Configuring Cisco MXE 3500 Media Experience Engine with Microsoft Windows Media Services 2008

Cisco MXE 3500 Release 3.0

Introduction

The Cisco® MXE 3500 is a media-processing appliance that provides comprehensive multimedia transcoding capabilities, automatically converting video files into other video formats, different bit rates, etc. Several Cisco MXE 3500 options provide high-value postproduction processing of video files, such as a graphic overlay (to identify a speaker, for example), watermarks (to display a company logo or copyright information), speech-to-text caption insertion, and more.

Microsoft Windows Media Services (WMS) 2008 streams digital audio and video content to clients over an IP network. The content can be a live stream or a video file.

When integrated together, the Cisco MXE 3500 acts as a transcoder for Microsoft WMS and can provide Microsoft WMS with customized digital content by using its media pre- and postprocessing and transcoding capabilities.

On-Demand Content for Microsoft WMS Server

A Cisco customer records a video by using a Cisco Flip™ camera and wants to:

- Transcode the video into Windows Media Video (WMV) format and make it available on a predefined Microsoft WMS server as a video-on-demand (VoD) offering
- Make the content look more professional by automatically applying a graphic overlay on the bottom third of every video that includes the video title and the company logo
- Show a watermark at the bottom right indicating that the video is subject to copyright and is confidential
- Add a short, introductory bumper video and follow the video with a trailer video

Resulting End-User Workflow

After the integration steps of this section, the end user can perform the following workflow:

1. User places source video from the Cisco Flip camera in a folder on a PC.
2. User launches the Cisco MXE 3500 web UI, submits the Cisco Flip video to the Cisco MXE 3500 as a file-to-file transcoding job using a predefined job profile.
3. Cisco MXE 3500 processes the video; adds the bumper, trailer, and graphics overlay; and transcodes the video to WMV format. As it completes the job, it will use FTP to send the transcoded video to a specific folder on the integrated Microsoft WMS server (Figure 1).

Figure 1.   Video Enhanced with a Bumper, Graphic Overlays, and a Trailer

4. Through email, the user shares the video URL, comprising the Microsoft WMS server IP address, publishing point, and filename in the format **mms://<WMS_IP>/<publishing_Point_name>/<file_name>**. The VoD can be viewed by using Microsoft Windows Media Player.

All these terms are discussed in the On-Demand Configuration Overview section.

On-Demand Configuration Overview

Table 1 lists the required components and provides a configuration overview.

Component	Requirements
FTP server	Configure an FTP server on the external Microsoft WMS server. Create a Cisco MXE service account on the Microsoft WMS so that Cisco MXE 3500 can automatically copy video files to the content folder of the Microsoft WMS server. Note: If a folder shared between Cisco MXE 3500 and Microsoft WMS server already exists, this FTP server setup is not required.
Cisco MXE 3500	You must configure a job profile for this task that contains the following profiles: • A preprocessor profile for adding a bumper or trailer, graphics overlay, and so on to the video • An encoder profile for transcoding the input video file to the WMV format • A distribution profile for transferring the output video file through FTP to folder on the Microsoft WMS server
External Microsoft WMS	You must configure an external Microsoft WMS server. When the Cisco MXE 3500 is finished transcoding and enhancing the videos, it will automatically copy them to the designated folder on the Microsoft WMS server.
Publishing point	You must configure a publishing point on the Microsoft WMS server by logging into Microsoft WMS using Windows Remote Desktop, launching Microsoft WMS, and then running Add Publishing Point (Wizard).

Detailed Configuration for On-Demand Content

Configuring Cisco MXE 3500 for On-Demand Content

Step 1. Create a preprocessor profile for media transformation. Make sure to use the following options (Figure 2):

- For Task Mode, choose **Fast Start**.
- For CPU Usage, choose **Optimized for Speed**.
- Specify files for the bumper and trailer, graphics overlay, and watermark in the preprocessor.

Figure 2. Creating a Preprocessor Profile
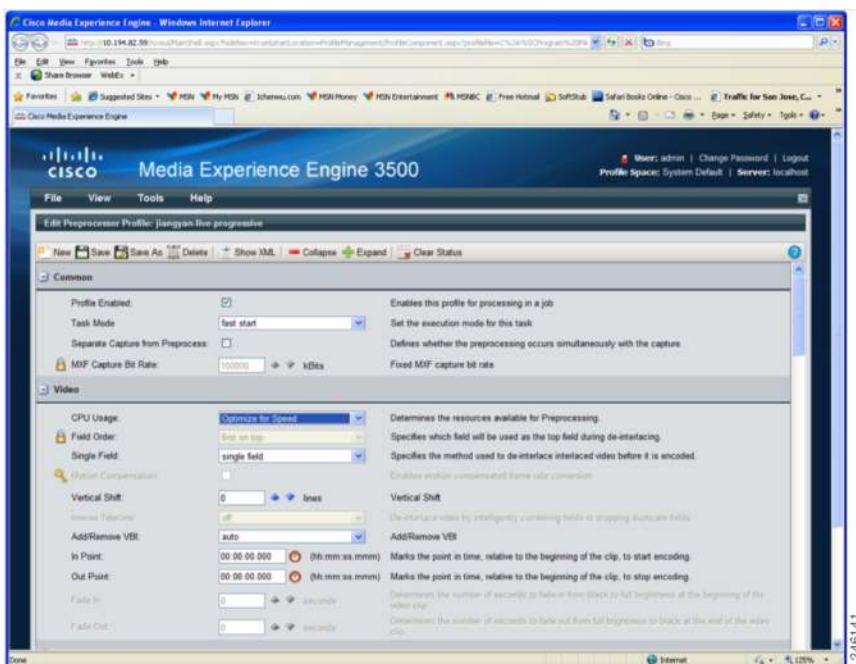
Step 2. Create an encoder profile. Make sure to choose a Windows Media Server (WMS) encoder profile.

Step 3. Create a distribution profile that points to the encoder profile created in Step 2. Choose Delivery Option when creating the distribution profile and make sure to use the following options (Figure 3):

- Check the **FTP** option.
- Enter the IP address of the external Microsoft WMS server, which also has an FTP server setup.
- Enter the username and password for the FTP login.

Figure 3. Distribution Profile: FTP Setup
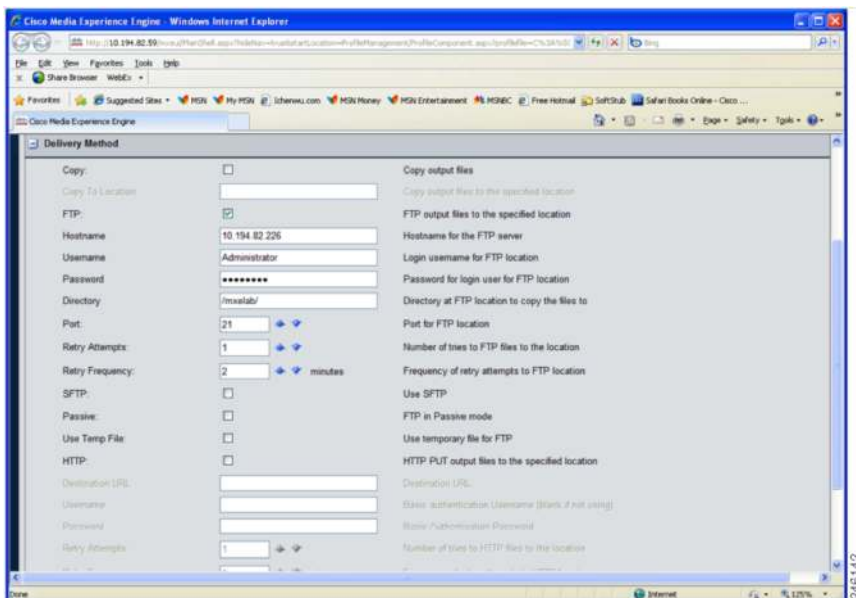
Step 4. Create a job profile that includes the preprocessor, encoder, and distribution profiles created in Steps 1 through 3.

Step 5. Submit a file-to-file transcoding job by using the job profile of Step 4.

Configuring a Publishing Point on Microsoft WMS for On-Demand Content

Step 1. Use Microsoft Remote Desktop to log in to the Windows server on which the Microsoft WMS is running.

Step 2. Choose **Start > All Programs > Administrative Tools > Windows Media Services** to launch the application.

Step 3. Select the **Publishing Points** tree node, right-click to open the context menu, and choose **Add Publishing Point (Wizard)** (Figure 4).

Figure 4. Launching Windows Media Services: Add Publishing Point Wizard

Step 4. Click **Next**.

Step 5.   In the Publishing Point Name panel, specify a name (Figure 5). Then click **Next**.

Figure 5.   Add Publishing Point Wizard: Publish Point Name Panel
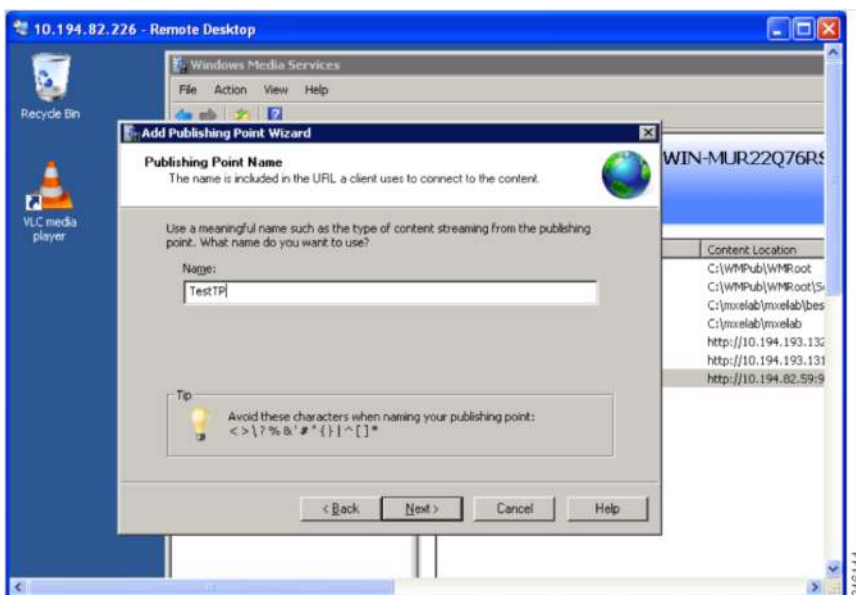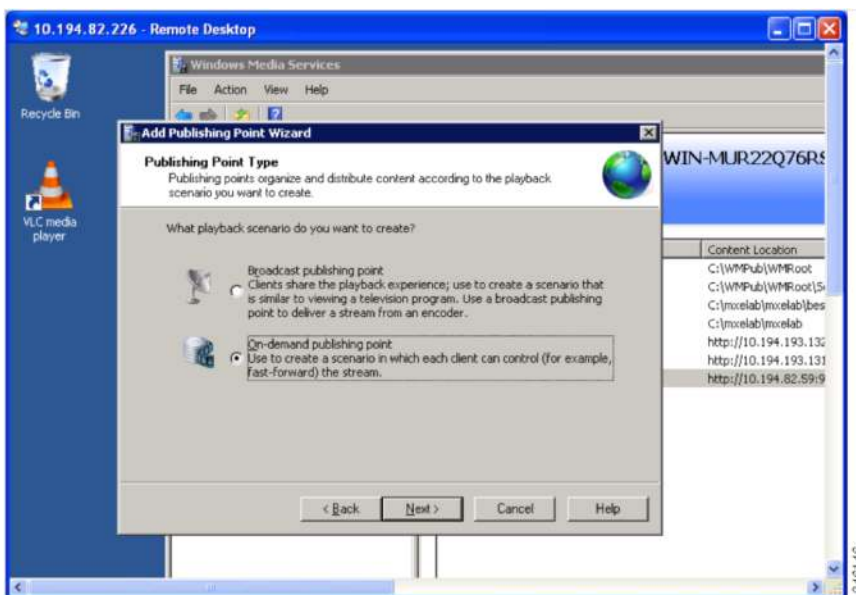

Step 6.   In the Content Type panel, choose the type of content you want to stream. Select **One file** (Figure 6). Then click **Next**.

Figure 6.   Add Publishing Point Wizard: Content Type Panel
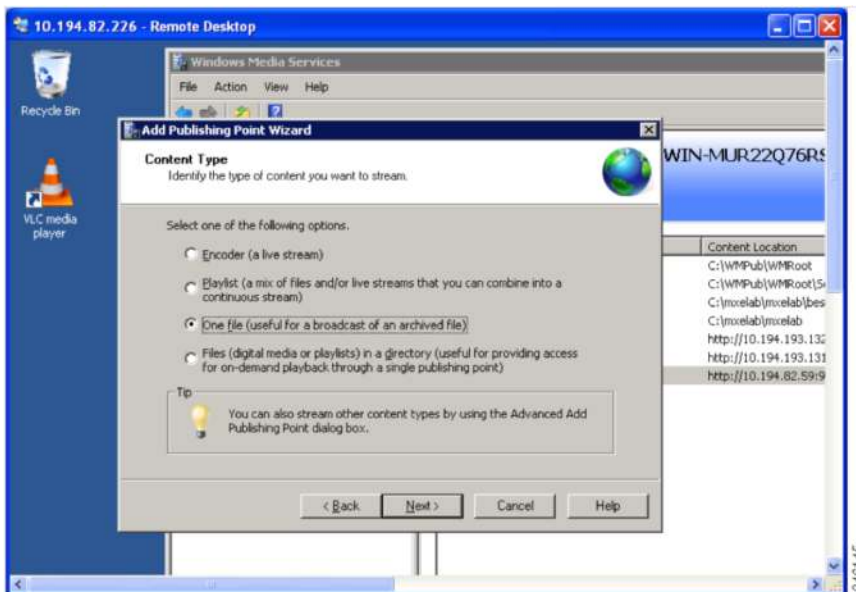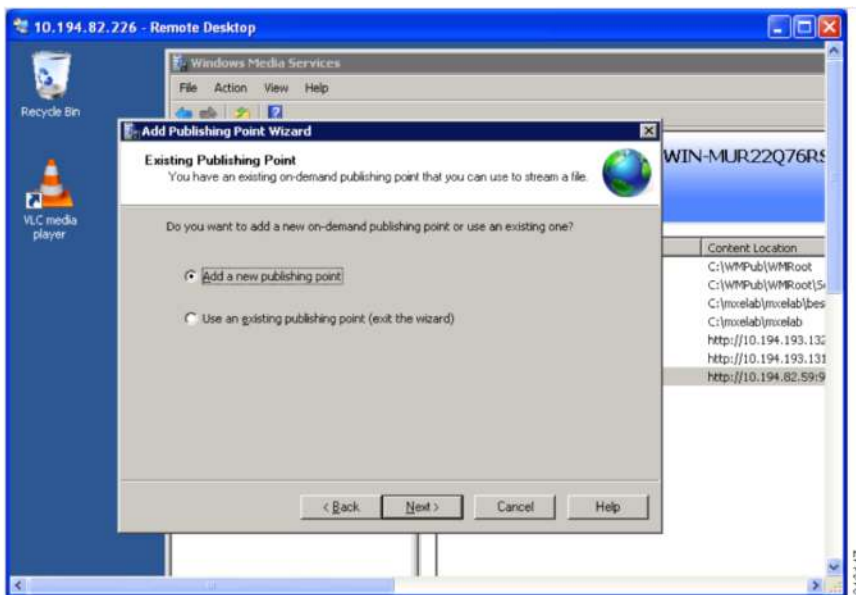
Step 7.   In the Publishing Point Type panel, choose **On-demand publishing point** (Figure 7). Then click **Next**.

Figure 7.   Add Publishing Point Wizard: Publish Point Name Panel

Step 8.   In the Existing Publishing Point panel, choose **Add a new publishing point** (Figure 8). Then click **Next**.

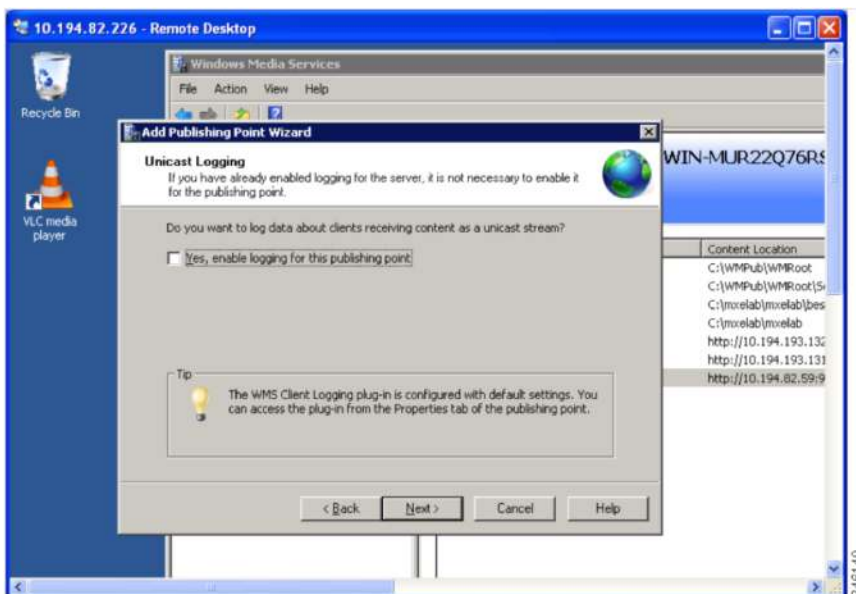**Figure 8.**   Add Publishing Point Wizard: Existing Publishing Point Panel

Step 9. In the File Location panel, enter the path for the Cisco MXE 3500 transcoded video file, or use the browse button to select the file (Figure 9). Then click **Next**.

Figure 9. Add Publishing Point Wizard: Select File Pop-Up Window
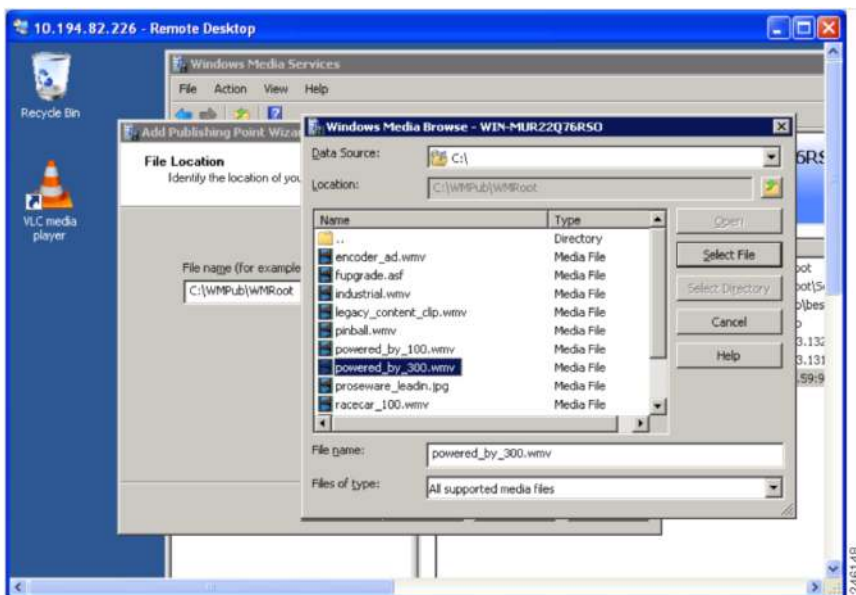
Step 10. On the Unicast Logging page, enable logging if you want to log (Figure 10). Then click **Next**.
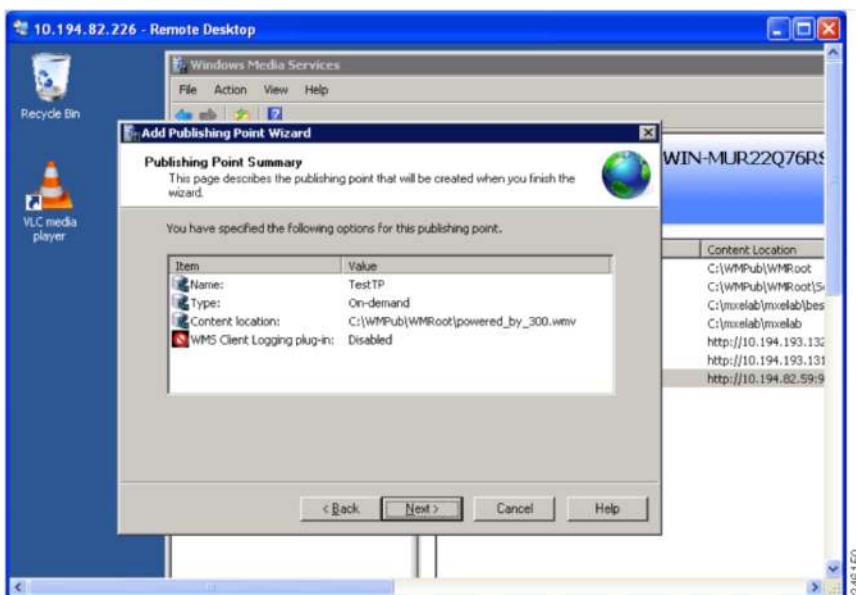
**Figure 10.** Add Publishing Point Wizard: Unicast Logging Panel

Step 11. Review your settings in the Publishing Point Summary panel (Figure 11). Then click **Next** to proceed.

Figure 11. Add Publishing Point Wizard: Publishing Point Summary Panel

Step 12. In the Completing the Add Publishing Point Wizard panel, note the URL for accessing the stream from a player. Uncheck the **After the wizard finishes** option (Figure 12). Then click **Finish**.

Figure 12. Add Publishing Point Wizard: Finish Panel
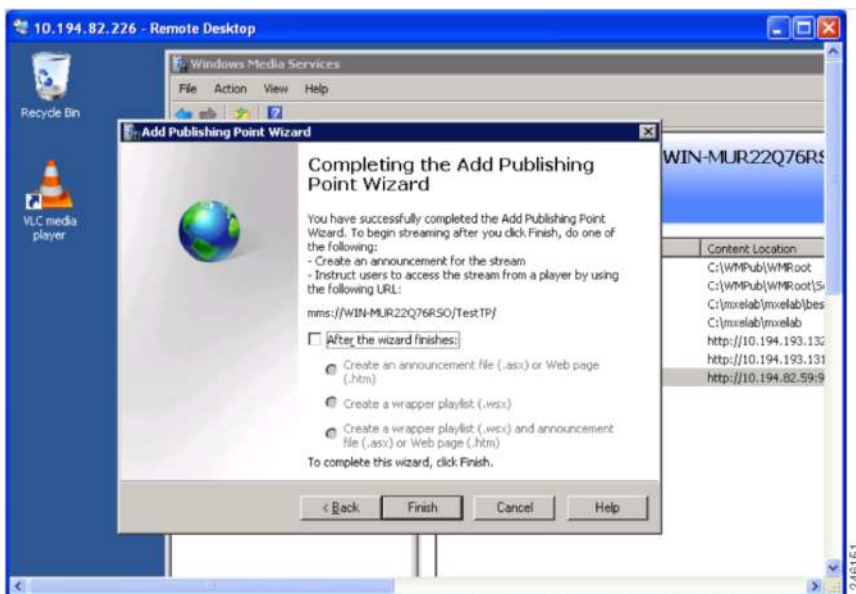
Step 13. To play the transcoded video, launch Windows Media Player, and by using the parameters that you specified in the configuration wizard, enter the URL as follows:
mms://IP-of-WMS/publishingPointName/FileName.wmv.

Live Streaming Content for Microsoft WMS Server

A Cisco customer has a video source that produces MPEG-2 in MPEG-2 TS format. The customer wants to transcode the video into WMV format and stream it live by using an existing Microsoft WMS server. The customer also wants to make the content look more professional by automatically applying a graphic overlay on the bottom third of every video that includes the title and the company logo.

Live Streaming Configuration Overview

Step 1. Verify the video source.

You can skip this step if you are sure that the Cisco MXE 3500 can receive the input stream, and that the input stream is indeed in MPEG-2 TS format. This step is documented because it is an effective troubleshooting tool as well.

Step 2. Verify that Cisco MXE 3500 can receive the input stream.

1. Install VLC media player on the Cisco MXE 3500 Microsoft Windows desktop. Download VLC from http://www.videolan.org/vlc/download-windows.html.

2. Launch VLC player, select **Media/Open Network Stream**, and then in the dialog box enter the network URL in the following format: **udp***://@IP of encoder or multicast:port* (Figure 13).

3. Click **Play**.

If the video shows up in VLC player, Cisco MXE 3500 can receive the input stream.

Figure 13.   VLC Open Network Stream Dialog Box
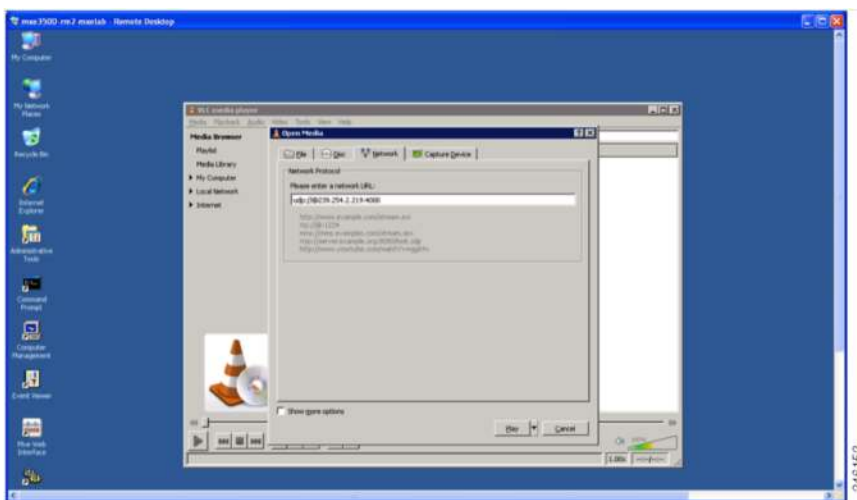
Step 3. Verify that the stream is MPEG-2 in MPEG-2 TS. While the video is playing in VLC media player, select **Tools/Codec Information**, which will list video codec details. Verify that the stream is MPEG-2 (Figure 14).

Figure 14. Use VLC to Check Media Information
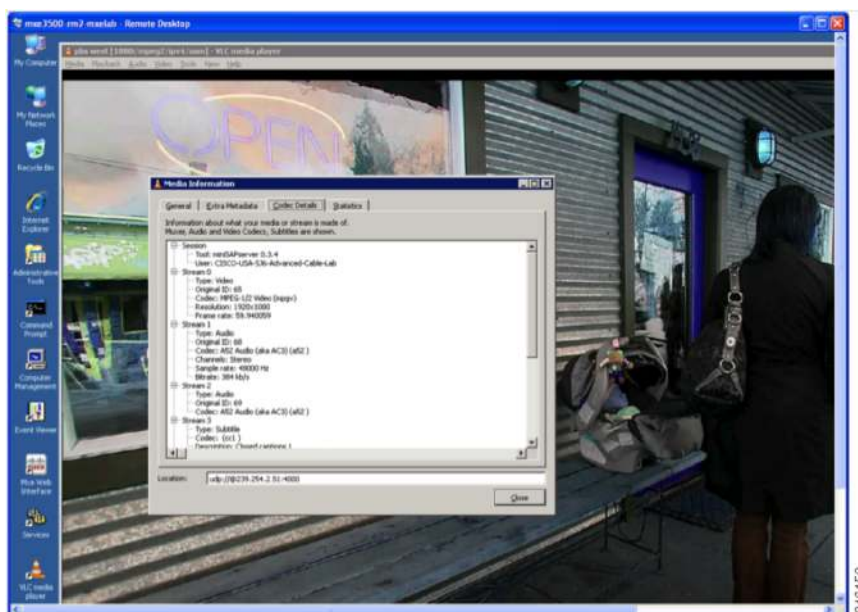
Detailed Configuration for Live Streaming Content

Configuring Cisco MXE 3500 for Live Streaming

Complete the following steps to configure and verify live streaming for Cisco MXE 3500:

1. Configure an IP capture in the Cisco MXE 3500.

2. Create a job profile, which consists of a preprocessor, encoder, and distribution profile.

3. Submit a live job.

4. Check the job status.

5. Verify Microsoft WMS live streaming.

Configuring an IP Capture

Step 1. Log into the Cisco MXE 3500 UI.

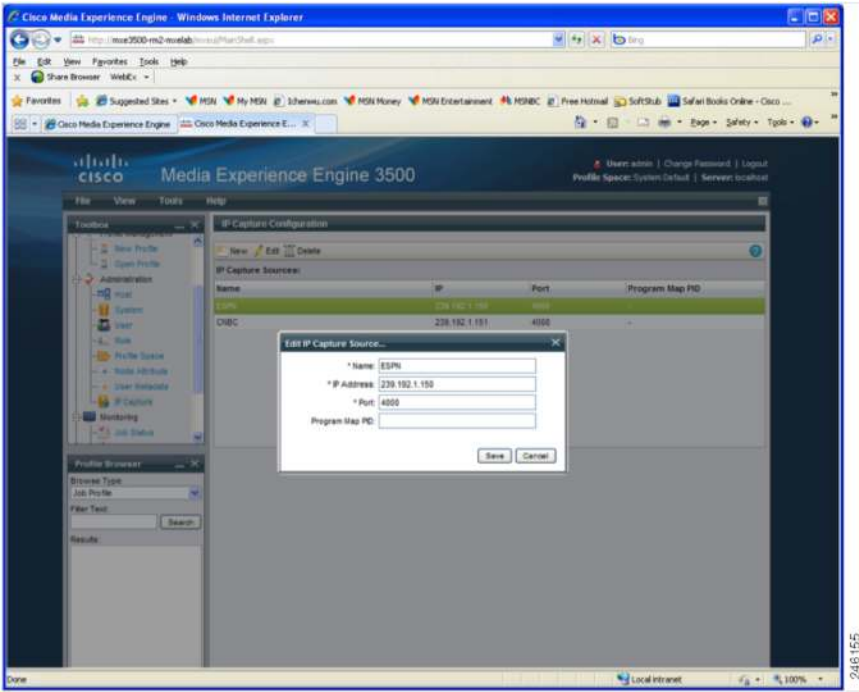Step 2. From the toolbox, select **Administration/IP Capture**.

Step 3. On the IP Capture Configuration page, click **New** (Figure 15).

Figure 15.   Cisco MXE 3500 UI: IP Capture Configuration
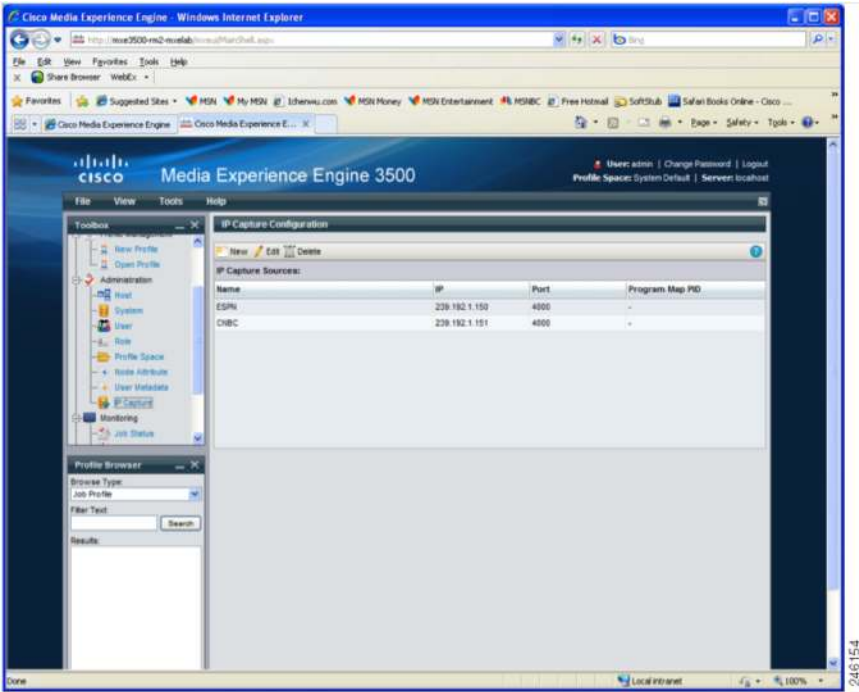
Step 4.   Enter the name, IP address, and port number for the input stream (Figure 16). Then click **Save**.

Figure 16.   Edit IP Capture Source

Step 5.   Configure preprocessor, encoder, and distribution component profiles.

Configuring a Job Profile

Step 1.   Create a preprocessor profile for media transformation. Make sure to use the following options (Figure 17):

- For Task Mode, choose **Fast Start**.

- For CPU Usage, choose **Optimized for Speed**.

- Specify the graphics overlay of your choice.

**Note:**   Watermark is not supported for a live streaming job.

Figure 17.   Progressive Preprocessor Profile for a Live Job
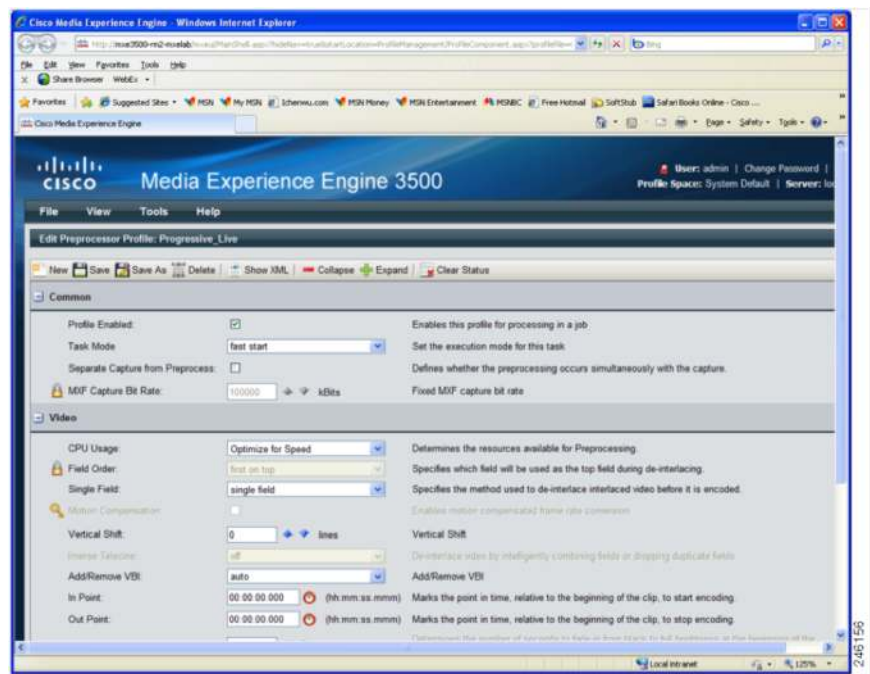
Step 2.   **For Encoder profile**, choose a **Windows Media** encoder profile.

Step 3.   **For Distribution profile**, choose a webcast distribution profile and have it refer to the encoder profile that you just created.

Step 4.   For the CDN field, choose **Other**.

Step 5.   In the Server field, enter the IP address of the Cisco MXE 3500.

Step 6.   In the Port field, enter a valid port number (for example, 9876).

Step 7.   In the Filename field, enter a name for the stream (for example, ESPN) (Figure 18).

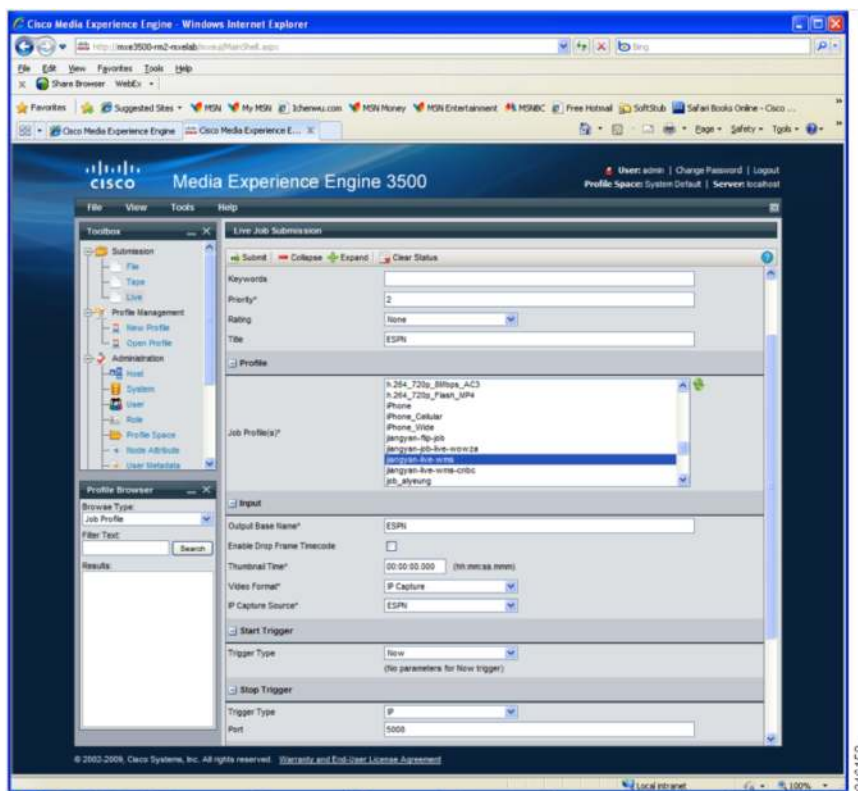**Figure 18.**   Webcast Distribution Profile for a Live Job
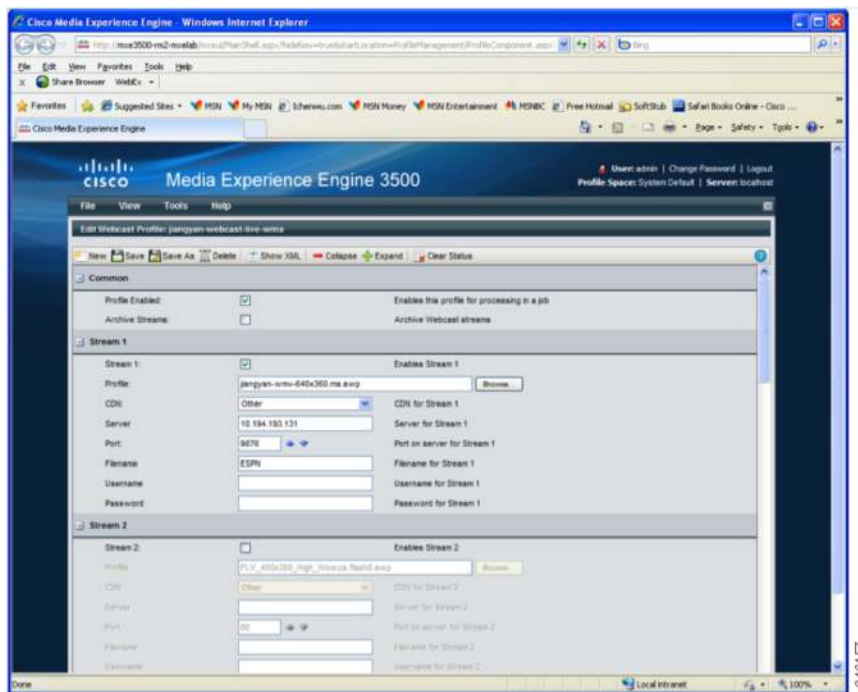
Step 8.   Save the profile.

Submitting a Live Job

Step 1.   To submit a live job on the Cisco MXE 3500, select **Submission > Live** (Figure 19).

Figure 19.   Live Job Submission Window

Step 2.   In the File Information/Title field, enter a title for this live job.

Step 3.   In the Profile section, select a live streaming job profile.

Step 4.   In the Input section, enter an output base name (for example, ESPN).

Step 5.   In Video Format drop-down list, choose **IP Capture**.

Step 6.   In the IP Capture Source drop-down list, choose the IP capture source you created in Step 5.

Step 7.   In the Start Trigger section, for Trigger Type choose **Now**.

Step 8.   In the Stop Trigger section, select a method (time or duration). If you want the live streaming to run continuously, choose IP and then define a port number. This option means that the stream will be stopped by a request sent through the specified port. Since such a request will not be sent, this live streaming will keep running and will not be stopped.
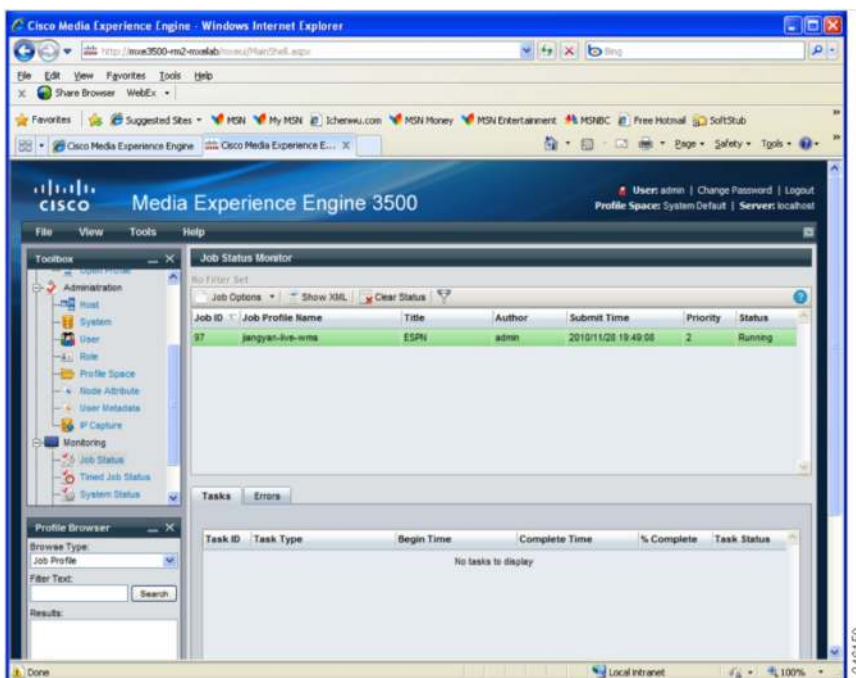
Step 9.   Click **Submit**. A message will appear indicating that the job has been submitted successfully.

Step 10.   Check the job status and verify live streaming.

Checking Job Status

Select **Monitoring > Job Status** to check the job status (Figure 20).

Figure 20. Job Status Monitor

Verifying Microsoft WMS Live Streaming

1. Launch a Windows Media Player on a local PC.

2. Right-click the player's title bar.

3. Choose **File/Open URL** and then enter the URL as follows: **mms://IP address of the MXE:Port Number**. You should see the live streaming content that the Cisco MXE 3500 produces.

Configuring a Publishing Point on Microsoft WMS for Live Streaming

Step 1. Use Microsoft Remote Desktop to log into the Windows server on which Microsoft WMS is running.

Step 2. Choose **Start > All Programs > Administrative Tools > Windows Media Services** to launch the application.

Step 3. Select the **Publishing Points** tree node, right-click to open the context menu, and choose **Add Publishing Point (Wizard)** (Figure 21).

Figure 21. Add Publishing Point Wizard: Start Panel

Step 4. Click **Next**.

Step 5. In the Publishing Point Name panel, specify a name (Figure 22). Then click **Next**.

Figure 22. Add Publishing Point Wizard: Publishing Point Name Panel
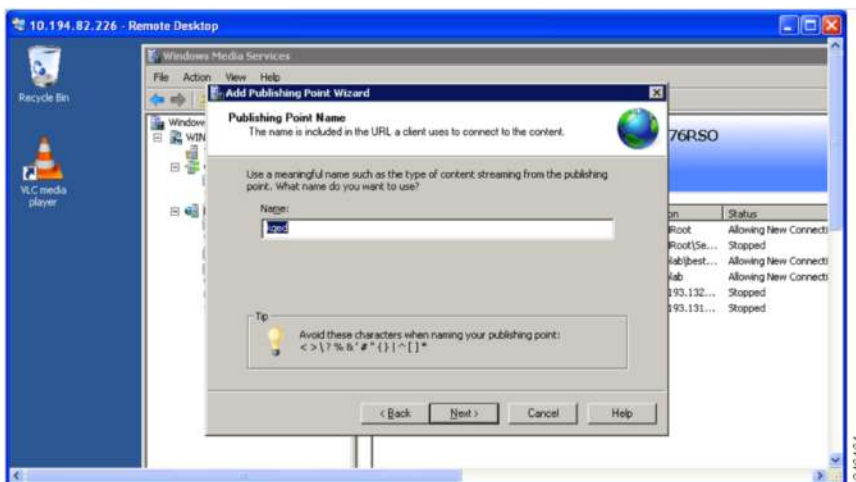
Step 6.   On the Content Type panel, choose the type of content you want to stream. Select **Encoder** (Figure 23). Then click **Next**.

**Figure 23.**   Add Publishing Point Wizard: Select Encoder for a Live Stream
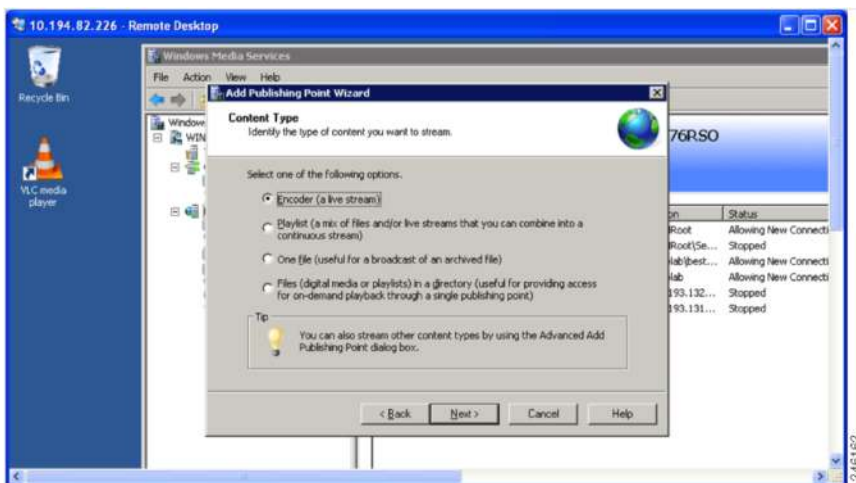
Step 7.   In the Publishing Point Type panel, **select the broadcast type** (Figure 24). Then click **Next**.

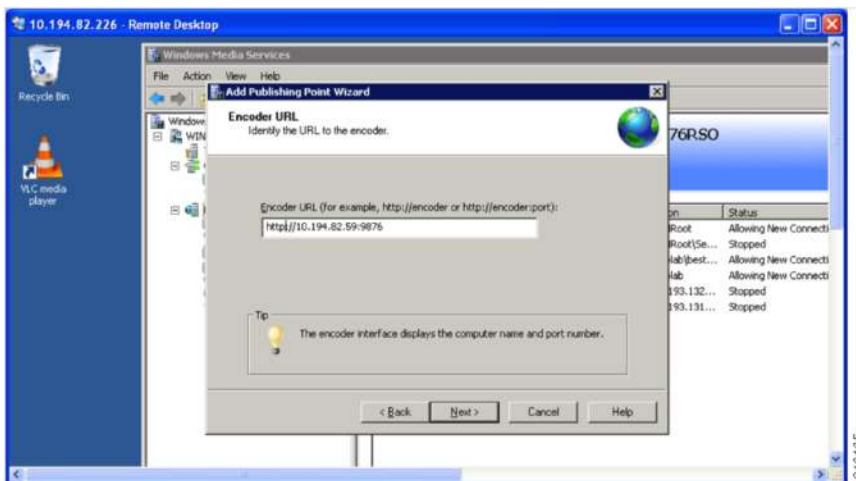**Figure 24.**   Add Publishing Point Wizard: Publishing Point Type Panel
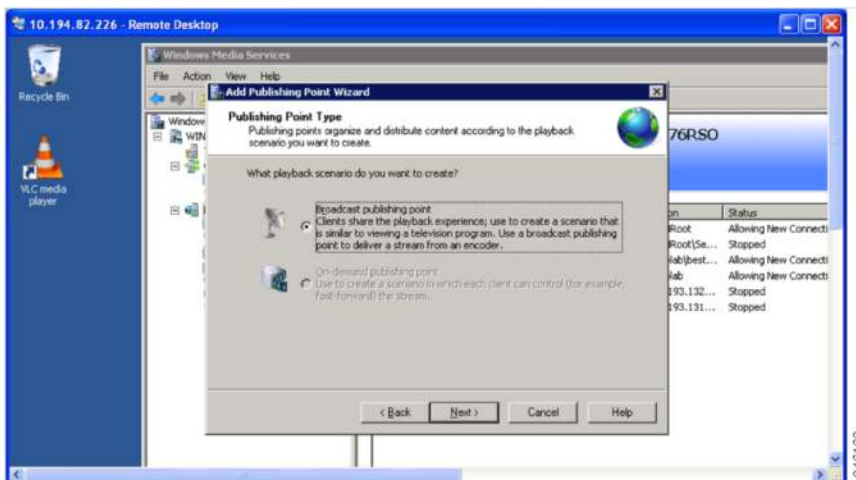
Step 8.   In the Delivery Options for Broadcast Publishing Points panel, choose **Unicast** (Figure 25). Then click **Next**.

Figure 25.   Add Publishing Point Wizard: Delivery Options for Broadcast Publishing Points
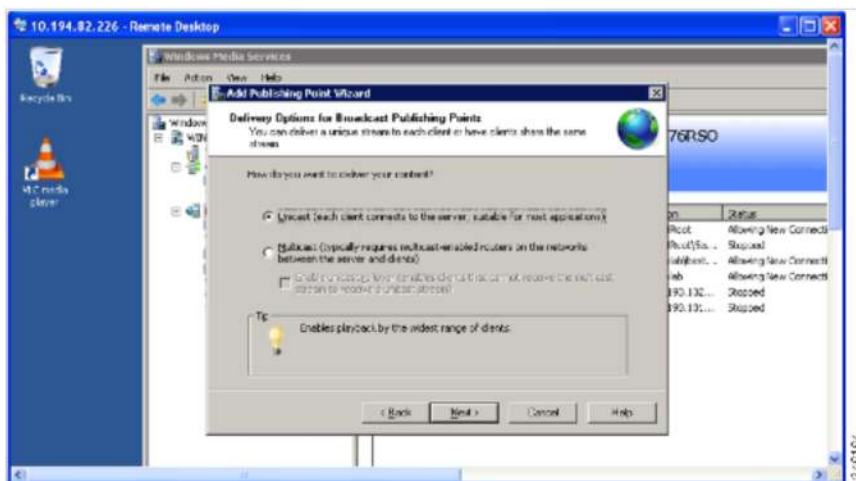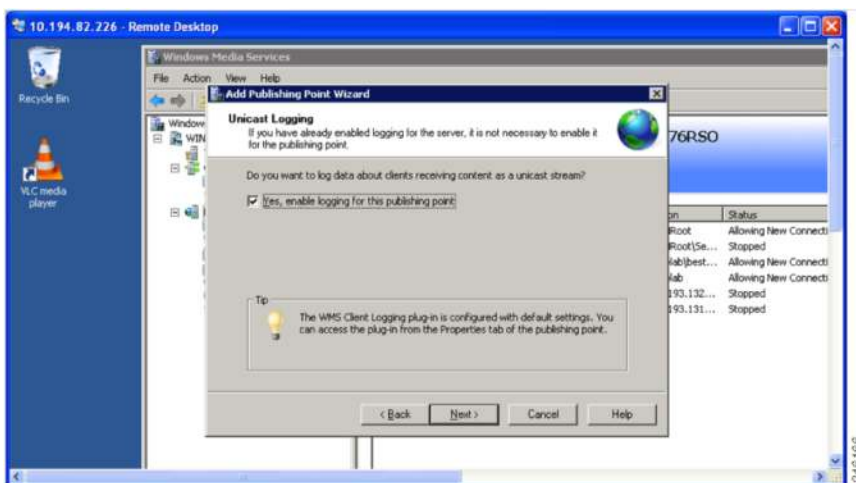

Step 9.   In the Encoder URL panel, enter the path as **http://*mxe_IP:port_number*** (Figure 26). Then click **Next**.

Figure 26.   Add Publishing Point: Encoder URL Panel

Step 10.   On the Unicast Logging page, choose logging if you want to log (Figure 27). Click **Next**.

Figure 27.   Add Publishing Point Wizard: Unicast Logging Panel

Step 11.   Review your settings in the Publishing Point Summary panel (Figure 28). Then click **Next** to proceed.

**Figure 28.**   Add Publishing Point Wizard: Summary Panel

Step 12.   On the Completing the Add Publishing Point Wizard panel, note the URL for accessing the stream from a player. Uncheck **After the wizard finishes** (Figure 29). Then click **Finish**.

**Figure 29.**   Add Publishing Point Wizard: Finish Panel

Step 13.   Verify that the publishing point is started correctly in the Microsoft WMS main window (Figure 30).

Figure 30.   Microsoft Windows Media Services: Publishing Points List
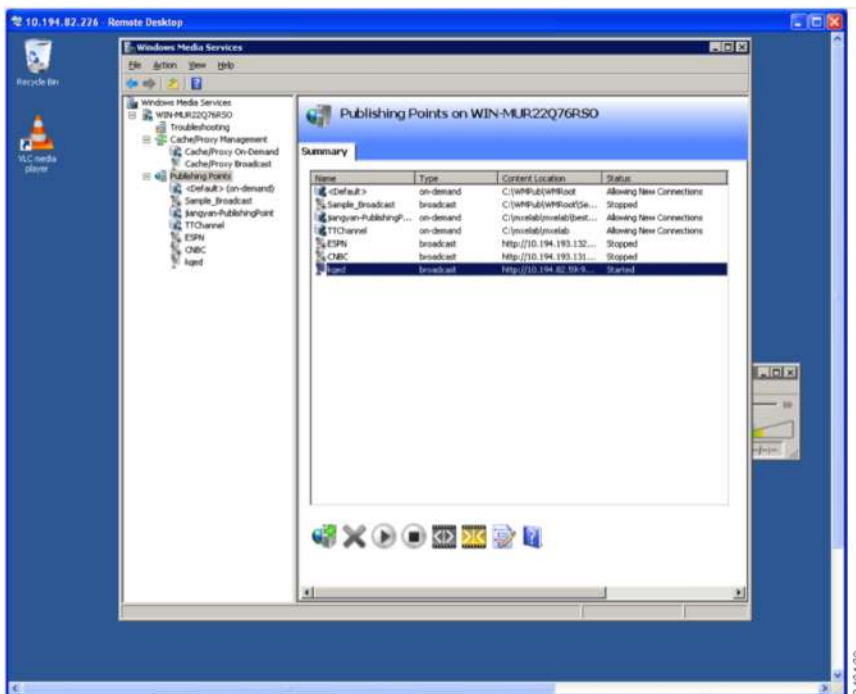
Step 14.   To watch the live stream, launch Windows Media Player and enter the URL as follows: **mms://*IP-of-WMS/publishingPointName*** (Figure 31).

Figure 31.   Open a Live Stream on Windows Media Player
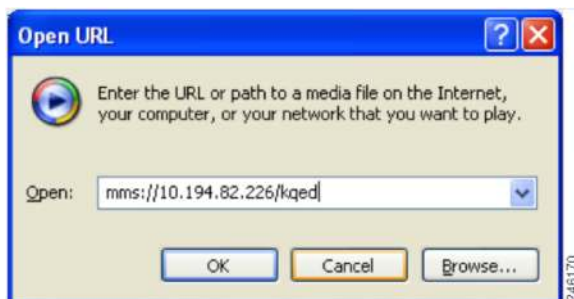
Configuring Live Streaming with a Cisco MXE 3500 Resource Manager Cluster

To run live streaming by using a Cisco MXE 3500 resource manager cluster (for example, one resource manager and one or more resource nodes), the steps are similar to those for a standalone Cisco MXE 3500 except for the following points:

1. You must configure the external Windows Media Server to connect to the IP address and port of the actual node that handles the job.

2. Any IP address that you configured in the distribution profile is not relevant. The stream will always be available only on the node that is performing the encoding.

To find out which node is handling the live job, first choose **Monitoring > Job Status** and locate the job ID. Then choose **Monitoring > System Status** and find the node that currently processes that specific job ID. The IP address next to the bar indicates the node IP address. Use that node IP address to configure the publishing point in Microsoft WMS.