



# Getting Started with the Digital Media Players

**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 provides a workflow summary with information about the Series 2, Series 3, and Series 4 hardware, software features, and key considerations before deploying these digital media players.

It is intended for anyone who is responsible for installing and configuring the digital media player and for anyone interested in understanding its general operation.

It includes the following topics:

- [Workflow Summary to Get Started, page 12](#)
- [Operating Environment for the Digital Media Players, page 13](#)
- [Physical Characteristics of the Digital Media Players, page 14](#)
- [IR Remote for Cisco Vision Dynamic Signage Director, page 37](#)
- [Default Settings for the Digital Media Player, page 38](#)
- [Feature Summary for the Digital Media Player, page 39](#)
- [Key Considerations for the Digital Media Players, page 41](#)
- [Best Practices for DMP Deployment, page 44](#)

## Workflow Summary to Get Started

Table 1 on page 12 provides a summary of the tasks and related information to get familiar with the digital media player.

**Table 1 Getting Started Task Summary**

Getting Started Task	For more information see:
Understand the CV-HD2 hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the CV-HD2 Media Player, page 15</a></li> <li>■ <a href="#">Ports of the CV-HD2 Media Player, page 15</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 4 Media Players, page 36</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>
Understand the CV-UHD2 hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the CV-UHD2 Media Player, page 17</a></li> <li>■ <a href="#">Ports of the CV-UHD2 Media Player, page 17</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 4 Media Players, page 36</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>
Understand the CV-HD hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the CV-HD Media Player, page 20</a></li> <li>■ <a href="#">Ports of the CV-HD Media Player, page 20</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 3 Media Players, page 36</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>
Understand the CV-UHD hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the CV-UHD Media Player, page 21</a></li> <li>■ <a href="#">Ports on the CV-UHD Media Player, page 22</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 3 Media Players, page 36</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>

**Table 1 Getting Started Task Summary (continued)**

Getting Started Task	For more information see:
Understand the DMP-2K hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the DMP-2K Media Player, page 24</a></li> <li>■ <a href="#">Ports on the DMP-2K Media Player, page 25.</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 2 Media Players, page 34</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>
Understand the SV-4K hardware	<ul style="list-style-type: none"> <li>■ <a href="#">Operating Environment for the Digital Media Players, page 13</a></li> <li>■ <a href="#">Dimensions of the SV-4K Media Player, page 26</a></li> <li>■ <a href="#">Ports on the SV-4K Media Player, page 27.</a></li> <li>■ <a href="#">Cabling Information for the Digital Media Player, page 28</a></li> <li>■ <a href="#">Mounting Guidelines for the Digital Media Players, page 30</a></li> <li>■ <a href="#">LEDs on the Series 2 Media Players, page 34</a></li> <li>■ <a href="#">Default Settings for the Digital Media Player, page 38</a></li> </ul>
Understand the Series 2, Series 3, and Series 4 features	<ul style="list-style-type: none"> <li>■ <a href="#">Cisco Vision Dynamic Signage Director Software Feature Map for the DMPs, page 39.</a></li> <li>■ <a href="#">Unsupported DMP Hardware Features, page 40.</a></li> </ul>
Understand the Differences Between the Players	<a href="#">Key Considerations for the Digital Media Players, page 41</a>
Review deployment best practices	<a href="#">Best Practices for DMP Deployment, page 44</a>
Perform pre-deployment site planning and configuration	<a href="#">Planning Digital Media Player Deployment, page 45</a>

## Operating Environment for the Digital Media Players

[Table 2 on page 13](#) describes the supported environment for proper operation of the Series 2, Series 3, and Series 4 media players.

**Table 2 Supported Operating Environment for the Series 2, Series 3, and Series 4 DMPs**

Operating Environment	Supported Conditions
Temperature	0° C to 70° C
Humidity	Up to 90% maximum relative humidity, non-condensing

**Caution:** Do not allow condensation of any vapor to touch the DMPs at any time. Do not spill food or drinks of any kind on the DMPs. Before powering up the DMP, let it come to room temperature to remove any possibility of condensation build up inside the device.

## Physical Characteristics of the Digital Media Players

This section provides information about the dimensions and ports on each of the Series 2, Series 3, and Series 4 media players:

- [CV-HD2 Media Player, page 14](#)
- [CV-UHD2 Media Player, page 17](#)
- [CV-HD Media Player, page 19](#)
- [CV-UHD Media Player, page 21](#)
- [DMP-2K Media Player, page 24](#)
- [SV-4K Media Player, page 26](#)
- [Cabling Information for the Digital Media Player, page 28](#)
- [Mounting Guidelines for the Digital Media Players, page 30](#)
- [LEDs on the Digital Media Players, page 34](#)

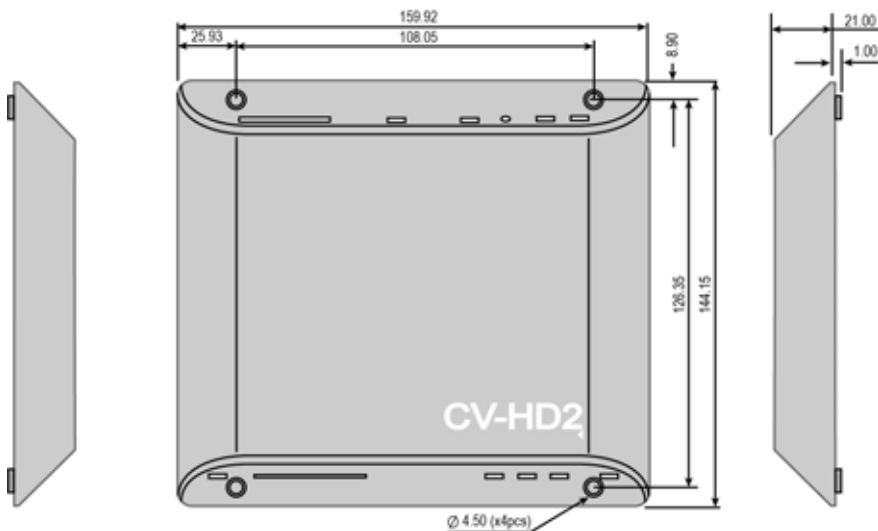
**Note:** Refer to the DMP-specific Datasheet for additional specification information. See Datasheets for [Cisco Vision Digital Media Players](#).

### CV-HD2 Media Player



## Dimensions of the CV-HD2 Media Player

**Figure 1 CV-HD2 Dimensions**



## Ports of the CV-HD2 Media Player

**Figure 2 CV-HD2 Front Ports**



**Table 3 CV-HD2 Front Ports Descriptions**

Name/Description	Usage
PoE Ethernet RJ-45 1000 Base-T Ethernet port	Connect to switch network for PoE+ dynamic negotiation of 15W or 30W.
microSD Slot	SDHC storage up to 32 GB; SDXC storage up to 2 TB
HDMI	HDMI In  HDMI input connector (compatible with HDMI 2.0 devices) to receive digital audio/video content from an HDMI-enabled source.  The signaling conforms with DVI 1.0, HDMI 1.4, and HDCP 2.2 standards.
USB	USB 2.0 High-Speed Port (Type A)

**Table 3 CV-HD2 Front Ports Descriptions**

Name/Description	Usage
SVC	This is used for service only.
Reset	The Reset button is connected to the reset circuit. Pressing down the Reset button will send an initial signal to the system software, and holding the reset button low for approximately 4 seconds will cause a hard reset.
12V 1.5A	PoE 15W

- If power is negotiated to 15W, services on the CV-HD2 are restricted. This includes shut down of the HDMI-In port and unavailability of one CPU. If using USB for touch screen support, the USB port power is sufficiently reduced to impact support of any high-power devices.
- Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power for optimal DMP operation.

**Figure 3 CV-HD2 Rear Ports****Table 4 CV-HD2 Rear Port Descriptions**

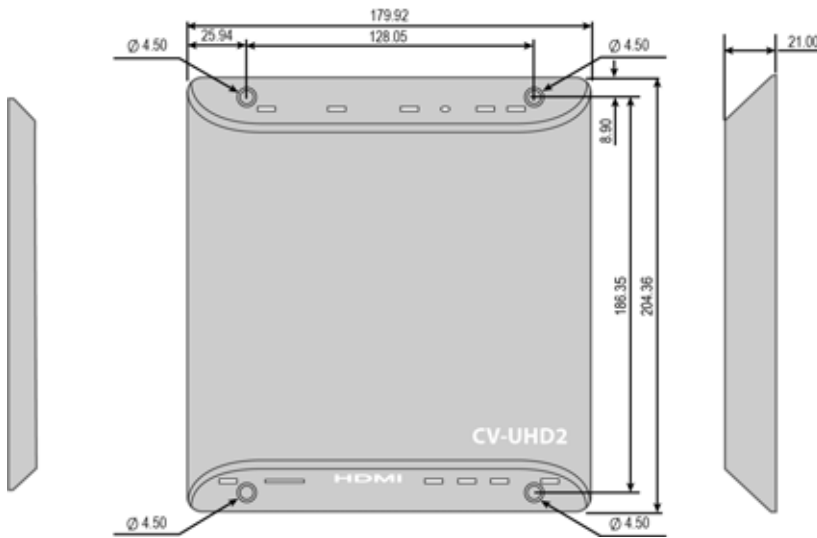
Name/Description	Usage
Audio	3.5 mm audio out (digital and analog)
IR	3.5mm IR in/out
Serial	GPIO (12 pins)
Pwr	Displays when the board is powered up and not in reset mode. Flashes during the firmware update process.
Bsy-Green file-system activity	Flashes any time there is file-system activity (on any storage device)
WiFi	Flashes when the player is connecting to the wireless network. Displays when connected.
Err	Flashes a certain number of times to indicate which error is occurring. For ERR codes, see <a href="#">Table 22 on page 37</a> .

## CV-UHD2 Media Player



### Dimensions of the CV-UHD2 Media Player

**Figure 4 CV-UHD2 Dimensions**



### Ports of the CV-UHD2 Media Player

**Figure 5 CV-UHD2 Front Ports**



**Table 5 CV-UHD2 Front Port Descriptions**

Name/Description	Usage
microSD	Not used/supported.
Pwr (green) LED	Displays when the board is powered up and not in reset mode. Flashes during the firmware update process.
BSy (green) LED	Flashes any time there is file-system activity (on any storage device)
WiFi (blue) LED	Flashes when the player is connecting to the wireless network. Displays when connected.
Err (red) LED	Flashes a certain number of times to indicate which error is occurring. See <a href="#">Table 22 on page 37</a> for flash codes described.
HDMI Out	HDMI Out  High-Definition Multimedia Interface (HDMI) output connector (compatible with HDMI 2.0 devices) to transmit digital audio/video content.
HDMI In	HDMI In  HDMI input connector (compatible with HDMI 2.0 devices) to receive digital audio/video content from an HDMI-enabled source.  The signaling conforms with DVI 1.0, HDMI 1.4, and HDCP 2.2 standards.
USB 2.0 (Type C)	1A Power for small human interface devices (HIDs).
SVC	The Service (SVC) button provides a dedicated GPIO button (GPIO12) for the OS. Pressing the SVC button pulls the pin low. Conversely, releasing the button pulls the pin high.
Reset	The Reset button is connected to the reset circuit. Pressing down the Reset button will send an initial signal to the system software, and holding the reset button low for approximately 4 seconds will cause a hard reset.
PoE Ethernet <sup>1</sup> RJ-45 1000 Base-T Ethernet port <sup>2</sup>	Connect to switch network for PoE+ 30W negotiated power reservation. 15W to boot.

1. If power is negotiated to 15W, services on the CV-UHD2 are restricted. This includes shut down of the HDMI-In port and unavailability of one CPU. If using USB for touch screen support, the USB port power is sufficiently reduced to impact support of any high-power devices. When only 15W is available, the USB ports will retain I/O functionality but limit power output to 100mA / port. Additionally HDMI-In is not supported and graphics performance will be reduced.
2. **Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power for optimal DMP operation.

**Note:** WiFi is not supported for this DMP.



**Figure 6 CV-UHD2 Rear Ports**



**Table 6 CV-UHD2 Rear Port Descriptions**

Name/Description	Usage
Audio	3.5mm audio out (optical digital and analog).
USB 2.0 (Type A)	1.5A Power for small human interface devices (HIDs).
IR	3.5mm IR in/out.
Serial	3.5 mm RS-232 Serial Port.
GPIO 3.3V	GPIO (12 pins). <b>Note:</b> Not supported in Release 6.4.
Power Connector 36W (12V@3A)	<b>Note:</b> Not for production use in Cisco Vision Dynamic Signage Director. The CV-UHD2 is qualified for Cisco Vision Dynamic Signage Director using Power over Ethernet (PoE+) via the Ethernet port.

**Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power (30 W) for optimal DMP operation and use LLDP.

## CV-HD Media Player

**Figure 7 CV-HD Dimensions**





**Figure 10 Rear Ports of CV-HD Media Player**



**Table 8 CV-HD Rear Port Descriptions**

Name/Description	Usage
Audio	3.5mm audio out.
IR	3.5mm IR in/out.
Serial	Connect to TV serial port for control of the TV via RS-232 commands.
Err LED	Flashes a certain number of times to indicate which error is occurring. See <a href="#">Table 21 on page 36</a> for flash codes described.
Pwr	(green)–Displays when the device is powered on and not in reset mode.
Bsy	(green)–Flashes when there is file-system activity.

## CV-UHD Media Player

### Dimensions of the CV-UHD Media Player

**Figure 11 CV-UHD Dimensions**



## Ports on the CV-UHD Media Player

Figure 12 CV-UHD Front Panel



Table 9 CV-UHD Front Port Descriptions

Number	Name/Description	Usage
1	LED bank See <a href="#">LEDs on the Series 3 Media Players, page 36</a> .	Observe for operational status.
2	MicroSD	Not supported
3	HDMI Out High-Definition Multimedia Interface (HDMI) output connector (compatible with HDMI 2.0 devices) to transmit digital audio/video content.	Connect to HDMI In port on the TV.
4	HDMI In HDMI input connector (compatible with HDMI 2.0 devices) to receive digital audio/video content from an HDMI-enabled source. The signaling conforms with DVI 1.0, HDMI 1.4, and HDCP 2.2 standards.	Connect to HDCP-compliant laptop or other device.
5	USB–2.0 Type A	Type C only for touchscreen.
6	SVC	This is used for service only.
7	Reset	The Reset button is connected to the reset circuit. Pressing down the Reset button will send an initial signal to the system software, and holding the reset button low for approximately 4 seconds will cause a hard reset.
8	PoE Ethernet 12V / 3A (PoE+ 30W) <sup>1</sup> RJ-45 1000 Base-T Ethernet port <sup>2</sup>	Connect to switch network for PoE+ dynamic negotiation of 15W or 30W.

Physical Characteristics of the Digital Media Players

1. If power is negotiated to 15W, services on the CV-UHD are restricted. When only 15W is negotiated via PoE, the DMP will continue to operate, but the graphics clock speed and processing performance is reduced, the USB ports will limit power output to 100 mA per port, and the HDMI-In is disabled.
2. **Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power for optimal DMP operation.

Figure 13 CV-UHD Rear Ports

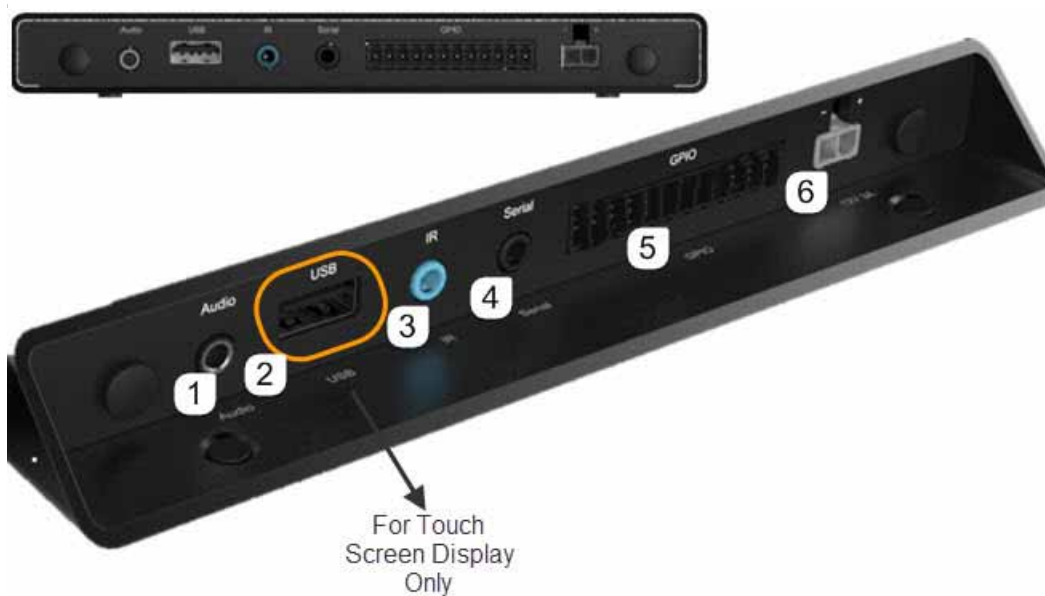


Table 10 CV-UHD Rear Port Descriptions

Number	Name/Description	Usage
1	Audio <sup>1</sup> 3.5 mm female audio connector for analog stereo signal.	Required only for connections that do not support audio, such as HDMI-to-DVI connections from device to the TV. Also supports a “Mini Toslink” connector which outputs digital audio. 3.5 mm audio out (optical digital and analog).
2	USB USB 2.0 Type C port.	Intended for touch screen display use only with Cisco Vision Dynamic Signage Director.
3	IR 3.5 mm infrared in/out.	Series 3 media players do not have an internal infrared receiver. Use the included IR extender cable to support an IR remote.

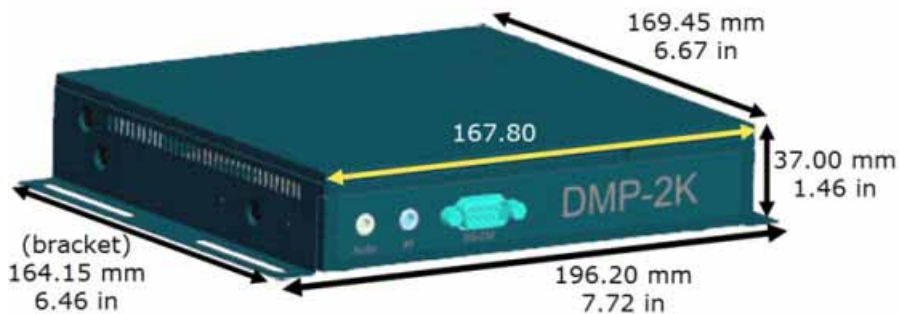
**Table 10 CV-UHD Rear Port Descriptions**

Number	Name/Description	Usage
4	Serial (TTL) <sup>2</sup>  3.5 mm universally asynchronous receiver/transmitter (UART) (asynchronous serial) interface (1/8" jack) that uses transistor-transistor logic (TTL).	Connect to TV serial port for control of the TV via RS-232 commands.
5	GPIO  General Purpose Input/Output.	Not supported.
6	Power connector  Rated 12V 3A.	The CV-UHD is qualified for Cisco Vision Dynamic Signage Director using Power over Ethernet (PoE+) via the Ethernet port <sup>3</sup> .

1. The analog audio out port is designed to drive line-level impedances in the higher Ohm range, such as for commercial grade speaker systems. Headphones are typically just a few Ohms and not recommended for use with this port.
2. The DMP serial interface transmits on pin 1 (Tip), receives on pin 2 (Ring), and sleeve is ground.
3. Not for production use in Cisco Vision Dynamic Signage Director. **Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power (30 W) for optimal DMP operation and use LLDP.

## DMP-2K Media Player

### Dimensions of the DMP-2K Media Player

**Figure 14 DMP-2K Dimensions**

### Ports on the DMP-2K Media Player

**Figure 15 DMP-2K Front Panel**



**Table 11 DMP-2K Front Panel Port Descriptions**

Port Name	Usage	Description
Audio <sup>1</sup>	Required only for connections that do not support audio, such as HDMI-to-DVI connections from device to the TV.	3.5 mm female audio connector for analog stereo signal.
IR	The DMP-2K does not have an internal infrared receiver. You must use the included IR extender cable to support an IR remote.	3.5 mm infrared in/out.
RS-232	Connect to TV serial port for control of the TV via RS-232 commands.	RS-232 serial interface with male DE-9 connector. This connection is used for TV control.

1. The analog audio out port is designed to drive line-level impedances in the higher Ohm range, such as for commercial grade speaker systems. Headphones are typically just a few Ohms and not recommended for use with this port.

**Figure 16 DMP-2K Rear Panel**

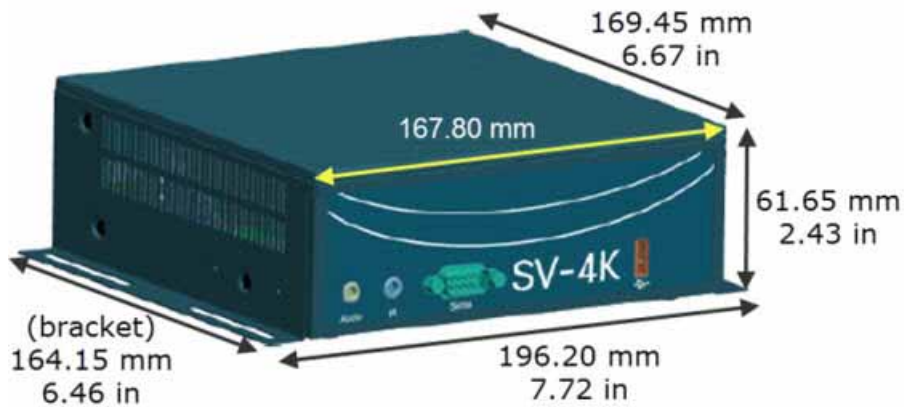


**Table 12 DMP-2K Rear Panel Port Descriptions**

Port Name	Usage	Description
12V 5A	Not for production use in Cisco Vision Dynamic Signage Director.  <b>Note:</b> The DMP-2K is qualified for Cisco Vision Dynamic Signage Director using Power over Ethernet (PoE+) via the Ethernet port.	60-watt/12-volt/5-amp power supply.
SPDIF	Provides audio from the primary video routed by Cisco Vision Dynamic Signage Director to the SPDIF port.	Sony/Phillips Digital Interface.
HDMI	Connect to HDMI In port on the TV.	High-Definition Multimedia Interface (HDMI) output connector to transmit digital audio/video content.
USB 3.0	Not supported.	Single USB 3.0 port (backward-compatible).
Ethernet	Connect to switch network for PoE+.	RJ-45 10/100/1000 Base-T Ethernet port.

## SV-4K Media Player

### Dimensions of the SV-4K Media Player

**Figure 17 SV-4K Dimensions**



## Ports on the SV-4K Media Player

Figure 18 SV-4K Front Panel



Table 13 SV-4K Front Panel Port Descriptions

Port Name	Usage	Description
Audio <sup>1</sup>	Required only for connections that do not support audio, such as HDMI-to-DVI connections from device to the TV.	3.5 mm female audio connector for analog stereo signal.
IR	The SV-4K does not have an internal infrared receiver. You must use the included IR extender cable to support an IR remote.	3.5 mm infrared in/out.
Serial	Connect to TV serial port for control of the TV via RS-232 commands.	RS-232 serial interface with male DE-9 connector. This connection is used for TV control.
USB	Not supported.	USB 2.0 port.

1. The analog audio out port is designed to drive line-level impedances in the higher Ohm range, such as for commercial grade speaker systems. Headphones are typically just a few Ohms and not recommended for use with this port.

Figure 19 SV-4K Rear Panel

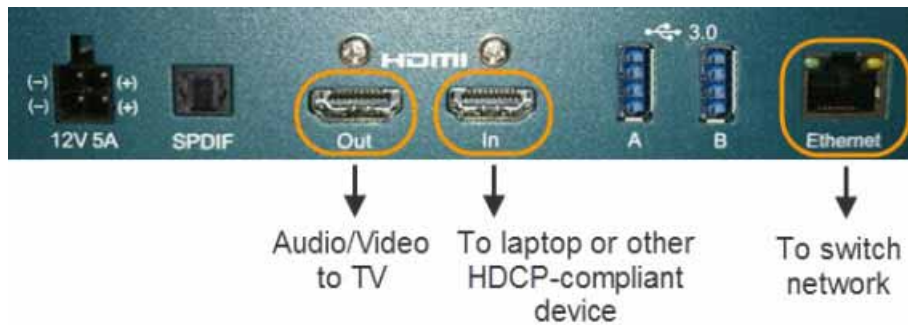


Table 14 SV-4K Rear Panel Port Descriptions

Port Name	Usage	Description
12V 5A	Required when running the SV-4K over a WiFi connection. <b>Note:</b> The SV-4K must first be provisioned over PoE+ with configuration of WiFi completed in Cisco Vision Dynamic Signage Director. See <a href="#">How to Deploy WiFi Network Connectivity on the SV-4K</a> .	60-watt/12-volt/5-amp power supply.
SPDIF	Provides audio from the primary video routed by Cisco Vision Dynamic Signage Director to the SPDIF port.	Sony/Phillips Digital Interface.
HDMI Out	Connect to HDMI In port on the TV.	High-Definition Multimedia Interface (HDMI) output connector to transmit digital audio/video content.
HDMI In	Connect to HDCP-compliant laptop or other device.	HDMI input connector to receive digital audio/video content from an HDMI-enabled source.
USB 3.0 A USB 3.0 B	USB ports work, but not supported at 3.0.	Two USB 3.0 ports (backward-compatible).
Ethernet	Connect to switch network for PoE+.	RJ-45 10/100/1000 Base-T Ethernet port.

**Warning:** Do not supply power to network port using AC power cable. When using PoE, budget appropriate power (30 W) for optimal DMP operation and use LLDP.

## Cabling Information for the Digital Media Player

Table 15 on page 28 describes the cables that ship with the DMP-2K and SV-4K hardware.

Table 15 Cables Shipped with Series 2 Hardware

Cable	Length	Purpose
Female-to-Female Serial Adapter	2 M	(As required) For serial device connections.

**Table 15 Cables Shipped with Series 2 Hardware (continued)**

Cable	Length	Purpose
HDMI-to-HDMI	2 M	(Required) Connects the HDMI Out (male) to the HDMI In (male) port on the TV for digital audio and video support. Compliant with HDMI version 1.4.
RS-232 DE-9 DCE/DTE Straight Through	2 M	(Required for TV control over RS-232) Connects the DMP serial DTE (male) port to a serial DCE (female) port on the TV.
IR Extender	2 M	(Required for IR Remote) Connects to the IR port on the DMP front panel to serve as an infrared signal receiver for the device.

Table 16 on page 29 describes the cables that ship with the CV-HD and CV-UHD hardware.

**Table 16 Cables Shipped with Series 3 Hardware**

Cable	Length	Purpose
Female-to-Female Serial Adapter	2 M	(As required) For serial device connections.
HDMI-to-HDMI	2 M	(Required) Connects the HDMI Out (male) to the HDMI In (male) port on the TV for digital audio and video support. Compliant with HDMI version 1.4.
3.5 mm to male DB-9 Serial Adapter	2 M	(Required for TV control over RS-232) Connects the DMP 3.5 mm serial port to a serial DCE (female) port on the TV.
IR Extender	2 M	(Required for IR Remote) Connects to the IR port on the DMP front panel to serve as an infrared signal receiver for the device.

Table 17 on page 29 describes the cables that ship with the CV-HD2 and CV-UHD2 hardware.

**Table 17 Cables shipped with Series 4 Hardware**

Cable	Length	Purpose
Female-to-Female Serial Adapter	2 M	(As required) For serial device connections.
HDMI-to-HDMI	2 M	(Required) Connects the HDMI Out (male) to the HDMI In (male) port on the TV for digital audio and video support. Compliant with HDMI version 1.4.
3.5 mm to male DB-9 Serial Adapter	2 M	(Required for TV control over RS-232) Connects the DMP 3.5 mm serial port to a serial DCE (female) port on the TV.
IR Extender	2 M	(Required for IR Remote) Connects to the IR port on the DMP front panel to serve as an infrared signal receiver for the device.

## Other Cabling Considerations

Assess the ports available on the TVs at the venue so that you can get any additional adapters or cable types that are needed to connect the Series 2, Series 3, and Series 4 DMPs to the TVs. RX and TX pins vary for each TV manufacturer and a null modem adapter may be required. We do not recommend using RS232 splitters to control multiple TVs. Best practice is a 1:1 DMP to TV mapping. For HDMI, no splitters are qualified.

## Physical Characteristics of the Digital Media Players

## Ethernet Cable

Use standard Category 5e or 6 cables no longer than 100 meters in length.

## Null Modem (Crossover) Cable

The Series 2 DMPs are a DTE serial device. Therefore, if the TV also has a DTE (male) serial port, use a null modem (crossover) cable for the TV control connection.

## HDMI-to-DVI Adapter

If the TV does not support HDMI In, then you cannot use the standard HDMI-to-HDMI cable that ships with the DMPs. However, if the TV supports a DVI-D connection, then you can acquire a DVI adapter for the HDMI cable to make the HDMI-to-DVI connection.

Since this type of connection only supports video, you will also need to connect the DMP audio port to the audio input ports on the TV if audio support is required.

## Other HDMI Cable Adapters

The HDMI cable that ships with the digital media player is compliant with HDMI version 1.4. If you are using any other cable adapters, be sure that they support HDMI version 1.4 if you plan to support UHD video content.

## Audio Cables

Audio cables are not generally needed. However, there are a couple of cases where you might need to make an audio connection to the SV-4K:

- If you need to support an HDMI-to-DVI connection from the SV-4K to the TV since this supports video only.
- If you need to connect to external audio distribution equipment when audio is to be distributed within an area.

## RS-232 Serial Pinout for the Series 2 DMP

[Table 18 on page 30](#) provides the pin out for the DE-9 serial connector on the front panel of the Series 2 DMPs.

**Table 18 Series 2, Series 3, and Series 4 Serial DE-9 Pinout**

Pin	Description	Pin	Description
1	NC	2	Receive data into the device
3	Transmit data out of the device	4	Available 5V@500mA
5	Ground	6	NC
7	RTS	8	CTS
9	NC		

## Mounting Guidelines for the Digital Media Players

- [Guidelines for Mounting the Series 2 Media Player, page 31](#)
- [Guidelines for Mounting the Series 3 Media Players, page 31](#)
- [Guidelines for Mounting the Series 4 Media Players, page 32](#)

## Guidelines for Mounting the Series 2 Media Player

Consider the following guidelines before mounting the Series 2 media player:

- Do not fit in Sunbrite cases.
- Full dimensions (width / height / depth) with mounting brackets:
  - DMP-2K**
    - 196.20 mm / 37.00 mm / 169.45 mm
    - 7.72 in / 1.46 in / 6.67 in
  - SV-4K**
    - 196.20 mm / 61.65 mm / 169.45 mm
    - 7.72 in / 2.43 in / 6.67 in
    - The bracket length is 164.15 mm / 6.46 in.
- Weight:
  - DMP-2K: 1 lb 14 oz / 850.5 grams
  - SV-4K: 2 lb 4 oz / 1020.6 grams
- Attach to the wall using the brackets on each side of the device using 4 screws (one for each bracket slot) that measure between 3.5 mm and 4.2 mm in diameter.
- Do not block the right side panel so that you can see the LEDs for troubleshooting.
- Ensure all air vents are clear for proper cooling.
- Choose a location that works with the required IR extender cable for infrared support. No IR receptor is built into the DMP.

**Caution:** Do not mount the DMP near where HVAC outlets or ducts may drip condensed air onto the device. Humid conditions are not recommended and may cause the unit to fail or behave unpredictably.

**Note:** The tested range is about 20 ft. To achieve this range, position the receiver facing outward. The receiver is enclosed and not visible.

## Guidelines for Mounting the Series 3 Media Players

Consider the following guidelines before mounting a Series 3 media player:

- Full dimensions (width / height / depth) with mounting brackets:
  - CV-HD**
    - 160.00 mm / 21.00 mm / 144.44 mm
    - 6.30 in / 0.83 in / 5.69 in
    - The mounting holes are inset 20.98 mm (0.82 in) from the box edge.
  - CV-UHD**
    - 204.35 mm / 21.00 mm / 179.92 mm

## Physical Characteristics of the Digital Media Players

- 7.08 in / 0.83 in / 7.08 in
- The mounting holes are inset 30.94 mm (1.22 in) from the box edge.
- Weight:
  - CV-HD: 12 oz / 340.1 grams
  - CV-UHD: 1 lb 4 oz / 567 grams
- Attach to the wall using the mounting holes on the front and back with 4 screws (one for each hole) that measure between 3.5 mm and 4.2 mm in diameter.
- Ensure all air vents are clear for proper cooling.
- Choose a location that works with the required IR extender cable for infrared support. No IR receptor is built into the DMP.

**Caution:** Do not mount the DMP near where HVAC outlets or ducts may drip condensed air onto the device. Humid conditions are not recommended and may cause the unit to fail or behave unpredictably.

**Note:** The tested range is about 20 ft. To achieve this range, position the receiver facing outward. The receiver is enclosed and not visible.

## Guidelines for Mounting the Series 4 Media Players

Consider the following guidelines before mounting a Series 4 media player:

- Full dimensions (width / height / depth) with mounting brackets:

### CV-HD2

- 159.92 mm / 21.00 mm / 144.15 mm
- 6.29 in / 0.83 in / 5.67 in
- The mounting holes are inset 25.93 mm (1.02 in) from the box edge.

### CV-UHD2

- 179.92 mm / 21.00 mm / 204.36 mm
- 7.08 in / 0.83 in / 8.04 in
- The mounting holes are inset 25.94 mm (1.02 in) from the box edge.

- Weight:
  - CV-HD2: 12 oz / 340.1 grams
  - CV-UHD2: 1 lb 4 oz / 567 grams
- Attach to the wall using the mounting holes on the front and back with 4 screws (one for each hole) that measure between 3.5 mm and 4.2 mm in diameter.
- Ensure all air vents are clear for proper cooling.
- Choose a location that works with the required IR extender cable for infrared support. No IR receptor is built into the DMP.

**Caution:** Do not mount the DMP near where HVAC outlets or ducts may drip condensed air onto the device. Humid conditions are not recommended and may cause the unit to fail or behave unpredictably.

## Physical Characteristics of the Digital Media Players

**Note:** The tested range is about 20 ft. To achieve this range, position the receiver facing outward. The receiver is enclosed and not visible.

## LEDs on the Digital Media Players

### LEDs on the Series 2 Media Players

The Series 2 media players have 8 LEDs in two banks of 4 on the right panel of the device. [Figure 20 on page 34](#) shows normal operation for the device on a Cisco Vision Dynamic Signage Director network.

**Note:** Some of the LEDs apply to hardware features that are not enabled for use with Cisco Vision Dynamic Signage Director.

**Figure 20 Series 2 Media Player LED Bank**



1	<b>Svr</b> —Not applicable.	2	<b>WiFi</b> —(SV-4K only) Flashes when the player is connecting to the wireless network. Displays when connected.
3	<b>Eth</b> (green)—Flashes when connecting to Ethernet network. Displays when connected.	4	<b>μSD</b> —Not applicable.
5	<b>Err</b> (red)—Flashes a certain number of times to indicate errors ( <a href="#">Table 19 on page 34</a> ).	6	<b>Upd</b> (yellow)—Flashes when the device is being upgraded.  The Update and Error LEDs will flash in unison to indicate an error during firmware update ( <a href="#">Table 20 on page 35</a> ).
7	<b>Pwr</b> (green)—Displays when the device is powered on and not in reset mode.	8	<b>Bsy</b> (green)—Flashes when there is file-system activity.

**Table 19 Error (Err) LED Descriptions on the Series 2 Media Player**

Error LED (number of flashes)	Description
2	Unspecified error.
3	Device is in network recovery mode and using DHCP Option 43 to contact Cisco Vision Dynamic Signage Director for provisioning.
4	No upgrade file found.
5	Failed to load kernel module. or OS initialization failed (Init shell script failed).
6	Board is not capable of running the current firmware version.
7	A piece of on-board hardware is not working correctly.
8	(Not applicable) Problem related to storage device (USB or SD card).
9	Problem related to the registry/NAND.
10	The autorun script encountered a load/run error.
11	WiFi-related error.



**Table 19 Error (Err) LED Descriptions on the Series 2 Media Player (continued)**

Error LED (number of flashes)	Description
12	Unable to find a bootable image.
13	The root file system has failed verification, which is used to detect whether the file system has been tampered with. You can recover a unit that is showing this error code by performing an update using safe mode.
14	Boot loader failure.

**Table 20 Update (Upd) LED Descriptions on the Series 2 Media Player**

Error LED (number of flashes)	Description
2	Erase failed.
3	Write failed.
4	Verify failed.
5	Failed to find UBI partition.
6	Attempt to write unsigned CFE to unit with secure boot enabled.
7	Failed to find UBI partition.
8	Failed to create/attach UBI partition.
9	Unexpected error.
10	Upgrade script exited abnormally.
11	Upgrade took longer than expected.
12	Update completed but update file could not be deleted.

## LEDs on the Series 3 Media Players

The Series 3 media players have one row of LEDs on the left front panel of the device. The CV-UHD media player has an extra LED for WiFi support (Figure 21 on page 36).

**Figure 21 Series 3 LED Bank**



1	<b>Err</b> (red)—Flashes a certain number of times to indicate errors (Table 21 on page 36).	2	<b>WiFi</b> —(CV-UHD only) Flashes when the player is connecting to the wireless network. Displays when connected.  <b>Note:</b> WiFi support is an orderable option for the CV-UHD only. It is not shipped by default in the media player.
3	<b>Pwr</b> (green)—Displays when the board is powered up and not in reset mode. Flashes during the firmware update process.	4	<b>Bsy</b> (green)—Flashes when there is file-system activity.

**Table 21 Error (Err) LED Descriptions on the Series 3 Media Player**

Error LED (number of flashes)	Description
2	Unspecified error.
3	Device is in network recovery mode and using DHCP Option 43 to contact Cisco Vision Dynamic Signage Director for provisioning.
4	No upgrade file found.
5	Failed to load kernel module.  or  OS initialization failed (Init shell script failed).
6	Board is not capable of running the current firmware version.
7	A piece of on-board hardware is not working correctly.
8	Problem related to USB device or SD card.
9	Problem related to the registry/NAND.
10	The autorun script encountered a load/run error.
11	WiFi-related error.
12	Unable to find a bootable image.

## LEDs on the Series 4 Media Players

The Series 4 digital media players have one row of LEDs on the front panel of the device.

**Table 22 Error (Err) LED Descriptions on the Series 4 Media Player**

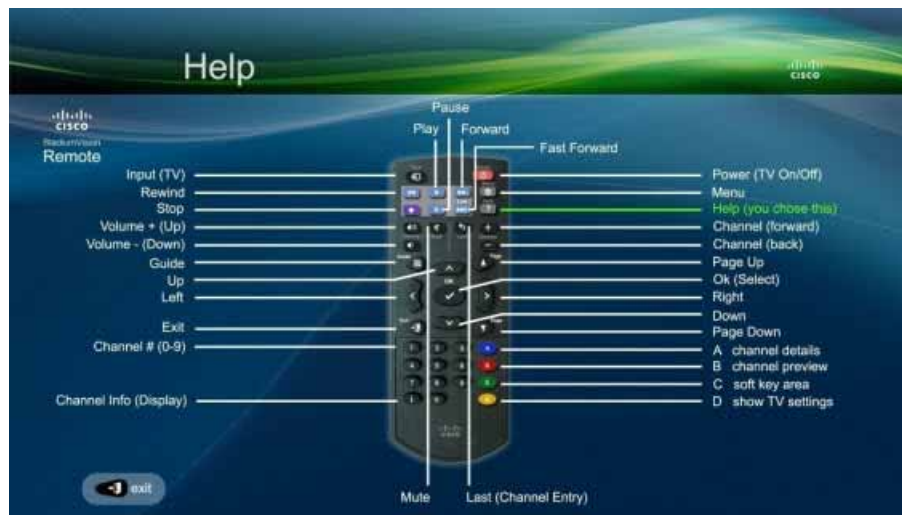
Error LED (number of flashes)	Description
2	Unspecified error.
3	Device is in network recovery mode and using DHCP Option 43 to contact Cisco Vision Dynamic Signage Director for provisioning.
4	No upgrade file found.
5	Failed to load kernel module. or OS initialization failed (Init shell script failed).
6	Board is not capable of running the current firmware version.
7	A piece of on-board hardware is not working correctly.
8	(Not applicable) Problem related to storage device (USB or SD card).
9	Problem related to the registry/NAND.
10	The autorun script encountered a load/run error.
11	WiFi-related error.
12	Unable to find a bootable image.

## IR Remote for Cisco Vision Dynamic Signage Director

All media players use the same IR Remote device shown in [Figure 22 on page 38](#). Generally, the IR Remote is used for TV control. However, even if you are not using the IR Remote for TV control, it is important to realize that the IR Remote also allows you to get information to troubleshoot the media player.

**Note:** The IR Remote is not automatically shipped with the Cisco Vision Dynamic Signage Director media players and must be ordered separately. To order an IR Remote control device, please contact your Cisco Sales Representative for available IR Remote solutions.

[Figure 22 on page 38](#) shows the description for each of the buttons on the Cisco Vision Dynamic Signage Director IR Remote.

**Figure 22 Cisco Vision Dynamic Signage Director IR Remote Button Descriptions**

## IR Remote Sensor and IR Extender

Unlike for the Cisco DMP 4310G, the Series 2, Series 3, and Series 4 digital media players do not have their own IR receiver. An IR extender is required. For more information, see [Mounting Guidelines for the Digital Media Players](#), page 30.

The IR remote also is a critical troubleshooting tool so it is important to ensure that all media players can be IR-controlled even if it is not needed during normal operation. For more information about the IR-Remote, contact your Cisco Sales Representative for available IR Remote solutions.

## Default Settings for the Digital Media Player

The devices ship from the factory with certain default settings. Upon running the start-up sequence and in communication with Cisco Vision Dynamic Signage Director, the Series 2, Series 3, and Series 4 default settings are changed.

### RS-232 Default Settings on the DMPs

After processing the HTML run-time module from Cisco Vision Dynamic Signage Director, the DMP is set to the following RS-232 default settings:

**Note:** The DMPs use default settings that match most TVs.

- Baud—9600 (factory default is 115200)
- Parity—None
- Data Bits—8
- Stop Bits—1
- Flow Control—None (factory default is hardware flow control only)

For information about the new RS-232 commands for the DMPs, see [Appendix B: Display Parameters for the Digital Media Players](#), page 83.

## Other Default Settings

By default, the following functionality is disabled on the Series 2, Series 3, and Series 4 media player:

- Secure Shell (SSH)

## Feature Summary for the Digital Media Player

This section includes the following topics:

- [Cisco Vision Dynamic Signage Director Software Feature Map for the DMPs, page 39](#)
- [Unsupported DMP Hardware Features, page 40](#)

## Cisco Vision Dynamic Signage Director Software Feature Map for the DMPs

The following table identifies a subset of features that are supported only by certain DMP models in Cisco Vision Dynamic Signage Director.

**Table 23 DMP-Specific Feature Map**

Feature	Series 2 DMP-2K SV-4K		Series 3 CV-HD & CV-UHD		Series 4 CV-HD2 & CV-UHD2	
	No	Yes	No	Yes	Yes	Yes
UHD Local Video	No	Yes	No	Yes	Yes	Yes
Dual Video <sup>1</sup> with Luma Key (applied to secondary HD video region over an HD or 4K video in the primary region)	Yes	Yes	No	Yes	No	Yes
HDMI-In as a Channel Source <sup>2</sup>	No	Yes	No	Yes	No	Yes
Video Streamed to a Local HDMI-In Channel (HDMI-In Pass-Through) <sup>3</sup>	No	Yes	No	Yes	No	Yes
WiFi support	No	Yes	No	(Optional) <sup>4</sup>	No	No

1. Dual UHD resolution video regions is not supported.
2. Enhanced in Release 6.0 to add a default HDMI-In Channel 0.
3. For HDCP-compliant devices and content.
4. The CV-UHD WiFi model supports WiFi.

The following table identifies the globally-supported features for all media players in the release.

**Table 24 Globally Supported Features for DMPs**

Feature	Series 2	Series 3	Series 4
2.1 AC3/AC3+ (Dolby Digital audio decode)	Yes	Yes	Yes
5.1 Dolby plus/AC3	No	Yes	Yes
Auto-Registration	Yes	Yes	Yes
Bulk Administration Tool (BAT)	Yes	Yes	Yes
Closed Caption	Yes	Yes	Yes
Command Center Monitoring	Yes	Yes	Yes

**Table 24 Globally Supported Features (continued) for DMPs**

Feature	Series 2	Series 3	Series 4
Content Replacement	Yes	Yes	Yes
Content Synchronization (between same media player models only)	Yes	Yes	Yes
Custom Fonts (through Software Manager)	Yes	Yes	Yes
External Content Integration	Yes	Yes	Yes
Event Script Scheduler	Yes	Yes	Yes
HDMI Encoding <sup>1</sup>	SV-4K only	CV-UHD only	CV-UHD2 only
HTML Pages as a Multicast Channel (from external URL) <sup>3</sup>	Yes	Yes	Yes
HTTP Live Streaming (HLS) Video as a Multicast Channel (from external URL) <sup>3</sup>	Yes	Yes	Yes
Group/Zone Configuration	Yes	Yes	Yes
System Configuration Commands	Yes	Yes	Yes
System Configuration Firmware Configuration	Yes	Yes	Yes
Device Management Model Filtering	Yes	Yes	Yes
Device Management Monitoring	Yes	Yes	Yes
Multicast Video Scaling	Yes	Yes	Yes
Network Time Protocol (NTP) Configuration	Yes	Yes	Yes
Point of Sale (POS) Integration with DMB Using Widgets	Yes	Yes	Yes
Portrait Mode content renditions <sup>2</sup>	Yes	Yes	Yes
Precision Time Protocol (PTP) configuration	Yes	Yes	Yes
Proof of Play (PoP)	Yes	Yes	Yes
Touch Screen <sup>3</sup>	Yes	Yes	Yes
TV Control using RS-232 and IR Remote	Yes	Yes	Yes
Basic TV Control using HDMI CEC	Yes	Yes	Yes
Video Encoded as a a Multicast Channel from DMP Display Source (Display Encoding) <sup>3</sup>	Yes	Yes	Yes
Video Upload Support for Files Up to 4 GB in Size	Yes	Yes	Yes
Widgets	Yes	Yes	Yes

1. HDMI encoding only works on SV-4K, CV-UHD, and CV-UHD2 DMPs.

2. Not recommended when rendering video on CV-HD and CV-HD2 DMPs.

3. Introduced in Release 6.0.

## Unsupported DMP Hardware Features

The following DMP hardware features are not supported:

- SD (and microSD, included with CV-HD2 only, as a factory-installed component)
- USB (3.0)—only used to connect HID-compliant touchscreen devices

**Note:** The DMPs do not support content import and/or playback using the SD card or USB ports.

## Key Considerations for the Digital Media Players

When you deploy a digital media player, there are several things that you should know about its operation. This section highlights some of the important differences to be aware of when deploying the digital media players.

This section includes the following topics:

- [Firmware Provisioning on the DMPs, page 41](#)
- [Auto-Provisioning on the Digital Media Players, page 42](#)
- [HDCP Support on the Digital Media Players, page 42](#)
- [IR Receiver for the Digital Media Players, page 42](#)
- [Storage and Memory on the Digital Media Players, page 42](#)
- [Synchronization on the Digital Media Players, page 43](#)
- [Switch Communication on the Digital Media Players, page 43](#)
- [WiFi Network Connectivity on the CV-UHD and SV-4K DMPs, page 43](#)

## Firmware Provisioning on the DMPs

The DMP firmware upgrade cannot be manually launched in the **Configuration > System Configuration** DMP command. It is done automatically when the device boots.

**Caution:** Before you power on the Series 2, Series 3, and Series 4 device for the first time, complete the following configuration and tasks:

**For initial deployment of a DMP, verify:**

- No other accessories are attached to the DMP.
- Use standard Category 5e or 6 cables up to 100 m in length.
- Switch configuration, including the required LLDP for proper PoE+ operation. LLDP and POE+ not required for CV-HD/CV-HD2 players.
- DHCP server configuration, including the proper option 43 string.
- Firmware upload for your Cisco Vision Dynamic Signage Director release.
- Auto-registration settings for the DMP to properly provision its firmware.

[Table 25 on page 41](#) provides a summary of the firmware provisioning tasks for the DMP in the **System Configuration > Configuration**.

**Table 25 Summary of Firmware Provisioning Tasks on the Media Players**

Firmware Provisioning Task	DMP
Upload firmware to Cisco Vision Dynamic Signage Director in the <b>System Configuration &gt; Configuration</b> .	Yes
Configure "Firmware image to use" and "init.version" under Auto Registration Settings.	Yes
Upgrade the firmware from the <b>System Configuration &gt; Configuration</b> by selecting DMPs and running the Firmware Upgrade command to push the firmware to the device.	No

## Auto-Provisioning on the Digital Media Players

- The digital media players are automatically provisioned with global configuration settings from Cisco Vision Dynamic Signage Director.
- As part of the start-up sequence, the device retrieves the Cisco Vision Dynamic Signage Director configuration, which includes all of the global settings for the devices, such as NTP configuration, jitter settings, and so on.

### To configure DMP global settings:

Click **Configuration > System Configuration > Global DMP Settings**.

### To configure DMP auto-registration settings:

Click **Configuration > System Configuration > Auto Registration Settings**.

- The DMP configuration in Cisco Vision Dynamic Signage Director is provisioned each time that the device boots.

**Caution:** When running Cisco Vision Dynamic Signage Director on a virtual server, reference a reliable NTP server. NTP for Cisco Vision Dynamic Signage Director is configured using the TUI. For more information, see [Cisco Vision Administration Guide: Dynamic Signage Director Release 6.4](#).

## HDCP Support on the Digital Media Players

The DMPs natively support content that uses Intel's High-bandwidth Digital Content Protection (HDCP) through the installation of a protection key on the digital media player.

- From the HDMI Out port, the DMPs support HDCP versions 1.4.
- From the HDMI In port, the SV-4K, CV-UHD, and CV-UHD2 can receive HDCP 1.4.

## IR Receiver for the Digital Media Players

There is not an embedded IR receiver on the digital media players. Use the IR extender cable to use the IR Remote.

## Storage and Memory on the Digital Media Players

The DMP devices have different sizes of solid-state storage and RAM ([Table 26 on page 42](#)):

**Table 26 Storage and Memory on the Digital Media Players**

DMP Model	Usable Storage Space	Total RAM
CV-HD2	120 GB	2 GB
CV-UHD2	120 GB	4 GB
CV-HD	100 GB	3 GB
CV-UHD	100 GB	3 GB
SV-4K	100 GB	3 GB
DMP-2K	53 GB	2 GB

**Note:** The amount of RAM can make a difference in how the same content might play on different media player models. This difference might more likely be seen when playing HTML pass-through (URL) content.

### To find information about available storage:

1. Click **Device Management > All Devices**.
2. Select a device.



3. In the **Status** tab, go to **Status Details** or **Utilization**.

**Note:** The amount of available storage shown in **Device Management** reflects the total amount of space available on the SSD, not the actual storage pool available for content.

You also can find information about available storage if you view **Device Details** by clicking a screen from thumbnail view in **Device Management** (CCM).

## Synchronization on the Digital Media Players

The digital media players support synchronization of content played among a group of devices using the Network Time Protocol (NTP) and Precision Time Protocol (PTP). NTP and PTP settings are provisioned globally for all digital media players.

The Cisco Vision Dynamic Signage Director server is provisioned as the default NTP source for all media players. When PTP is configured, only the PTP leader derives its clock using NTP.

**Caution:** When running Cisco Vision Dynamic Signage Director on a virtual server, reference a reliable NTP server. NTP for Cisco Vision Dynamic Signage Director is configured using the TUI. For more information, see [Cisco Vision Administration Guide: Dynamic Signage Director Release 6.4](#).

## Switch Communication on the Digital Media Players

The digital media players communicate with the Cisco Connected Stadium switch using the required Link Layer Discovery Protocol (LLDP) rather than MediaNet. The media player determines available power (when using PoE+) over LLDP.

## WiFi Network Connectivity on the CV-UHD and SV-4K DMPs

Wireless network connectivity to the CV-UHD or SV-4K is supported over an 802.11a, 802.11b, or 802.11n wireless network in the Cisco Vision Dynamic Signage Director venue.

**Note:** For initial deployment of a DMP with WiFi connectivity, you will need both a PoE+ network connection in addition to connection of the CV-UHD or SV-4K using the DMP power supply adapter. After the DMP is deployed for WiFi, a PoE+ connection is no longer needed for the DMP. In fact, the DMP will not route packets over the WiFi connection while the Ethernet port is connected and operational.

The wireless network SSID and passphrase is configured globally for all wireless devices in the system. The DMP firmware automatically tries to connect with WEP (if the passphrase is of a suitable length), WPA1 or WPA2.

For configuration information, see [How to Deploy WiFi Network Connectivity on the SV-4K](#).

### Notes:

Multicast video is not supported due to bandwidth limitations over a wireless network.

For non-video control for the DMPs, one of these two options must be valid:

- The wireless network must support multicast traffic for communication over the Cisco Vision Dynamic Signage Director network.
- The DMPs must be configured to use the new Unicast Deployment functionality.

## Best Practices for DMP Deployment

### Using Bar Code Scanners and TV Labels at Installation Time

**Note:** This practice requires that you have already defined your Location names in Cisco Vision Dynamic Signage Director.

**To increase the speed and accuracy of media player deployment:**

- Prepare TV labels with the Cisco Vision Dynamic Signage Director Location name in bar code format.
- Obtain a bar code scanner to record the Location bar code and MAC address from the media player.
- Use the [Cisco Vision Director Bulk Administration Tool \(BAT\)](#) to upload data to Cisco Vision Dynamic Signage Director.

### Installer Workflow Example

**To use a bar code scanner with TV labels:**

1. Mount the TV and media player.
2. Connect the TV and media player cables.
3. Attach a pre-printed label to TV.
4. Scan the Location bar code on the TV.
5. Scan the MAC address bar code on the media player.
6. Provide scanner to the supervisor or network administrator who downloads the data and formats it to be compatible with the Cisco Vision Dynamic Signage Director BAT TSV format.
7. For more information, see the [Cisco Vision Director Bulk Administration Tool](#) guide.