



# 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

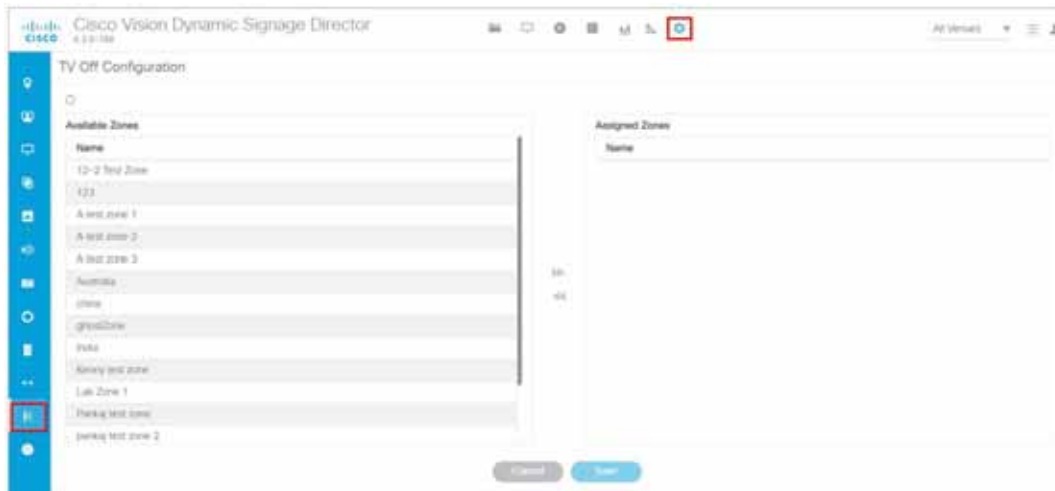
Support for all methods of user TV control is enabled by default in Cisco Vision Director for all media player types. This includes control of TV displays using local control devices and applications, IP phones, touch screens and infrared remote (IR) control.

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.

## New TV Control Access

We are upgrading our UI and improving your access. We added a new icon to the **Configuration** interface (Figure 1 on page 45). Previously, this portal was available through a separate interface. Full functionality remains.

Figure 1 TV Off Interface



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 65](#).

### To power off zones of TVs:

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

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 (Figure 2 on page 46).

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

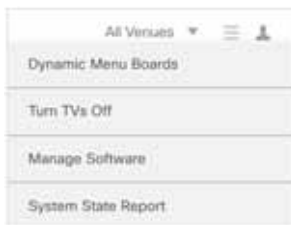
**Figure 2** Confirm Refresh of Assigning Zones



**To turn off the TVs in a zone:**

1. Select **More > Turn TVs Off** (Figure 3 on page 46). The Confirmation dialog box appears (Figure 3 on page 46).
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 on page 47).

**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 48](#) 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 50](#)).

**Note:** DMP portrait mode is not available for UHD (4K) videos. See the [Cisco Vision Content Planning and Specifications Guide, Release 6.3](#) for complete information about using portrait mode and auto-rotation.

**IMPORTANT:** When planning for portrait video payout, 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 49](#) 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.

**Table 2 Portrait Mode Parameters**

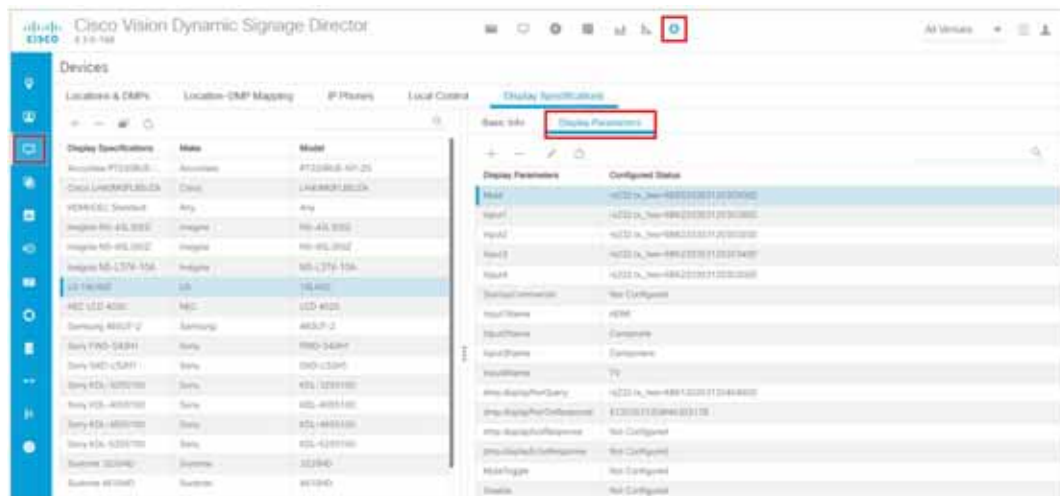
DMP Model	Region	Parameter
All Models	Single Region	Multicast Video, Local Video, Full Screen Portrait Web Application (Kyoto Signage Application), Full Screen Portrait Video Files (1080x1920) <b>Note:</b> Known issue when using UHD mode (3840x2160) and full screen portrait videos. Full Screen Portrait Images (1080x1920) Full Screen Mixed Playlist (External Content, Video Files in 1080x1920, Images in 1080x1920) <b>Note:</b> 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 (Figure 7 on page 50).
3. Click **+** to add a new Display Parameter. The Create Display Parameter dialog box appears (Figure 8 on page 50).

**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.

**Figure 8 Create New Display Parameter**

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.

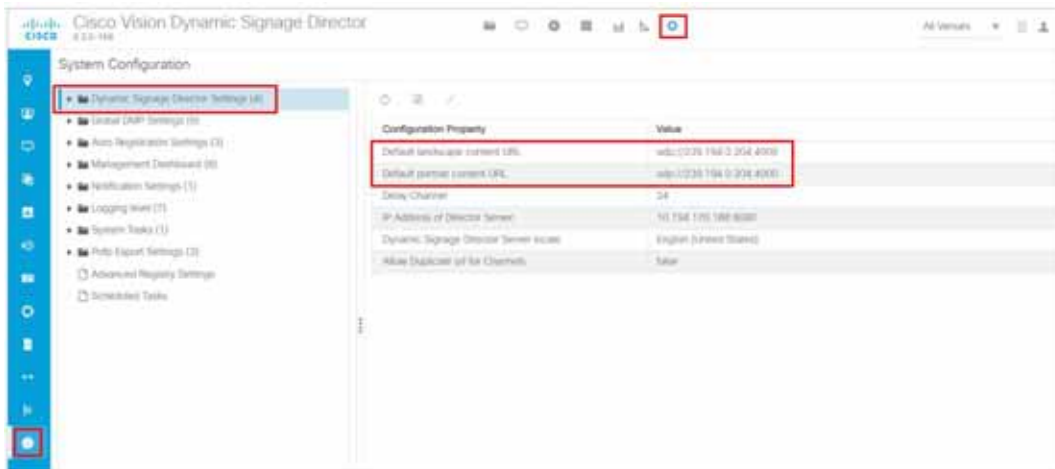
## Distorted Portrait Mode Displays

**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.

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## Display Parameters for RS-232 Communication

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), BRAVIA Link (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 behavior is indicated by configuring volume and mute commands that start with sigma=.



## Display Parameters for RS-232 TV Control

Table 3 on page 53 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.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
Input2Name	Composite

## Volume Control

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

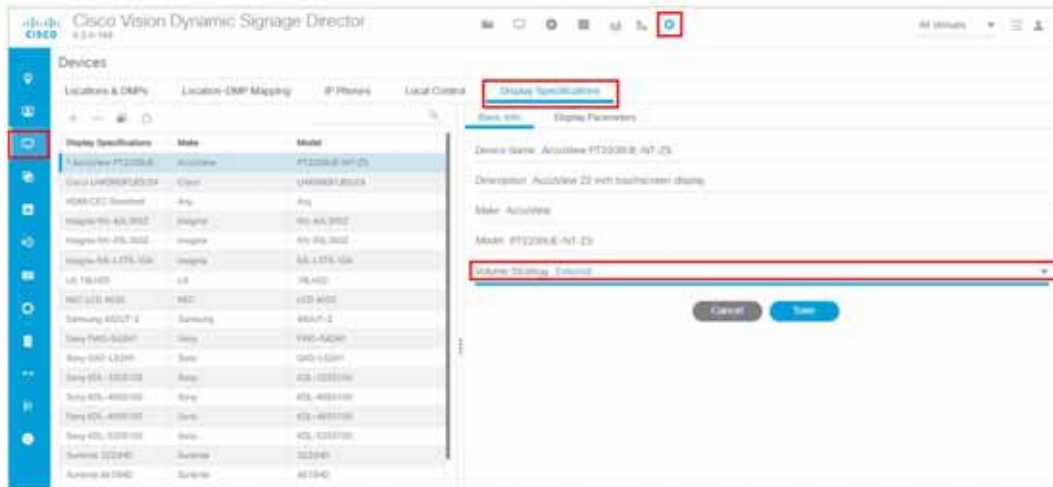
When properly configured in Cisco Vision Director, volume changes can be made from methods such as the IP phone, IR remote, **Device Management**, or event script state change. Volume changes for the primary video audio can be controlled for the SPDIF (on the SV-4K, CV-UHD, and CV-UHD2 only), analog 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 [Figure 9 on page 55](#).

### 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 55](#)
- [Configuring Basic Information for TV Display Specifications, on page 56](#)
- [Configuring Touchscreen Support, page 58](#)
- [Configuring Touchscreen Support, page 58](#)

## 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 55).
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 56 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.  <b>TIP:</b> 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 <a href="#">Volume Control, page 54</a> .

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

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	<p>True— Enables powerQuery to get TV power status using HDMI-CEC instead of RS-232.</p> <p>False—Disables powerQuery using HDMI-CEC.</p> <p>Note: This command is not supported by all TV models.</p>
dmp.TVControlbyCEC	<p>True—Enables TV control using HDMI-CEC instead of RS-232.</p> <p>False—Disables HDMI-CEC TV control.</p>
dmp.monitorAPIDelay	<p>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).</p>
dmp.monitorPower	<p>True—Enables Dynamic Signage Director to run a power query to the TV using the Get Status command from Device Management.</p> <p>False—Disables the option.</p>
dmp.SupportsTouchScreen	<p>True—Enables Dynamic Signage Director to support USB HID devices plugged in to the DMP.</p> <p>False—Disables the option.</p>
dmp.hDMIStreamingDelay	<p>Value (in ms) determines the delay.</p>





## Configuring Display Parameters for External Volume Support

- 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 `Volumen` commands only.

Table 5 on page 60 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
<code>Volumen</code>	Absolute	<p>Specifies the volume increment level, where <i>n</i> is a number from 1 to the total number of volume levels supported.</p> <p>Configure multiple <code>Volumen</code> commands for the number of increments being supported.</p> <p>Specify whole numbers for "n." For example specify "1"—not 01.</p> <p><b>TIP:</b> The best practice is to set <code>Volume1</code> 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.</p>
<code>VolumeUp</code>	Relative	Specifies an incremental volume setting determined by internal settings in the TV.
<code>VolumeDown</code>	Relative	Specifies an incremental volume setting determined by internal settings in the TV.
<code>VolumeCount</code>	Absolute	Total number of volume levels available.
For some TVs, the increase/decrease in volume is very slight requiring multiple <code>VolumeUp</code> or <code>VolumeDown</code> commands to achieve the desired effect. For these TVs, use the <b><code>dmp.RelativeVolumeSteps</code></b> display parameter.		
<code>dmp.RelativeVolumeSteps</code>	Relative	<p>Specifies the number of times the RS-232 command for <code>VolumeUp</code> or <code>VolumeDown</code> is repeated each time that you press up or down on the IR remote (or on the phone). The default is 1.</p> <p>For example, if the value is set to 8, then a <code>VolumeUp</code> or <code>VolumeDown</code> command sends 8 copies of the RS-232 string.</p>
<code>dmp.SerialDelay</code>	Relative	<p>Specifies the delay between sending repeated serial commands from the media player. The default is 5000 ms.</p> <p>This command can be used for certain TV displays that discard repeated serial commands that are sent too close together.</p>

Table 6 on page 61 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
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 61](#)
- [Disabling the TV Display Banner, page 63](#)

### 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 63](#)).

**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 62](#)). The screen shows the Assigned Locations and the Available Locations panels.

## How to Configure the TV Display Banner

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 62).
8. Type a name in the **Display Label** field, in our example “Main” (Figure 15 on page 63).

Figure 13 Assign the Location of the Luxury Suite

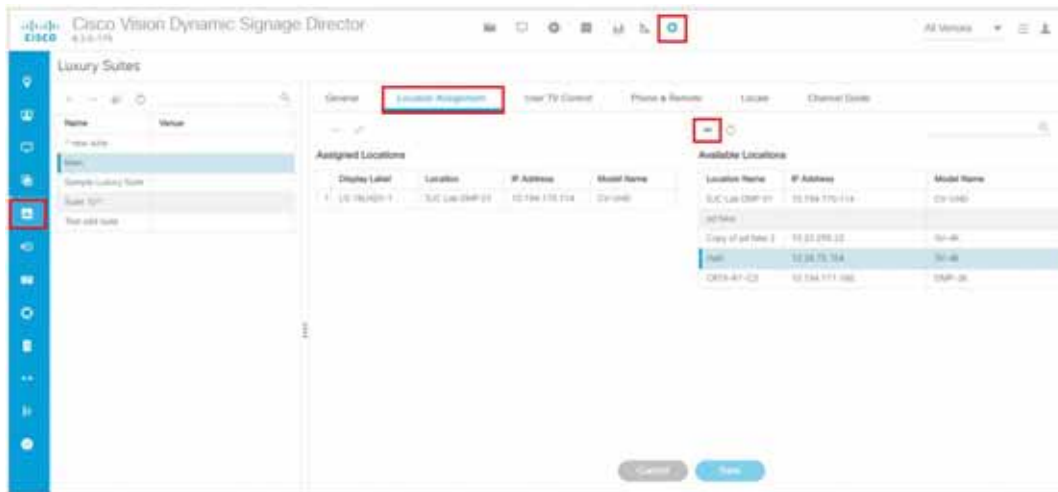


Figure 14 Setting the Display Name



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 63).

**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**.

