Planning Digital Media Player Deployment

Series 2 DMPs: DMP-2K and SV-4K

Series 3 DMPs: CV-HD and CV-UHD

Series 4 DMPs: CV-HD2 and CV-UHD2

This module describes aspects of the DMP deployment to consider and execute—before you install and provision the digital media players. It is for installers, network administrators, and administrators of Cisco Vision Dynamic Signage Director.

This module includes the following topics:

- Workflow to Plan Deployment of the Digital Media Players, page 45

- Zones, Groups and Locations Planning, page 46

- TV Planning for the Digital Media Player, page 46

- Network and Switch Planning, page 49

Workflow to Plan Deployment of the Digital Media Players

Table 1 on page 45 provides a summary of the tasks and related information to plan for the deployment of the digital media player.

Table 1   Deployment Planning Task Summary

Planning Task	For more information see:
Plan Groups/Zones/Locations.	Zones, Groups and Locations Planning, page 46.
Perform TV qualification.	- TV Requirements for Compliance, page 46. - TV Qualification for HDMI CEC Control of TV Power On/Off, page 46. - Guidelines for TV and Content Resolution with the Digital Media Players, page 47.
Prepare for SV-4K and DMP-2K installation (Series 2). Prepare for CV-HD and CV-UHD installation (Series 3). Prepare for CV-HD2 and CV-UHD2 installation (Series 4).	- Using Bar Code Scanners and TV Labels at Installation Time, page 44. - Mounting Guidelines for the Digital Media Players, page 30
Determine cabling requirements.	- Best Practices for DMP Deployment, page 44. - Cabling Information for the Digital Media Player, page 28.

Table 1   Deployment Planning Task Summary (continued)

Planning Task	For more information see:
Plan the Connected Stadium switch configuration.	Connected Stadium Switch Requirements, page 50.
Plan the DHCP server configuration.	External DHCP Server Requirements, page 50.
Determine the network time (clocking) sources.	How to Configure NTP and PTP on the Digital Media Players, page 56.

Zones, Groups and Locations Planning

Note: We do not recommend mixed groups that contain different media player device types. Cisco Vision Dynamic Signage Director gives a warning about such groups if you attempt to configure them.

TV Planning for the Digital Media Player

This section includes the following topics:

- TV Requirements for Compliance, page 46

- TV Qualification for HDMI CEC Control of TV Power On/Off, page 46

- Guidelines for TV and Content Resolution with the Digital Media Players, page 47

- Restrictions for TV Display Specifications with the Digital Media Players, page 47

- Configuring Resolution Display Specifications, page 47

TV Requirements for Compliance

For the optimal experience with the digital media player, verify the site TV displays are compliant with the following specifications and resolution:

- High-bandwidth Digital Content Protection (HDCP)

- High-Definition Multimedia Interface (HDMI)

- HDMI Consumer Electronics Control (CEC) (as required for TV control)

- RS-232 serial interface (as required)

- HD or UHD capable display

TV Qualification for HDMI CEC Control of TV Power On/Off

We introduced support for the universal TV power on/off HDMI CEC command on the Cisco DMPs with a new **Display Specifications** configuration that allows you to control the following three TV functions through HDMI CEC:

- Power On/Off

- Reboot

- Refresh

When HDMI CEC TV control is enabled, HDMI CEC is used instead of RS-232 for TV control functions. For information about accessing and setting up this parameter, see Configuring HDMI-CEC TV Control in TV Display Specifications in the Cisco Vision Dynamic Signage Director Operations Guide, Release 6.2.

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

For information about some of the TV models that have been tested with Cisco Vision Dynamic Signage Director, see Release Notes for Cisco Vision Dynamic Signage Director, Release 6.2.

Guidelines for TV and Content Resolution with the Digital Media Players

The DMPs are set to run in full high-definition (HD) 1920x1080 mode by the runtime software.

Note: We highly recommend 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 Dynamic Signage Director to attempt to optimize the display. In some cases these TVs might cut off an area of the screen, rather than resize the graphics.

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** serial command in the **Configuration > Devices > Display Specifications > Display Parameters** area of the Cisco Vision Dynamic Signage Director UI.

  – When set to a resolution, this value specifies the DMP signal resolution.

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

  Note: If you are using a UHD display, you must configure a fixed resolution value of 3840x2160x60p in the **sv4k.videoMode** serial command in the TV **Display Specification**.

- The template region size.

- The size of the original graphic and whether any scaling needs to happen.

Note: For more information about content and template guidelines, see the Cisco Vision Content Planning and Specification Guide: Dynamic Signage Director, Release 6.2.

Restrictions for TV Display Specifications with the Digital Media Players

Before you configure TV display specifications for use with the digital media players, consider the following restrictions:

- The following Basic Info options are not supported:

  – X Position / Y Position

  – X Scaling / Y Scaling

Configuring Resolution 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. Go to **Configuration > Devices > Display Specifications** in the Cisco Vision Dynamic Signage Director UI.

Figure 1   Display Signal Resolution
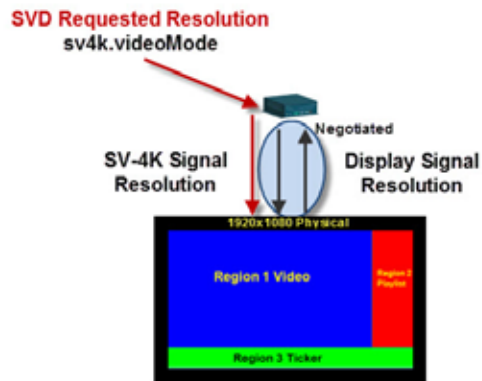
- If the resolution is set to auto-detection, then the TV and the DMPs negotiate the signal resolution, as long as the TV supports auto-negotiation (Figure 1 on page 48).

- If a resolution is specified in the Cisco Vision Director UI, then the content is resized according to that setting. This is the requested DMP signal resolution shown in red in Figure 1 on page 48.

- 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.

Note: The sv4k.videoMode display parameter is unrelated and is not a required or expected configuration for use of portrait mode. In addition, only certain values are supported for sv4k.videoMode, and they should not be changed to any other values (Table 2 on page 49). Portrait mode is enabled and configured using the dmp.portrait display parameter only. However, when preparing your content for portrait mode, the content should be designed for 1920 pixels high and 1080 pixels wide. The default template canvas will still show horizontal orientation when you are using portrait mode, but you can add regions that extend beyond the canvas.

To set the resolution for a display:

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

2. Select the TV that you want to configure.

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

4. Find the sv4k.videoMode command (Figure 2 on page 49) and select it.

Figure 2   Resolution Setting in Display Specifications
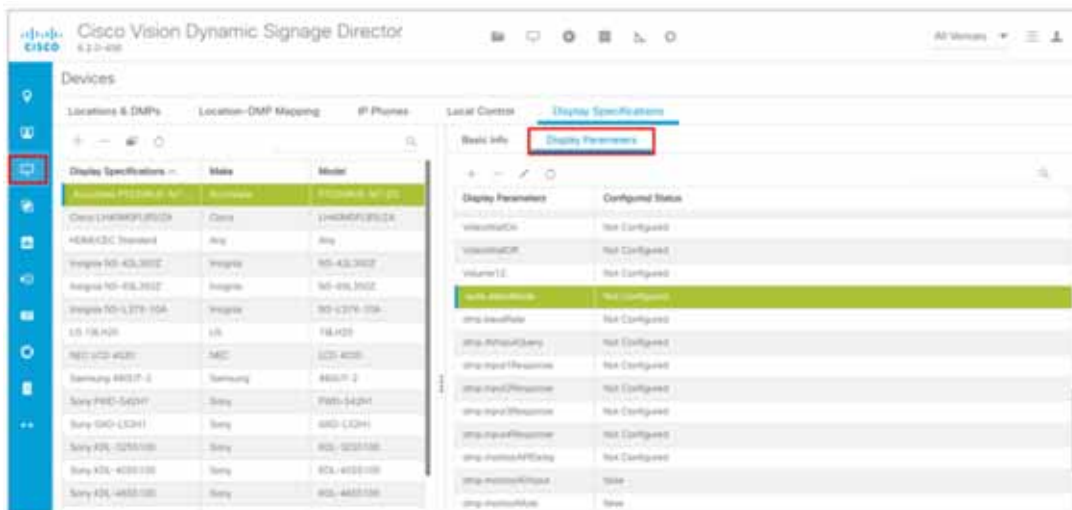
5. Click the Edit "pencil" to add in the specs in the **Configurated Status** field. Specify one of the values in Table 2 on page 49 according to the desired resolution behavior.

Table 2   DMP Resolution Values

sv4k.videoMode Value[1]	Resolution
3840x2160x60p[2]	Fixed at 2160p
1920x1080x60p	Fixed at 1080p
1280x720x60p	Fixed at 720p
Not Configured	Auto-detected
Auto	Auto-detected

1. Do not use any values other than what are listed in this table. There is no specific sv4k.videoMode resolution that is required to support portrait mode. Portrait mode is configured only through the dmp.portrait display parameter.

2. This specification is required for 4K TV displays in Release 4.1.

6. Click **Save**.

7. Reboot the DMP.

Network and Switch Planning

This section includes the following topics:

- External DHCP Server Requirements, page 50

- Connected Stadium Switch Requirements, page 50

External DHCP Server Requirements

The digital medias player require configuration of an external DHCP server to provide IP addressing to the devices. This service can be configured using Cisco Prime Network Registrar (CPNR) or another external server at the venue.

This section highlights some of the key requirements to plan your DHCP configuration. However, it does not describe all of the details for you to perform the configuration.

Note: For more information and details about DHCP configuration, see the Cisco Vision Dynamic Signage Solution Operation and Network Requirements available to qualified Cisco Vision partners.

DHCP Configuration Guidelines for the Digital Media Player

Consider the following guidelines before configuring a DHCP server for the DMPs:

- Do not configure the Connected Stadium Switch as the IOS DHCP server for Cisco Vision Dynamic Signage Director.

- Be sure to set the DHCP server for an infinite lease of IP addresses to the DMP devices.

- If you are supporting a deployment with mixed models of media players, configure an Option 60 string for each model.

- If the DHCP server is limited to a single Option 43 string per DHCP pool (such as with a Cisco DHCP server), configure a separate DHCP scope for each media player model.

- For DHCP servers that require Option 60, configure the DHCP Option 60, Vendor Class Identifier string:

  - CV-HD2 global string: "Cisco CV-HD2"

  - CV-UHD2: "Cisco CV-UHD2"

  - CV-HD global string: "Cisco CV-HD"

  - CV-UHD global string: "Cisco CV-UHD"

  - CV-UHD with WiFi global string: "Cisco CV-UHD-WiFi"

  - DMP-2K string for new, factory-shipped devices: "Cisco DMP-2K"

  - SV-4K string for North America: "Cisco SV-4K-NA"

  - SV-4K string for all other regions: "Cisco SV-4K-ROW"

- Configure the converted DHCP Option 43, Vendor Specific Option URL:

  http://_x.x.x.x_**:8080/StadiumVision/dmp_v4/scripts/boot.brs**

  where "_x.x.x.x_" is the IP address of the Dynamic Signage Director server.

Note: The option 43 string must be converted to TLV format for compatibility with the DMPs. For more information, see Appendix C: Configuring an IOS DHCP Server to Support the Digital Media Players, page 83.

Connected Stadium Switch Requirements

This section highlights some of the key requirements to plan your Connected Stadium switch configuration. However, it does not describe all of the details for you to perform the configuration. For configuration details, see the Cisco Vision Dynamic Signage Solution Operation and Network Requirements available to qualified Cisco Vision partners.

Switch Configuration Requirements for the Digital Media Player

Be sure that the Connected Stadium switch meets the following configuration requirements to support the deployment of the digital media players:

- For SV-4K, CV-UHD, and CV-UHD2: supports PoE+ (IEEE 802.3at) with 30W of port power.

- For DMP-2K, CV-HD, and CV-HD2: supports PoE+ (IEEE 802.at) with 15W of port power.

- Configures Internet Group Management Protocol (IGMP).

- IGMPv2, and IGMPv3 are supported.

- Configures Link Layer Discovery Protocol (LLDP), which is required to determine available power using PoE+ and also supports the IOS Civic Location feature.

Note: For more information and details about the switch configuration, see the Cisco Vision Dynamic Signage Solution Operation and Network Requirements available to qualified Cisco Vision partners.

Note: When only 15W is available, the USB ports will retain I/O functionality but limit power output to 100 mA / port. Additionally, HDMI-In is not supported and graphics performance will be reduced.

Network and Switch Planning