



 **Polycom® VMC 1000™ Cisco
Integration Guide**

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Configuring Polycom VMC 1000 with a Cisco CDN

This guide explains how to configure the Polycom VMC 1000 Video Media Center with the Cisco Application and Content Networking System, or its successor, the Cisco Content Delivery System. It contains the following sections:

- [Introduction](#)
- [Nomenclature](#)
- [Features of the Polycom Cisco CDN Module](#)
- [When to Use the Polycom Cisco CDN Module](#)
- [Required Polycom VMC 1000 Configuration](#)
- [ACNS Operations](#)
- [Debugging Your Cisco-Integrated Polycom VMC 1000 Environment](#)
- [Cisco Caveats That Affect the Polycom VMC 1000](#)

Introduction

The Polycom VMC 1000 Cisco CDN Module is an extension that allows the Polycom VMC 1000 to interface with a Cisco ACNS 5.0.3 or 5.1 ECDN. This document does not describe the installation and initial configuration of Cisco ACNS or CDS. For details on installing and configuring ACNS or CDS, please refer to Cisco documentation.

Nomenclature

All content in this guide applies equally to the Cisco ACNS and CDS. However, this guide will endeavor to use the more up-to-date CDS nomenclature. The following table details changes in terminology from Cisco ACNS in CDS:

ACNS Term	CDS Term
Content Engine (CE)	Service Engine (SE)
Channel	Delivery Service
Root CE	Content Acquirer
Web Site	Content Origin

If using ACNS, please be aware of these changes throughout the guide.

(Note: A channel is an ACNS construct that allows for the distribution of content to a select set of Content Engines. This term unfortunately conflicts with Polycom's own concept of a "channel", which is a virtual container for grouping programs.)

Features of the Polycom Cisco CDN Module

The Cisco CDN Module allows the Polycom VMC 1000 to leverage the ECDN in two major areas:

- Distribution - Broadcasters now have the option to create "push-enabled" programs. The media items associated with such a program can be scheduled for pre-positioning via a Cisco Channel.
- Redirection - When viewers click to watch a push-enabled program, the Polycom VMC 1000 can respond with a URL for the correct request routed FQDN. This allows an ECDN Content Router to perform further redirection on the request.

For basic information on Cisco concepts and configuration (including Channels, content routing, and transaction logging), see the Cisco product documentation or contact your ECDN administrator.

When to Use the Polycom Cisco CDN Module

The Polycom Cisco CDN module is primarily intended for use when there is a desire to preposition program content to remote Service Engines in a Cisco ECDN. This will require the creation of specific Cisco-side configuration ("web sites" and "channels") designated for use by the Polycom VMC 1000.

If your network is configured for only on-demand caching and live stream splitting (such as in a network without a CDM), the Polycom VMC 1000 does not require the Cisco CDN Module in order to leverage your cache deployment. Instead, in the Polycom VMC 1000 you would simply define a Local Streaming network that contains the hostname/IP information for your origin HTTP and media servers. When viewers access Polycom VMC 1000 events, their requests are proxied by Service Engines, allowing for delivery of cached content or split live streams.

Note that in this mode, incorporation of Cisco transaction logs into Polycom VMC 1000 reports is not supported.

Required Cisco Configuration

An instance of the Polycom VMC 1000 requires one or more designated servers to respond to HTTP and/or streaming requests. In a Cisco CDN, distribution is performed via a Delivery Service that distributes content associated with an origin web site. Therefore, a web site must be created in your ECDN for each Polycom VMC 1000 origin server, and then one or more Delivery Services must be associated with each of these web sites. These web sites and Delivery Services must be configured by your ECDN administrator before the Polycom VMC 1000 can interface with the ECDN.

The following guidelines should be provided to your ECDN administrator to ensure correct provisioning of ECDN resources.

Web Sites

One Cisco web site must be created that corresponds to each origin server defined in the Polycom VMC 1000 Cisco Delivery Network settings. Within the "Creating New Web Site" page of the Cisco interface, the following fields require special consideration for the Polycom VMC 1000.

Origin Server

The value for the "Origin Server" field should match exactly with the setting for "Origin Windows Media Server Host Name/IP" or "Origin HTTP Server Host Name/IP" as defined in the Cisco Delivery Network settings by the Polycom VMC 1000 administrator.



Note: If you specify this value by IP address on the Cisco side, you should also specify by IP address on the Polycom VMC 1000 side. Likewise, if you specify this value by hostname on the Cisco side, you should also specify by hostname on the Polycom VMC 1000 side. This allows the Polycom VMC 1000 to automatically discover which Delivery Services have been defined to handle distribution of content.

You can limit the number of web sites that must be created by limiting the number of Polycom VMC 1000 origin servers. For scaling reasons, Polycom VMC 1000 allows separate origin servers for each media type (HTTP, Windows Media). However, you may feel that in your environment a single origin server is sufficient to handle requests for multiple media types. If this is the case, simply enter the same hostname/IP for that single origin server in all the "Origin [...] Server Host Name/IP" fields of the Polycom VMC 1000's Cisco Delivery Network settings page, and then use this same value to create a single web site in the ACNS configuration.

Request Routed FQDN

If you are using Content Router redirection in your ECDN, as is possible in the Cisco ACNS although not in the newer Cisco CDS, you will also need to enter a value for the "Request Routed FQDN" for each web site created for the Polycom VMC 1000. Since an ACNS network requires a unique FQDN for each web site, you will need to allocate a unique FQDN for each Polycom VMC 1000 origin server in your setup. For example, if you have both HTTP and Windows Media content in your Polycom VMC 1000 setup, you will allocate one FQDN for HTTP content (e.g. "polycom-www.yourserver.com") and another FQDN for Windows Media content (e.g. "polycom-wmt.yourserver.com").

If you are not using Content Router redirection in your ECDN (that is, if you are using WCCP or proxy mode), you can leave the Request Routed FQDN field blank.



NOTE: FQDN in ACNS is not compatible with the VMC version 2.0 Viewer Portal.

Delivery Services

In order to specify target Service Engines for distribution of content, one or more Cisco Delivery Services must be defined. Each Delivery Service specifies a target web site for which content is being distributed, as well as the set of Service Engines assigned to receive the distributed content. As a result, Polycom VMC 1000-specific Delivery Services must be defined that reference the Polycom VMC 1000-specific web sites. Within the "Creating New Delivery Service" page of the CDS interface, the following fields require special consideration for the Polycom VMC 1000.

Name

When Polycom VMC 1000 broadcasters create push-enabled programs, the list of ACNS channel names is presented to allow them to select one or more channels for distribution. Therefore, it is recommended that the names of Polycom VMC 1000-specific Delivery Services be carefully chosen. Some considerations:

Information about the Service Engines assigned to the Delivery Service should be reflected in a Delivery Service name (such as a geographic description like "East Coast").

Assuming that other applications besides Polycom VMC 1000 are leveraging the ECDN infrastructure, it may be desirable to have identifying text in the Delivery Service name so that ECDN administrators can quickly see which Delivery Services are affiliated with Polycom VMC 1000 ("East Coast").

Assuming that there are multiple Polycom VMC 1000-specific web sites defined (due to separate origin servers to handle different media types), it may be desirable to have identifying text in the Delivery Service name so ECDN administrators and Polycom VMC 1000 broadcasters can quickly see which Delivery Services are affiliated with specific content types ("East Coast Windows Media").

Web Site

At least one Delivery Service will need to be defined for each Polycom VMC 1000-specific web site that was created (section 0). Note that multiple Delivery Services could be created for a single web site.



Note: This would be required if you wanted to target different groups of Service Engines in different distribution jobs. For example, if you have defined a web site for your Polycom VMC 1000 Windows Media origin server, but wanted the ability to sometimes distribute Polycom VMC 1000 Windows Media just to "east coast" Service Engines, other times distributing to all Service Engines, you would need to create two Delivery Services. One Delivery Service would have only the "east coast" subset of Service Engines as Assigned Devices, while the other Delivery Service would have all Service Engines in the ECDN as Assigned Devices.

Manifest URL

You can enter any value for the Manifest URL (e.g. `http://yourserver.com/test.xml`). Once the Polycom VMC 1000 auto-discovers that this Delivery Service is Polycom VMC 1000-affiliated, it will fill in its own correct value for the Manifest URL.



Note: In fact, you could leave this field blank, but the ACNS 5.0 interface will not let you proceed to other required fields until there is some text in Manifest URL.

Quota

Carefully choose a value for the quota, since this space will be reserved on each Service Engine assigned to this Delivery Service and cannot be used for anything else.

Update Interval

This value indicates how often (in minutes) the ECDN will poll the Manifest URL for changes to the manifest XML file. Whenever a manifest file is updated by the Polycom VMC 1000, it contacts the CDM immediately to trigger a fetch of the modified manifest file. Therefore, the Update Interval setting is not vital. The value is only relevant in cases such as when the CDM is down at the time Polycom VMC 1000 makes a change to a manifest XML file. You may wish to tune this value over time, but a value such as 30 would be fine to start with in most environments.

Transaction Logs

In order to incorporate Service Engine usage information into its reports, the Polycom VMC 1000 must receive a copy of the transaction logs generated on the Service Engines. Within the "Transaction Log Settings" page of the ACNS interface, the following fields require special consideration for the Polycom VMC 1000.

Compress Files before Export

This box must be checked in order to compress (gzip) the transaction logs before they are transferred via FTP to Polycom VMC 1000.

Enable Export

This box must be checked in order to allow the transaction logs to be regularly FTP'd to Polycom VMC 1000. You are free to set the archive and export timings to whatever values you feel are appropriate for your environment.

Export Server

Enter the server hostname/IP, username, password, and directory of the FTP server to which the logs should be sent.

Required Polycom VMC 1000 Configuration

Once the ECDN is configured, the Polycom VMC 1000 must be configured to interface with it. This section describes the configuration steps to be taken within the Polycom VMC 1000.

Storage Option

In order for the Polycom VMC 1000 to store content that will be pushed out via the ECDN, a Storage option must be defined. To create a new one, navigate in the Polycom VMC 1000 administrative interface to Resources > Storage. If a Storage option is already created, you do not need to create a new one. For information on setting up a Storage option, see the Polycom VMC 1000 Installation & Configuration Guide.

Cisco CDN Delivery Network

To define how the Polycom VMC 1000 contact the Cisco ECDN, a Cisco CDN Delivery Option must be defined.



NOTE: Cisco ACNS and CDS cannot distribute a program in a domain in which single sign-on is enabled.

Adding a Cisco Delivery Option

To add a Cisco Delivery Option:

- 1 Click Delivery.
- 2 Click Delivery Options.
- 3 Click the Add button.
- 4 Select Cisco from the context menu.
- 5 Specify a Delivery Option Name.
- 6 Specify an optional Description.
- 7 Specify a Reload Frequency. This property indicates how often the Polycom VMC 1000 contacts the Cisco host to refresh the CDN configuration. The value's unit is in minutes. The default value is equivalent to one day. A value of 0 disables scheduled refreshes. It is highly recommended not to set the reload interval too low. Otherwise the CDM may initiate the update before the prior update is completed.
- 8 Specify if Content Router Redirection is used. This is used to indicate the format of the redirection URL for viewers. If this is enabled, then the redirection URL will use the ACNS Web Site's Request Routed FQDN for the server name, else it will use the origin media server as the server name. This is not supported in the Cisco CDS.
- 9 Check the No Redirect to Origin box if appropriate.
- 10 Specify the CDM Host Name and Port in the Connection URL field.
- 11 Designate whether you are using the CDS or ACNS Dialect.

12 Specify the CDM Username and Password.

Add Delivery Option

Enter the required delivery option properties before adding the access points.

Delivery Option Name *

Description

Reload Frequency * minutes

Content Router Redirection?

No Redirect to Origin

Cisco Connection

Connection URL * https://host:port

Dialect

Username *

Password *

Confirm Password *

Access Points



NOTE: The Hostname/IP and Port, Username, and Password will typically be the exact same information that was used by your CDM administrator to setup the Cisco-side configuration in.

13 Click Save.**Adding an Access Point for a Cisco Delivery Option****To add a access point for a Cisco DS:**

- 1 Click the Add button
- 2 From the context menu select Live, VOD, or Download
- 3 For Live
 - a Specify an Access Point Name
 - b Select a video Format

- c Select a Server
- d Select the Access Point of the Origin
- e Select Unicast and/or Multicast
- f Select the appropriate live Channels

Note: In order to successfully create a Flash VOD channel, the backing delivery options must belong to all the domains to which the Cisco Delivery Option belongs.

- 1 For VOD
 - a Specify an Access Point Name
 - b Select a video Format
 - c Select a Server
 - d Select the Access Point of Origin
 - e Select the Channel(s)
- 2 For Download
 - a Specify an Access Point Name
 - b Select a video Format
 - c Select a Server
 - d Select the Access Point of Origin
 - e Select the Channel(s)
 - f Click Save.

ACNS Operations

Once the Polycom VMC 1000 and ACNS are configured and confirmed to be interfacing correctly, there will be some Polycom-specific ACNS operations that will need to occur on a regular basis. The following sections list Polycom-specific tasks to which an ECDN administrator is likely to attend.

Distribution Monitoring

When a push-enabled program is created, the Polycom VMC 1000 updates a manifest file for the appropriate ACNS Delivery Service, and the CDN is then responsible for fetching new content and distributing it to remote Service Engines. Based on the size and settings of the ECDN, as well as network conditions, full distribution could take a significant amount of time. Also, some Service Engines may be temporarily out of service, or Delivery Service quotas may be exceeded on some nodes.

To confirm whether a distribution task completed successfully, the ECDN administrator should access the ACNS interface at **Channels > Channels > Edit Channel > Replication Status**. At this page, it is possible to see which content items have been successfully replicated to particular Service Engines. It is also possible to observe error conditions here, such as of a channel quota has been exceeded.

Resource Provisioning

As an extension of regular distribution monitoring, an ECDN administrator may also wish to perform proactive resource provisioning. For example, as the CEs assigned to a Delivery Service are nearing the limits of their available storage quota, the ECDN administrator may wish to increase quotas, possibly decreasing other quotas to make space available. Another alternative may be to contact the Polycom VMC 1000 administrators to have some programs deleted to free up space on the CEs.

Delivery Service Creation

In order to specify target Service Engines for distribution of content, one or more ACNS Delivery Services must be defined. As new target audiences are defined, new Polycom VMC 1000-specific Delivery Services will need to be defined that include assigned CEs in these target locations.

For example, suppose Company Red acquires Company Blue. New Service Engines are deployed in all Blue office locations. Content relevant to transitional Blue employees is uploaded into the Polycom VMC 1000 system, and programs are to be created that reference this content for the benefit of these new employees. Since this content is not relevant to Company Red employees, new Polycom VMC 1000-specific Delivery Services can be created that include only Company Blue Service Engines as assigned devices. Once the new Delivery Services are defined, they can be referenced in new push-enabled programs that will specifically target the Company Blue audience.

Debugging Your Cisco-Integrated Polycom VMC 1000 Environment

Due to the number of points of integration, debugging issues with your Cisco integrated Polycom VMC 1000 environment may require understanding of how the systems work together.

These areas, and possible issues to look for in debugging, include:

- ECDN administrator creates Polycom VMC 1000-specific Delivery Services.

After these Delivery Services are created, Polycom VMC 1000 can contact the CDN to retrieve a list of all Delivery Services that have a Cisco Web Site Origin Server setting that matches exactly with one of the origin servers defined in the Polycom VMC 1000 Cisco Delivery Network settings. Therefore, make sure that if you specify origin server via hostname on the Cisco side, you also specify via hostname on the Polycom VMC 1000 side. Similarly, if you specify via IP address on the Cisco side, specify via IP address on the Polycom VMC 1000 side.

You will know that the Polycom VMC 1000 has "seen" a newly defined Delivery Service if the Manifest URL setting on the Cisco side changes from the dummy value that was entered when defining the Delivery Service. The entry populated by the Polycom VMC 1000 will end with "Delivery Service_N.xml", where "N" will be a number.

- Polycom VMC 1000 periodically obtains and keeps a local record of channel information from the CDM

Ensure that the Polycom VMC 1000 Cisco Delivery Network settings for "Host Name/IP and Port", "Username", and "SSL Password" are correct, otherwise Polycom VMC 1000 will not be able to contact the CDM to obtain channel information. To make sure these are correct, paste the "Host Name/IP and Port" directly into a browser and enter the same Username and Password that you entered for the Polycom VMC 1000 Cisco Delivery Network settings. The ACNS administrative interface should come up, confirming that your Polycom VMC 1000 settings are correct.

- Polycom VMC 1000 broadcaster selects channel(s) for distribution during creation of a push-enabled program.

If no channels show up during the creation of a push-enabled program, confirm the Polycom VMC 1000-specific channels are created in ACNS and the Polycom VMC 1000 is obtaining them from the CDM as described in point #1 above.

- The root CE distributes content out to all other CEs assigned to the channel.

From the ACNS administrative interface, make sure that the CEs assigned to the channel have not exceeded their quota.

Make sure you have given adequate time for the distribution to complete. Depending on file sizes, network size, and network conditions, full distribution may take a significant amount of time.

- ECDN administrator can check on the status of content replication.

Make sure that the CEs assigned to the channel have not exceeded their quota.

Make sure you have given adequate time for the distribution to complete. Depending on file sizes, network size, and network conditions, full distribution may take a significant amount of time.

- Viewers access the content via Polycom VMC 1000-generated URLs.
The Polycom VMC 1000 creates a streaming metafile each time a viewer clicks a "View Program" link for a particular program (.ASX for Windows Media). If viewers are having difficulty accessing program content, you may wish to examine the contents of these metafiles.
- Other
If you are using Content Router redirection, the hostname for the URL listed in the metafile should match the request routed FQDN for the Web Site for the Channel chosen for distribution. Check that the request routed FQDN is correctly delegated to your Content Router, and confirm that an assigned CE for this Channel is eligible for redirection. Consult ACNS documentation for further debugging of Content Router issues.
If you are using forward proxies or request interception (such as WCCP), the hostname for the URL specified in the metafile should match the hostname/IP origin server specified in the Polycom VMC 1000 ACNS Delivery Network settings.

Cisco Caveats That Affect the Polycom VMC 1000

Because an integrated environment is deeply reliant on ACNS, you should be sure to read Cisco's ACNS 5.0 Release Notes, available at:

http://www.cisco.com/en/US/docs/app_ntwk_services/waas/acns/v50/release/notes/ACNS50rn.html

Specifically, the Polycom VMC 1000 is known to be directly affected by the following caveats:

- Cisco does not support HTTP streaming. The full functionality of the Polycom VMC 1000 version 2.0 Viewer Portal requires HTTP streaming.
- Cisco only supports VOD distribution in Flash and Windows Media format.
- As noted above, live multicast with a Cisco Delivery Option cannot work when FQDN is turned on. There is a workaround:
 - a Log in to the Cisco ACNS administrative interface.
 - b Turn off the Content Router on the Web Site.
 - c Remove FQDN from Cisco channel.