Cisco Digital Media System Deployments for Desktop Video with Cisco ACNS Software

The Cisco® Digital Media System is a comprehensive suite of digital signage, Enterprise TV, and desktop video applications that allow companies to use digital media to increase sales, enhance customer experience, and facilitate learning. Support from the broad Cisco ecosystem of deployment, solution development, and content creation partners helps ensure a successful digital media implementation.

The Cisco Digital Media System is easy to install, manage, and use for scalable delivery of high-quality live and on-demand digital media in various formats to a variety of wired or wireless connected devices. When the Cisco Digital Media System is deployed with the Cisco Application and Content Networking System (ACNS) Software, additional scalability in large deployments can be achieved. Through the combined features of these products, Cisco provides an end-to-end, scalable video content management and distribution solution that can support environments of all sizes, no matter how large or diverse.

This document is intended to help with the configuration of the Cisco Digital Media System in instances where Cisco ACNS Software is the primary distribution method for digital media.

Summary

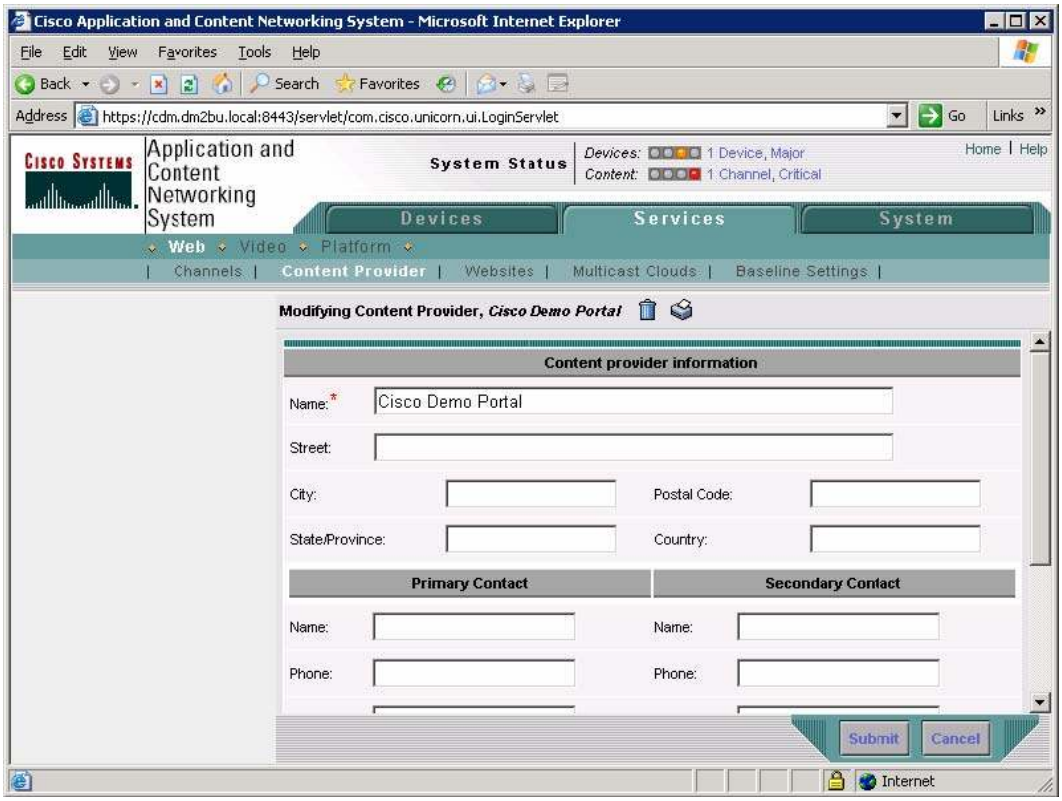
The distributed architecture of Cisco ACNS Software is intended to reduce WAN traffic by intercepting requests for web and video traffic and serving those requests at the network edge from the local cache or file system. This architecture allows users of the Cisco Video Portal to consume video content without absorbing WAN bandwidth. This document discusses these and many other features that make the Cisco Digital Media System a crucial piece of a video distribution solution.

Defining the Cisco Digital Media System Channel in the Cisco ACNS Software

The Cisco Video Portal is a web-based portal application that allows access to an organization's media library. All the main components of this application can be cached or prepositioned in a Cisco ACNS Software system for edge delivery. To add a Cisco Video Portal channel to an existing Cisco ACNS Software environment, follow these steps:

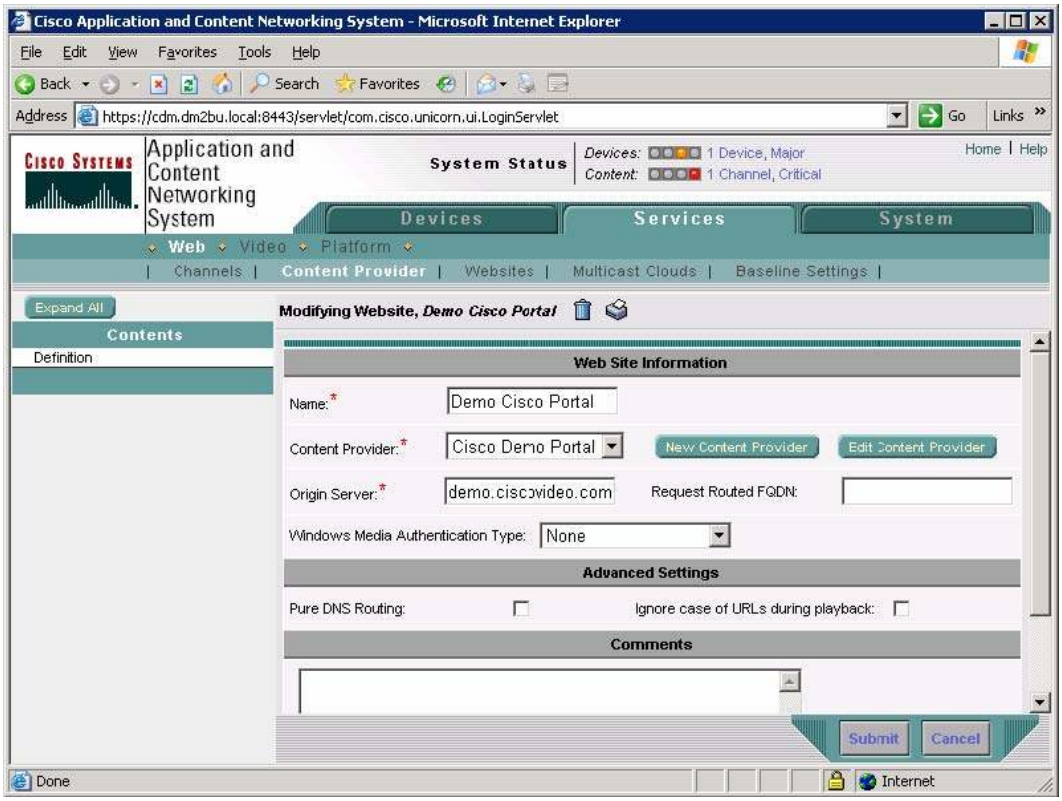
1. From the Cisco ACNS Software 5 Content Distribution Manager (CDM) GUI, choose Channels > Content Provider, and follow these steps:
   a. Click the Create New Content Provider button at the top of the window.
   b. In the Content Provider Information dialog box (Figure 1), define the new content provider by providing a name and any relevant information to identify the provider.
   c. Click Submit.

Figure 1. Content Provider Information Dialog Box



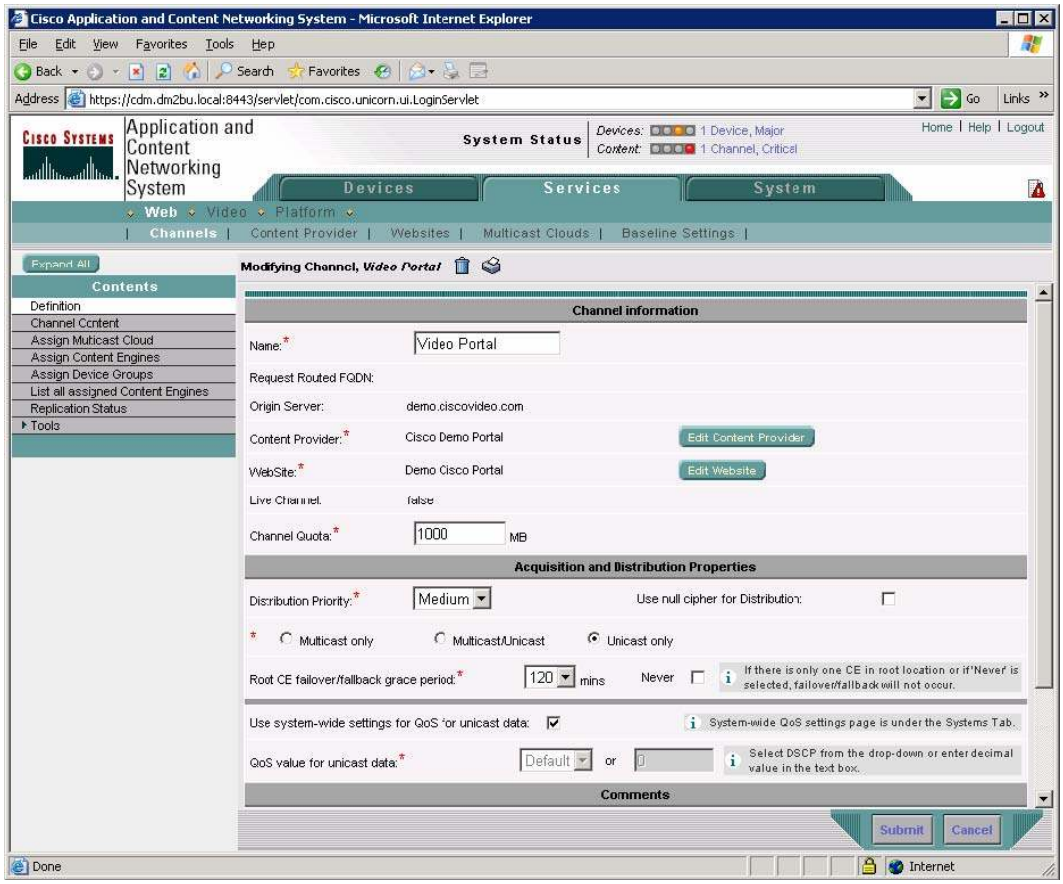
2. From the Cisco ACNS Software 5 CDM GUI, choose Channels > Websites, and follow these steps:
   a. Click the Create New Website button at the top of the window.
   b. In the Website Information dialog box (Figure 2), define the new website name.
   c. From the Content Provider drop-down menu, choose the new content provider created in step 1.
   d. In the Origin Server field, enter the IP address or fully qualified domain name (FQDN) of the Cisco Digital Media System Video Portal.
   e. Click Submit.

Figure 2. Website Information Dialog Box



3. From the Cisco ACNS Software 5 CDM GUI, choose Channels > Channels, and follow these steps:
   a. Click the Create New Channel button at the top of the window.
   b. In the Channel Information dialog box (Figure 3), define the new channel name.
   c. In the Content Provider field, choose the previously created content provider.
   d. If you have defined a website associated with the new channel, choose it from the Website drop-down list.
   e. Enter the channel Quota. The quota is the amount of space that Cisco ACNS will allocate for the content.
   f. Define the acquisition and distribution properties.

Figure 3. Channel Information Dialog Box



4. Define the Cisco Video Portal channel content. Configure the Cisco Video Portal content using the CDM GUI for content acquisition (Figures 4, 5, and 6) as follows:
   a. Click Channel Content in the Contents menu at the left.
   b. Click the Add Content button (the button with the plus sign) in the Content Items tool bar.
   c. Create an entry for each line listed with the options shown here. The Ignore Query String option is located under Advance Settings > URL Settings. The Single Item option is located at the end of the URL Input field.

- http://<VP_Name>/portal1/dms/video_portal/media/windows/ (Crawl Task + Ignore Query String)
- http://<VP_Name>/portal1/dms/video_portal/media/flash/ (Crawl Task + Ignore Query String)
- http://<VP_Name>/portal1/dms/video_portal/support/ (Crawl Task + Ignore Query String)
- http://<VP_Name>/portal1/dms/video_portal/xml/ (Crawl Task)

These links should be pointing to the same location as specified in the deployment location in the Video Portal Deployment setup as shown in Figure 4.

Figure 4. Video Portal Deployment Location Window

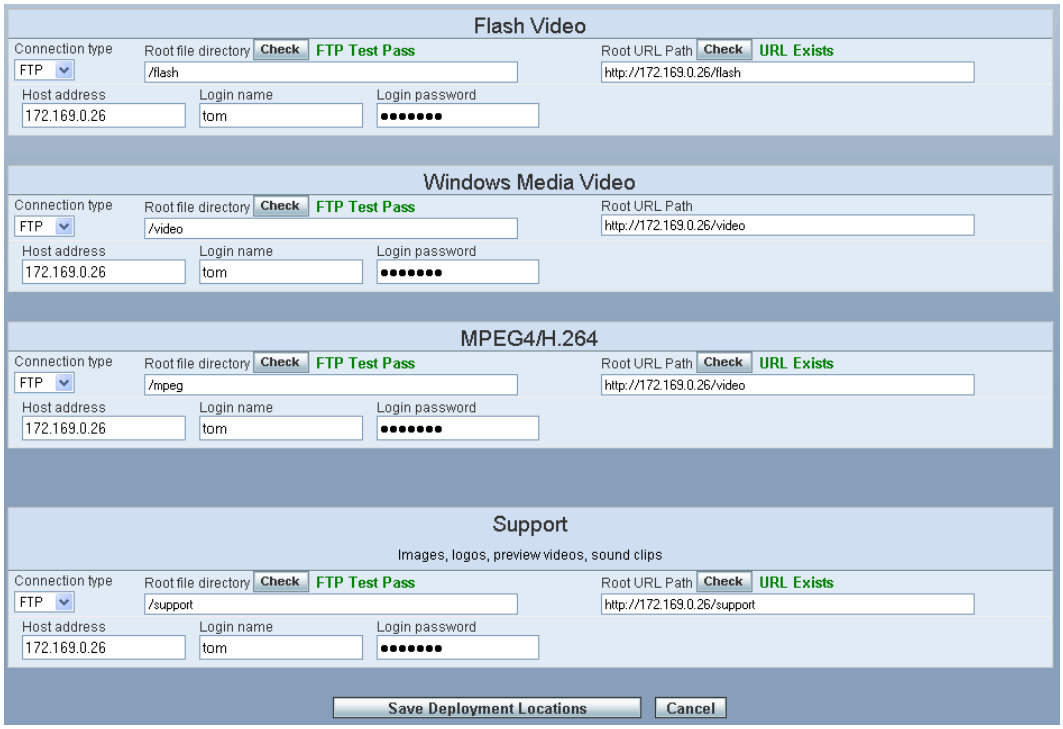


Figure 5. URL Content Acquisition Window

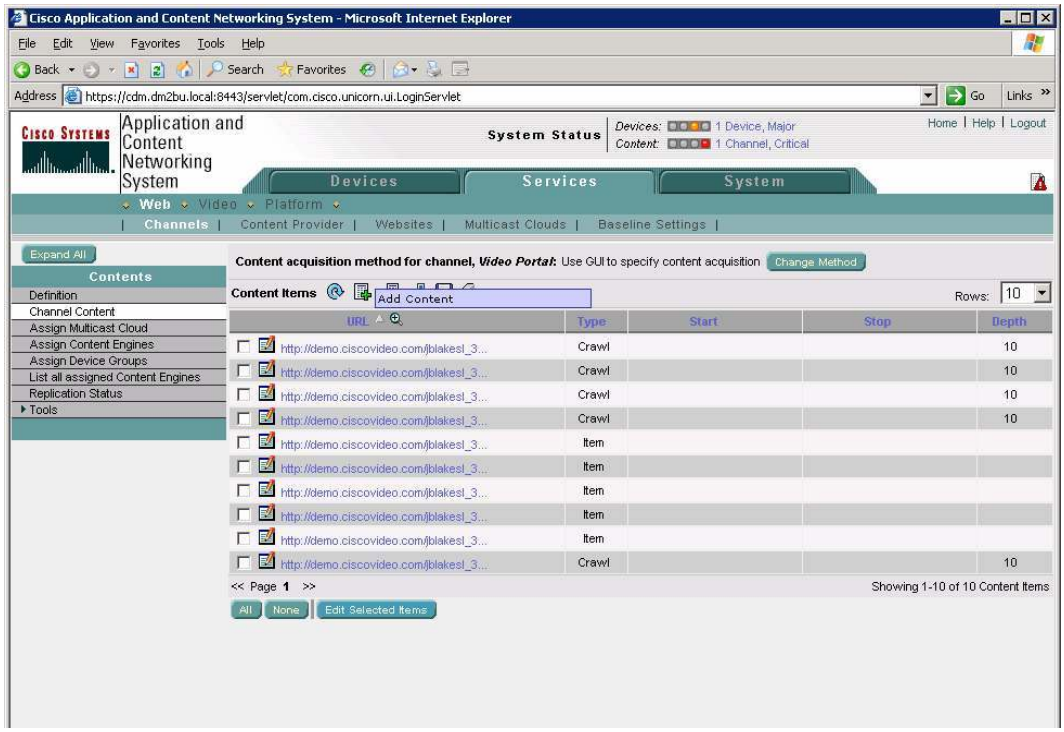
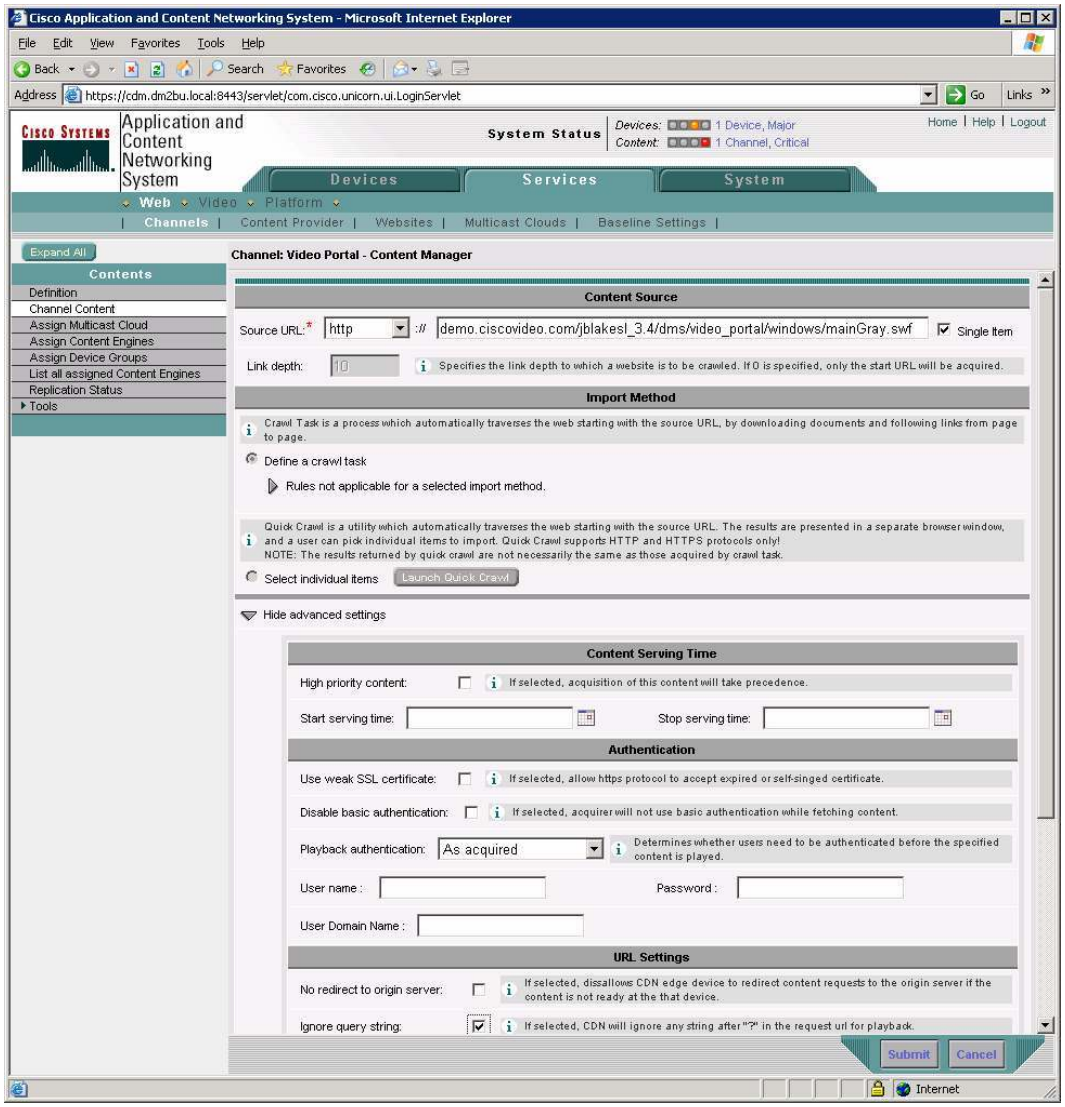
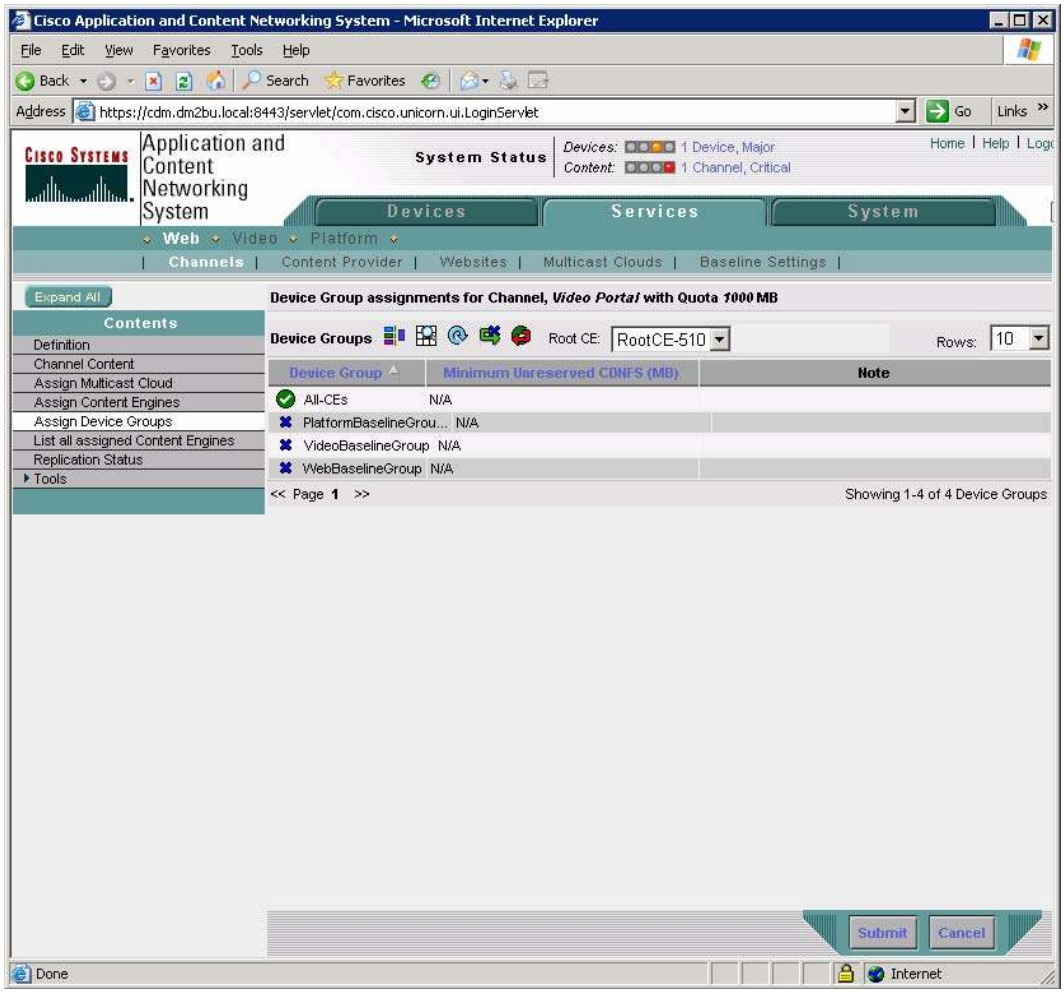


Figure 6. URL Content Options Window



5. Depending on your configuration, choose either Assign Content Engines or Assign Device Groups from the Contents list at the left.
6. In the Content Engines or Device Groups window (Figure 7), choose the groups to participate in the new channel by doing the following:
   a. Click the blue X so that it changes to a green arrow for each group that you want to add.
   b. After you have added all desired groups, click Submit.

Figure 7. Device Groups Window



Cisco Digital Media System and Cisco ACNS Software with Streaming Server

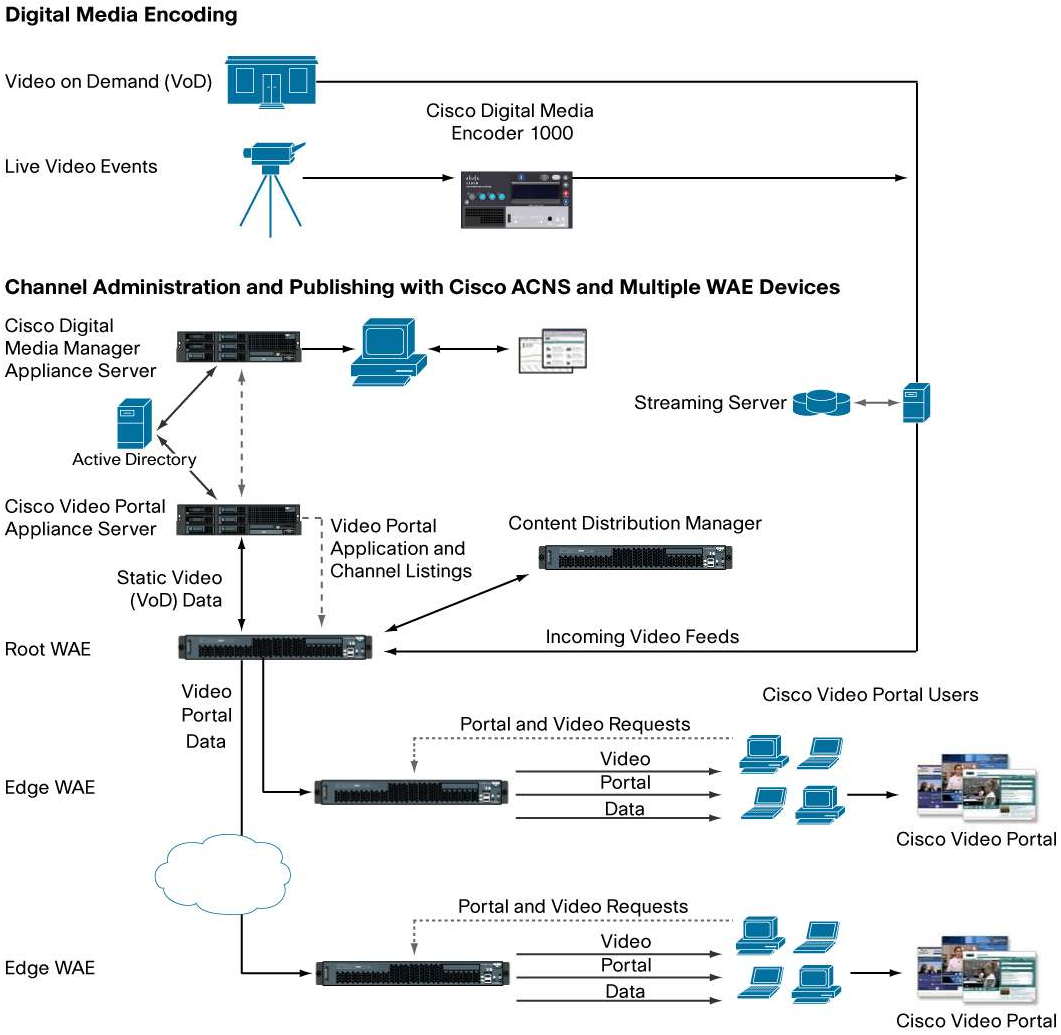
The Cisco implementation of the Windows Media Technology Proxy in Cisco ACNS Software is central to building a highly scalable video distribution system. Cisco ACNS Software supports both multicast and unicast stream serving and allows delivery of live or on-demand streams with minimal effect on valuable network bandwidth.

In Figure 8, Cisco ACNS Software is used as the distribution medium for live content that is made available for playback through the Cisco Video Portal. The streaming server is used as a publishing point where the links for the live media are created and maintained. The streaming server acquires the live content through its pull mechanism from the Cisco Digital Media Encoder (DME). When a client requests a piece of live content through the Cisco Video Portal, the local Cisco Wide Area Application Engine (WAE) acts as a proxy by intercepting the request for the information and the live feed from the streaming server through whichever proxy settings are configured on the network. The video stream is delivered directly to the desktop by the local Cisco WAE to the integrated video player within the Cisco Video Portal.

In the case of on-demand videos, the digital media is also stored in the streaming server video-on-demand (VoD) directory. A dedicated channel is configured in the Cisco ACNS Software system by the system administrator. In accordance with the channels configuration, Cisco ACNS Software

searches the streaming server VoD directory for any new content deployed by the Cisco Digital Media Manager (DMM), and the content is propositioned on the Cisco WAEs. When the clients access media through the Cisco Video Portal application, the Cisco Video Portal and the videos are delivered from the local Cisco WAE. This type of proxy request for content allows the client to view the content without having to connect directly back to the Cisco Video Portal server, thus stopping the digital media from having to traverse the network connection and saving network bandwidth.

Figure 8. Content Distribution with Streaming Server

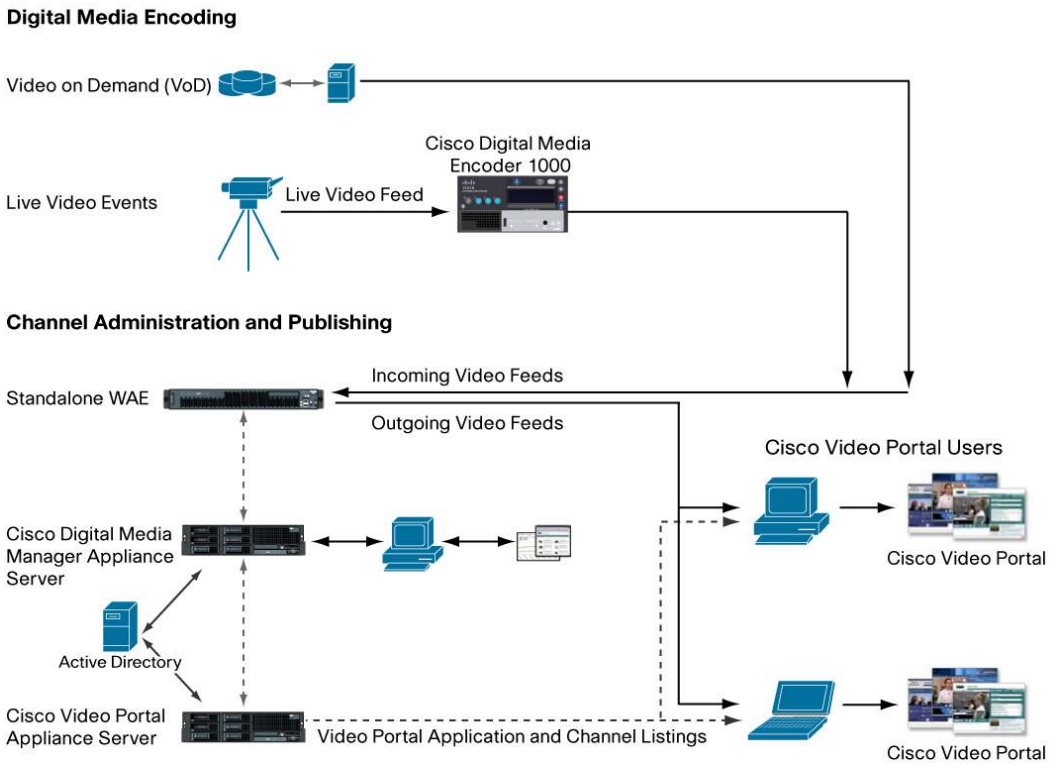


Note: All items in the figure identified in blue are general equipment that you would normally find in a digital media deployment and are not sold by Cisco.

Cisco Digital Media System and Cisco ACNS Software without Streaming Server

As shown in Figure 9, the Cisco WAE can also be deployed as a Windows Media Services (WMS) unicast publishing point so that it acquires a single stream from a DME and republishes the stream for client consumption (Windows Media Technologies [WMT] license required). The Cisco WAE splits the single stream to provide a separate unicast stream for each client request locally.

Figure 9. Cisco WAE as Streaming Server



Note: All items in the figure identified in blue are general equipment that you would normally find in a digital media deployment and are not sold by Cisco.

To enable WMT, configure your WAE using the following commands:

- wmt license-key installed
- wmt accept-license-agreement
- wmt enable
- wmt max-concurrent-sessions 2500

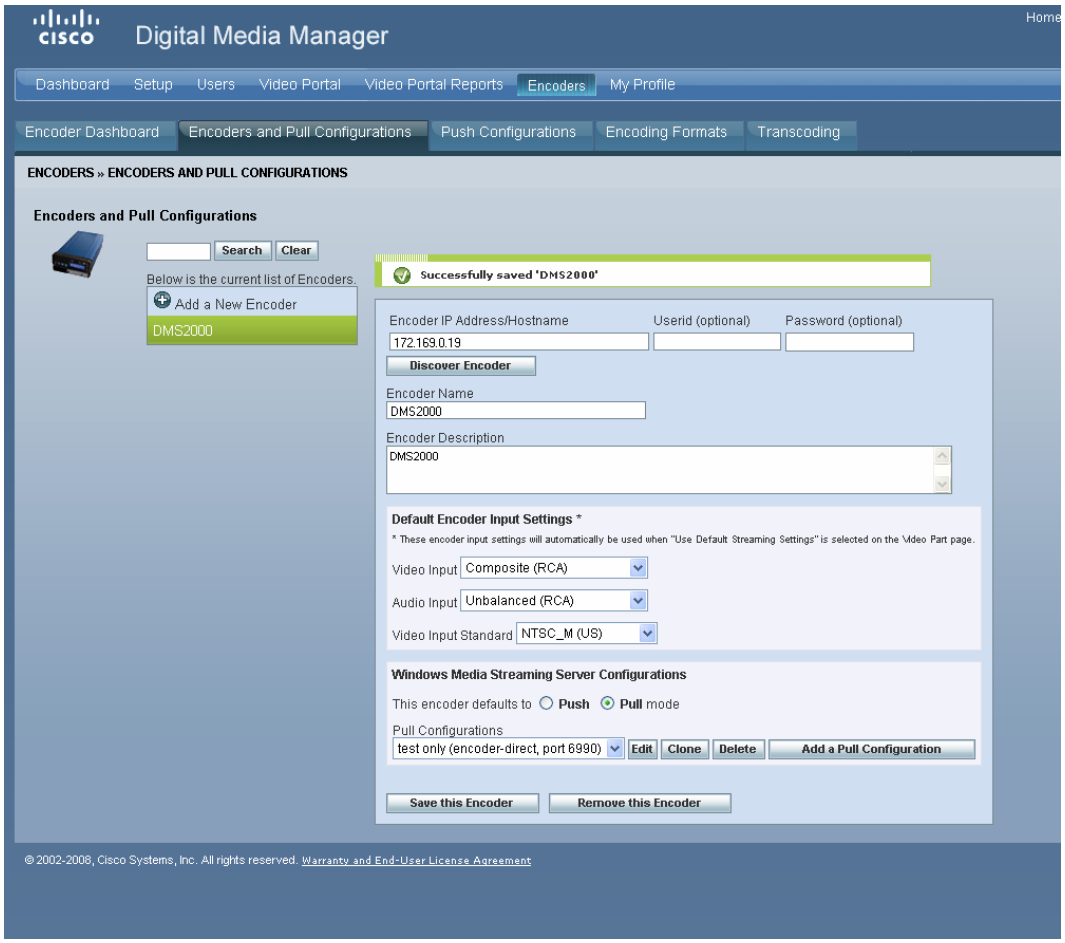
A broadcast alias with any name can be created in the CDM GUI or on the Cisco WAE itself with this command-line interface (CLI) command:

- wmt broadcast alias-name DME source http://10.83.195.152:6901/.

This command defines that we are using the broadcast alias name DME 1000 and it is pointing to our Cisco DME 1000 encoder at the IP address 10.83.195.152.

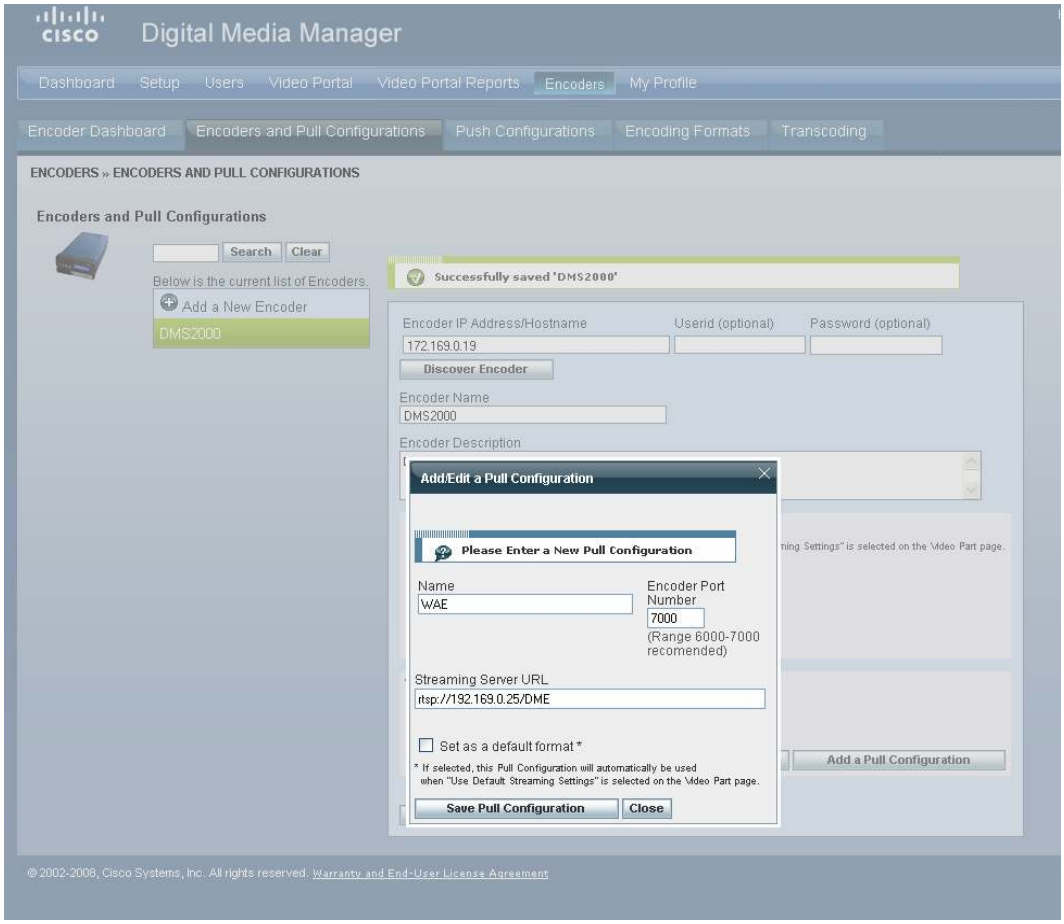
This command instructs the Cisco WAE to acquire a single stream from the DME at address 10.83.195.152 on port 6901 so that the DME has to handle only a single client stream from the Cisco WAE. We then configure our pull configuration on the DMM to point to this defined broadcast alias. This configuration is accomplished under the DMM->Encoders->Encoders and Pull Configurations menu (Figure 10).

Figure 10. Encoders and Pull Configurations



Under the Windows Media Streaming Server Configuration, click the Add a Pull Configuration button and fill in the fields to point to your Cisco WAE broadcast alias. Click the Save Pull Configuration and then the Close button. Finally, click the Save this Encoder button to save this pull configuration in the profile of this encoder (Figure 11).

Figure 11. Save Encoder Button



The Cisco WAE then republishes the live stream so that clients or other Cisco WAEs that send requests to rtsp://10.83.195.158/DME receive a separate unicast stream from the Cisco WAE. In this case, the Cisco WAE replaces a WMS publishing point.

To test your live feed through the WAE, follow the steps in setting up a live event through the DMM, which you can find in the DMM User Guide, and select your pull configuration defined in the previous steps.

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