



FAQs and Troubleshooting Guide for Cisco Digital Media System 4.x and 5.0

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This guide answers common questions about, and contains troubleshooting information for, all hardware and software components in the Cisco Digital Media System (DMS) 4.x and 5.0 family of products.



Note

The information in this guide applies to Cisco DMS 4.x and 5.0 releases unless otherwise noted.

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(General) DMS Concepts, Features, Components, and Technologies

This section contains the answers to the following questions:

- [What vocabulary terms should I learn in order to understand basic DMS concepts and terminology?](#)
- [Is DMS interoperable or integrated with Cisco IP/TV?](#)
- [Is DMS compatible with Cisco Content Delivery System Manager for Internet Streaming \(CDS-IS\)?](#)
- [For a campus TV environment using Cisco technologies, how does DMS differ from the Scientific Atlanta system for IP/TV?](#)



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- On what hardware platforms do Cisco Digital Media Manager (DMM) software and Cisco Video Portal software run?
 - What operating system underlies the DMM and Video Portal software that runs on MCS appliances?
 - What does it mean if I see a “GRUB” system prompt after I use the recovery CD for my Video Portal appliance?
 - Is any command-line interface available for DMM or Video Portal?
 - Can I buy DMM or Video Portal software separate from any MCS appliance?
 - How do I set up DMM appliances and Video Portal appliances in my network?
 - Which IP ports do DMS components use?
 - How do a DMM appliance and a Video Portal appliance authenticate one another?
 - Is there any support during Video Portal live events (or on-demand events) for slide synchronization or the submission of questions?
- Q.** What vocabulary terms should I learn in order to understand basic DMS concepts and terminology?
- A.** Table 1-1 lists and defines some of the most commonly used DMS terms, abbreviations, and initialisms, in addition to terms that are commonplace in Cisco content delivery networks and more generally to ordinary video production.

Table 1 **Concepts and Vocabulary**

Term	Definition
AAI	<i>Appliance Administration Interface.</i> Text user interface and command shell on every DMS appliance . System administrators use AAI when they set up, configure, or maintain a DMS appliance. (Text user interfaces use ANSI-style escape sequences to control the presentation of text and other shapes on a screen; they differ from command-line interfaces and graphical user interfaces.)
ACNS	<i>Cisco Application and Content Networking System.</i> The ACNS software platform runs on the WAE platform for content distribution and interoperates with DMM to greatly reduce redundant digital media traffic over satellite and terrestrial networks. The streaming media features of ACNS deliver high-quality and long-playing digital videos live and simultaneously to thousands of users and DMPs , or on demand at a later time.
advanced task	In DMM-DSM 4.1, an advanced task is a tool that you create and name, which sends an instruction to, or requests data from, one DMP or all of the DMPs in a DMP group. This term replaced the obsoleted term <i>application</i> .
appliance	In the DMS family of products, an appliance is an MCS on which either DMM or Video Portal software is preinstalled. To administer the appliance chassis and configure its low-level behaviors, you use AAI . Appliances reside in your data center.
application	In DMM-DSM 4.0, an application is a named tool that you create to play media on, or deliver an instruction to, one DMP or all of the DMPs in a DMP group. This term was obsoleted in the 4.1 release by the term <i>advanced task</i> .
asset	An asset is one constituent video clip or stream, static image, SWF animation, RSS feed, or URL that you bring into DMM or pre-position in your content delivery network.
bit rate	Speed at which bits are transmitted, usually expressed in bits per second (bps).
.BMP	The native and Microsoft-proprietary format for bitmapped image files in Microsoft Windows. DMS does not support any use of .BMP files. If you have .BMP files that you want to use with products in the DMS family, you must convert the files to use a platform-agnostic file format like .JPEG, .GIF, or .PNG.

Table 1 **Concepts and Vocabulary**

Term	Definition
bpp	<i>bits per pixel</i> , also known as color depth. Indicates both the number of bits that are required to represent the color of one pixel on a display and the total number of distinct colors that the display is configured to represent. When you use DMPDM, every pixel on the DMP display is 32 bpp and the display can represent a total of 16.7 million distinct colors.
CDN	<i>Content Delivery Network</i> . A combination of five key components (content switching, content routing, content edge nodes, content distribution and management, and intelligent network services) for the rapid delivery of high-quality video, rich audio, large graphics, presentations, and documents over corporate LANs, WANs, and other broadband networks. Content edge nodes are content engines that are typically placed in a branch office.
CDNFS	<i>Content Delivery Network File System</i> . The space where a Content Engine stores pre-positioned streaming media content. Files stored in CDNFS are retained until the CDN management system replaces or deletes them.
codec	<i>encoder-decoder</i> . Any specific, named method to encode, decode, or transcode digital video files or digital audio files. The quality of an encoded file is determined in part by whether its codec is lossy or lossless , meaning whether it deletes potentially important data to reduce file size. Many software utilities are available from many sources that can help you to analyze a file if you are not sure what codec was applied to it. One example of such software is AVIcodec, which is downloadable at http://avicodec.duby.info .
color depth	See bpp .
color temperature	A measurement in degrees Kelvin that describes the coloration of white light, relative to a spectrum where “warm” light is closer to red and “cool” light is closer to blue. For desirable color temperature readings, we recommend 3,200°K (indoors video) and 5,600°K (outdoors video).
container	The container format—also sometimes called the <i>encapsulation method</i> —for digital video is the type of “wrapper” (such as .ASF) that you use to combine metadata and synchronization data with audio and video data to which you have applied one or more codecs .
CE	<i>Content Engine</i> . Cisco 500 Series Content Engine is an edge delivery platform for branch office and regional office content delivery network deployments. This product is no longer being sold and might not be supported.
digital signage	<i>Digital signage</i> —sometimes also called <i>narrowcasting</i> , <i>retail TV</i> , <i>captive audience networks</i> , <i>out-of-home television</i> , or <i>electronic billboards</i> —consists of any dynamic combination of messages or other kinds of information that a targeted audience can see or hear, and that a DMP delivers to people. The content might pertain to commerce, popular entertainment, staff training, emergency awareness, combinations of these things, or nearly anything. The people who manage a DMP (or who manage multiple DMPs in a digital signage network) decide what to show or say, and when, and to whom. The best messages for digital signage combine high-quality video, audio, images, and text.

Table 1 **Concepts and Vocabulary**

Term	Definition
DMD	<p><i>Digital Media Designer</i> is a powerful, drag-and-drop design tool in DMM-DSM 4.1 or later release that helps you to create customized presentations for digital signage. It includes predesigned templates that you can use as a jumping-off point for your designs and its features also help you to create designs that are entirely your own. DMD supports horizontal and vertical screen orientations. With DMD, you:</p> <ul style="list-style-type: none"> • Subdivide the screen space on a DMP display into rectangular areas called <i>screen zones</i>. • Select the media objects, called <i>assets</i>, to play back in those screen zones—including media from digital video files, JPEG files, SWF files, RSS feeds, ordinary web pages, and other popular media types. • Add assets to, and configure the timeline for, any screen zone that represents a <i>playlist</i>. <p>Although you use your browser to start DMD, it runs outside your browser, in Java Web Start. You can open and work with only one template or one presentation at a time. Presentations for digital signage most commonly divide screen space into two, three, or four screen zones, but you can create more zones for a presentation in DMD if you need more. After you create, edit, and save a presentation, you can deploy it to your DMPs from the DMM-DSM scheduler.</p>
DME	<p>An encoder for DMS. One of these:</p> <ul style="list-style-type: none"> • Cisco Digital Media Encoder 1000 (sometimes abbreviated as DME 1000). • Cisco Digital Media Encoder 2000 (sometimes abbreviated as DME 2000). • Scientific Atlanta Model D9022 Encoder (for live broadcasts of high quality MPEG-2 video to DMPs). • Scientific Atlanta Model D9032 Encoder (for live, multicast broadcasts of high quality MPEG-2 video to DMPs over networks with limited bandwidth).
DMM	<p><i>Cisco Digital Media Manager</i> is the collective name to describe the Web-based graphical user interfaces that are preinstalled on DMM appliances:</p> <ul style="list-style-type: none"> • DMM-Admin—<i>Digital Media Manager – Administration Module</i>. Used to install or upgrade the software licenses to activate DMM-DSM or DMM-VPM. <p>Note Beginning in 5.0, this module is called Digital Media System-Administration Module (DMS-Admin) and is used also for configuring authentication and centrally managing user accounts.</p> <ul style="list-style-type: none"> • DMM-DSM—<i>Digital Media Manager – Digital Signage Module</i>. Used to centrally manage a network of DMP devices; organize and bind together the assets and designs for signage; pre-position assets throughout a content delivery network; and deliver content to any number of DMP displays according to a schedule that they control. • DMM-VPM—<i>Digital Media Manager – Desktop Video Module</i>. Used to add, organize, manage, publish, and archive content on Video Portal appliances or other end devices; assign metadata and keywords; schedule deployments; preview content; manage approval workflow and configure interoperation with ACNS; create and manage playlists, tickers, messages, and interstitials; synchronize presentation slides with videos, administer question-and-answer sessions during live events, and customize the Video Portal “look and feel.” • DMM-ETVM—<i>Digital Media Manager-Enterprise TV Module</i>. Use to deliver video-on-demand and live broadcast TV channels over an IP network to DMP displays that are attached to supported DMP endpoints.
DMP	<p><i>Cisco Digital Media Player 4300G and 4305G in 4.x and 4400G in 5.0</i>. Compact, solid state electronic device that delivers digital signage content to the one DMP display that is directly attached. DMPDM is preinstalled on every DMP.</p>

Table 1 **Concepts and Vocabulary**

Term	Definition
DMP display	Any television screen or other kind of monitor or projector that is attached directly to a DMP and that shows digital signage content to an audience. The display might be analog or digital and might be standard-definition or high-definition.
DMP group	In DMM-DSM, a DMP group is an organizational and administrative convenience that helps you to manage any supported number of DMP devices as quickly and easily as you would manage one DMP. No physical, logical, or topological relationship among the DMPs in a group is assumed unless you organize your DMPs consistently. By registering your DMPs in DMM-DSM and organizing them into groups (by location, display type, or on any other basis), you can act quickly to activate new settings for, or deliver updated content to, multiple devices simultaneously.
DMPDM	<i>Digital Media Player Device Manager</i> . Web-based “craft interface” that you use to configure one DMP during its initial setup or to manage one DMP in isolation. The features in DMPDM to manage a single DMP are intended as a simple and limited alternative to the centralized element management features in DMM-DSM . DMPDM is served from the same DMP that it manages.
DMS	<i>Cisco Digital Media System</i> is the name of the product family that consists of DMM appliances , Video Portal appliances , encoders , DMPs , and all of their associated software components. DMS helps enterprises and smaller organizations to create, manage, organize, and deliver video content (whether live or on-demand) and digital signage content over an IP network to any general or targeted audience. With DMS, you can: <ul style="list-style-type: none"> • Communicate with targeted customers, investors, press, and analysts. • Deliver live and on-demand events to audiences in any location. • Deliver critical information and training to employees, suppliers, and partners. • Deliver educational content to students. Cisco DMS releases 4.1 and 4.2 are not suitable for service providers.
DVI	<i>Digital Visual Interface</i> . An interface standard for video devices. DVI variants include DVI-D for uncompressed digital video signals (DVI-D is partially compatible with HDMI), DVI-A for analog signals, and DVI-I for a mixture of digital and analog signals.
encapsulation method	See <i>container</i> .
encoder	<i>Cisco Digital Media Encoder 1000 or 2000</i> .
GIF	<i>Graphics Interchange Format</i> . Low-resolution (8-bit) image format that supports as many as 256 colors per frame and allows for more than one frame per image, so that it is possible to create simple GIF animations.
HDMI	<i>High-definition Multimedia Interface</i> . An interface for transmitting uncompressed signals for digital video and multichannel audio.
JPEG	<i>Joint Photographic Experts Group</i> . A standard that specifies methods for compressing digital images. Also, a name that commonly is applied to images that are compressed according to these methods.
lossless	Description of a codec that can reduce the size of a file without deleting any information from it.
lossy	Description of a codec that deletes information from a file to reduce its file size.
manifest	A manifest file identifies the location from which the root Content Engine in your ACNS network should fetch pre-positioned content objects—also sometimes called <i>assets</i> —and specifies how often the root Content Engine should check for the availability of updated content. Whenever the root Content Engine fetches updated content, it distributes the content to other Content Engines that serve as content caches and distribution gateways at the branch offices along your enterprise edge.

Table 1 **Concepts and Vocabulary**

Term	Definition
MCS	<i>Cisco Media Convergence Server</i> . The appliance hardware on which DMM or Video Portal software is preinstalled.
metadata	A formalized, hierarchical, and logical grammar to describe particular attributes of information, such as its context or purpose. In DMS , you can enter metadata attributes for the video and digital signage content offerings that you create. For example, you might use metadata to track when and where you recorded a particular video stream, who speaks in the video, and what topic it covers. When you use metadata, your information becomes searchable, inspectable, and retrievable in new ways.
multicast	A one-to-many transmission—similar to broadcasting, except that multicast transmits data exclusively to a specific audience. Multicast transmissions are highly efficient in most cases because they send data only one time through major backbones to switch points that multiply the data for distribution to the intended audience.
narrowcast	Transmission to a targeted audience, such as the employees of one corporation, the members of one project team, or the customers who are waiting to complete a transaction.
noise	Disturbances that overlay and corrupt an audio or video signal, resulting in static, “snow,” jitter, or other reductions in signal quality.
NTSC	The <i>National Television System Committee</i> video encoding standard and format was developed in the 1950s for use in standard-definition, analog television broadcasts in the United States. The NTSC standard and format later spread to several other countries, including Canada, Mexico, Japan, and South Korea—although this list is not inclusive. In comparison to the PAL video format, NTSC has a higher temporal resolution (number of frames per second) and a lower spatial resolution (number of lines per frame). The horizontal-vertical aspect ratio for standard NTSC is 1.33:1, which sometimes is expressed alternatively as 4:3. The resolution in NTSC is 720 pixels wide x 480 pixels high
on-demand	See <i>VoD</i> .
OSD	<i>On-screen display</i> . A translucent layer or <i>plane</i> where information is superimposed visually on top of the ordinary image that a TV screen or computer display is showing. Common OSD uses include closed captioning and visual representations of configuration settings for brightness, contrast, or volume levels.
PAL	The <i>Phase Alternating Line</i> video encoding standard and format was developed in the 1950s for use in standard-definition, analog television broadcasts in Western European countries. The PAL standard and format later spread to many other regions. In comparison to the NTSC video format, PAL has a lower temporal resolution (number of frames per second) and a higher spatial resolution (number of lines per frame). The horizontal-vertical aspect ratio for standard PAL is 1.33:1, which sometimes is expressed alternatively as 4:3. The resolution in PAL is 720 pixels wide x 576 pixels high
planes	When you use DMPDM , the attached DMP display represents video content and HTML content on two separate, virtual <i>planes</i> , each of which has an on-screen size of up to 4096 x 4096 pixels. The video content plane is always opaque and behind the HTML (or OSD) content plane, for which you can change the percentage of transparency. The two planes overlap when you show video content and HTML content simultaneously; therefore, you might see the video content plane <i>through</i> the HTML content pane.
playlist	In DMM-DSM , a playlist is an ordered sequence of files that you deliver to all of the DMPs in a DMP group or that you show throughout your digital signage network. The workflow that you follow to create and deploy a playlist varies according to your requirements and according to the version of DMM-DSM that you use. In Video Portal , a playlist is a dynamic list of videos that you can play.
PNG	<i>Portable Network Graphic</i> . A lossless data compression format for bitmapped images.
presentation	See <i>DMD</i> .
presentation template	See <i>DMD</i> .

Table 1 **Concepts and Vocabulary**

Term	Definition
program	In DMM-VPM , a <i>program</i> is a virtual container for one or more videos . For example, a program that you name “Sales Commissions” might contain videos that you name “Know Your Customers” and “Know Your Products.”
screen zone	<i>See zone.</i>
.SWF	<i>Shockwave Flash</i> , a file format and standard for digital animation files, typically vector-based but sometimes incorporating bitmapped imagery. Such files are sometimes called simply Flash files, but should never be confused with <i>Flash Video</i> , even though Flash Video (.FLV) files are also sometimes called Flash files.
video	<ul style="list-style-type: none"> In DMM-VPM, a <i>video</i> is a virtual container for one or more video parts and is one component in a program. For example, a video might contain parts One, Two, and Three, and be contained in a program that you named “Annual Shareholders Meeting.” In a generic sense, a <i>video</i> is any DMS content offering that includes video content, audio content, or both.
video part	In DMM-VPM , a <i>video part</i> is one component file in a video .
Video Portal	<p><i>Cisco Video Portal</i>—Web-based graphical user interface that audiences use to browse, search, and view video content, whether live or on-demand. Video Portal fits easily into your existing IT infrastructure and supports established video formats including Windows Media, Real Player, and Flash. Video Portal features include:</p> <ul style="list-style-type: none"> Program guide and keyword search—Find content by category, title, or keyword. Customizable playlists—Create or make selections from dynamic list of videos programmed by content publishers or bookmarked by individual users. Supplemental content—View supplemental information with each video, such as tickers, further reading, related videos, Web sites, and downloadable materials. Advanced player controls and full screen—Optimize the viewing experience with enhanced control of video playback. Simultaneous playback and thumbnail preview—Preview other videos during main video playback. Q & A—Support for interactive question-and-answer sessions during live events.
Video Portal Reports	<i>Cisco Video Portal Reports</i> —Web-based graphical user interface that video content developers use to capture, view, and export Video Portal activity reports.
Video Portal template	A Video Portal template uses a particular codec (such as <i>Sorenson</i>) to encode a video stream, then saves the output in a particular kind of container file (such as a Windows Media file).
VoD	<i>Video on Demand</i> . Streaming video content that a server delivers upon demand to a client system. The client system acquires and caches the stream by way of whichever content engine is closest. The content engine also stores or caches the stream.
WAE	<i>Cisco Wide Area Application Engine</i> . The hardware platform from which ACNS software provides application and content services.

Table 1 *Concepts and Vocabulary*

Term	Definition
zone	<p>A zone in digital signage is a rectangular area on a DMP display where you show any kind of content. For example, a ticker, a banner, an advertisement, and a video might simultaneously occupy four zones on one DMP display.</p> <ul style="list-style-type: none"> • In DMS 4.0, you configure zones in DMM-DSM. • In DMS 4.1 and 5.0, you configure zones in DMD. <p>DMPDM does not include any features for zone management.</p>
zone template	<p>A zone template in DMM-DSM 4.0 controls the relative placement of assets and playlists when you show them on a DMP display. Cisco provides three zone templates in DMM-DSM 4.0.</p> <p>In contrast, DMM-DSM 4.1 users can use DMD to create an almost endless variety of presentation (zone) templates.</p>

- Q.** Is DMS interoperable or integrated with Cisco IP/TV?
- A.** There is no direct integration between these two product families. However, you can use a DME to transcode MPEG-2 media files into Windows Media files.

- Q.** Is DMS compatible with Cisco Content Delivery System Manager for Internet Streaming (CDS-IS)?
- A.** We have not tested DMS compatibility with CDS-IS, which is intended for use by service providers. DMS 4.x is intended for use by enterprises.

- Q.** For a campus TV environment using Cisco technologies, how does DMS differ from the Scientific Atlanta system for IP/TV?
- A.** The Scientific Atlanta IP/TV system provides a higher density of television channels over an IP network and delivers television feeds in addition to channel tuning and program guide listings for each television by way of set-top boxes.

In contrast, DMS is designed to deliver only a few channels of IP/TV to desktops or digital displays. A DME 2000 can encode two feeds from the video outputs on a set-top box, but cannot connect directly to a signal from a service provider. In a DMS campus network, the channels are usually fixed (CNN, BBC World, and so on).

- Q.** On what hardware platforms do Cisco Digital Media Manager (DMM) software and Cisco Video Portal software run?
- A.** DMM software is preinstalled on a dedicated Cisco Media Convergence Server (MCS) appliance that is built especially to support DMM. Similarly, Video Portal software is preinstalled on a dedicated MCS appliance that is built especially to support Video Portal.

- Q.** What operating system underlies the DMM and Video Portal software that runs on MCS appliances?
- A.** Cisco developed a customized version of Linux to support its DMS software applications.

- Q.** What does it mean if I see a “GRUB” system prompt after I use the recovery CD for my Video Portal appliance?
- A.** GRUB is a Linux bootloader. You might see a GRUB prompt if the Video Portal software reinstalled correctly on your appliance but your appliance RAID controller is misconfigured or damaged. We recommend that you do the following.
1. Return to <http://www.cisco.com/cgi-bin/tablebuild.pl/dms>, the Cisco.com software download website where you obtained the ISO image file for your recovery CD, then try again to download the ISO file and its corresponding README file.
 2. After the download is finished, verify that the MD5 checksum for your new ISO file is identical to the checksum that you see for it on the Cisco.com software download website.
The file size should be 396351488 bytes.
 3. If the checksum is valid, burn a new recovery CD from your new ISO image file.
 4. Use the new recovery CD according to the instructions in the README file.
 5. **(Optional)** If the software reinstallation succeeded but you still see the GRUB system prompt, check your RAID settings and correct them if necessary.
 6. **(Optional)** If your RAID settings are correct, contact Cisco TAC to learn if you must replace the hard drives in your appliance or if you should obtain an RMA number and ship your appliance to Cisco for repair or replacement.
- Q.** Is any command-line interface available for DMM or Video Portal?
- A.** No. However, a text user interface and command shell called Appliance Administration Interface (AAI) is preinstalled on DMS appliances. Administrators use AAI to set up their DMS appliance hardware, configure network settings, and perform basic administrative tasks.
- Q.** Can I buy DMM or Video Portal software separate from any MCS appliance?
- A.** No. DMM and Video Portal software is available only in the versions that are preinstalled on MCS appliances. Even if you have a server that you think is similar or identical to an MCS appliance, you cannot purchase or install the software separately.
- Q.** How do I set up DMM appliances and Video Portal appliances in my network?
- A.** The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	DMS software is preinstalled on MCS appliances that you must unpack and rack at the deployment site, then connect to a network, a power source, a monitor (display), a mouse, and a keyboard. After you turn on an appliance, you must enter meaningful and correct values in AAI. For more information, see <i>Appliance Administration Guide for Cisco Digital Media System 4.0</i> on Cisco.com.
—	✓	DMS software is preinstalled on MCS appliances that you must unpack and rack at the deployment site, then connect to a network, a power source, a monitor (display), a mouse, and a keyboard. After you turn on an appliance, you must enter meaningful and correct values in AAI. For more information, see <i>Appliance Administration Guide for Cisco Digital Media System 4.1</i> on Cisco.com.

Q. Which IP ports do DMS components use?

A. This table correlates port numbers to the DMS components that use them and explains traffic flow:

Port Numbers	From	To	Notes
21, 22, or both	DMM	Storage servers, media servers, or both	For file transfer from DMM to its deployment locations.
22	DMM	Video Portal	—
80	DME	DMM	DME management from DMM
80; 8009; 8080	Viewer	Video Portal; DMM	—
389	DMM	LDAP Server	Used for LDAP/AD authentication.
3306	Video Portal	DMM	—
6666 ¹ ; 7777	DMM	DMP	—
6666; 7777	DMP	DMM	—
User Configurable	DME	Streaming Servers	Administrators of streaming servers will define the port configuration values that pull content from and push content to encoders.
User defined	Viewer	Streaming Servers	—

1. You cannot use the Microsoft Windows Telnet client to connect remotely to a DMP on port 6666; however, you can use another telnet application, such as PuTTY.

Q. How do a DMM appliance and a Video Portal appliance authenticate one another?

A. DMM appliances and Video Portal appliances use SFTP, SCP, or FTP to communicate during deployments that transfer files or data. The appliances do not authenticate one another as such, but DMM uses the Video Portal SFTP username and password during deployments.

Q. Is there any support during Video Portal live events (or on-demand events) for slide synchronization or the submission of questions?

A. The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	No. However, you can provide downloadable slides as supplemental content for an event. See <i>User Guide for Cisco Digital Media Manager 4.0</i> on Cisco.com.
—	✓	Yes. DMM-VPM 4.1 and 5.0 users who have purchased the separately licensed Live Event Module can synchronize slides with live video streams and can work with questions that Video Portal audience members submit during live events. See <i>User Guide for Cisco Digital Media Manager 4.1</i> or <i>5.0</i> on Cisco.com. Note The slide synchronization feature requires DME release 5.2.0 or later; otherwise, the slides do not display in the Video Portal.

DMS-Admin 5.x Concepts, Features, and Behaviors

Topics in this section answer questions about DMS-Admin, a software module for administering Cisco DMS components and users, that is preinstalled on every DMM 5.x appliance.

- [SNMP and the MIB for Cisco DMS 5.x, page 11](#)
- [Managing User Accounts, page 12](#)

SNMP and the MIB for Cisco DMS 5.x

This topic contains the answers to these questions:

- [Where can I download the MIB for Cisco DMS 5.x?](#)
- [Where can I download the agent capability MIB for Cisco DMS 5.x?](#)
- [What versions of SNMP does the MIB support?](#)
- [If multiple DMPs all become unreachable at the same time, will I receive a separate SNMP notification for each affected DMP?](#)
- [Which object groups does DMS-Admin 5.x support?](#)
- [Can I configure the community for the SNMP agent to accept ‘set’ and ‘get’ requests?](#)
- [Can I configure the community for my external SNMP server that receives traps?](#)

Q. Where can I download the MIB for Cisco DMS 5.x?

A. To obtain the MIB, go to <ftp://ftp.cisco.com/pub/mibs/v2/CISCO-DIGITAL-MEDIA-SYSTEMS-MIB.my>.

Q. Where can I download the agent capability MIB for Cisco DMS 5.x?

A. We have not yet released the agent capability MIB. After we release it, you will be able to obtain it from the same subdirectory on <ftp.cisco.com> from which you can download the MIB.

Q. What versions of SNMP does the MIB support?

A. It supports SNMPv1 and SNMPv2. It does not support SNMPv3.

Q. If multiple DMPs all become unreachable at the same time, will I receive a separate SNMP notification for each affected DMP?

A. Yes, if you have configured DMS-Admin to send SNMP notifications to you when DMPs become unreachable. This release does not support notification throttling.

Q. Which object groups does DMS-Admin 5.x support?

A. This release supports `cdmsSystem`, `cdmsFeatures`, and `cdmsInventory`. To understand these object groups, see the agent capability MIB for Cisco DMS.

Q. Can I configure the community for the SNMP agent to accept ‘set’ and ‘get’ requests?

A. No, the SNMP agent for Cisco DMS 5.x does not accept ‘set’ requests under any circumstances. However, it does accept ‘get’ requests from the public community.

- Q.** Can I configure the community for my external SNMP server that receives traps?
- A.** You cannot edit this community in DMS-Admin 5.0. However, we expect to add this feature in a patch release.

Managing User Accounts

This topic contains the answers to these questions:

- What might prevent a user from logging in to DMM with an account that I created in DMS-Admin?
- After I have used DMM-DSM or DMM-VPM to assign module-specific rights to a user, might anything else prevent that user from logging in to DMM?
- How can I use DMS-Admin to change the user role for a user account?
- When I selected a user group and then created a new user account, what prevented the account from being added to the group?
- What prevents me from dragging selected user accounts to a user role?
- Why is a user account that I created in DMS-Admin not available in DMM-DSM?
- What prevents me from deleting a user group?

- Q.** What might prevent a user from logging in to DMM with an account that I created in DMS-Admin?

- A.** By default, DMS-Admin assigns all newly created user accounts to a user role called “Other.” Users with this role are not allowed to log in to DMM. To grant users the right to log in to DMM, you must assign module-specific rights to them in DMM-DSM or DMM-VPM. After you do this, their user role changes from “Other” to one of these roles:

- Admin
- Group Admin
- Read-only

To understand user roles, see the “Managing Administrative Settings for Cisco DMS Components and Users” chapter in *User Guide for Cisco Digital Media Manager 5.0*, on Cisco.com.

- Q.** After I have used DMM-DSM or DMM-VPM to assign module-specific rights to a user, might anything else prevent that user from logging in to DMM?
- A.** Inactive users cannot log in to DMM, regardless of their assigned user role. To confirm that the user account is active:
1. Do one of the following:
 - On the DMM dashboard, click **Administration**.
 - Choose **Administration** from the global navigation.
 2. Click the **Users** tab, and then select **Options > Edit User**.
 3. From the Active list, choose **Active**, and then click **Save**.
- Q.** How can I use DMS-Admin to change the user role for a user account?
- A.** You cannot use DMS-Admin to edit user role assignments. The user role assignments that DMS-Admin shows to you are updated automatically after you edit user role assignments in DMM-DSM or DMM-VPM.

- Q.** When I selected a user group and then created a new user account, what prevented the account from being added to the group?
- A.** All new user accounts are added, by default, to the “All Users” group. You must drag and drop new users from the “All Users” group to any other groups where they belong.
- Q.** What prevents me from dragging selected user accounts to a user role?
- A.** This release does not support that method for assigning roles to users. To understand user roles, see the “Managing Administrative Settings for Cisco DMS Components and Users” chapter in *User Guide for Cisco Digital Media Manager 5.0*, on Cisco.com.
- Q.** Why is a user account that I created in DMS-Admin not available in DMM-DSM?
- A.** User accounts are not available for selection in DMM-DSM until after you have added them to the Digital Signage Users group in DMS-Admin. In addition, user accounts must be designated as Active before you can use them. To confirm that the user account is active:
1. Do one of the following:
 - On the DMM dashboard, click **Administration**.
 - Choose **Administration** from the global navigation.
 2. Click the **Users** tab, and then select **Options > Edit User**.
 3. From the Active list, choose **Active**, and then click **Save**.
- Q.** What prevents me from deleting a user group?
- A.** You cannot delete any user group that possesses the rights to access media content in DMM-VPM. Before you can delete a group that has rights of this kind, you must edit the group so that it no longer has these rights.

Working with the DMS-Admin Dashboard

This topic contains the answers to these questions:

- [How often does DMS-Admin automatically refresh its dashboard?](#)
 - [What do the “Email Notifications” and “SNMP Notifications” numbers mean in the Alerts area?](#)
 - [What do the “Video Portal Users” and “DMM Users” numbers mean in the Users Logged In area?](#)
 - [Which file system partitions do the two “Disk Space” measurements describe in the System Information area?](#)
- Q.** How often does DMS-Admin automatically refresh its dashboard?
- A.** The dashboard does not autorefresh. To see updated information on the dashboard, reload it manually in your browser.
- Q.** What do the “Email Notifications” and “SNMP Notifications” numbers mean in the Alerts area?
- A.** They count the number of notification messages that DMS-Admin sent (through email messages and SNMP traps, respectively) during the past 1 hour.

- Q.** What do the “Video Portal Users” and “DMM Users” numbers mean in the Users Logged In area?
- A.** They count the number of users who logged in (to the web-based user interfaces for Video Portal and DMM, respectively) during the past 1 hour.
- Q.** Which file system partitions do the two “Disk Space” measurements describe in the System Information area?
- A.** They describe free space on your DMM appliance and your Video Portal appliance, respectively, under the /dm2 folder.

Working with Alert Reports

- [How does the All Notifiable Events filter type differ from the All Internal Events filter type?](#)
 - [How do Live Monitor mode and Snapshot mode differ?](#)
 - [How often does Live Monitor mode refresh its list of alerts?](#)
 - [Is the refresh rate configurable for Live Monitor mode?](#)
 - [Can I sort alerts in Live Monitor mode?](#)
 - [Is the number of displayed alerts configurable for Live Monitor mode?](#)
- Q.** How does the All Notifiable Events filter type differ from the All Internal Events filter type?
- A.** When you choose All Notifiable Events, DMS-Admin filters the Alert Reports page so that it describes only events for which you can configure notifications (which you do on the Notification Rules page). In contrast, when you choose All Internal Events, the Alert Reports page describes all received events, without filtering.
- Q.** How do Live Monitor mode and Snapshot mode differ?
- A.** Live Event mode describes the most recent 100 instances of the event type that you chose, and refreshes this list automatically at 90-second intervals. To specify the event type that Live Event mode should use, choose it from the Type list, and then click **Apply**.
- In contrast, the filtered list in Snapshot mode describes only the events that match all parameters you defined for calendar date, time of day, and event type.
- Q.** How often does Live Monitor mode refresh its list of alerts?
- A.** The list is updated every 90 seconds.
- Q.** Is the refresh rate configurable for Live Monitor mode?
- A.** No, not in this release.
- Q.** Can I sort alerts in Live Monitor mode?
- A.** No, Live Monitor mode is designed to list alerts chronologically.
- Q.** Is the number of displayed alerts configurable for Live Monitor mode?
- A.** No, not in this release. Live Monitor mode shows 100 events.

- Q.** In Snapshot mode, do date and time filtering use my current, local time?
- A.** No, this filtering uses server time. Unless you are working in the same locale as your server and use identical time and date settings, your current, local time is not relevant.

Digital Signage Concepts, Features, and Components

Topics in this section answer questions about:

- [DMP Setup and Configuration, page 15](#)
- [Using ACNS in Support of Digital Signage, page 20](#)
- [Audio and Video Playback, page 26](#)
- [Playback of Other Content Types, page 28](#)
- [HTTP and Browser Errors, page 29](#)
- [Inventory and Discovery](#)
- [External Publishing \(FTP\) Servers](#)
- [Crashes, page 31](#)
- [Simple Things to Check When You Troubleshoot a DMP, page 32](#)

DMP Setup and Configuration

This topic contains the answers to these questions:

- [What are the environmental tolerance ranges for a DMP?](#)
- [What safety warnings apply to me when I use a DMP?](#)
- [At the physical location where I deploy a DMP, what temperature ranges and humidity levels are safe?](#)
- [What is the purpose of the Reset button on my DMP device chassis?](#)
- [Does my DMP have a clock?](#)
- [What does the solid red LED mean after I restore factory-default settings to a DMP that runs at a site without a DHCP server?](#)
- [To discover a DMP 4300G from DMM-DSM, what ports must I open on my firewall?](#)
- [After I started in DMPDM to upgrade the firmware for my DMP, why did no upgrade occur?](#)
- [Why does my DMP restart repeatedly?](#)
- [Why did my DMP restart automatically?](#)
- [Why does my DMP \(which is not centrally managed\) try to load the video startup URL instead of the browser startup URL after it restarts?](#)
- [Why does my DMP skip past stage-one failover and go directly to stage-two, even though I did everything correctly to enable stage-one?](#)
- [What type of display do you recommend for digital signage?](#)
- [Can I change the baud rate that my DMP uses for RS-232 data exchange?](#)
- [Why is my DMP display blank?](#)

- What browser software runs on my DMP?
- Instead of using a DMP display, can I connect my DMP to a digital video projector?
- Can I use my DMP as part of an interactive kiosk or with a touch-screen display?

Q. What are the environmental tolerance ranges for a DMP?

A. The DMP 4300G and 4305G are intended for indoor use. See [Table 2](#).

Table 2 DMP 4300G Environmental Tolerance Ranges

Temperature, ambient	US Customary Unit		Modern Metric Unit	
	Minimum	Maximum	Minimum	Maximum
Operating, long-term or short-term	41°F	104°F	5°C	40°C
Nonoperating or storage	-4°F	140°F	-20°C	60°C
Humidity, relative (noncondensing; ambient)	Minimum		Maximum	
Operating, nonoperating, and storage	20 percent		85 percent	
Altitude (above sea level)	US Customary Unit		Modern Metric Unit	
	Minimum	Maximum	Minimum	Maximum
Operating, nonoperating, and storage	0 feet	13,780 feet	0 meters	4,200 meters

Q. What safety warnings apply to me when I use a DMP?

A. The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	For warnings and other safety information, translated into 25 languages, see <i>Regulatory Compliance and Safety Information for Cisco Digital Media Player 4300G</i> on Cisco.com.
—	✓	For warnings and other safety information, translated into 25 languages, see <i>Regulatory Compliance and Safety Information for Cisco Digital Media Player 4305G</i> on Cisco.com.

Q. At the physical location where I deploy a DMP, what temperature ranges and humidity levels are safe?

A. The air temperature should never be any colder than 41°F (5°C) or any hotter than 104°F (40°C). Humidity should always be within the range from 20 to 80 percent (non-condensing). Your DMP might malfunction or be severely damaged if the temperature drops too low or climbs too high, if there is too much humidity, or if there is not enough humidity.

- Q.** What is the purpose of the Reset button on my DMP device chassis?
A. The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	When you press the Reset button on a DMP that uses firmware release 2.42, your DMP restarts. <ul style="list-style-type: none"> • If you want to restore your DMP to its factory-default settings, see the “Restoring Factory Default Settings” topic in <i>User Guide for Cisco Digital Media Player Device Manager 1.0</i> on Cisco.com. • If you want to perform a hardware reset, disconnect your DMP from its AC power source, wait 15 seconds, then reconnect it.
—	✓	When you press the Reset button on a DMP that uses firmware release 2.43, your DMP is restored to its factory-default settings. If you want to perform a hardware reset, disconnect your DMP from its AC power source, wait 15 seconds, then reconnect it.

- Q.** Does my DMP have a clock?
A. Possibly, depending on the DMP model type that you mean. DMPs in the 430X series do not have internal clocks, but DMPs in the 440X series do have them.
- Q.** What does the solid red LED mean after I restore factory-default settings to a DMP that runs at a site without a DHCP server?
A. The red LED tells you that your DMP no longer has any IP address. DMP behavior by default is to obtain a dynamic IP address automatically from a DHCP server. You see the solid red LED through the chassis front grille after you restore factory-default settings to a DMP that you previously configured to use a static IP address instead of a dynamic one. See the “Preconfiguring Your DMP to Run Without a Local DHCP Server” topic for the DMPDM version that you use:
 - *User Guide for Cisco Digital Media Player Device Manager 1.0* on Cisco.com.
 - *User Guide for Cisco Digital Media Player Device Manager 1.1* on Cisco.com.
- Q.** To discover a DMP 4300G from DMM-DSM, what ports must I open on my firewall?
A. We recommend that you open these ports on every router, switch, and firewall that manages the flow of packets between DMM-DSM and your DMP:
 - 6666
 - 7777
In addition, you must allow the exchange of ICMP (ping) packets.
- Q.** After I started in DMPDM to upgrade the firmware for my DMP, why did no upgrade occur?
A. You clicked a button too soon or moved too soon to another page in your browser. Until messages in DMPDM tell you that your DMP has loaded the firmware image and started to burn it, you should not click away from the page or otherwise interrupt it. The typical duration is approximately 1 minute. If you move to another page or interrupt your browser during this brief period, the upgrade does not occur.

- Q.** Why does my DMP restart repeatedly?
- A.** You delivered an empty playlist to your DMP, which uses firmware version 2.42. Log in to your Cisco.com account and use Bug Toolkit to read the workaround for CSCsh72512.
- Q.** Why did my DMP restart automatically?
- A.** One possible reason is that your DMP was running low on memory. DMPs are designed to restart when memory is low. You might notice this behavior if you direct your DMP to show for more than 24 hours a web page that contains many embedded Flash (SWF) objects.
- Q.** Why does my DMP (which is not centrally managed) try to load the video startup URL instead of the browser startup URL after it restarts?
- A.** The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	<p>Because your DMP operates in isolation and is not part of any digital signage network, you must use DMPDM 1.0 to configure it. To make the browser startup URL load automatically:</p> <ol style="list-style-type: none"> 1. Go to the Settings area in DMPDM, then click Browser. 2. Enter 255 in the Browser Transparency (0-255) field, then click Apply. 3. Select Administration > Save Configuration, then, when the Save Configuration page appears, click Save.
—	✓	<p>Because your DMP operates in isolation and is not part of any digital signage network, you must use DMPDM 1.1 to configure it. To make the browser startup URL load automatically:</p> <ol style="list-style-type: none"> 1. Go to the Settings area in DMPDM, then click Browser. 2. Enter 255 in the Browser Alpha Channel Transparency (0-255) field, then click Apply. 3. Select Administration > Save Configuration, then, when the Save Configuration page appears, click Save.

- Q.** Why does my DMP skip past stage-one failover and go directly to stage-two, even though I did everything correctly to enable stage-one?
- A.** Sometimes, even though you save copies locally to the SD memory card in a DMP, the files for stage-one failover become corrupted and will not play. If this happens to you, simply use DMM-DSM to redeploy the files to the SD memory card.
- Q.** What type of display do you recommend for digital signage?
- A.** We recommend that you use LCD displays.
 - Digital signage uses static images more often than it uses full-motion video. Most often, content is web-based or animated in Flash. Because some pixels are not updated frequently, plasma displays for digital signage have a high rate of *phosphor burn-in*.
 - Even though *LCD image persistence* is sometimes a problem on LCD displays, it is almost always self-correcting and is unlikely to occur if you follow manufacturer guidelines for managing your displays correctly.

If NEC is your preferred manufacturer for LCD displays, we recommend these NEC models:

- 32" MultiSync® LCD3210
- 40" — Either of these:
 - MultiSync® LCD4010
 - MultiSync® LCD4020
- 46" MultiSync® LCD4610
- 57" MultiSync® LCD5710

Q. Can I change the baud rate that my DMP uses for RS-232 data exchange?

A. Yes, you can. However, DMPs support only 10 specific baud rates and you cannot change the rate successfully to any other value. The supported baud rates are exactly 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, and 230400. If your DMP display requires some other baud rate than these supported ones for RS-232, it is not compatible with DMP features for RS-232. For example, the Olevia 537 X display requires an RS-232 baud rate of either 1110 or 115200, and therefore is compatible at only one of its two available rates.

- To learn which RS-232 baud rate a DMP is configured to use, define and deploy a system task in DMM-DSM that combines the request type “Get” with this syntax:

```
http://username:password@DMP_IP_address:7777/get_param?p=*. *
```

- To change the RS-232 baud rate that a DMP should use, define and deploy a system task in DMM-DSM that combines the request type “Set” with this syntax:

```
rs232.speed=value&mib.save=1
```

Q. Why is my DMP display blank?

A. Assuming that your DMP display is attached to a live power source, connected to your DMP, and turned on, the likeliest possible reasons that you might not be able to show content on a DMP display vary according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	During setup, you used the wrong cable to connect your DMP to its DMP display. Setup requires that you use a composite/RCA cable. You cannot use an HDMI cable or any other cable type during setup. After setup is completed, you can use any supported cable type. See <i>Quick Start Guide for Cisco Digital Media Player 4300G</i> on Cisco.com.
✓	—	During setup, you selected the wrong options in Cisco Digital Media Player Device Manager 1.0 (DMPDM). You must use NTSC_M as the display standard and SVIDEO as the display output interface. After setup is completed, you can select the DMPDM settings that meet your requirements.
✓	✓	You selected display settings in DMPDM that are incompatible with your DMP display. To learn which selections are the correct ones for your DMP display, see its user documentation.
✓	✓	You set the transparency level to 255 in DMPDM, either during or after setup.
✓	✓	The content file that you are trying to play is stored on an FTP server that runs IIS. We do not support any use of IIS. We recommend that you use open source Apache server software instead.
✓	✓	The content file that you are trying to play was requested through Microsoft Proxy Server. We do not support any use of Microsoft Proxy Server.

- Q.** Is a program guide available for DMPs that I might use in a corporate “campus TV” setting?
- A.** No, not in the DMS 4.0 or DMS 4.1 release.
- Q.** What browser software runs on my DMP?
- A.** The preinstalled DMP browser software is based on Mozilla version 1.7.13 and supports JavaScript version 1.5. The DMP browser can work with files of the following types, but not with files of any other type; no Java Runtime Environment (JRE) is installed. You cannot install browser plug-ins or any other software on your DMP, whether to support additional filetypes or for any other purpose.
- HTML
 - TXT
 - GIF
 - JPEG
 - PNG
 - SWF
- Q.** Instead of using a DMP display, can I connect my DMP to a digital video projector?
- A.** Yes. Most digital video projectors use VGA connectors for video input (as opposed to the HDMI video output on your DMP), so you might have to buy and use an HDMI-to-VGA adapter to establish the physical connection. You can then project your digital signage:
- At a very large scale.
 - On or through surfaces.
 - On objects in motion.



Note Light projected through the lens of a digital video projector is often very bright—sometimes as bright as 12,000 ANSI lumens or more. We recommend that you do everything possible to shield it from anyone who might look directly at it. In addition, you should never aim the projector lens directly toward any location where people might linger or gather.

- Q.** Can I use my DMP as part of an interactive kiosk or with a touch-screen display?
- A.** No, not in the DMS 4.0 or DMS 4.1 release. DMPs render video and web content, but do not support direct user input.

Using ACNS in Support of Digital Signage

This topic contains the answers to these questions:

- [What stops me from playing content files immediately on my DMP displays after I send copies of those files to my Content Engines?](#)
- [Why are videos from my ACNS network choppy when I play them on my DMPs?](#)
- [Why are my ACNS channels not listed in DMM-DSM?](#)
- [What prevents my DMPs from showing ACNS content?](#)

- Q.** What stops me from playing content files immediately on my DMP displays after I send copies of those files to my Content Engines?
- A.** The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	Before your DMPs can show any files that you send to a Content Engine, you must first allow enough time in your content distribution network for the pre-positioned files to <i>reach</i> your Content Engines. To delay the start time for playback of files that you have replicated throughout your content distribution network, use Publisher > Scheduler in DMM-DSM (<i>not</i> Publisher > Immediate).
—	✓	Before your DMPs can show any presentations whose assets you sent to a Content Engine, you must first allow enough time in your content distribution network for the pre-positioned files to <i>reach</i> your Content Engines. To delay the start time for playback of presentations that you have replicated throughout your content distribution network, use Schedules > Future Deployment in DMM-DSM (<i>not</i> Schedules > Immediate Deployment).

Your network topology and available bandwidth will affect the amount of time that you should allow for content replication to finish. You must also remember to click **Publish** on the Scheduler page in DMM-DSM, or your DMPs will never show the content.



Tip You can telnet to a Content Engine to verify when content replication is finished in CDNFS. For more information, see the documentation for your Content Engine.

- Q.** Why are videos from my ACNS network choppy when I play them on my DMPs?
- A.** These are some of the possible reasons:
- [The HTTP Bit Rate \(Bandwidth\) Setting Is Too Low on Your Content Engine, page 21](#)
 - [Too Many DMPs Are Using Your Content Engine, page 22](#)
 - [HTTP Requests From Your DMPs Are Not Being Redirected Correctly to Your Content Engine, page 22](#)
 - [The HTTP Proxy Setting Is Wrong in DMPDM to Use a Content Engine as the Proxy, page 23](#)



Note

Because the HTTP sessions go through proxy server, you must also ensure that your proxy server is powerful enough to handle the sessions.

The HTTP Bit Rate (Bandwidth) Setting Is Too Low on Your Content Engine

The default bandwidth setting for HTTP sessions (up to 1.5 Mbps) on a Content Engine is not sufficient for MPEG-2 video. Standard-definition MPEG-2 video requires approximately 5 Mbps and high-definition MPEG-2 video requires approximately 15 Mbps. To increase the maximum bandwidth on a Content Engine to 6 Mbps per HTTP session, use the **bitrate** command, as follows:

```
bitrate http default 6000
```

Too Many DMPs Are Using Your Content Engine

Two factors affect the upper limit for how many DMPs should use one Content Engine:

- The resolution of the MPEG-2 files that you use (standard-definition or high-definition).
- The designed capacity of the Content Engine model that you use.

For example, the HTTP caching throughput is approximately 40 Mbps on a Content Engine 565, which means that it can support as many as eight DMPs that play standard-definition MPEG-2 video or as many as two or three DMPs that play high-definition MPEG-2 video.

HTTP Requests From Your DMPs Are Not Being Redirected Correctly to Your Content Engine

To verify that the HTTP savings level is high (as it should be) on your Content Engine, telnet to it, then issue this command:

```
show statistics http savings
```

If you see that the HTTP savings are low, verify that you configured transparent Web Content Communication Protocol (WCCP) mode correctly if you use it on your Content Engine, and also verify that you have correctly configured your router.

The HTTP Proxy Setting Is Wrong in DMPDM to Use a Content Engine as the Proxy

- A.** The method to verify that proxy settings are correct for DMPDM and to correct them if necessary varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	<ol style="list-style-type: none"> 1. In the Settings area, click Basic. 2. In the HTTP Proxy table, ensure that each of the following is true: <ul style="list-style-type: none"> • You enabled the HTTP Proxy option. • The proxy IP address that you entered points to the closest Content Engine that you will use. • You entered the correct port number. 3. If you changed anything in Step 2, do the following: <ol style="list-style-type: none"> a. Click Apply. b. In the Administration area, click Save Configuration. c. Click Save. d. In the Administration Area, click Reboot DMP. e. Click Reboot.
—	✓	<ol style="list-style-type: none"> 1. In the Settings area, click Basic. 2. In the HTTP Proxy table, ensure that each of the following is true: <ul style="list-style-type: none"> • You enabled the Use HTTP Proxy option. • The proxy server IP address that you entered points to the closest Content Engine that you will use. • You entered the correct port number. 3. If you changed anything in Step 2, do the following: <ol style="list-style-type: none"> a. Click Apply. b. In the Administration area, click Save Configuration. c. Click Save. d. In the Administration Area, click Restart DMP. e. Click Restart.

- Q.** Why are my ACNS channels not listed in DMM-DSM?

- A.** These are some of the possible reasons:

- [Time Setting Differences Caused DMM-DSM to Reject the Digital Certificate from Your ACNS Server, page 24](#)
- [You Entered the Wrong CDM Port Number, Username, or Password in DMM-DSM, page 24](#)
- [You Used an ACNS Channel Name That is Recycled or Is a Duplicate, page 24](#)

Time Setting Differences Caused DMM-DSM to Reject the Digital Certificate from Your ACNS Server

If the time settings for your DMM appliance and your ACNS server are not synchronized, the differences between them might cause DMM-DSM to reject the digital certificate from your ACNS server. We recommend that you configure your ACNS server, your DMM appliance, and each of your Content Engines to synchronize their time settings to an NTP server. Bear in mind, however, that changing the time settings after you add content to the schedule might affect the availability of that content.

ACNS— You can configure your ACNS server and each of your Content Engines to use an NTP server:

1. In CDM, select **Devices > Device Groups**.
2. Expand the table of contents so that you see **General Settings > Services > Date/Time > NTP**, then click **NTP**.
3. In the NTP Settings area, select the **Enable** check box.
4. In the NTP Server text box, enter one ordinary IPv4 IP address to specify the NTP server that you use, or enter as many as four such addresses, where each IP address is separated from its neighbor by one space.
5. Click **Submit**.

DMM— You can configure your DMM appliance to use an NTP server.

1. In AAI, select **DATE_TIME_SETTINGS**, then press **Enter**.
2. Select **NTP**, then press **Enter**.
3. Enter or select the NTP settings, then select the options to confirm each individual change.
4. Press **Enter**.

You Entered the Wrong CDM Port Number, Username, or Password in DMM-DSM

Under the Settings tab in DMM-DSM, be sure that you entered the correct values on the ACNS Settings page to use your Content Distribution Manager (CDM):

- The CDM port number to use by default is **8443**.
- The CDM username by default for DMM-DSM is **admin**.
- The CDM password by default for DMM-DSM is **default**.

If the administrator for your CDM changed any of the default settings, these values might not be the correct ones for you to use. We recommend that you verify which values are the correct ones in your network.

You Used an ACNS Channel Name That is Recycled or Is a Duplicate

You cannot duplicate or recycle channel names. See [Why Do I see an HTTP 500 error when I use ACNS? page 31](#).

- Q.** What prevents my DMPs from showing ACNS content?
- A.** These are some of the possible reasons:
- [The ACNS Channel Origin Server Is Misconfigured, page 25](#)
 - [The ACNS Channel Quota Is Misconfigured, page 25](#)
 - [The ACNS Channel Is Not Configured to Use an External Manifest File, page 25](#)

- [There Are Other Content Acquisition Problems with the External Manifest File, page 26](#)
- [Someone Changed the Time Setting for Your DMM Appliance, but Did Not Restart It, page 26](#)

The ACNS Channel Origin Server Is Misconfigured

You must designate the IP address from one of the following devices as the origin server for any ACNS channel that you will use in your digital signage network:

- Your DMM appliance.
- The external publishing (FTP or HTTP) server that you use with DMM-DSM.
- The root Content Engine in your content delivery network.

The ACNS Channel Quota Is Misconfigured

When configuring the channel quota for DMS in CDM, keep in mind the following:

- On each Content Engine, the total disk space for the channel should not exceed the CDNFS disk space allocation.
- The combined size of *all* content files in a channel should not exceed the amount of disk space that you allocated for the channel in the Channel Quota field at Contents > Channels > Definition.

Because of overhead, the amount of disk space used by a file is always larger than the size of the file itself. To figure the amount of disk space needed for a file, follow these steps:

- Divide the actual file size in kilobytes (KB) by the file system block size, which is a fixed 4-KB (4096-byte) unit, then round up the result to the nearest integer. This provides the number of filled and partially filled 4-KB blocks that a file has used.

(File size in KB/4096) rounded up to the next integer value = Total number of blocks per file.

- Multiply the total number of file system blocks used by 4 KB (4096 bytes) to calculate the actual disk space consumed in bytes.

Total blocks per file x 4096 = Total disk usage in bytes.

- Multiply 4 KB by 4, then add the product to the total disk space consumed. (The integer 4 represents disk space that is reserved for internal system usage.)

Total disk usage in bytes + (4096 bytes x 4) = Disk usage per file.

Also, because the software attempts to reserve enough space for other minor internal system functions, it is helpful to configure your channel quotas, and disk space where you pre-position assets, with a modest amount (perhaps 10 percent) of extra space beyond the total amount that you estimate will be consumed.

Channel quota in kilobytes = (Total disk usage in kilobytes) + (0.1 x Total disk usage in kilobytes).

The ACNS Channel Is Not Configured to Use an External Manifest File

To verify that the ACNS channel is configured to use an external manifest file for content acquisition, do the following:

1. In CDM, select **Services > Channels**.
2. In the table of contents, click **Channel Content**.
3. Click **Change Method**.
4. Select **Specify external manifest file**, then click **Save**.

5. Enter any arbitrary text in the Manifest URL text box.
6. Enter **0** (zero) in the Check Manifest Every *N* mins text box.
7. Click **Submit**.

Later, each time that you publish content from DMM-DSM to ACNS, your ACNS server automatically fills in the correct manifest location.

There Are Other Content Acquisition Problems with the External Manifest File

To check for other problems that might affect the external manifest file for your ACNS channel, do the following:

1. In CDM, select **Services > Channels**.
2. In the table of contents, click **Channel Content**.
3. Click **Validate**, then consider the following when you read the validation report:
 - Does a message at the end of the report say that your manifest file is correct?
 - Are your Content Engines in sync with the device that hosts your ACNS manifest file?
 - Does the manifest file mention the files that you will use in the affected ACNS channel?

Someone Changed the Time Setting for Your DMM Appliance, but Did Not Restart It

You must restart your DMM appliance after the time setting is changed in AAI or in DMM-DSM. Otherwise, some scheduled deliveries might not occur.

Audio and Video Playback

This topic contains the answers to these questions:

- [Why is the quality poor for audio, video, or both?](#)
- [Why is there no audio after I use an HDMI cable to connect my DMP to its DMP display?](#)
- [Why is there audio but no video \(or only the first frame of video\) when I play an MPEG-1 file through a UDP multicast stream?](#)
- [What prevents me in DMD from placing overlays on my videos?](#)
- [Why does my DMP sometimes crash immediately when I play an MPEG-2 file?](#)
- [Why does one of my centrally-managed DMPs show content that a different DMP was supposed to show?](#)
- [Can my DMP play Windows Media files?](#)
- [Can my DMP play files that it pulls from a Windows Media Server?](#)
- [Why does my zoning application fail to play video files from a webserver?](#)
- [Why are my ACNS channels not listed in DMM-DSM?](#)

Q. Why is the quality poor for audio, video, or both?

A. The two likeliest reasons are that the actual media file was encoded to use low-quality settings or that network congestion is causing packets to drop from the stream. To learn which of these scenarios is true in your case, play a local copy of the file in video playback software, such as [VLC](#).

If the local copy of your media file plays smoothly and at an acceptable quality, you can assume that packet loss was the original problem and you can take steps to apply quality-of-service (QoS) bandwidth tuning in your network.

- Q.** Why is there no audio after I use an HDMI cable to connect my DMP to its DMP display?
- A.** The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	<p>This release does not support digital audio through HDMI. Even if you use a digital display, you must use an analog (composite/RCA) cable for audio.</p> <p>We do not support audio in .SWF files.</p> <p>See <i>Quick Start Guide for Cisco Digital Media Player 4300G</i> on Cisco.com.</p>
—	✓	<p>This release supports digital audio through HDMI. Verify that any silent video includes an audio track and verify that your DMP display has not been muted. If neither of these possibilities explains why you cannot hear audio, substitute a new HDMI cable for the old one, then try again to play a video file that contains audible sounds.</p> <p>We do not support audio in .SWF files.</p> <p>See <i>Quick Start Guide for Cisco Digital Media Player 4305G</i> on Cisco.com.</p>

- Q.** Why is there audio but no video (or only the first frame of video) when I play an MPEG-1 file through a UDP multicast stream?
- A.** We support MPEG-1 in unicast only, not multicast. If it is essential that you use UDP multicast, we recommend that you transcode the file to use a different media format.
- Q.** What prevents me in DMD from placing overlays on my videos?
- A.** Whenever you use a video playlist object in DMD, it becomes the topmost layer automatically in your presentation. Other object types (nonvideo playlist objects and box objects) are rendered in back of the video playlist object, which means that you cannot use them to create an overlay or mask for video. To use an overlay of that kind, we recommend that you encode the video file itself so that it includes an overlay before you add it to your media library. Alternatively, you can use JavaScript to create a presentation outside of DMD.
- Q.** Why does my DMP sometimes crash immediately when I play an MPEG-2 file?
- A.** We do not support any use of the Linear Pulse Code Modulation (LPCM) audio codec that is optional when you encode or transcode a video file to use the MPEG-2 standard.
- Q.** What might prevent my DMP from showing the content that I deliver to it from DMM-DSM, and also prevent DMM-DSM from reporting that any error occurred?
- A.** Your DMP and its display might not be connected correctly, or you might have hidden the video plane under the HTML plane. To work around these problems, be sure to use the correct output on your DMP and the correct input on its display, and be sure that you configure transparency settings for the HTML plane in a way that meets your requirements.

- Q.** Why does one of my centrally-managed DMPs show content that a different DMP was supposed to show?
- A.** There are two equally likely explanations:
- You deployed both of the affected DMPs in a network where the DHCP server sets an expiration date and time for each dynamic IP address that it assigns. Your DMPs reached the expiration for their respective addresses and the DHCP server reused old addresses but assigned them in a different order. Your DMPs are still working correctly and they still trust the instructions that they receive from the instance of DMM-DSM that is running on your DMM appliance. They have not communicated to DMM-DSM, however, that they swapped IP addresses. To solve this problem immediately, restart both affected DMPs so that they will tell DMM-DSM which IP addresses they are using. To prevent this problem from recurring in the future, reconfigure your DHCP server so that there is no predetermined expiration date and time for the dynamic IP addresses that it assigns.
 - You placed the affected DMP in at least two DMP groups in DMM-DSM, then scheduled those groups to show their respective zoning applications simultaneously. By scheduling multiple deliveries to reach the affected DMP simultaneously, you created a “race condition,” with an unpredictable result as to which of the zoning applications (in DMS 4.0) or presentations (in DMS 4.1) your DMP would receive first and start to show.
- Q.** Can my DMP play Windows Media files?
- A.** No, not in the DMS 4.0 or DMS 4.1 release.
- Q.** Can my DMP play files that it pulls from a Windows Media Server?
- A.** No, not in the DMS 4.0 or DMS 4.1 release.
- Q.** Why does my zoning application fail to play video files from a webserver?
- A.** The answer varies, in part, according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	One possible reason is that the web server is configured to use a nonstandard port for HTTP traffic. We recommend that you reconfigure the server to use TCP port 80 for this purpose. Alternatively, the web server might use IIS. For more information, see: When I enter HTTP URLs in DMM-DSM or DMPDM, why do some URLs fail to return the expected result?
—	✓	The web server might use IIS. For more information, see: When I enter HTTP URLs in DMM-DSM or DMPDM, why do some URLs fail to return the expected result?

Playback of Other Content Types

This topic contains the answers to these questions:

- [\(DMS 4.0\) What might interfere with my ability to show Flash \(SWF\) content?](#)
- [\(DMS 4.0\) Why is Flash \(SWF\) content dislocated in a zoning application?](#)
- [\(DMS 4.1\) Why do I see vertical white bands next to a .SWF file when I play it on a DMP display?](#)

- Q.** (DMS 4.0) What might interfere with my ability to show Flash (SWF) content?
- A.** Potential conflicts include the following:
- In DMPDM, you enabled the option to use Adobe Flash Acceleration. We recommend that you disable it.
 - You used a Flash version later than version 6. We do not support later versions.
- Q.** (DMS 4.0) Why is Flash (SWF) content dislocated in a zoning application?
- A.** In DMPDM, you enabled the option to use Adobe Flash Acceleration. We recommend that you disable it.
- Q.** (DMS 4.1) Why do I see vertical white bands next to a .SWF file when I play it on a DMP display?
- A.** One possible reason is that you constrained the width and height of the playlist object for maximum compatibility with old or inexpensive displays. In this case:
1. Start Digital Media Designer (DMD), then open the saved presentation.
 2. On your workspace, click the playlist object that you know contains the improperly proportioned .SWF asset.
 3. Select **Edit > Whole Screen**.
 4. Save your work in DMD, then redeploy the presentation.

HTTP and Browser Errors

This topic contains the answers to these questions:

- [When I enter HTTP URLs in DMM-DSM or DMPDM, why do some URLs fail to return the expected result?](#)
 - [What problematic behaviors might I notice when filesystem partitions are full on my DMM appliance?](#)
 - [What prevents me from seeing \(or, alternatively, from using\) the Digital Media Designer user interface or the DMM-DSM user interface for scheduling signage deployments?](#)
 - [Why do I see an HTTP 500 error when I use ACNS?](#)
 - [What should I do if part of the DMM-DSM user interface is too small to use \(in DMS 4.0, not 4.1\)?](#)
 - [What prevents me from seeing the “Settings” tab in DMM-DSM?](#)
 - [Why does the startup URL time out?](#)
- Q.** When I enter HTTP URLs in DMM-DSM or DMPDM, why do some URLs fail to return the expected result?
- A.** Failure is the result in DMS when an HTTP URL points to a server that uses Microsoft Internet Information Server (IIS) software. We do not support any use of IIS. We recommend that you use open source Apache server software instead.
- Q.** What problematic behaviors might I notice when filesystem partitions are full on my DMM appliance?
- A.** When a partition is full in the filesystem, likely behaviors can vary depending on which partition is affected.

When the /dm2 partition is full:

- DMD cannot save your work.
- The ACNS Settings page shows an HTTP Status 500 error.
- You see an “unexpected exception” error when you try to add an external deployment server.
- On the Disk Space page (at Media > Disk Space) and the Network Status page (at Digital Media Players > Network Status), you see this message: “Cannot render chart: No space left on device. Please delete some contents to free up some space.”

When the /tmp partition is full:

- DMM-DSM shows an HTTP Status 404 error, which refers to /xTAS-core/index.htm.

When the /var/log partition is full:

- DMM-DSM returns an HTTP Status 404 error, which refers to /xTAS-core/index.htm.

- Q.** What prevents me from seeing (or, alternatively, from using) the Digital Media Designer user interface or the DMM-DSM user interface for scheduling signage deployments?
- A.** The answer varies, in part, according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	You must use a supported Java Runtime Environment (JRE) version and you must configure your Java language setting to be US-English. If your PC uses any JRE version older than 1.5 or is configured to use any Java language other than US-English, it is likely that you will have problems when you try to see or use the scheduling features in DMM-DSM. Even if you can see the user interface for scheduling, your selections in it might not take effect.
—	✓	You must use a supported JRE version and you must configure your Java language setting to be US-English. If your PC uses any JRE version older than 1.6.0 or is configured to use any Java language other than US-English, it is likely that you will have problems when you try to see or use the scheduling features in DMM-DSM. Even if you can see the user interface for scheduling, your selections in it might not take effect. It is equally likely that problems of the same kind will interfere with your use of DMD.

Do one or both of the following:

- To confirm that you use the required JRE version or a later one, choose **Start > Settings > Control Panel > Java**, click the **General** tab, then click **About**.
- To confirm that your Java language is US-English, complete whichever procedure at this URL applies to your Windows version: <http://www.java.com/en/download/help/locale.xml>.

If this problem affects you even though you use the correct Java version, try the following:

1. Select **Start > Run**.
2. Enter **inetcpl.cpl**, then press **Enter**.
3. Click the **Advanced** tab.
4. In the Browsing area, find the check box that is named “Enable third-party browser extensions (requires restart).”
5. If the check box is selected, deselect it.
6. Click **OK**, restart your PC, then try again to open the DMM-DSM scheduler.

- Q.** Why do I see an HTTP 500 error when I use ACNS?
- A.** The name that you assign to an ACNS channel might cause an HTTP 500 error. This happens if you deleted a named channel, but then later assigned its name to a new channel. When you create or recreate an ACNS channel, be sure that it uses a unique name.
- Q.** What should I do if part of the DMM-DSM user interface is too small to use (in DMS 4.0, not 4.1)?
- A.** At some screen resolutions, the content selection area might be very small when you create or edit a zoning application. To work around this problem, adjust your screen resolution settings or press **F11** to use your browser temporarily in full-screen (kiosk) mode.
- Q.** What prevents me from seeing the “Settings” tab in DMM-DSM?
- A.** DMM-DSM shows the Settings tab to administrators only.
- Q.** Why does the startup URL time out?
- A.** The startup URL might time out for a DMP that is connected to a switch port for which spanning tree protocol (STP) is enabled. Spanning tree negotiations take approximately 40 seconds to complete and might exceed the timeout value for the startup URL. If this problem affects you, enable the spanning tree PortFast feature on the relevant switch port, then restart the DMP. To understand the PortFast feature, see the configuration documentation for your switch on Cisco.com.

Inventory and Discovery

- Q.** When I schedule multiple DMP discovery applications to run, why does only one of them run?
- A.** We do not support scheduling multiple DMP discovery jobs to run in parallel. If you schedule multiple discovery jobs to run in parallel, only the first job runs successfully. We recommend that you configure an interval of at least 35 minutes between the start times for any two discovery jobs that you schedule.

External Publishing (FTP) Servers

- Q.** Did something from DMS create subdirectories on my FTP server?
- A.** Maybe. DMM-DSM does sometimes create subdirectories on FTP servers that you use as part of your digital signage network. For details, see for the user guide on Cisco.com for the DMM version that you use:
 - *User Guide for Cisco Digital Media Manager 4.0*
 - *User Guide for Cisco Digital Media Manager 4.1*

Crashes

- Q.** Why did my DMP crash and what should I do?
- A.** DMPs will sometimes crash if DMM-DSM delivers a particular sequence of many applications to them very quickly and without any gaps. In the event of a DMP crashing, we recommend that you restart the DMP.

Simple Things to Check When You Troubleshoot a DMP

<p>1— Does your DMP power up when you plug it in?</p>	<p>→ 2— Do you see any LED lights through the DMP chassis grille?</p>	<p>→ 3— Does your DMP display show a splash screen?</p>	<p>→ 4— Does DMM-DSM tell you that your DMP is unreachable?</p>	<p>→ 5— What else should you do before you call Cisco TAC?</p>
<p>Did you assemble the power cord correctly, following the instructions in the DMP quick start guide?¹ Is the DC barrel connector connected securely to the 5V DC power supply on the DMP chassis? Is the AC adapter plug seated properly in the electrical outlet? Is the electrical outlet itself working correctly?</p>	<p>The DMP chassis contains a green LED and a red LED. After you attach your DMP to its AC power source, you should see light from both LEDs through the DMP front grille. The LEDs tell you if your DMP has power and if it has obtained an IP address. A solid green light indicates that a power source is available. A solid red LED indicates that your DMP is waiting to obtain an IP address. After your DMP has an IP address, it turns off the red LED. The LEDs do not blink.</p>	<p>You should see a splash screen² on the DMP display after you start your DMP, assuming that your DMP is in its production network or in a testbed when you troubleshoot it and that it is attached to a DMP display that is in good working order. If you have assigned a static IP address to your DMP, confirm that the splash screen reports the expected IP address and not an unexpected one.³ The factory-default duration for the splash screen is 30 seconds but is user-configurable and might be much less in your case if you changed the duration. If you do not see any splash screen, something might be seriously wrong with your DMP.</p>	<p>Many possible scenarios might cause DMM-DSM to lose contact with your DMP even if the DMP is working correctly. Can you ping the last-known IP address for your DMP—or ping the address that you saw in its splash screen, assuming that the two addresses differ? Has the DHCP address assignment changed for your DMP? Based on the IP address that you think your DMP is using, can you open its local instance of DMPDM in your browser? Complete steps 1, 2, and 3 in this troubleshooting matrix.</p>	<p>If you think that something might be seriously wrong with your DMP, gather the essential information. If you remember the details of what happened, prepare notes about the last task that you performed with your DMP before its problems began. The serial number and MAC address for your DMP are printed on its chassis. Your own records should tell you the version number of the firmware release that you installed on your DMP.</p>

1. To set up your DMPs, see the Quick Start Guide at http://www.cisco.com/en/US/products/ps7220/prod_installation_guides_list.htm.
2. To learn what a typical splash screen shows, see: <http://www.cisco.com/en/US/i/200001-300000/240001-250000/240001-241000/240820.jpg>.
3. If you assigned a static IP address to your DMP but its splash screen reports a different address, you might not have saved your work in DMPDM. See the “Preconfiguring Your DMP To Run Without a Local DHCP Server” topic in Chapter 1 of *User Guide for Cisco Digital Media Player Device Manager 1.1*, here: http://www.cisco.com/en/US/docs/video/digital_media_systems/4.x/dms4.1/dmp4305g/user_guide_for_dmpdm_1.1/DMPDMint.pdf.

Desktop Video Concepts, Features, and Components

Topics in this section answer questions about:

- [Using Streaming Servers, page 33](#)
- [Using ACNS in Support of Desktop Video, page 34](#)
- [Using Video Portal Reports \(Metrics\), page 34](#)
- [Authenticating User Accounts, page 35](#)

Using Streaming Servers

This topic contains the answers to these questions:

- [Can a Video Portal appliance host media content? Why do I need a streaming server to deliver the content that I show on my Video Portal?](#)
- [For live events on my Video Portal, is a streaming server required?](#)
- [What streaming servers does Cisco recommend for use with my Video Portal?](#)
- [Is my Video Portal compatible with any other streaming servers?](#)
- [Does a Video Portal support IP multicast streaming?](#)
- [What are the supported video formats for live events and on-demand events?](#)

Q. Can a Video Portal appliance host media content? Why do I need a streaming server to deliver the content that I show on my Video Portal?

A. Cisco does not support any deployment of, or storage of, content files on Video Portal appliances. These appliances are not streaming servers. They are web and application servers with severely limited capacity—by design—to host media content. Each DMS deployment requires its own server to host and deliver media content, whether through HTTP, streaming, multicast, or other means.

Q. For live events on my Video Portal, is a streaming server required?

A. For scalability purposes and for an acceptable user experience, yes.

Q. What streaming servers does Cisco recommend for use with my Video Portal?

A. We recommend that you consider one of these:

- Cisco Streaming Engine.
- Cisco Application and Content Networking System (ACNS) Wide Area Application Engine (WAE) with a Windows Media license.
- Windows Media Service, running on Windows 2003 servers.

Q. Is my Video Portal compatible with any other streaming servers?

A. Yes, your Video Portal is compatible with most open source streaming servers that support the same video formats that a Video Portal supports. In addition, your Video Portal is compatible with Windows Media Services servers, Real Helix servers, and Adobe (Macromedia) Flash Media Servers.

- Q.** Does a Video Portal support IP multicast streaming?
- A.** Yes, you can use RFC1112-compliant multicast to stream to your Video Portal the video content files that you publish in DMM-VPM. This is a function of the streaming server that you use.
- Q.** What are the supported video formats for live events and on-demand events?
- A.** Live events can use Windows Media or MPEG-4/AVC. On-demand events can use Windows Media, Flash video (FLV), or AVI.

Using ACNS in Support of Desktop Video

This topic answers these questions:

- [Why would I use Cisco Application and Content Networking System \(ACNS\) with DMS for desktop video?](#)
- [How would I use ACNS to pre-position content to all of my branch and remote locations?](#)
- Q.** Why would I use Cisco Application and Content Networking System (ACNS) with DMS for desktop video?
- A.** DMS components help you to create, manage, publish, and view streaming media content live or on demand. ACNS adds scalability for large deployments.
- Q.** How would I use ACNS to pre-position content to all of my branch and remote locations?
- A.** You can use ACNS to cache or pre-position content files for edge delivery to your Video Portal, which is web-based. To do so, use Content Distribution Manager to define a set of channels that acquire the media files you will show on your Video Portal, then apply those ACNS channels to the branch office locations where you deployed your WAEs. This method replicates content from the root to your edge WAEs.

Using Video Portal Reports (Metrics)

This topic answers these questions:

- [How and where do I see the user interface for Video Portal Reports?](#)
- [Can I export or save the output from reports that I run in Video Portal Reports?](#)
- [Can I use Video Portal Reports to learn which on-demand content is most popular?](#)
- [Can I use Video Portal Reports to learn who is watching a live event?](#)
- [Can I see when a user logs in to or out of my Video Portal?](#)

- Q.** How and where do I see the user interface for Video Portal Reports?
A. The answer varies according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	The URL is http://<your_Video_Portal>:8080/CvpMetrics , where <your_Video_Portal> is the routable IP address or DNS-resolvable hostname of your Video Portal appliance.
—	✓	In DMM-VPM, select Video Portal > Video Portal Reports .

To see the latest information about which browsers Video Portal Reports supports, see *Release Notes for Cisco Digital Media System 4.1* on Cisco.com.

- Q.** Can I export or save the output from reports that I run in Video Portal Reports?
A. You can use the export function in Video Portal Reports to save the output from any report as a downloadable Microsoft Excel (.XLS) file.



Note If the output file that you save uses .JSP for its filename extension, you should, and can safely change the extension to .XLS.

- Q.** Can I use Video Portal Reports to learn which on-demand content is most popular?
A. Yes.
- Q.** Can I use Video Portal Reports to learn who is watching a live event?
A. Not at this time.
- Q.** Can I see when a user logs in to or out of my Video Portal?
A. This release does not track user activity in real time.

Authenticating User Accounts

This topic answers these questions:

- [Can I set up usernames and passwords for DMM operators and audience members?](#)
- [Can I use any LDAP-based authentication system with DMS?](#)

- Q.** Can I set up usernames and passwords for DMM operators and audience members?
A. Yes, you can manage user account settings, including permissions and profiles as well as usernames and passwords.

- Q.** Can I use any LDAP-based authentication system with DMS?
- A.** The answer varies, in part, according to the DMS version that you use.

Release		Answer
4.0	4.1	
✓	—	No, not in this release. You manage user accounts in DMM-VPM.
—	✓	Yes, this release supports LDAP-based authentication and can synchronize user accounts with an Active Directory server.

Encoder Concepts, Features, and Components

Topics in this section answer questions about:

- [Specifications and Setup, page 36](#)
- [Best Practices, page 38](#)
- [Live Events, page 40](#)
- [Video-on-Demand Events, page 40](#)

Specifications and Setup

This topic answers these questions:

- [From a high level, what are the technical specifications for DME encoders?](#)
- [What is the storage capacity of the local hard drive in my DME?](#)
- [What software is preinstalled on my DME?](#)
- [How do I set a QuickStart button on the front panel of my DME?](#)
- [Can I use DMM-VPM to configure any Scientific Atlanta encoders?](#)
- [Is my DME a streaming server?](#)
- [Can I use my DME in isolation \(standalone\)—so that it is, for example, nothing more than the source of a Windows Media stream?](#)
- [What video file formats does my DME support?](#)
- [Will my DME work correctly if it uses a dynamic IP address by way of DHCP?](#)
- [What protocols do the Windows Media, RealPlayer, and Flash plugins use for streaming?](#)

- Q.** From a high level, what are the technical specifications for DME encoders?
- A.** The underlying operating system on DME 1000 and DME 2000 encoders is Windows Embedded XP. Unlike a PC with just a video capture card, each DME model includes a front panel with buttons and a built-in LCD display that you can use to configure a DME or check its status. In addition, each DME includes a built-in video confidence monitor that shows the input status of your video signal, so that there is no need for you to use a separate studio monitor to check the input status of a video signal.

- Q.** What is the storage capacity of the local hard drive in my DME?
- A.** The capacity differs for DME 1000 and DME 2000 encoders:
- **DME 1000**—Approximately 30 GB, partitioned into three logical drives.
 - **DME 2000**—Approximately 85 GB, partitioned into three logical drives.
- Q.** What software is preinstalled on my DME?
- A.** DME 1000 and DME 2000 encoders ship with Niagara SCX software preinstalled. You use Niagara SCX in combination with DMM-VPM to configure and operate DME hardware.
- Q.** Can I configure my DME using only the controls that are on the front panel of its chassis?
- A.** No, not entirely. The LCD display and other controls on the front panel help you to select basic options for configuring your DME. To select or use any advanced settings and options, you must use either Niagara SCX or the Web Administration portal for your DME.
- Q.** How do I set a QuickStart button on the front panel of my DME?
- A.** Do the following:
1. Log in to the Web Administration portal for your DME according to the instructions in its user guide, then click **Encoders > Preset**.
 2. Select an encoding option from the list that corresponds to a particular QuickStart button.
 3. Click **Submit**.
- Q.** Can I use DMM-VPM to configure any Scientific Atlanta encoders?
- A.** No, not at this time.
- Q.** Is my DME a streaming server?
- A.** No. A DME creates video streams but cannot distribute them. To distribute the video stream from a DME, you must use a dedicated streaming server, such as Cisco Wide Area Application Engine.
- Q.** Can I use my DME in isolation (standalone)—so that it is, for example, nothing more than the source of a Windows Media stream?
- A.** Your DME can deliver a Windows Media stream by way of UDP. This method is not scalable, however. Therefore, we recommend that you always use your DME in combination with a downstream streaming server, such as Cisco Wide Area Application Engine (WAE).
- Q.** What video file formats does my DME support?
- A.** DME 1000 and DME 2000 encoders support these file formats for video:
- **Windows Media 9**—For live events and video-on-demand events.
 - **MPEG-4/AVC**—For live events and video-on-demand events.
 - **FLV**—Only for video-on-demand events.
 - **AVI**—Only for video-on-demand events.
- Q.** Can I connect my DME to a wireless network?
- A.** We have not finished testing wireless compatibility and cannot support it at this time. However, it is physically possible to plug a USB wireless adapter (dongle) into the USB port on your DME, and it is also physically possible to connect your DMP to a wireless bridge.

- Q.** Will my DME work correctly if it uses a dynamic IP address by way of DHCP?
- A.** Yes. Every DME has DHCP support enabled by default. Alternatively, you can set network properties manually by way of the DME front panel or web-based user interface.
- Q.** What protocols do the Windows Media, RealPlayer, and Flash plugins use for streaming?
- A.** They use these protocols:
- **Windows Media**—*Microsoft Media Server (MMS)* is a proprietary streaming media protocol that Microsoft developed for use with its streaming media products.
 - **RealPlayer**—*Real Time Streaming Protocol (RTSP)* is an industry-standard streaming protocol that the Internet Engineering Task Force developed to control the delivery of data over a network in real time.
 - **Flash**—*Hypertext Transport Protocol (HTTP)* is an industry-standard protocol for stateless connections and data delivery over a network. By default, most firewall configurations permit HTTP traffic.
- Q.** What prevents me in DMM-DSM from deleting an encoder profile that I created?
- A.** You cannot delete an encoder profile if any jobs (for example, jobs for live events or file transcoding) are associated with it. This is by design.

Best Practices

This topic answers these questions:

- [How do I troubleshoot audio and video that are no longer synchronized in a live stream, or that have become choppy?](#)
- [Are there any recommended best practices for storing recordings on the hard drive in a DME?](#)

Q. How do I troubleshoot audio and video that are no longer synchronized in a live stream, or that have become choppy?

A. The following checklist might help you to identify a point of failure:

✓	Task
<input type="checkbox"/>	<p>1. Encode a new stream from a source that you know is reliable, such as a DVD that is not copy-protected, which you can ordinarily play without incident.</p> <p>But otherwise, use all of the same settings that you used when you encoded the problematic stream for your live event. Does this newly encoded stream show the same problems that you noticed in the earlier stream for your live event? If the new stream does not have those same problems, you might have encoded the earlier stream from an unreliable or copy-protected source.</p>
<input type="checkbox"/>	<p>2. Encode a new stream from the same source that you used during the problematic live event.</p> <p>Confirm that you make commonplace selections for the codec and container (example: Windows Media), the resolution (example: 320 x 240 pixels), and the bitrate (example: 350 Kbps). The selections that you make should be ones that you expect to encode successfully according to the hard limitations of your encoder and to play back successfully on a typical PC in your network.</p> <ul style="list-style-type: none"> • DME 1000—At a resolution of 320 x 240, the maximum supported bitrate is 500 KB. • DME 2000—At a resolution of 320 x 240, the maximum supported bitrate is 2 MB. <p>But otherwise, use all of the same settings that you used when you encoded the problematic stream for your live event. Is CPU utilization on the encoder any higher than 75 percent? Does this newly encoded stream show the same problems that you noticed in the earlier stream for your live event? If so, try again with a lower bitrate.</p>
<input type="checkbox"/>	<p>3. Confirm that your encoder is running just one encoding operation and is not doing anything else.</p> <p>It is possible that you have overtaxed the encoder by requiring it to perform too many operations simultaneously.</p>
<input type="checkbox"/>	<p>4. When you view the stream, be sure to use a PC that you know works well with videos of this kind, encoded to this bitrate, on this network.</p> <p>When a PC runs Windows Media Player, its CPU utilization for that process should not be any higher than 10 percent. If the CPU utilization is higher than 40 percent, we recommend that you substitute a more powerful PC.</p>
<input type="checkbox"/>	<p>5. Connect the encoder and the PC to the same subnet.</p> <p>By connecting them both to one subnet, you eliminate variables along the path between them, such as routers, that might contribute to chopiness or poor synchronization in a video stream.</p>
<input type="checkbox"/>	<p>6. View your stream directly from the encoder.</p> <p>It is possible that your network does not have enough free bandwidth available to transmit a stream successfully. We recommend that the amount of free bandwidth in your network should be at least 15 percent higher than the amount of bandwidth that a stream will use (so that, for example, you would reserve 400 KB in bandwidth for a 350 KB stream).</p>
<input type="checkbox"/>	<p>7. Connect the streaming server and the PC to the same subnet.</p> <p>If the stream quality is acceptable when you view it in a browser on the PC, you can infer that the streaming server is working correctly.</p>
<input type="checkbox"/>	<p>8. Repeatedly change the physical location where you set up the PC.</p> <p>If you discover that the location of the PC affects its ability to receive and play streams, the problem might be local to the topology of a particular network segment.</p>
<input type="checkbox"/>	<p>9. If you use ViewCast Niagara SCX Explorer, confirm that the volume setting in it is at or below 50 percent.</p> <p>The quality of encoded video might drop if the volume level is too high.</p>

- Q.** Are there any recommended best practices for storing recordings on the hard drive in a DME?
- A.** Yes. While you are recording a file, we recommend that you store it temporarily in the AVFiles subdirectory on the local hard drive D: partition. Then, as soon as possible after you finish recording the file, we recommend that you move it to another device for long-term storage. If you do this consistently, you can expect to have free space available on the local hard drive whenever you want to store a new recording.

Live Events

- Q.** Can my DME capture a live stream in real time, saving it in an archive that I can show again at any time?
- A.** Yes.
- Q.** Can my DME simultaneously encode a live event and capture an incoming video stream from another source?
- A.** Yes. DME 1000 and DME 2000 encoders can both do this. However, a DME 2000 encoder has dual processors and is therefore likely to handle the effort more gracefully than a DME 1000 would.
- Q.** What should I consider if I am troubleshooting choppy audio or choppy video in a live stream, or if I receive complaints from an audience member that audio or video are choppy?
- A.** Consider these possibilities:
- The encoding rate might be too high.
 - The encoder CPU utilization rate might be higher than 75 percent.
 - The CPU utilization level might be excessive on the particular PC from which an audience member is viewing the live event through your Video Portal.
 - Other applications in addition to the browser are running on the audience member PC. For live events that are especially important in your organization, only the browser should run.
 - The audience member PC does not meet the minimum requirements (including the requirements for browser plug-ins) to view content from a Video Portal. To learn about the minimum requirements, see *Release Notes for Cisco Digital Media System 4.0* on Cisco.com.
 - Not enough network bandwidth is available.

Video-on-Demand Events

- Q.** How would I use a DME to create video for delivery on demand?
- A.** Encode a video stream, capture the stream and save that file in the format of your choosing, then move the video file to a file server or web server from which to deliver it with DMM-VPM.
- Q.** How do I edit a media file that I will show in a video-on-demand event?
- A.** There are many possible ways that you might edit the file. One common way is to use a nonlinear video editor such as Adobe Premiere, RiverPast Video Cleaner Pro, or Avid Videoshop. You should consider your level of expertise when you select a nonlinear video editor, because some are much more difficult to use than others are. You should also consider which codecs your encoder uses and how you might want to transcode files.

LCD Display Concepts, Features, and Components

Topics in this section answer questions about LCD displays in the Cisco Professional Series (LCD-100-PRO40N and LCD-110-PRO52S), as well as the stand and the remote control that are orderable as spart parts for displays in the Professional Series.

- What technical specifications apply generally to both the 40" and 52" display models?
- What technical specifications differ between the 40" and 52" display models?
- Can I use DMM to centrally manage my Cisco LCD displays?
- Are LCD displays in the Professional Series environmentally friendly (“green”)?
- How many remote controls do I need to operate a DMP and its attached Professional Series display?
- How do Professional Series displays differ from ordinary LCD displays that are sold for home use?
- Can I operate multiple Professional Series displays together as a video wall?
- Is an RS-232C cable provided with Professional Series displays?
- Which display parameters can I control by way of the RS-232C cable?
- What RS-232 syntax applies to the paramaters that I can centrally manage for my Professional Series display?
- How can I mount a DMP on a Professional Series display?
- Do Professional Series displays ship with a stand?
- Why are some pixels unexpectedly bright, or black?
- How can I prevent image retention?
- How do I use the self-test feature on my Professional Series display?
- How do I troubleshoot the power indicator on my Professional Series display?
- How do I troubleshoot image quality on my Professional Series display?
- How do I troubleshoot audio quality on my Professional Series display?
- How do I troubleshoot the remote control for my Professional Series display?
- How should I clean and maintain my Professional Series display?

Q. What technical specifications apply generally to both the 40" and 52" display models?

A. These specifications apply equally to both models (LCD-100-PRO40N and LCD-110-PRO52S):

- 1920 x 1080p native resolution, as well as 1080i and 720p
- 178/178 viewing angle
- Response time of 8ms
- HDMI/VGA/DVI inputs
- Lamp error detection
- Temperature sensor
- Built-in fan
- Video wall support
- RS-232C control

- 2 Built-in speakers, 10W
- Power consumption (Standby): 2W

Q. What technical specifications differ between the 40" and 52" display models?

A. These specifications differ:

Attribute	40" (LCD-100-PRO40N) Implementation	52" (LCD-110-PRO52S) Implementation
Brightness	470 cd/m2	700 cd/m2
Contrast Ratio	3000:1	2000:1
Pixel Pitch	0.461 x 0.461	0.6 x .06
Additional Video Input	—	<ul style="list-style-type: none"> • CBVS • BNC • Component
Power Consumption	230W	370W
VESA Mount	600 x 400 mm	800 x 400mm
MTBF	40,000 hours	50,000 hours

Q. Can I use DMM to centrally manage my Cisco LCD displays?

A. Yes, DMM can centrally manage these displays. For example, you can define schedules in DMM that change display settings for:

- Contrast
- Brightness
- Color
- Tint
- Audio volume level
- Input
- Power (on and off)

DMM transmits these commands to your DMPs, which relay the commands to attached displays through their RS232C serial control ports.

Q. Are LCD displays in the Professional Series environmentally friendly (“green”)?

A. Yes they are, in the sense that their support for RS-232 commands means you can use scheduling features in DMM-DSM to turn on displays during business hours and turn them off during non-business hours, or at other times when they are not in use.

Q. How many remote controls do I need to operate a DMP and its attached Professional Series display?

A. You will need two (2) remote controls:

- Your Professional Series LCD display shipped with a remote control. You can order a replacement from Cisco. The product SKU to use when ordering is LCD-100-PRO-RM=.
- Your DMP *did not* ship with a remote control but you can order one for it from Cisco. The product SKU to use when ordering is DMP-RM-K9=.

Most buttons on the remote control for your DMP are disabled until you buy and install the license to use Enterprise TV.

- Q.** How do Professional Series displays differ from ordinary LCD displays that are sold for home use?
- A.** Cisco designs and manufactures its displays specifically for intensive commercial use:
- Professional Series displays support continuous operation, typically from 16 to 18 hours a day.
 - The calculated MTBF endurance for Professional Series displays is much higher than for consumers displays:
 - 40,000 hours MTBF for 40" (LCD-100-PRO40N) displays.
 - 50,000 hours MTBF for 52" (LCD-110-PRO52S) displays.
 - Cisco offers support services, including SMARTnet Next Business Day replacement (NBD) and continuous telephone support.
 - Professional Series displays are certified to run in both horizontal and vertical orientations, which is not the case for most consumer displays.
 - The bezels on Professional Series displays are designed with commercial use in mind. They have a professional appearance, are narrow, use a matte finish, and feature hidden controls.
 - Professional Series displays have a better view angle than most consumer displays have, while also providing a higher contrast ratio and higher brightness.
 - You can use DMM to centrally manager Professional Series displays by way of their RS-232 ports.
 - You can configure Professional Series displays for use in a video wall.
- Q.** Can I operate multiple Professional Series displays together as a video wall?
- A.** Yes. You can arrange these displays together in a video wall, up to a maximum grid size of 5 rows (horizontal) by 5 columns (vertical). This is the workflow:
1. First, you must turn on the video wall feature on each display that will be part of your video wall.
 2. Then you must configure each display to recognize which position it will occupy in the grid that constitutes your video wall.
 3. You must then use an HDMI splitter to split the outbound HDMI signal from the DMP which will drive your video wall to all displays that are members of your video wall.
- Q.** Is an RS-232C cable provided with Professional Series displays?
- A.** Your Professional Series display shipped with an RS-232C cable. You can order a replacement from Cisco. The product SKU to use when ordering is DMS-RS232-CBL=.
- Q.** Which display parameters can I control by way of the RS-232C cable?
- A.** All parameters can be sent remotely from the Digital Media Manager, including these:

Status	Time	Video (on, off, freeze)	Audio (on, off, mute, volume)
RGB (red/green/blue gain)	Picture-in-picture (PIP source/size/locate)	Power (on, off)	Brightness
Sharpness	Input Source	Image Size	Contrast
Color	Tint	Balance	Coarse/Fine

Treble/Bass	H-Position/V-Position	Auto/Manual Lamp	Safety Screen
Video Wall mode	Safety Lock	Panel Lock	Direct Channel (direct, up, down)
OSD (on, off)	Keys Lock		

Q. What RS-232 syntax applies to the parameters that I can centrally manage for my Professional Series display?

A. These are examples of the syntax that you would use:

Command	RS-232 Syntax
Display on	rs232.tx_hex=AA11FE010111
Display off	rs232.tx_hex=AA11FE010010
Mute on	rs232.tx_hex=AA13FE010113
Mute off	rs232.tx_hex=AA13FE010012
Video wall on	rs232.tx_hex=AA84FE010184
Video wall off	rs232.tx_hex=AA84FE010083
HDMI	rs232.tx_hex=AA14FE012134

Q. How can I mount a DMP on a Professional Series display?

A. For easy mounting, use the protective case that Cisco has designed for use with DMPs (whether their form factor is miniature, as with the DMP 4305G, or small, as with the DMP 4400G). The product SKU to use when ordering the protective case is DMP-PROT-CASE-S1.

Q. Do Professional Series displays ship with a stand?

A. Although Professional Series displays are not designed to be free-standing, we do not ship them with a stand unless you order the stand explicitly. We do this is because there are many possible ways to mount a Professional Series display.

- To obtain a 40" model with a stand, the product SKU to use when ordering is LCD-100-PRO-STD.
- To obtain a stand as a spare part, purchased separately from a 40" display, the product SKU to use when ordering is LCD-100-PRO-STD=.

Q. Why are some pixels unexpectedly bright, or black?

A. Professional Series displays use advanced semiconductor technology with extremely high precision. Nonetheless, the red, green, blue and white pixels might seem unexpectedly bright sometimes, or you might notice some black pixels. This is not the result of low quality or a malfunction and you can continue to use your display without incident.

Q. How can I prevent image retention?

A. When you show a fixed image for an extended period of time, the image might become blurred or might leave a residual image on your display. Change the mode to save energy or set a screensaver to move the picture when you need to be away from the monitor for an extended period of time.

Image retention might never occur when a LCD panel is operated under normal conditions.

Normal conditions are defined as continuously changing video patterns. When the LCD panel is operated for a long time with a fixed pattern (more than 12 hours), there may be slight difference in voltage between electrodes that work the liquid crystal in a pixel. The voltage difference between

electrodes increases with time, forcing the liquid crystal to lean. When this occurs, the previous image may be seen when the pattern is changed. To prevent this, the accumulated voltage difference must be decreased.

We recommend that you follow these recommended best practices to prevent image retention:

Turn off your display at regular intervals	<p>For example:</p> <ul style="list-style-type: none"> • After using your display for 20 hours, turn it off for 4 hours. • After using your display for 12 hours, turn it off for 2 hours.
Rotate colors and color schemes at regular intervals	Cycle between colors every 30 minutes.
Avoid extreme differences in luminance	<ul style="list-style-type: none"> • Do not use foreground and background colors that differ greatly in their luminance. • Do not use gray. • Use bright colors that are identical in their luminance or that differ only slightly in their luminance. • Apply motion every 30 minutes to regions that show text. • Apply 1 minute of motion to any region that has shown a logo for 4 hours.
Use the built-in features for preventing image retention	<p>For example:</p> <ul style="list-style-type: none"> • To move a solid black bar up and down the display, use the Scroll feature. Define an interval in the range from 1 to 10 hours and a duration in the range from 1 to 5 seconds. We recommend that the interval should be 1 hour and the duration should be 5 seconds. • To move a dotted black rectangle from top to bottom, use the Pixel Shift feature. Define for it an interval in the range from 1 to 10 hours and a duration in the range from 10 to 50 seconds. We recommend that the interval should be 1 hour and the duration should be 50 seconds. • To move a black crosshair around your display, use the Bar feature. Define for it an interval in the range from 1 to 10 hours and a duration in the range from 10 to 50 seconds. We recommend that the interval should be 1 hour and the duration should be 50 seconds.

Q. How do I use the self-test feature on my Professional Series display?

A. Complete this procedure:

-
- Step 1** Turn off your display and turn off every device connected to it.
- Step 2** Disconnect all devices from your display.
- Step 3** Turn on your display.

If your display passes its self-test, it shows a message that says “Check Signal Cable.” The LED power indicator remains green and the message moves around on the screen.

Q. How do I troubleshoot the power indicator on my Professional Series display?

A. Use this matrix:

Symptom	Try This
The screen is blank and the power indicator is off.	Ensure that the power cord is firmly connected and the display is turned on.
The power indicator blinks.	Wait for less than 1 minute. The display is saving changes made to its settings.

Q. How do I troubleshoot image quality on my Professional Series display?

A. Use this matrix:

Symptom	Try This
A message appears that says “Check Signal Cable.”	<ul style="list-style-type: none"> • Ensure that the signal cable is firmly connected to the video sources. • Ensure that the video sources are turned on.
The image rolls vertically.	<ul style="list-style-type: none"> • Check if the signal cable is securely connected. • Re-connect it, if necessary.
The image is blurred.	<ul style="list-style-type: none"> • Run Frequency Coarse and Fine tuning. • Turn on again after removing all accessories (video extension cable, etc.) • Set the resolution and frequency to the recommended ranges.
The image is too light or too dark.	Adjust the brightness and contrast.
<ul style="list-style-type: none"> • Colors are not consistent. • Shadows are too dark. • White areas are too white. 	Adjust the color.

Q. How do I troubleshoot audio quality on my Professional Series display?

A. Use this matrix:

Symptom	Try This
<ul style="list-style-type: none"> • Sound is not audible. • Sound is too quiet. 	Check the volume level.
Sound frequency is too high or too low.	Check the levels for treble and bass.

Q. How do I troubleshoot the remote control for my Professional Series display?

A. If buttons on the remote control do not respond, check:

- Polarities (+/-) of the batteries.
- If the batteries have lost their charge.
- If the power is on.
- If the power cord is connected securely.
- If a fluorescent or neon lamp is on in the vicinity.

- Q. How should I clean and maintain my Professional Series display?
- A. For cleaning and maintenance guidelines, see the [Important Safety and Compliance Information](#) section called “[About Cleaning Your Display Safely](#)” in *User Guide for Cisco LCD Professional Series Displays* on Cisco.com.

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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