



# Content Distribution and Delivery

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**Audience**

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**We prepared this material with specific expectations of you.**

- ✔ You will configure and manage how DMP endpoints use content distribution network technologies.
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**Note**

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**This material pertains to multiple releases of Cisco DMS.**

5.2.0

5.2.1

5.2.2

5.2.3

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## Concepts

- [Overview, page 19-1](#)
- [Understand DMP Support for the CIFS Protocol, page 19-2](#)
- [Choose a Content Delivery System to Use with DMPs, page 19-2](#)
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## Overview

Commonly, the bandwidth capacity required to deliver an HD video stream ranges from 10 Mbps to 15 Mbps. In contrast, an average SD video stream uses approximately one-third as much capacity. However, these parameters are highly configurable and will vary from one WAN to another.

Content distribution technologies can make perfect copies of important files from your origin server and store the duplicates on multiple nodes in your network. Later, anyone who needs one or more of these cached files can obtain them quickly from a node that is closer to them than the origin server and less heavily loaded. Such methods improve network scalability and user experience.

Topics in this chapter explain how to use content distribution technologies with Cisco Digital Media Player (DMP) endpoints. Your understanding these important concepts will help you to use content distribution successfully.

## Understand DMP Support for the CIFS Protocol

Common Internet File System (CIFS) is a network protocol for sharing files and for obtaining remote access to those files.

A *CIFS share* is a mount point on a network attached storage device that supports the CIFS protocol. When you choose WAAS as your content distribution method, Cisco Digital Signs instructs DMPs to use the CIFS protocol and mount a network share, such as a Windows shared folder, that uses CIFS.

### Related Topics

- [Configure ACNS or WAAS, page 19-15](#)
- [Procedures, page 19-15](#)

## Choose a Content Delivery System to Use with DMPs

In media networks, it is sometimes necessary to distribute large files where bandwidth capacity is moderately or severely constrained. The challenge of doing this successfully is that delivering HD or SD video streams and deploying large assets often requires an average data transfer rate of greater than 6 million bits per second (Mbps, or megabits). Media networks can compound your need for bandwidth.

There is a practical maximum limit in any WAN for how much bandwidth each of its remote sites can use, and a content delivery solution can help you to manage multicast file distribution efficiently to the DMPs that operate at your remote sites. In this way, content delivery solutions can enhance the scalability of your existing network infrastructure and adapt it for media deployments.

**Table 19-1** Comparison of Supported Content-Distribution Methods

Method	Use Cases
DMS-CD	<p>Consider DMS-CD when:</p> <ul style="list-style-type: none"> <li>• You do not use <i>Cisco Show and Share</i>.</li> <li>• Your DMPs <i>do not</i> show live video or high-definition video.</li> <li>• Each site in your WAN contains a maximum of three DMPs.</li> <li>• Your whole network contains a maximum of 300 DMPs.</li> <li>• Each site in your WAN has bandwidth capacity of less than T1/E1.</li> <li>• On average, each site in your organization downloads less than 200 MB daily.</li> <li>• It takes longer than 5 hours in your WAN to download 300 MB at 128 Kbps.</li> </ul>

Table 19-1 Comparison of Supported Content-Distribution Methods (continued)

Method	Use Cases
ECDS	<p><b>Consider ECDS when:</b></p> <ul style="list-style-type: none"> <li>You use DMPs <b>and</b> <i>Cisco Show and Share</i>.</li> <li>Your DMPs show high-definition video.</li> <li>Each site in your WAN has a minimum of three DMPs or three <i>Show and Share</i> users.</li> <li>Each site in your WAN has less bandwidth capacity than T2/E2.</li> <li>On average, each site in your organization downloads 200-300 MB of video daily.</li> <li>You need a comprehensive platform for media-delivery, including a Flash streaming server.</li> </ul>
ACNS	<p><b>Consider ACNS when:</b></p> <ul style="list-style-type: none"> <li>You use DMPs <b>and</b> <i>Cisco Show and Share</i>.</li> <li>Your DMPs show high-definition video.</li> <li>Each site in your WAN has a minimum of three DMPs or three <i>Show and Share</i> users.</li> <li>Each site in your WAN has less bandwidth capacity than T2/E2.</li> <li>On average, each site in your organization downloads 200-300 MB of video daily.</li> <li>You need a comprehensive platform for media-delivery, excepting a Flash streaming server.</li> </ul>
WAAS	<p><b>Consider WAAS when:</b></p> <ul style="list-style-type: none"> <li>You use DMPs <b>and</b> <i>Cisco Show and Share</i>.</li> <li>You use Windows Media for live <i>Show and Share</i> streams.</li> <li>Each site in your WAN has a minimum of three DMPs or three <i>Show and Share</i> users.</li> <li>Each site in your WAN has less bandwidth capacity than T2/E2.</li> <li>On average, each site in your organization downloads more than 300 Mbps of video daily.</li> <li>You want to use the CIFS protocol when provisioning assets to your DMPs.</li> </ul>

**Related Topics**

- [DMS-CD Overview, page 19-4](#)
- [Understand DMP Support for the CIFS Protocol, page 19-2](#)
- [Configure ACNS or WAAS, page 19-15](#)

**DMS-CD Concepts**

- [DMS-CD Overview, page 19-4](#)
- [Retry Timeout, page 19-4](#)
- [Concurrent Deployments, page 19-4](#)
- [DMS-CD Performance Factors, page 19-4](#)
- [Understand Shared Scheduling Features for Deployments, page 19-6](#)

## DMS-CD Overview



### Activation

**Anyone who has purchased a valid license to use this release of Cisco Digital Signs also has a perpetual license to use its built-in implementation of DMS-CD.** No additional software is required and there is no recurring cost.

*Cisco DMS Content Distribution* (DMS-CD) is a file delivery and management mechanism. It conserves network bandwidth and optimizes playback performance by provisioning creative assets directly to your DMPs. You can use FTP or SFTP to transfer multiple playlists and presentations to DMP local storage.

- Store assets locally on the flash memory card that is preinstalled inside a DMP.
- Store assets locally on an external USB hard drive or flash drive that you attach to a DMP.

## Retry Timeout

- The factory default Retry Count value is 5.
- The factory default Retry Timeout duration is 300 seconds.

Given these values, you can expect that DMS-CD—when it uses default values—takes as long as 1,500 seconds (25 minutes) to detect assets or determine that a DMP is unreachable and give up. In cases when this duration is too long, you might try changing the Retry Timeout value from 300 to 30.

## Concurrent Deployments

Most DMS-CD deployment preference settings that you define take effect during the next scheduled DMS-CD deployment. However, any time that you change the “Number of concurrent deployments” value, you must restart your DMM appliance and run a scheduled DMS-CD deployment before the changed setting takes effect on your DMPs.

## DMS-CD Performance Factors

- [Differential Download Intelligence, page 19-4](#)
- [Bandwidth Consumption, page 19-4](#)
- [Resumption of Interrupted and Paused File Transfers, page 19-5](#)

### Differential Download Intelligence

Differential download intelligence in DMS-CD prevents the needless provisioning of any asset more than once to any DMP that uses it and already has downloaded it, even if you have used the asset repeatedly in multiple playlists or presentations. Your DMPs retain their valid assets and download only what is new or has changed.

### Bandwidth Consumption

A systemwide threshold that you define limits in your WAN how much bandwidth is used per session when DMS-CD provisions assets to one of your DMPs.

For example, a limit of 1.2 mbits means that file transfer speeds for DMS-CD deployments cannot exceed the maximum threshold of 1.2 mbits per DMP.

Thus, if your deployment provisions assets to 20 DMPs, the maximum WAN bandwidth that DMS-CD uses is 24 mbits, because  $20 \times 1.2 = 24$ .

## Resumption of Interrupted and Paused File Transfers

File transfer resumption in DMS-CD helps to compensate for bandwidth throttling and other constraints that might limit how many assets you can provision at a time. Such constraints commonly include a limited number of nighttime hours when deployments are certain not to disrupt the digital signage messages or *Cisco Cast* programs that your organization shows to its targeted audiences.

Values that you define at Deployment Manager > Deployment Preferences determine in part how DMS-CD responds to any incomplete file transfers, but its response also considers the size of individual files within a deployment package. Finally, a DMP might generate a queue for itself if it is the target of multiple deployments, because a DMP can receive data from only one deployment package at a time.

### Outages and Other Disruptions

When the scheduled delivery of a deployment package is interrupted—by a power failure or a network outage, for example—while you are provisioning assets, the file transfer process might resume automatically at a later time.

- When sufficient time remains during the same deployment window that was interrupted, your file transfer resumes after your retry interval has elapsed.




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**Tip** You set this interval in the “Deployment retry time (in seconds)” field.

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- When the interruption extends past the end of the scheduled deployment window and the deployment is scheduled to recur, file transfer resumes automatically the next time that the deployment is scheduled to run.
- When the interruption extends past the end of the scheduled deployment window but you did not schedule the deployment to recur, file transfer stops without success and does not recur.

Likewise, the maximum number of times that DMS-CD tries to provision assets for an interrupted deployment package is constrained by the “Deployment retry count” value.

### File Size

When your deployment is scheduled to recur, DMS-CD will either pause or stop the transfer of assets whose transfer did not finish during the deployment window. DMS-CD uses file size to determine whether an incomplete file is paused or stopped:

- **Transfer is stopped** for any partially transferred file whose size is *less than* 6 MB, no matter how much of it was transferred. Transfer of a 100 KB file, for example, must start over again from the first byte when the deployment recurs.
- **Transfer is paused** for any partially transferred file whose size is *greater than* 6 MB, no matter how little of it was transferred. A file whose size is 1.6 GB, for example, is paused when none of your DMPs can download more than 200 MB per day.



**Tip**

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- **Calculations of this kind can help you to estimate how far in advance you should schedule the first instance of a recurring deployment.** When you know already, for example, that one-fifth of the data within a deployment package can transfer to DMP local storage during the deployment window that you reserved, then you know also that the deployment must recur on at least 5 separate days or your DMPs will not receive their assets in time.
  - We recommend that your deployments recur once each day.
  - When a deployment is scheduled to recur at any other interval than once per day—such as once per week—then this is the interval after which any paused transfer will resume.
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### DMP Group Memberships

Each DMP considers its group memberships when it starts to receive provisioned data from DMS-CD.

- DMPs that are assigned to only one DMP group apiece accept provisioned data to the best of their capacity.
- DMPs that belong to multiple groups, which are scheduled to receive differing deployments simultaneously, can receive only one of these deployments at a time. When they are the target of simultaneous deployments, DMPs generate a queue for themselves and receive the various deployment packages one at a time. Depending on the size and relative importance of one package over another, such DMPs might sometimes lack assets that you planned for them to have.



Tip

**You might notice after a DMP joins multiple groups that it runs out of local storage space (on usb\_1 or usb\_2) faster than it did before.**

- You can use the Play Now feature to deploy an empty playlist to any DMPs whose local storage has kept copies of obsoleted assets. This method clears local storage quickly.
- Alternatively, when local storage contains a combination of assets—some needed, others not—you can create and deploy a playlist that includes only the useful assets. The DMPs that receive this deployment will keep what they need and delete everything else.

## Understand Shared Scheduling Features for Deployments

Because DMS-CD uses the same scheduling features that are built into Cisco Digital Signs, you can schedule assets to be provisioned late at night or at other convenient, planned times. Furthermore, reporting features in Cisco Digital Signs show you which DMS-CD deployments have succeeded or failed and show you which files were deployed to each DMP.

## Understand DMS-CD Alert Reports

- [Monitoring Modes, page 19-6](#)
- [Error Conditions, page 19-6](#)
- [Alert Types, page 19-7](#)

### Monitoring Modes

The Alert Reports feature supports modes that you can use when checking for DMS-CD deployment errors.

- *Live monitor mode* describes the most recent 100 instances of an event type that you choose. Its data is refreshed automatically every 90 seconds.
- *Snapshot mode* describes only the events that match the combination of all parameters that you choose.

### Error Conditions

DMS-CD logging captures, detects, and reports these error conditions.

- DMS-CD cannot retrieve a file.
- DMS-CD cannot provision a file (DMP out of space or missing USB)
- DMP is not reachable (is down, or has wrong IP)

- Deployment was interrupted (network outage, DMM down, etc.)
- Deployment was not completed during its window

## Alert Types

### Successes or failures, exclusively

These options from the Type list cause a filtered report to describe only the DMS-CD deployments that failed or succeeded.

- Deployment Failures
- Deployment Successes

### DMP-specific

These options from the Type list cause the filtered report to describe only the events that DMPs reported. Therefore, some of them might pertain to disrupted or failed deployments with DMS-CD.

- DMP Outages
- DMP Restarts
- DMP IP Conflicts

### Internal to DMS-CD

When you choose the All Internal Events option from the Type list, these event types also pertain to DMS-CD deployments.

- Deployment error
- Deployment started
- Deployment ended

## Guidelines



### Note

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**You must restart your DMP after you switch it from ACNS mode to ECDS mode.** Although we recommend generally that you restart your DMP after you switch its mode from any content distribution method to another, it is mandatory only when you switch from ACNS to ECDS. (**CSCto35473**)

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- [DMS-CD Guidelines, page 19-7](#)

## DMS-CD Guidelines

- [Gather the Essential Data to Develop a Deployment Strategy, page 19-8](#)
- [Limit DMS-CD Disruptions to DMP Performance, page 19-10](#)

## Gather the Essential Data to Develop a Deployment Strategy

DMS-CD deployments and deployment packages are all unique in their own ways. However, a repeatable process supports your development of the strategy for any such deployment. After you gather and record the numeric values that describe key factors, simple arithmetic leads you to a deployment strategy that we expect should be effective in your network.

The worksheet in this section explains and records these numeric values and guides you through the simple equations to plan a successful deployment.


**Note**

This worksheet assumes that all targeted DMPs in a deployment have identical network bandwidth capacity available to them.

**Table 19-2** Pre-Planning Worksheet for One DMS-CD Deployment

Factor	Definition and Supporting Data
<b>A.</b> DMP incoming transfer rate	<p>Either the maximum transfer rate that you defined for DMS-CD or the result of factors that further constrain this rate.</p> <ul style="list-style-type: none"> <li>(A1) What value is in effect for the Maximum Transfer Rate (Table 19-5 on page 19-22)?  <input data-bbox="396 888 1281 953" type="text"/></li> <li>(A2) If any factors<sup>1</sup> reduce bandwidth capacity per DMP to a lower rate than A1, what is the <i>actual</i> rate?  <input data-bbox="396 1016 1281 1081" type="text"/></li> </ul> <p><b>Q.</b> The lower of these values is exactly what?  <input data-bbox="396 1144 1281 1209" type="text"/> ←</p>
<b>B.</b> Total data to be deployed	<p>The product of two values that you multiply.</p> <ul style="list-style-type: none"> <li>(B1) In this deployment, the package size per DMP is exactly what?  <input data-bbox="396 1289 1281 1354" type="text"/></li> <li>(B2) This deployment targets exactly how many DMPs that should receive its package?  <input data-bbox="396 1417 1281 1482" type="text"/></li> </ul> <p><b>Q.</b> What is the product (in gigabytes) when you multiply B1 by B2?  <input data-bbox="396 1545 1281 1610" type="text"/> ←</p>
<b>C.</b> Maximum concurrent deployments	<p><b>Q.</b> What value is in effect for the Number of concurrent deployments preference setting?  <input data-bbox="396 1654 1281 1719" type="text"/> ←</p>

Table 19-2 Pre-Planning Worksheet for One DMS-CD Deployment (continued)

Factor	Definition and Supporting Data
<p>D. Duration of opportunity for deployment</p>	<p>The product of two values that you multiply.</p> <ul style="list-style-type: none"> <li>(D1) How many hours per day are available for <i>nondisruptive</i> deployments? <input type="text"/></li> <li>(D2) How many days remain until all assets in the deployment package must be provisioned and available for playback on all targeted DMPs? <input type="text"/></li> </ul> <p><b>Q. What is the product (counted in hours) when you multiply D1 by D2?</b> <input type="text"/></p>
<p>E. Total DMS-CD throughput</p>	<p>Gather these values.</p> <ul style="list-style-type: none"> <li>(E1) What is the throughput of your DMM appliance?<sup>2</sup> <input type="text"/></li> <li>(E2) What value is in effect for the Concurrency preference setting? <input type="text"/></li> <li>(E3) What <a href="#">DMP Incoming Transfer Rate</a> value did you record in row A? <input type="text"/></li> <li>(E4) What is the sum when you add E2 to E3? <input type="text"/></li> </ul> <p><b>Q. Compare the values of E1 and E4. The lower value is exactly what?</b> <input type="text"/></p>
<p>F. Shortest possible duration for a parallel deployment</p>	<p>The quotient when you divide one value by another.</p> <ul style="list-style-type: none"> <li>(F1) What <a href="#">Total Data to Be Deployed</a> value did you record in row B? <input type="text"/></li> <li>(F2) What <a href="#">Total DMS-CD Throughput</a> value did you record in row E? <input type="text"/></li> </ul> <p><b>Q. What is the quotient (counted in hours) when you divide F1 by F2?</b> <input type="text"/></p>

- Potentially including any QoS policies that limit how much of your total bandwidth capacity DMS-CD is permitted to use.
- Because your DMM appliance uses a 1 GB network adapter for Ethernet, its throughput is likely to be at least 40 mbps in any modern network that is not overloaded. If you do not know how to measure server throughput, contact your network administrator.

## Limit DMS-CD Disruptions to DMP Performance

Improper scheduling practices and improper WAN bandwidth parameters in your media network might cause DMS-CD to disrupt playback performance temporarily on DMPs. The disruption affects multicast video streams, HD videos, Shockwave Flash animations, and image assets that these DMPs show on their attached presentation systems while simultaneously downloading newly provisioned, large assets. When this disruption occurs:

- Videos might become fragmented (contain artifacts), drop frames, or cut out during playback.
- SWF animations might play slowly.
- Images might redraw slowly.
- DMPs might restart unexpectedly, in rare instances.

You can configure bandwidth restrictions in your WAN that should help to alleviate these symptoms or eliminate them completely, depending on the system load of each DMP.

### Best Practices

We recommend that you apply these DMS-CD best practices in your network whenever possible.

- Create and maintain only one deployment package for any DMP group whose constituent DMPs should play assets from local storage. Simply configure its deployment to recur nightly (or whatever other time has the least possible impact on your audience). Then, modify it as necessary, to:
  - Include all new or changed assets that member DMPs should obtain or keep for playback.
  - Remove obsolete assets that member DMPs should autoclean from local storage.

DMS-CD syncs DMP storage with the current version of the deployment package and applies all changes automatically.



**Note** This method is simpler and more scalable than developing and maintaining a new package and scheduling a new deployment each time that your needs change. Also, it increases the likelihood that large deployments will resume and be completed successfully on a slow connection. Furthermore, it prevents deployments from becoming too numerous to manage.

- Even if you have not imposed any bandwidth restrictions upon DMS-CD, avoid scheduling deployments and playback to run in parallel on DMPs. Otherwise, deployments can take longer to finish than you anticipate. (This delay occurs because the load is doubled on DMPs.) For best results, schedule DMS-CD deployments to run when no playback is scheduled. During such times, there is little or no load on DMPs.
- When playback and deployments must overlap, configure an upper threshold for DMS-CD bandwidth consumption. The value that you enter should be less than your network's maximum transfer rate. Adjust and test values as necessary, until you determine exactly how much bandwidth DMS-CD can use in your WAN without affecting DMP performance.



**Tip** Use the "Enable maximum transfer rate" field (at Digital Media Players > Deployment Manager > Deployment Preferences) to limit DMS-CD bandwidth consumption.



**Note** In our tests, we found that using 5 Mbps as the upper threshold provided adequate bandwidth restriction in most cases. However, this is not necessarily a value that you should use. Results will vary depending on network capacity and the load placed on a DMP.

**Related Topics**

- [Configure Deployment Threshold Preferences, page 19-17](#)

## Restrictions

- [DMS-CD Restrictions, page 19-11](#)
- [CIFS Restrictions, page 19-12](#)
- [ACNS Restrictions, page 19-12](#)
- [ECDS Restrictions, page 19-12](#)

## DMS-CD Restrictions

DMS-CD Capacity Category	Maximum Threshold
WAN size	100 sites
DMP count, per site	3 DMPs <sup>1</sup>
Data transfer per day, per DMP	300 MB <sup>2</sup>
Concurrent sessions per DMM appliance	75 DMS-CD sessions <sup>2, 3</sup>

1. This value is approximate and variable from one network to another.
2. This threshold might be lower in your WAN, depending on its total bandwidth capacity.
3. This threshold might be lower in your WAN, depending on your “Enable maximum transfer rate” value.

- We do not support use of the “Cast” plugin for Digital Media Designer with any content distribution system or network. (**CSCto35473**)
- Even though Microsoft Internet Information Server (IIS) is not case-sensitive, any use of IIS can trigger case-sensitive behaviors in DMS-CD. This occurs because DMS-CD uses all lowercase letters during its creation of a local folder whose name matches the FQDN of the external IIS host. When any asset URL includes even one uppercase letter in reference to the IIS host FQDN, DMS-CD cannot find any local folder by that name and, so, cannot find its local copy of assets to render. The error message in this case is “Size = Not Available is not available with the File Access Service. The status is FAILED.” (**CSCtn07580**)
- This DMS-CD release does not support live video. It provisions assets that already exist.
- This DMS-CD release provisions assets to DMPs exclusively. You cannot target any other device type.
- This DMS-CD release does not delete files from any DMP that belongs to multiple DMP groups. For autocleaning to occur on a DMP, it can belong to one DMP group only. Alternatively, you can use Play Now to deploy a job to DMPs.
- You can attach only one external USB flash drive or external USB hard drive to a DMP.
- We do not support USB hubs or any other method that you might use to attach multiple drives (or other device types) to a DMP.

- DMS-CD does not prevent you from using the Actions list or the Play Now feature to start transferring a DMS-CD deployment package immediately. However, using either of these methods defeats many of the most important benefits of using DMS-CD. We recommend instead that you use the Play in Future feature to schedule all of your DMS-CD deployment packages.
- You cannot use the Deployment Status feature (at Digital Media Players > Deployment Manager > Deployment Status) to check the progress or status of immediate deployments.

## CIFS Restrictions

- We do not support use of the “Cast” plugin for Digital Media Designer with any content distribution system or network. (**CSCto35473**)
- When the password for a CIFS volume contains even one “%” symbol, a DMP 4310G cannot mount CIFS. This behavior is by design.
- Playback is choppy for HD video that a DMP 4310G renders from a mounted CIFS volume. However, a DMP 4400G can render the identical file without difficulty. (**CSctj00686**)
- There can be only one CIFS mount point, which all DMPs use in common. You cannot set DMPs or DMP groups to mount any CIFS share except this one.
- Either your DMPs all use CIFS, or none of them do.

## ACNS Restrictions

- We do not support use of the “Cast” plugin for Digital Media Designer with any content distribution system or network. (**CSCto35473**)



### Note

**You must restart your DMP after you switch it from ACNS mode to ECDS mode.** Although we recommend generally that you restart your DMP after you switch its mode from any content distribution method to another, it is mandatory only when you switch from ACNS to ECDS. (**CSCto35473**)



### Caution

**Never delete an ACNS channel that Cisco DMS uses.** Otherwise, you cannot see, select, edit, or delete in your schedule any events that use the deleted channel. In this case, content substitution occurs on your DMPs because scheduled events call upon missing assets. So, before you delete any ACNS channel, be sure that you have deleted from your schedule all events that will be disrupted by its absence.

## ECDS Restrictions

- We do not support use of the “Cast” plugin for Digital Media Designer with any content distribution system or network. (**CSCto35473**)
- Intra-playlist transitions take longer (by 1 or 2 seconds apiece) during playback in ECDS mode than they take in any other mode. Also, a gray screen is visible briefly between videos. (**CScti143456**)



### Note

**You must restart your DMP after you switch it from ACNS mode to ECDS mode.** Although we recommend generally that you restart your DMP after you switch its mode from any content distribution method to another, it is mandatory only when you switch from ACNS to ECDS. (**CSCto35473**)

**Caution**

**Never delete an ECDS channel that Cisco DMS uses.** Otherwise, you cannot see, select, edit, or delete in your schedule any events that use the deleted channel. In this case, content substitution occurs on your DMPs because scheduled events call upon missing assets. So, before you delete any ECDS channel, be sure that you have deleted from your schedule all events that will be disrupted by its absence.

## Example Scenario

*Acme* might be almost any kind of organization that uses digital signs. In this scenario, *Acme* uses digital signs at five of its sites. The scenario describes how *Acme* organizes its DMPs across these sites, and then optimizes its schedule and settings for efficient delivery of strategic assets to DMPs.

Because the standard floorplan at *Acme* allows for five signs per site, the *Acme* signage network combines 25 DMPs with 25 digital signs. As there are five weeknights per week and coincidentally, five DMP groups at *Acme*, its technical staff use a streamlined deployment strategy.

They create and save just five deployment packages in total—merely one per DMP group. They update the assets in each package according to a schedule for planned changes. They configure each package deployment to recur once per week, on a weeknight. Then, as needed, they can use the Play Now feature to deploy urgent or mission-critical changes in real time, if the standard timeslot is not appropriate.

- [Organizational Logic at Acme, page 19-13](#)
- [Deployment Scheduling Logic at Acme, page 19-14](#)

## Organizational Logic at Acme

**Table 19-3** *Organizational Logic for DMPs and Digital Signs at Acme*

Item	Description at Acme
Locations	Acme calls its locations with digital signs Site A, Site B, Site C, Site D, and Site E.
DMP Groups	Acme sorts its 25 DMPs into five DMP groups. <ul style="list-style-type: none"> <li>• The five DMPs in Group 1 receive their scheduled deployment every Monday.</li> <li>• The five DMPs in Group 2 receive their scheduled deployment every Tuesday.</li> <li>• The five DMPs in Group 3 receive their scheduled deployment every Wednesday.</li> <li>• The five DMPs in Group 4 receive their scheduled deployment every Thursday.</li> <li>• The five DMPs in Group 5 receive their scheduled deployment every Friday.</li> </ul>

**Table 19-3** Organizational Logic for DMPs and Digital Signs at Acme

Item	Description at Acme
<b>DMPs</b>	<p>There are five DMPs per site, and each DMP belongs to only one group. The names of DMPs are always derived from a combination of their site (a letter from A to E) and their group (a number from 1 to 5).</p> <ul style="list-style-type: none"> <li>DMPs at Site A use the names A1, A2, A3, A4, and A5.</li> <li>DMPs at Site B use the names B1, B2, B3, B4, and B5.</li> <li>DMPs at Site C use the names C1, C2, C3, C4, and C5.</li> <li>DMPs at Site D use the names D1, D2, D3, D4, and D5.</li> <li>DMPs at Site E use the names E1, E2, E3, E4, and E5.</li> </ul>
<b>Group Assignments</b>	<p>Each DMP group includes one DMP apiece from each site.</p> <ul style="list-style-type: none"> <li>Group 1 includes A1, B1, C1, D1, and E1.</li> <li>Group 2 includes A2, B2, C2, D2, and E2.</li> <li>Group 3 includes A3, B3, C3, D3, and E3.</li> <li>Group 4 includes A4, B4, C4, D4, and E4.</li> <li>Group 5 includes A5, B5, C5, D5, and E5.</li> </ul>

## Deployment Scheduling Logic at Acme

Table 19-4 explains how Acme organizes its scheduled deployments.

**Table 19-4** DMS-CD Deployment Details for Acme

DMP Group	Locations of Targeted DMPs	Package Name and Total Size	Maximum Bandwidth per DMP	Aggregate Bandwidth per DMP Group	Estimated Length of a Full Deployment <sup>1</sup>	
					In Seconds	In DD:HH:MM

Regularly scheduled deployment for **Group 1** recurs overnight each **Monday**, from 10:00 p.m. to 6:00 a.m.<sup>2</sup>

<b>Group 1</b>	Site A, DMP = A1	Package 1 = 300 MB	128 Kbit/sec	640 Kbit/sec	18750	00:05:12
	Site B, DMP = B1					
	Site C, DMP = C1					
	Site D, DMP = D1					
	Site E, DMP = E1					

Regularly scheduled deployment for **Group 2** recurs overnight each **Tuesday**, from 10:00 p.m. to 6:00 a.m.<sup>2</sup>

<b>Group 2</b>	Site A, DMP = A2	Package 2 = 300 MB	128 Kbit/sec	640 Kbit/sec	18750	00:05:12
	Site B, DMP = B2					
	Site C, DMP = C2					
	Site D, DMP = D2					
	Site E, DMP = E2					

**Table 19-4** DMS-CD Deployment Details for Acme (continued)

Regularly scheduled deployment for **Group 3** recurs overnight each **Wednesday**, from 10:00 p.m. to 6:00 a.m.<sup>2</sup>

<b>Group 3</b>	Site A, DMP = A3	Package 3 = 300 MB	128 Kbit/sec	640 Kbit/sec	18750	00:05:12
	Site B, DMP = B3					
	Site C, DMP = C3					
	Site D, DMP = D3					
	Site E, DMP = E3					

Regularly scheduled deployment for **Group 4** recurs overnight each **Thursday**, from 10:00 p.m. to 6:00 a.m.<sup>2</sup>

<b>Group 4</b>	Site A, DMP = A4	Package 4 = 300 MB	128 Kbit/sec	640 Kbit/sec	18750	00:05:12
	Site B, DMP = B4					
	Site C, DMP = C4					
	Site D, DMP = D4					
	Site E, DMP = E4					

Regularly scheduled deployment for **Group 5** recurs overnight each **Friday**, from 10:00 p.m. to 6:00 a.m.<sup>2</sup>

<b>Group 5</b>	Site A, DMP = A5	Package 5 = 300 MB	128 Kbit/sec	640 Kbit/sec	18750	00:05:12
	Site B, DMP = B5					
	Site C, DMP = C5					
	Site D, DMP = D5					
	Site E, DMP = E5					

1. In a full deployment, where the target DMPs have not stored any assets whatsoever that are part of the latest deployment package. In many cases, packages will combine new assets with ones that have already been deployed. When this occurs, less time is required because only the new assets, or the changed ones, are actually deployed.
2. Although a full deployment should take roughly 5 hours, Acme pads its schedule to compensate for any problems that might slow down its deployments.

## Procedures

- [Configure ACNS or WAAS, page 19-15](#)
- [Configure DMS-CD, page 19-16](#)

## Configure ACNS or WAAS



Tip

See our integration white paper on Cisco.com: [Cisco Digital Media Suite Deployments for Digital Signage with Cisco ACNS Software](#).

### Before You Begin

- To see and use the Settings tab, you must be logged in as an administrator.

**Procedure**

**Step 1** Choose **Settings** > **Media Delivery**, and then choose the options that meet your requirements.



**Step 2** Click **Save**.

**Step 3** Stop. You have completed this procedure.

**Related Topics**

- [Elements to Define WAAS, ACNS, or ECDS Settings, page 19-25](#)

**Configure DMS-CD**

- [Configure Deployment Threshold Preferences, page 19-17](#)
- [Check Disk Space Capacity for Deployments, page 19-17](#)
- [Create a Deployment Package, page 19-18](#)
- [Edit a Deployment Package, page 19-19](#)
- [Delete a Deployment Package, page 19-20](#)

## Configure Deployment Threshold Preferences

### Procedure

---

- Step 1** Choose **Digital Media Players > Deployment Manager > Preferences**.
- Step 2** Define the DMS-CD thresholds that should be applied by default in the future, when you transfer deployment packages.
- Enter or edit the requested values.
  - Choose the file transfer protocol, **FTP** or **SFTP**.
  - Enable or disable a maximum transfer rate.
- Changes to the maximum transfer rate will have no effect on deployments that are running already. They are applied to deployments that start after you save your changes.
- Step 3** Click **Update** to save your work and put it into effect.
- OR**
- Click **Cancel** to discard your work and restore the previous entries.
- Step 4** Stop. You have completed this procedure.
- 

### Related Topics

- [Elements to Define Deployment Thresholds, page 19-21](#)
- [Create a Deployment Package, page 19-18](#)
- [Troubleshoot DMS-CD, page 19-27](#)

## Check Disk Space Capacity for Deployments

### Before You Begin

- Create DMP groups and populate them with DMPs.

### Procedure

---

- Step 1** Choose **Digital Media Players > DMP Manager**.
- Step 2** Click in the **DMP Groups** object selector the name of the DMP group that contains the target DMP. The DMP List table is repopulated with the corresponding group membership list.
- Step 3** **(Optional)** *Would you like to limit how many DMPs the DMP List table describes?* Use filtering options above the table.
- Step 4** Add together the values that you see in the Internal Storage MB. (Total/Free) column and the Internal Storage MB. (Total/Free) column. The combination of these values is the total free capacity.

- Step 5** Compare the total free capacity to the expected size of your deployment package.
- When the total free capacity is sufficient, provision the assets in a deployment package, as planned.
  - When the total free capacity is not sufficient, do one of the following.
    - Reduce the size of the deployment package.
    - Delete unused or unimportant assets from the DMP.
    - Attach one external USB drive to the DMP if you have not attached one already.
    - Replace the external USB drive with one that has greater capacity.
- Step 6** Stop. You have completed this procedure.
- 

## Create a Deployment Package

### Before You Begin

- Configure download threshold preferences for DMS-CD.
- Check the free disk space on your DMPs for storing provisioned assets.

### Procedure

---

- Step 1** Choose **Digital Media Players > Advanced Tasks**.
- Step 2** Choose **Deployment Package** from the Application Types list.
- Step 3** Click  **Add New Application**.
- Step 4** Enter a name and description for this deployment package.
- Step 5** Choose the mount point for this deployment. You can choose only one:
- **Flash Storage** (also known as *usb\_1*) is the SD memory card installed inside a DMP.
  - **USB** (also known as *usb\_2*) is an external USB hard drive or flash memory drive that is attached to a DMP.



**Tip** To learn which external USB drives we support and have tested, see **Cisco DMS compatibility information on Cisco.com**. [http://www.cisco.com/en/US/products/ps6681/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6681/products_device_support_tables_list.html).

---

- Step 6** *Does this job consist of assets for an emergency notification?*
- If so, check the **Emergency/Alarm** check box.
  - If not, uncheck it.
- Step 7** Populate and save the deployment package.
- Step 8** Click the name of a category in the Applications list.
- Step 9** Choose at least one option from the Available Applications list, and then click **Select Applications**.
- Step 10** Click **Submit**.
- Step 11** Use the **Play in Future** feature to schedule deployment of this package to your DMPs that should receive it, and then wait for the file transfer to finish.

Bandwidth capacity in your WAN determines how long you must wait. After the deployment is finished, Cisco Digital Signs autogenerated the (Go To) URL action for this deployment package.

- Step 12** Choose **Digital Signage > Digital Medial Players > Advanced Task > (Go to) URL**.
- Step 13** Check that a (Go to) URL action was autogenerated, which adds the prefix LOCAL to the name that you entered in [Step 4](#).
- Step 14** Deploy this autogenerated (Go to) URL action.
- Use the Actions list to deploy immediately.
  - Use the Play Now feature to deploy immediately.
  - Use the Play in Future feature to schedule a future deployment.
- When you use Play in Future, the scheduled start and stop times are derived from the clock in your DMM appliance.
- Step 15** Stop. You have completed this procedure.
- 

#### Related Topics

- [Check Disk Space Capacity for Deployments, page 19-17](#)
- [Configure Deployment Threshold Preferences, page 19-17](#)
- [Edit a Deployment Package, page 19-19](#)
- [Delete a Deployment Package, page 19-20](#)

## Edit a Deployment Package

#### Before You Begin

- Configure download threshold preferences for DMS-CD.
- Check the free disk space on your DMPs for storing provisioned assets.
- Create at least one DMS-CD deployment package.

#### Procedure

---

- Step 1** Choose **Digital Media Players > Advanced Tasks**.
- Step 2** Choose **Deployment Package** from the Application Types list.
- Step 3** Click the name of the deployment package to be edited.
- Step 4** Click  **Edit Application**.
- Step 5** As needed, edit the name or description for this deployment package.
- Step 6** Choose the mount point for this deployment. You can choose only one.
- **Flash Storage** (also known as *usb\_1*) is the SD memory card installed inside a DMP.
  - **USB** (also known as *usb\_2*) is an external USB hard drive or flash memory drive that is attached to a DMP.



#### Tip

To learn which external USB drives we support and have tested, see **Cisco DMS compatibility information on Cisco.com**. [http://www.cisco.com/en/US/products/ps6681/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6681/products_device_support_tables_list.html).

---

- Step 7** *Does this job consist of assets for an emergency notification?*
- If so, check the **Emergency/Alarm** check box.
  - If not, uncheck it.
- Step 8** **(Optional)** *Would you like to repopulate this deployment package?*  
Repopulate and save it now.
- Step 9** Click the name of a category in the Applications list.
- Step 10** Choose at least one option from the Available Applications list, and then click **Select Applications**.
- Step 11** Click **Submit**.
- Step 12** Use the **Play in Future** feature to schedule deployment of this package to your DMPs that should receive it, and then wait for the file transfer to finish.
- DMS-CD does not prevent you from using the Actions list or the Play Now feature to start transferring a DMS-CD deployment package immediately. However, using either of these methods defeats many of the most important benefits of using DMS-CD. We recommend instead that you use the Play in Future feature to schedule all of your DMS-CD deployment packages.
- Bandwidth capacity in your WAN determines how long you must wait. After the deployment is finished, Cisco Digital Signs autogenerates the (Go To) URL action for this deployment package.
- Step 13** Choose **Digital Signage > Digital Medial Players > Advanced Task > (Go to) URL**.
- Step 14** Check that a (Go to) URL action was autogenerated, which adds the prefix LOCAL to the name that you entered or edited in [Step 5](#).
- Step 15** Deploy this autogenerated (Go to) URL action.
- Use the **Actions** list to deploy immediately.
  - Use the **Play Now** feature to deploy immediately.
  - Use the **Play in Future** feature to schedule a future deployment.
- When you use Play in Future, the scheduled start and stop times are derived from the clock in your DMM appliance.
- Step 16** Stop. You have completed this procedure.

---

#### Related Topics

- [Check Disk Space Capacity for Deployments, page 19-17](#)
- [Configure Deployment Threshold Preferences, page 19-17](#)
- [Create a Deployment Package, page 19-18](#)
- [Delete a Deployment Package, page 19-20](#)

## Delete a Deployment Package

### Before You Begin

- You must have saved at least one DMS-CD deployment package.
- Use the Reports feature (at Schedules > Reports) to search your schedule for any instances of the deployment package that you will delete. Remove each scheduled instances of it from your schedule.

### Procedure

---

- Step 1** Choose **Digital Media Players > Advanced Tasks**.
- Step 2** Choose **Deployment Package** from the Application Types list.
- Click the name of the action to be deleted.
  - Click  **Delete Application**.
  - Click **Submit**.
- Step 3** Choose **(Go to) URL** from the Application Types list.
- Click the name of the action to be deleted.
  - Click  **Delete Application**.
  - Click **Submit**.
- Step 4** Stop. You have completed this procedure.
- 

### Related Topics

- [Create a Deployment Package, page 19-18](#)
- [Edit a Deployment Package, page 19-19](#)

## Reference

- [Software UI and Field Label Reference Tables, page 19-21](#)
- [FAQs and Troubleshooting, page 19-27](#)

## Software UI and Field Label Reference Tables

- [Elements to Define Deployment Thresholds, page 19-21](#)
- [Elements to Define a DMS-CD Deployment Package, page 19-24](#)
- [Elements to Define WAAS, ACNS, or ECDS Settings, page 19-25](#)

## Elements to Define Deployment Thresholds

### Navigation Path

Digital Media Players > Deployment Manager > Preferences

**Table 19-5 Elements to Configure DMS-CD Deployment Thresholds**

Element	Description
Number of concurrent deployments	<p>The maximum allowed number of FTP or SFTP threads, or <i>sessions</i>, that can run concurrently when DMS-CD provisions assets to DMPs.<sup>1</sup> Therefore, the maximum number of DMS-CD deployments that might possibly run concurrently in your WAN, if each such deployment targets only one DMP. Otherwise, when any deployments target multiple DMPs, this constraint limits how many DMPs can possibly receive deployments concurrently in your WAN.<sup>2</sup></p> <p><b>Tip</b> <b>When you use DMS-CD, it is a best practice that none of your DMP groups should contain more than this number of DMPs.</b> If you ever reduce this value, check that doing so has not caused any of your DMP groups to contain more DMPs than the new number.</p> <p>The permitted value is any whole number in the range from 1 to 1000. The factory-default value is 100 threads. We recommend that you avoid using any value greater than 100. Each incrementally higher value authorizes more concurrent DMS-CD deployments to DMPs and an increased load on your DMM appliance. You might try reducing this value if you notice that the CPU load is high on your DMM appliance during DMS-CD deployments.</p> <p><b>Note</b> <b>Any time that you change this value, you must restart your DMM appliance before the changed setting takes effect on your DMPs.</b></p>
Deployment time limit per file (in minutes)	<p>The count of how many minutes will be allowed to elapse after a DMS-CD deployment package begins to provision any file. Upon reaching this threshold, the file moves to the back of the queue and its transfer is deferred.</p> <p>The next file advances to the front of the queue and the deployment continues. DMS-CD applies this threshold to a deployment package as many times as necessary until it has cycled through all of its files, and then the transfer is resumed for a deferred file after it returns to the front of the queue. This threshold might cause the transfer of any especially large file to be distributed across days. Bottlenecks are prevented and as many assets are provisioned as can be provisioned.</p> <p>When you derive this value from the maximum transfer rate, large files in DMS-CD deployment packages are more likely to transfer quickly.</p> <p>The permitted value is any whole number in the range from 1 to 10080, where 10,080 minutes is the same as 168 hours or 7 days. The factory-default value is 1440 minutes, which is exactly 24 hours.</p>
Deployment retry count	<p>The count of how many times DMS-CD should try again to restart a failed deployment, until DMS-CD stops trying.</p> <p>In combination with the deployment retry time, this setting has significant impact on how long it takes DMS-CD to detect failed deployments. For example, 5 retries x 300 seconds = 1,500 seconds (25 minutes), while 5 retries x 30 seconds = 150 seconds (2.5 minutes).</p> <p>The permitted value is any whole number in the range from 1 to 100. The default value is 5 retries. We recommend that you do not change this value.</p>

**Table 19-5** Elements to Configure DMS-CD Deployment Thresholds (continued)

Enable maximum transfer rate	<p>Enforces or ignores a maximum transfer rate that you specify.</p> <p>This rate is the upper threshold allowed for bandwidth consumption by DMS-CD during its deployments to any one DMP in your WAN. We measure this rate in kilobits per second (Kbps). The value that you enter should be less than the maximum transfer rate of your network.</p> <p>In combination with the <a href="#">Number of concurrent deployments</a> value and the number of DMPs in a group that you target, this threshold limits how much bandwidth DMS-CD can consume during a deployment. For example, assume for a moment that QoS policies in your network limit DMS-CD bandwidth utilization to a maximum of 64 Kbps, and you have enabled the maximum transfer rate setting with a value of:</p> <ul style="list-style-type: none"> <li>• <b>64 Kbps</b>—Individual DMPs will each consume 64 Kbps per deployment. So, if you then set the number of concurrent deployments value to 10, you will use 64 Kbps x 10 = 640 Kbps. Furthermore, you cannot set the <a href="#">Number of concurrent deployments</a> value any higher than 1, because 64 x 1 = 64.</li> <li>• <b>32 Kbps</b>—Individual DMPs will each consume 32 Kbps per deployment. So, if you then set the number of concurrent deployments value to 10, you will use 32 Kbps x 10 = 320 Kbps. Furthermore, you cannot set the <a href="#">Number of concurrent deployments</a> value any higher than 2, because 32 x 2 = 64.</li> <li>• <b>21 Kbps</b>—Individual DMPs will each consume 21 Kbps per deployment. So, if you then set the number of concurrent deployments value to 10, you will use 21 Kbps x 10 = 210 Kbps. Furthermore, you cannot set the <a href="#">Number of concurrent deployments</a> value any higher than 3, because 21 x 3 = 64.</li> </ul> <p>The permitted value is any whole number in the range from 28 to 102400, where 102400 Kbps is the same as 100 Mbps. The factory-default setting ignores this threshold. If you prefer to enforce it, check the check box.</p>
Deployment Protocol	<p>FTP or SFTP, according to your security requirements.</p> <p>When you choose SFTP, connections are encrypted between your DMM server and your DMPs. Otherwise, these sessions use clear text. Even though the factory-default setting is FTP, we recommend that you use SFTP.</p>
Maximum file size (in MB)	<p>The maximum number of megabytes—per file—that DMS-CD will transport inside a multifile deployment package to your DMPs, before the file that reached this threshold is moved to the back of the queue and its transfer is deferred.</p> <p>The next file advances to the front of the queue and the deployment continues. DMS-CD applies this threshold to a deployment package as many times as necessary until it has cycled through all of its files, and then the transfer is resumed for the deferred file after it returns to the front of the queue. This threshold might cause the transfer of any especially large file to be distributed across days. Bottlenecks are prevented and as many assets are provisioned as can be provisioned.</p> <p>The permitted value is any whole number in the range from 10 to 1024000, where 1,024,000 MB is the same as 1 TB. The factory-default maximum size is 600 MB.</p> <p><b>Note</b> Although it is technically feasible to enter a file size as great as 1024000 MB, playback fails for any file that is larger than 1.9 GB, regardless of the DMP model type. This size is constrained by the limits of streaming.</p>

**Table 19-5** Elements to Configure DMS-CD Deployment Thresholds (continued)

Deployment retry time (in seconds)	<p>The count of how many seconds must elapse before DMS-CD tries again to transfer a deployment package to a DMP on which the transfer failed or was interrupted. DMS-CD will never try to resume an interrupted or failed transfer until at least this many seconds have elapsed. When you edit this value, you change how quickly DMS-CD works around a failed or disrupted deployment.</p> <p>The permitted value is any whole number in the range from 5 to 10800, where 10800 is equal to 3 hours. The factory-default value is 300 seconds.</p>
Enable Resume	<p>Enables or disables the option to resume a DMS-CD file transfer that was interrupted. The factory-default behavior is to resume interrupted transfers. This behavior supports incremental transfer of large files through slow or unreliable networks over days.</p> <p>However, DMPs in this release do not have any ability to compare file modification time stamp values remotely. Our default behavior assumes that any static filename that persists at a static URI identifies a file that has never changed. So long as we retain a copy of the complete file as it existed while we transferred it, we will not check its URI again. This design does not consider that some assets might be dynamic, not static.</p> <p>You should deselect this check box and disable this feature when your assets are dynamic. After you disable this feature, DMS-CD will overwrite its copy of every asset whose file size has changed.</p>

1. Each such thread maintains a transfer rate that is equal to or less than the maximum transfer rate in your WAN.
2. Although you can schedule deployments to run concurrently among your various DMP groups, a DMP will serialize in a queue any overlapping deployments that it is targeted to receive. See [DMP Group Memberships, page 19-6](#).

**Related Topics**

- [Configure Deployment Threshold Preferences, page 19-17](#)

**Elements to Define a DMS-CD Deployment Package****Navigation Path**

Digital Media Players > Advanced Tasks

**Table 19-6** Understanding the Advanced Task to Define a DMS-CD Deployment Package

Application Name	Description, Icons, and Options
<b>Deployment Package</b>	
<i>Configure a DMS-CD deployment to DMP local storage.</i>	
Name	A unique and human-readable name for the deployment task that you are configuring for DMS-CD. You must enter a name. The name is unique in the sense that you have not used it previously as the name for anything that can be scheduled.
Description	A brief description. The description is optional.
Mount Point	<p>Choose whether the assets should be provisioned to the flash memory card inside the DMP (usb_1) or to the one external USB drive that you attached to the DMP (usb_2).</p> <p><b>Tip</b> To learn which external USB drives we support and have tested, see <a href="http://www.cisco.com/en/US/products/ps6681/products_device_support_tables_list.html">Cisco DMS compatibility information on Cisco.com</a>.</p>
Emergency/Alarm	Check (tick) this box if the transferred files will be used during emergencies. Otherwise, do not check this box. Assets for emergencies are saved to a special partition

**Table 19-6** Understanding the Advanced Task to Define a DMS-CD Deployment Package (continued)

Application Name	Description, Icons, and Options
<b>Deployment Package (continued)</b>	
<i>Configure a DMS-CD deployment to DMP local storage. (continued)</i>	
Application Types	The list of categories for advanced tasks. Click a category to see its tasks.
Available Applications	<p>Advanced tasks in the category that you clicked. Click anywhere in a row to select the corresponding task.</p> <ul style="list-style-type: none"> <li>•  <b>Select Applications</b>— Moves from the Available Applications table to the Selected Applications table the tasks that you selected.</li> <li>• <b>Name</b>— The unique and human-readable name that identifies a particular task.</li> <li>• <b>Description</b>— A brief description. The description is optional.</li> </ul>
Selected Applications	<p>Advanced tasks that you selected from the Available Applications table, so that you could include them in the file transfer operation that you are configuring. Click a file transfer task to select its assets for deployment.</p> <ul style="list-style-type: none"> <li>•  <b>Move Selected Item Up/Down</b>— Reorders the list so that the highlighted item moves up (or down) one row, exchanging places with the item that was above it (or below it).</li> <li>•  <b>Delete Selected Item</b>— Moves from the Selected Applications table to the Available Applications table the applications that you selected.</li> <li>•  <b>Zoom In/Out</b>— Shows only the Selected Applications table, hiding the Available Applications table. Alternatively, shows the Selected Applications table and the Available Applications table simultaneously.</li> </ul>

## Elements to Define WAAS, ACNS, or ECDS Settings

**Table 19-7** Elements for Using WAAS, ACNS, or ECDS

Element	Description
Would you like to configure settings for WAAS, ACNS or CDS at this time?	<p>Either Yes or No.</p> <ul style="list-style-type: none"> <li>• Yes— You will use one of these content distribution methods.</li> <li>• No— You will not use any of these methods.</li> </ul>

### WAAS

User	The username for mounting the CIFS share.
Password	The password for mounting the CIFS share.
Share	The name of the CIFS share.
Hostname/IP	The hostname or IP address of the CIFS share server.

**Table 19-7** Elements for Using WAAS, ACNS, or ECDS (continued)

Element	Description
<b>ACNS</b>	
CDM Address	The routable IP address or resolvable DNS hostname of the appliance or services module (“blade”) that runs ACNS and Content Distribution Manager software.
Port	The TCP port for login access to CDM. The port number by default is 8443.
User	The username for login access to CDM.
Password	The password that corresponds to the CDM username that you entered.
Default ACNS Channel	Choose from the list of channels.
<b>ECDS</b>	
CDM Address	The routable IP address or resolvable DNS hostname of the appliance or services module (“blade”) that runs ECDS and Content Distribution Manager software.
Port	The TCP port for login access to CDM. The port number by default is 8443.
User	The username for login access to CDM.
Password	The password that corresponds to the CDM username that you entered.
Default CDS Service	Choose from the list of services.

**Related Topics**

- [Configure ACNS or WAAS, page 19-15](#)

## FAQs and Troubleshooting

- [Troubleshoot DMS-CD, page 19-27](#)
- [FAQs for ACNS, page 19-29](#)

### Troubleshoot DMS-CD

- [Check Deployment Status Details, page 19-27](#)
- [Check Appliance System Logs for Deployment Errors, page 19-28](#)
- [Use Snapshot Mode or Live Monitor Mode to Check for Deployment Errors, page 19-29](#)

### Check Deployment Status Details

**Tip**

---

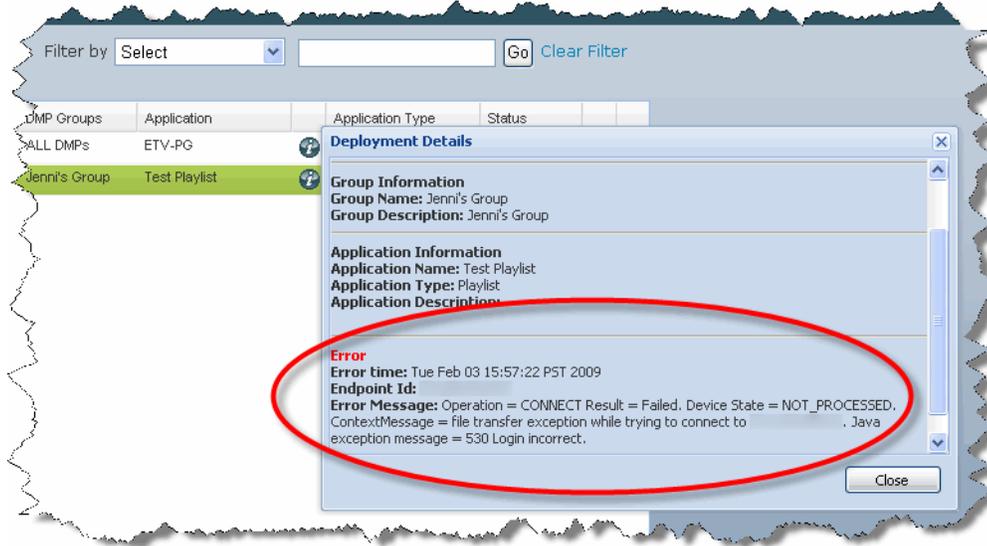
**Values in the Timestamp column always signify *one* of these:**

- The moment when you clicked Publish All to provision the described deployment package.
  - When the described deployment succeeded.
  - When the described deployment failed.
- 

**Procedure**

- 
- Step 1** Choose **Digital Signage > Digital Media Players > Deployment Manager > Deployment Status**.
- Step 2** **(Optional)** *Would you like to limit how many deployment packages the table describes?* If so, use filtering options above the table.
- Step 3** Examine the Status column for any use of the word “Failed.”
- Whenever you see that a deployment package has failed, click its  icon in the far right column.
  - Examine the Deployment Details popup window for any error message that might help you to troubleshoot the failure.

Figure 19-1 Deployment Details



For example, an error message in [Figure 19-1](#) states that DMP login credentials were incorrect.

**Step 4** Stop. You have completed this procedure.

#### Related Topics

- [Troubleshoot DMS-CD, page 19-27](#)

### Check Appliance System Logs for Deployment Errors

#### Procedure

- Step 1** Log in to AAI on your DMM appliance.
- Step 2** Choose **DMM\_CONTROL > DMM\_LOG\_LEVEL > DEBUG**, and ensure that the logs are verbose.
- Step 3** Choose **APPLIANCE\_CONTROL > GET\_SYSLOG**.
- Step 4** Choose a method to receive the logfiles.

- Step 5** Search through the **DMS-CD.log** and **catalina.out** logfiles for messages about:
- DMS-CD deployment events
  - DMP deployment events
  - Application deployment events (in this case, “application” means “deployment package”)
  - File management events
  - Error events
  - Debug logs
- Step 6** Stop. You have completed this procedure.
- 

#### Related Topics

- [Troubleshoot DMS-CD, page 19-27](#)

### Use Snapshot Mode or Live Monitor Mode to Check for Deployment Errors

#### Procedure

---

- Step 1** Choose **Administration > Alerts > Alert Reports**.
- Step 2** Do one of the following.
- *Would you like to review **100 recent errors**?*      **When you will use live mode**
    - a. Click **Live Monitor Mode**.
    - b. Choose an option from the Type list.
  - *Would you like to review errors **between two time stamps**?*      **When you will use snapshot mode**
    - a. Click **Snapshot Mode**.
    - b. Set a range of dates and a range of times.
    - c. Choose an option from the Type list.
- Step 3** Click **Apply**.
- Step 4** Stop. You have completed this procedure.
- 

#### Related Topics

- [Troubleshoot DMS-CD, page 19-27](#)

### FAQs for ACNS

- Q.** Soon after I send copies of assets to my Content Engines, what prevents their playback on DMPs?

- A.** Your network topology and available bandwidth affect how long it takes for content replication to finish. Before your DMPs can play assets from a Content Engine, these assets must *reach* the Content Engine. Delay the playback of replicated assets from your content distribution network, until you know that ACNS replication is finished.



**Tip** Remember to click **Publish on the Schedules** page. Otherwise, playback cannot occur.

- Q.** How can I verify when content replication is finished in CDNFS?
- A.** You can telnet to a Content Engine to verify this. To learn how, see your Content Engine product documentation.

## FAQs for WAAS

- Q.** In Cisco DMS 5.2.2, why would a DMP 4310G in WAAS mode stop playing a video after 1 or 2seconds?
- A.** A combination of factors might trigger this behavior. To recover from it one time, restart your DMP. Or, to prevent this from happening, turn failover Off, set the recovery failover timeout to 1 millisecond, and the number of retries to 1. (**CSCtj85446**)

```
https://[DMP_IP_address]:7777/set_param?ciscocraft.mv_failover_timeout=1&ciscocraft.mv_failover_retries=1&mib.save=1&mng.reboot=1
```

## Troubleshoot ACNS

- [Troubleshoot Choppy Playback of Videos from Your ACNS Network](#), page 19-30
- [Troubleshoot Unlisted or Missing ACNS Channels in Digital Signs](#), page 19-32
- [Troubleshoot ACNS Assets That Your DMPs Do Not Play](#), page 19-33

### Troubleshoot Choppy Playback of Videos from Your ACNS Network

- *Is the HTTP bit rate (bandwidth) setting too low on your Content Engine?*
- *Are too many DMPs using your Content Engine?*
- *Are HTTP requests from DMPs redirected correctly to your Content Engine?*
- *Is the HTTP proxy setting wrong in DMPDM to use a Content Engine as the proxy?*

---

#### ***Is the HTTP bit rate (bandwidth) setting too low on your Content Engine?***

---

The factory-default bandwidth setting for HTTP sessions (up to 1.5Mbps) on a Content Engine is not sufficient for MPEG-2 video.

- SD MPEG-2 video requires approximately 5Mbps.
- HD MPEG-2 video requires approximately 15Mbps.

Use the **bitrate** command, as follows, to increase the maximum bandwidth on a Content Engine to 6Mbps per HTTP session.

```
bitrate http default 6000
```

---

---

**Are too many DMPs 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 (SD or HD).
- The designed capacity of the Content Engine model that you use.

For example, the HTTP caching throughput is approximately 40Mbps on a Content Engine565, which means that this model cannot support any more than:

- Eight DMPs that play SD MPEG-2 video at 5Mbps.
- Two or three DMPs that play HD MPEG-2 video at 15Mbps.

---

**Are HTTP requests from DMPs redirected correctly to your Content Engine?**

---

1. Telnet to your Content Engine and issue this command:  

```
show statistics http savings
```
2. Verify that the HTTP savings level is **high**.

OR

When you see that the HTTP savings level is **low**, verify that you have correctly configured your router and—if you use it on your Content Engine—transparent WCCP mode.

---

**Is the HTTP proxy setting wrong in DMPDM to use a Content Engine as the proxy?**

---

Verify that proxy settings are correct for DMPDM, and then correct them as needed.

1. Click **Basic** in the Settings list.
2. Verify in the HTTP Proxy table that *each of the following is true*.
  - You enabled the Use HTTP Proxy option.
  - Your proxy server IP address points to the closest Content Engine that you will use.
  - You entered the correct port number.
3. *Did you change anything in Step 2?*
  - a. Click **Apply**.
  - b. Click **Save Configuration** in the Administration list.
  - c. Click **Save**.
  - d. Click **Restart DMP** in the Administration list.
  - e. Click **Restart**.



**Note**

Ensure that your proxy server is powerful enough to handle its full load of HTTP sessions.

---

## Troubleshoot Unlisted or Missing ACNS Channels in Digital Signs

- *Do time settings differ between Digital Signs and your ACNS server?*
- *Did you enter the wrong CDM port number, username, or password in Digital Signs?*
- *Did you use a recycled or duplicate ACNS channel name?*

---

### ***Do time settings differ between Digital Signs and your ACNS server?***

---

When time settings are not synchronized between your DMM appliance and your ACNS server, the differences might cause Digital Signs 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. <sup>1</sup>

#### **CDM Procedure**

1. Log in to Content Distribution Manager.
2. Choose **Devices > Device Groups**.
3. Expand the table of contents so that you see **General Settings > Services > Date/Time > NTP**, and then click **NTP**.
4. Check the Enable check box in the NTP Settings area.
5. Enter one ordinary IPv4 IP address in the NTP Server text box, to specify which NTP server you use.

OR

Enter as many as four such addresses, where each IP address is separated from its neighbor by one space.

6. Click **Submit**.

#### **AAI Procedure**

1. Log in to AAI on your DMM appliance.
  2. Choose **DATE\_TIME\_SETTINGS**, and then press **Enter**.
  3. Choose **NTP**, and then press **Enter**.
  4. Enter or choose the NTP settings, and then confirm each individual change.
  5. Press **Enter**.
-

---

***Did you enter the wrong CDM port number, username, or password in Digital Signs?***

---

**Caution**

**Well-known, factory-default values for Content Distribution Manager (CDM) become wrong in your network as soon as a CDM administrator overwrites them with secure values.** You must use values that are actually correct in your network.

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Be sure in Digital Signs to enter correct CDM values at Settings > ACNS Settings. These are the factory-default values for CDM.

- port number—**8443**
  - username—**admin**
  - password—**default**
- 

***Did you use a recycled or duplicate ACNS channel name?***

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You cannot duplicate or recycle channel names. See "Why do I see an HTTP 500 error when I use ACNS?"

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1. Changing the time settings after you add content to the schedule might affect the availability of that content.
- 

**Troubleshoot ACNS Assets That Your DMPs Do Not Play**

- *Is the ACNS channel origin server misconfigured?*
  - *Is the ACNS channel quota misconfigured?*
  - *Is the ACNS channel fully configured to use an external manifest file?*
  - *Have you checked if any other content acquisition problems affect the external manifest file?*
  - *Did anyone change the Time setting for your DMM appliance, but not restart it?*
- 

***Is the ACNS channel origin server misconfigured?***

---

You must associate each origin server for any ACNS channel with the public IP address that one of these devices uses:

- Your DMM appliance.
  - The external publishing server that you use with Digital Signs.
  - The root Content Engine in your content delivery network.
-

**Is the ACNS channel quota misconfigured?**

Consider the following points when you configure the channel quota for DMS in CDM.

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

**Worksheet**

Due to overhead, a file uses more disk space than its own size. You can anticipate how much space to reserve for a file.

1. What is the actual file size in kilobytes (KB)?

**File size in KB =**

2. Divide the file size in KB by the file system's fixed block size in bytes—a 4096-byte unit.

**File size in KB / 4096 =**

3. Round up the quotient to the nearest integer. The result counts exactly how many 4 KB blocks the file has filled—or *partially* filled.

**Used file system blocks =**

4. Multiply the total number of used file system blocks by 4096 bytes. The result measures actual disk space consumption in bytes.

**Total disk usage in bytes =**

**Note** 4096 bytes x 4 = 16384.

*The integer 4 represents disk space that is reserved for internal system usage.*

5. Add 16384 to the total disk space consumption in bytes.

**Minimum disk space to reserve =**

**Tip** We recommend that you reserve 10 percent more space than you estimate the file will consume. *This cushion ensures that space remains available to other internal system functions.*

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***Is the ACNS channel fully configured to use an external manifest file?***

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1. Log in to CDM.
2. Choose **Services > Channels**.
3. Click **Channel Content** in the table of contents.
4. Click **Change Method**.
5. Check **Specify external manifest file**, and then click **Save**.
6. Enter any arbitrary text in the Manifest URL text box.
7. Enter **0** (zero) in the Check Manifest Every N mins text box.
8. Click **Submit**.

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

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***Have you checked if any other content acquisition problems affect the external manifest file?***

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1. Log in to CDM.
2. Choose **Services > Channels**.
3. Click **Channel Content** in the table of contents.
4. Click **Validate**, and then consider the following while you read the validation report:
  - Does any 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 manifest file?
  - Does the manifest file refer to files that you use in the affected ACNS channel?

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***Did anyone change the Time setting for your DMM appliance, but not restart it?***

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

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