 111.

This overlay feature can be assigned to any region. Using the overlay feature you can display:

■   A full-screen video (or mixed media) region with a full-screen non-video (graphics) content region overlaid on top.

■   A brand/graphic overlaid in a small region of the screen.

■   A ghosted brand/graphic such as a transparent logo where some of the colors in the logo are transparent and others are not.

Note: When creating an overlay screen template on the digital media player that has a primary video and a non-video region on top, be sure the image is designed to fit on the canvas. If the image is placed off the canvas, only part of the image will appear.

The recommended file format for graphics when using an overlay template is 8-bit or 24-bit PNG (transparent pixels supported). When you create the PNG file, you must make the pixels transparent for the full-size video region. JPG files are not recommended because they do not preserve transparency.

Dual Video Screen Templates–Enhancements

New in Release 6.3, you can set up the video / HTML layer order of a DMP display by using a new display specification called: `dmp.layerOrderMode`.

Previously, the video layers would always render on the bottom of the stacking order on the DMP display, regardless of the stacked order in the template (Figure 9 on page 115). You could achieve effects by transparencies and sizing, but video could not be overlaid.

There are three settings for `dmp.layerOrderMode`. By using this new display parameter, you can achieve the following:

■   VideoOnBottom (same as existing behavior, Figure 9 on page 115)

■   GraphicsInMiddle (Figure 10 on page 115)

■   VideoOnTop (Figure 11 on page 115)

Figure 9   Default Layer Order—Single Video On the Bottom
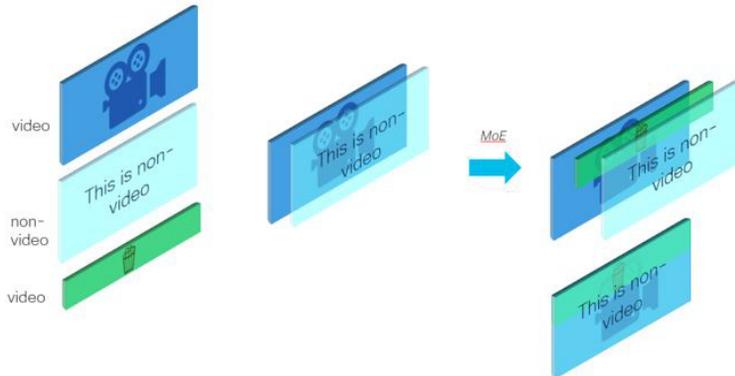
For a use case such as a menu in HTML5 with video background showing a video overlay content during a Moment of Exclusivity, use GraphicsInMiddle (Figure 10 on page 115).

Figure 10   GraphicsInMiddle Value Output

Use Case: Menu in HTML5 with video background shows video overlay content during MoE.
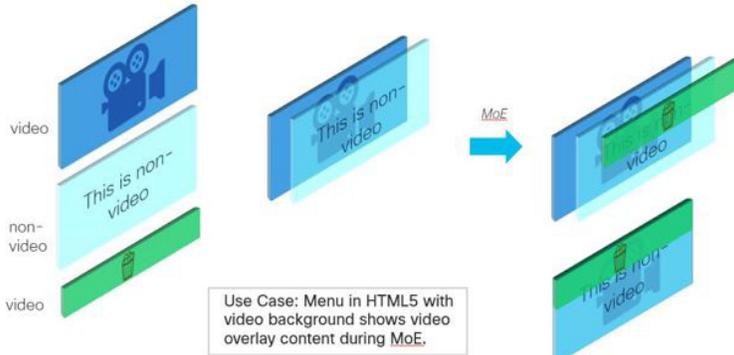
Set VideoOnTop when you need the secondary region to always be on top of the primary region, regardless of region layer order. Videos will always be above non-video layers (Figure 11 on page 115).

Figure 11   VideoOnTop Value Output
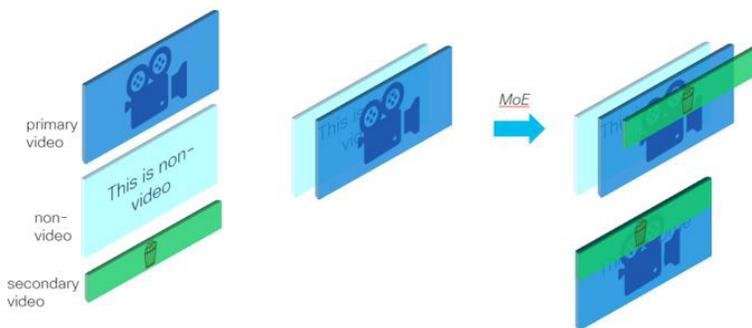
Figure 12 on page 116 shows a graphic representation of single video behavior.

Figure 12   Single Video Content Layering Behavior
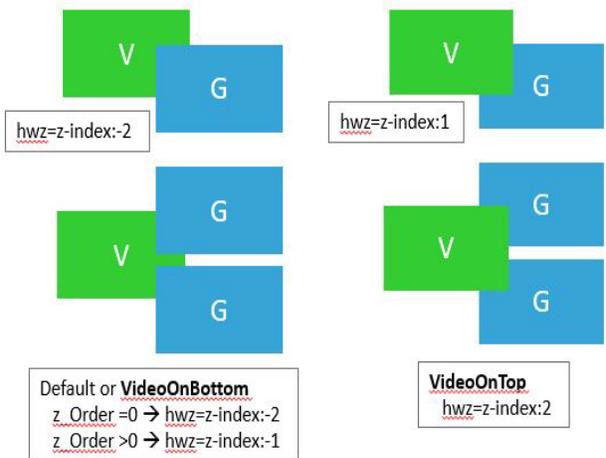
Figure 13 on page 116 shows a graphic representation of dual video behavior.

Figure 13   Dual Video Behavior: VideoOnBottom/VideoOnTop
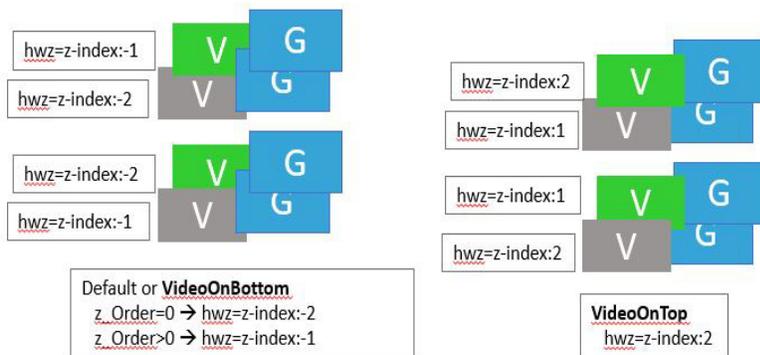
Note: Use when you want HTML content below primary/secondary regions. Diagnostics, StartWebApp, Guide, TV Banner and PIN may not be visible.

Figure 14 on page 116 shows a graphic representation of dual video with graphics in the middle layers.

Figure 14   Dual Video with Graphics in the Middle Layers Between the Videos
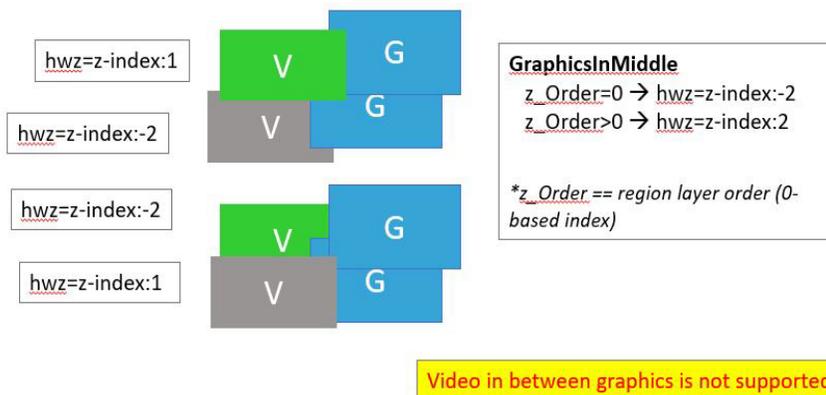
Layering Content—What is Not Supported

We do not recommend doing the following when designing your content displays:

- Video in between two non-video content layers, such as when using a URL channel

- Secondary video below a primary video when using VideoOnTop. The runtime will force the primary video to be below the secondary video.

- Swapping layer order of two video regions across different script states. This may have unpredictable results.

- Template regions do not match layer order. This may have unpredictable results.

IMPORTANT: Here is the current caveat to using this new display parameter:

- The template layering must be consistent with the layer mode. For example, once VideoOnTop is set for a DMP, the video layer will **always** be on top, even if the **template** has the video layer on the bottom. Therefore, carefully design your display templates and content if you intend to use this new capability.

The following is an example process using GraphicsInMiddle. Make sure the template used in the script has the regions layered properly (Video/non-Video/Video).

To set the Display Parameter allowing new video layering:

1. Click **Configuration > Devices > Display Specifications > Display Parameters**.

2. Select the DMP in the left panel.

3. Type **layer** in the Search field on the right. The `dmp.layerOrderMode` displays in the list.

4. Click **Edit** (pencil icon). The Edit Display Parameter dialog box appears (Figure 15 on page 117).

5. In the **Configured Status** field, type **GraphicsInMiddle**.

6. Click **Save**.

Figure 15   Configuring dmp.layerOrderMode Display Parameter
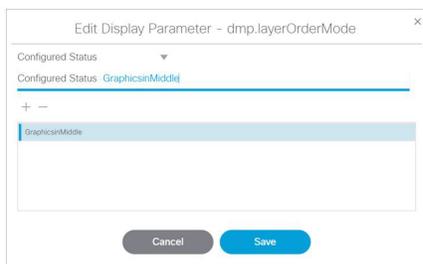
7. Reboot the DMP to get the new configuration to appear on screen.

How to Configure Screen Templates

This section includes the following topics:

- Creating Custom Screen Templates, page 120

- Naming Screen Templates, page 121

- Setting the Size and Position of a Region on the Template Canvas, page 121

General Guidelines for All Screen Templates

When creating screen templates and populating content, consider the following:

- Templates are ordered by name.

- For Proof of Play, you can have more than one region with an ad playlist.

- Regions are listed from top-to-bottom layer order, where the top layer appears at the top of the list.

- Layers are numbered, if a screen template contains a non-video region and a video or mixed media region, the video or mixed media region always appears at the bottom of the list.

Note: You can manually drag a video region to be on top of other regions; however, the rendering of the regions below the video region will not be predictable and can be completely invisible.

- A box icon adds a non-video region.

- A video icon adds a video or mixed media region.

- Switching a non-video region to a video region might produce a warning if there is already an existing video region.

- Saving an existing template with regions removed will produce a force dialog for confirmation. In addition, when a template that is used in an event script is edited (including when one is adding a region) a force dialog appears for confirmation. You should also edit the scripts that use the changed template to verify that the added or removed regions contain the appropriate content and changes occur as expected.

Note: Cisco Vision Director supports HD/SD and video content with UHD resolution (local and streaming video) on the SV-4K, CV-UHD, and CV-UHD2 digital media players. Graphics with UHD resolution are not supported. The DMP-2K media players only support HD/SD content.

Guidelines for Custom Screen Templates

Consider the following guidelines when creating custom screen templates:

- Regions can contain non-video content (static graphics), video, or a combination of both (in a mixed media region).

- The number of allowable regions will vary based on the media player.

- Up to 5 regions are supported for each screen template, more than 5 may cause degradation. Results may vary depending on what type of non-video content is used. For example, a very simple widget may not cause degradation but a very complex widget could.

Table 8 on page 119 provides the number of content regions that you can have when creating custom templates.

Table 8   Number of Allowed Content Regions When Creating Custom Templates

Region Type	DMPs
Non-Video (Graphics)	Zero or more
Video Region 1 or Mixed Media	Up to one
Video Region 2 or Mixed Media	Up to one

■   A custom template designed for DMPs can contain up to two video regions.

Note: The digital media players do not support *dual* UHD video regions.

–   Using luma keying on video region 2, you can enable select areas of video region 1 content to be visible through video region 2.

–   You can change the order of the video regions by changing their relative layer order in the template.

■   When layering regions, the non-video content (graphics, widgets, etc.) will always appear **above** the video content.

IMPORTANT: When layering two video/mixed media regions on the DMPs, if the playlist for the first video/mixed media region includes both video and non-video content, then the non-video content in the first region will always appear on top of the video in the second video region. Name the layers with "top" or "bottom" so that "Layer1Bottom" will be covered by "Layer2Top."

Note: If you configured dmp.layerOrderMode, be very careful to adjust the template for those DMPs or you may see unexpected results on the displays.

If you must include non-video content in region 1, then a workaround is to create a local video of the static content and use that in the playlist so that it remains in the primary region.

■   To optimize performance, the video and graphic aspect ratio sizes should match the aspect ratio of the region. Multi-screen template stretching is not currently supported on DMPs.

■   All regions must fit within the 1920x1080 dimensions. If you are using an overlay, then you can have two regions that are both 1920x1080.

Note: DMPs support negotiation to many resolutions. When the negotiated resolution is less than 1920x1080, the template will be cropped to that lower resolution.

Understanding the Templates Screen

shows the 3_region Lwrapper Template, one of the five default templates.

Figure 16   Templates Screen Navigation
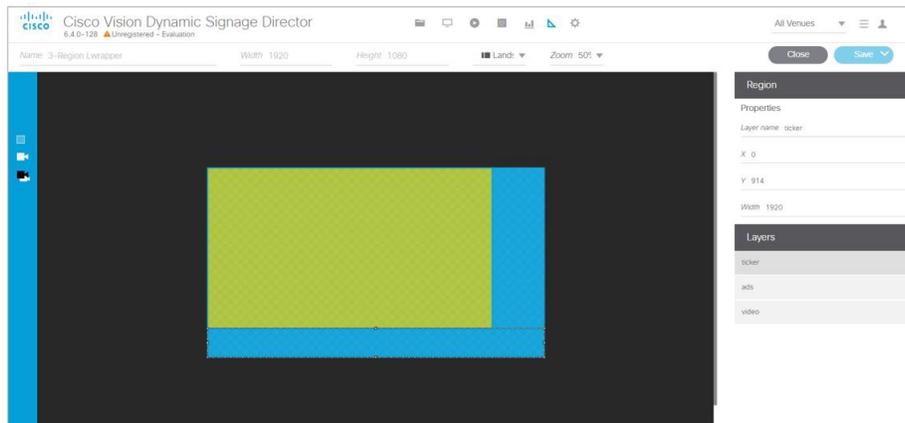
The left panel has Non-Video Region, Primary Video Region, and Secondary Video Region icons.

Choose Landscape or Portrait orientation for your content.

Choose a zoom percent from the drop down.

Click Layer name, type in a name and set the X, Y, Width, Height, Align object, Type, and click the Enable luma key box metadata (if needed).

When finished, click **Save As** from the drop-down menu.

The template used for a DMP must be consistent with the configured layer order mode for the DMP's display specification.

Creating Custom Screen Templates

User Role: Administrator / Content Manager

There are two ways that you can create new custom screen templates in Cisco Vision Director:

- Adding a new template for which you define all properties and regions.

- Copying from the default standard templates or another existing template to leverage the same properties and regions.

Default templates (indicated by a lock icon to the left of the template name) can be copied but not modified.

Adding a New Template

The default view is List View for templates. Select a template and use the icons above the list.

To add a new template:

1. Click **Designer > Templates.**

2. Click New Template "**+**" icon. A new template appears.

3. Type a new name. For suggestions on naming conventions, see the .

4. Add one or more regions (up to 5).

5. Specify the region properties.

6. Save the template.

Copying From an Existing Template

An alternative way to create a new template is to copy an existing template that you have already customized, or copy from one of the default system templates. This method saves you time and includes all of the properties from the copied template.

To copy an existing template:

1. Go to **Designer > Templates.**

2. Select the template, click **Copy**. "Copy of..." the template you chose appears.

3. Select the template name and click **Rename** icon. The Rename dialog box appears.
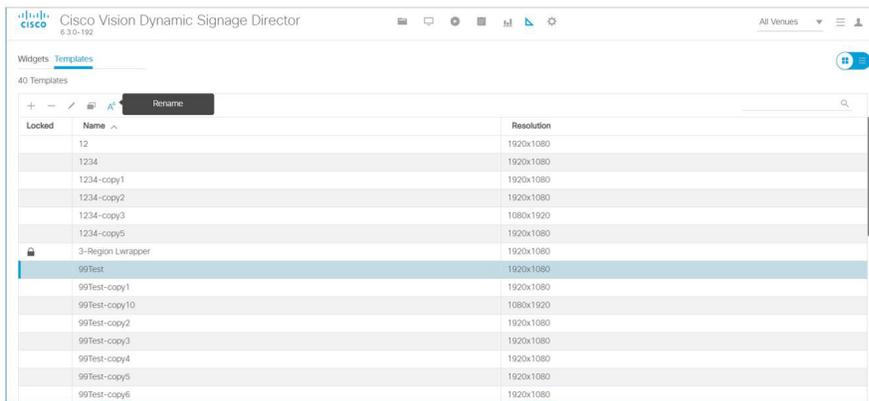
4. Type a new name. Click **OK**. For suggestions on naming conventions, see the .

5. Click **Edit** (pencil icon).

6. (As required) Modify the region properties and layers.

7. Save the template.

Note: Another way to copy/create a new template is to open an existing template, click **Edit** to make changes, then click **Save As**. Type in a new name in the dialog box.

Naming Screen Templates

When naming screen templates, use meaningful abbreviations within the name to help you identify it. For example:

■ Use "FV" in the name to indicate the screen template is for full-screen video

■ Use "LW" to indicate the screen template is for an Lwrapper.

Additionally, you can include other pertinent information such as "beer" for a playlist that only has beer advertisements in it or "BrandY" for a playlist that only has BrandY products in it.

Setting the Size and Position of a Region on the Template Canvas

User Role: Administrator / Content Manager

There are several ways that you can modify the size and position of a region on the template canvas.

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Resizing a Region

IMPORTANT: For the DMPs, the Width and Height of the template canvas must match the content resolution and/or aspect ratio. For more information, see Canvas and Template Resolution, page 97.

To resize a region, you can:

■ Select a handle of the region box and drag it to enlarge or shrink that dimension of the region.

■ For a more precise result, type the actual pixel value in the Width and Height properties.

Repositioning a Region

TIP: X and Y values should be 0, 0 when creating fullscreen template regions. The upper left corner (0,0) position is the starting point for all templates.

To reposition a region, you can:

■ Select a region (layer) and drag it on the canvas to change its position (offset).

■ For a specific position, type the actual pixel offset values:

– X—(Horizontal offset) Number of pixels to indent the content from the left side of the canvas.

– Y—(Vertical offset) Number of pixels to indent the content from the top of the canvas.

■ To change the layer order of a region on the canvas, go to the Regions list box and drag and drop the region up or down to change its order.

IMPORTANT: A multicast video layer should always be the bottom layer (Layer 1). Make sure all video regions are nearest the bottom.

How to Use Luma Keying for Dual Video Templates

Note: Dual video luminance keying is not supported by the CV-HD or CV-HD2 media players.

This section includes the following topics:

■ Understanding How the Luma Key Works, page 122

■ Modifying the Default Luma Key Value, page 123

Understanding How the Luma Key Works

Luminance keying is used to filter the brightness level of content. Based on the key value, a range of brighter and darker pixels are filtered out and made transparent.

Note: Luma keying only applies to video content.

Luma Key Examples

Luma keys are useful when you want to overlay video content over the multicast stream of a live event using dual video regions.

Figure 17 on page 123 shows an example of overlaying "GOAL" to highlight a moment of exclusivity during a game.

Figure 17   Goal Overlaying Game Stream

Figure 18 on page 123 shows an example of a hockey puck moving over the game stream to highlight a goal during the game.

Figure 18   Flying Hockey Puck Overlaying Game Stream After Goal

Modifying the Default Luma Key Value

User Role: Administrator

The Luma key property is set globally for all digital media players in the system. It can be enabled or disabled per dual video template from the **Designer > Templates** screen while editing the template.

TIP: Contact the Cisco Vision Customer Experience (CX) Digital Media Services team for guidance on how to effectively use and set the luma key value for your content needs.

The Luma key property is a 6-digit hexadecimal value that is set to #ff2000 by default. Table 9 on page 123 shows the format of the hexadecimal key and how the bits are interpreted.

Table 9   Luma Key Format

8-Bit Mask	8-Bit High Range	8-Bit Low Range
0xff	0x20	0x00

With the default value, content with the luma of 0xff is masked (left unchanged), and content with luma values in the range of 0x00 to 0x20 (the darker pixels) are filtered from the content and made transparent.

To disable the luma key property globally for all DMPs, do not set a value (Figure 19 on page 124). If the Luma key property is blank, then no masking will be applied even if the option is set on the template.

To modify the default luma key value:

1. Click **Configuration > System Configuration > Global DMP Settings > Default - Audio/Video/Closed Caption**.

2. In the **Configuration Property** box, select the **Luma key** property (Figure 19 on page 124).

3. Click **Edit** (pencil icon). The Edit Configuration Setting dialog box appears.

Figure 19   Luma Key Property

4. In the value box, type the 6-digit hexadecimal value beginning with the # sign.

5. Click **Save**.

TIP: You do not need to reset the media player to apply the new value. Whenever a script starts, the digital media player retrieves the global settings.

Working with Content in Cisco Vision Director

User Role: Administrator / Content Manager

This module provides information about how to use the Content screen to manage your content and an overview of the different content ingestion methods available in Cisco Vision Director.

This section includes the following topics:

- Configuring the Default Content Channel, page 125

- Tuning Selected Media Players to a Multicast URL, page 126

- Defining Channels and Channel Guides, page 126

Configuring the Default Content Channel

Specifying a default content channel allows you to quickly verify that video transmission is working after provisioning a media player without running an event script.

If the default content channel is video or a URL and is not configured properly, or if a video channel is not available, then media players not running an event script will display a black screen.

To configure the default video channel:

1. Log in to Cisco Vision Director as an administrator.

2. Click **Configuration > System Configuration > Dynamic Signage Director Settings** (Figure 1 on page 125)**.**

Figure 1   Configuring the Default Video Channel
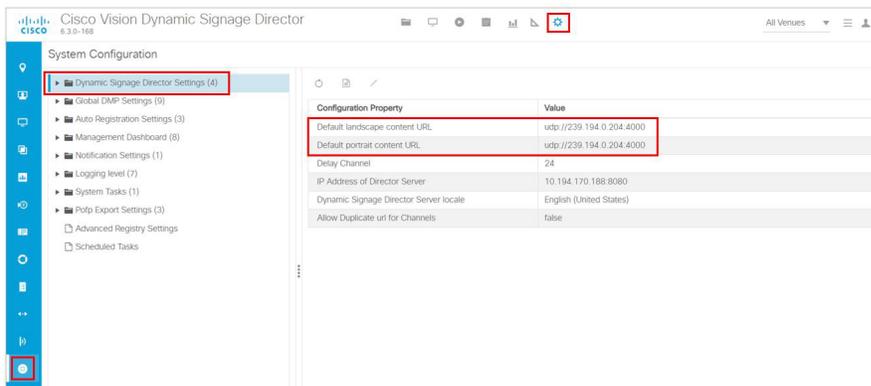
3. In the **Configuration Property,** find the **Default landscape content url** and the **Default portrait content url.**

4. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears.

5. Type the URL of the content. The URL can be a video stream or an HTML page.

6. Click **Save**.

7. Reboot the media players.

Note: We do not recommend using portrait mode for the CV-HD and CV-HD2 media players.

Tuning Selected Media Players to a Multicast URL

User Role: Administrator

You can tune one or more media players to a specific multicast URL**.** This configuration will not remain after reboot of the devices but can be used as temporary workaround to a content issue at the venue. An easier way to tune the DMPS is to use **Device Management.** See Monitoring Media Player Operation During an Event Using Device Management, page 237.

To tune selected media players to a multicast URL:

1. Click **Device Management**. The **Devices** panel displays. Click the folders you want. The item appears in the center panel. Select it.

2. Use the drop down menu to select **Set Video Channel**.

3. Click the **Play** icon (**Send Command**). The Send Command box appears.

4. In the **Send Command** box, specify the URL for the multicast group (address and port) of the video channel that you want to display on the selected media players.

5. Click **OK**.

Defining Channels and Channel Guides

User Role: Administrator / Content Manager

Cisco Vision Director allows you to tune in-house and external video channels, including over the air (OTA) local channels, satellite, and cable TV, when distributed by the appropriate headend system. Video can be in either high definition (HD) or standard definition (SD). The number of video channels you can offer depends on the available bandwidth in your network. The channels you select will be available for viewing anywhere you have TVs connected to DMPs: in bars and restaurants, the back office, and in luxury suites. Users can change channels from the IP Phone or using the IR remote (Figure 2 on page 127).

Figure 2   Channel Guide Lineup on TV

Channel Lineup Designation at the Headend

A combination of external and internal channels make up the "channel lineup" that is available throughout the venue.

Although the concept of a channel number doesn't really exist in the IP world, channel numbers are typically assigned to each channel at the head end. These numbers are arbitrary, but can be numbered to correspond to the channels that will show up on the IP phone control in the Luxury Suites.

To enable channel selection at the endpoints:

■ When the On the Cisco DCM is deployed, each (in-house or external) channel received is mapped to its unique multicast group address and UDP port number.

■ In Cisco Vision Director, each unique multicast group/UDP port number pair is assigned a Cisco Vision channel number and a channel name.

■ Cisco Vision Director uses this mapping to direct DMPs to specific channels and populate a channel guide which lists the available channels.

Note: For information about how to configure the channel lineup at the headend, see the Cisco Vision Network, Server, and Video Headend Requirements Guide available to qualified Cisco Vision partners.

Defining the Universal Channel List

Once channels have been defined at the headend, define a universal channel list. Click **Configuration > Channel Definitions**.

Consider the following before you configure the universal channel list:

■ Channels to be offered: Decide how many in-house live video feeds you will have and which external channels you will offer.

■ Channel Numbering Scheme: You may want in-house channels at the top of your numbering scheme. You may want your numbering scheme to match the area satellite or cable numbering scheme. You may choose to hide some of the channels you have in house.

■ Channel Guide Appearance: Decide the channel guide descriptions that appear on the TVs in your luxury suites, bars, and restaurants and whether you want a channel logo to appear on the screen.

■ For each channel that should appear in the channel lineup accessed by a Cisco IP Phone or IR remote, set the "Visible in IP Phone Guide" field on the Channels panel to **Yes**.

■ For each channel that is to appear in the channel lineup accessed by a third-party touch panel, set the "Visible in 3rd Party Guide" field on the Channels panel to **Yes**.

Adding Channels to the Universal Channel List

User Role: Administrator / Content Manager

Note: Now you can upload a customizable background image for the Channel Guide. See Customizable Background Images for Login, DMP, or Channel Guide, page 172.

To add channels to the universal channel list:

1. Click **Configuration > Channel Definitions**. The Universal Channel List displays in the **Universal Channel List** tab.

2. Click "+" to add a channel.

3. On the **Basic Info** tab, define the information listed in Table 1 on page 129. The items with an asterisk ***** are required.

Note: The Channel name configured in Cisco Vision Director should be limited to 12 characters or less. Due to the space allotted for channel names on the IP Phone interface, more than 12 characters may have undesirable results.

Table 1 **Adding a Channel to the Universal Channel List**

Field	Description
Source Type	Video Stream, External URL or HDMI-In
Channel Name	The name of the channel as you would like it to appear on the channel guide that appears on your video displays. Use a maximum of 12 characters.
Description	Description of what is playing on the channel (optional). This shows up on the TV only.
DMP Decode Latency	Default Settings Alternate Settings 1 Alternate Settings 2 Alternate Settings 3 Align these with the type of content you will display.
Protocol	Choose UDP or RTP (only applies to a video stream)
DMP-Encoded	Only applies to a video stream. Choose Custom bitrate High bitrate (Low Latency / High motion) Medium bitrate (Low Latency / Low Motion) Low bitrate (High Latency / Low Motion)
Multicast Address	Only applies to a video stream. The multicast IP address of this channel designated at the Cisco Vision headend.
Port	Only applies to a video stream. The multicast port used to communicate with this channel as designated at the Cisco Vision headend.
Channel Number	The number you want to assign to this channel. This channel number will appear in the channel guides on the TVs and IP Phones.
Long Name	Use the entire URL channel name.
Short Name	Use a shortened version of the name.
Source ID	Placeholder for future program guide integration. Not required.
Favorite	Select "Yes" if you want the channel to be listed as a favorite in the channel guide controlled by a 3rd party touch panel.
Visible in Channel Guide	Select "Yes" if you want the channel to be visible in the channel guide controlled by a 3rd party touch panel.

4. When you have filled in all the required fields, click **Save**. As soon as you save this channel, it will appear in the Universal Channel List.

Note: You must **Save** before you add or modify another channel. As soon as you move from one channel to another without doing a save, all of your input is lost.

5. Repeat steps 3 – 4 to add all the channels you want to display in Cisco Vision Director.

Using "Favorites" (Third-Party Touch Panels Only)

All installations should move to access channels directly via the local control API versus indirectly through the legacy favorites mechanism. In addition to the channel lineup, a maximum of 10 channels can be identified as favorites, which appear on the initial video control page of the third-party touch panels.

For each channel that should be listed as a favorite:

■ In the **Favorite field,** select **Yes**.

■ In the **Favorite Order field**, enter a number (between 1 and 10) indicating the ordinal placement of this channel in the listing.

Work with the third-party device integrator to determine how the favorites list should be displayed on the third-party touch panels.

Sorting the Universal Channel List

Click the Universal Channel List column headings (Name or #) to sort the channel names alphabetically in ascending or descending order or by channel number. You can also use the filter box to see only the subset of channels that have the characters you specify in the filter. The filter is not case sensitive.

Creating and Assigning Channel Guides

Once you have added channels to the Universal Channel List, you can create "per-area channel guides" to display a custom channel guide in different areas of the venue. For example, you can have a different set of channels available in each of the suites, concourses, clubs, the owners suite, back offices, locker rooms, concessions and ticket windows.

The per-area channel guides are a subset of the universal channel list, meaning the channel numbers and descriptions are preserved. For example, a venue may have raw in-house channels that they want to make available only to the coaching staff and not to the general public. To do this, create two channels guides: one private and one public. The private channel guide is assigned to groups/zones of DMPs that control the TVs in the coaches office and locker rooms. The public channel guide is flagged as the default channel guide and is automatically assigned to all other DMPs.

Designate one channel guide as the default channel guide. Only DMPs that are in a luxury suite are assigned a channel guide.

Note: If you make changes to a channel guide that is associated with an area serviced by a third-party touch panel, the third-party device must reload the latest channel guide information. Consult the third-party device integrator for reload options.

Creating a Channel Guide

User Role: Administrator / Content Manager

To create a channel guide:

1. Click **Configuration > Channel Guide** (Figure 3 on page 131). For more information, see Table 1 on page 129.

Figure 3   Creating a Channel Guide
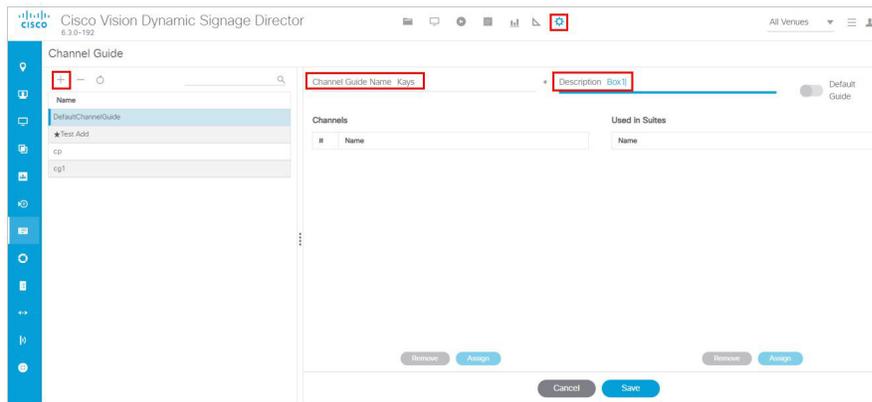
2. Click the **plus (+)** and type a name and description for the new channel guide.

3. (Optional) Enable "Default Channel Guide for All Suites" to make this the default channel guide.

4. Click **Save**.

Assigning Channels to a Channel Guide

User Role: Administrator / Content Manager

To assign channels to a channel guide:
1. Click **Configuration > Channel Guide** and select the per area channel guide to which you want to assign channels.

2. Click **Assign.** The Universal Channel list displays.

3. Select the channels you want to add to the channel guide and click **Add**. The channels you add display in the Channel Guide window.

TIP: To select multiple channels, use the keyboard Shift-click and Ctrl-click.
4. Click **Save**.

Assigning a Channel Guide to a Luxury Suite/Local Control Area

User Role: Administrator / Content Manager

IMPORTANT: A DMP should only be assigned to one luxury suite, especially if using the local control API.

Do this task after the Universal Channel List and per area channel guide is created.

To assign a channel guide to a luxury suite:
1. Click **Configuration > Channel Guide.**

2. Select the per-area channel guide.

3. Click **Assign** (under the "**Used in Suites**" list). The list of undefined luxury suites/local control areas displays.

Note: The term "Luxury Suite" is used to define not only Luxury Suites but also any local control area.

4. Select the luxury suites/local control area to which you want to assign the custom channel guide.

TIP: To select more than one suite/local control area, use the keyboard Shift-click and Ctrl-click.

5. Click **Assign**.

By default, when the channel guide is brought up on the IP Phone, it is also displayed on the selected TV(s). You can change this behavior by setting the "tvguide.autolaunch" parameter to 0 in the Cisco Vision Director Registry. See Controlling the Behavior of the Channel Guide, page 134.

Adding Icons to the IP Phone Channel Guide

You can associate channel icons that display in the IP Phone channel guide. Channel icons must be obtained locally (the venue must obtain permission from the network) and must be a 24 x 24 PNG file. The most common is a third-party channel icon file that is a 100 X 100 PNG.

Uploading a Channel Icon

Click the **Icons** tab to control uploading the channel icons to the IP Phones, the DMP/TV or Third-Party devices (Figure 4 on page 132). Customize which icon is shown in certain contexts (like on-screen next to the name when it's chosen, in the channel banner, etc.). You can upload and tag multiple icons for the same usage type at the same time.

To upload a channel icon:

1. Copy the icon graphic(s) to your local drive.

2. Click **Configuration > Channel Definitions**.

3. Click the **Universal Channel List** tab and the **Icon** tab. The icon list displays (Figure 4 on page 132).

Figure 4   Channel Icons
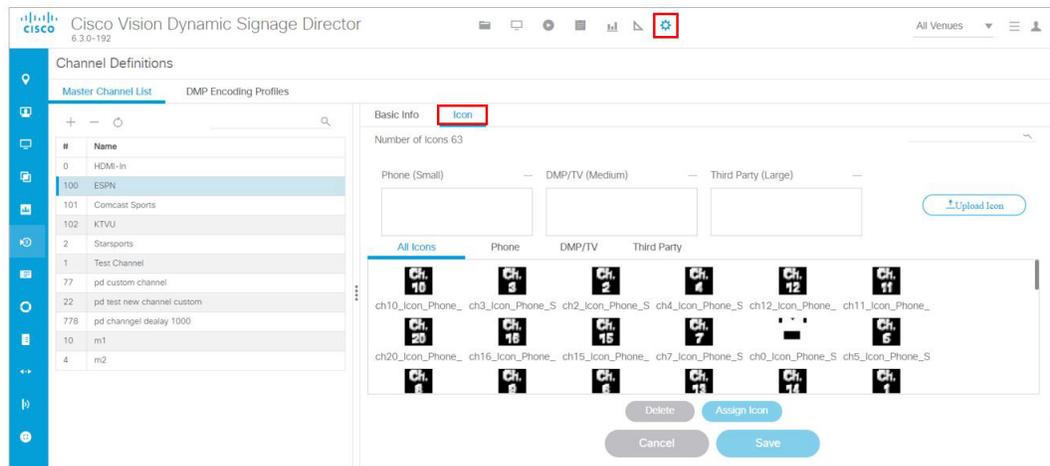
4. Click **Upload Icon** and browse to the .png file you want to assign as a channel icon.

5. In the Import Icons dialog box, select where the channel icon will be used (Icon category) from the drop-down menu (Figure 5 on page 133).

    –   DMP (for TV banner)

    –   Phone

    –   3rd Party Remote

Figure 5   Channel Icon Upload

6. Select an expiration setting.

7. Click **Upload**. The icon you uploaded will now appear in the icon list.

Assigning a Channel Icon

User Role: Administrator / Content Manager

Once you have created a universal channel list and uploaded phone channel icons, assign icons to the channels.

To assign a channel icon:

1. Select **Configuration > Channel Definitions**.

2. Click the **Universal Channel List** tab and the **Icon** tab. The icon list displays.

3. In the icon list, select the channel for which you want to assign an icon. The channel number displays in the Assigned Icons box.

4. Select the icon you want to assign to the channel.

5. Click **Assign Icon**.

6. Click **Save**. A message displays confirming the icon assignment was successful.

Channel Guide Behavior

IMPORTANT: When using the Local Control API, unpredictable results may occur if you assign a DMP to more than one luxury suite.

■ If a DMP is assigned to more than one Luxury Suite, it will use the Per-Area Channel Guide associated with the last Luxury Suite to which it was assigned. For example if a DMP is added to Suite 1 and then added to Suite 2, it will use the Channel Guide defined for Suite 2. For this reason, do not assign a DMP to more than one Luxury Suite.

■ If the user changes the channel via an IP phone, IR remote, or 3rd-Party remote, the channel chosen by the user will override the currently playing video playlist with the selected video.

■ If the template has a primary video region assigned to a video channel, the template will not change, but the video will change to the selected channel.

■ If the template has no primary video region, the display will be replaced with full screen video showing the selected channel.

■ If the DMP is showing a playlist of video, the entire playlist will be replaced by the single video channel. For example, if the playlist contains three videos, all three videos will stop and be replaced by the selected channel. Only one video in a playlist will play.

■ When the state changes on a DMP that is associated with a local control area (luxury suite, bar, restaurant, etc.), the script contents will override the user's local control.

Therefore, if you expect a DMP to be locally controlled, any states in use during that period should not change the template or channel. This is particularly important when using ad hoc states with locally controlled DMPs. Cisco Vision Director will treat the return from an ad hoc as a state change, so if the base state has a channel setting, the channel on all locally controlled DMPs will return to the base channel when the ad hoc state ends.
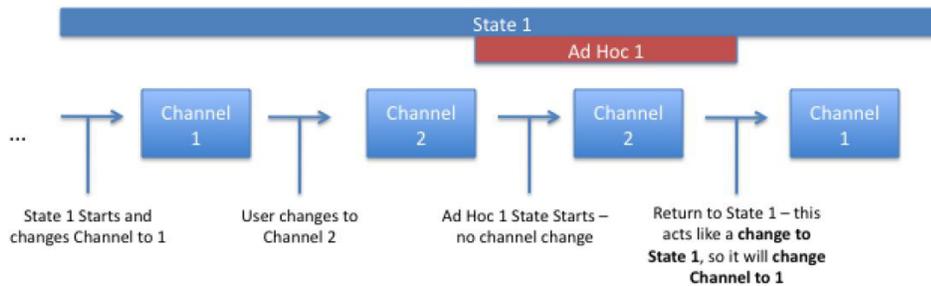
For the new quad template feature, note the following:

- You can play UDP channels in all the four regions or video playlists in all the four regions. Widgets, External URL channels, image playlists are not supported.

- You can change the channels in each of the regions through a new local control API. Work with the third-party device integrator to determine how the channel changing and volume controls operate.

- When changing a channel through the new API, the default template does not change. Only the channel in a particular region changes.

- There is no support for an IP Phone, IR remote or third-party remote. Check if the local control API could be integrated with the existing mobile applications you are using.

Controlling the Behavior of the Channel Guide

The appearance and behavior of the channel guide are controlled by parameters in the Cisco Vision Director registry. These settings control whether:

- A preview window is displayed when a channel is selected.

- The channel guide is automatically displayed on the TV when it is selected on the phone.

- The phone UI continues to display the channel guide after a channel has been selected.

Note: For individual luxury suites, you can override the setting that controls the automatic display of the channel guide on the TV through **Script Management**.

Note: For URL channels, the preview window will show the HTML content. The DMP will not scale this HTML content. We highly recommend that the URL channels be responsive to the region size.

Configuring Channel Guide Settings in the Registry

User Role: Administrator

To configure channel guide settings in the registry:

1. Click **Configuration > System Configuration > Advanced Registry Settings**. To be sure that you are displaying the current settings, click **Refresh**.

2. Scroll through the **Registry Data** list to the desired parameters.

Note: To change the phoneControl.stayOnChannelSelect parameter from its default (1), you must add the parameter using **Add.** The **Create – Configuration Settings** dialog box appears.

3. Type the **Name** and the **Value** field beside each parameter and enter the appropriate values.

4. Click **Save**.

Defining a Delay Channel

User Role: Administrator / Content Manager

If you have assigned DMPs to a delay zone, then you can configure the channel you want to display on the TVs controlled by the DMPs in the delay zone during the delay event state.

If no channel is configured, the DMPs will display the default channel during the delay event state.

To define a delay channel:
1. Click **Script Management** and select the event script.

2. Click the **Edit** icon.

3. Click the plus sign (**+**) below the Ad Hoc States tab. The Add State box appears.

4. Enable the **Manual** transition button (the default setting).

5. In the Ad Hoc State box, click **Edit**.

6. Select the delay group from the tree list.

7. Select the Set FULLSCREEN action source and drag it to the Assigned Actions list.

8. Click Region 1.

9. Select the channel you want to play during a delay from the Playlist Sources channels list.

10. Drag the channel to the Assigned Playlists.

11. Click **Apply**.

12. Click **Save**.

Defining a Non-Event Channel

User Role: Administrator / Content Manager

If you have assigned DMPs to a non-event zone, you can configure the channel you want the TVs to play when no event script is running in that non-event zone.

If no channel is configured, the DMPs will display the default channel during the non-event state.

To define a non-event channel:
1. Open the event script.

2. Click the plus sign (**+**) above the Ad Hoc states panel. The Add State box appears.

3. Enable the **Manual** transition button (the default setting).

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4. In the Ad Hoc State box, click **Edit**.

5. Select your non-event group from the tree list.

6. Select the Set FULLSCREEN action source and drag it to the Assigned Actions list.

7. Click Region 1.

8. Select the channel you want to play when no event script is running from the Playlist Sources channels list.

9. Drag the channel to the Assigned Playlists.

10. Click **Apply**.

11. Click **Save**.

Setup Channel Source Types

There is a channel source type called **External URL** that allows you to specify an HTTP, HTTPS, or HTTP Live Streaming (HLS) source as a channel, including HTML page sources.

HLS sources are hardware-accelerated on the DMP. The content is specified as an External URL source type in the Channels setup. The system recognizes the content as an HLS source based on the Allowed HLS file formats designated in the system. The default extensions allowed are **m3u** and **m3u8**. See the Cisco Vision Dynamic Signage Director Release Notes for Release 6.3.

Note: This feature does not replace the existing HTML pass-through feature (**External Content**) from the **Library** screen.

The Source Type field is available with Video Stream, External URL, and HDMI-In options (Figure 6 on page 136).

To choose a source type:
1. Click **Configuration > Channel Definitions**.

2. Click the **Basic Info** tab.

3. At the **Source Type** pull-down, select **External URL** to choose an external url for your channel (Figure 6 on page 136).

Figure 6   Channel Source Types
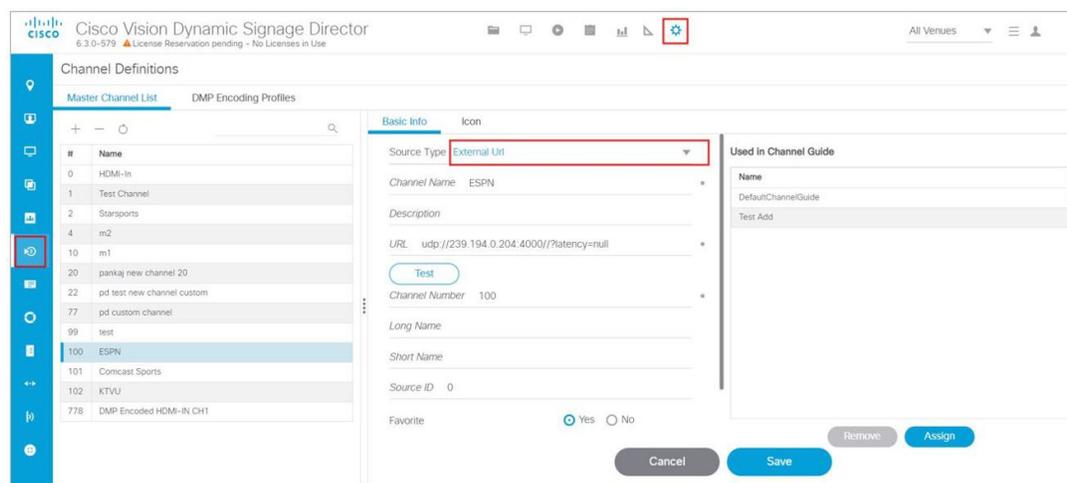
To test the external URL to see if it has X-Frame option, add the URL into the field and click **Test**.

If the URL will not render on the DMP, you may get an error message (Figure 7 on page 137). If it passes, click **Save**.

Figure 7   Testing the External URL, Error

External site may not render on the DMP. Unable to test or connect to the
URL.

OK

To test a new External URL from the Library:

1. Right click **External Content > Create.** The New External Content dialog box appears (Figure 8 on page 137).

Figure 8   New External Content Dialog Box

New External Content   ×

Name:

Url: http://

Test   Create   Cancel

2. Type in the Name and the URL.

3. Click **Test**. You may see an error message here if this external URL cannot render on the DMP.

4. If it passes, click **Create**. The URL will be stored and will push to the DMP (Figure 9 on page 137).

Figure 9   Test New External URL from Library
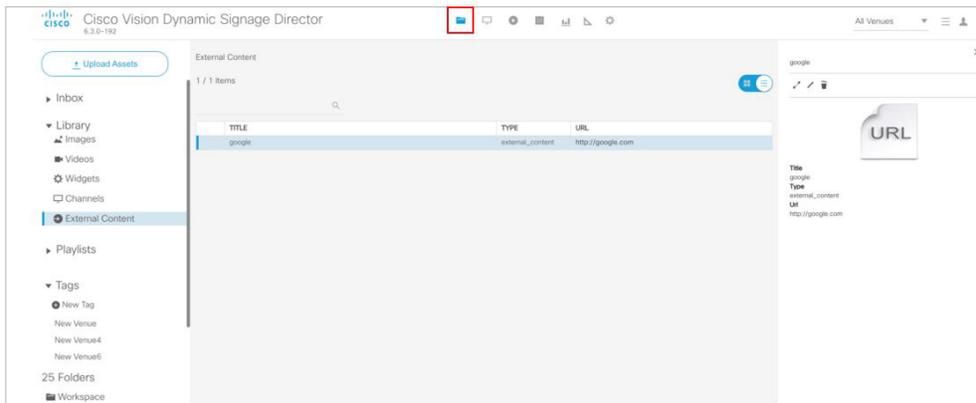
Use an external URL as a channel when you do not need synchronization of content, but you would like to be able to tune to that content from a script, User Control API, IP phone, or IR remote (Figure 10 on page 138). The figure just shows the Basic Info tab blow-up portion. External URL channels also can be streamed to a DMP-encoded multicast channel but do not support audio when streamed in that form.

Figure 10   External URL Dialog Box

The items with an asterisk (*) are required.

Maintaining Iframe for External URL Channel

This behavior for an external URL channel will perform the same way as the existing video channel. The Channel No Change option for multicast video allows a second layer of content to be overlaid and yet continue to play the multicast video in the background, so when the overlying content is dismissed, the video reappears without interruption.

For example, an external HTML-based menu board is overlaid with a Moment of Exclusivity (MoE) ad hoc state. The menu board external HTML may have video content embedded with it; there may be video playing behind the menu board external HTML that could have the channel no change option. When this HTML menu board composition gets overlaid with an MoE, then the MoE dismisses, the background video and HTML should simply reappear and have no reload or restart of the content. So: a video region is in the background, a web application is in the middle, and a top layer that is MoE content.

This URL channel can be unloaded if either (or both) the primary and secondary video players are set.

Note: Secondary video is not available on CV-HD and CV-HD2 DMPs.

If the next state puts the URL channel is a different size region, the URL channel will be scaled (or not scaled) based on a global registry setting.

To set Channel No Change:

1. In the Edit Actions box, click on the region of the template you want to assign.

2. Click the **Channels** tab.

3. Select **Channel No Change** to that region.

4. Click **OK**.

Figure 11   Assign Channel No Change to a Region of your Template
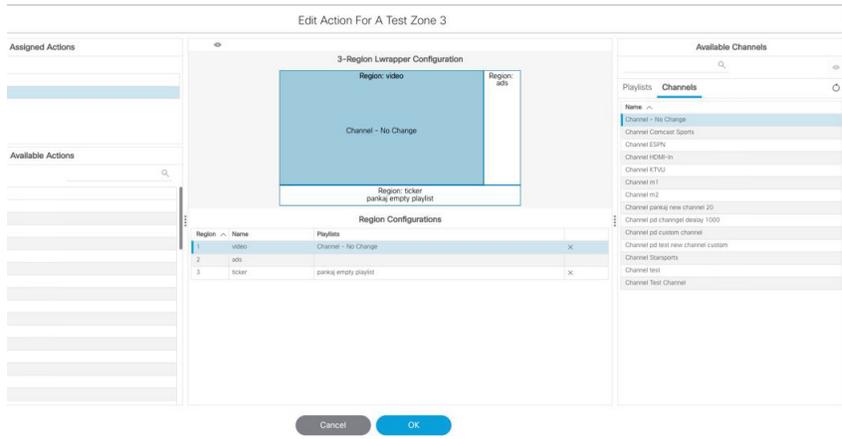
Note: Channel No Change is not supported for the new quad-region default template.

Frameless External HTML Browser

You can render a full-screen external HTML page without the constraints of being in an I-frame. Supply a valid URL to a new script action command, **StartWebApp**, in the Edit Action dialog box (Figure 12 on page 139). The URLs are not managed as External URL content or External URL channels which are both rendered inside an I-frame.

Figure 12   StartWebApp for Frameless External HTML Browsers
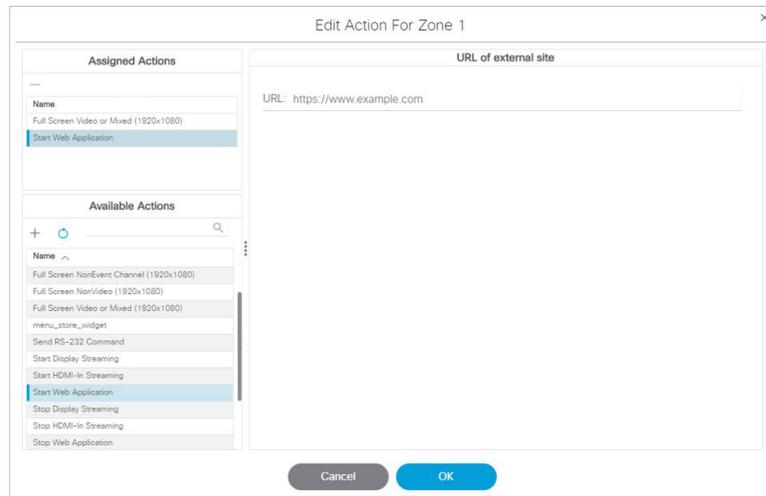
Using the **StartWebApp** action, a new browser will be launched and is rendered on top of the template-based content. Use the corresponding **StopWebApp** to close a web page rendered via **StartWebApp**. If two or more successive **StartWebApp** commands are received by the DMP, the Cisco Vision Director runtime will invoke the **StopWebApp** implicitly to guarantee that only one browser is overlaid on top of the runtime.

Web pages launched via **StartWebApp** can outlive the script that spawned them. Use the same **StartWebApp/StopWebApp** commands in **Device Management** to separately manage the overlay browser.

Notes:

- Certificates are shared between the Cisco Vision Director runtime and the browser overlay.

- Custom fonts are not shared. Custom fonts are not accessible by the browser overlay. We suggest using webfonts so that pages are rendered the way the content creators meant these to be rendered.

- The webdb and indexdb storage settings will also apply to the browser overlay. Adjust the available memory you want to use in the asset pool accordingly if you decide to use browser overlay.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

This section includes the following topics:

Guidelines for Using HDMI-In on the SV-4K, CV-UHD, and CV-UHD2 DMPs

When using HDMI-In on the DMPs, consider the following guidelines:

- If using video with UHD resolution, be sure to observe the guidelines for UHD content in the Cisco Vision Content Planning and Specification Guide and use cables that are HDMI version 1.4 compliant.

- You can use different forms of local control only when using HDMI-In encoding to stream video as a multicast channel. Otherwise, use scripts to start/stop streaming.

- If you want to maintain privacy of channels, create a DMP-encoded channel per suite with a unique multicast address (from 239.193.20.0/24 range) and create a separate channel guide per suite.

  For example, if you have 10 suites:

  1. Create 10 separate DMP-encoded channels with unique multicast addresses.

  2. Create 10 different channel guides for each DMP-encoded channel.

  3. Assign each suite to a different channel guide.

Prerequisites for Using HDMI-In on the SV-4K, CV-UHD, and CV-UHD2

Before you use HDMI-In on the DMPs, be sure that the following conditions are met:

- You have purchased a separate encoder software license. For more information, see the Cisco Vision Dynamic Signage Director Release Notes for 6.4.

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■ Test the devices that you plan to connect to the DMP HDMI-In port to stream content for HDCP support.

■ Most Mac OS and Windows laptops should work for HDMI-In video encoding for non-copy-protected content. It is up to the device manufacturer and OS whether or not this is supported.

■ When using HDMI-In encoded video channels, be sure that you have configured the allowable multicast range 239.193.20.0/24 for this feature in the network requirements. See Cisco Vision Network, Server, and Video Headend Requirements Guide.

Restrictions for Using HDMI-In on the SV-4K, CV-UHD, and CV-UHD2

Before you use HDMI-In on the DMPs, consider the following restrictions:

IMPORTANT: The HDMI-In port on the SV-4K, CV-UHD, and CV-UHD2 digital media players can only be supported either as a source to video region or source to encoder as a channel, but not both. Therefore, you cannot have a script in a state which tunes to the HDMI-In as video source in a region, and then transition to the next state where you are streaming video from HDMI-In.

■ Videos with UHD resolution are not supported for HDMI-In streaming.

■ When using HDMI-In encoding to stream video content as a multicast channel:

– The streaming state is synchronized only when streaming is started by script, IP phone, IR remote, or User Control API—not when started from **Device Management**.

– This means that if you start streaming from **Device Management**, then the IR remote menu might not properly show which channel is streaming or not streaming.

– The DMPs playing HDMI-In encoded video stops streaming if the DMP is rebooted, even though the script is running. Start Streaming is a direct command, which is sent when the svd server changes state (like RS232 commands or tv on /off type commands). It is only executed when the state is changed, so it is not re-executed on reboot.

Configuring HDMI-In as a Video Source in a Region on the SV-4K, CV-UHD, and CV-UHD2 Media Players

User Role: Administrator / Content Manager

To configure HDMI-In as a video source in a region:

1. Click **Script Management.**

2. Click the **+** sign to **add** (create) a new script (). The States screen appears.

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Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 13   Script Management
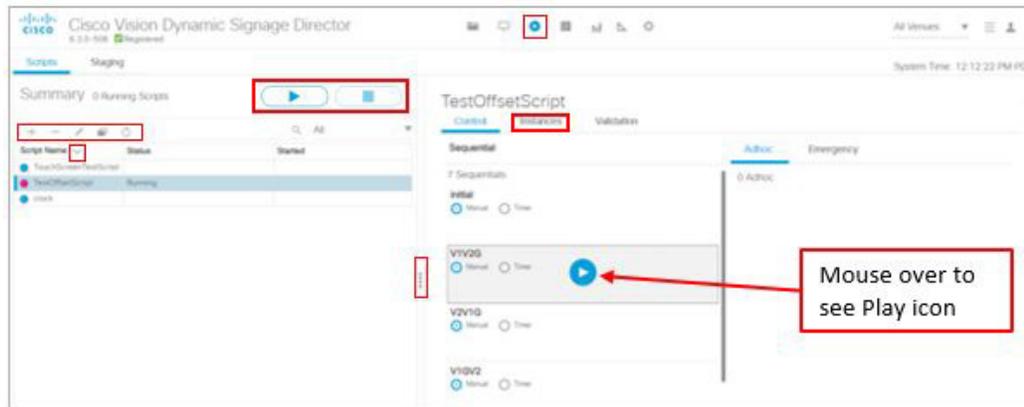
3. Type **HDMI-In** for **Name** (as an example, only).

4. Type **Streaming-HDMI** in the **Description** (Figure 14 on page 142).

Figure 14   Creating a New Script
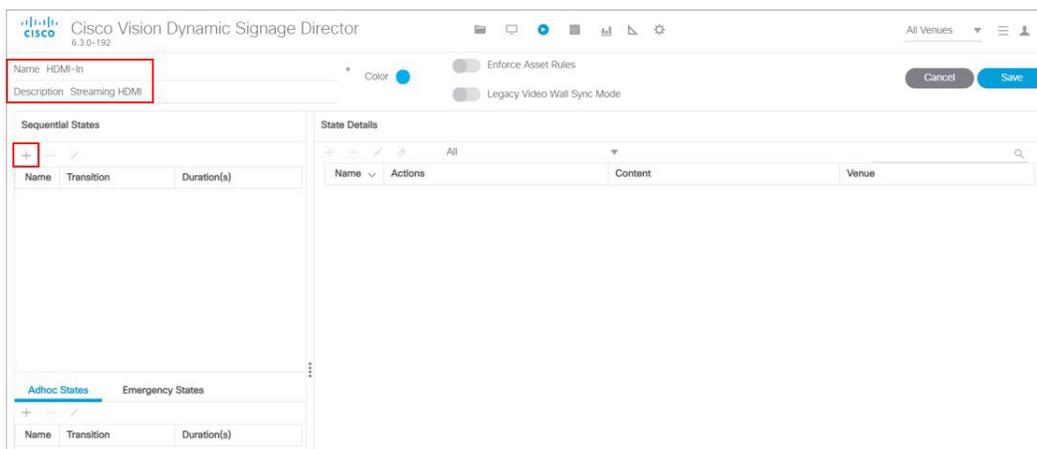
5. Click the **+** in the **Sequential States** panel. The **Add State** box appears (Figure 15 on page 142).

Figure 15   Add State
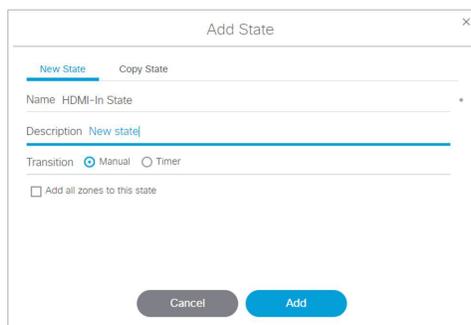
6. Add the state named **HDMI-In State**. Click **Add**. The screen changes back to show the new script.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players
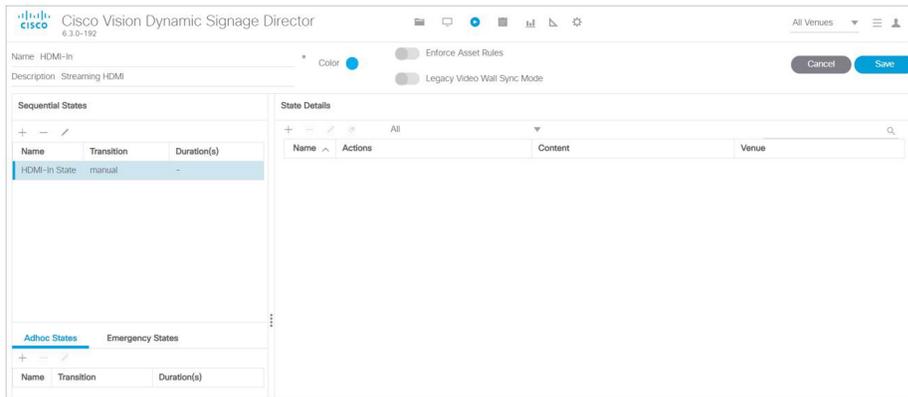
7. Click the **+** in the **State Details** panel to select the group/zone where the event script should run to assign actions and content to the HDMI-In State. The Add Zone dialog appears (Figure 16 on page 143).

8. Once you select a zone, click the **Add** button, select the zone from the State Details pane, select **Edit** (pencil icon) in the State screen. The Edit Actions box appears (Figure 17 on page 143).

Figure 16   Add Zone

Figure 17   Edit Action Box

9. Double click an **Available Action** from the list. In this example, the Full Screen Video or Mixed. The Edit Action box updates.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players
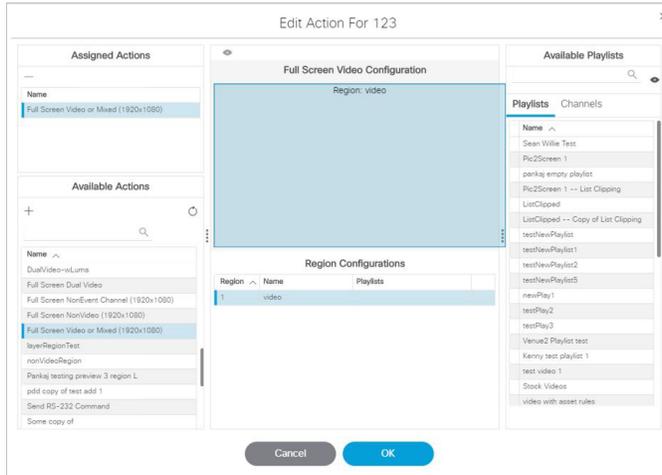
10. Click the **Channel** tab.

11. Drag **HDMI-In** to a template region.
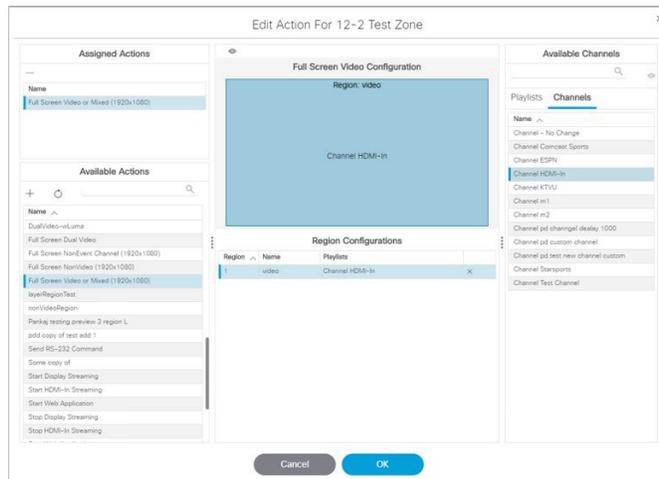
12. Click **OK** to save the script.

Note: Return to the Script Details screen by clicking the **Script Management** icon.

Configuring Video Stream Channel using Quad Template in a Region on the CV-UHD and CV-UHD2 Media Players

User Role: Administrator / Content Manager

To configure quad template as a video source in a region:

1. Click **Script Management.**

**2.** Click the **+** sign to **add** (create) a new script (Figure 18 on page 145). The States screen appears.

Figure 18   Script Management
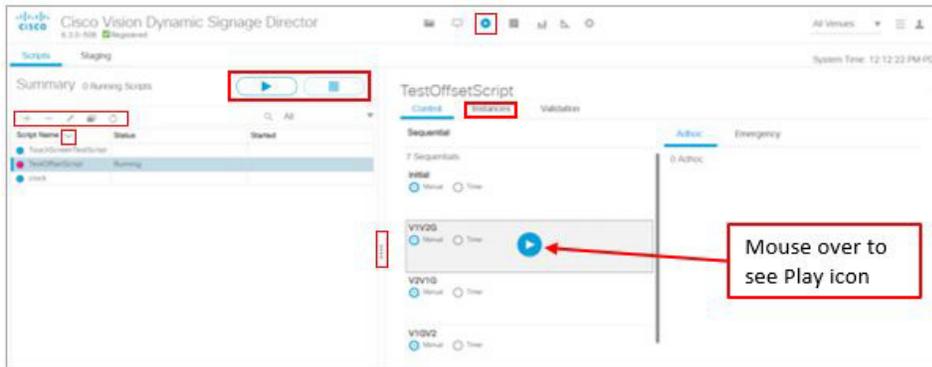
3. Type **Quad Template** for **Name** (as an example, only).

Figure 19   Creating a New Script for Quad Template
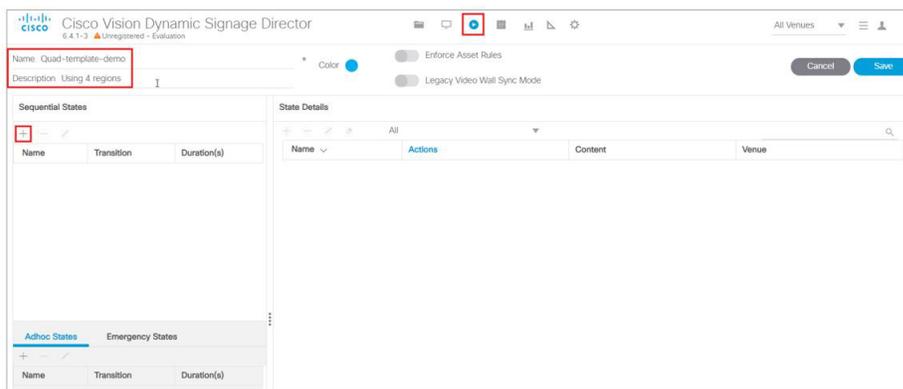
4. Click the **+** in the **Sequential States** panel. The **Add State** box appears.

5. Add the state named **Quad-template**. Click **Add**. The screen changes back to show the new script.

6. Click the **+** in the **State Details** panel to select the group/zone where the event script should run to assign actions and content to the Quad-template State. The Add Zone dialog appears.

7. Once you select a zone, click the **Add** button, select the zone from the State Details pane, select **Edit** (pencil icon) in the State screen. The Edit Actions box appears ().
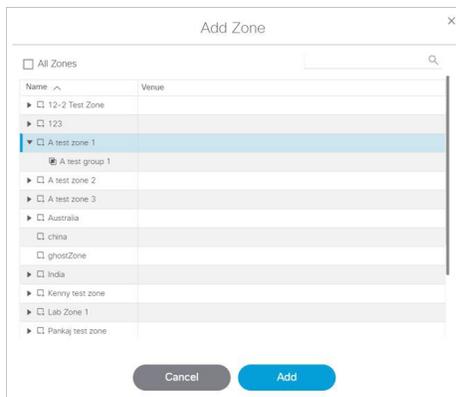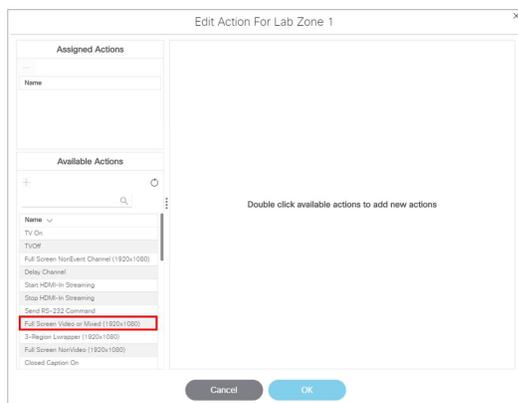
8. Double click an **Available Action** from the list. In this example, the **Quad Template**. The Edit Action box updates.

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Figure 20   Edit Action Interface
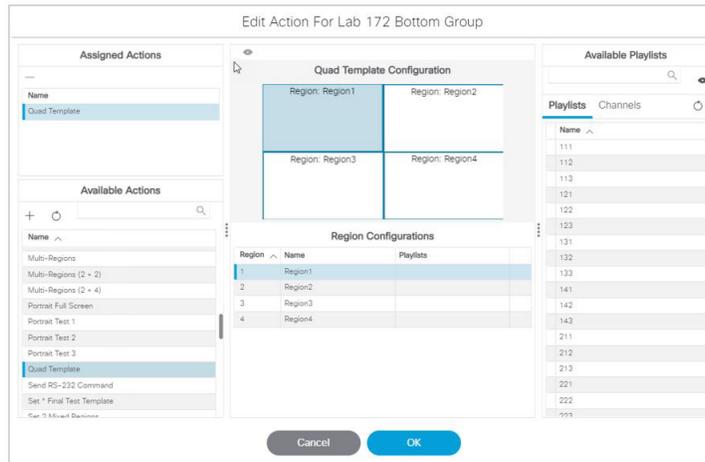
Note: When using quad template, up to four HD videos are supported (1920 x 1080 in each, equal region).

9. Click the **Channel** tab (Figure 21 on page 146).

10. Drag **channel content** to a template region.

Figure 21   Edit Actions > Channel Tab
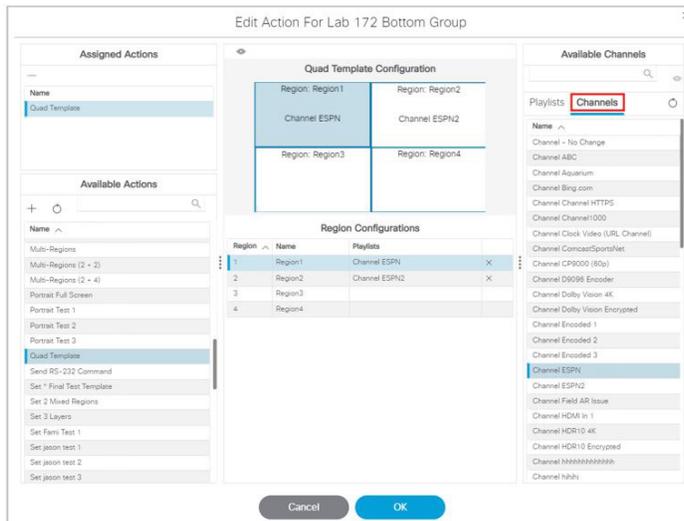
11. Click **OK** to save the script.

12. Click **Save**.

Note: Return to the Script Details screen by clicking the **Script Management** icon. Continue with the following sections, just as you would any script.

Verifying the Script Plays Local HDMI-In Content

To verify that the script plays the local HDMI-In content:

1. Click **Script Management**.

2. Select the script and click **Start** (Figure 22 on page 147). The Start Script dialog box appears (Figure 23 on page 147).

Figure 22   Starting a Script
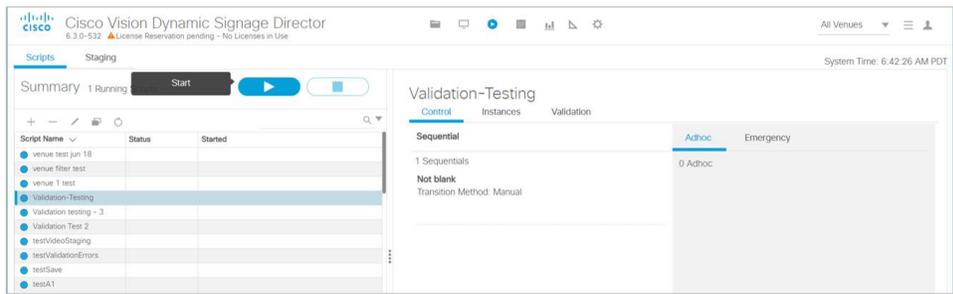
Figure 23   Start Script Dialog Box
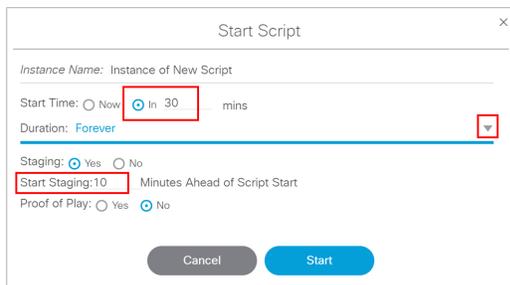
3. Add in all the parameters.

4. Click **Start**.

5. Start the HDMI-In_State. Verify that the TV display for the target DMP is playing the expected HDMI-In content.

Configuring a DMP-Encoded Multicast Channel on the SV-4K, CV-UHD, or CV-UHD2 DMPs

User Role: Administrator / Content Manager

To configure a DMP-encoded multicast channel on the DMPs:

1. Click **Configuration > Channel Definitions.**

2. Select or create a channel guide where you want to include the DMP-encoded channel.

TIP: If you want to maintain privacy of channels, create a DMP-encoded channel per suite with a unique multicast address (from 239.193.20.0/24 range) and create a separate channel guide per suite.

3. From the **Basic Info** tab, configure the options shown in Figure 24 on page 148 and described in Table 2 on page 149.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 24   DMP-Encoded Multicast Channel Example

Table 2   DMP-Encoded Multicast Channel Options

Option	Description
Source Type	Must be set to Video Stream
Channel Name	Simple name for the channel that will appear in local control devices.
Description	Describe the Channel
DMP Decode Latency	Default Settings Alternate Settings 1 Alternate Settings 2 Alternate Settings 3
DMP-Encoded	(Required) Select this checkbox to configure an encoded multicast channel on the SV-4K, CV-UHD or CV-UHD2 DMPs.
(If DMP-Encoded is checked): Profile	Custom: you set the bitrate and latency High Bitrate (Low Latency / High Motion) Medium Bitrate (Low Latency / Low Motion) Low Bitrate (High Latency / Low Motion)
Protocol	UDP or RTP
Multicast Address	(Required) Multicast address from range 239.193.20.0/24 according to your Connected Stadium network configuration.
Port	(Required) Multicast port.
Channel Number Video Mode	Number that appears in local control. Resolution that matches the configuration of the content and TV display.
Long Name	The full name of your channel.
Short Name	A shortened name of your channel.
Source ID	Placeholder for future program guide integration. Not required.
Favorite	Yes or No
Visible in Channel Guide	Yes or No

4. Click **Save**.

DMP Encoding Profiles

New to Release 6.2 is a **DMP Encoding Profiles** tab. There are three new encoding profiles to choose from in the **Universal Channel List** tab ().

Figure 25   Setting a Custom Video Profile for DMP-Encoded Information
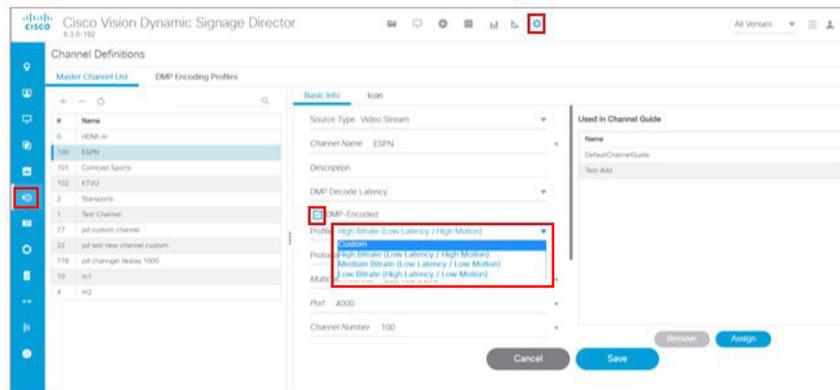
The available encoding profiles are:

- Custom: you set the bitrate and latency

- High Bitrate (Low Latency / High Motion)

- Medium Bitrate (Low Latency / Low Motion)

- Low Bitrate (High Latency / Low Motion)

For every newly created DMP-encoded channel, select one of the encoding profiles. For pre-existing DMP-encoded channels like those in Release 6.1 and older, the earlier settings are preserved and the encoded profile becomes **Custom**. This provides backward compatibility and we recommended you select any one of the Encoding Profiles listed.

Best practice: Set the encoding profiles on any pre-existing channels from Release 6.1 or older. If you know your videos will contain low-motion, you can choose the low or medium bit rates for low-motion video. This helps the DMP adjust the jitter so your content displays best.

To choose an encoding profile:

1. Click **Configuration > Channel Definition**.

2. Select an encoding profile from the drop-down.

3. Click the **DMP Encoding Profiles** tab. The Detail screen appears (Figure 26 on page 150) showing the suggested **Video Mode**, **Display Encode Bitrate, Bframes** and **Delay**. Click **Save**.

Figure 26   DMP Encoding Profile Details
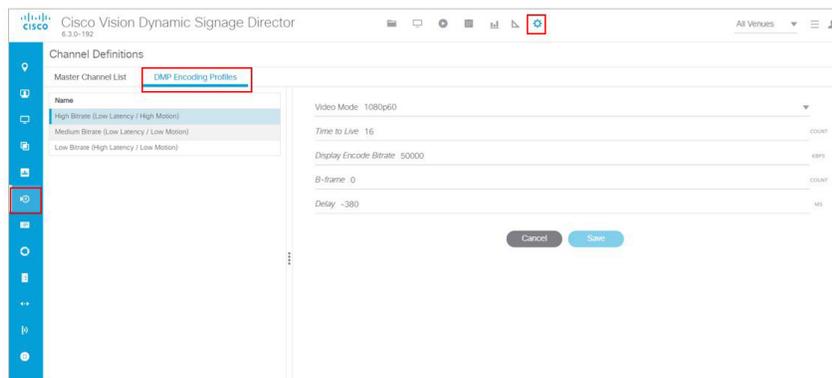
DMP Decode Latency, Configured per Channel

This feature allows you to choose the latency setting you want on a per channel basis.

There are three **Decode Latency Settings** options available to **Channel Definitions** (Figure 27 on page 151). Pick the channel and use the **Default Setting** or the **Alternate Setting** from the drop-down.

Figure 27   Setting Decode Latency Per Channel
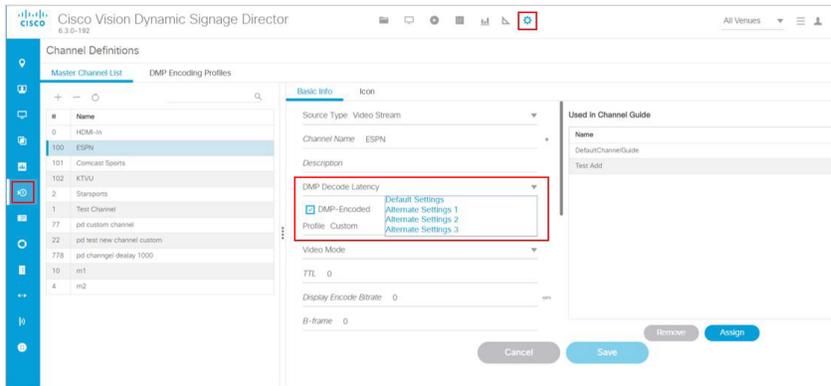
Set the Alternate Latency setting parameters in **System Configuration.**

To set the DMP decode latency:

1. Click **Configuration > System Configuration > Global DMP Settings > Decode Latency 1** (Figure 28 on page 151).

2. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears. Set all the values for the available configuration properties.

3. Click **Save**.

4. Click **Configuration > Channel Definitions** (Figure 27 on page 151).

5. Select the channel from the list on the left panel.

6. Choose **Alternate Settings 1, 2**, or **3** from the **DMP Decode Latency** drop-down.

7. Click **Save**.

Figure 28   Alternate Latency Configuration Properties In System Configuration

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players
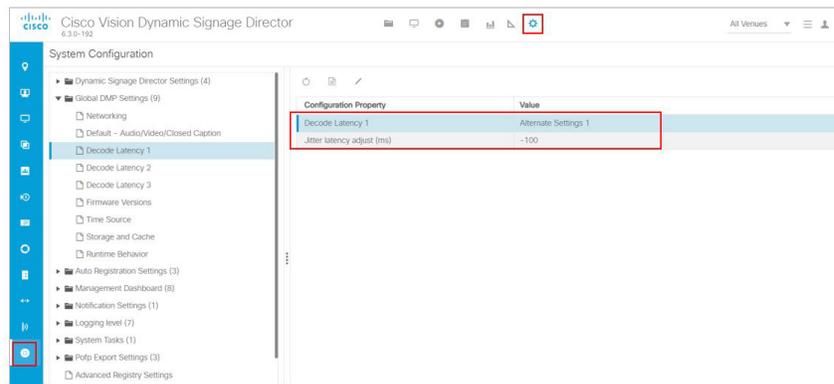
Starting and Stopping HDMI-In Streaming on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Table 3 on page 152 summarizes the methods of starting and stopping streaming for HDMI-In video sources on the DMPs.

Table 3　Methods for Starting and Stopping HDMI-In Streaming by Type of HDMI-In Content Source

Method	HDMI-In as Video Source	DMP-Encoded Multicast Channel
IP Phone	No	Yes
IR Remote	No	Yes
Device Management	No	Yes
Script	Yes	Yes
User Control API	No	Yes

Note: When using the **Device Management** to start/stop streaming for a DMP-encoded multicast channel, the channel parameters are configured directly in **Configuration > Channel Definitions**.

Starting and Stopping Streaming by IP Phone

A luxury suite user can use a configured IP phone to select HDMI-In Broadcast on the selected DMP-encoded player. The user cwww.yahoo.com

an select the configured DMP encoded channels or Off to start streaming or stop streaming, respectively.

For more information, see the phone guide Using a Cisco Unified IP Phone with Cisco Vision: HDMI-In Broadcast.

Starting and Stopping Streaming by IR Remote

A luxury suite user can use an IR Remote to broadcast HDMI-In contents. On selection of the HDMI-In Broadcast menu, the list of DMP-encoded channels for streaming are listed for selection and "Off" to stop streaming.

Starting and Stopping Streaming by Script Action

Two new actions of Start and Stop streaming can be defined as actions within a script. When the script starts running according to the defined state, either start streaming or stop streaming action will be executed.

Starting and Stopping Streaming by Device Management Command

User Role: Administrator

To start and stop streaming in Device Management:

1. Click **Device Management.** The **Devices** panel displays.

2. Click the folders you want. The item appears in the center panel. Select the device you want to start HDMI-In streaming.

3. Use the drop-down menu to select **Start Streaming**.

4. Click the **Play** icon (**Send Command**). The Send Command box appears.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

5. In the **Send Command** box, specify the **Source** and the **Video Mode** (). Use the drop-down menus.

6. Fill in all the required fields.

7. Click **OK**.

Figure 29   Send Start Streaming Command in Device Management

8. .A confirmation message flashes.

HDMI-In Streaming Versus Display Streaming

For HDMI-In streaming, what streams from the DMP is the audio/video from the HDMI-In port source ONLY ().

For Display Streaming, entire video composition (without audio) will be streamed from the DMP - i.e., an encoded rendition of what you see on the TV connected to the DMPs HDMI-out.

Display streaming can be used even when your video source is not HDMI-In, or in cases where you want to encode/stream not just HDMI-In but also other elements on the screen, or maybe an HTML5 page (you don't need a video source in display streaming). Display streaming parameters are set in channels where the DMP is the encoder (DMP encoded channels).

HDMI-In Streaming

Local HDMI-In (HDMI-In Pass-Through for SV-4K, CV-UHD, and CV-UHD2 Players)

Note: The following sections show an example of how to set HDMI-In streaming.

Script Configuration

1. Assign for DMP .94 pre-defined Channel 0 "Channel HDMI-In" to action **Full Screen Video or Mixed (1920X1080)**.

   When script runs, all input from HDMI-In will be streamed out to the Display via HDMI-OUT (Figure 31 on page 154).

Figure 30   HDMI Streaming

Figure 31   Full Screen Video Streaming
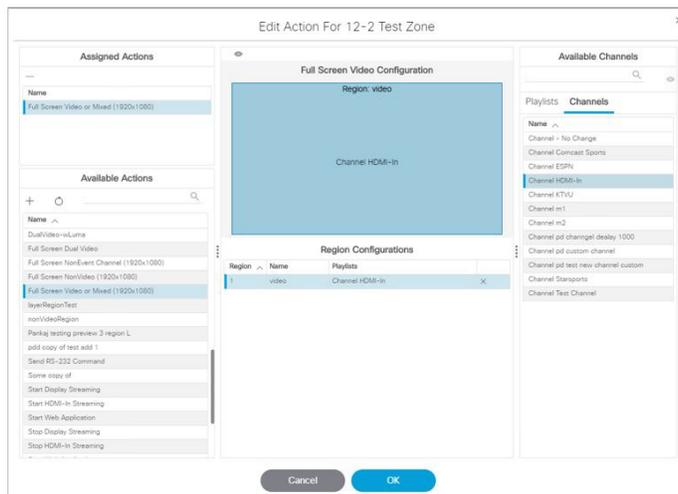
DMP HDMI-In Streaming

Script Configuration

1. Create DMP-encoded CH1 configuration (Figure 32 on page 155). Click **Configuration > Channel Definitions > Universal Channel List** tab **> Basic Info** tab.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 32   Create DMP-Encoded Channel 1

2. Attach video source to HDMI-IN.

3. For DMP .94 (Figure 33 on page 155): Script action Start HDMI-In Streaming and assign it to DMP encoded channel 1.

4. For DMP .93: Tune in on DMP Encoded channel 1 (Figure 34 on page 155).

Figure 33   Start HDMI-In Streaming to DMP-Encoded Channel 1

Figure 34   DMP-Encoded Channel 1
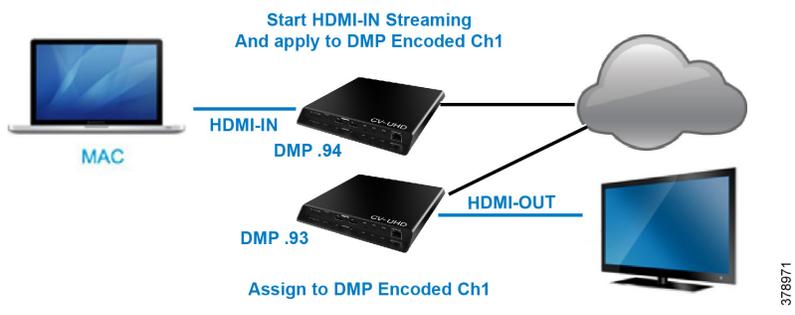
5. On DMP .94: stop display streaming (Figure 35 on page 156). See Configuring HDMI-In as a Video Source in a Region on the SV-4K, CV-UHD, and CV-UHD2 Media Players, page 141.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 35   Stop HDMI-In Streaming
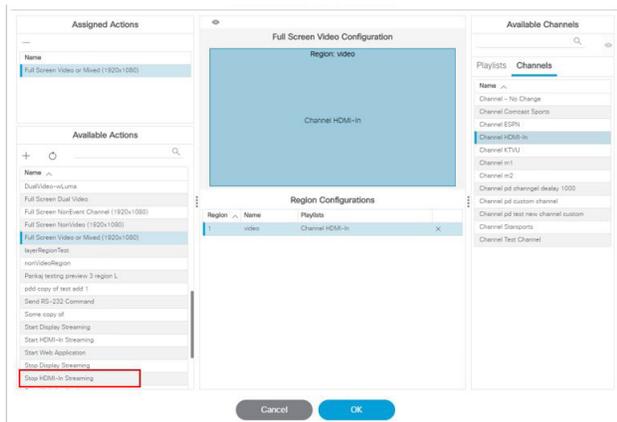
6. Click **OK**.

HDMI-In Streaming with External URL Source or Playlist

When you want to use the DMP HDMI-IN encoder to broadcast an External URL Script or a Playlist, there is an additional head-end DMP required (DMP .95).

Script Configuration

1. Create separate script and run Ex. Mixed playlist on DMP .95.

2. Connect the HDMI-OUT to the HDMI-IN of DMP .94 (Figure 36 on page 156).

Figure 36   Start HDMI-In Streaming and Assign to DMP-Encoded Channel
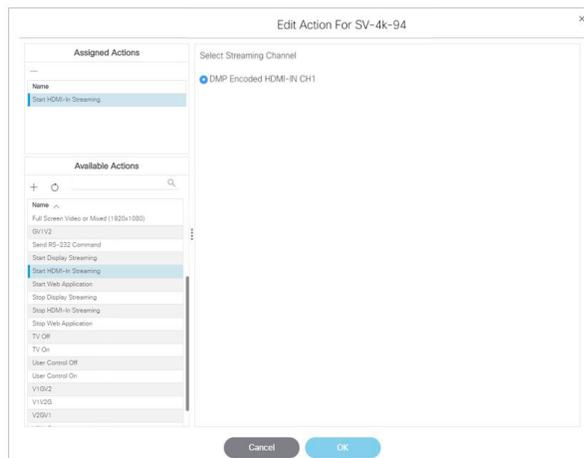
3. In DMP .94 Start HDMI-Streaming and assign to DMP encoded Channel.

4. DMP .93: Select DMP Encoded channel 1.

5. On DMP .94, stop display streaming (Figure 37 on page 157).

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 37   Stop HDMI-In Streaming on DMP 94
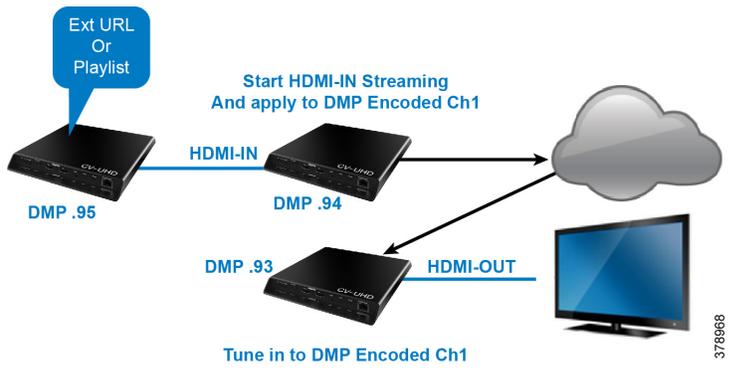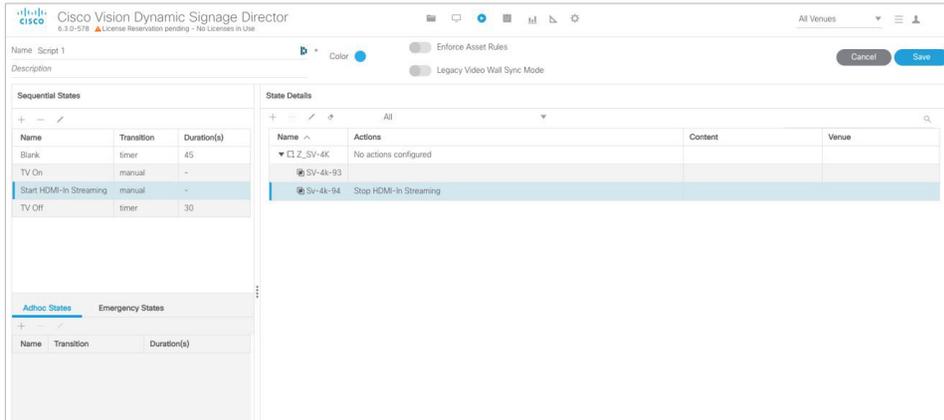
Display Streaming

Display Streaming with Video Source Input on DMP HDMI-In

In this scenario, everything entering the HDMI-IN is displayed on the TV connected to the encoder DMP (DMP .94) and will be streamed out on DMP channel Encoded Ch1.

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players
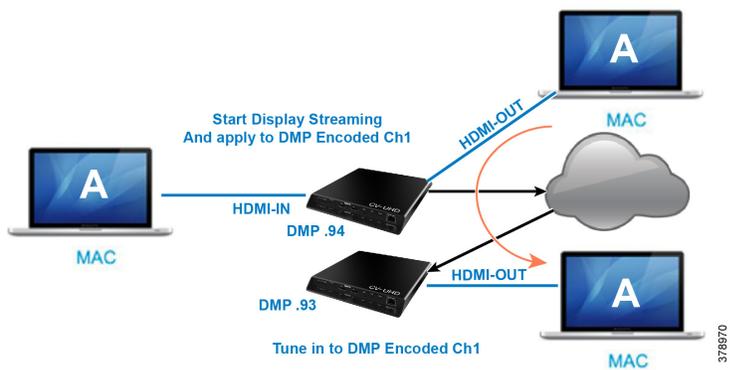
Script Configuration

1. In DMP .94, start display streaming (Figure 38 on page 158) and assign to DMP encoded Channel 1 (Figure 39 on page 158).

Figure 38   Start Display Streaming on DMP .94
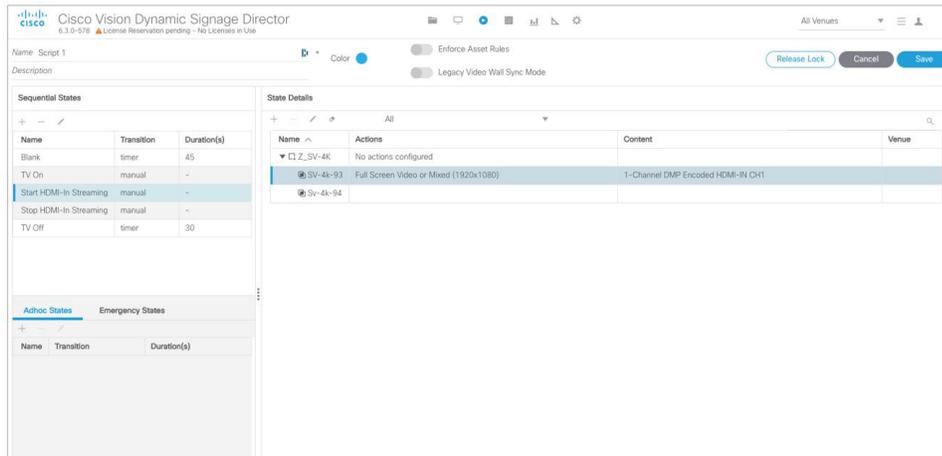
IMPORTANT: When content rules are in place, a DMP that reboots may not display the same content as other DMPs in the same group until the next state change.

Figure 39   Select Streaming Channel

2. For DMP .93, tune to DMP-encoded Channel 1 (Figure 40 on page 158).

Figure 40   Start Display Streaming on DMP .93

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players
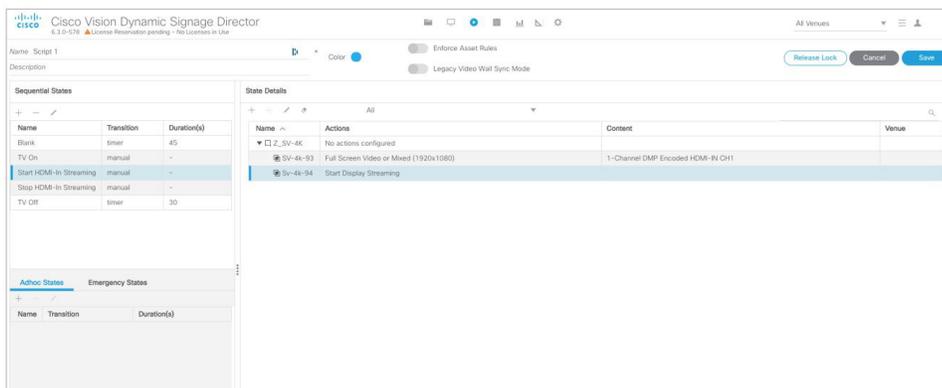
Display Streaming with External URL or Mixed Media Playlist

In this scenario, no HDMI-IN of the DMP is used. A script in DMP 94 is setup and started. Once the script runs, "Start Display Streaming" will attach it to the DMP-encoded channel, functioning as a multicast channel.
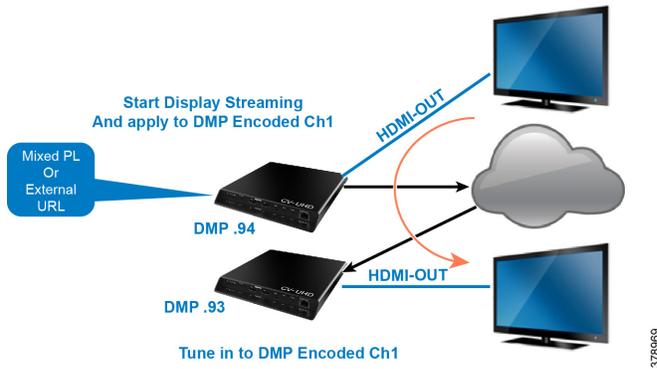
Script Configuration

1. Set up script.

2. Choose event state "Mixed PL."

3. Assign "Full Screen Video or Mixed (1920X1080)" to DMP .94 (Figure 41 on page 159).

Figure 41   Assign DMP .94
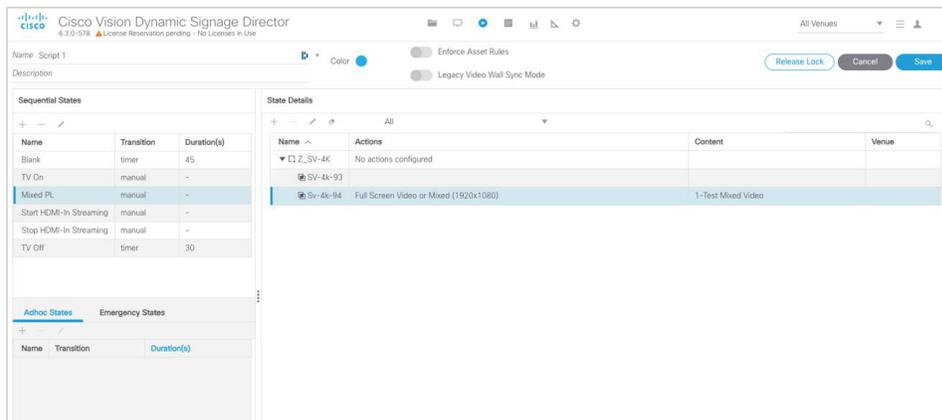
4. For DMP .94, Start Display Streaming (Figure 42 on page 160) and assign it to DMP-encoded Channel 1 (Figure 43 on page 160).

Configuring HDMI-In Video Sources on the SV-4K, CV-UHD, and CV-UHD2 Media Players

Figure 42   Start Display Streaming on DMP .94
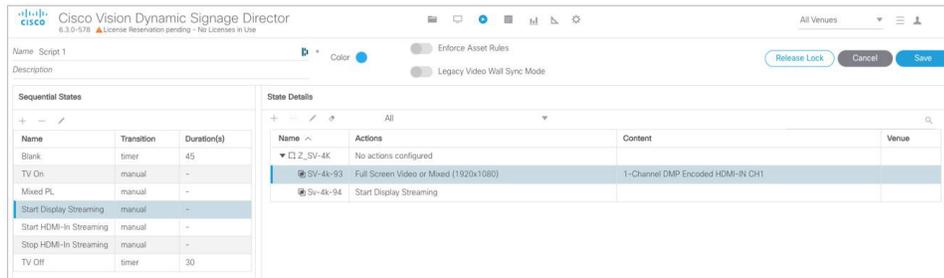
Figure 43   Select Streaming Channel
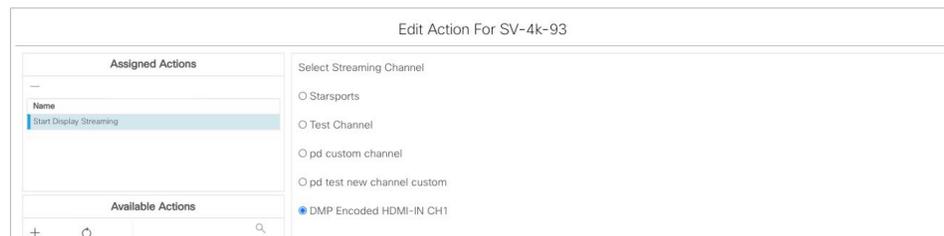
On DMP .93, choose the DMP-encoded channel 1 (Figure 44 on page 160).

Figure 44   Assign DMP .93 to Channel DMP Encoded HDMI-In Channel 1
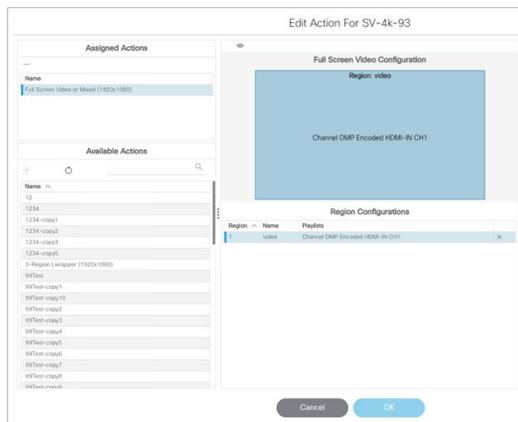
On DMP .94, Stop HDMI-In Streaming (Figure 45 on page 160).

Figure 45   Stop HDMI-In Streaming on DMP .94
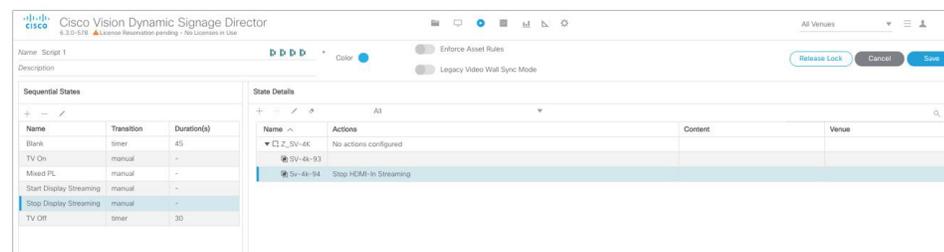
How to Manage Content (Assets)

This section includes the following topics:

- Library (Content) Screen, page 161

- Library View, page 164

- Playlist View, page 165

- Asset Search Methods, page 167

- Guidelines for Asset Tags, page 168

- Getting Content Into Cisco Vision Director, page 170

- Staging Content to the Media Player, page 173

Library (Content) Screen

The **Library** (content/assets) screen allows you to both manage content as well as create and modify playlists.

Library Inbox

Inbox allows you to schedule import of assets from external sources, accessible via secure file transfer protocols (SFTP). The assets available at the external sources are checked for valid extensions and file size as configured in Director. (Figure 46 on page 161). If you don't specify a destination folder in the Asset Library, the assets are downloaded to the Site list in **Inbox**, where they can be reviewed and moved to **Workspace** folders, appropriately.

Figure 46   Library, Inbox for Automated Importing of Assets

To create an automated content import event:

1. Click **New Site**. The Create Site window appears (Figure 47 on page 162).

2. Fill in the fields. The fields marked with ***** are required.

3. Schedule **Start Time** and **End Time**.

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Figure 47   Create New Content Source Site

4. (Optional) Choose the **Host folder** and the **To Folder**.

5. Click **Save**.

To test the content source for validity:

1. Click the **Test** icon (). **Test** checks the connectivity, validity of the credentials supplied, and also the existence of the configured source folder of the configured site.

Figure 48   Test and Delete a Content Source
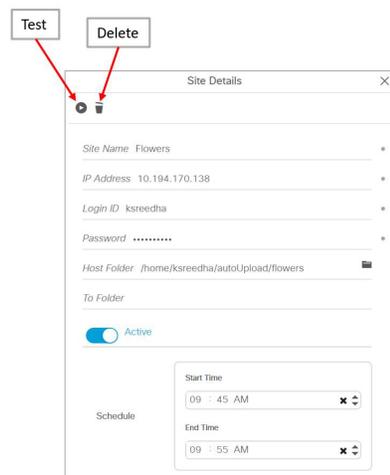
If you entered any invalid information, you will see a failure notice. In the case below, it is an invalid destination folder.

If you do not choose a destination folder in the **Create Site** dialog box, you can preview the content and decide if you want to download it. The unspecified content shows in the **Inbox** list.

To preview unspecified automated content from the Inbox list:

1. Select the content from the **Inbox** list in the center panel and double click it (Figure 49 on page 163).

2. Click the **Play** icon in the **Site Details** right panel to preview the content or change the center panel to thumbnail view.

To download unspecified automated content from the Inbox list to Cisco Vision Director:

1. Select the content from the **Inbox** list in the center panel and right click it. An Action box appears (Figure 49 on page 163).

2. Select **Download Now**.

Figure 49   Action Box Operations for Auto-Content Import
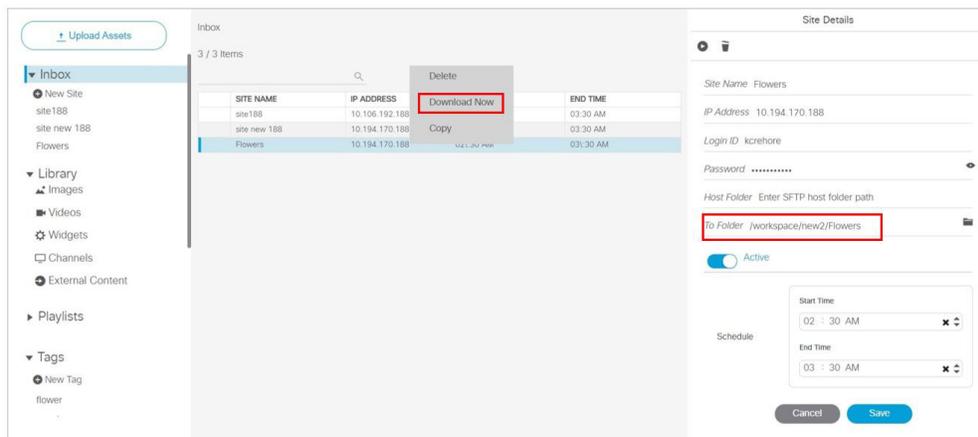
If successful, you see "Content Import successfully triggered now." This action triggers the content import On Demand. Since you didn't choose a destination folder, the content goes to the Workspace Folder.

If you mapped the automated content to a designated folder in the **Site Details** panel, once the **Download Now** command is executed or the scheduled **Start Time** has passed, if you click on that content in **Inbox**, you see:

Assets are either already moved or scheduled to move to Configured Folder /workspace/WaterFalls
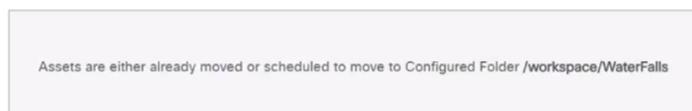
IMPORTANT NOTES:

■ If you did not specify a Folder in the import action, you must move all the files to the correct Workspace folder or subfolders you've created. Otherwise the content is not available to use in a playlist.

■ If you delete a site, the site is not visible in the list. However, the site details are not removed until the scheduled task runs. The default is 8:00 am.

To create a site with the same name before the scheduled task runs:

1. Click **Configuration > System Configuration > Scheduled Task**.

2. Scroll to **ContentImportDeleteTask**.

3. Click **Edit**.

4. Change the time to remove the Site details right away and click **Save**.

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Now you can reimport site details and assets without waiting for the task to run.

Use the **Library** menu to do the following tasks:

◼ Import static graphics or local video content.

◼ Manage external URL content.

◼ Add an HTML pass-through URL.

◼ Manage content:

– Sort the content by name, type, URL, size, or expiration date.

– Search for content.

– Tag content.

– Delete content.

– Create folders for content.

◼ Create and manage playlists.

Library Screen Views

The Content screen has three views:

◼ Library View, page 164 (default)

◼ Playlist View, page 165

◼ Detail View (content and playlist panels displayed)

The menu bar is organized based on the selected view.

Library View

Library View (Figure 46 on page 161) identifies the content-related layout and task options available from the **Library**.

Asset Items Panel

Asset items display as a list with details or as thumbnails. Use the slider in blue in the top right to change views.

By default, the Library Assets window shows List View of the following items stored in the Library:

◼ Inbox

◼ All Assets (when multi-venue is not enabled)

◼ Images (static graphics)

◼ Videos

◼ Widgets

◼ Channels

◼ External URLs

Note: In the left panel of the **Library** interface, the **Library** drop-down menu shows **All Assets** only when the registry setting for **multiVenueDeployment** is set to **false**. If **multiVenueDeployment** is set to **true**, **All Assets** is not visible.

How to Manage Content (Assets)
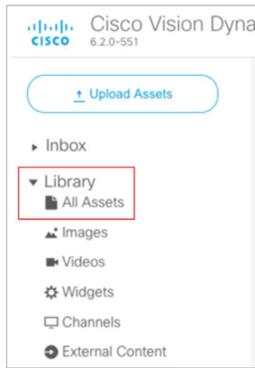
To allow all assets across multi-venues:

1. Click **Configuration > System Configuration > Advanced Registry Settings**.

2. In Registry Data, scroll to **multiVenueDeployment**.

3. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears.

4. Set the **Value** to **true** (Figure 50 on page 165).

5. Click **Save**.

Figure 50   Registry for Multi-Venue Deployment
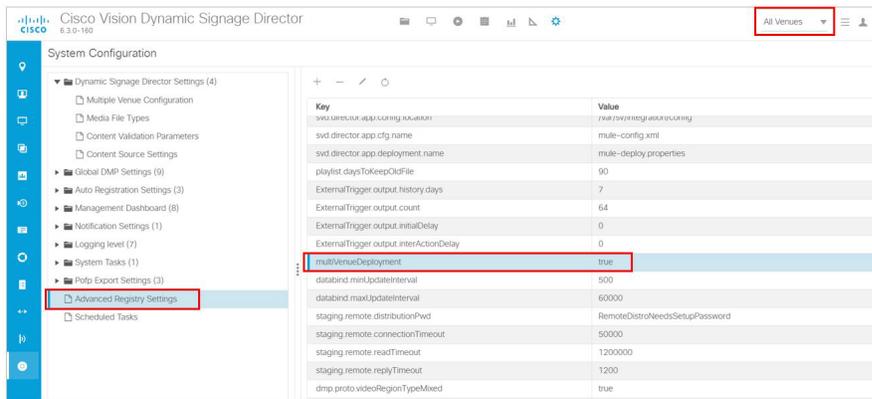
Playlist View

1. Click **Playlist** in the **Library** window to display your available playlists. The screen shows List View and gives the Title, Type, and Duration of your content.

2. Click any row to get the details of any content selected (Figure 51 on page 166).

Figure 51   Playlist Detail
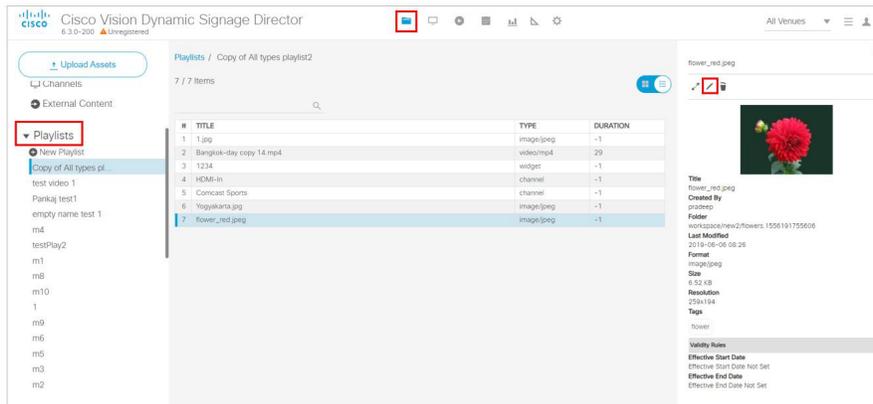
3. Use the pen icon to edit information for your content. The Validity Rules panel appears (Figure 52 on page 166).

4. Set the **Effective Start** and **End Dates** and **Times**. Click the calendar icon.

5. You can also choose **Restrict Playback** here. Set the days and times specifically as to when your content will not display.

6. Click the **Save** icon in the top of the panel.

Figure 52   Validity Rules Panel

Asset (Content) Validation

If you upload a piece of content that is not supported by the DMP (Figure 53 on page 167), you get a warning message. The warning symbols means that the content may be distorted on the display. Best practice is to correct any warnings of your content so it will appear as planned. Hover over the icon for information.

The warning displays if the content metadata does not meet the restrictions defined in **System Configuration**. These settings do not necessarily mean that the DMP does not support the content, but it can be configured that way. As an example, if a site has content guidelines that all images must be no more than 1920x1080 only, and videos must be no more than full HD resolution only, that can be set in **System Configuration**. UHD video files can be played on the UHD DMPs, but a warning may still show in the UI.

Figure 53   Warning Symbol for Content Validity
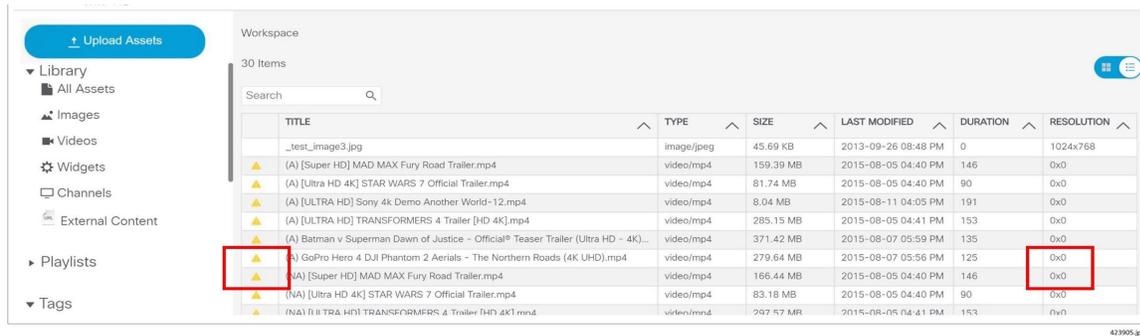
To check the validity of content:

1. Click **Configuration > System Configuration > Dynamic Signage Director Settings > Content Validation Parameters.**

   Note: Since you can upload images and videos, each type has different issues involved in troubleshooting them. For images and videos, clear the warning here.

2. Check the resolution parameters of your assets to be certain they fall within the ranges allowed (Figure 54 on page 167). To change the value, select the property and click the **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears.

3. Type a value and click **Save**.

Figure 54   System Configuration Content Validation Parameters
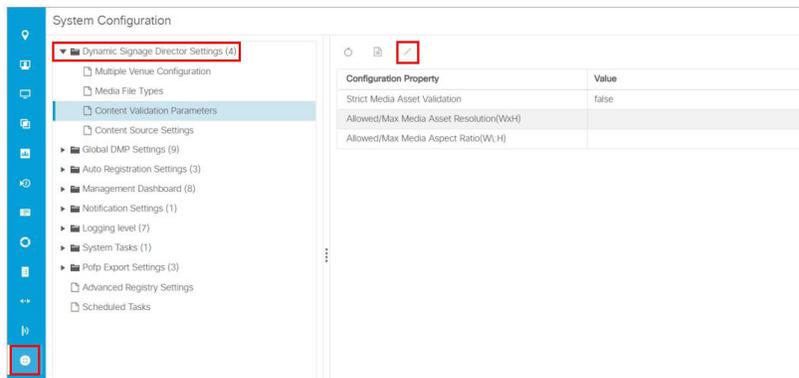
Asset Search Methods

Use the Playlist screen to find your asset items or playlists in multiple ways:

■ Search for asset items assigned with a particular tag name by selecting the tag in the **Library** left pane.

■ Search for asset items by name or file type using the Search box on the **Playlist** panel.

TIP: You can enter the first few letters of the content file name, or enter a file type such as " .jpg" in the search box.

■ Search for playlists using the Search box on the Playlist panel, and by typing in the first few letters of the playlist name.

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Guidelines for Asset Tags

Consider the following guidelines to create asset tags:

- Proof of Play processing requires the following naming convention:

- <tag name> **_PoP**

  where <tag name> is the name for your proof of play label, and the "_PoP" suffix is required to designate the label for proof of play processing.

- The following characters are not supported in tag names: / ? < > \ : * | "

- Content in multiple playlists can use the same tag. The number of playlists that have content assigned to a tag displays under the # column in the Playlist Detail window next to the tag name.

Creating and Assigning Content Tags

User Role: Administrator / Content Manager

TIP: Consider assigning zone and group names as tags for the content files used in those areas. This allows you to type in a single search word or phrase and find all the content for a given zone or group, such as "Luxury Suite Delta" or "Concourse A." You can also use tags that correspond to the type of content in the playlist, such as "menu."

To create and assign content tags:

1. Click **Library > Tag** arrow. **New Tag** appears.

2. Click **New Tag**.

3. In the field, type a new name for the tag.

4. Hit **Return/Enter**. The tag name appears.

IMPORTANT: The following characters are not supported in tag names: / ? < > \ : * | " .

Note: If the tag name doesn't appear, click **Refresh**.

Be sure to include the required "_PoP" suffix in your tag name for proof of play records. For more information about Proof of Play, see the Cisco Vision Director Proof of Play.

5. To assign a tag to content, select the content (asset) from the List view. The detail pane appears (Figure 55 on page 169).

6. Click the **Pen** icon to edit the metadata.

7. Select the tag name you want to attach to your content.

8. Click the **Save** icon.

Figure 55   Assigning a Tag to Content
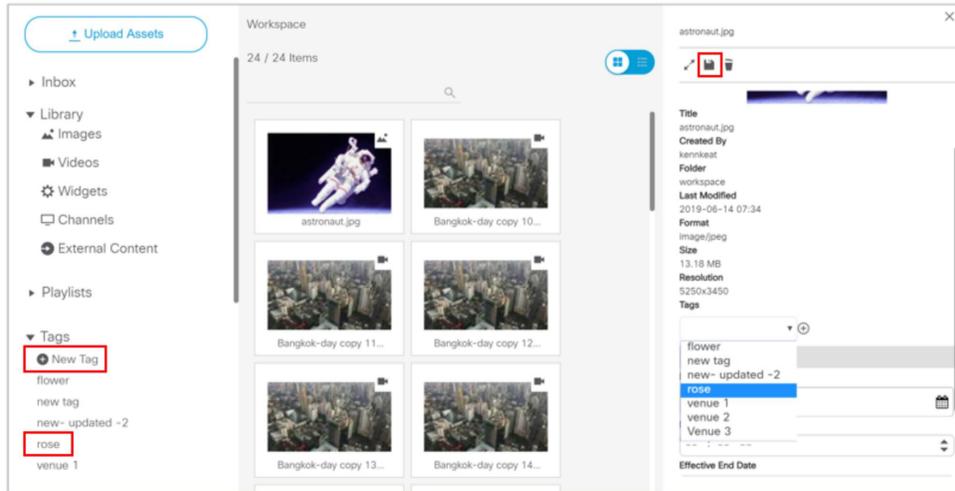
TIP: Assign tags to content when you first upload content to the **Library**.

9. To verify that the content was assigned to the tag, click the tag name. The content assigned to the selected tag will display in the Content Items area.

Removing a Tag From Content

User Role: Administrator / Content Manager

When you remove a tag from content, the content will no longer be associated with that tag but the content itself remains in the **Asset Library**. Figure 56 on page 169 summarizes the steps to remove a tag from selected content.

Figure 56   Workflow Summary to Remove a Tag From Content
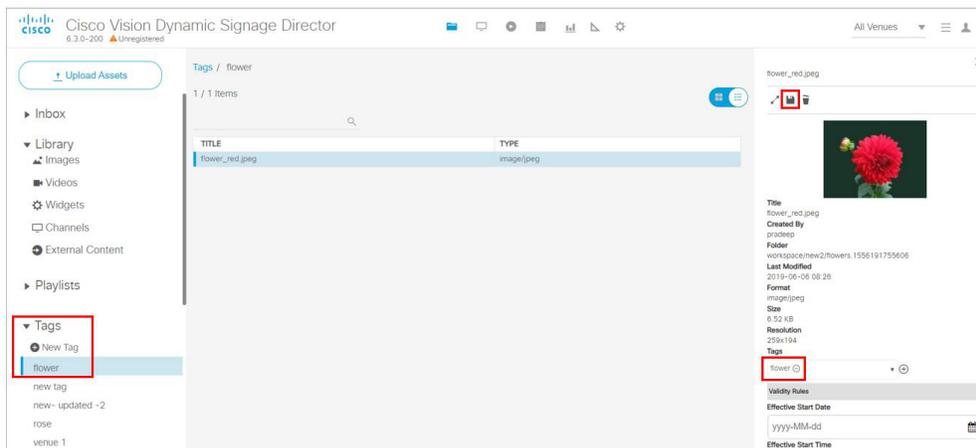
To remove a tag from content:

1. In **Library**, select the tag name. The content items for that tag display in the Tags panel.

2. Click on the content item from which you want to remove the tag.

> **TIP:** Use the keyboard Shift-Click function to select and untag multiple content items assigned to a tag.

3. Click the **Pen** icon in the Detail Panel to edit the tag metadata. The Tag information appears.

4. Click the tag name and the "-" symbol to remove the tag from the asset.
   There is no confirmation prompt. The tag is immediately removed from the content.

5. Click **Save** at the top of the Detail Panel.

Getting Content Into Cisco Vision Director

Cisco Vision Director supports a wide variety of content types and methods for ingesting content.

There are limitations and specifications for the content size and formats supported by Cisco Vision Director. These vary depending upon a number of factors including the TV display resolution, the media player used in the venue, the screen template region layout, and the TV proximity to the fans.

Before you deploy content to Cisco Vision Director, be sure that you refer to the Cisco Vision Content Planning and Specification Guide, Dynamic Signage Director to be sure the content is in the correct format, is the appropriate size, and has the correct dimensions for where it will be displayed. If the content is not the correct size for the region into which it will be placed, the image will either be cropped or there will be blank space in the region.

Table 4 on page 170 summarizes the different content types supported by Cisco Vision Director, the methods of how you ingest the content, and references to topics in this document and other external guides where you can find the details about how to work with that content type.

Table 4   Content Ingestion Methods by Type of Content

Type of Content	Method	For more information see:
Channel Guide	Configuration > Channel Guide	Configuring the Default Content Channel, page 125
Content Feeds (Atom, RSS)	Configuration > Data Integration	Release 6.4: Cisco Vision Director Data Integration Guide
Database (MySQL or SQLServer)	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
FTP Data	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
HTML Pass-Through	Library > New External Content	Adding a URL for HTML Pass-Through Content, page 172
HTTP/HTTPS Data	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
JSON Data	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
Menu Boards Using DMB	More > DMB Application	Cisco Vision Director Dynamic Menu Board and Store Configuration Guide
Menu Boards Using POS Data Sources	Configuration > Data Integration	Release 6.4: Cisco Vision Director Data Integration Guide

Type of Content	Method	For more information see:
NFL Data	Configuration > Data Integration	Release 6.4: Cisco Vision Director Data Integration Guide
Scoreboard Controllers	Configuration > Data Integration	Release 6.4: Cisco Vision Director Data Integration Guide
Static Graphics (Content screen)	Library > Import	Importing Local Video and Images to the Library, page 171
Static Graphics (Direct upload to non-video playlist)	Library > Playlist View	Adding Static Graphics to a Non-Video Playlist by Direct Upload, page 184
TCP Data	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
UDP Data	Configuration > Data Integration > Generic Data Source	Release 6.4: Cisco Vision Director Data Integration Guide
Video (Headend)		Cisco Vision Network, Server, and Video Headend Requirements Guide (Available to qualified Cisco Vision partners.)
Video (Local)	Library > Upload Assets	Importing Local Video and Images to the Library, page 171
XML	Library > Import	Release 6.4: Cisco Vision Director Data Integration Guide

Importing Local Video and Images to the Library

User Role: Administrator / Content Manager

To import local video and images from the Main Menu:

1. Click **Library > Upload Assets.**

TIP: Use the keyboard Shift-Click function to select and untag multiple content items assigned to a tag.

2. Browse to the file that you want to upload.

TIP: Use the drop-down box by the File name to filter your selection by file type, including .zip files.

3. Click **Open**.

4. From the Upload Content dialog box, do the following (Figure 57 on page 172):

Figure 57   Upload Assets (Content)

a. (Optional) Add or delete available tags.

b. (Optional) Select available tags to be assigned to the content that you are uploading.

5. Click **Continue**. The content uploads and appears in the Listview.

Adding a URL for HTML Pass-Through Content

User Role: Administrator / Content Manager

For HTML content guidelines, see the Cisco Vision Content Planning and Specification Guide: Dynamic Signage Director.

To add a URL for HTML pass-through content:

1. Click **Configuration > Channel Definitions > Basic Info** tab**.**

2. Type the name and URL for your content.

3. Click **Save**.

Customizable Background Images for Login, DMP, or Channel Guide

Now you can upload a different login image when you login to Cisco Vision Dynamic Signage Director, upload an image to show as the background of a DMP, and upload a channel guide image. The current file types allowed are stills, no video files: .jpg, .jpeg, .png, and .gif.

For the DMP image upload, the new image will show immediately after a DMP reboot. If the DMP should lose power or connectivity for any reason, the DMP will show a black screen. Then the screen will display the Cisco logo.

To upload a different image to the DSD Login page:

1. Click **More > Manage Software > Default Images**.

2. Click **Login Background Image** (Figure 58 on page 173).

3. Click **Upload**. Choose a new image. Click **OK**.

Note: When a DMP is configured for portrait mode, the DMP scales the image to fit (not to fill). The display may show black areas where the image does not fill.

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Figure 58   Uploading a New DSD Login Image
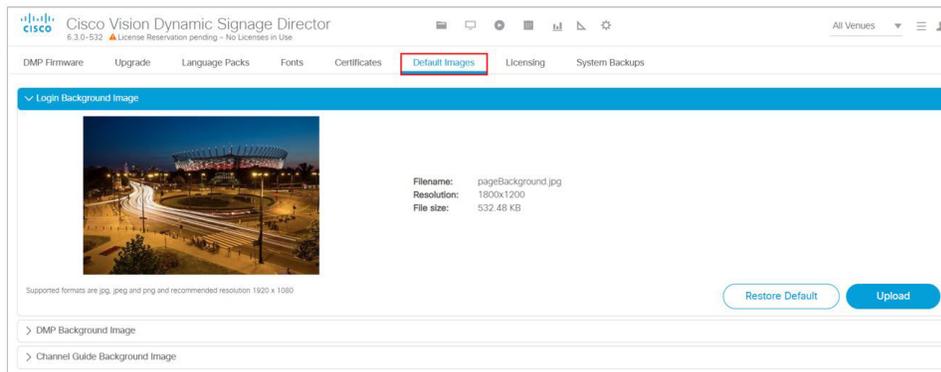
This example shows only the login image upload. Open the **DMP Background Image** or **Channel Guide Background Image** drop-downs. The file size and type of file is limited. For instance, the limitation of file sizes apply to the new image you plan to display on the DMP, too. It displays with proper aspect ratio, depending on the screen size of the device you are changing.

We recommend an image that is 1920 X 1080 resolution. Use **Restore Default** if you need to return to the default images.

Staging Content to the Media Player

Once you have content uploaded to Cisco Vision Director, it must be pushed to the media player before it can be run by a script. This process of pushing content to the media player is called **content staging**.

Content staging needs to be done when:

■ New custom fonts, language packs, or new login, DMP, or channel guide background default images have been installed or uploaded in the Software Manager.

■ There have been changes to any content imported to the content Library (CMS). This includes local video and graphics files, and channels.

Note: Changes to widgets or data integration sources do not require content staging. But you must stage content to the DMP if you change content in a script or change content already assigned to a DMP within a particular script.

There are two ways that you can stage content from the Main Menu:

■ Staging content manually

Manual content staging is performed outside the actual running of the script using the Staging button on the **Script Management > Staging** screen. With this method, you can stage content per script for all media players, or by selected media players.

Note: Only Administrator and Event Operator roles can stage content manually. Venue operator roles cannot stage content this way.

■ Scheduling content staging

With this method, you can schedule content staging to occur at a specified number of minutes ahead of script start, or at a script start.

Staging Content Manually

User Role: Administrator / Event Operator

To stage content manually:

1. Click **Script Management > Staging** tab (Figure 59 on page 174)**.**

2. Select the script whose content you need to update on the media players.

3. Click the **Play** icon. The Start Manual Staging box appears (Figure 60 on page 174).

Figure 59   Staging Details

4. In the Staging screen, select the script you want to stage in the **For Script** field. Use the pull-down arrow.

Figure 60   Start Manual Staging Dialog Box

5. Select the target media players to receive the content updates. If you click "Selected DMPs configured in script," a list of available media players appears (Figure 61 on page 174).

Figure 61   Selected DMPs Configured in Script

6. Select the available media players to receive the content updates. Use the scroll bar to find the DMP. Use the Shift and Control keys to select multiple DMPs.

7. Click **Start.**

Scheduling Content Staging with Script Start

User Role: Administrator / Event Operator / Venue Operator

Be advised: a script will not start until staging is complete, even if 0 minutes ahead of script start is configured. Determine how long before the script start to schedule the staging.

For more information about starting event scripts, see also the Starting an Event Script, page 226.

To schedule content staging with script start:

1. Click **Script Management > Script** tab. The Script Details screen appears (Figure 62 on page 175) with your scripts.

Figure 62   Script Details Screen
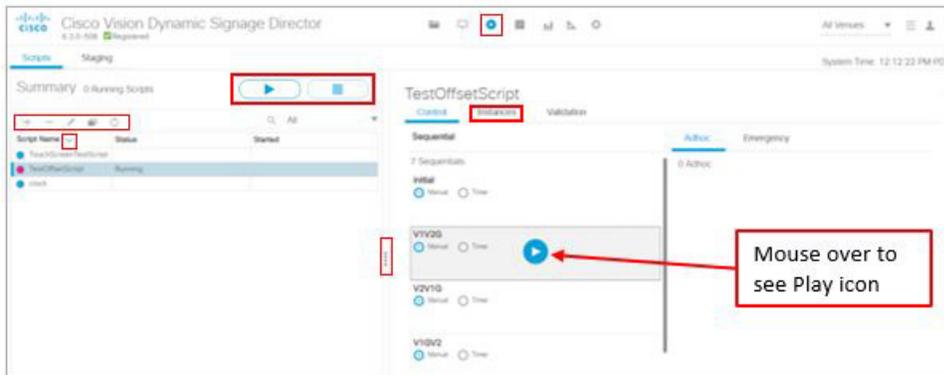
2. Select the script.

3. Click **Start**. The Start Script dialog box appears (Figure 63 on page 175).

Figure 63   Start Script Dialog Box
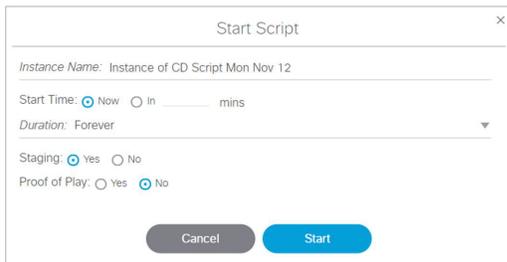
4. Set the start time as **Now** or type in the minutes.

5. Use the drop-down arrow to choose the **Duration**. The duration has values listed in seconds.

6. Click the Staging **Yes** or **No** button.

    a. Type in the **Minutes Ahead of Script Start** to stage content to the media players (Script Start).

    b. To run staging immediately before running the script, specify a value of 0. The script will not start until staging is complete.

7. Click **Start**.

    If the script start is blocked by validation error(s), Figure 64 on page 176 appears.

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Figure 64   Confirm Force Script Start

Use the drop-down arrow to see more information on your script. The Status column shows "**Starting**." When complete, see "Past" and icon, as well as the date and time in the Started column.

Click the **Staging** tab to see the details of your job. Double click the **Error** icon to see how to resolve the error.
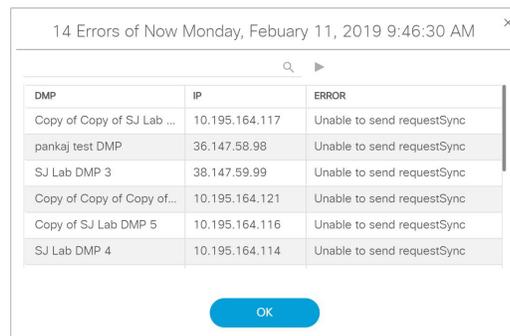
Working with Playlists in Cisco Vision Director

User Role: Administrator / Content Manager

This module provides information about how to create and modify groups of content items for sequential display using playlists in Cisco Vision Director.

Information About Playlists

A **playlist** is a series of content items (static images, video, widgets, channels, external URLs) that are grouped together to display in sequential order (one after the other) for a set duration and repeat. The playlist appears in a given area of the screen called a **region**.

Each playlist runs independently of other playlists. Multiple playlists can be run in any given event script in separate regions.

Note: There is no synchronization guarantee on playback of items across different playlists on the same script state.

Playlists are defined by the type of content that they contain—either static graphics only (Non Video), or video/other content types (Video or Mixed Media). A playlist set up as "Video or Mixed Media" can contain both video and static graphics, as well as other content types.

One of the most common uses of a playlist is in a screen template region where a series of advertisements cycle based upon a preset rotation. Playlists also can include tickers and full screen messages, among a number of other types of content.

shows an example of a playlist that contains five static images that will each display for a set duration in Region 2 of the screen template.

Figure 1   Playlist Example of Static Images
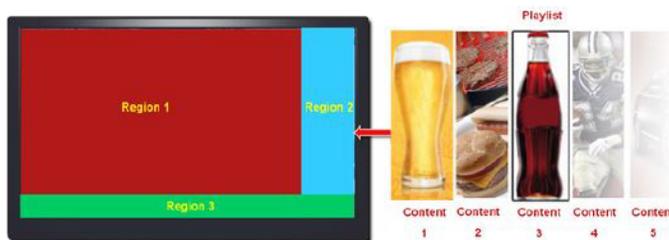
The playlists to be run as part of an event script must be staged, or pre-loaded, to the Cisco DMPs prior to the event from the **Library** screen.

Playlist View

Figure 2 on page 178 shows the Content screen playlist view and the options available there.

Figure 2   Playlist View Navigation
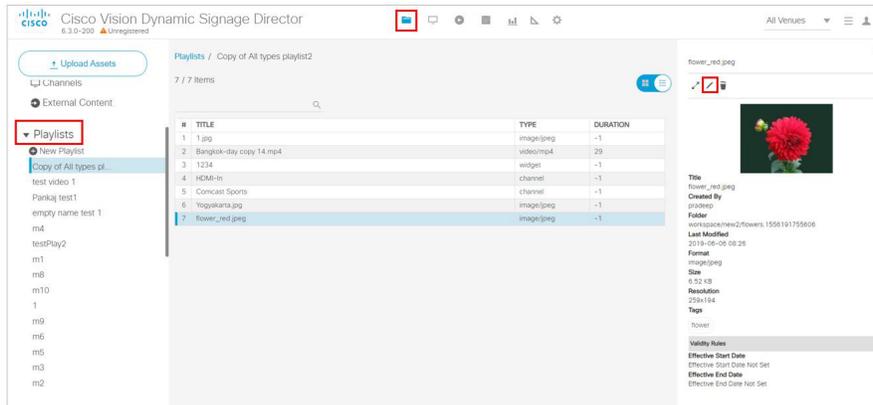
Use the sizing bars to customize your screen. Put your cursor near the top of the area you want to change. When the cursor changes to the crossbar, drag whichever area you want, to improve your visibility.

How to Set Up Playlists

This section includes the following topics:

- Guidelines for Creating Playlists, page 178

- Prerequisites for Playlist Creation, page 181

- Creating a Playlist, page 181

- Adding Content Items to a Playlist, page 182

- Changing the Order of Content Items in a Playlist, page 185

- Replacing Content in a Playlist During an Event, page 186

- Enhancements to Content Replacement, page 187

- Setting the Item Duration in a Playlist, page 190

- Copying Content From One Playlist to Another, page 191

- Deleting Content Items From a Playlist, page 192

- Deleting a Playlist, page 192

Guidelines for Creating Playlists

When creating playlists, consider the following guidelines:

■   You cannot have playlists with the same name.

■   Each region can have only one playlist.

■   For Proof of Play, you can have more than one region with an ad playlist.

■   Cisco Vision Director can support static graphics and video in mixed media playlists, except when using the quad template. Quad-region default template does not support images, widgets text overlays, or external URLs in any of the four regions.

IMPORTANT: The digital media players do not support Flash content. For additional information, refer to allowable Static Graphic Formats.

■   Once a playlist displays the last content item in the list, it will loop back to the beginning of the playlist.

■   The recommended ad rotation time is 30 seconds. 15 seconds is the minimum supported time for all content. As a best practice, we recommend that you never use less than 15 seconds per playlist content items.

Note: All playlists from all zones/groups for a given event must be loaded on every media player prior to the event.

Each playlist can have its own ad rotation time independent of other playlists.

Content in the playlist is displayed in the order in which it is added unless you re-order your content.

Note: As a series of content items transition in a playlist (such as advertisements in Region 2 of a standard 3-region L-wrap template), there will be some variance in the appearance of each content item as the media player displays where that content is presented. Each content item will generally appear on all corresponding media player displays within about one second of each playlist item transition. However, the amount of time that it takes for all displays in your venue to show

the same content item within a playlist might exceed a one-second duration based on the following venue conditions: Network infrastructure, number of regions on the display, number of content items in the playlist, and the playlist duration.

Table 1 on page 180 provides some guidelines for general playlist support in Cisco Vision Director.

Note: While these limits have been tested with basic Cisco Vision Director operation, the combination of maximum values and complexity of your system and content can potentially impact the actual limit. Therefore, be sure to test your playlist content for expected behavior before using in production.

Table 1   Playlist Guidelines and Limitations for Server Deployment Levels

Playlist Guideline	Mini/Small Limit	Standard	Large
Number of playlists (any type) in the Cisco Vision Director content database.	25	1,000	2200
Number of playlists per group.	25	100	100
Number of items per playlist.	300	1,200	1200
Number of items of content (any type) used in entire SVD event. [1]	TBD	1,200	1200
Number of characters in a playlist name (including spaces).	TBD	22	TBD

1. The number of content items that can be replaced in a playlist depends on the total number of content items, playlists, and the composition of the playlists in Cisco Vision Director. Typically a playlist containing 243–273 content items can be saved. Saving playlists larger than that will fail and content replacement will not work.

Consider the following restrictions and expected behavior when configuring playlists:

◼ Single video loop—You can configure a playlist to loop continuously when you have a playlist with a single video content item set for a duration of zero, with the playlist duration also set to zero.

◼ Single non-video loop—You can configure a playlist to loop continuously when you have a playlist with a **single** non-video content item by setting the item duration to -1, and setting the playlist duration to a number greater than or equal to zero.

◼ All playlists will loop their content (for example, once the last item plays, the playlist restarts with the first item) **unless** a duration of zero is configured on the first playlist item.

◼ To run a playlist one time, you can specify a duration of zero for the last item in the playlist. There is different behavior if the last item is a non-video item versus a video. If the last item has zero duration, and once the rest of the playlist items run, then if the last item is a non-video item, it continuously plays for the duration of the state. If the last item is a video, the video plays one time followed by a black screen for the duration of the state.

◼ If a change is made to a playlist and the playlist is currently being displayed, it is possible that items in the playlist that are past an item in the playlist with a duration of zero, could get displayed and the playlist continues until the item with zero duration is reached again.

◼ When collecting proof-of-play, we recommend duplicating the video so that the playlist will have two items. This way, every complete playback of the video can be recorded.

◼ Video content—Some video frames may be dropped when transitioning between playlist items to ensure synchronized playback.

■ When using the quad-region template, all four regions have to use a video playlist or a multicast channel in all four regions. Images, widgets and external URLs are not supported in any of the four regions.

Prerequisites for Playlist Creation

Before you create playlists, be sure that the following conditions are met:

■ You are familiar with the playlist content types to specify the appropriate playlist types (Non Video, Video or Mixed Media).

■ The content for the playlist is in the Library.

■ You have a naming convention to ease identification and management of your playlists.

Creating a Playlist

User Role: Administrator / Content Manager

IMPORTANT: For video walls, the playlist must have the same number of items, and the same duration for each content item. Each list item must be of the same type. For more information, see Prerequisites for Video Walls, page 204.

To create a playlist:

1. From the **Library,** click **Playlist > New Playlist**. The Create Playlist box appears on the right Figure 3 on page 181.

Figure 3   Create New Playlist
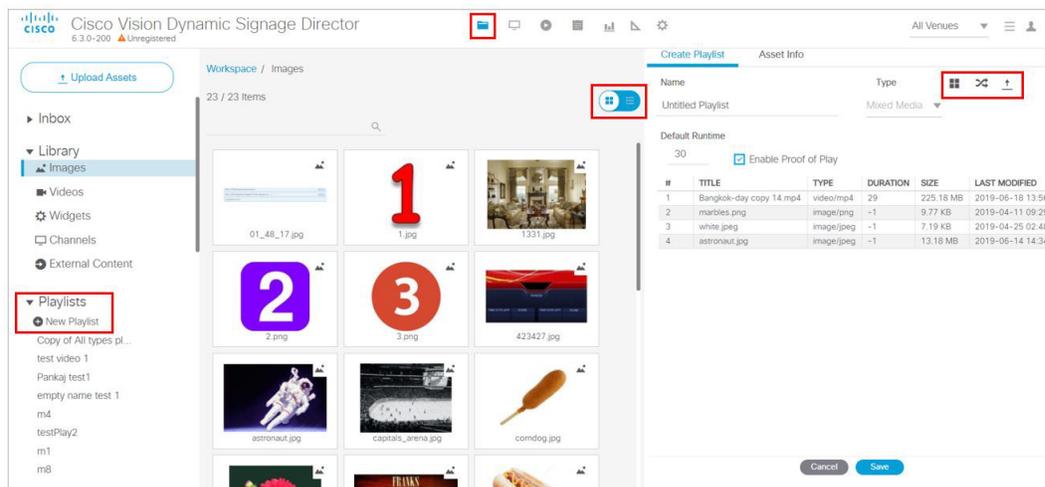
2. Specify the Playlist options, see Table 2 on page 181.

   a. Type a **Name** for your playlist.

   b. Use the pull-down arrow for **Type** of media. Best to choose **Mixed Media**.

Table 2   Playlist Options

Option	Description
Playlist Name	(Required) Alphanumeric name for the playlist. Default is "New Playlist."

Option	Description
Type	Type of content to be used in the playlist: **Non Video**–(Default) Static graphics (images) only. **Video or Mixed Media**–Video content or combination of video and images.
Enable Proof of Play	Captures a log of items played for advertisement reporting. The default is Yes.
Default Item Duration	Length of time (in seconds) for the content item to play. The default is 30 seconds. Value must be an integer–fractions of seconds are not supported. The playlist default item duration is used when the individual items have a duration of -1. Note: See the Guidelines for Creating Playlists, page 178 topic for information about how to properly use an item duration of 0 to loop content.
Playlist Total Duration	(Display field only) Estimates the length of time for all content items to play.

    c. Define Default Runtime (if necessary). Cisco default runtime is 30 seconds.

    d. Drag and drop content from the Asset Library or use the **Upload Assets** icon. Hover over the Action Icons (in red box).

    e. Enable **Proof of Play** (check the box) to record the entire event script at your venue.

  3. Click **Save**. The name of the new playlist will display in the text below the Playlist Items dialog box.

The Playlist Detail in Listview shows: what order the content items were loaded, the title, the type of content, the duration of each piece of content, the size, and when the playlist was last modified.

## Adding Content Items to a Playlist

User Role: Administrator / Content Manager

IMPORTANT: For video walls, the playlist must have the same number of items, and the same duration for each content item. Each list item must be of the same type. For more information, see Prerequisites for Video Walls, page 204.

Adding Content Items from the Asset Library to a Playlist

To add content items to a playlist:

  1. From **Library,** click **Playlist > New Playlist**. The Create Playlist box appears on the right (Figure 3 on page 181).

  2. In the Playlists pane, select the Name of the playlist where you want to add content items.

  3. In the Asset Items list, select the content item(s) that you want to add to the playlist.

TIP: You can select multiple files using the standard multi-select keyboard strokes. Use the search or sort functions to find the content you want to add to the playlist.

IMPORTANT: Be sure to select content that is formatted for the proper TV display resolution where you will be running the playlist, and that it matches the region size where it will be displayed. For example, if the TV supports 1920x1080 resolution, the content you add to the playlist must be in 1920x1080 format to display properly on the TV screen.

4. Drag and drop files onto the Playlist Items area.

   Content is displayed in the order in which it was added. A thumbnail of each piece of content is shown in the Playlist Items box. The header above the playlist box will indicate the number of items in the playlist.

5. (Optional) To duplicate an item in the playlist, select a content item in the Playlist Items panel, and do one of the following:

   a. To duplicate an item once—Click the Item duplicate icon.

   b. To duplicate an item multiple times—Click the drop-down arrow and select the "Duplicate multiple times" option.

      In the Duplicate Contents dialog, specify the number of times that you want to duplicate the item and click Duplicate.

Metadata–Validity and Playability

Tag an asset with metadata comprised of validity and playability information. Add granularity to your asset by configuring exactly when it is effective (validity) and exactly when it can be shown (playability). These values are typically provided by a sponsor or asset provider. Previously, an asset was unrestricted.

To set validity and playability data:

1. Click **Library** > **Workspace.**

2. Click an asset. The Metadata window appears.

3. Set values (see Figure 4 on page 183). Click the **Edit** icon (pen) at top of panel.

   a. For validity, set the **Effective Start Date** and **Effective End Date.**

   Note: If you do not set this metadata, the default for all content is *forever*.

Figure 4   Setting Metadata Values
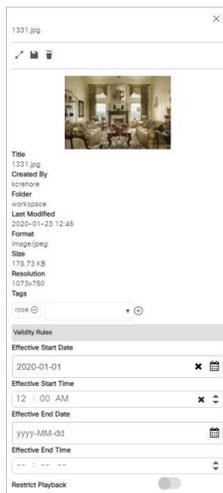
   b. If you do not set the end date, it will default to forever.

   c. If you do not pick a time, it will default to midnight (12:00 am).

   d. Slide **Restrict Playback** button (Figure 5 on page 184) to enable greater flexibility. The Playable options appear.

Figure 5   Restricting Playback of Content

e.   Choose days of the week you want the content to validly play. Uncheck days you do not want the content to play.

f.   Choose Start and End times.

g.   Click the **Save** icon at the top of the panel.

IMPORTANT: No matter where the physical location of the DMP is, once you set the start/stop data, the time you choose is "local" to that DMP. That is, content will play on that DMP at exactly the time you choose in the time zone of the DMP.

Note: When your content become valid in the script, that content is not *instantly* valid. Meaning the next time the playlist loops back, the content becomes available (valid and playable).

IMPORTANT: Cisco Vision Director does **NOT** support a playlist with NO valid content. A playlist has to have at least ONE piece of content that is valid. Therefore the default for all content, unless you set its metadata, is **always valid**.

Adding Static Graphics to a Non-Video Playlist by Direct Upload

You can drag and drop images from the Asset Library to a playlist, or, if you have not already uploaded the content to Cisco Vision Director, you can upload images directly to the playlist.

To directly upload static graphics to a non-video playlist:

1. Click **Library,** click **Playlist > New Playlist**.

2. In the Playlists listing, select the name of the playlist where you want to add images.

TIP: Once you select images to upload, you can change the target playlist name or even create a new playlist for the selected content in the Upload dialog box. You can also create and apply tags to the content.

3. Click **Upload Assets**.

4. In the Open dialog box, select the images that you want to upload.

TIP: You can also select a compressed .zip file to upload multiple images.

5. Click **Open**.

6. In the Upload Content dialog box (Figure 6 on page 185), do the following:

Figure 6   Import Content Dialog Box
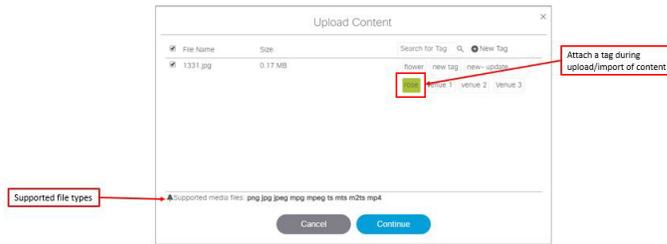
a. (Optional) Change the target playlist to another existing playlist, or type the name of a new playlist to be created.

b. (Optional) Apply an existing tag, or create a new tag name to apply to the content.

c. Click **Continue**.

Changing the Order of Content Items in a Playlist

User Role: Administrator / Content Manager

Content is displayed in the order in which it is added.

TIP: If you do not need a specific order of items, click **Randomize** (Figure 3 on page 181) to put the content items into an arbitrary order.

To change the order of content items in a playlist:

1. Click **Library,** click **Playlist.**

2. Click List view.

3. In the Playlist Items list, select the content item that you want to move and drag and drop it into the desired position in the list. If you place the thumbnail of the content on top of another thumbnail, they swap positions.
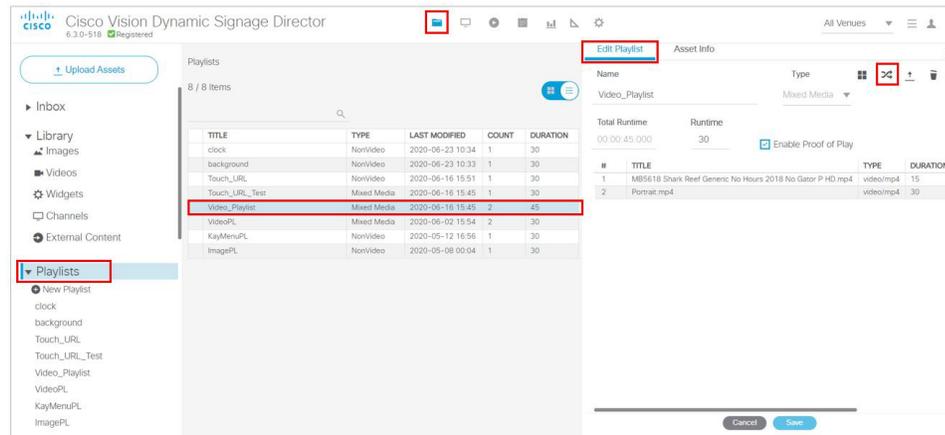
Content Playout in Random Mode

You have the ability to create a random playout of your content.

To create a "shuffled" playlist:

1. Click **Library,** click **Playlist.**

2. Click List view.

3. In the Playlist Items list, select **Randomize** icon (Figure 7 on page 186). Your content order changes.

Figure 7   Random Playout of Content in a Playlist

After clicking the **Random** icon, the content changes position on the right panel. Now the content plays in the order you see in the list.

Replacing Content in a Playlist During an Event

User Role: Administrator / Content Manager

You can perform content updates in a playlist during content presentation as long as you follow important guidelines.

Restrictions for Event-Time Content Replacement

CAUTION: Event-Time Content Replacement should be used with care if you are using Proof of Play due to impact of Proof of Play reporting if changes are made while a script is running. Weigh the cost-benefit of replacing content versus PoP impact. Once an updated event script has stopped running, the PoP will operate normally upon re-running of the script.

Before replacing content in a playlist during an event, consider the following restrictions:

- Avoid making the following types of playlist updates when using replacing content that is using Proof of Play:

  – Adding items to the end of a playlist—The new item will show up in the PoP raw data, but not the detailed report.

  – Removing an item from a playlist—Synchronization of the PoP reporting will be mismatched.

- The replacement content file name must be unique or the Proof of Play record will be impacted.

  The best practice is to Import the content item with a new file name and add it to the playlist before removing the content item to be replaced. See Figure 8 on page 187 for an illustration of the recommended workflow to preserve PoP reporting.

- Widgets are not supported for event-time content replacement.

- Content replacement can negatively impact video content synchronization and is not recommended. If you must consider this, plan to have non-video content available as the replacement.

Figure 8   Replacement of Existing Content Item
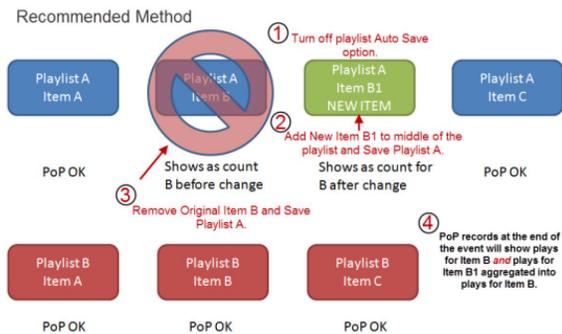
Enhancements to Content Replacement

New enhancements to content replacement allow you to update a playlist and save it, then update *another* playlist, without waiting for the first content replacement command to finish. In Release 6.0, you could make changes to a playlist, but only one change (total) to a playlist in any running script is allowed at a time, until that change is fully complete on the system. Content Replacement is defined as making changes to running scripts without restarting the script.

You can do multiple content replacements (playlist change or file upload) without waiting for the prior content replacements to finish. There are a couple limitations:

■   You can only have one replacement per content item or one replacement per playlist queued. In other words, you can't replace the same content a second time until the first replacement process finishes.

■   You cannot make *another* change to the same playlist until the first change to that playlist finishes.

■   All file uploads, even if you did not select content replacement, will temporarily block another upload of an item of the same name.

   TIP: Check your work thoroughly before you start the content replacement process. That way, you won't need to go back and try to make more changes to your scripts before they get staged.

Note: Content replacement can invalidate the Proof of Play report.

This feature concerns uploading content to the Library (Director Server). Once completed successfully, this triggers uploading to the staging to the DMP specified.

To access content replacement:

1. From **Library > Upload Assets.** A dialog box appears. Choose the files.

2. Click **Replace Now > Continue** if you want the content replacement to happen immediately, overwriting the content that may be staged to the DMP (Figure 9 on page 188).

3. This dialog shows you which content files are in conflict. Select the files to replace and click **Replace**.

Figure 9   Content Replacement Conflict
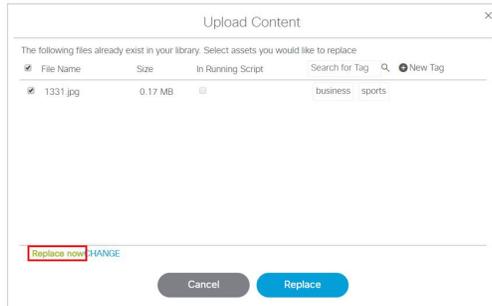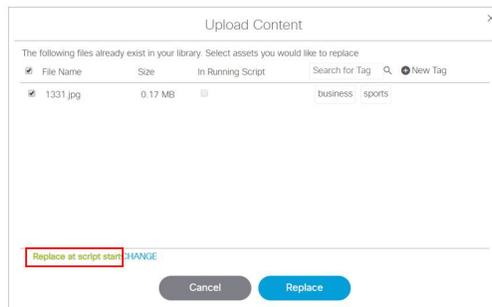

4. Choose **CHANGE > Replace at script start** to stage the content to the DMP at script start (Figure 10 on page 188).

Figure 10   Replace at Script Start Option

If there is a previous upload that hasn't fully processed or you try to upload the same assets again, an error appears (Figure 11 on page 188). For these files, you must retry to upload them because no changes occurred.

Figure 11   Error Uploading File Message

Now you can perform content replacement on a second playlist (it cannot be the same playlist) even if the first playlist isn't done processing. With the newest content replacement enhancements you can make changes to running scripts, even if they have started.

Limitations to Content Replacement Enhancement

1. The Proof of Play may become invalid if you do content replacements.

2. Content replacement only applies to local video and image files only (not channels, external URLs, or widgets).

3. Playlists containing 1 item will not content replace (change). To make this work:

    a. Create a playlist of the same item twice

    or

    b. Change states to a different state with a different playlist, then return to the prior state

IMPORTANT: If the DMP performs a reboot during this uploading and staging process, check your script and be sure the process completed and the replaced content commands will get pushed to the DMP. There is no auto-retry command to the DMP of the staging to make certain the content gets replaced.
Workaround: Go the DMP staging screen and manually stage the content to the DMP.

Creating a Playlist with Looping Content

User Role: Administrator / Content Manager

Once a playlist displays the last content item in its list, it will automatically loop, or replay content from the beginning of the playlist, as long as an item duration of 0 is **not** specified for the first content item.

For playlists with only a single video or non-video item, you need to be sure that the item duration and playlist duration to specific values to achieve a continuous replay (loop) of the playlist.

To create a playlist with looping content:

1. Click **Library,** click **Playlist.**

2. Select an existing playlist or create a new one.

3. Change the screen to List view for the thumbnails.

4. Add content items to the playlist. For more information, see Adding Content Items to a Playlist, page 182.

5. Select the playlist that you want to modify and do the following:

    a. To loop a playlist with multiple content items—Automatic. Be sure that the item duration for the first content item in the playlist is not 0.

    b. To loop a playlist with a single, non-video item—Set the Default Item Duration for the playlist to a value greater than or equal to 0 and set the item duration to -1. Use the Pen icon to edit. See Figure 12 on page 189.

Figure 12   Duration Values to Loop Single-Item Non-Video Playlist

    c. To loop a playlist with a single, video item—Set both the Default Runtime Duration and item Duration to a value of 0 (Figure 13 on page 190).

IMPORTANT: When looping a single video item of 0 duration, be aware that content synchronization is lost on the SV-4K media player.

Figure 13   Duration Values to Loop Single-Item Video Playlist
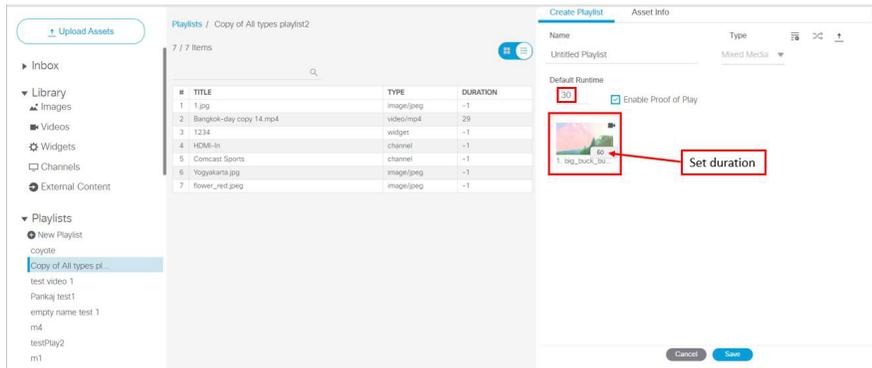
6. Click **Update** for an existing playlist, or **Save** for a new one.

Setting the Item Duration in a Playlist

User Role: Administrator / Content Manager

IMPORTANT: For video walls, the playlist must have the same number of items and the same duration for each content item.

The Default Item Duration is set in the Playlist Details panel. The default value is 30 seconds.

When you add non-video content items to the playlist, the value set in the Default Item Duration is used by default. In list view, you will see an item duration value of -1 (ignore) for the content item, which means that the default item duration set for the playlist is used.

Video content items use the length of the video as their default duration when added to a playlist.

To set the item duration in a playlist:

1. Click **Library > Playlists**. Click on the playlist you want to check or change. The playlist content displays in Listview with all the durations shown for each asset.

2. Change the screen to List view for the thumbnails (Figure 14 on page 190).

3. Select the existing playlist or create a new one.

4. Add content items to the playlist. For more information, see Adding Content Items to a Playlist, page 182.

5. In the Playlist Items panel, select the list icon so that you can see the content items detail, including the item Duration (Figure 13 on page 190).

Figure 14   Playlist Item Duration
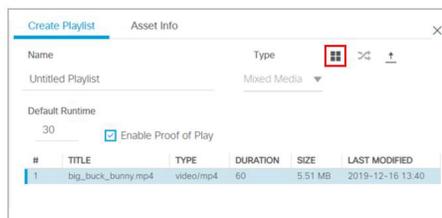
6. Click the item Duration cell for the content item that you want to modify.

7. Type a value or use the spinner controls to set the item duration (in seconds), using the following guidelines:

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a. **For advertisements**—Set a value of 15-30 (recommended).

b. **To use the Default Item Duration set in the playlist properties**—Use a value of -1 (This is the default).

c. **To run a playlist one time (where last content-item is non-video)**—Set a value of 0 for the last non-video content item.

   The content will play one time, and the last non-video item will run until the end of the Event state.

IMPORTANT: If the last content item is a video, then the video will play one time and a black screen is displayed for the remainder of the Event state.

d. **To loop a playlist with multiple content items**—Automatic. Be sure that the item duration for the first content item in the playlist is not 0.

e. **To loop a playlist with a single, non-video item**—Set the Default Item Duration for the playlist to a value greater than or equal to 0 and set the item duration to -1.

f. **To loop a playlist with a single, video item**—Set both the Default Item Duration and item Duration to a value of 0.

8. Click **Update** for an existing playlist, or **Save** for a new one. For more information about creating playlists with looping content, see Enhancements to Content Replacement, page 187.

Copying Content From One Playlist to Another

User Role: Administrator / Content Manager

You can easily copy content from one playlist to another. This task is useful for video walls or other groups of TV displays where you want to show identical content.

To copy content from one playlist to another:

1. Click **Library,** click **Playlist**.

2. Create the new playlist if it does not already exist.

3. Select the name of the playlist that you want to copy content items from.

TIP: Use the Search box to find a playlist.

4. In the Playlist Items panel, select all of the items.

5. Drag and drop the content items to the target playlist in the Playlists panel where you want to copy the content.

6. Specify the Playlist options (see Table 3 on page 192).

Table 3   Specify Playlist Options

Option	Description
Playlist Name	(Required) Alphanumeric name for the playlist. Default is "New Playlist."
Type	Type of content to be used in the playlist: **Non Video**—(Default) Static graphics (images) only. **Video or Mixed Media**—Video content or combination of video and images.
Enable Proof of Play	Captures a log of items played for advertisement reporting. The default is Yes.
Default Item Duration	Length of time (in seconds) for the content item to play. The default is 30 seconds. **Note**: See the Guidelines for Creating Playlists, page 178 topic for information about how to properly use an item duration of 0 to loop content.
Playlist Total Duration	(Display field only) Estimates the length of time for all content items to play.

7. Click **Save**. The name of the new playlist will display in the text below the Playlist Items dialog box. Since you have not yet added items to the playlist, (0 Items) are indicated.

Deleting Content Items From a Playlist

User Role: Administrator / Content Manager

When you delete an item from a playlist, the item remains in the content library and is only removed from the playlist.

To delete an item from a playlist:

1. Click **Library,** click the Playlist arrow to see the listing, select the playlist where you want to delete a content item.

2. In the Playlist Items panel, select the content item that you want to delete.

3. Click the Trashcan icon **(Delete).**

IMPORTANT: There are two delete functions that pertain to playlists—one to delete the actual playlist itself and one to delete items in a playlist. Be sure what you are deleting.

4. In the confirmation dialog box, click **Delete** to remove the item.

Deleting a Playlist

User Role: Administrator / Content Manager

When you delete a playlist, the playlist is permanently removed from the content library. However, the content items in the playlist are still available to you in the content library.

To delete a playlist:

1. Click **Library,** click the Playlist arrow to see the listing.

2. In the Playlist thumbnails, double-click **Playlists** (in blue) to show a list of all the playlists you've created in the middle panel. Select the playlist from the panel.

3. In the Playlist Detail Panel, select the trashcan icon (**Delete**).

4. In the confirmation dialog box, click **Delete** to remove the playlist.

How to Set Up Playlists

Working with Video Walls

User Role: Administrator / Content Manager

This module provides information about how to design and deploy video walls.

Information About Video Walls

A **video wall** is a group of displays that show synchronized content and convey a single, much larger screen. Cisco Vision Director supports different video wall design methods depending on the type of media player controlling the video wall.

A common use for video walls is to vary the video wall layout and content over the course of an event.

Content Scaling

Scaling refers to support of two things:

- Stretching of the content.

- Showing only a portion of the content per display in a multi-screen video wall.

Multicast Video Scaling

- Supported in Release 5.0 and later releases.

- Intended for use in video walls.

- Allows scaling of a multicast video region across a video wall display for both portrait and landscape orientation.

IMPORTANT: When using multicast video in a video wall, make sure you use a feed that complies to ISO13818, particularly with respect to program clock reference (PCR). PCR is a value in the transport stream that provides a means for the decoder to lock its video output clock to the video input clock to the encoder that is providing the transport stream. In a video wall, any two DMPs may be up to one frame out of sync.

Video Wall Design Methods

Cisco Vision Director supports the following different video wall design methods, depending on your media player model:

- TV-based tile matrix

- DMP-to-DMP content synchronization

- Zone-based video wall synchronization

Note: While TV-based tile matrix video walls can be used for the SV-4K, the best practice for full HD resolution is to use either DMP-to-DMP content synchronization or zone-based video wall synchronization methods.

TV-Based Tile Matrix

All media players support TV-based tile matrix video walls.

A TV-based tile matrix video wall requires the use of TVs that have built-in tile matrix capabilities, where video input from one player is stretched across all displays. Due to this stretching, the resolution is proportionately reduced.

The tile matrix functionality is configured using RS-232 commands that specify the overall "x" and "y" dimensions of the matrix, as well as each TV's position in the video wall.

DMP-to-DMP Content Synchronization

The DMP-to-DMP Content Synchronization feature for the digital media player synchronizes content rendering of playlist items on the displays. For video files, synchronization can still be off by a few milliseconds. The DMP will resync every second.

This synchronization includes transitioning from one item to the next (such as for still images), and more accurate playback and rendering of local video content. For local video, this serves as the foundation for implementing video ribbon boards and video walls. This requires cabling of a single media player per display.

Note: Widgets, external URLs, and multicast video tuning synchronization are outside the scope of this feature.

Cisco Vision Director Release 4.0 and later supports enhanced content synchronization methods for the DMPs, with close synchronization of playlist item transition using the Precision Time Protocol (PTP).

Zone-Based Video Wall Synchronization

Zone-based video wall synchronization is an alternative form of synchronization available for devices participating in a video wall.

The primary benefit of this form of synchronization is that if any device that is not the leader in the video wall reboots, it will "catch up" to play whatever content item that the rest of the video wall is currently playing. This form of synchronization is recommended for dedicated video walls that are running video content longer than 15 minutes.

If a device reboots in a video wall that is **not** using zone-based video wall synchronization (using normal DMP-to-DMP synchronization), the tradeoff is that the rebooting device synchronizes with the rest of the video wall at the next content item in the playlist, or at replay of a single-item playlist.

Summary of Video Wall Synchronization Methods for the DMPs

Table 1 on page 197 provides a comparison of the configuration guidelines and behavior for device reboot in a DMP video wall for the two content synchronization methods.

Note: Both content synchronization methods use single device cabling per TV display. See Dynamic Video Wall Sizing, page 197.

Constant Bit Rate (CBR) is required for best performance.

Note: The unicasting feature has not been tested in a video wall configuration.

Table 1   DMP Video Wall Synchronization Summary[10]

Synchronization Method	Network Time Source	Multicast Config Required	Video Duration	Bit Rate	Video Wall Reboot Behavior
DMP-to-DMP	PTP	No	< 5 minutes	CBR	Sync at next content item in the playlist.
Zone-Based	PTP	Yes	>15 minutes	CBR	Video content syncs with current item being played by the device leader. Still images sync at next content item in the playlist. **Note**: If the leader reboots, all DMPs will display black and resync when the leader has completed its reboot.

Dynamic Video Wall Sizing

To synchronize local videos across multiple DMPs, set the **Use as Video Wall** to "true." See Figure 1 on page 197. **This is not for multicast streaming.** This tells the system to treat the DMPs in a zone or group to be part of a video wall or not. This means now you *can* change a video wall size from one state to another.

To set this feature:

1. Go to **Configuration > Groups & Zones** (Figure 1 on page 197).

2. Click the **Group <-> Zone** tab.

3. Click the **Zones** tab.

Figure 1   Enable Dynamic Video Wall Sizing
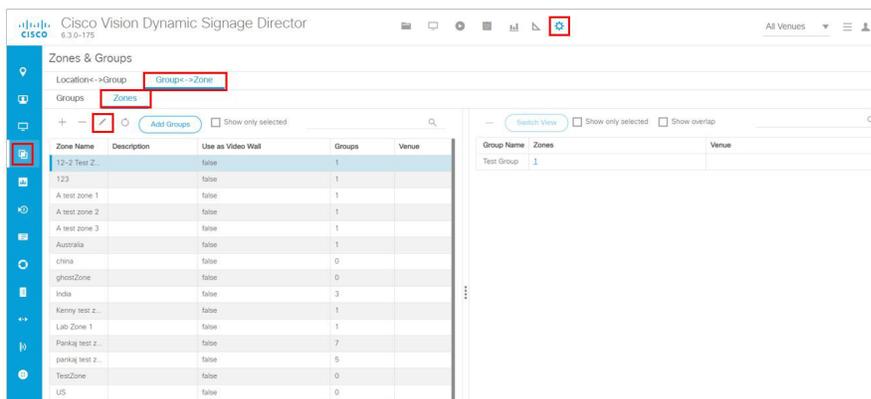
4. Select the zone to edit.

5. Click the **Edit** icon (pencil). The Edit Zone dialog box appears (Figure 2 on page 198).

Video Wall Design Methods

Figure 2   Edit Zone Dialog Box
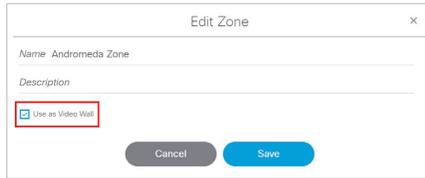
6. Click the **Use as Video wall** check box.

7. Click **Save**.

Two good reasons to set a "Sync Manager":

1. When **Use as Video Wall** is set to "**true**," the system enables a "leader" DMP which maintains very tight synchronization between all the DMPs in the video wall. The leader DMP controls precisely where all DMPs play content, regardless of failure.

2. If one of the DMPs has to reboot or gets restarted, without a "Sync Manager" enabled, that DMP would restart the video file and start replaying the content *from the beginning*, and be unable to jump to the exact location of the other DMPs. This throws-off the continuity of the video wall.

Video Wall Cabling

A video wall can be connected in the following ways:

■ Daisy-Chained TV Displays for TV-Based Tile Matrix Video Walls, page 198

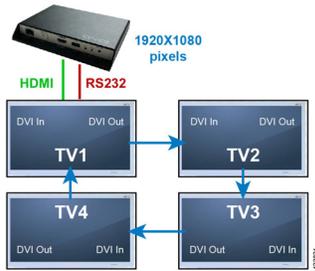■ DMP Connection Per TV Display in a Video Wall, page 199

Daisy-Chained TV Displays for TV-Based Tile Matrix Video Walls

This cabling method is supported by all media players and uses the native tile matrix capabilities of the TV displays in the video wall.

In this cabling method, the TV displays in the video wall group are connected together using the DVI In/Out ports. One media player is connected to a single TV in the group using HDMI and RS-232 connections.

Figure 3 on page 199 shows an example of a 2x2 tile matrix configuration with 4 displays daisy-chained in a group with control of the group by a single digital media player. In this example, notice that all displays are using 1920x1080 format.

IMPORTANT: For the 2x1 portion of the video wall, the DMP crops a 1920x1080 canvas to the 960x1080 signal resolution rather than shrinks it. Therefore, you must specify the correct template to match your signal resolution and your content must match the template. For more information, see Understanding Content and TV Resolution, page 97.

Figure 3   Daisy-Chained 2x2 Tile Matrix Example with the DMP

DMP Connection Per TV Display in a Video Wall

The DMPs support display of synchronized local content (video or images) in your video wall.

In this cabling method for local video synchronization, a single media player is connected to each TV display in the video wall using the HDMI Out and RS-232 connections (Figure 4 on page 199). It can be used for video walls playing local video that do not rely on the tile matrix capabilities of the TV.

With this architecture, you can develop content at 3840x2160 resolution. Then, divide your video into four 1920x1080 pieces for synchronized playback. This method will use the maximum resolution for each display giving you the highest possible quality for your presentation.

Figure 4   Video Wall with Single SV-4K Per TV Display
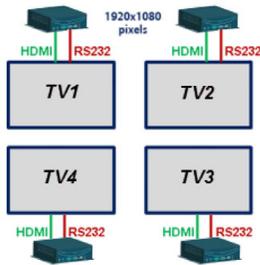
This cabling method also is required for zone-based synchronization, which is recommended to achieve enhanced functionality for dedicated video walls running videos with a duration greater than 15 minutes.

Video Wall Design Examples

This section provides examples of some of the more common and currently deployed video wall designs in Cisco Vision venues.

TIP: Be sure to consult with the video wall experts from the Cisco Creative Services team for any of your video wall ideas, including non-standard configurations. This team can help you with ideas, best practices, and wiring diagrams to ensure a successful deployment.

2x3 TV-Based Tile Matrix Video Wall Example

Figure 5 on page 200 shows a video wall commonly used in a concourse area, with a larger game feed for groups of patrons to watch, along with rotating sponsor content displayed beside the game.

**Figure 5   2x3 Video Wall Content Example**

A 2x3 video wall is the most common video wall that Cisco recommends because in the left 2x2 group of displays, the game feed maintains the proper 16:9 aspect ratio of the HD game feed. This 2x3 TV/display grid can be implemented in Cisco Vision Director as two types of video walls: a 2x2 and a 2x1.

The right 2x1 group of displays can work independently from the game feed and show sponsor, social, or other content throughout the game. The user also can change the type of content that plays during the game. For example, during half-time or period break, when there is no game feed, the user can switch the 2x2 to play full screen sponsor content, while changing the 2x1 to show upcoming events or team branded content so that there are not any sponsor conflicts.

Figure 6 on page 200 shows the cabling for the 2x3 video wall example, where two Cisco DMPs are used to break the wall into different display areas.

The first DMP provides the 2x2 game feed and the second DMP provides the 2x1 sponsor ads.

Note: This cabling design is not the recommended design for the digital media players. Instead, a single player per display is preferred for video walls. For more information, see the DMP Connection Per TV Display in a Video Wall, page 199. In addition, use of any resolution other than 1920x1080 is not technically supported on the DMPs (although it might work).

Figure 6   2x3 Video Wall Cabling Example Using TV Tile Matrix Functionality
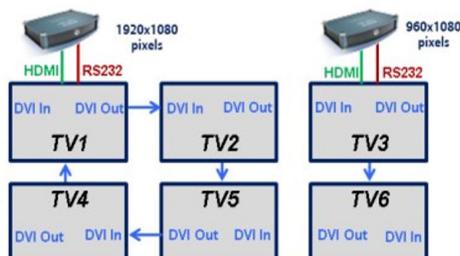
These dedicated DMPs provide the video signal for the group of TVs that the DMP is connected to through the daisy-chain. Depending on the screen manufacturer, the RS-232 connections can also be daisy-chained if this feature is available.

When operating in tile matrix mode, the TVs are fed the same video signal. Based on the TV's tile matrix configuration, the TV knows to first scale input video to the size of the configured x,y dimensions, and then to display its "piece" of the overall display based on its configured position within the matrix.

Note: If you want to show multiple types of content, such as four different channels on each of the screens, connect a DMP behind each TV. Please see Best Practices for Video Walls, page 201 for further clarification and limitations.

Other Video Wall Configurations

While the 2x3 video wall is the most commonly used video wall configuration, using the information and concepts from Figure 6 on page 200, you can create any number of different video wall configurations (Figure 7 on page 201, Figure 8 on page 201, and Figure 9 on page 201). By arranging the physical layout of the displays, you can create a display that *appears* to be much larger. At center of Figure 7 on page 201 is a 2 X 2 video wall.

IMPORTANT: These video wall examples require a different number of DMPs and cabling than the 2x3 video wall.

Figure 7   2 X 2 Video Wall in the Middle, Example

Figure 8   3x3 Video Wall in the Middle, Example

Figure 9   Two, 2x2 Video Walls in the Middle, Example



Best Practices for Video Walls

When implementing video walls, consider the following best practices:

- Use the same media player model (such as all CV-HD2, or all CV-UHD2 media players) throughout the video wall.

- Use the same TV model throughout the video wall with a uniform bezel size (ultra narrow bezel strongly recommended).

- For the best display output on your video wall, the settings for the frame rates must match on all of the following:

  - The video stream sources you deploy on the video wall

  - The DMPs in the video wall

  - The display models in the video wall

Note: TV screens with an ultra narrow bezel help ensure the best viewing experience without important text or data being cut off.

To verify frame rate of video stream sources:

1. Click **Library > Videos**.

2. Select a video file from the list. The Details panel appears.

3. Find the frame rate in the video details ().

Figure 10   Video Stream Frame Rate
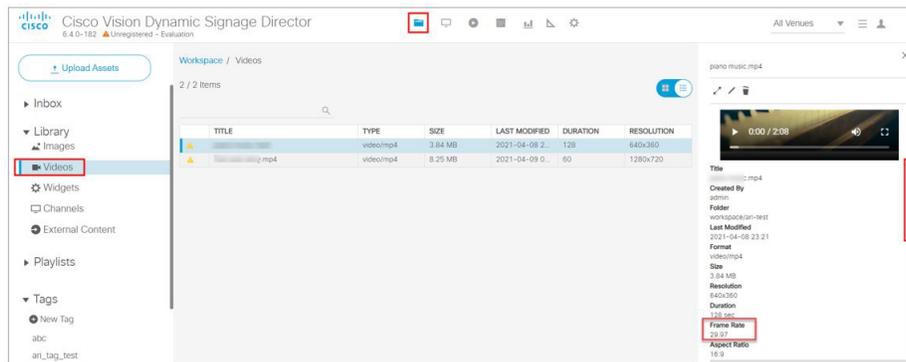
For video stream sources in Cisco Vision Director Playlists:

1. Click **Library** > expand **Playlists**.

2. Select a Playlist and highlight video stream source from the playlist.

3. Click **+ New Playlist** to open the detail panel on the right.

4. Click **Asset Info** tab. Scroll to **Frame Rate** (Figure 11 on page 202).

Figure 11   Finding Frame Rate of a Video in a Playlist
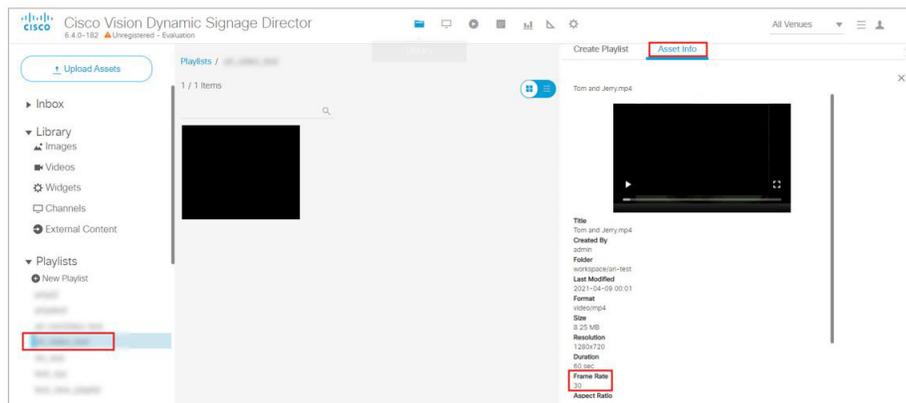
For video stream sources outside of Cisco Vision Director, such as third-party encoders, review manual for verifying video stream source frame rate settings.

To configure DMP frame rate:

■   For the DMPs, override the negotiated signal resolution by configuring a requested signal resolution in the Cisco Vision Director. Click **Configuration > Devices**. See the Operations Guide, section *Configuring Resolution in Display Specifications*.

■   To verify the configured video mode matches the video stream source frame rate in Cisco Vision Director, click **Device Management** > select the DMP > **Status** tab > **Status Details** tab. Search for **Video mode** (Figure 12 on page 203).

Figure 12 DMP Frame Rate
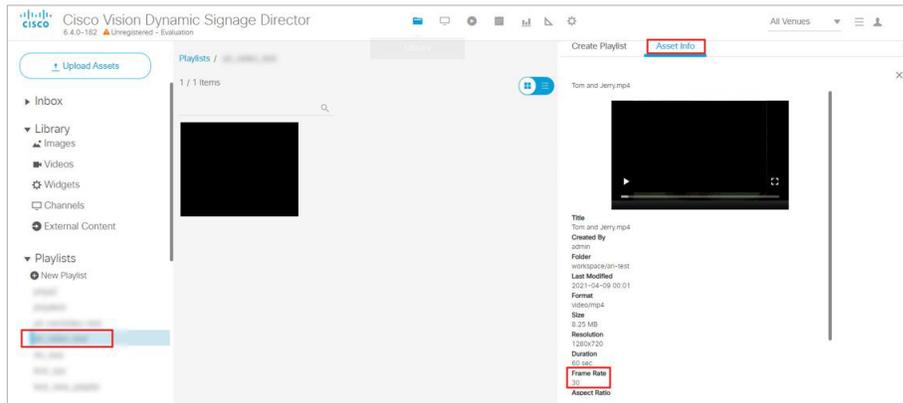
To configure display frame rate settings:

Check the owner's manual of your display for how to set the display frame rate.

IMPORTANT: For multicast video, specifically, keep in mind the bezels in the monitors and the motion on the video to be displayed in the wall. Fast motion video, coupled with up-to-1 frame out of sync, in a wall larger than 3x3 magnifies the out-of-sync issue. Choose the right video wall strategy for your use case.

■ While using multicast videos for both video regions is supported, it is recommended to use a combination of multicast and locally-stored videos for the video regions (or local video for both video regions).

■ Create video to be the same size as the video region where it will be rendered. This avoids any unnecessary video scaling.

■ Use consistent video aspect ratio, and design video regions so that they are consistent with the aspect ratio of video content.

■ Use constant bit rate (CBR) for local video files for best performance in video walls.

Restrictions for Video Walls

Before you create video walls, consider the following restrictions:

■ In Release 4.1 and earlier releases, multicast video is not supported for a multi-screen video wall. For example, the DMPs cannot stretch multicast content across four displays to convey a single image.

Note: Support for multicast video scaling in a video wall was introduced in Release 5.0.

■ All screens in the video wall should use 1920x1080 format.

■ Widgets, external URLs, and multicast video tuning synchronization are not supported by the DMP-to-DMP content synchronization feature for the digital media players.

■ When using zone-based content synchronization for video walls, one device controls synchronization. If that device stops showing video, then all displays in the video wall stop showing content.

■ Multicast stream must be CBR and have PCR jitter within MPEG spec of +/-500 ns.

How to Configure Video Walls with the Digital Media Players

IMPORTANT:

■ For streaming local content video files, local file sync can be within 1 frame of other DMPs.

■ For multicast video streaming, the video can be within 1 frame. For successful display, the multicast stream feed must be CBR and have PCR jitter within MPEG spec of +/-500 ns.

■ The network quality of service (QoS) must be within specifications. See Cisco Vision Network, Server, and Video Headend Requirements Guide.

■ The more you stretch / scale up content, the more noticeable the slightest sync differential is. Please consult Cisco Content Services for your specific video wall configuration.

This section includes the following topics:

Prerequisites for Video Walls

Before you deploy video walls and create the content for them, be sure that the following conditions are met:

■ Beginning in Release 5.0, scaling of multicast video is supported for a video wall in both portrait and landscape orientation. See Content Scaling, page 195.

■ Generally speaking, stretching a piece of content across multiple screens is not supported for local content.

– Local video or image content to be played in a video wall first must be created in the overall format of the video wall to be supported, and then edited into separate 1920x1080 files that contain the segment of content to be shown on each display.

– For example, in a 2x2 SV-4K video wall (4 screens), the original content should be in 3840x2160 format (that is, 2 times 1920x1080). Then, it should be broken into four individual files of 1920x1080 format to show the appropriate portion of the content for the 4-screen display.

■ The DMPs in the video wall must be on the same virtual local area network (VLAN) and use the same access switch.

■ For content synchronization:

– Each digital media player must be in its own group.

– For each region, the playlists must have the same number of items, type of item, and duration of each item, or have no playlist at all in the region (empty).
Table 2 on page 204 shows an example of playlist content for a 2x2 SV-4K video wall with a mix of local video and image content. Notice that all first items in each of the four playlists are of the same type (PNGs), with the same duration, but the content itself is not the same. Likewise, the second item in each playlist is video content with the same duration, but different files.

Table 2   2x2 Video Wall Playlist Example for the SV-4K

	Playlist 1	Playlist 2	Playlist 3	Playlist 4
1	30s: PNG 1-1	30s: PNG 1-2	30s: PNG 1-3	30s: PNG 1-4

	Playlist 1	Playlist 2	Playlist 3	Playlist 4
2	34s: MP4 2-1	34s: MP4 2-2	34s: MP4 2-3	34s: MP4 2-4
3	21s: MP4 3-1	21s: MP4 3-2	21s: MP4 3-3	21s: MP4 3-4

    — Trim local video item duration to boundaries in seconds and not fractions of seconds.

IMPORTANT: If your imported video content duration is in fractions of seconds, then the Content screen shows the actual item duration for the video. However, the system actually rounds that content duration for the playlist to even time boundaries (in seconds). Also, if you manually change the item duration within the Cisco Vision Director UI, the content playback will be truncated.

■ For zone-based video wall synchronization:

    — Each media player must be in its own group.

    — Collectively, the groups that are part of the video wall are placed in a zone.

    — The "Use as Video Wall" checkbox is selected when you create the zone for the DMP groups.

Workflow Summary to Configure Video Walls

Table 3 on page 206 provides a summary of the tasks and guidelines for you to complete when configuring a video wall using digital media players.

Table 3   DMP Video Wall Task Workflow

Step	Task	Guidelines
1	Determine the type of content that you want to display on the video wall.	Restrictions for Video Walls, page 203. Most video walls can reliably use standard DMP-to-DMP synchronization. Video content of longer duration (15 minutes or longer), will benefit most from zone-based synchronization.
2	Determine your video wall configuration.	Video Wall Design Methods, page 195. Best Practices for Video Walls, page 201. Dynamic Video Wall Sizing, page 197. Be sure that the layout is designed to accommodate 1920x1080 screen formats. See Understanding Content and TV Resolution, page 97.
3	Configure groups/zones.	Configuring Zone-Based Video Wall Synchronization for the DMPs, page 207
4	Create (or verify) templates.	All content (and for all TVs in a video wall zone) must be deployed using the same template, with the same number of regions and playlists.
5	Create content.	Consider the content changes for different times over the course of the event. Prerequisites for Video Walls, page 204. Restrictions for Video Walls, page 203. Cisco Vision Content Planning and Specification Guide: Dynamic Signage Director.
6	Create playlists.	Create one playlist for each DMP/display in the video wall. For every region, the playlists must have the same number of items, type of item, and duration of each item, or have no playlist at all the region (empty).
7	Stage content.	–
8	Create event scripts.	Determine the states that you need to vary the video wall layout and content over the course of an event.
9	Test the video wall.	–
10	Schedule the event.	Working with Event Scripts, page 211.

Configuring Zone-Based Video Wall Synchronization for the DMPs

Zone-based video wall synchronization provides enhanced recovery for video walls if a DMP reboots during the running of a playlist. It is intended for dedicated video walls running video content of longer duration (> 15 minutes).

Enabling System Support for Zone-Based Video Wall Synchronization for the DMPs

User Role: Administrator

To enable system support for zone-based video wall synchronization:

1. Click **Configuration > System Configuration > Global DMP Settings > Default - Audio/Video/Closed Caption.**

2. In the Configuration Property box, locate the **Zone Based Video Wall Synchronization** property.

3. Click Edit. The Edit - Configuration dialog box appears.

4. In the Value field, type **true** (Figure 13 on page 207).

5. Click **Save**.

Figure 13   Zone-Based Video Wall Synchronization
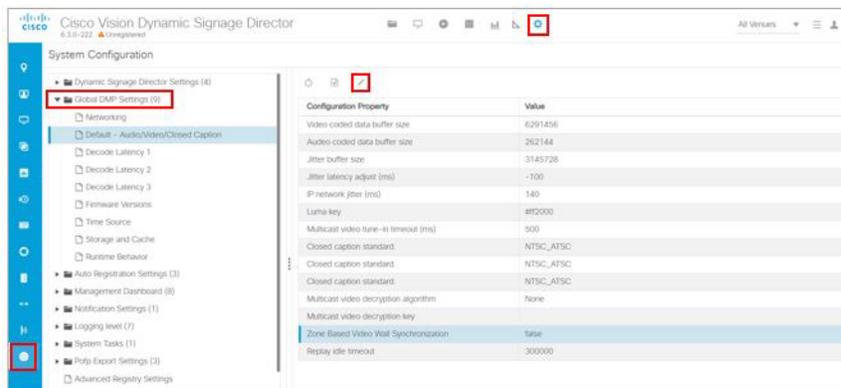
To verify the multicast configuration for zone-based video wall synchronization:

1. Click **Configuration > System Configuration > Global DMP Settings > Networking.**

2. Verify that the default values for the following properties are compatible with your network, and change as required:

   Content sync multicast address—239.193.0.253

   Content sync multicast port—50001

Configuring Groups and Zones for Zone-Based Video Wall Synchronization for the DMPs

User Role: Administrator / Content Manager

Video Offset Control for Video Walls

The video offset controls provide you with a more granular method of controlling the playout rate of content on a specific TV which is part of a video wall by compensating for the TV painting/scanning process. The function relates to the TV refresh rate and the row a specific TV is in, as part of a video wall.

The function must be applied to a "group" of DMPs that are typically on the same row of the video wall. To be clear, the "video wall" is a set of displays that, collectively, show one piece of content, that are all synchronized. A matrix of displays can be composed of multiple (Cisco Vision Director) video walls. The entire matrix of displays is also sometimes referred to as a video wall, but not all of the content in this case, is all synchronized.

Prior to setting the value for the video offset control, understand the refresh rate of your TVs which are part of the video wall. Figure 14 on page 208 shows an example of the refresh rate for a sample TV.

Figure 14   Sample of TV Display Refresh Rate

To improve the video wall synchronicity and help compensate for the TV refresh rates, use this calculation.

(Row – 1) X (1 / Rr) X 1000 = Z ms

Where

Row = Row of TVs in the video wall

Rr = Refresh rate of the TV

Z = Video offset value in milliseconds (ms)

Figure 15 on page 208 shows a video wall example creating the look of a 3 X 3 video wall using three separate video walls.

Figure 15   Video Wall Example, Using 3 Walls
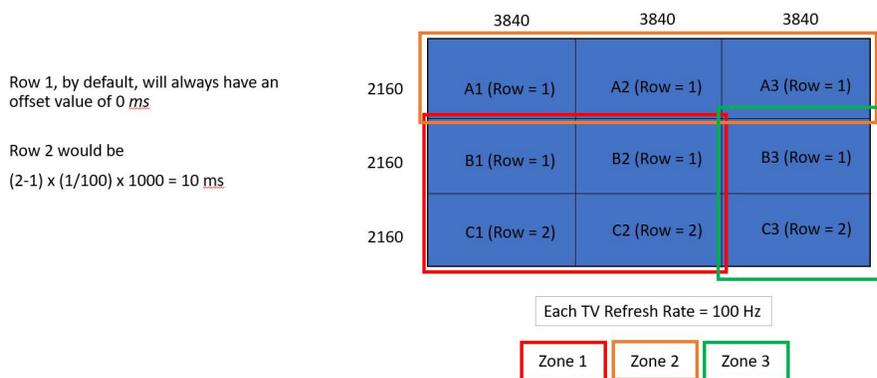
Here's how the video offset would look for Zone 3 (Figure 16 on page 209).

Figure 16   Zone 3 Video Offset Values
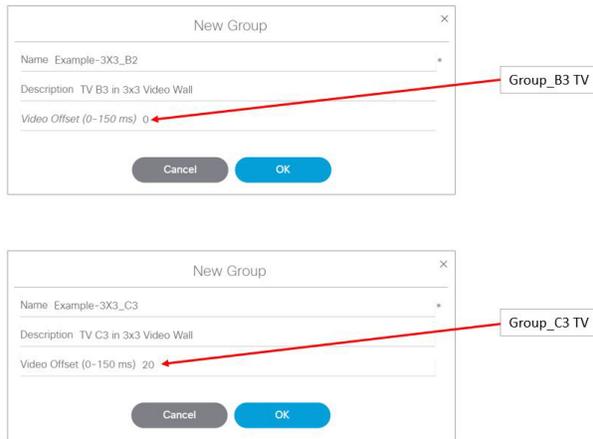
To create or edit a video wall:

1. Go to **Configuration > Groups & Zones**.

2. Click **Group <->Zone**.

3. Click **+ Add** or **Edit**. The dialog box appears ().

Figure 17   New Group or Edit Group Dialog Boxes
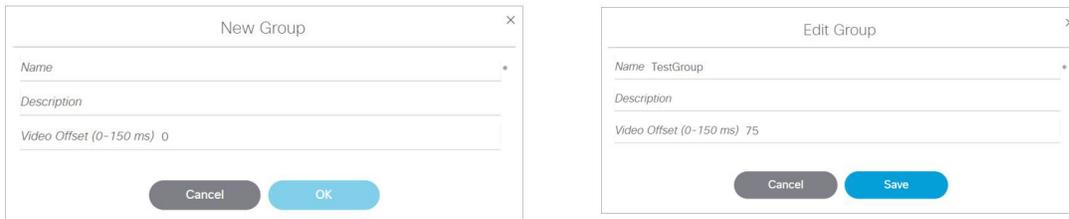
4. Calculate the **Video Offset** value.

The formula is:

(Row – 1) X (1/Rr) X 1000 = n milliseconds

2X2 Video Wall

- Total wall resolution: 3840 X 2160

- Each TV videomode: 1920 X 1080 X 60p

- Row 1: delay 0 ms

- Row 2: delay 1 sec = 17 ms

To configure zone-based video wall synchronization for the DMPs:

1. Go to **Configuration > Groups & Zones > Groups<->Zone** tab **> Groups** tab.

2. Create a new group for each media player that is part of the video wall.

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3. Add only one DMP location per group.

4. Create a new zone and select the **Use as Video Wall** checkbox (Figure 18 on page 210).

Figure 18   New Zone Dialog Box

5. Add all DMP groups in the video wall to the zone.

Note: Synchronization applies only to video and still images. Synchronization cannot be guaranteed for other content such as tickers, external URLs, or widgets.

IMPORTANT NOTES:

All DMPs in the video wall must be using *at least* firmware 8.1.69 or later. For Release 6.4, the firmware version is 8.3.22.

The video offset value **ONLY** applies to a video wall formation if it has rows (e.g. 2x2, 3x3, 4x1, etc.)—vertical formations of TVs) since the function works on the playout rate of content from top to bottom. It does **NOT** apply to a video ribbon board formation (e.g. 1x4)—horizontal formations of TVs.

The function primarily benefits file-based video content. It will also provide enhanced synchronization benefits for multicast-based video content.

The Video offset control does not rely on the frame rate of the content, be it video file based, or stream based.

Zone based video wall synchronizations should be setup as per normal.

If the video wall is used in an individual TV formation (i.e., video wall formation is **NOT** used), then the user may experience a very slight delay in content playout when looking at all the screens **IF** the content is exactly the same. This is because each TV is playing out content with an offset value and it may be perceived that Row 1 is playing out content faster than Row 2 and 3, respectively. Its also important to understand that this formation is not a commonly deployed setup.

For more detailed information on how to enhance video wall synchronization on the DMPs, see the Cisco Vision Content Planning and Specification Guide.

Working with Event Scripts

User Role: Administrator / Content Manager

This module describes how to create and schedule event scripts in Cisco Vision Director.

Information About Event Scripts

Event scripts and event states control what, when, and where content displays on the TV screens in a venue over the course of an event.

Create an event script using the **Script Management** interface screens.
Control (manage, run, start) an event script using **Script Management**.

You create event scripts and event states ahead of an event, allowing you to predetermine what will display at a given time and location on each screen in the venue as shown in . Prior to the event, you can stage and validate the script and make any necessary adjustments to be sure everything displays correctly.

Then, you run the script at the scheduled event time. The script can be initiated manually or automatically. Once the script is running, you can use the many features of Cisco Vision Director to further manage the ads, content, graphics, and video displayed throughout the course of the event.

illustrates an example of the progression through an event script. At each change in the event state (Pre-Game, In-Game, Post-Game) the screen template and content applied to the TV displays changes within the group and/or zone.

Figure 1   Progression of an Event Script

Event Script

An **event script** sets where and at which time the ads, video, and graphics will be displayed in the venue and on the screen. The event script is typically tied to a timeline of moments in the game such as pre-game, game, and post-game. If the event is a concert, the event script could be tied to pre-concert, concert, and post-concert. Each of these event segments are called event states in Cisco Vision Director. You can pre-script what is displayed on each screen during each event state.

Event scripts allow you to display content based upon time as well as physical location, allowing ad sponsors to target different advertising for different demographics and locations in the stadium.

Event State

An **event state** is a point in the script where content changes. Event states are assigned to event scripts and specify actions that a group and zone will display or perform in sequence during the event. You can create event states that specify when, where, and how long to display a screen template, when to turn TVs on and off, and so on. You can define a duration and time transition to play a particular event state or you can invoke the event state manually.

There are three types of event states:

- Sequential

- Ad hoc

- Emergency

Sequential Event States

Sequential events states are scheduled states that are part of the event script and tied to a period of time in the event such as pre-game, game, and post-game.

- Sequential event states can be controlled by a timeline (Manual or Time-based) where time-based event states can be overridden by manual control.

- Actions assigned to sequential event states control functions, such as changing screen templates and playlists within a screen template, changing the channel, and turning the TV On/Off.

Ad Hoc Event States

Ad hoc event states are event states used for a temporary change, such as an unforeseen event delay or to indicate a goal or moment of exclusivity. You can assign graphics to control what you want displayed during an ad hoc state. You can also customize which channel you want your DMP's videos to display during the temporary change.

Ad hoc event states are usually timed states that have a specific duration assigned and are meant for a temporary change. Once the ad hoc state ends, the event script continues to play.

Emergency Event States

Emergency event states are fixed event states used to signal a change in all zones in the emergency zone to a full screen graphic or the content specified in an emergency playlist. When an emergency state is started, all local TV controls are locked so the emergency message cannot be removed. Emergency states can also be tied to venue alarm systems or automated activation.

Targeted Advertising

Because each TV screen/DMP in Cisco Vision Director is individually addressable, sponsors can target advertising to a particular location in the venue to increase sales. This "exclusive" advertising is implemented with event scripts that play unique content in a sponsored area such as a club, luxury suite, or concourse level. As shown in , you might have a script that plays ads for beer near the cheap seats and plays ads for champagne near the expensive seats. All this adds up to a better fan experience while providing more revenue opportunities for sponsors and the stadium.

Figure 2   Using Targeted Event Scripts
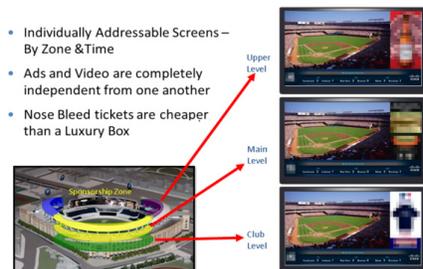
Dynamic Content Management

In addition to providing the ability to segment content by location, Cisco Vision Director also provides the ability to segment content by third-party.

For example, during a touchdown or goal, you can manually play an ad-hoc event script that contains unique sponsored content such as a Touchdown splash screen as shown in .

Figure 3   Using an Event Script for Spontaneous Content
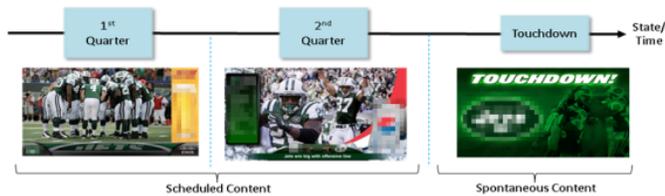
Best Practices for Event Scripts

When working with event scripts, consider the following best practices:

- Be sure to regularly manage your script list by removing any test scripts and other outdated scripts from the system. Keep the overall script count to as limited a number as possible and as needed for your venue.

- Finalize script changes before an event.

- Avoid starting scripts during an event, if possible.

- Complete the start of all scripts before the event begins.

- Avoid starting a group of scripts at one time. Scripts start sequentially and an attempt to start multiple scripts at once can lead to delays in state changes.

- When using the Scheduler to control the start/stop of event scripts, be very careful of editing a scheduled script that requires you to manually stop it. The risk is that if you then manually restart that script, the Scheduler will not stop a manually-started script.

  Remember to manually stop that script at the appropriate time, or the script is blocked at the next regularly scheduled start time. If this happens, either remove the blocked script or stop the manually-started script.

- Avoid using both triggers and the Scheduler to start an event script which can lead to blocked scripts.

- Consider developing a content matrix that lists all of the zones / groups throughout the venue and all of the states needed for an event. You can use a spreadsheet to help keep track of the content and playlists needed for each state.

- For additional information on event content preparation and planning, refer to the Cisco Vision Director Operations Playbook (or the guide that corresponds to your release on Cisco.com).

- When working in an environment that has mixed DMP types, carefully consider the device differences and design and plan event scripts accordingly.

Note: The best practice is to create groups of media players of the same model type and to create zones of like-model groups. For more information, see the Best Practices for Zones and Groups, page 76.

- If using RS-232 for TV control, send the TV On/Off commands a couple of times to allow for some TVs that might not respond the first time.

- Use an ad-hoc state to display a moment of exclusivity such as a touchdown, goal, stoppage in play or a sponsor venue domination.

- If you want to display different content using the same template in different zones / groups, you can save time by copying assigned actions from one zone / group to another. You can then select different content to display in the template in the copied zone / group.

■ It is important that you allow media players to load the runtime and get into a ready state to receive and process new script actions. Therefore, be sure to define an empty script state (without any actions or commands) as the first state in all event scripts, and configure it to run for a duration of at least two minutes (120 seconds) before changing to a different state.

TIP: The actual duration for the empty state depends on the number of media players in the system and the amount of time it takes to stage any content. Manually staging content before you run a script can help reduce this time.

■ Do not change an event state more frequently than the following:

– SV-4K and DMP-2K media players: 15 seconds minimum

■ If you are supporting an environment with mixed DMPs that use the same script, it is important to allow for 60 seconds for an event state change.

■ Play the event scripts to visually verify each state and ad hoc states within a venue.

How to Set Up Event Scripts

This section includes the following topics:

Guidelines for Event States and Event Scripts

Consider the following guidelines when creating event states and event scripts:

■ Cisco Vision Director displays the default video channel / non-event state on the media players when an event script is not running on it.

■ When you use Proof of Play content in your playlist, and especially when your PoP content is included near or up to the end of the playlist, you should define a final script state (without any PoP content) that runs for at least 60 seconds so that all PoP data has time to be captured by Cisco Vision Director. This last event state is commonly set up to turn off the displays in the venue.

■ When you configure a script action for a zone, then by default all groups within that zone inherit the defined action. You can override this inheritance by configuring a script action for a particular group within that zone.

- When a zone contains multiple groups, and if you configure script actions for a particular group, those actions will apply only to that group.

- Cisco Vision Director supports only one RS-232 command per event state.

Table 1 on page 216 describes some guidelines for general script support in Cisco Vision Director.

Note: While these limits have been tested with basic Cisco Vision Director operation, the combination of maximum values and complexity of your system and content can potentially impact the actual limit. Therefore, be sure to test your script content for expected behavior before using in production.

Table 1   Script Guidelines and Limitations for Server Profiles

Script Guideline	Mini/Small Limit	Standard	Large
Maximum number of simultaneous scripts (when per-script multicast is in use)	5/25	100	250
Maximum number of event states per script	12	25	25
Maximum number of items per event script	300	1200	1200

For all the deployment profile limitations, see Server Profile Limitations, page 80.

Prerequisites for Event Script Creation

Before you create event scripts, be sure that the following conditions are met:

- DMPs have been successfully added to the Cisco Vision Director database and are in "production" state.

  - DMPs and IP phones are defined and added for Local Control Areas.

  - If used, third-party touch panels are defined and associated for local TV control.

- DMPs are linked to locations.

- Zones and groups have been created.

- Content has been added and playlists created.

- Channels have been assigned.

Creating a New Event Script

User Role: Administrator / Content Manager

To create a new event script:

1. Click **Script Management**. Figure 4 on page 217 shows the Details screen that appears. Hover over the screen for tool tips. The icons are to:

   - create a new script

   - delete the selected script

   - edit the script

   - copy the script

— refresh the script list

Figure 4   Script Management–Default Screen
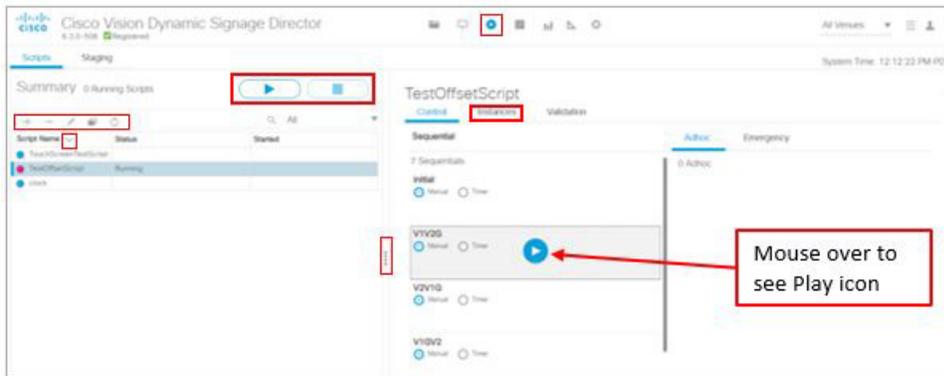
Select a script and use the **Start** or **Stop** icons (red box in right panel). Resize the panels to suit your display real estate, all the columns are sortable and use the grey scroll bar (not shown) to locate your scripts or instances. There are action icons in the left panel (shown boxed in red).

Select a script from the left panel and click the **Instances** tab to see all your script instances. You can also filter what displays by using the drop-down arrow (Figure 5 on page 217). You can multi-select delete the Instances by checking the boxes and using the **Remove** icon. A confirmation Warning box appears as a courtesy. You cannot delete a **Running** script. The **Remove** icon is disabled.If you start a script, click the Instances tab and see the progress of the script while it prepares to run. Click **Refresh** to update the window or wait.

Another new *nice to have*: if you filter the Instances in your panel, navigate away and come back to it, the filter persists, for example, showing all the **Scheduled** instances.

Figure 5   Script Instance Tab
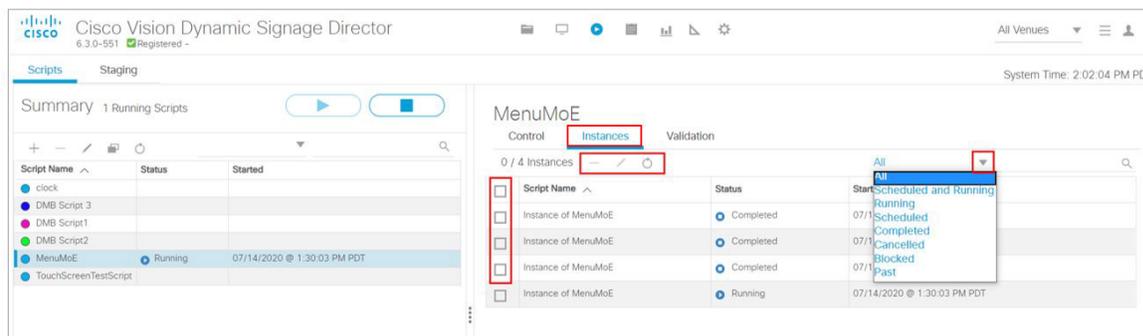
2. Click the '**+**' icon. A new script window appears (Figure 6 on page 218).

Figure 6   Create New Script
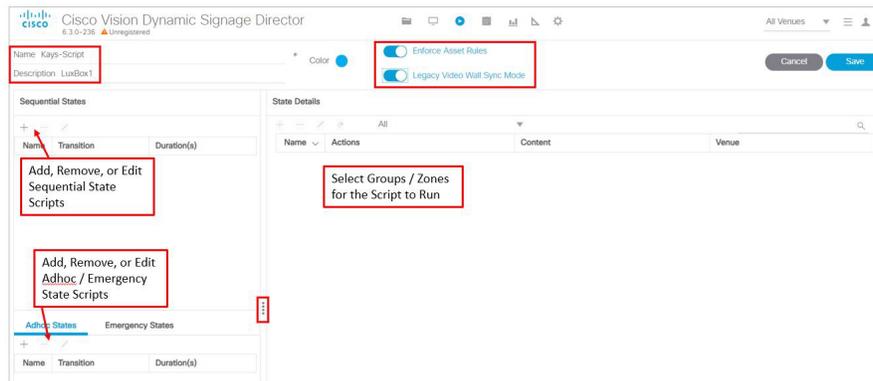
3. Enter a new name.

4. (Optional) Enter a script description.

Note: If you choose to save the event script and add state details at a later time, place your cursor in the name or description field and enter a space so the **Save** button is active.

5. (Optional) Click the Color box to assign a color to the script. If you do not select a color, the default color is selected.

    Script colors are only used for organization and do not affect any colors displayed on screens by the script. Refer to the Best Practices for the Scheduler Application, page 230 for additional information.

Note: The **Enforce Asset Rules** toggle button is **ON** by default. See Asset (Content) Validation, page 166.

You can resize the window to suit your display preferences.

Click **Script Management** to return to the **Details** window.

To create event states and assign zones / groups, continue to Creating Event States, page 218.

Creating Event States

User Role: Administrator / Content Manager

After creating an event script, add States to the script to define when, where, and the content to display. Something new is the ability to schedule a State more than once. In previous releases, a State which is scheduled already may not be scheduled again. Now you can schedule States (Sequential, Adhoc) multiple times. The Edit Actions functions are mostly identical.

To add states to an event script:

1. With an event script open, click the '+' icon under Sequential, Ad-hoc, or Emergency to create a new state. An Add State dialog box appears (Figure 7 on page 219).

Figure 7 **Sequential State Dialog Box**

2. (Required) Enter a state name.

3. (Optional) Enter a state description.

4. Select the transition type:

- Manual: Requires you to manually initiate the next event state. Manual states are most useful when the duration is uncertain. Therefore, it is recommended that you use manual states during the game.

- Timer: Automatically initiated to run for a specific length of time (in seconds) without manual interaction. It is recommended that you use time-based event states at the start and end of a game.

Note: An event operator can change the event state transition from time-based to manual at any time while the event script is running from the **Script Management** window.

5. (Optional) Add all zones to this state: When selecting this, the zones will automatically appear under State Details.

6. Click **Add**. Repeat the steps above to add additional states.

Note: Drag and drop the event states to change the order in which they display.

7. Click **Save**.

8. Click **Close** to return to the Details window to add zones / groups at a later time or continue to Assigning Actions and Content to a Zone/Group within an Event State, page 220.

Creating an Emergency State

User Role: Administrator / Content Manager

Add an emergency state, in case a real emergency happens (such as a power outage, public safety incident, or serious weather causing evacuation) should occur. Basically, there are two ways to set up an emergency state.

To add an emergency state to an event script:

Option A

1. Configure input triggers with different actions assigned (such as START emergency state and STOP emergency state).

2. If an emergency happens, send the emergency START trigger. This will activate the emergency event state on all running scripts.

3. Send the second emergency STOP trigger to stop the emergency state and return to the main script.

Option B

1. For all scripts running in parallel, assign all DMPs of each script to the emergency state.

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2. If an emergency happens, start the emergency event state on each of the scripts.

This option takes much more time to execute in a real state of emergency.

Adding a Zone / Group to an Event State

User Role: Administrator / Content Manager

Once you have created event states, the next step is to add a zone / group.

To add a zone / group to an event state:

1. With an event script open, select the state that you want to add zones / groups to.

Note: When opening a saved event script, click **Edit** in order to make changes to it. If another user has a script open that you want to make changes to, click **Release Lock** to proceed.

2. Click the '+' icon under State Details.

Figure 8 on page 220 is an example of available zones / groups to choose from that can be added to the Pre-Game state. Your list will vary depending on your venue set up. The folders represent zones and groups are shown as page icons when you expand or open the folder.

Figure 8   Adding Zone to Event State Dialog Box
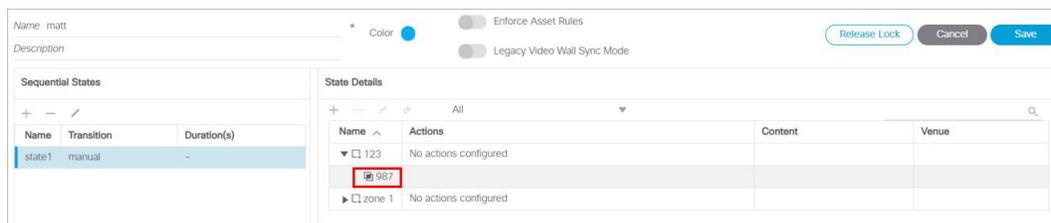
3. Select the specific zone / group that you want to add to the state, click **Add**. In this example, the Zone (123) and the Group (987) will be added to the state1 state. The State Details screen displays.

Note: The zones will automatically appear if you selected the check box to "Add all zones to this state" when you originally created the state.

4. Click **Save**.

5. Click **Close** to return to the Schedule window.

Assigning Actions and Content to a Zone/Group within an Event State

User Role: Administrator / Content Manager

Once you have added a zone / group to the event state, the next step is to assign actions and content.

To assign an action to a state:

1. With an event script open, select the state and state details (zone / group) that you want to assign an action to (Figure 9 on page 221). You can assign an action at the zone level or the group level. Groups can also inherit the actions of the zone.

2. Select the zone / group then click the **Edit** (pencil) icon. Figure 10 on page 221 displays the Edit Action dialog box where you can assign a template by selecting from the list of available actions.

Figure 9   Edit Actions Dialog Box
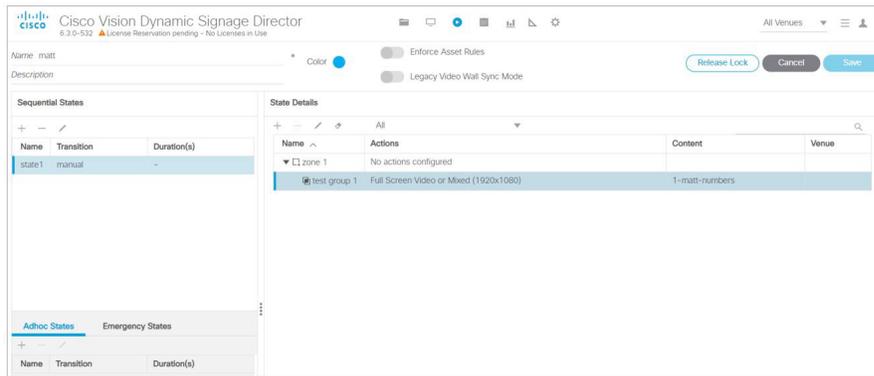
3. Double-click the Action you want to assign. Once selected, it appears under Assigned Actions. is an example of an assigned Full Screen Video or Mixed (1920x1080) template.

Note: Be sure to double-click on the action to assign it. If the action does not appear in the Assigned Actions list, click the **Refresh** icon located below the Available Actions heading.

Figure 10   Full Screen Video Example (1920x1080) Example
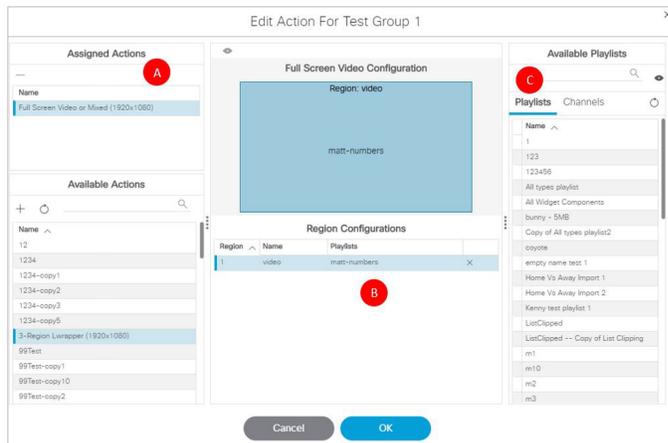
4. Configure the assigned actions and content for the state:

   a. As shown in , the Full Screen Videor (1920x1080) action has been assigned and appears on the left under Assigned Actions.

   b. The middle column shows which regions are available to assign content. In this example, you can assign content to the video. To assign content you can select from a visual perspective or from a list at the right which shows the available **Playlists** and **Channels**. Select the region (when selected, it appears highlighted) that you'd like to assign content to.

Note: When you click on the template region in the middle, only the same content type that matches the region will appear on the right panel. For example, only video or mixed media content will appear in the list when assigning content to the video region in the template.

   c. To assign content from a visual perspective, click on a **Playlist** then click the **Eye** icon to see a thumbnail of the content displayed in the playlist preview panel on the right. You can also use the search function if you have hundreds of playlists. With the region selected, drag and drop or double-click on a playlist or channel to assign

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it to the selected region. Once assigned, the name of the playlist or channel will display in the Region Configurations pane and an " x" will appear in the region row. Clicking the " x" will remove the **Playlist** or **Channel** assigned.

5. Once content has been assigned to each region of the template, click **OK**.

6. Click **Save** in the Script window. Repeat the steps above to assign an action to each zone / group or you can proceed to How to Run and Schedule Event Scripts and Series, page 225.

The following are changes to the Edit Actions dialog box (Figure 11 on page 222):

■ Two new script state actions are added under Available Actions: **Start Display Streaming** and **Stop Display Streaming**.

■ Available **Channels/Video Sources** changed to **Channels**.

■ **Local HDMI-In** source changed to **Channel HDMI-In**. This reflects the name of the new default local HDMI-In channel 0.

Figure 11   Edit Actions Dialog Box
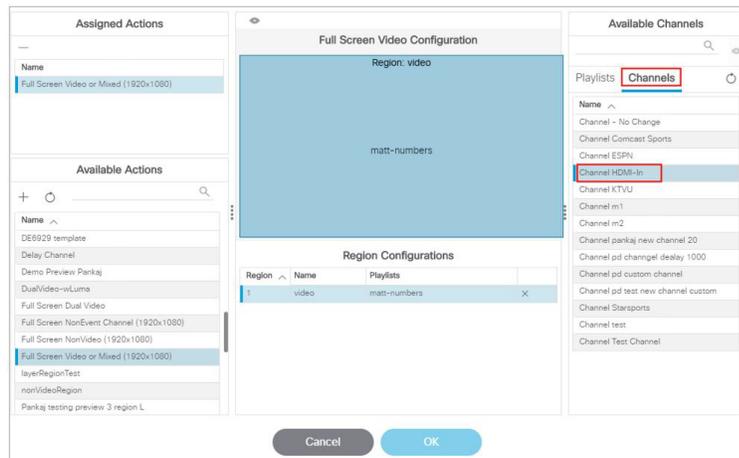
Using External Triggers to Control Script Actions

Output triggers also can be configured by the administrator to send a Hypertext Transfer Protocol (HTTP) request to notify external systems of a script event and trigger an action externally. Additional information is available at: Release 6.2: Configuring Cisco Vision Dynamic Signage Director for External Triggers.

Triggers are an approachable Advanced Programming Interface (API) mechanism to cause action to happen on Cisco Vision Director. Triggers use web-based mechanisms that connect machine to machine and define action.

Editing an Event Script

User Role: Administrator / Content Manager

If you click **Edit** from the default menu, (Figure 12 on page 223) you get the Script Editor screen (States Screen Figure 13 on page 223). This screen has all the functionality of the previous release. You also have **Edit** and **Save** buttons for any changes and editing you do. As before, the **State Details** panel shows the zones and groups. All the **State Detail** columns are now sortable. In the panel, roll over the five icons for adding a state, removing a state, editing (pencil icon) a state, removing actions for zones and groups. Resize the panels to suit your display and scroll down to see the entire list of states.

To edit an event script:

1. Click **Script Management.**

2. Select the script you want to change, then click the **Edit** (pencil) icon (Figure 12 on page 223). The Script State screen appears (Figure 13 on page 223).

Figure 12   Edit Script
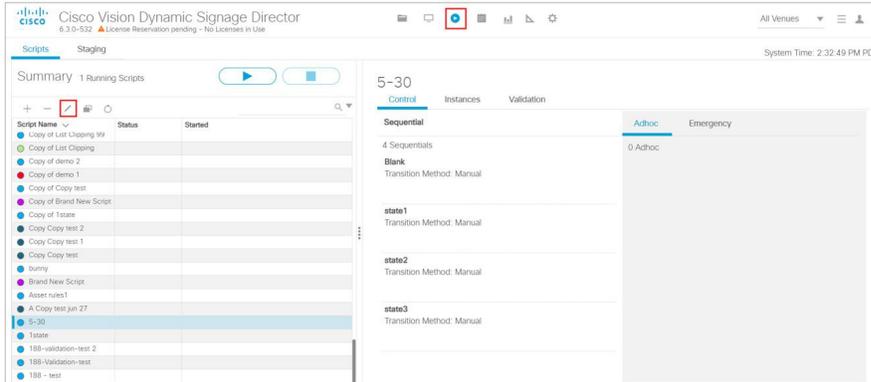
Figure 13   Script States Screen
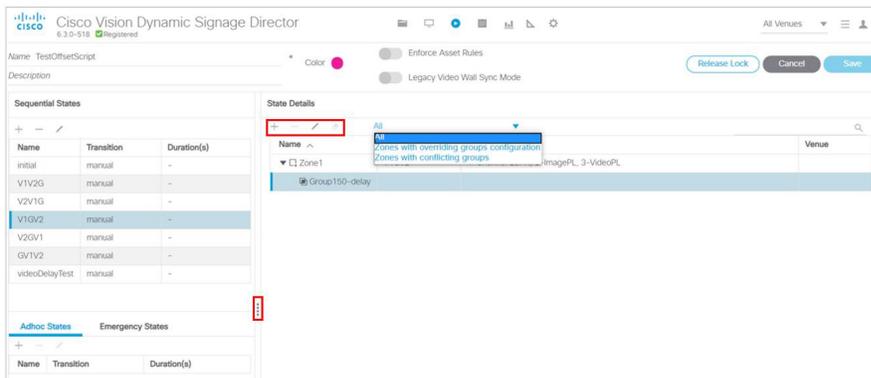
3. Make the changes and click **Save**.

If you attempt to edit a script and it is being edited by another user, you will see Figure 14 on page 223. Choose **Break Lock** to make changes.

Figure 14   Cannot Edit/Delete Script

In the default script **Summary** screen, in the right panel, the **Validation** tab that lists the Validation Messages and shows the Message, Type, Details, and Path to the selected script (Figure 15 on page 224). This is similar to the 6.1 and previous releases of **Control Panel > Schedule**, showing the Script Validation Error panel on the right. If you click on a validation error from the list, a pop-up appears with the details (Figure 16 on page 224).

Figure 15   Script Validation Summary
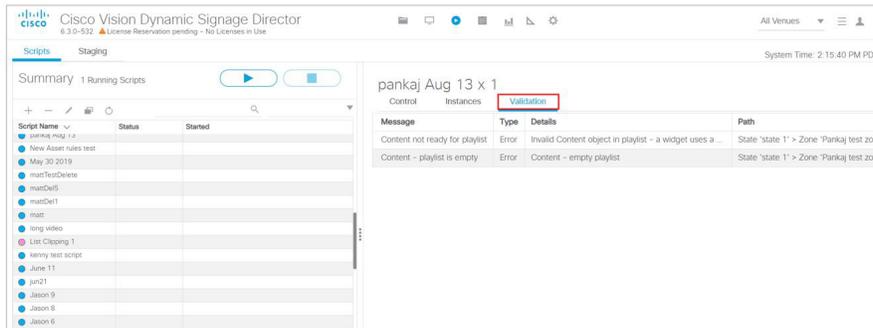
Figure 16   Script Validation Error Message
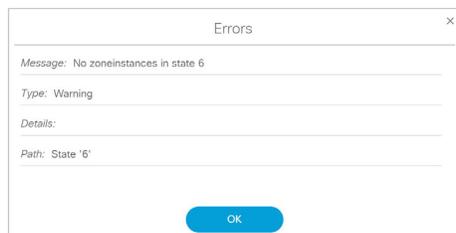
Once you load instances, see the number of them in parentheses by the name of the script. In this example, TouchScreenTestScript has one instance.

Deleting an Event Script

User Role: Administrator / Content Manager

To delete an event script:

1. Click **Script Management**.

2. Select the script you want to remove, then click the "**-**" icon, next to the Edit icon (Figure 12 on page 223). A Confirm Script Delete dialog box appears.

3. Click **Save**.

Copying Event State Actions

User Role: Administrator / Content Manager

In the case where you have actions assigned to a zone / group and the content you want displayed in another zone / group is similar, you can copy the actions.

For example, if you are using a 3-Region template and want to reuse it with the same ticker, the same video, but a different ad region, copying the template saves time.

To copy actions from one zone / group to another:

1. Click **Script Management.**

2. Open the script, select the state, state details, and the zone / group that you want to copy.

3. Click the "+" **Add** icon from the Sequential States panel. The Add State dialog box appears.

4. Click the **Copy State** tab (Figure 17 on page 225).

Figure 17   Copying Event Actions
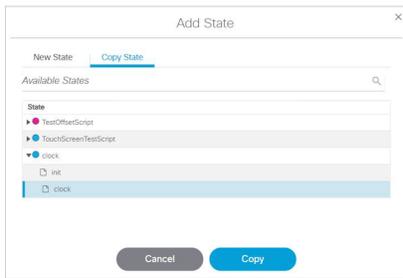
5. Select the states that you want to assign the same actions (template) to. Use Cnt Click to select multiple states.

6. Click **Copy**. The states now appear in the Sequential States panel.

7. Click **Save** to save the script.

8. Click **Script Management** to return to the Scripts window.

Changing an Event Script Color

Administrator / Content Manager

To change the color of an event script:

1. Go to **Script Management.**

2. Open the event script by clicking the **Edit** pencil icon.

3. Click the color circle and choose the new color from the color picker (Figure 18 on page 225).

Figure 18   Selecting a New Script Color
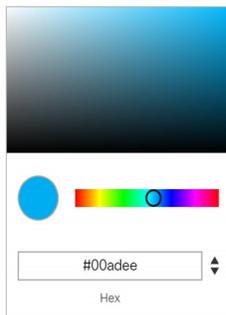
4. Click a color from the color picker to save it and close the box.

The event script appears highlighted with the new color.

Note: If color changes do not appear in the Scheduler application, reload or refresh the web browser.

How to Run and Schedule Event Scripts and Series

There are two ways to run and schedule event scripts:

■ From Cisco Vision Director **Script Management** to run single event scripts and to set single event scripts to run in advance. If you run an event script using this method, the scheduled event script will not appear in the Scheduler application.

■ From Cisco Vision Director click **Event Management** to schedule single events and recurring event script series in the future. If you schedule an event script using this method, it will appear as scheduled in **Script Management**. You can also cancel the scheduled event script from **Script Management** or from the Scheduler application.

Starting an Event Script

User Role: Administrator / Event Operator / Venue Administrator / Venue Operator

Note: When running an event script or setting the run time in advance from **Script Management**, it will not appear in the Scheduler application. An event script has to be scheduled using the Scheduler application for it to appear there.

To run an event script:

1. Go to **Script Management**. Check to see if any running scripts should be stopped.

   Figure 19 on page 226 shows the Summary list view and the options available there. As shown below, there is one script currently running.

Figure 19   Summary Window
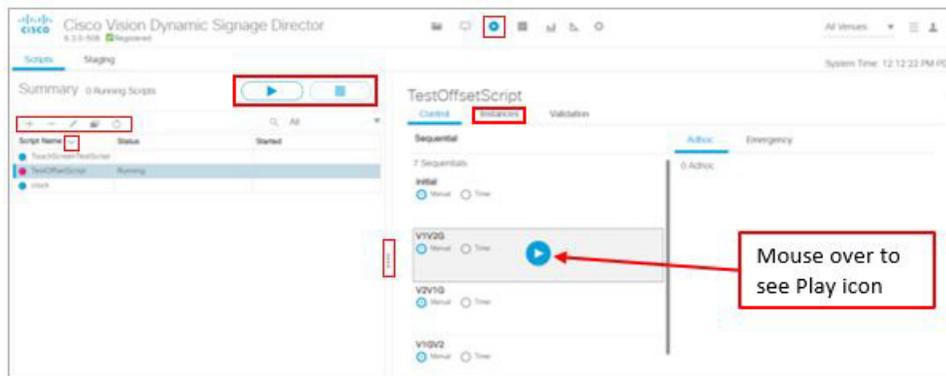
2. From the Script List (left), select the script that you want to start.

3. Select **Start** (Play icon on upper right).

The start script dialog box appears (Figure 20 on page 226).

Figure 20   Start Script Dialog Box

4. (Required) Name the script instance. A name will appear automatically based on the script name.

5. (Required) Select Start Time or when you'd like the script to run. **Keep in mind that if you select Now, the Start Time includes time to stage the script.**

You also have the ability to run the script in the future by entering how many minutes in advance you want the script to run. Click the **In** radio button then type in the number of minutes from now (Figure 21 on page 227. You can also specify the **Start Staging** time in advance of the script start.

Figure 21   Starting an Event Script in Advance

6. (Required) Select the **Duration** of the script or how long you want the script to run. Typically this is set to **Forever** as you don't know exactly how long the event will take. This also provides the ability to manually end the script when the event is over.

7. (Required) Select whether to stage by selecting **Yes** or **No**.

   For more information about staging content, see the Staging Content to the Media Player, page 173.

8. (Required) Turn Proof of Play On (yes) or Off (no).

9. Click **Start**. As the script starts, the content in the playlist will be staged to the DMPs associated with the zones / groups. When the script is fully staged, the first state will change color to blue in the Summary window and show "Starting."

   Script states will advance automatically if set, or the event operator can manually advance them as shown in Figure 22 on page 227.

Figure 22   Example of a Running Script

You can see the Instance Details by clicking on a Running script from the left panel list. The right panel changes to show you what instances are coming up for that script.

If you want to change state from Manual to Timer, click the radio button. The Timer window appears (Figure 23 on page 228).

Figure 23   Confirm Timer Setup Window
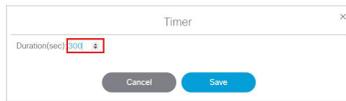
Use the arrows to add or subtract seconds. The default is 300 seconds. Click **Save**.

> **Note**: **When advancing from state to state, it is important that you allow media players to load the runtime and get into a ready state to receive and process new script actions. We recommend that you define an empty script state (without any actions or commands) as the first state in all event scripts. Configure it to run for a duration of at least two minutes (120 seconds) before changing to a different state.**

Staging a Script

Staging a script pushes the script information to the DMP to prepare it for displaying onto the monitor.

To stage a script to the DMP:

1. Click **Script Management**. The Summary window appears.

2. Click the **Staging** tab (Figure 24 on page 228).

3. Click the **Play** icon (Start Staging) and select the script from the drop-down list.

4. .Select the target: all DMPs within the script or select a few within the script.

5. Click **Start** to begin staging the scripts to the DMPs.

Figure 24   Start Staging a Script
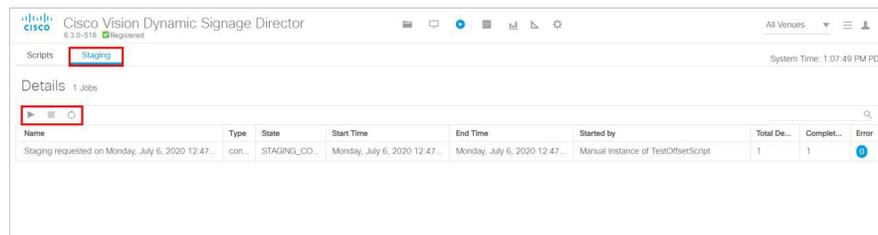
Stopping an Event Script

User Role: Administrator / Event Operator / Venue Administrator / Venue Operator

To stop an event script:

1. Go to **Script Management.**

2. Locate the running script from the Script List using search, a filter from the drop-down menu, or scrolling down. Select the script.

3. Click **Stop** icon.

To stop a script at a future time:

4. Click **At** (Figure 25 on page 229).

5. Click the mm (for month). Use the down arrow for the calendar pop-up.

6. Choose the **Date, Hours, Minutes,** and **Seconds**. Use the arrows.

7. Click **OK**.

Figure 25   Stopping a Running Event Script
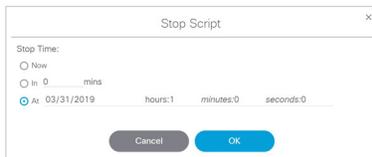
Information About the Scheduler Application

This module describes the Scheduler application that is available from the Cisco Vision Director Main Menu. The Scheduler application was introduced in Release 4.0 to provide a calendar-based script scheduling function. It provides the following capabilities:

■ Schedule a single occurrence or recurring event series in advance.

■ The Scheduler application uses these already created event scripts to schedule single events or event series. These events or events series created by the Scheduler application will be listed in Script Management under each script folder.

■ Modify and/or cancel a single occurrence, recurring event series, or an occurrence within a recurring event series.

■ Automate the start and stop of an event script.

■ Define event script parameters when scheduling an event script.

■ View scheduled event scripts by day, week, and month.

Navigating the Scheduler Application User Interface

The Scheduler application appears as a calendar (Figure 26 on page 230) that allows you to navigate the user interface by:

■ Day, week, or month.

■ Calendar icon to select a specific time frame.

Note: Days that have a scheduled event script and the current day appear highlighted.

■ Left and right arrows to view previous and future time frames.

■ To schedule a new event script, double-click on the day that you want the event script to run.

■ To modify a scheduled event script, double-click on the scheduled event.

Figure 26   Scheduler Application Interface
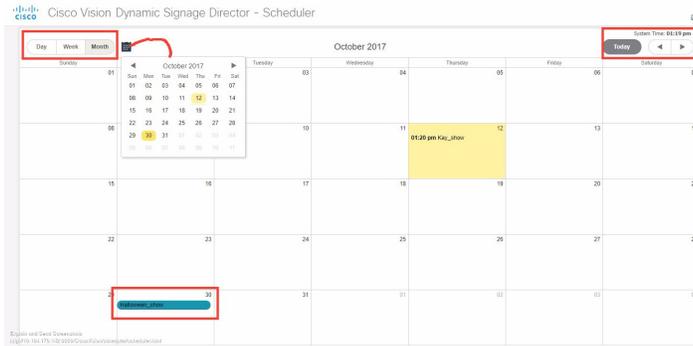
How to Schedule Event Scripts Using the Scheduler Application

This section includes the following tasks:

- Prerequisites for Using the Scheduler Application, page 231

- Accessing the Scheduler Application, page 232

- Creating a New Event, page 232

- Creating a New Event Series, page 233

- Confirming an Event Script is Scheduled, page 235

- Modifying a Scheduled Event, page 234

- Canceling a Single Event, page 235

- Canceling an Event Script Series or Single Occurrence in a Series, page 235

Best Practices for the Scheduler Application

When using the Scheduler application, consider the following best practices:

- For event scripts that need to run fairly soon or on the same day, initiate starting the script using **Script Control > Start Script** interface.

- It is recommended to manually stage scripts for optimal operation. Manually staging scripts ensures the staging process is kept to a minimum. If you rely on automated staging, failures are not easily detected unless you view the staging job status.

- The Scheduler application is best used for unattended event script starts and ends, such as for store opening and closing.

- You can drag and drop a scheduled event script to take place at the same time on a different day.

- Select a color for the event script at the time of creation. Script colors are only used for organization and do not affect any colors displayed on screens by the script. After the event script is created, you can edit the color by editing the script. The color selected for the script will also be displayed in the Scheduler application. If the script color is changed from **Script Management**, the new script color will be reflected in the Scheduler application. If a specific color is not selected, a default (blue) color will be assigned.

- If after scheduling an event script or series it doesn't appear in the Scheduler application calendar view, reload or refresh the web browser.

- If you scheduled events using the Scheduler application, you can change the event name or cancel the event from the **Script Management**. Modifications made to events that are scheduled using the Scheduler application are reflected in **Script Management**.

- Do not change settings for an event that is in the past. Be careful when editing an event series that has events that have already completed.

IMPORTANT: While it is possible to cancel a single occurrence that is part of a series, it is not recommended. For example, if you cancel a single occurrence that is part of a series, then edit and save the series, the changes made to the single occurrence will be lost.

Guidelines for the Scheduler Application

When using the Scheduler application, consider the following guidelines:

- Event scripts must be created in advance of using the Scheduler application.

- While you can schedule different event scripts to run on the same day and at the same time, only one event script can stage at a time. In practice, the event scripts will not start simultaneously as staging for one script will block the other scripts from staging until they have a chance to stage.

CAUTION: Do not delete a played scheduled event script or series before generating a proof of play report. If a scheduled event script or series is deleted, all proof of play data will be lost. Prior to deleting an event script, we highly recommend to generating a proof of play report.

Restrictions for the Scheduler Application

When using the Scheduler application, consider the following restrictions:

- You cannot schedule the same script to run during the same interval. If you try to do this, a warning will appear.

- Single scheduled event scripts must be edited individually. You cannot select and edit multiple scheduled single event scripts at one time. However, you can edit an entire series at one time by opening any instance from the series.

- When using the Scheduler to control the start/stop of event scripts, be very careful of editing a scheduled script that requires you to manually stop it. The risk is that if you then manually restart that script, the Scheduler will not stop a manually-started script.

  Remember to manually stop that script at the appropriate time, or the script is blocked at the next regularly scheduled start time. If this happens, either remove the blocked script or stop the manually-started script.

- The Scheduler application will only display events that are created using the Scheduler.

- Events created from the **Script Management** will not appear in the Scheduler application.

- You cannot set the zone and group specifics through the Scheduler application.

Prerequisites for Using the Scheduler Application

Before you use the Scheduler application, be sure that the following requirements are met:

- You have an Administrator or Event Operator Role Based Access Control for Cisco Vision Director.

- You have created an event script through **Script Management**.

Accessing the Scheduler Application

User Role: Administrator / Event Operator

To access the Scheduler application:

1. Log into Cisco Vision Director as an Administrator or Event Operator.

2. Click **Event Management** (Figure 27 on page 232).

Figure 27   Access the Scheduler Application

The Scheduler application opens in a new browser window with the current day highlighted as shown in Figure 26 on page 230.

Creating a New Event

User Role: Administrator / Event Operator

The following steps summarize the overall workflow to schedule a single event script occurrence using the Scheduler application:

1. Click **Event Management**.

2. Double-click on the day that you want the event script to run. The **Create New Event** dialog box appears.

3. Complete the Create New Event dialog box (Figure 28 on page 232).

Figure 28   Creating a New Event

a. **Event Name**: Type in a name for the event in the Event Name field (required).

b. **Select script**: Select the event script from the Select Script drop-down menu.

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  c. **Repeat event**: Leave the check box as is (unchecked) for a single event.

  d. **Select options**: Click the check boxes to active or deactivate the following options: **Proof of Play**, **Staging** (enabled by default), **Force Stop**.

Selecting **Force Stop** causes the script to end automatically at the scheduled end time. If Force Stop is not selected, the script will continue to run until a user manually stops the event script through the **Event Management** or if a trigger is received that stops the script.

When you setup your environment to start a script based on calendar time, in recurring mode, and fail to explicitly check the "Force stop" checkbox, you may end up with blocked scripts—if you forget to manually stop the script before the next scheduled script starts.

Note: Previously, when creating a calendar event for scheduling script start, the default behavior was to not force stop the script. Now, the *default* for a new event is "force stop."

  e. **Time period**: Select the date and time for the event script to run (Figure 29 on page 233).

Figure 29 Set the Event Time Period

4. Save the scheduled event script. The Scheduler application appears with the scheduled event script highlighted in the color that was selected when the script was created.

IMPORTANT: When scheduling a recurring event that happens during a Daylight Saving Time change, the UI may show a duplicate event before or after the time change.

Creating a New Event Series

User Role: Administrator / Event Operator

The following steps summarize the overall workflow to schedule an event script series using the Scheduler application:

1. Click **Event Management**.

2. Double-click on the day that you want the event series to run. The **Create New Event** dialog box appears.

3. Complete the Create New Event dialog box as shown in Figure 30 on page 234.

Restrictions for the Scheduler Application

Figure 30   Creating a New Event Series

a. **Event Name**: Type in a name for the event series in the Event Name field (required).

b. **Select script**: Select the event script from the Select Script drop-down menu.

c. **Repeat event**: To schedule an event series, check the check box. Once selected, the event series options appear. Set the series as applicable.

Daily: Select Daily to repeat an event for a specific number of days. As in the example above, enter the frequency (every other day) and the number of occurrences (1) or set an end date. In this example, the event would be scheduled 1 time on Monday, Wednesday, and Friday ONLY.

Weekly: Select Weekly to repeat an event script on a weekly basis.

Note: Be careful when entering a number of occurrences. In the example above if the number of occurrences was set to 1, the event would only be scheduled 1 time in several weeks >>> not good!

d. **Select options**: Click the check boxes to activate or deactivate the following options: **Proof of Play**, **Staging** (enabled by default), **Force Stop**.

Selecting Force Stop causes the script to end automatically at the scheduled end time. If Force Stop is not selected, the script will continue to run until a user manually stops the event script through the **Event Management** or if a trigger is received that stops the script.

e. **Time period**: Select the date and time for the event script series to run.

f. **Schedule states**: Slide the button and the fields appear to choose Blank, FS Multicast, or FS Images. Set the times the scripts will display. To add more options, click the "plus" button.

4. Save the scheduled event script series. The Scheduler application appears with the scheduled event script series highlighted in the color that was selected when the script was created.

Modifying a Scheduled Event

User Role: Administrator / Event Operator

To modify a scheduled event script occurrence or series:

1. Locate the scheduled event script or series in the Scheduler application.

2. Double-click the scheduled event script to open it.

3. Select **Edit Series** or **Edit Occurrence**.

4. Change the applicable options and choose **Save**.

> Do you want to edit the whole set of repeated events?
>
> Edit series   Edit occurrence   Cancel

Confirming an Event Script is Scheduled

User Role: Administrator / Event Operator

To confirm an event script occurrence or series is scheduled:
1. Click **Event Management.** If an event script is scheduled, the Status column indicates scheduled.

Canceling a Single Event

User Role: Administrator / Event Operator

To cancel a scheduled event script:
1. Locate the scheduled event script that you want to cancel from **Script Management**.

2. If using the Scheduler application, **double-click** the event script to open it.

   a. Click **Delete** in scheduler dialog box.

   b. Click **OK** in the alert dialog box.

   c. Navigate to the Scheduler application to view changes.

      If changes or cancellations do not appear in the Scheduler application, reload or refresh the web browser.

3. If canceling the event script from **Script Management**, highlight the script instance, right-click and select **Stop**.

Canceling an Event Script Series or Single Occurrence in a Series

User Role: Administrator / Event Operator

To cancel a scheduled event script series or a single occurrence that is part of a series:
1. Locate the scheduled event script series or single occurrence in a series that you want to cancel in the Scheduler application.

TIP: To cancel a scheduled event series, you can select any instance from the series to cancel the entire series.

2. **Double-click** the event to open it.

> Do you want to edit the whole set of repeated events?
>
> Edit series   Edit occurrence   Cancel
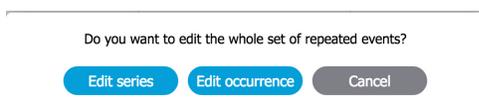
   a. To cancel the entire event script series, click **Edit series**. In the scheduler dialog box that appears, click **Delete**. Next, click **OK** in the alert dialog box.

   b. To cancel a single occurrence that is part of a series, click **Edit occurrence**. In the scheduler dialog box that appears, click **Delete**. Next, click **OK** in the alert dialog box.

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3. Navigate to the Scheduler application to view changes.
If changes or cancellations do not appear in the Scheduler application, reload or refresh the web browser.

Troubleshooting Event Scripts

Troubleshooting Blocked Scripts

Several conditions can cause a scheduled script to be blocked from running. No error messages occur during these conditions, and it requires manual discovery and correction.

In many cases, a scheduled script has problems because a separate method has been used to control the starting or stopping of that script in addition to the Scheduler application.

A script might become blocked under the following conditions:

- A running scheduled script was manually stopped and restarted.

  The Scheduler application cannot stop a script that was manually started, even if the script had originally been scheduled. If the manually-started script instance is still running at the time of the next scheduled start, then the script is blocked.

  Either remove the blocked script or manually stop the currently running script.

- Triggers were used to start a script that is also scheduled.

  The Scheduler application cannot stop a script that was started through an external trigger. If the triggered script instance is still running at the time of the next scheduled script start, then the script is blocked.

  Either remove the blocked script, or stop the currently running script manually or using an external trigger.

- When DMPs associated with a blocked script are referenced by another script that is running, the additional script is also blocked.

Running Event Operations

Workflow Summary for Running an Event

Table 2 on page 236 provides a summary of the tasks and related information to run an event in Cisco Vision Director.

Table 2   Running an Event Resources

Event Stages	For more information, see:
Plan the event and prepare content	Cisco Vision Director Operations Playbook Cisco Vision Content Planning and Specifications Guide: Dynamic Signage Director
Create and schedule event scripts to run the event	How to Run and Schedule Event Scripts and Series, page 225
Capture event data by generating Proof of Play reports	Release 2.4 and Later Releases: Cisco Vision Director Proof of Play

Monitoring Media Player Operation During an Event Using Device Management

User Role: Administrator / Help Desk/ Support / Venue Operator / Venue Administrator

This module describes how to monitor operation of media players using **Device Management** in Cisco Vision Director.

Information About Device Management

The **Device Management** application shows at-a-glance device status information for media players and their attached TV displays during an event (Figure 1 on page 237).

Figure 1   Accessing the Device Management Application
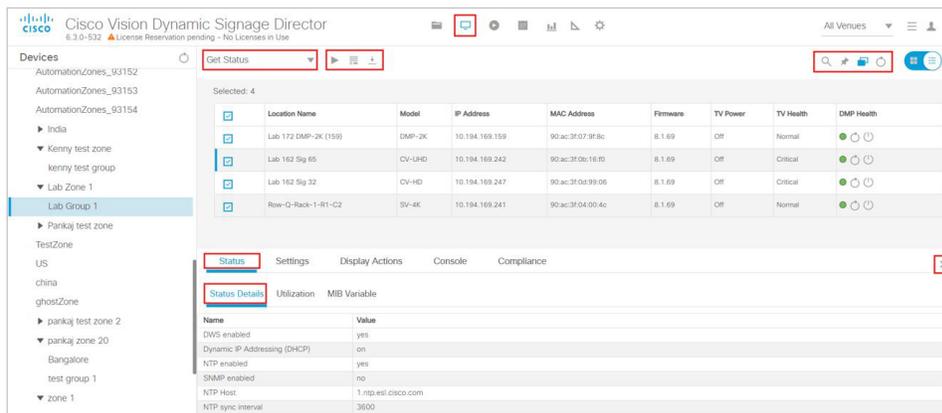
Device Management Highlights

- Is accessible from the Cisco Vision Director **Main Menu**.

- Supports multi-venue site selection.

- Polls media players every 120 seconds (default) and auto-refreshes the monitoring display.

- Supports different ways to view device status.

- Allows you to select media players that you want to monitor by:

  - All criteria

  - Location Name

- – Description

- – IP address

- – MAC address

- – Firmware

- – DMP state

- – DMP health

- – DMP model

- – TV status

- – TV health

- – Location

- – WiFi enabled

- – Power Over Ethernet

- ■ Provides icon for Administrator to Refresh or Restart a digital media player.

- ■ Displays the folder structure in the Devices panel into Zones and Groups, Luxury Suites, the Auto Registered Devices, and All Devices.

Device Management Roles

Note: The Administrator is the only role that can restart media players within the **Device Management** interface, or change the polling interval.

Device Management can be used by the following Cisco Vision Director user roles:

- ■ Administrator

- ■ Help Desk

- ■ Support

- ■ Venue Administrator

- ■ Venue Operator

Device Management Views

Device Management supports three monitoring views of device status:

- ■ Thumbnail View—Provides the Devices Panel and the thumbnail of the devices or toggles to only List view.

- ■ List View—Provides detailed device status information in a tabular format.

Enhancements to Device Management

When the **Management Dashboard** interface got completely redesigned for Release 6.3, we moved the capabilities of the **Monitor and Status** of the devices and the **DMP and TV Control** drawers to **Device Management**. We upgraded the search/filter functions to allow you to quickly perform an action on large groups of DMPs. To make your search or filter

functions additive, use the **Pin** (see red box in Figure 1 on page 237).

■ Hover over the icons in the top right for functions.

■ Click the **Refresh** icon in the top right of the **Devices** panel to refresh your preview, without having to wait for the next auto-refresh cycle to show a preview. This works for multiple DMPs, too.

■ Within a Zone or Group, you can use Pinning mode (see Pinning Mode, page 239) to select multiple DMPs within a set and perform a function (such as Turn TV On).

■ Provides **Status, Settings Display Actions, Console,** and **Compliance** tabs data—each with their own sub set of tabs for read-only information (ported from **Management Dashboard**)

Note: Thumbnail view for the Auto Registered and All Devices folders is not supported.

Pinning Mode

We added a new feature and a **Pin** icon. Using **Pin** allows you to build "sets" or groups of DMPs on which you want to take an action, such as Start Streaming (Figure 1 on page 237). Pinning mode works in conjunction with Search/Filter and allows you to "pin" your results to the previous Search/Filter criteria. This makes your searches additive, allowing you to build groupings more effectively. See Device Management Filters, page 244 to use **Pin** and **Search/Filter** modes.

Note: When in Pinning Mode, if you toggle back and forth from Listview to Thumbnail View, all your list criteria is lost.

Status of the DMPs

The **Status** functions are available in **Device Management**. This interface allows you to view device information.

Check Status of the Devices

To see device status information:

1. Click **Device Management**.

2. Select a device from the folders in the Devices panel. The main panel displays.

3. Select a device from the main panel and five **Status** tabs appears below (Figure 2 on page 239).

Figure 2   Device Status Information Panel

The top row of tabs determine what the lower row of tabs display. All of the columns are searchable. Start typing in the search field and the information updates.

Check the Console Information

To check the Console data:

1. Click the **Console** tab (Figure 3 on page 240). The display option default is **All** messages.

2. Click the down arrow to choose one of the following criteria to filter to:

■ Debug

■ Info

■ Warning

■ Error

Figure 3   Console Information on the Devices

DMP and TV Controls

The **DMP and TV Controls** drawer of **Management Dashboard** is now available in **Device Management**. All the available commands and controls to choose from are under the **Get Status** drop-down arrow.

To perform an action on the DMPs:

1. Select all DMPs from your folders in the **Devices** panel. The devices appear in the center list.

   Note: To search / find DMPs, see Device Management Filters, page 244.

2. Select the devices from the center panel. They are highlighted and the **Status** and **Console** tabs panel appear at the bottom portion of your screen.

3. Click the down arrow near **Get Status** and select an action from the list (Figure 4 on page 241).

Figure 4   Get Status Actions
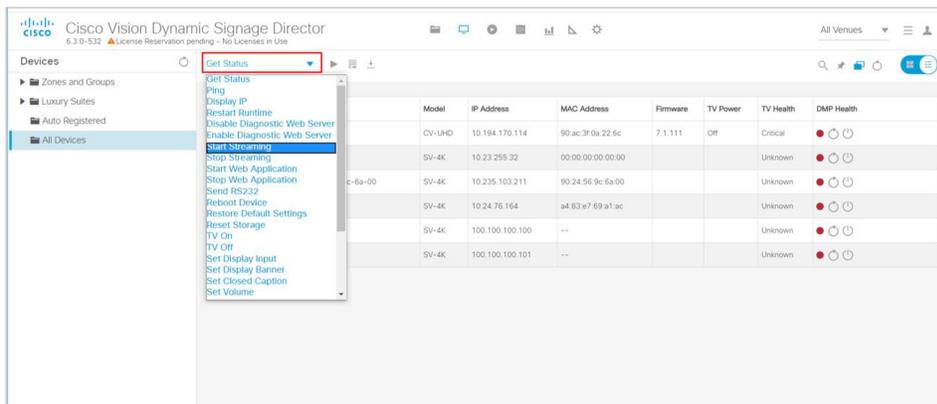
4. Click the **Play** icon (**Send Command**) on the device(s) to perform the action. The Send Command dialog box appears (Figure 5 on page 241). The Send Command box shows data applicable to the action you chose from the Get Status pull-down. Some fields are editable.

Figure 5   Send Command Dialog Box
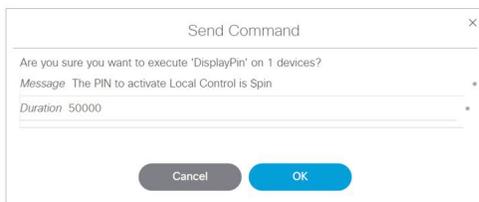
5. Click **OK**. A confirmation of the command appears.
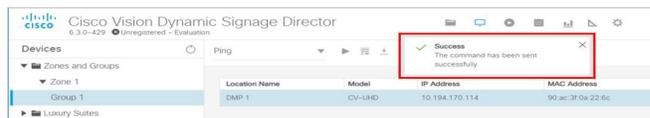
Check Status of the Command

To check the status of the command you just sent:

1. Click the **Command Status** icon (see icons in red box Figure 1 on page 237). The Command Status dialog box appears showing your selected devices and their status (Figure 6 on page 242). Depending on what action you chose (in the Description column, you can stop the Action, shown in the far right column). This dialog shows only "in-progress" commands. Completed commands are not shown in the Command Status dialog box. This control is similar to the **DMP and TV Control** drawer from Release 6.2 Management Dashboard.

Figure 6   Command Status Dialog Box
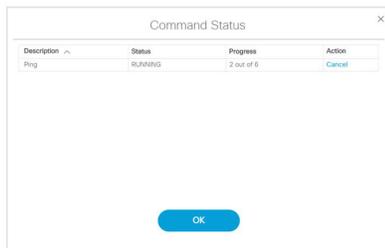
To export the punch list on the selected device(s):

1. Click the **Export** icon (). The data downloads.

To refresh or reboot the devices or the screen:

1. Click the **Refresh** or **Reboot** icons ().

Figure 7   Refresh or Reboot Devices
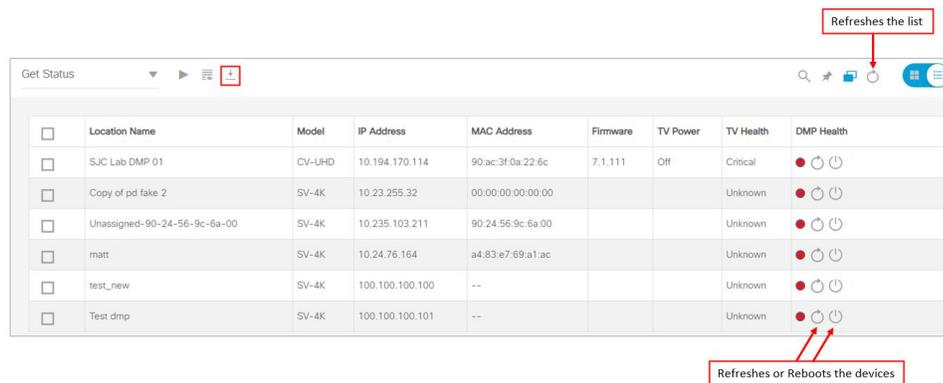
DMP and TV Control

To select DMP or TV controls:

1. Select all DMPs from your folders in the **Devices** panel. The devices appear in the center list.

    Note: To search / find DMPs, see .

2. Select the devices from the center panel.

3. Use the **Pin** to add more devices from other sets or groups.

4. Use the check boxes to select or deselect.

5. Click the down arrow near **Get Status** and select an action from the list ().

6. Click the **Play** icon (**Send Command**) on the device(s) to perform the action. The Send Command dialog box appears.

7. Click **OK**.

To turn on/off TVs or set channel numbers:

1. Select all DMPs from your folders in the **Devices** panel. The devices appear in the center list.

Enhancements to Device Management

> **Note:** To search / find DMPs, see Device Management Filters, page 244.

2. Select the devices from the center panel.

3. Use the **Pin** to add more devices from other sets or groups.

4. Use the check boxes to select or deselect.

To act on multiple devices:

Note: You must have the devices set in zones to turn off multiple devices. Also, you must have privileges to perform this action.

5. Select the TVs with the check boxes.

6. Use the action down arrow to select > **TV Off** (Figure 8 on page 243).

7. Click **Send Command** (Figure 8 on page 243).

Figure 8   Send Command to Turn TVs Off in Set
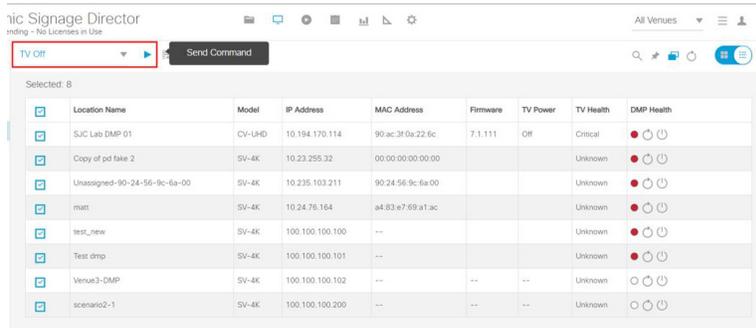
To set channel numbers:

1. Change the action pull down to **Set Video Channel** for the devices you selected (checked).

2. Click Send Command confirmation box appears (Figure 9 on page 243).

Figure 9   Send Command Confirmation
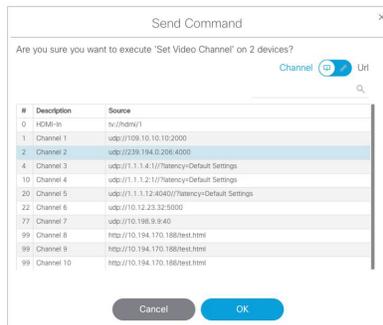
You can choose a channel from the list of channels from the channel guide or a URL channel. Use the toggle.

3. Click **OK**.

For acting on a single device:

– Toggle to thumbnail view. Click an image in the view and the screen changes to show DMP summary and Configuration tab at bottom (Figure 10 on page 244).

Figure 10   TV Control Dialog Box
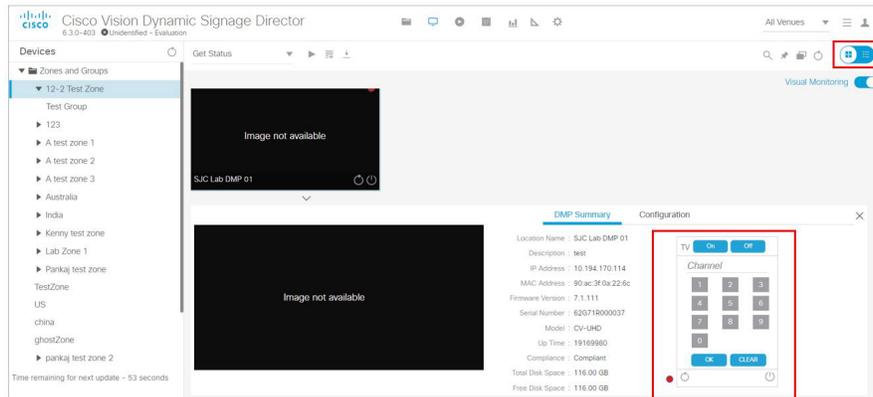
– Turn the selected devices on, off, set the Channel number, or refresh. To turn TVs off, a confirmation dialog box appears.

– Click **OK**.

Device Management Filters

Filter allows you to apply filter criteria to the devices list so you see devices with specific characteristics or conditions:

- DMP State

- DMP Health

- Model

- TV Status

- TV Health

- Location

- Wifi Enabled

- Power over Ethernet

To use the filter function:

1. Select the device criteria from the **Devices** panel on the left.

2. Click **Search** and the **Find Devices** dialog box appears (Figure 11 on page 245). Toggle to **Filter**.

3. Search by **Field** or **Value**. Once you select the **Field** criteria from the bullet list above, the **Value** options update so only the options corresponding to the **Field** value display.

4. Click **OK**. The criteria appear in the list of devices.

Enhancements to Device Management

Figure 11   Find Devices Dialog Box
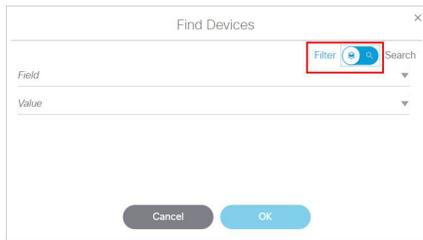
Filter Devices Options and Criteria

Table 1 on page 245 lists the filtering criteria. To Find or Filter on your devices, choose a **Field** option, then the available options display in the **Value** field. This is particularly useful when building sets of DMPs on which to act.

Table 1   Filter Device Options

Field	Value
DMP State	Ready Not Ready Production
DMP Health	Normal Critical Unknown Unreachable Compliant Not Compliant
Model	CV-UHD2 CV-HD2 CV-UHD CV-HD SV-4K DMP-2K
TV Status	On Off
TV Health	Normal Critical Unknown
Location	Normal Location Mismatch Automatic Linked Manually Linked Link Failed
WiFi Enabled	Yes No
Power over Ethernet	Switch Interface Known Switch Interface Not Known

To add to (pin) your filter criteria and retain already searched or filtered devices:

1. Click the **Pin** icon.

2. Select different search/find criteria.

3. Click **OK**. The new information *adds* to your previous list. The check boxes allow you to deselect a device that you DON'T want to perform an action on.

Cisco Vision Director checks the set and does not duplicate entries in case of overlapping criteria.

Best Practices for Device Management

When working with **Device Management**, consider the following best practices:

- Do not change the DMP polling interval to less than the 120000 ms (2 minutes) default.

- To reduce network traffic, only enable monitoring for the DMPs that you want to observe for the event.

How to Use Device Management

This section includes the following topics:

- Prerequisites for Device Management, page 246

- Restrictions for Device Management, page 246

- Enabling Visual Monitoring of Devices in Device Management, page 246

- Enabling Visual Monitoring of Devices in Device Management, page 246

- Viewing DMP Details in Device Management, page 247

- Rebooting DMPs in Device Management, page 248

- Changing the Device Management Polling Period, page 248

Prerequisites for Device Management

Before you configure **Device Management**, be sure that the following conditions are met:

- DMPs are created in Cisco Vision Director.

- DMPs are assigned to zones, groups, and luxury suites.

Restrictions for Device Management

Before you use **Device Management**, consider the following restrictions:

- Only users with role of Administrator can reboot DMPs from **Device Management**.

Enabling Visual Monitoring of Devices in Device Management

User Role: Administrator / Help Desk / Support / Venue Operator / Venue Administrator

By default, monitoring of devices in **Device Management** is disabled.

Note: Visual Monitoring is supported for the DMPs in the **Zones and Groups** and **Luxury Suites** folders only.

To enable monitoring of devices in Device Management:

1. From the **Device Management** screen, select a Zones and Groups or Luxury Suites folder and drill down to the device you want to see.

2. Switch the view to thumb nail. The images appear.

TIP: Disabled DMPs display "Non Monitorable" on the screen when you select them (Figure 12 on page 247).

3. Select the DMP(s) that you want to enable for monitoring and select the Visual Monitoring slider to ON (Figure 12 on page 247).

Figure 12   Visual Monitoring Checkbox
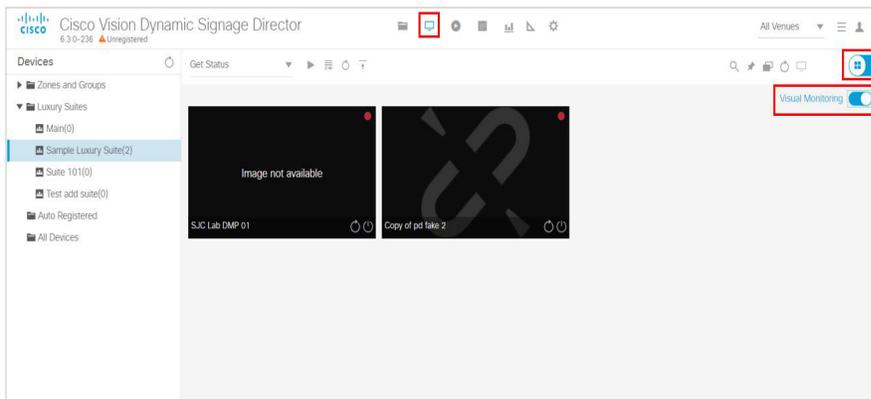
Viewing DMP Details in Device Management

User Role: Administrator / Help Desk Support / Venue Operator / Venue Administrator

You can view a lot of information about DMPs from **Device Management** including addressing information, firmware version, disk space and configuration.

To view DMP details in Device Management:

1. Click **Device Management**.

2. Click Search / Filter find the DMP that you want information about.

3. Click the thumbnail of the DMP. The DMP Summary page displays (Figure 13 on page 247).

Figure 13   DMP Summary Panel
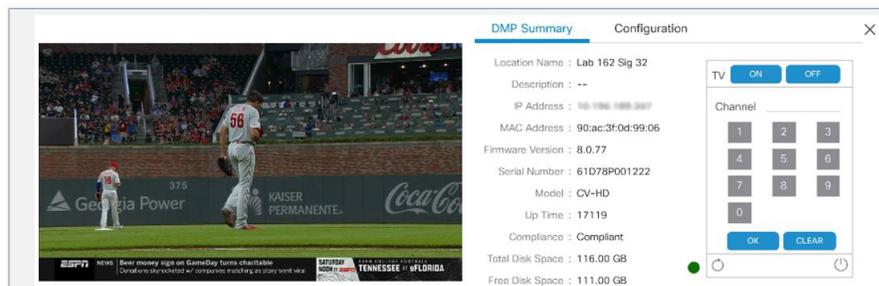
From here, there are TV controls you can manage such as:

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- – Channel selection

- – TV On

- – Refreshing the DMP device

- – Rebooting the DMP device

  Note: In thumbnail view, **Refresh** only updates the devices you see on your screen, not the entire list of DMPs in the selected zone.

4. To see configuration information such as switch and script information, click **Configuration**. The DMP Configuration page displays (Figure 14 on page 248).

   From here, there are TV controls you can manage such as:

- – Group

- – Active Script

- – Switch

- – Video Mode

- – Screen Resolution

Figure 14   DMP Configuration Panel

Rebooting DMPs in Device Management

User Role: Administrator / Venue Administrator

ONLY users with the Administrator role can reboot DMPs from within **Device Management**.

The reboot devices button can be used from either the grid view (Figure 7 on page 242) or list view.

Changing the Device Management Polling Period

User Role: Administrator / Venue Administrator

By default, **Device Management** polls devices to update status every 120 seconds.

To change the Device Management polling period:

1. Click **Configuration > System Configuration > Management Dashboard > DMP Health Poller.**

2. In the Configuration Property box, select **Normal Poll Interval in seconds** (Figure 15 on page 249).

Figure 15   DMP Health Poller
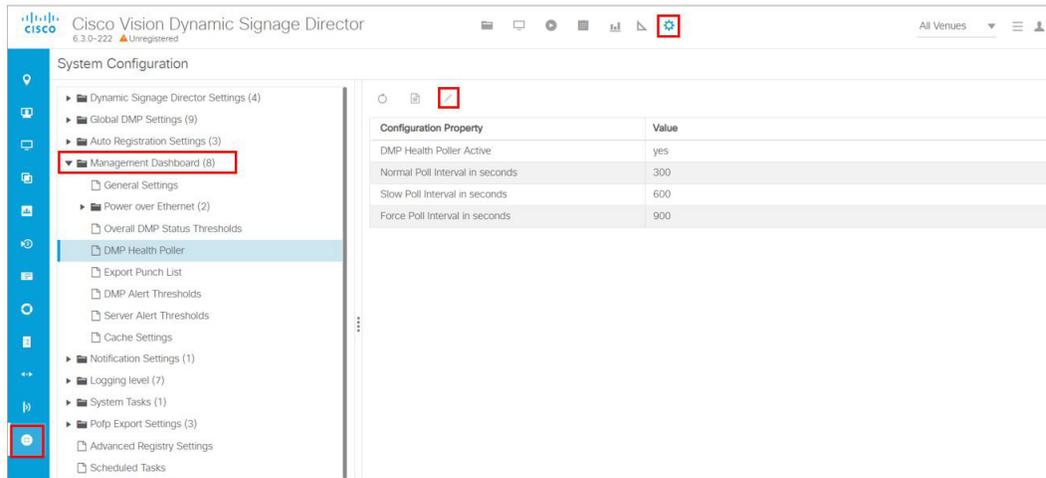
3. Click **Edit**. The **Edit - Configuration Setting** dialog box appears.

4. In the **Value** field, type the time period in ms.

5. Click **Save**.

TIP: You do not need to reset the DMPs to apply the new value. Whenever a script starts, the media player retrieves the global settings.

Note: In Listview, polling occurs every 60 seconds for cached data.

How to Use Device Management

Troubleshooting Event Operations in Cisco Vision Director

Troubleshooting Event Operations

Table 1 on page 251 provides a summary of useful tasks when there is a problem while running an event in Cisco Vision Director.

Table 1   Troubleshooting Event Operations

Task	For more information see:
Replace a Failed DMP	Replacing a Failed Media Player While an Event Script is Running, page 274
Replace Content	Replacing Content in a Playlist During an Event, page 186
Stream video as multicast URL to a media player with content problem	Tuning Selected Media Players to a Multicast URL, page 126
Clear a blocked script	Troubleshooting Event Scripts, page 236

Troubleshooting Error Messages

Use the information in this section to troubleshoot error messages that occur when operating Cisco Vision Director.

Action consistency problem between actionRegions and regionCount

Description There is an internal error in the database due to the Actions having a region Count > 0 but no information about the regions.

Workaround If a state is reported in the message, then you can recreate the affected state. Otherwise, recreate the script to remove the error condition. Ignoring this error can result in unpredictable script behavior.

Device(s) appear multiple times in zone/group mapping

Description The same device appears multiple times in the same state.

Workaround Either remove the devices in question from groups, remove groups from zones, or remove actions from zones and groups.

Device(s) have duplicate host(s)

Description Two different devices (or the same device) appear multiple times with the same IP address.

Workaround Either remove the device(s) in question from groups, remove groups from zones, remove actions from zones / groups, or change the IP addresses of the device(s).

Group for groupinstance is not set

Description The groupinstance object is missing a link to which group it refers to.

Workaround If a state is reported in the message, then you can recreate the affected state. Otherwise, recreate the script to remove the error condition. Ignoring this error can result in unpredictable script behavior.

Missing regionMap in an action that needs one

Description The regionMap is not set on an actioninstance but should be.

Workaround Add a region.

No action set for actioninstance

Description Actioninstance is not associated with an action, which is not a valid configuration. Actioninstances without actions can cause conflicts when Cisco Vision Director is determining which digital media players have actions assigned to them.

Workaround Add an action to the zone or group.

No actioninstances for group

Description Actioninstance is not associated on the groupinstance.

Workaround Add an action to the groupinstance.

No actioninstances for zone

Description Actioninstances are not on the zone (there should be because not all sub-groups of this zone have actions on it).

Workaround Add an action to the zoneinstance.

No states in script

Description There are no states in this event script.

Workaround Add states to the event script.

Null state in script

Description There is a state entry which has a null pointer in it. This null state will be ignored, but represents a corrupted database.

Workaround Delete the entire script and recreate it.

Region id is null in ActionRegion—database corrupt

Description The ActionRegion is not linked to the region ID.

Workaround If a state is reported in the message, then you can recreate the affected state. Otherwise, recreate the script to remove the error condition. Ignoring this error can result in unpredictable script behavior.

Region " + i + " content has incompatible region type with the action .

Description The contentType of the playlists does not match the contentType of the template.

Workaround Put different playlists into the region, change the type of the region (from video to non-video or vice versa), or change the contentType of the playlists.

Region " + i + " does not have a contentType

Description Unable to compute the contentType for the region as there were no associated playlists or the playlists were missing a contentType.

Workaround Add a contentType to the playlist or add a playlist to the action.

Region lacks a playlist

Description A region should have a playlist associated with it, but it does not. As a result content will not be shown in that region.

Workaround Add a playlist to the appropriate action in the event script.

State has no zoneInstance(s)

Description A state exists but it doesn't have a zoneinstance (actions on zones).

Workaround Add actions to zones or groups.

Warning empty playlist in region

Description There is a playlist in the region, but it does not contain content.

Workaround Add content to the playlist.

Null Zone In zoneinstance

Description The event script has an action on a zoneinstance which is missing the Zone. This happens when the user deletes a Zone but does not delete the actions from that Zone or a group under that Zone before deleting the Zone. After deleting the Zone, the actions become irrelevant, but the script can still contain the action. The UI no longer shows the actions, so they can't be deleted.

Workaround If a state is reported in the message, then you can recreate the affected state. Otherwise, recreate the script to remove the error condition. Ignoring this error can result in unpredictable script behavior.

Content not ready for playlist

Description If the content is not ready for the playlist, this is set. Possible reasons include content not uploaded via Kore integration or the CMS is unreachable.

Workaround User should fix reason for content to be invalid for playback.

Action removed from actioninstance

Description Error message occurs if an action is deleted from the database, possibly by a system upgrade.

Workaround User should remove those actioninstances from the script by deleting the state or all actions on a zone or group in the state.

Empty playlist(s) in region

Description There is no content in at least one playlist in this region, as a result the playlist is ignored.

Workaround Add content to the playlist or remove the playlist from the event script.

Device(s) have missing host(s)

Description The device has a missing or empty host (IP address).

Workaround Set the device(s) hosts to a valid IP address.

Device(s) have mismatched site

Description The script site / venue is not equal to the site / venue of the device.

Workaround Set the site of the script and or devices to match.

Video Region Count Exceeded

Description The number of video regions in the template exceed the number of valid video regions for the digital media player.

Workaround Change the template to reduce the number of video regions or assign these actions to different digital media players (by modifying zone/group structure or putting actions on different zone / group).

Warning Mixed DMP Type

Description Different types of digital media players are assigned to the same group or zone.

Workaround Change the script so that only one media player type is assigned to the same group or zone.

Synchronization Zone Group Conflict

Description A digital media player from a zone-based video wall has actions assigned from a different zone or group causing conflicts and disabling synchronization.

Workaround Change the script so that all actions are assigned to the digital media players from the video wall zone.

Synchronization Template Mismatch

Description Multiple groups within a synchronization-enabled zone have mismatched templates or playlists. Templates must be the same and each playlist must have the same number of items of the same type and the same duration. If not, synchronization will be disabled.

Workaround Change the state to enable all groups within the video wall zone to use the same template.

Multiple Templates Assigned

Description Multiple actions that assign a template have been assigned in the same state resulting in unpredictable behavior.

Workaround Remove all but one of the actions that assigns a template to the zone / group within that state.

Synchronization Multiple Templates Assigned

Description Multiple actions that assign a template have been assigned in the same state resulting in unpredictable behavior and disabling synchronization.

Workaround Remove all but one of the actions that assigns a template to the zone / group within that state.

Troubleshooting the Network Time Service

After a server power outage, sometimes the network time service does not recover.

A possible symptom of a network time service problem during an event is DMPs not changing state.

To troubleshoot the network time service:
1. If there was a power outage, restart the Cisco Vision Director server.

2. Look at the output from the console log to verify the system status.

3. Verify that the ntpd service is running.

TIP: A quick way to determine if there is a problem with the network time service is to verify the system time reported on the **Script Management** screen against the actual time.

4. Log into the TUI.

5. From the Main Menu, go to **Services Control > Network Time Sync** ().

Figure 1   TUI Services Control Menu–Network Time Sync Option
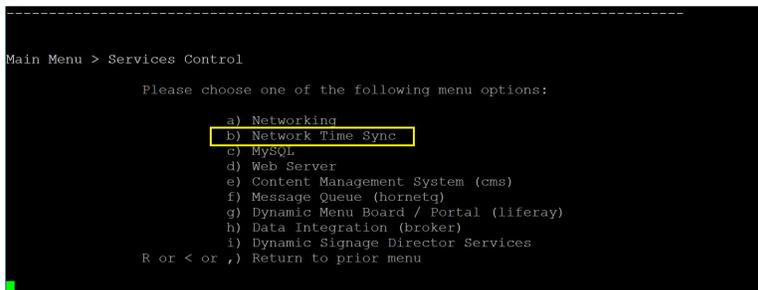
6. (Optional) To verify the ntpd service, select Show Status ().

Figure 2   TUI Network Time Sync Menu
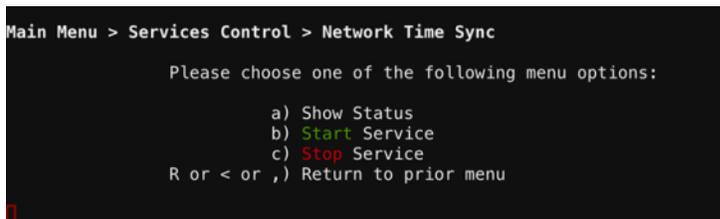
7. If the ntpd service is not running, click **Start Service**.

Managing System Services in Cisco Vision Director

Management Dashboard was redesigned. Service alerts are reported based on the monitored services enabled in the **System Status** under **Monitor and Status**. (Figure 1 on page 257).

Figure 1   Monitoring Services

Table 1 on page 257 shows the Cisco Vision Director services available for monitoring and their status and descriptions (Table 1 on page 257).

Table 1   Monitored Services Descriptions

Service Name	Description
Config Server	Monitors the status of the Cisco Vision Director sub-component that supports auto-registration, system configuration, and Management Dashboard functions.
Content Management CMS Server	Monitors the status of the content management database.
Control Server	Monitors the status of the Cisco Vision Director sub-component that supports IP phone and script functions.
CUCM Server	Monitors the connectivity and availability of the Cisco Unified Communications Manager (CUCM) server that supports the proper operation of in-suite phone speed-dial operation in the Cisco Vision Director phone service.

Service Name	Description
Director Database	Monitors that the Cisco Vision Director database (which stores internal system configuration information) is running properly and accessible by other Cisco Vision Director services.
Director Server OS	Monitors the overall health of the Cisco Vision Director server, including the CPU, memory, and disk utilization.
High Availability Hardware	Monitors that a configured secondary Cisco Vision Director server is running and available.
Integration Broker	Monitors the sub-component that supports the Data Integration functionality.
Local Control Server	Monitors the status of the Cisco Vision Director sub-component that supports the Local Control API.
Monitor Server	Monitors the overall status of the sub-component that supports monitoring functions in the Management Dashboard.
Network Configuration	Monitors the configuration and operation of DNS services, that are required for legacy RSS ticker support and certain external data sources configured in the Data Integration feature.

Use the Monitoring Services screen to verify the health of your Cisco Vision Director services.

To edit the Service information:

1. Select a service you want to view.

2. Click **Edit**. The **Edit Services Details** dialog box appears (Figure 2 on page 258).

Figure 2   Edit Services Details

3. Use the pull-down arrows to select different options, depending on the service you selected.

4. Click **Save**.

Managing Server Resources in Cisco Vision Director

Before an event, validate the system readiness for CPU, memory (RAM), and disk utilization to be sure that you have enough resources.

Note: Measurement units for storage in Cisco Vision Director are based on a KB equivalent of 1024 bytes [known as a kibibyte (KiB)], not 1000 bytes.

Therefore, a notation of MB actually means 1,048,576 (1024 x 1024) bytes in Cisco Vision Director.

This section includes the following topics:

Information About Monitoring System Utilization

This section includes the following topics:

Server Utilization Information

The Cisco Vision Director Server monitoring service (named Director Service OS) polls system status every 600 seconds for the CPU, memory (RAM), and storage utilization.

Utilization status is reported based on the server alert thresholds configured in the **System Status** (Figure 1 on page 260).

The gauges in the **Server Utilization** panel in the **Overview** interface provide an at-a-glance view of the percentage of CPU, memory, and disk space usage for the Cisco Vision Director Server (Figure 1 on page 260).

Figure 1   Cisco Vision Director Server Utilization and DMP Summary
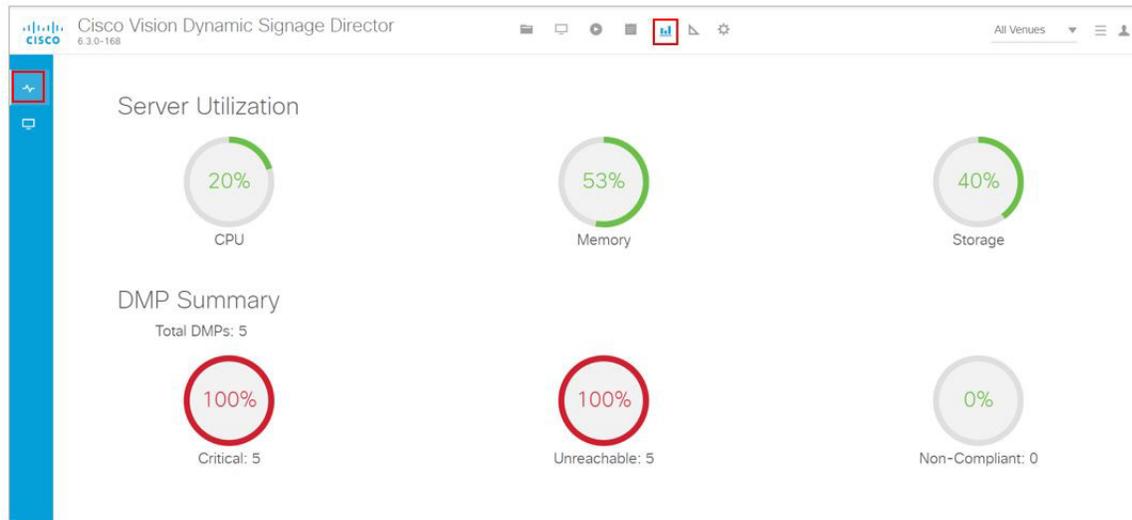
IMPORTANT: The **System Status** shows a critical alert when the CPU or Disk utilization goes above 90%, or if the Memory utilization goes above 95%. To find these thresholds, click **Configuration > System Configuration > Management Dashboard > Server Alert Thresholds**.

TIP: You can also find the current CPU, memory, and disk utilization percentages in the daily Vision Health Report, if configured.

Table 1 on page 260 lists the server utilization information for each server profile.

Table 1   Server Utilization per Deployment Profile

Profile	Memory	Clock Speed (GHz) per Core	vCPU
Mini	8 GB (8192 MB)	19. GHz	6
Small	8 GB (8192 MB)	2.53 GHz	6
Standard	32 GB (32,768 MB)	2.53 GHz	24
Large	60 GB (61,440 MB)	3.6 GHz	32

Server Alert Thresholds

Utilization status and alerts are reported based on the server alert thresholds configured in the **System Configuration**.

Two alert thresholds are defined for CPU, free memory, and disk space:

- **Warning**—Warning thresholds define the yellow area of the server utilization gauges.

- **Error**—Error thresholds define the red area of the server utilization gauges and correspond to critical alerts.

To check the default values of server alert threholds:

1. Click **Configuration > System Configuration > Management Dashboard > Server Alert Thresholds.**

2. Select the **Value** from the **Configuration Property** panel.

3. Click **Edit** to make changes. The **Edit – Configuration Setting** dialog box appears.

4. Type in a new **Value** and click **Save**.

5. Click **Refresh**.

Figure 2 on page 261 shows the default threshold values for the different system areas.

Figure 2   Default Values for Server Alert Thresholds
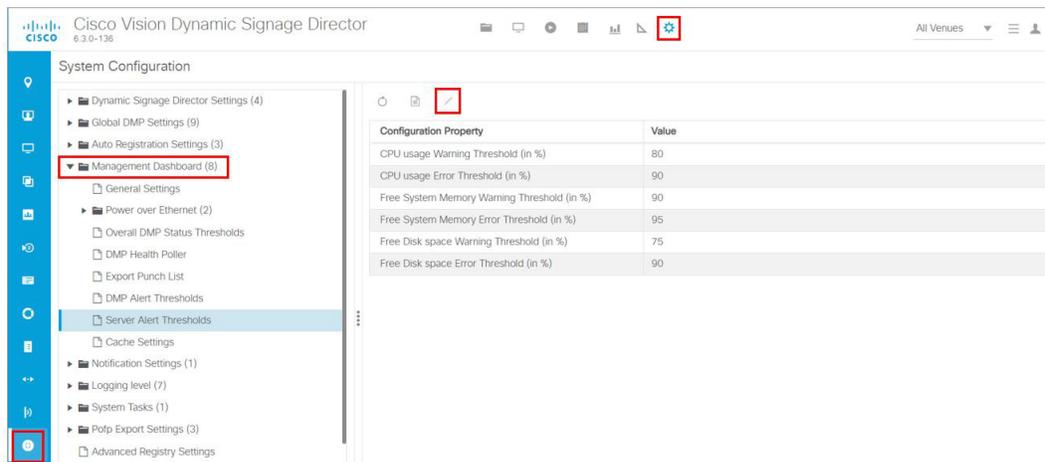
DMP Alert Thresholds

Utilization status and alerts are reported based on the DMP alert thresholds configured in the **System Configuration**.

To check the default values of DMP alert thresholds:

1. Click **Configuration > System Configuration > Management Dashboard > DMP Alert Thresholds.**

2. Select the **Value** from the **Configuration Property** panel.

3. Click **Edit** to make changes. The **Edit – Configuration Setting** Dialog box appears.

4. Type in a new **Value** and click **Save**.

5. Click **Refresh**.

Figure 3 on page 262 shows the default threshold values for the different system areas.

Figure 3   DMP Alert Thresholds
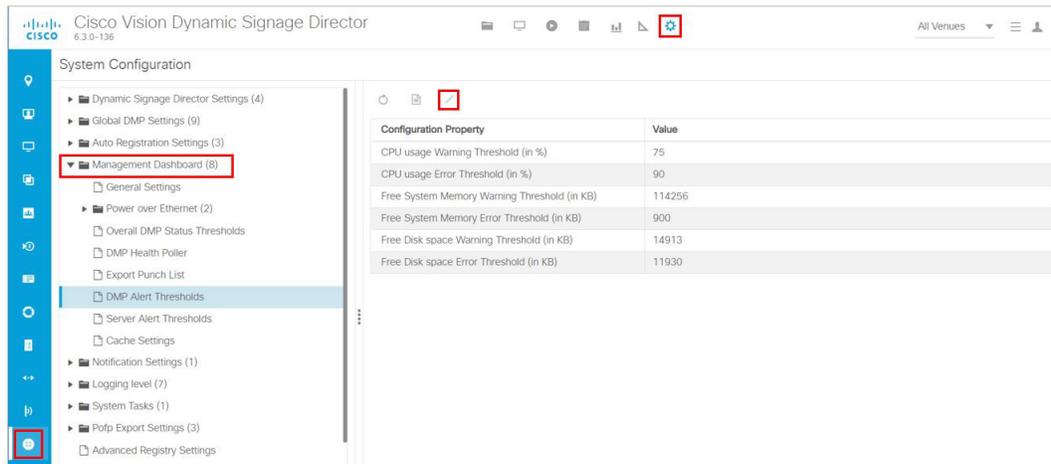
CPU Utilization

If CPU utilization is above the 90% alarm threshold for a short period of time, it is probably acceptable. However, if CPU utilization remains elevated, there is a problem with a runaway process or task that is consuming all of the available CPU, which can result in reduced responsiveness in the system.

Look at the system to determine how to resolve the problem. The **Management Dashboard** caches the last executed report. Always make a new request / refresh to get the most up-to-date information. Run a System State Report to see specific information about the system. Click **More > System State Report.** For details on how to use and retrieve the data, see the System State Reports module of the *Cisco Vision Administration Guide, Dynamic Signage Director*.

To edit any of the cache values:

1. Click **Configuration > System Configuration > Management Dashboard > Cache Settings** (Figure 4 on page 263).

2. Select a Configuration Property from the panel.

3. Click **Edit**. The **Edit - Configuration Setting** Dialog box appears.

4. Type in a new **Value** and click **Save**.

5. Click **Refresh**.

Note: Perform initial troubleshooting (if applicable), of both the network and VM cluster infrastructure. If necessary, open a case with Cisco Technical Support and provide a thread dump taken from the System State Report tool.

Figure 4   Management Dashboard Server Utilization and Monitored Services
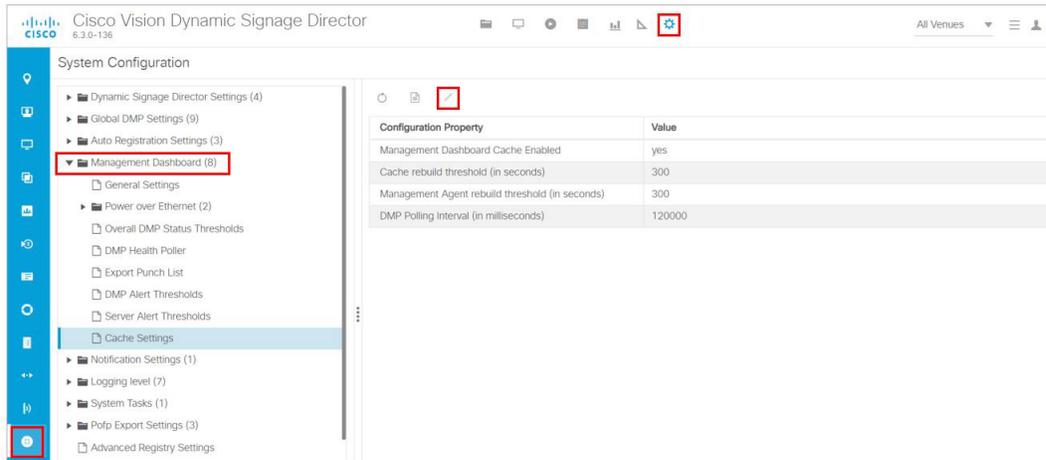
Memory Utilization

If memory utilization is above the 90% alarm threshold for over a long period of time, there could be something running in the system which is using more memory than it should.

Table 2 on page 263 shows the total memory on a Cisco Vision Director server.

IMPORTANT: If memory utilization is above 90%, open a case with Cisco Technical Support.

Table 2   Memory Utilization and Threshold Values3.6 GHz

Configuration	RAM	Clock Speed	vCPU Count
Mini	8 GB	1.9 GHz	6
Small	8 GB	2.5 GHz	6
Standard	32 GB	2.5 GHz	24
Large	60 GB	3.6 GHz	32

Disk Utilization

If disk utilization is above the threshold, the disk space is filling up. The disk might fill up from having a lot of backup files, proof-of-play files, or log files, in addition to your content.

Table 3 on page 264 shows the total hard disk size and recommended minimum free space.

Table 3   Hard Disk Values

Disk Size	Size
Total Disk Size	320 GB
Minimum Free Space	15 GB

IMPORTANT: The Daily Backup task might consume the hard disk space limit, which can cause the system to fail in unexpected ways.

How to Manage Disk Utilization

This section includes the following topics:

Modifying File Retention Periods on the Cisco Vision Director Server

User Role: Installer (Administrator)

Cisco Vision Director allows you to define retention periods for backup and log files in the Text Utility Interface (TUI).

The default settings are:

- Backup files—One file. The backup retention policy can be modified to 2, 5, 7, or 10 files.

- Log files—15 days. The log retention policy can be modified to 5 or 10 days.

CAUTION: Track your overall disk utilization and the size of your backup content so the number of files that you want to keep can be supported by your system resources.

For more information about using the TUI, see the Cisco Vision Director Text Utility Interface module of the Cisco Vision Director Server Administration Guide.

To modify the file retention periods:

Note: The retention policy must be changed on both the primary and secondary servers.

1. Log into the TUI.

2. Go to **Cisco Vision Server Administration > Retention Policy**.

3. Select the **Backup/restore Files** menu or the **Log Files** menu and type the letter for the retention period.

Deleting System Files

User Role: Installer (Administrator)

You can use the TUI to remove the following types of system files:

- Log files

- System state reports

■ ISO upgrade files

■ Backup files

IMPORTANT: The TUI clean file options remove all instances of the selected file type.

For more information about using the TUI, see the Cisco Vision Dynamic Signage Director Server Text Utility Interface module of the Cisco Vision Administration Guide: Dynamic Signage Director.

To delete system files:

1. Log into the TUI.

2. Go to **Troubleshooting > Disk Monitoring > Delete Files.**

3. From the Delete Files menu, type the letter option for the file type that you want to delete.

4. At the prompt, confirm the removal.

Running Database Maintenance

User Role: Installer (Administrator)

One way to see if you might need to run database maintenance is to look at the backup log (/var/log/svd-config/backup-**YYYMMddHHMMSSz**.log). If you see that the table updates are other than "OK" or not up-to-date, then run database maintenance.

Note: Slow performance is another possible sign that database maintenance is needed.

For more information about using the TUI, see the" Cisco Vision Director Text Utility Interface" module of the Cisco Vision Administration Guide: Dynamic Signage Director.

IMPORTANT: You must be sure to restart Cisco Vision Director software after maintenance is complete. The best practice is to shut down the Cisco Vision Director software **before** running database maintenance and then restart it after maintenance is complete. However, even if you did not shut down prior to running maintenance, you still must restart the Cisco Vision Director software.

To run database maintenance:

1. Log into the TUI.

2. (Recommended) Shut down the Cisco Vision Director software. From the Main Menu, go to: **Cisco Vision Server Administration > Database Maintenance** (Figure 5 on page 265).

Figure 5 TUI Database Maintenance Option
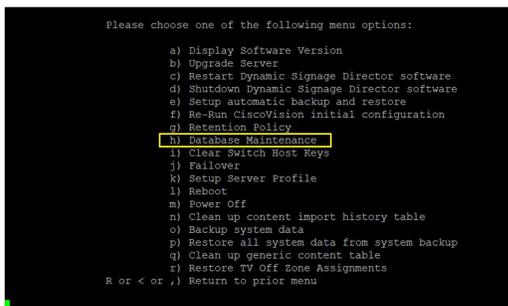
3. At the confirmation prompt, press Y to start the process (Figure 6 on page 266).

Running Database Maintenance

Figure 6   Database Maintenance Confirmation Prompt

4. As the maintenance runs, the status of each table updates.

5. When database maintenance is complete, restart the Cisco Vision Director software.

6. From the TUI Main Menu, go to: **Cisco Vision Server Administration > Restart Dynamic Signage Director Software.**

Managing Media Player Operation in Cisco Vision Director

This module provides information about maintaining normal operation of your media players. It includes the following topics:

Information About the System Health Report

As a best practice, you should review the daily health report to monitor and maintain the media players and overall health of the Cisco Vision Director system. This report runs automatically at 08:00 daily. You can configure the system to send it to one or more email addresses.

shows a typical email notification for the Cisco Vision health report. In the email body, a summary of the report is provided, with the full report details provided in an attached .txt file.

Figure 1   Sample Cisco Vision Health Report Email Notification
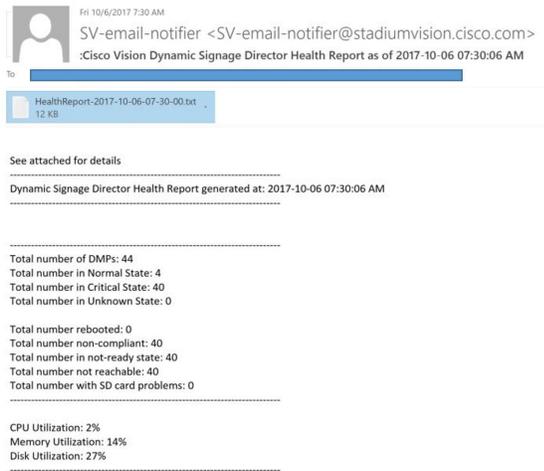
To see the details for the devices by category, open the text file attachment in the email. shows an excerpt of the device details report provided for the different status categories.

Figure 2   Cisco Vision Health Report Details (Excerpt)

Expand System Health Notification Report

The Daily health report will now include the status of various service endpoints described in HPMMonitoredServices.xml. The status can be anyone of the following - UNKNOWN, NORMAL, NONOPTIMAL, CRITICAL.

DSD server status: CPU, memory, storage utilization

In DailyHealthReport.java => generate(), the following snippet can be included:

Best Practices for Using the System Health Report

■ Verify your system regularly to be sure that the Cisco Vision health report is being sent as expected:

– Confirm your health report email configuration.

– Check often with venue IT personnel that the SMTP server that is configured for the Cisco Vision health report is running normally.

■ Review the Cisco Vision health report daily to monitor the media players and overall health of the Cisco Vision Director system.

■ Investigate all of the devices reported in the "Devices in critical state" and the "Devices not reachable" sections.

Note: The device counts in these two sections are typically equal, but not necessarily.

– Inform the Event Manager about these devices.

– Investigate the affected devices and bring to Normal state. Replace if necessary.

– Do not ignore the devices reported in these sections. The media players almost always will be showing black screens on the TV displays.

■ If you see that an unusual number of devices have recently rebooted, investigate further. This could be due to a power fluctuation issue in the edge switch, the edge switch itself was rebooted, or another issue caused a break in power supply to the affected devices.

■ Non-compliant devices:

– If you know that you normally have a certain number of devices in non-compliant state, then ignore this entry.

– If the number of non-compliant devices is not what you expect, investigate and correct the issue(s).

How to Obtain the System Health Report

This section includes the following topics:

■ Configuring the System Health Report for Email Notification, page 269

■ Modifying the Time of the System Health Report Task, page 270

■ Viewing Media Player Device Status, page 271

Configuring the System Health Report for Email Notification

User Role: Administrator

By default, Cisco Vision Director automatically runs a system health report at 08:00. However, email notification is disabled.

To configure the system health report for email notification:

1. Click **Configuration > System Configuration > Notification Settings > Email Id.**

2. In the Configuration Property box, select **Enable Email notification**.

3. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears.

4. Use the drop-down arrow to select **yes**.

5. Click **Save**.

6. Click **Edit** (pencil icon). The Edit – Configuration Setting dialog box appears.

7. Type the email addresses in the Recipient list. Click **Save**.

8. Fill in all the boxed fields below, each time clicking **Edit** (Figure 3 on page 270).

Figure 3   System Health Report Configuration Properties
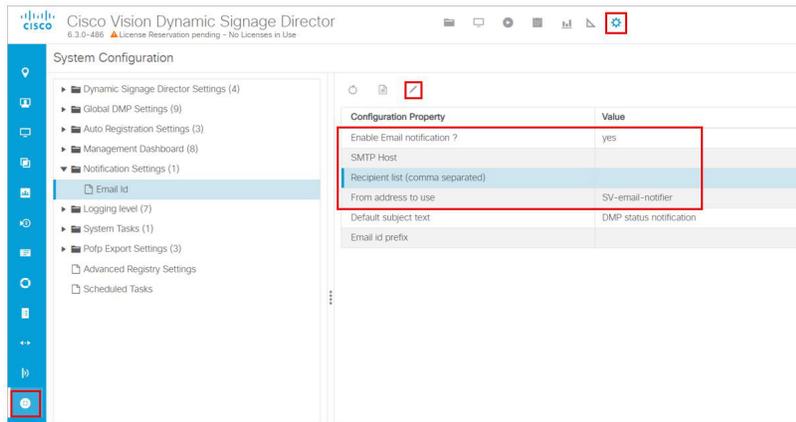
Table 1 on page 270 describes the properties and possible values.

Table 1   Email Notification Configuration Properties

Property	Values
Enable email notification?	Yes—Enables email notification. No—(Default) Disables email notification.
SMTP host	IP address or hostname of the SMTP email server for the venue. (If hostname is used, it must be resolvable by your network DNS server.)
Recipient list (comma separated)	Comma-separated list of email recipients to receive the report. (For example: email1@domain.com, email2@domain.com)
From address to use	(Optional) Email sender name. The default is "SV-email-notifier."
Default subject text	(Optional) Text to appear in the email subject field. The default is "Cisco Vision Health Report as of year-month-day hh:mm:ss am/pm."
Email id prefix:	(Optional) Prefix to use in the beginning of the email subject field. This can be used to organize email alerts from multiple customers or sites.

Modifying the Time of the System Health Report Task

User Role: Administrator

By default, Cisco Vision Director runs a system health report daily at 08:00.

To modify the time of the system health report task:

1. Click **Configuration > System Configuration > Scheduled Tasks.**

2. In the right panel, select **HPMReportTask**.

3. Click **Edit** (pencil icon). The Schedule Task – Edit dialog box appears (Figure 4 on page 271).

4. Click in the Task Time and specify the time (in 24:00 format) when you want the report to run.

5. Select the **Servers: config; control; monitor;** or **all.**

Figure 4   Changing the Health Report Time
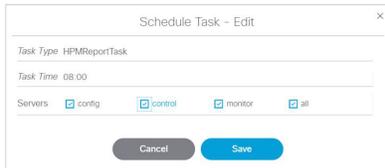
6. Click **Save**.

7. A confirmation message flashes.

Viewing Media Player Device Status

User Role: Administrator / Help Desk / Support / Venue Administrator / Venue Operator

Device Management provides a number of levels and ways to obtain information about the status of your media player devices. This topic describes how to obtain detailed device status as shown in Figure 5 on page 271.

IMPORTANT: Not all commands or display areas are supported for every digital media player. Therefore, some areas of the display might not report any information for a device. Also, the Utilization information and the CPU Usage reports show in the new global icon **System Status**. See Managing Server Resources in Cisco Vision Director, page 259.

Figure 5   Device Management Media Player Device Status
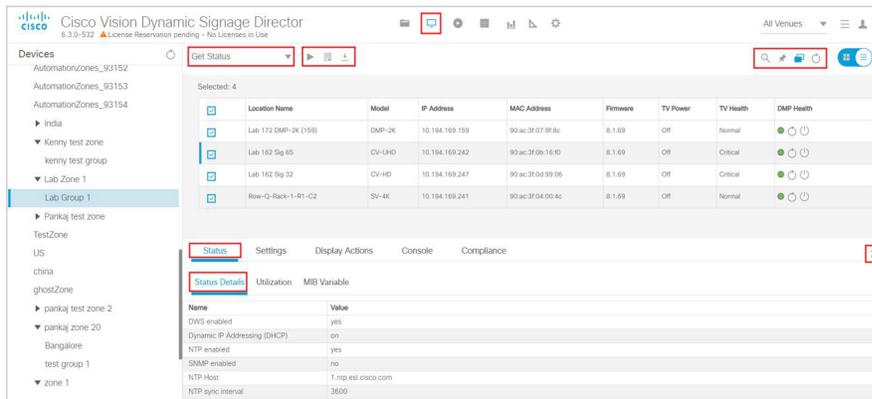
To view media player device status:

1. Click **Device Management.**

2. Select a device from the folders in the left panel. The main panel displays.

3. Select the device from the main panel and the **Status** and **Console** panel appears below (Figure 6 on page 272).

Figure 6   Device Status Information Panel
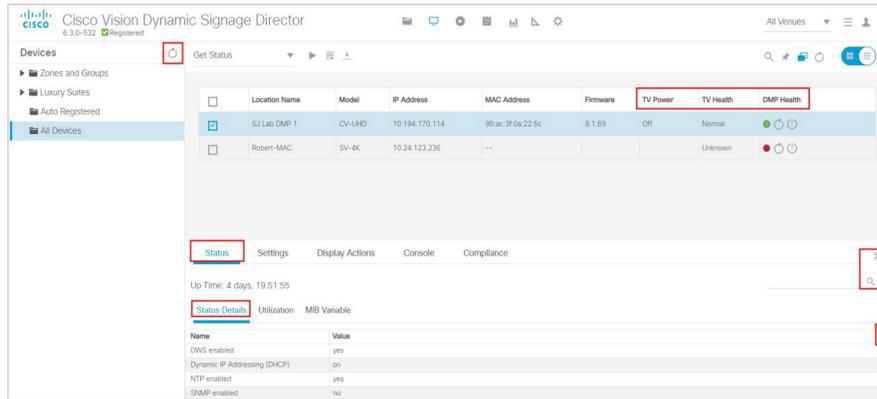
All of the columns are sortable. Click on any header. The MIB (management information base) is searchable. Start typing in the MIB Variable field and the information updates.

4. The **Status** and **Console** tabs display information about the media players.

Note: When using the **dmp.monitorPower** display parameter, you can run the **Get Status** command from **Device Management** to get the latest TV health status known to the DMP. This information can be up to two minutes old, or a few seconds depending on when the power query last ran. If the "dmp.monitorPower" parameter is set to false then you will not get the correct TV health status.

Managing DMP Operation in Cisco Vision Director

This section provides information about maintaining normal operation of your digital media players.

It includes the following topics:

- Device Management Commands for the Digital Media Player, page 272

- Performing a Regular Reboot of the Digital Media Players, page 273

- Clearing the Storage on the Digital Media Players, page 273

- USB and SD Card Restrictions on DMPs, page 274

- Clearing Registries on the Digital Media Player by Restoring Factory Defaults, page 274

- Recovering DMP Operation After Server Power Loss, page 274

Device Management Commands for the Digital Media Player

This section provides a summary of the new and existing **Device Management** commands that are supported by the digital media player.

Auto-Registration Commands for the Digital Media Players

Table 2   Management Dashboard Auto-Registration Commands

Command Name	Supported on DMPs
Change DMP State	Yes
Provision DMP	No

Performing a Regular Reboot of the Digital Media Players

IMPORTANT: The best practice for maintaining normal operation of the digital media players is to perform a **weekly** reboot of the devices. The Task Note below says the default value for DMP rebooting is 2 weeks.

Note: The Cisco Vision Director reboot task applies globally to all media player devices.

For information about how to configure the Reboot DMP system task, see the Task Note: Configure Reboot DMPs.

Clearing the Storage on the Digital Media Players

The DMPs have different capacities and types of storage. If you begin to run out of storage or otherwise need to recover the stored data, you can clear the storage on the media player. For more information, see the Cisco Vision Deployment Guide for Digital Media Players: Dynamic Signage Director.

To see the storage for the devices:

1. Click the device(s) in the main panel.

2. Click **Status > Utilization**.

You also can find information about available storage if you view device details from thumbnail view in **Device Management.**

TIP: The HTML runtime must be running on the digital media player to use this task.

To clear the storage on the digital media player:

1. Click **Device Management**.

2. Select the devices that you want to clear.

3. In the drop-down menu, select **Reset Storage**.

4. Click **Play** (**Send Command**).

   The contents of the SSD storage is removed (including the Cisco Vision Director runtime software and script contents) on the devices. The devices will not automatically reboot after this command.

5. Select **Reboot Device**.

6. Click **Play** (**Send Command**). The selected devices reboot and reprovision firmware and settings.

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USB and SD Card Restrictions on DMPs

In Release 6.4, we implemented the ability to enable or disable the USB or SD card on groups or a single DMP using a new registry and a new command in **Device Management**. For complete information on this feature, see the Cisco Vision Director Deployment Guide: Digital Media Players.

Clearing Registries on the Digital Media Player by Restoring Factory Defaults

If you need to clear the registry settings on the DMP and re-provision the device, use the **Restore Default Settings** command. Clearing the DMP registry settings does not wipe/clear the data storage.

To clear the registries on the media players:

1. Click **Device Management**.

2. Select the devices that you want to clear.

3. In the drop-down menu, select **Restore Default Settings**.

4. Click **Play** (**Send Command**).

   Any persistent device settings on the DMPs are erased and the box will be in factory default state. The DMP automatically reboots and reprovisions its firmware and settings.

Note: If you need to return the DMP to factory settings, we highly recommend performing the following in this order:

1. Perform a reset storage of the DMP. See Clearing the Storage on the Digital Media Players, page 273.

2. Perform a factory reset. See Clearing Registries on the Digital Media Player by Restoring Factory Defaults, page 274.

Recovering DMP Operation After Server Power Loss

User Role: Installer (Administrator)

If the Cisco Vision Director server should lose power while the devices remain powered, recover the devices after power is restored to the server.

To recover DMP operation after server power loss:

1. Restore power to the Cisco Vision Director server.

2. Login to Cisco Vision Director.

3. Click **Device Management.**

4. Select devices to reboot.

5. Select **Reboot Devices** from the Action drop-down menu.

6. Click **Play** (**Send Command**) for the devices.

IMPORTANT: If for some reason you needed to restore the DMP operation to a new Cisco Vision Director server (not a failover operation), then change the DHCP server option 43, reconfigure the new server for auto-provisioning of the DMP, and reboot the devices similar to a new deployment of the devices. For more information, see the Cisco Vision Deployment Guide for Digital Media Players: Dynamic Signage Director.

Replacing a Failed Media Player While an Event Script is Running

This task describes the steps to replace a failed media player with a new device that continues to follow the same script.

After replacement, the new media player should:

■ Belong to the same groups and zones.

■ Respond to the zone/group state actions.

■ Display the same content as the media player it replaces.

To replace a failed media player while an event script is running:

1. Unplug the failed device and replace it with a new device.

2. Wait until auto-registration and provisioning completes and the new device appears in the **Device Management > Auto Registered** folder.

3. From **Configuration > Groups & Zones**, un-map the failed device from its Location, and map the new device to this Location.

4. From **Script Management**, manually stage content to the new device.

5. From **Device Management**, in the drop-down menu, select **Restart Runtime** for the new device.

6. Verify that the new device is showing the expected content.

7. Delete the failed device from Cisco Vision Director. This device will be named in the format "Unassigned-xx-xx-xx-xx-xx-xx", where xx-xx-xx-xx-xx-xx is the MAC address.

Troubleshooting the Digital Media Players

This section includes the following topics:

■ Before You Begin Troubleshooting the DMPs, page 275

■ Troubleshooting PTP Operation for the Digital Media Players, page 276

■ Troubleshooting DMP Hardware Operation, page 278

■ Troubleshooting DMP TV and Video Display Problems, page 279

Before You Begin Troubleshooting the DMPs

Before you begin troubleshooting the DMP, follow the information in these topics:

■ RMA Process for the DMPs, page 275

■ DMP Diagnostic URL, page 276

RMA Process for the DMPs

The Return Materials Authorization (RMA) process is covered by the Cisco Solution Support Service for Cisco Vision.

Before you open a Cisco Solution Support case for the DMPs:

1. Locate your symptom in the DMP troubleshooting topics and begin to isolate the problem by following the suggested troubleshooting steps.

2. If you cannot resolve the problem with any of the recommended troubleshooting steps, open a Cisco Solution Support case to further troubleshoot and coordinate the return process with the vendor.

3. The Return Materials Authorization (RMA) process for the digital media player is covered by the Solution Support Service for Cisco Vision.

You can find warranty information here.

DMP Diagnostic URL

Some of the troubleshooting steps for the DMP recommend that you open a browser and navigate directly to the device using the following URL to further diagnose a problem:

http://dmp-ip-address

The diagnostic URL requires a password for use. The password is set in the "**defaultDmpAdminPwd**" registry key in the **System Configuration** interface. The default username is "**admin**."

Be sure to reset the password from the default value as a security best practice.

IMPORTANT: If a request to reboot the DMP fails, there is a new fallback password registry available: **defaultDmpAdminPwdBackup**. For complete details on how to set and use this new registry, see DMP Admin Password, page 21.

Note: This password is also used for the Diagnostic Web Server (DWS).

IMPORTANT:

◾ In Release 6.3 full installations, the DMP password is randomly generated. Look up the value in the registry value **defaultDmpAdminPwd** if you need to access DMP DWS.

◾ In Release 6.1 to Release 6.2 migrations, the existing DMP password is preserved.

For Release 6.2, the DWS default is disabled for the DMPs. See the Release Notes 6.2 for Cisco Vision Dynamic Signage Director for important information about enabling/disabling DWS after data migration.

Troubleshooting PTP Operation for the Digital Media Players

This section identifies some of the symptoms related to problems with PTP operation:

◾ Symptom: Local PNGs are not synchronized across devices, page 276

◾ Symptom: Playlists do not advance to the next content item on the DMPs, page 277

Note: We recommend designating an in-house PTP server, especially when deploying in a single virtual local area network (VLAN).

Symptom: Local PNGs are not synchronized across devices

Troubleshooting steps:

1. Verify the PTP configuration on your devices: click **Configuration > System Configuration > Global DMP Settings > Time Source.**

Verify that the PTP domain and PTP lead candidates property configuration is correct for your network.

2. Open your browser and navigate to one of the devices:

http://dmp-ip-address/ptp.html

3. Enter the username and password.

Note: The password policies changed. Follow the rules to log in to Cisco Vision Director. See the Cisco Vision Administration Guide: Dynamic Signage Director.

4. Look for the message "PTP is not enabled."

   This message might mean that the device was not rebooted after changes to the settings.

5. If the message appears, reboot the device.

Symptom: Playlists do not advance to the next content item on the DMPs

If the current PTP lead becomes unreachable (shuts down, or becomes unreachable on the network), the PTP members will be unable to update their clocks and this condition will occur.

Troubleshooting steps:

1. Verify the PTP configuration on your devices: click to **Configuration > Global DMP Settings > Time Source.**

2. Verify that the PTP domain and PTP lead candidates property configuration is correct for your network.

3. Open your browser and navigate to one of the devices:

   http://dmp-ip-address/ptp.html

4. Enter the username and password.

   Note: The password policies changed. Follow the rules to log in to Cisco Vision Director. See the Cisco Vision Administration Guide: Dynamic Signage Director.

5. Identify the PTP lead (Figure 7 on page 277) by finding the unit that has an "offsetFromMaster" value of 0.0.

Figure 7   **Identify the PTP Leader**

6. Ping the lead PTP device.

7. If the leader is not reachable and you have configured alternate leaders but they are not reported as leader after waiting for a minute, reboot one of the reachable PTP leader candidates.

Note: Identifying the alternate leader for this step can more easily be done if you are explicitly identifying the IP address of alternate leaders, and not using the "*" wildcard to specify possible election of any device on the network.

8. If a device shows that it has not synchronized, reboot the device to force synchronization.

Troubleshooting DMP Hardware Operation

This section identifies some of the symptoms related to problems with the digital media player hardware:

- Symptom: "Please Insert Card" message on SV-4K or DMP-2K startup screen, page 278

- Symptom: Pwr and Eth LEDs are not lit and no signs of activity on the device, page 278

- Symptom: Device Err or Err/Upd LEDs blinking, page 278

- Symptom: DMP rebooting automatically after startup, page 279

Symptom: "Please Insert Card" message on SV-4K or DMP-2K startup screen

Troubleshooting steps:

1. Verify that an IP address is assigned to the device.

2. Verify proper DHCP Option 43 configuration.

3. Verify that the Cisco Vision Director server is running and reachable.

4. Contact Cisco Technical Support to do further troubleshooting and proceed with RMA process.

Symptom: Pwr and Eth LEDs are not lit and no signs of activity on the device

Troubleshooting steps:

1. Verify any visible damage to the Ethernet port on the device.

2. If there is not any visible port damage on the device:

   a. Connect a 12V 5A power supply to the media player to confirm startup and normal operation.

   b. Replace the Ethernet cable.

   c. Connect the media player to a known-working switch port for another device.

   d. Verify the POE+ settings on the switch.

TIP: If you have imported the switch settings to Cisco Vision Director, you can view the POE+ settings.

Click **Device Management.** Select a device, the **Status** information appears. Click **Settings > Network.**

Power normally displays "29.5" for the device after LLDP negotiation with the switch.

   e. If none of these steps locate the problem, contact Cisco Technical Support to proceed with the RMA process.

Symptom: Device Err or Err/Upd LEDs blinking

Troubleshooting steps:

1. Refer to the LED documentation. See Cisco Vision Deployment Guide for Digital Media Players: Dynamic Signage Director.

2. Troubleshoot according to the description of the problem.

Symptom: DMP rebooting automatically after startup

Troubleshooting steps:

1. Verify whether multiple devices are doing an auto-reboot.

2. If multiple devices are automatically rebooting at startup:

    a. Verify that the devices are obtaining an IP address. If the devices are not getting an IP address ("Unable to get IP address" message on the TV display), verify communication to the DHCP server.

    b. Verify proper DHCP Option 43 configuration.

3. If the DMP stays at the loading screen with the progress bar, verify communication with the Cisco Vision Director server.

4. (Advanced) Verify that an HTTP request comes in to the /var/log/httpd/access_log (use the System State Report [SSR]).

    Look for a message like the following:

    10.194.169.242 - - [13/Oct/2014:13:10:05 -0700] "GET /CiscoVision/dmp_v4/scripts/boot.brs HTTP/1.1" 200 89403 "-" "-"

Note: If the Auto Registration parameters are not exact, that will cause constant rebooting, too.

Troubleshooting DMP TV and Video Display Problems

This section identifies some of the symptoms related to problems with the DMP displays:

- Symptom: Distorted display when DMP in Portrait Mode and default multicast video streaming, page 279

- Symptom: Distorted display when DMP in Portrait Mode and default multicast video streaming, page 279

- Symptom: No local control when external volume strategy configured, page 280

Symptom: Distorted display when DMP in Portrait Mode and default multicast video streaming

Troubleshooting steps:

1. Verify if portrait display is distorted.

2. If display is distorted, check the following:

    a. Click **Configuration > System Configuration > Advanced Registry Settings**.

    b. Find **scaleToFit.video** in the Registry Data.

    c. If **scaleToFit.video** is not present (default), click **Add**. The Create – Configuration Setting box appears.

    d. Type **scaleToFit.video** in the **Name** field and **true** for the **Value**.

    e. Click **Save**.

    Note: If there is a need to set this value to "false," the display becomes distorted. In that case, use a web page for the default portrait mode URL instead of multicast video streaming.

    f. Set a separate default portrait content URL for portrait displays. See Configuring the Default Content Channel, page 125.

Symptom: Black screen on the DMP TV display/no multicast video stream

Troubleshooting steps:

1. Verify if multiple TV displays are showing a black screen for the same multicast video stream.

2. If multiple TV displays are showing a black screen for the same multicast stream:

    a. Verify the media player LEDs.

    b. If the LEDs are in normal state, verify that the Cisco Vision Director server has power and is reachable.

    c. If all TV displays are the same and/or new model, test with a different, known-working TV display model.

    d. (Advanced) Test with laptop connected to the same switch port/interface as the device with a problem, and see if the problematic video stream can be displayed using the open source VLC player.

    e. Test a different multicast video stream.

    f.   Test with local video content. If local video works, troubleshoot video headend and/or other network problems.

    g. Confirm video output setting on the DMP using a browser to go to: **http://sv4k-ip-address.**

3. If the problem can be isolated to a DMP device:

    a. Verify that the Pwr/Eth LEDs are on.

    b. Try a different HDMI cable.

    c. Test a different TV display.

    d. (Advanced) Test with laptop connected to the same switch port/interface as the DMP with a problem, and see if the problematic video stream can be displayed using the open source VLC player.

Symptom: No local control when external volume strategy configured

Troubleshooting steps:

1. Is the RS-232 cable connected? Verify the cable connections.

2. Verify the serial cable type being used against the RS-232 requirements for the TV display (null modem [crossover] or straight through).

3. Verify that the external output strategy works on other TV displays.

4. Verify the RS-232 codes from the manufacturer against the TV display specifications in Cisco Vision Director.

Managing Backups in Cisco Vision Director

This module includes the following topics:

Information About Backups

This section includes the following topics:

Backup Environment

While you can run a backup for a network environment where there is only a single Cisco Vision Director server, the recommended environment that is described in this document is a virtualized environment. In a redundant environment, you are running Cisco Vision Director on a primary server, with a secondary server connected to the same subnet where the backup data from the primary server is saved.

The backup process can be scheduled and also run manually. When a backup is completed, the Content Management System (CMS) is automatically restarted.

What System Data is Backed Up

There are several areas of Cisco Vision Director that need to be backed up. The backup process backs up the following areas of the Cisco Vision Director server:

- Cisco Vision Director Content Management System (CMS)

- Cisco Vision Director database

- Cisco Vision Director system configuration files

- Content Integration data

- Dynamic Menu Board data

CAUTION: **The Proof of Play raw data in the var/sv/pofp/raw directory is *not* backed up.**

- Proof of play report data in the /var/sv/pofp/data directory

When to Run a Backup

Run a manual backup whenever you change any item in the interfaces such as **Asset Library** content**, Devices, Script Management, Event Management, Designer,** or **System Configuration.**

CAUTION:

1. **Stop any running script before starting a manual backup.**

2. **Do not start a game/event script during a backup.**

3. **Do not operate Cisco Vision Dynamic Signage Director until the backup is complete.**

How to Manage Backups

This section includes the following topics:

- Prerequisites for Running Backups, page 282

- Best Practices for Managing Backups, page 282

- Scheduling a Regular Backup, page 283

- Starting a Backup Manually for Immediate Execution, page 283

- Verifying Backup Completion, page 284

- Modifying the Number of Backup Files to Retain, page 287

Prerequisites for Running Backups

Note: Configure the primary and secondary servers for backup operation as part of the initial server setup. For more information about configuring the servers for backup, see the Cisco Vision Administration Guide: Dynamic Signage Director.

Before you can run backups, meet the following conditions:

- The backup account has been enabled on the secondary server

- The primary server has been set up for automatic backup and restore

Best Practices for Managing Backups

- Perform a manual system backup prior to starting the game script.

- Back up all components (highly recommended).

- Stop the active game/event script from the **Device Management** before starting the manual backup.

- The backup task can run even while an event script is running. As part of this change, the database is no longer optimized or repaired during the backup process—a new TUI option is added to run database maintenance manually if needed.

- Do not operate the Cisco Vision Director **System Configuration** or **Device Management** until the backup is complete.

Scheduling a Regular Backup

User Role: Administrator

After you configure the servers to support the backup process, schedule backups using **System Configuration > > Dashboard** in the Cisco Vision Director software.

Note: We recommend that you schedule backups while the Cisco Vision Director servers are not actively running scripts or performing other event processing.

To configure a backup to run on a regular schedule:

1. Click **Configuration > System Configuration > Configuration > Scheduled Tasks** (Figure 1 on page 283).

2. Click **+ (Add)**. The Schedule Task – Add dialog box appears.

3. Click in the Task Type field and type **BackupTask**.

Note: Type the name of the task exactly as shown with upper and lowercase characters.

Figure 1   Scheduling a Regular Backup Task
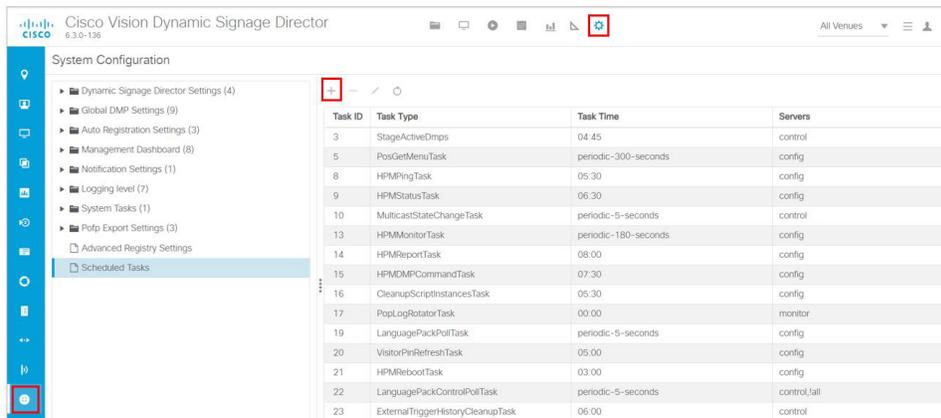
4. Click in the Task Time field and specify the time (in 24:00 format) when you want the backup to run.

5. Click in the Servers field and check **config**.

6. Click **Save**.

Starting a Backup Manually for Immediate Execution

User Role: Administrator

If you want to start a backup immediately, run a backup process manually.

To start a backup manually for immediate execution:

1. Login to the Director TUI using the valid user ID and password.

2. Select **Cisco Vision Server Administration.**

3. Select **Backup system data** (Figure 2 on page 284).

Figure 2   Running a Backup Task Manually

```
Main Menu > Cisco Vision Server Administration

          Please choose one of the following menu options:

                 a) Display Software Version
                 b) Upgrade Server
                 c) Restart Dynamic Signage Director software
                 d) Shutdown Dynamic Signage Director software
                 e) Setup automatic backup and restore
                 f) Re-Run CiscoVision initial configuration
                 g) Retention Policy
                 h) Database Maintenance
                 i) Clear Switch Host Keys
                 j) Failover
                 k) Setup Server Profile
                 l) Reboot
                 m) Power Off
                 n) Clean up content import history table
                 o) Backup system data
                 p) Restore all system data from system backup
                 q) Clean up generic content table
                 r) Restore TV Off Zone Assignments
          R or < or ,) Return to prior menu
```

4. Type **Y**.

The backup begins immediately. When completed, the CMS is automatically restarted.

IMPORTANT: The "success" message that appears means the backup task has started. It does **NOT** mean the backup task has completed.

Verifying Backup Completion

User Role: Administrator

To verify backup completion, confirm that a backup file exists and that no errors appear in the log file.

Verifying That a Backup File Exists

IMPORTANT: Verifying the existence of a backup file only tells you that a backup file was attempted but not necessarily if there were any errors.

To verify that a backup file exists:

1. Login to the Director TUI using the valid user ID and password.

2. Select **Cisco Vision Server Administration.**

3. Select **Restore all system data from system backup** (Figure 3 on page 285).

4. Verify that backup files with dates and times appear.

Figure 3   Restore all System Data from System Backup


```
Main Menu > Cisco Vision Server Administration

            Please choose one of the following menu options:

                    a) Display Software Version
                    b) Upgrade Server
                    c) Restart Dynamic Signage Director software
                    d) Shutdown Dynamic Signage Director software
                    e) Setup automatic backup and restore
                    f) Re-Run CiscoVision initial configuration
                    g) Retention Policy
                    h) Database Maintenance
                    i) Clear Switch Host Keys
                    j) Failover
                    k) Setup Server Profile
                    l) Reboot
                    m) Power Off
                    n) Clean up content import history table
                    o) Backup system data
                    p) Restore all system data from system backup
                    q) Clean up generic content table
                    r) Restore TV Off Zone Assignments
            R or < or ,) Return to prior menu
```

Finding Backup Errors in the Log File

IMPORTANT: Be aware that the messages "Starting backup" and "Backup completed" will always appear in the log, regardless of success.

You can access log files in the following ways:

■ TextUtility Interface (TUI).

■ System State Report. Go to **More > System State Report.**

■ By running grep –i backup sv_dev_debug.log (requires root access). Figure 4 on page 286 shows an example of log output for a successful backup without errors.

To find backup errors in the log file:

1. Open the **/opt/sv/servers/config/logs/sv_dev_debug.log**file.

2. In the sv_dev_debug.log file, find messages that include the string "com.cisco.sv.backup."

    These are the backup process messages.

3. Find the "Starting backup" message.

4. After the "Starting backup" message (but before the "Backup completed" message), look for a "com.cisco.sv.backup" message that also includes "ERROR" in the string.

    If you find this error, the backup did not complete successfully.

Figure 4   Successful Backup Log Output Example From Grep

Modifying the Number of Backup Files to Retain

User Role: Installer (Administrator)

To reduce the amount of disk storage required in your system, the default backup retention policy is to keep one backup file. This retention policy can be modified to retain 2, 5, 7, or 10 backup files.

For more information, see the Cisco Vision Administration Guide: Dynamic Signage Director.

How to Restore From Backup

Once the primary and secondary servers have been configured for automatic backup and restore, the Cisco Vision Director software automatically copies backup files between the primary and secondary servers.

When the restore process starts, the MD5 checksum of the file is verified. If for some reason you need to manually copy files between the servers, be sure that you copy both the.tar and.chksum files because the restore process automatically uses both files to verify the MD5 signature.

Note: If you need to failover to the secondary server and do a restore, follow the procedures in the Cisco Vision Administration Guide: Dynamic Signage Director.

This section includes the following topics:

- Starting a Restore Manually for Immediate Execution, page 287

- What to Do Next After Restoring, page 288

- Restarting Cisco Vision Director Software After a Restore, page 288 (Required)

Starting a Restore Manually for Immediate Execution

User Role: Administrator

As with backups, you can schedule the restore process or run it manually. When the manual restore screen is displayed, it lists backups from both the backup and restore directories, concatenated together. This allows you to run a manual restore on either the primary or the secondary server.

CAUTION: **You cannot run a restore while an event script is running. Also, if your venue was running an event script when the backup took place, then those scripts will be running after the restore.**

An automated restore always uses the most recent backup file in the restore directory.

To start a restore manually for immediate execution:

1. Login to the Director TUI using the valid user ID and password.

2. Select **Cisco Vision Server Administration.**

3. Select **Setup automatic backup and restore** (Figure 5 on page 288).

4. Enter the IP address of the currently inactive server.

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Figure 5   Running a Restore Task Manually

What to Do Next After Restoring

After the restore completes, restart the Cisco Vision Director software. For more information, see Restarting Cisco Vision Director Software After a Restore, page 288.

Restarting Cisco Vision Director Software After a Restore

User Role: Installer (Administrator)

After you perform any restore on a Cisco Vision Director server, you must restart the Cisco Vision Director software to resume normal operation of the services.

For more information about using the TUI, see the Cisco Vision Dynamic Signage Director Server Text Utility Interface, page 89 module of the Cisco Vision Administration Guide: Dynamic Signage Director.

To restart the Cisco Vision Director software:

1. Login to the Director TUI using the valid user ID and password.

2. Select **Cisco Vision Server Administration.**

3. Select **Restart Dynamic Signage Director software**.

Glossary of Terms

3

3-region L-wrapper template

Fixed screen template provided by Cisco Vision Director to support the display of one video region and two non-video regions. The dimensions of the 3-region Lwrapper template cannot be customized.

A

Album

A collection of one or more files of a common content type in an SSC user workspace.

Asset

Any digital content that can be added to a playlist or script such as still images, videos, and external URL addresses to aid in creating channels, templates and widgets for your script design.

Asset Library

New feature application providing management of assets (content) in Cisco Vision Director.

B

Batch target

A special target that lets you build and/or publish multiple other targets in a single group (or "batch"). You can schedule batches to run at any time.

Block snippet

A snippet that is created out of one or more paragraphs.

C

Category

Label that you can assign to an SSC album to abstract its contents and identify its purpose for selection in a script later by an administrator or content manager, without having to know specific album names.

CEC

Consumer Electronics Control—A feature of HDMI designed to allow users to command and control devices connected through HDMI by using only one remote control.

Cisco store

Collection of manually entered retail items for use on menu boards in the DMB application. Cisco stores consist of family groups, major groups, and items.

Condition tag

A marker that you can apply to different areas of your content so that some sections show up in some of your outputs but not in others.

content

Digital media that is presented on a TV display using a media player in Cisco Vision Director.

Cross-reference

A navigation link that lets you connect text in one topic to another topic (or a bookmark within a topic). Cross-references let you create "automated" links that are based on commands you provide. This allows you to keep links consistent and change them in just one place by using the "xref" style.

D

Display specification

Set of TV display criteria and commands that are configured to ensure proper communication between the media player and the TV in the Cisco Vision Director Configuration.

Drop-down text

A feature that lets you "hide" content in your topic. The content is expanded (and therefore displayed) when the user clicks an icon, usually an arrow.

E

Event script

Sets where and when the advertisements, video, and graphics will be displayed in the stadium and on a TV display. The event script is typically organized by a timeline of moments in a game or event, called event states, such as pre-game, first quarter, halftime, and game end.

Event state

A point in an event script when content changes. Event states generally correspond to a timeline of moments in a game or event (such as pre-game, in-game, post-game, and so on) and define specific actions for a group and zone to perform in sequence during an event. There are two basic types of event states: sequential and adhoc.

F

Family group

Entity in a Cisco store in the DMB application that corresponds to the top level options on the menu such as Food, Beverages, Merchandise.

Footnote

> A comment that is used to explain a specific area of the text. Both the area in the text and the comment contain a number or symbol that ties the two together. A footnote (or endnote) comment can be placed at the end of a page, document, chapter, section, or book.

Full screen templates

> Standard templates provided in Cisco Vision Director to display either full-screen video or full-screen graphics in a fixed 1920x1080 region. The dimensions of the full screen templates cannot be customized.

G

Group

> Subset of a zone that defines a collection of devices (DMPs) that all display the same content, using the same template. Groups consist of a set of locations in the hierarchy of zones, groups, and locations.

L

Location

> Subset of a group that defines a specific place in the venue where devices (DMPs) reside. Locations are the most granular level in the hierarchy of zones, groups, and locations. A location consists of the physical location and display type, as well as the DMP associated with the location and display.

M

Main Menu

> Landing page screen (after log-in) in Cisco Vision Dynamic Signage Director 6.0 release. This screen is dependent on user role privileges.

P

Playlist

> A series of content items (static images, video, widgets) that are grouped together to display in sequential order (one-after-the-other) in a given region for a set duration and then repeat. Each playlist runs independently of other playlists, and multiple playlists can be run in any given event script.

POS store

> A point-of-sale store is a collection of items that are configured through integration with the DMB application, which determines the availability, content, and pricing of menu items for sale.

Proxy DMP

A DMP with type "Location With Network" that can be set up as a proxy of another location in the venue so that you can view what is going to be displayed on a TV. This helps you to verify that the proper content is assigned for a particular group and location. It is only supported on the Cisco DMP 4310G.

R

RBAC

Role-Based Access Control. Facility in the Cisco Vision Director software that determines which software functions are accessible by defined user roles in the system.

S

Scaling

Scaling refers to support of two things: 1) Stretching of the content. 2) Showing only a portion of the content per display in a multi-screen video wall.

Screen template

Defines the video and non-video regions and layout of a DMP display. Screen templates are used to create various layouts for the presentation of different types of content. Screen templates are assigned to zones or groups and apply to all locations within them.

Sequential state

A state that is associated with a period of time in an event script that can be controlled manually or by a timer.

Single-sourcing

To produce multiple outputs from one source.

Snippet

A pre-set chunk of content that you can use in your project over and over. Snippets are similar to variables, but snippets are used for longer chunks of content that you can format just as you would any other content in your topic. In snippets, you can also insert tables, pictures, and whatever else can be included in a normal topic.

SNMP

Simple Network Management Protocol. An Internet standard protocol for collecting and organizing information about devices such as routers, switches, and servers.

Span

A tag that is used to group inline elements to format them with styles. A span tag doesn't perform any specific action; it simply holds the attributes (e.g., font size, color, font family) that you apply to inline content.

SSC

Self-Service Content. Feature that provides a way for business users from a variety of functional areas at a venue to independently upload custom content directly to the Cisco Stadium Vision Director server and assign it to suites and devices for later pre-

sentation. SSC operates as an independent portal for content upload to Cisco Stadi-umVision Director.

Staging content

Pre-positioning and uploading content that is active for a given event script to the me-dia players.

Static graphics

Images used for advertisements or informational messages that do not require motion. Static graphics are stored locally in Flash memory on the Cisco DMP 4310G.

Stores

Collections of items that can be linked to appear on one or more menu boards in the DMB application.

Style

An element that contain pre-set formatting properties. You can apply style classes to your content to change the way it looks. Using style classes instead of direct (or " in-line") formatting helps you work faster, more efficiently, and with more consistency in your topics. If you need to make changes to the formatting in the future, you do not need to change the formatting in each topic (as you would with direct formatting). In-stead, change the formatting properties for that style in the appropriate stylesheet.

Suites

Physical or logical area in a venue.

T

Table

A group of intersecting columns and rows that you can add to a topic for various pur-poses, such as comparing one thing with another or giving field descriptions for a software dialog.

Tag

A label that can be applied to content items in the Cisco Vision Director Library Con-tent screen to ease organization and filtering of content items available in the CMS. A good practice can be to name tags according to groups and zones in the venue and teams.

Target

One "instance" of an output type. When you build your final output, you are essentially building one or more of the targets in your project.

Template

See "Screen template" and "Flash template".

Text snippet

A snippet that is created out of a portion of one paragraph.

Ticker

Region that displays content received from an RSS feed (news, weather, or other dy-namic information) over a customizable background. RSS feeds can come from ex-ternal or internal sources.

Topic

A chunk of information about a particular subject. Topics are the most important part of a project. Everything else is contained within topics (e.g., hyperlinks, text, pictures) or points toward topics (e.g., table of contents, index, browse sequences). The very reason end users open a Help system is to find information, a little direction. They find that help within individual topics.

TV-based tile matrix

A video wall design that uses the native tile-matrix capabilities of the TV using RS-232 commands to control the display.

V

Variable

A pre-set term or content that you can use in your project over and over. Variables are similar to snippets, but variables are used for brief, non-formatted pieces of content (such as the name of your company's product or your company's phone number). There are different kinds of variables: (1) those you create, (2) system variables, (3) Heading variables, or (4) Running HF variables for page headers and footers in printed output.

Video wall

Group of multiple displays that show synchronized content and convey a single, much larger screen.

W

Widget

Content object for external data. A widget is created using the Widgets layout tool for the External Content Integration feature, which is used to map real-time statistics or content from external data sources for output display in Cisco Vision Director.

X

XML Editor

The window in the Flare interface where you can add content and formatting to elements such as topics and snippets.

Z

Zone

Physical area of a Cisco Vision venue. Zones help classify broader sections of a venue to associate content and contain groups and locations.

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[1]Venue Administrators can only edit the Display Specifications panel.

[2]Support users can set up TV control PINs and channel guides for suites.

[3]Venue Administrators can delete content associated (tagged) to the venues for which that venue admin is authorized. External content, channels, and Dynamic Menu Board (DMB) content items are global to all venues. Therefore, these global content items also can be deleted by the venue admin.

[4]Venue Administrators and Venue Operators have script control only, and only for venues authorized by the Administrator for that user.

[5]Help Desk users can view and monitor information on the Management Dashboard with read-only access. They also can run Get Status, Ping, Display IP, and Ping Test commands for DMPs in the Management Dashboard.

[6]Support users can run Get Status, Ping, Display IP, Ping Test, TV On/Off, Set Display Input, Set Display Banner, Set Closed Captions, Set Video Channel, Cabling Test using TDR, and Show TDR Test Results commands.

[7]Venue Administrators can view and monitor information on the Management Dashboard with read-only access to the venues for which permissions are granted. They also can run Get Status, Ping, Display IP, and Ping Test commands in the Management Dashboard for the DMPs in the venues at which that Venue Administrator is authorized.

[8]Venue Operators can view and monitor information on the Management Dashboard with read-only access to the venues for which permissions are granted. They also can run Get Status, Ping, Display IP, and Query Syslog commands in the Management Dashboard for the DMPs in the venues at which that Venue Operator is authorized.

[9]The SSC portal cannot be accessed directly from the Cisco Vision Dynamic Signage Director main menu or Configuration. Access to the user-specific portal is opened only by logging into Cisco Vision Dynamic Signage Director as an SSC user.

[10]Synchronization applies only to video and still images. Synchronization cannot be guaranteed for other content such as tickers, external URLs, or widgets.