User Guide for Cisco Digital Media Encoder 2200

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CONTENTS

CHAPTER 1

Installing the Cisco Digital Media Encoder 2200

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This chapter includes the following sections:

Foreword

Congratulations on the purchase of your Cisco Digital Media Encoder 2200! You are the fortunate owner of a state-of-the-art streaming media system. Now you can capture and stream your audio and video content over the Internet or any local or wide area IP network. All you need is your audio and video source, such as a camera or deck, a streaming media server or hosting provider, and an IP connection to your viewing audience.

Throughout this document, Cisco Digital Media Encoder 2200 will be referred to generically as an encoder or device.

For a complete overview on streaming audio and video over an IP network, go to the "Streaming Infrastructure" section on page 2-2. This section will explain how streaming media works.

Cisco Digital Media Encoder 2200 is an easy-to-use streaming device. You simply connect your audio and video source to the encoder, select your target playback device, enter your streaming server information, and press the **Stream** button. You're streaming live!

Cisco Digital Media Encoder 2200 can be configured and used straight out of the box for most streaming uses. For more advanced settings or controlling your encoder from another networked computer, you will use ***Niagara SCX Web Interface***.

The front panel of your encoder can be customized by using the ***Configuration Web Browser Interface***. This configuration tool also provides the ability to set many other system parameters for your device.

We hope you enjoy your Cisco Digital Media Encoder 2200!

Warning **Read the installation instructions before connecting the system to the power source.**

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Safety Instructions

This section includes the following topics:

Warnings

Before installing the Cisco Digital Media Encoder 2200, read and comply with the following safety warnings to ensure that you do not damage the equipment or cause personal injury.

Warning **Installation of the equipment must comply with local and national electrical codes.**

Warning **Read the installation instructions before connecting the system to the power source.**

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Warning **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.**

Warning **The power supply must be placed indoors.**

Warning **The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.**

Warning **Do not work on the system or connect or disconnect cables during periods of lightning activity.**

Warning **To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.**

Warranty

For complete warranty details, refer to the specific warranty included with each product.

Package Contents

Completely unpack all of the contents from the box, inspect each item for damage, and ensure that you have all of the following components:

- Cisco Digital Media Encoder 2200
- Power Cable
- BNC-to-RCA Converter, Male-to-Female (8)
- 75 OHM BNC Terminator
- 1 Pair Rack Slide Rails
- 2 Rack Handles
- Cisco Digital Media Encoder 2200 Documentation CD

If any of these components are missing or damaged, do not continue with the installation. Contact the Cisco reseller from which you purchased your encoder system for assistance in obtaining any missing parts or for parts replacement.

The encoder's serial number is located on the right side of the chassis.

Warning **Installation of the equipment must comply with local and national electrical codes.**

Installation

This section will guide you through the physical connection and setup of your Cisco Digital Media Encoder 2200 system.

There are two parts to the complete installation of the encoder, as follows:

1. Connecting the Cisco Digital Media Encoder 2200
2. Configuring the Cisco Digital Media Encoder 2200

Most of the basic operations you will routinely use are performed from the front panel of the encoder, shown in Figure 1-2.

There are advanced setup and operations you may wish to access and to do so you will need to access the ***SCX Web Interface*** from a computer that resides on the same network as the encoder.

Although these advanced operations are not required for most streaming applications, you may want to customize your encoding settings and assign specific encoding profiles to the ***EZStream® ABC*** buttons on the front panel. The ***SCX Web Interface*** provides the ability to remote control your encoder from a computer that could be rooms or continents away from the system provided that both your encoder and the computer have Internet access to communicate with each other.

First, you need to connect the encoder. See the "Connecting the Cisco Digital Media Encoder 2200" section for connection information.

Connecting the Cisco Digital Media Encoder 2200

Although it has many features and capabilities, the encoder at its most basic function takes analog audio and video input and processes the signals and then encodes them into digital IP video formats. Then, the encoder delivers the IP audio and video content to a storage device or streams it over an IP network.

There are four requirements for setting up the encoder for streaming or capturing video, as follows:

- AC power source (100-240v)
- Audio/Video source (camera, video player, or other A/V output device)
- IP network and/or Internet connection
- A streaming media server for streaming your content to many viewers

Connecting to an Electrical Power Source

The appropriate power cable is specified when your unit is ordered. Attach the block end to the power input located on the upper corner on the rear panel of the encoder (Figure 1-1).

Plug the other end into a wall outlet or surge protection enabled power strip that is connected to wall outlet or other common power source.

Warning **The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.**

Warning **Do not work on the system or connect or disconnect cables during periods of lightning activity.**

Rear Panel Diagram

The diagram in Figure 1-1 and Table 1-1 illustrate all of the connectors and other components of the encoder rear panel.

Figure 1-1 Rear Panel Diagram

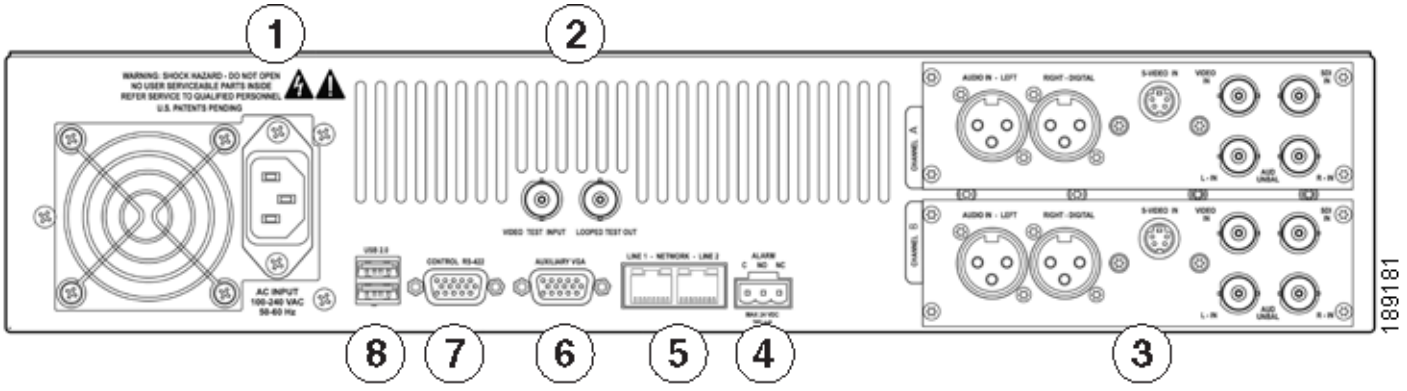
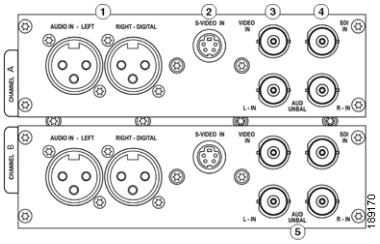


Figure 1-1 shows the rear panel of the encoder. Using the reference chart and images in Table 1-1, you can connect the appropriate device and power to the encoder.

Table 1-1 Rear Panel Reference

—	Port	Description
1	AC Power Input	Provides system power.
2	Video Test Ports	BNC connector for composite video IN/OUT. Allows you to connect a video test signal, such as a color bar generator, to calibrate the video settings for video capture sessions.
3	Channel A & B AV Inputs 	Each AV Input channel provides the following input ports: **1.** Left/Right XLR connector for balanced audio sources; right XLR connector for AES/EBU audio **2.** Mini-DIN connector for S-Video sources **3.** BNC connector for composite video sources **4.** BNC connector for SDI Video Sources with embedded SDI audio **5.** Left/Right BNC connectors for unbalanced audio sources
4	Alarm Relay Connector	Use this port to connect an external device (such as an audible bell or buzzer) so that, if the system fails, it will trigger an external audible sound.
5	Network Ports (Line 1 & 2)	Dual Ethernet ports provide redundant connections to your network.
6	Auxiliary VGA Connector	Use this port to connect an external VGA monitor so that you can view the Operating System Interface.
7	Control RS-422 Connector	(FUTURE) 9-pin D connector. Allows you to control the encoder via RS-422 protocols, providing integration into a broadcast studio master control center. This is a standard RS-422 port that can be used with deck control software.
8	USB 2.0 Connectors	Use these ports to connect USB control devices, such as a keyboard and mouse or USB memory devices.

Front Panel Diagram

You should familiarize yourself with the front panel controls for the Cisco Digital Media Encoder 2200. Besides the basic buttons for power, start/stop, up/down and menu access, there are also several indicator lights. Figure 1-2 and Table 1-2 illustrate all buttons and lights, so you can review the front panel functions and interface.

Figure 1-2 Front Panel Diagram

Table 1-2 Front Panel Buttons and Lights

Item	Description
Control Buttons	
Power 	Pressing this button once will power up Niagara Pro II. When Niagara Pro II is powered up, pressing this button once will power down the system. Pressing and holding for 5 seconds will perform an immediate power off.
EZStream Buttons 	When an encoder profile is assigned to one of these buttons, pressing the assigned button and then the Stream button will start the encoder. Pressing the assigned button and then the Stop button will stop the encoder.
Alarm Information 	When the Alarm Light indicator is lit, pressing this button will provide a log of the most recent alarms recorded. Pressing the Enter button will clear these alarms from the log.
Menu 	Pressing this button will activate the encoder menu on the LCD display.
Enter 	Pressing this button will enter or accept the menu choice highlighted on the LCD display. It is used for menu operations.
Up/Down 	These buttons are used for menu navigation on the LCD display.

Table 1-2 Front Panel Buttons and Lights

Stream 	Pressing this button when an encoder profile is highlighted in the LCD display will start the encoder.
Stop 	Pressing this button when an encoder profile is highlighted in the LCD display will stop the encoder.
Alarm 	This light indicates that an application alert has occurred.
Remote Control 	This light indicates that another user is accessing the encoder across the network from a computer.
Audio Activity 	These lights indicate audio input presence.
Headphone Jack and Volume Buttons 	The jack allows headphones to be connected to the encoder for audio monitoring. The Volume Buttons control the audio level on the headphones.
USB Port 	The USB port allows the export of files to USB devices.

Configuring the Cisco Digital Media Encoder 2200

This section includes the following topics:

Completing First Start Setup

The first time the encoder is powered, the LCD display will present a series of menus that will assist in setting up the system clock, date, and video input format (NTSC [North America/Japan] or PAL).

1. To start the encoder, press the **<POWER>** button located on the front panel.

2. During the power up process, the encoder LCD readout displays the following message:

3. After the encoder powers up the first time, it displays the following message:

4. Press the **<ENTER>** button to begin the initial setup.

5. The encoder will now ask you to set the date.

6. To set the date, use the **<UP>** and **<DOWN>** arrow keys to increment the numerical value of the month.

7. Once you set the numerical value for the month, press the **<STREAM>** button to move to the day field.

8. Again, use the **<UP>** and **<DOWN>** arrow keys to increment the numerical value of the day.
9. Press **<STREAM>** to enter the value and move to the year field.
10. Use the same process for setting the month and day so that you may set the year.
11. If you want to change a previous setting, you can continue pressing the **<STREAM>** button until the cursor cycles around to the month.

12. Once you are satisfied with your settings, you then press the **<ENTER>** button to accept the settings and move to the next screen to set the system clock.
13. The encoder uses Military Time, which is a 24-hour clock format, for its system clock entries.

14. Use the **<UP>**, **<DOWN>**, **<STREAM>**, and **<ENTER>** buttons to set the hour and minute of the system clock.
15. The last setting is the selection of the video input format that you will enter into the encoder.
16. You will see the following prompt message:

17. Press the **<ENTER>** button to continue.
18. Select your video source format from either NTSC or PAL.

19. Press the **<ENTER>** button to set the format, and the final screen will appear confirming that you have successfully set up your encoder.

20. Press the **<ENTER>** button to exit the setup menu and begin using your encoder.

Configuring the Cisco Digital Media Encoder 2200 to Connect to an IP Network

Note If you are not familiar with network protocols, please contact your network administrator for assistance.

The Cisco Digital Media Encoder 2200 network settings for its two 1,000 megabit network interfaces default to dynamically obtain an IP address from a DHCP server on the network.

If a DHCP server is not available or cannot be found on the network, then the encoder will assign its own IP address.

For most network environments, it will not be necessary to modify these default settings. However, if you wish to assign a static IP address to the encoder's Network Interface Cards (NICs), then you can change the network setting using the encoder front panel menu.

Changing the Cisco Digital Media Encoder 2200 Network Settings

1. Press the **Menu** button to access the encoder's **EASE** menu.

2. The ***EASE Menu*** options are the following:

3. Use the **<UP>** and **<DOWN>** buttons to move the select arrow in the menu until the arrow points to **Setup System** option.

4. Now, press the **<ENTER>** button.

5. The encoder LCD readout will display the Setup menu. Using the **<UP>** and **<DOWN>** buttons, select **Network**, and press the **<ENTER>** button.

6. Select the network interface you wish to modify, and then press **<ENTER>**.

7. Select **Change Settings**, and press the **<ENTER>** button.

The next menu presents the various network settings. Selecting one of these menu items allows you to change these individual settings.

Note Once you modify these settings, the changes will be saved until you modify the settings again or you restore the encoder back to its original factory settings.

8. Select **DHCP On/Off**, and then press the **<ENTER>** button. If you wish to cancel this process, press the **<MENU>** button to return to the main menu.

9. The following buttons and their respective actions represent your choices:

- Press the **<ENTER>** button to select and continue.
- Press the **Menu** button to cancel and exit.

10. The next menu offers you the choice to enable DHCP for the network interface.

11. Using the **<UP>** and **<DOWN>** buttons, you can toggle the selection from the **No** to the **Yes** option. After you make your selection, press the **<ENTER>** button to input the change. The encoder will confirm that you wish to change this setting.

12. Press **<ENTER>** to confirm your choice. The encoder will return to the menu to select another individual setting to modify.

13. To input a static address for the IP address and/or Gateway, select either from the menu, and press the **<ENTER>** button.

14. Using the **<UP>** and **<DOWN>** arrow keys to increment numerical value, enter a static IP address.
15. Press the **<STREAM>** button to move to the next field.

16. When you have correctly entered the IP address or Gateway address, press **<ENTER>** to input the data into the encoder. When setting a static IP address, a screen will appear that will allow you to set the subnet address.

17. If you wish to remove a static IP address and/or Gateway previously set on the encoder, simply enable DHCP by using the method described in Step 10. Any previously entered static address will be removed.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

CHAPTER 2

Getting to Know the Cisco Digital Media Encoder 2200

Revised: November 9, 2009, OL-17938-01

This chapter includes the following sections:

Introduction

What is Streaming Media?

Streaming media is media that is consumed (read, heard, viewed) while it is being delivered. Streaming is more a property of the delivery system than the media itself. The distinction is usually applied to media that is distributed over computer networks; most other delivery systems are either inherently streaming (radio, television, Internet TV) or inherently non-streaming (books, video cassettes, audio CDs).

Cisco Digital Media Encoder 2200 is designed specifically for streaming audio and video media over an IP network.

Streaming Infrastructure

Before setting up your new Cisco Digital Media Encoder 2200, it is useful to understand the complete overview of live streaming video—from video capture to streaming video playback.

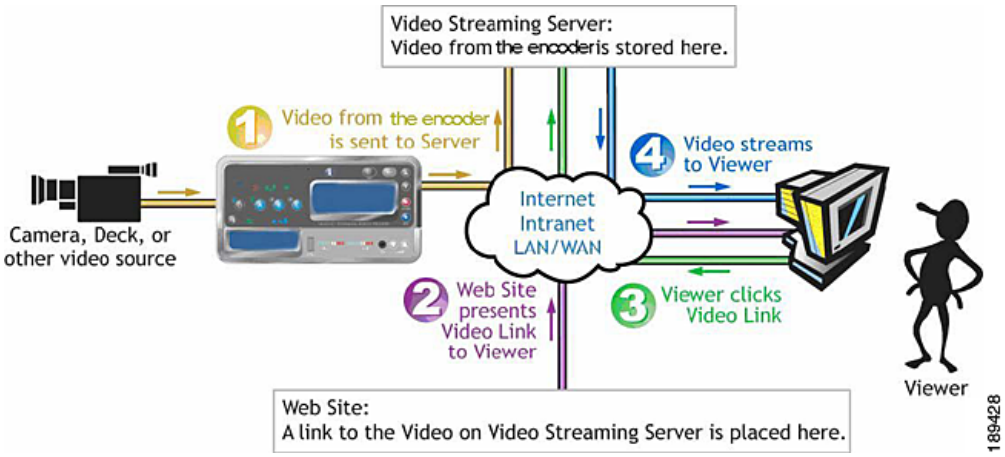
There are many applications for capturing video into the computer environment that can range from DVD authoring to live webcasting. Regardless of the final use of the video, all can be categorized into three main workflow processes:

- Single video/session capture (one-off file capture for non-real time delivery)
  - Typically the captured file is then processed and/or authored into its final form for delivery
- Batch video/session capture (archiving, scheduling and storage)
  - Multiple source content is to be digitalized
  - Device control is needed for unattended source
  - Ability to schedule sessions is needed to capture timed events
- Live video capture, processing and delivery (webcasting)
  - Can be single or multiple sources
  - Live event at a specific time
  - Can be a remote or local capture
  - Final content is delivered in real time to viewers

Each category has its unique set of requirements that also dictates different user interfaces, functionality and experiences. The Cisco Digital Media Encoder 2200 is designed for live video capture, processing and delivery.

Figure 2-1 is a diagram illustrating the video path starting with the source, like a camera or video player, going through the encoder, to the server, across an IP network, to a software player and displayed on a monitor for audience viewing.

Figure 2-1 Video Path



Simple Guide to Streaming Audio and Video Types

Cisco Digital Media Encoder 2200 can create several different types of audio and video streams. Although all are a type of IP video format, each has certain properties that make it more attuned to a specific streaming video application. Cisco Digital Media Encoder 2200 was designed for creating video content in a reduced resolution to allow the content to be streamed across the Internet to be played back on a computer or a handheld mobile device.

Table 2-1 lists all formats supported by Cisco Digital Media Encoder 2200 with suggested application uses. All of these formats can be used for many different applications.

Table 2-1 IP Video Compression for Streaming in Full Resolution or Lower

Format	Description
Windows Media®	Streaming Internet video and mobile devices
RealVideo®/Helix®	Streaming Internet video and mobile devices
MPEG-4	Handheld devices and mobile phones

In choosing the right streaming format for your needs, you should first consider the audience to which you will be sending your content. What is the most common player that they will have available to watch your content? This will determine the format of the stream that you will create for your audience.

To determine the data rate that you will stream your content, you will need to determine the IP bandwidth to which your audience has access. For example, if the access method uses an ISDN connection or less, then you would stream your video and/or audio at a low data rate such as QCIF at 56kbps. If the access is much greater like a cable modem or DSL connection, then you can provide a higher quality stream at full resolution at 2 Mbps.

Cisco Digital Media Encoder 2200 provides preconfigured encoding profiles for different bandwidth connections. The profiles loaded will depend upon how you configure your encoder on its initial startup.

Tutorial

There are two interfaces for operation of your Cisco Digital Media Encoder 2200: the encoder front panel LCD display and buttons and the ***Niagara SCX Web Interface***. This tutorial is divided into the following two parts:

1. Basic Operation: Using the Front Panel, page 2-4
2. Advanced Operation: Using the Niagara SCX Web Interface, page 2-15

Note To access the ***Niagara SCX Web Interface*** or the Niagara SCX Encoder Explorer Software, you will need a computer with a current web browser installed that has an IP connection to the encoder via a local network on which both the encoder and the computer reside or through a direct IP connection by using the included RJ-45 cable to connect directly from the encoder to a computer.

Basic Operation: Using the Front Panel

Note For information about the front panel buttons, see the "Front Panel Diagram" section on page 1-6.

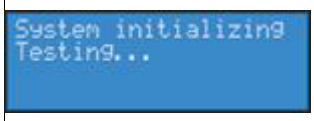
This section includes the following topics:

Startup

Note If this is the first time that the encoder has been started, read the "Completing First Start Setup" section on page 1-8 before continuing.

To start your encoder, press the **<POWER>** button on the front panel.

While powering up, the encoder LCD readout will display the following series of messages:



When *System is Ready* for operation, the encoder LCD display will alternate between status readouts that are similar to the following:

Shutdown

To shutdown the encoder, briefly press the **<POWER>** button on the front panel.

The encoder LCD readout will display the following messages:

After a few seconds, the encoder will power off.

Caution Allow the encoder to power down normally. If you force the system to shutdown improperly, data can be corrupted. If so, the next time the system is started it can take several minutes to complete startup.

Alternate Shutdown Method

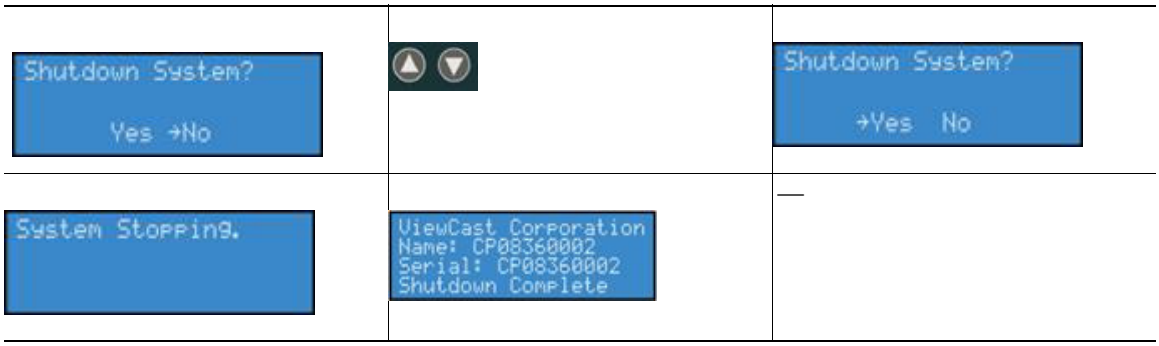
Alternatively, you can shut down the encoder by using the **EASE** menu.

Press the **<MENU>** button to display the **EASE** menu.

Using the **<UP>** and **<DOWN>** arrow buttons, scroll down until **Shutdown System** is displayed and selected.

Press **<ENTER>**.

Then, confirm that you wish to shut down the system using the **<UP>** and **<DOWN>** buttons to select either **Yes** or **No**. Press **<ENTER>**.



Starting an Encoding Session

The encoder LCD readout will display a list of available encoder profiles that can be used together with the current status of each.

Note The name of each encoder profile is abbreviated to display the first 10 characters. When creating names for custom profiles, be sure to create unique names that will be distinguishable by the first ten characters.

Use the **<UP>** and **<DOWN>** buttons to move the select arrow to point to the encoder profile that you want the encoder to use for this encoding session.

Once you select the encoder profile you need, press the **<STREAM>** button again to start the encoder.

The encoder LCD readout then displays messages about the encoder start process.

After the encoder session has successfully begun, the encoder LCD readout returns to the previous display of available encoders. The screen will indicate that the encoder profile you selected has begun encoding.

If the encoder you started was assigned to one of the ***EZStream ABC*** buttons, the corresponding button flashes and steady illuminates during and after the starting process.

By repeating this method, you can quickly start multiple encoders at the same time.

Cisco Digital Media Encoder 2200 is a two-channel encoder, which means you can connect and stream up to two audio and video sources at any given time. However, you can stream the same audio and video at multiple data rates and multiple formats to provide the best user experience for different viewing audiences.

For example, you can stream Windows Media at full resolution at 1 Mbps and the same time stream RealVideo at CIF resolution at 300kbps.

Warning **There are limitations to the number of streams that you can capture simultaneously. If you attempt to capture more streams than the encoder is capable of processing simultaneously, the streams will drop frames and the video will appear to stutter resulting in a poor viewer experience. If the number of sessions is not reduced in order to reduce CPU load, all encoding sessions could self-terminate without warning.**

Checking CPU Usage

Since you are able to start multiple streams, understanding how much of the processing power of the encoder is being used is invaluable. If you are using less than 50%, then you should be able to start another encoding session without adversely affecting system performance.

Press the **<MENU>** button to display the main menu on the encoder LCD readout.

The LCD readout will display the following menu choices:

Using the **<UP>** and **<DOWN>** buttons, move the arrow until it is next to the menu item **Access** and then press the **<ENTER>** button.

The LCD readout will display the **Access** menu choices. Press the **<ENTER>** button with **CPU** menu item selected.

The encoder LCD readout displays the amount of CPU cycles in use. When the encoder is idle (no encoder sessions running), the CPU percent displayed should be 4% or less. If one or more encoder sessions are running, then the percent displayed will be much higher and will fluctuate in a range of +/- 10 percentage points.

Press the **<ENTER>** button to return to the previous menu.

Stopping an Encoding Session

To stop an encoder, press the **<STOP>** button.

The encoder LCD readout displays the list of encoding and shows the current status of each session.

Using the **<UP>** and **<DOWN>** buttons, move the pointer to the position next to the encoding session you want to terminate.

Press the **<STOP>** button again, and the encoder session selected will terminate.

To return to the main menu, press the **<MENU>** button.

Connecting an External Storage Device

The Cisco Digital Media Encoder 2200 rear panel provides two USB ports, and the front panel provides one. You can connect almost any standard USB flash drive to one or both of these ports. This allows you to export any AV files you may have created on the encoder's local storage drive. The local storage drive is the D drive when you use the **Save to File** setting while you employ the ***Niagara SCX Web Interface***.

When you insert a USB flash drive in one of the USB ports on the Cisco Digital Media Encoder 2200, the encoder automatically detects the removable storage device and assigns a random drive letter to the device. This device can capture files directly or can be employed to use the encoder **Export File** function, which is available for access when using the front panel menu.

Exporting Captured Video Files

You can export your captured video files to an external USB drive.

Note To export files to a USB device from Cisco Digital Media Encoder 2200, you must set a default location for the captured video files via the ***SCX Web Interface***, and place those files in that default location. This can be done on the **System Configuration** page of the web interface at the ***Default AV Folder** box. By default, this folder is set to D:\AVFiles. After you input the preferred default location in the *Default AV Folder box, you can begin exporting your files from the encoder.

Press the **<Menu>** button to access the encoder menu.

Using the **<UP>** and **<DOWN>** arrow buttons, highlight the **Export Files** option, and press the **<Enter>** button.

Then, select the **To USB Drive** option, and press **<ENTER>**.

The next screen will ask you to select the drive destination and provide a list of active USB drives connect to the encoder.

Select the USB drive to which you wish to export, and press **<ENTER>**.

The next screen will ask you to select a source file, i.e., the file you want to export to the USB device.

Your source file should appear on the following screen.

Note The file name on this screen is for instructional purposes only.

Upon seeing the name of the file you wish to export on the screen, press **<ENTER>**. You will then see the following screens.

Once the encoder is finished exporting the file, you can remove the USB device.

DME Security Best Practices

We wrote topics in this section to answer and expand upon these customer questions about DME security:

- **CSCsz67661**—How do I change the factory-default password for Windows?
- **CSCta04924**—How do I disable unneeded Windows services, such as NNTP, SMTP, and SNMP?
- **CSCsz67661**—How do I safeguard my encoded files on the DME file share?

Warning **Factory-defined passwords exist by default on all new and newly restored DMEs. These credentials persist until you change them. Because they are well-known, these credentials are a security vulnerability in your network. Therefore, we recommend very strongly that you change them promptly each time that you start to configure a DME.**

In addition, some services are enabled by default that you might never use. We recommend that you disable all unneeded services.

- Factory-Defined Login Credentials, page 2-11
- Changing Factory-Defined Login Credentials, page 2-11
- Other Required Password Maintenance (Only When Autologon Is Configured), page 2-13
- Tasks to Complete After Changing DME Login Passwords, page 2-14
- Disabling Unneeded Services, page 2-14
- After a Live Event Is Finished, Remove Its Encoded Video Files from the DME File Share, page 2-15

Factory-Defined Login Credentials

Table 2-2 lists login credentials that are predefined on DMEs.

Table 2-2 Factory-Defined User Accounts and Passwords

Username	Password	DME Model				Notes
		DMS-DME 2200	DMS-DME 2000	DMS-DME 1100	DMS-DME 1000	
User Accounts for Microsoft Windows—*See Harden Windows, page 2-12.*						
GoStream	password[1]	—	—	—	X	**Warning** **Never configure a DME to log in automatically. Doing so prevents true security in your network.** If—despite our recommendation—you configure a DME to log into Windows automatically, password management becomes far more complex. Thus, any time that you neglect to change an auto-logon password specifically, you will prevent your DME from working as designed. See Other Required Password Maintenance (Only When Autologon Is Configured), page 2-13.
Niagara	password	X	X	X	—	
SCXUser	viewcast	X	X	X	X	Used for the Niagara SCX service as well as the web service. This is not the user account that is used to log-in to Niagara SCX.
User Accounts for the Niagara SCX Web Interface—*See Harden the web interface, page 2-13.*						
admin	admin	X	X	X	X	Used for the web-based administrative console on DMEs. Login is possible only through a system from which your DME is reachable. Its connection to your DME might be either direct or networked.

1. In 5.2.187 and later releases on a DME 1000.

Changing Factory-Defined Login Credentials

Warning **Be very careful as you complete this workflow. Any mistakes that you make might prevent your DME from booting correctly or functioning correctly.**

Before You Begin

- This workflow uses the instance of Microsoft Windows that runs on your DME. Even though a remote management connection might be sufficient, we recommend instead that you connect a keyboard, a mouse, and a monitor to your DME directly and use them to control Windows.
- From Step 1, this workflow assumes that your DME is either new or in a factory-restored condition. If this is not true, or if you are not sure, we recommend very strongly that you **perform a factory restore operation now**.

Procedure

	Task	Steps	Notes
Step 1	**Harden Windows** Change the Windows password for the main account.	**a.** Choose **Start > Settings > Control Panel > User Accounts**, and then: • If you have a DME 1000, choose **GoStream > Change my password**. • Otherwise, choose **Niagara > Change my password**. **b.** Change the password as desired. **c.** Click **Change Password**.	Depending on your DME model type, the username is either Niagara or GoStream. See Table 2-2 on page 2-11.
Step 2	**Harden Niagara SCX** Change the password for the SCXUser account, which you use to log in to Niagara SCX Encoder Explorer.	**a.** Choose **Start > Settings > Control Panel > User Accounts > SCXUser > Change my password**. **b.** Change the password as desired. **c.** Click **Change Password**.	—
Step 3	**Stop agent services**	**a.** Do either of the following: • Choose **Start > Run**. Type **system32** and press **Enter**. Double-click **GoStreamStopServices.bat**. • Choose **Start > All Programs > Viewcast > Niagrara SCX > Niagara SCX Agent**, and then click **Stop**.	—
Step 4	**Update web.config to use the new password** Edit the web.config file.	**a.** Use Windows Explorer to browse to **\inetpub\wwwroot\encoderswebservice**. OR Browse instead to one of the following: • For a DMS-DME 1000, **\inetpub\wwwroot\GoStream**. • Otherwise, **\inetpub\wwwroot\Niagara**. **b.** Open the **web.config** file in a text editor, such as Notepad.exe. **c.** Locate the line of text that looks like this: `<identity impersonate="true" userName="scxuser" password="viewcast"/>` **d.** Edit the password string in this line of text. **e.** Save your work and exit the text editor.	—
Step 5	**Restart your DME**		—

	Task	Steps	Notes
Step 6	**Check for errors** Point the DME web browser at **http://localhost/encoderswebservice/**, and then verify that the SCX service is available.		—
Step 7	**Harden the web interface**	a. Point your browser to the HTTP address of your DME. b. Enter the username and the password, as prompted. The factory default for each of these is **admin**. c. Click **Log In**. d. Choose **Configuration > My NiagaraPro**. e. Click the username **admin** in the NiagaraPro Properties area. f. Enter the current password in the Password field. g. Enter the new password identically in both of these fields: • New Password • Confirm New Password h. Click **Change Password**. The changed password takes effect immediately.	—

Tip Saved changes are lost each time that you perform a factory restore operation. Remember to repeat this procedure any time that login credentials use factory-defined values.

What to Do Next

- If Windows is configured to allow automatic logins, see Other Required Password Maintenance (Only When Autologon Is Configured), page 2-13.
- Otherwise, see Tasks to Complete After Changing DME Login Passwords, page 2-14.

Other Required Password Maintenance (Only When Autologon Is Configured)

Warning **Never configure Microsoft Windows on your DME to enter login passwords automatically. Doing so creates a significant security vulnerability in your network.**

If you disregard the warning against allowing automatic logins and you configure them nonetheless, you must take additional steps to ensure that logins occur as expected after you change the encrypted auto-logon password that Windows uses.

Procedure

Step 1 Search the DME hard drive for *TweakUI.exe*. In most cases, this file is in F:\Windows.

Alternatively, you can download this file as part of a Microsoft tools package at http://www.microsoft.com/windowsxp/downloads/powertoys/xppowertoys.mspx.

Step 2 Open **TweakUI**, and then choose **Logon > Autologon**.

Step 3 Click **Set Password**.

Step 4 Enter the new password twice, as prompted. Be careful that the password matches exactly.

Step 5 Click **OK** to save your work and exit TweakUI.

Step 6 Restart your DME.

Step 7 Verify that login occurs automatically and that the Windows desktop loads.

Note If you disregard the warning against allowing automatic logins and configure them nonetheless, ViewCast software will not work unless the Windows desktop loads correctly on your DME.

Tasks to Complete After Changing DME Login Passwords

Procedure

	Task	Notes
Step 1	Perform basic setup functions via the front panel.	See Basic Operation: Using the Front Panel, page 2-4.
Step 2	Test and validate that your DME performs as expected.	**Tip** If your DME does not perform as expected, we recommend that you complete a factory restore operation. In this case, the factory-defined login credentials that you changed will become active again and might expose your network to attack or other types of unauthorized use.

Disabling Unneeded Services

Caution Intruders might use exposed services as security attack vectors against your network.

If your DME enables and exposes any service that is not required, you can disable it. Possible examples of such services include NNTP, SMTP, and SNMP.

Procedure

Step 1 Choose **Start > Programs > Administrative Tools > Services**.

Step 2 Double-click the name of a service that should be disabled.

Step 3 Click the **Log On** tab.

Step 4 Do one of the following:

- If only one hardware profile is listed, click it, and then click **Disable**.
- If multiple hardware profiles are listed, click one, then click **Disable**, and repeat as often as necessary until you have disabled this service on each profile.

Step 5 Click **Apply**, and then click **OK**.

Step 6 Restart Windows.

After a Live Event Is Finished, Remove Its Encoded Video Files from the DME File Share

Caution We strongly recommend that you save copies of the encoded video files on your DME file share, and then promptly delete the original filess from your DME.

The file share uses a factory-default username and password, which you cannot change. Anyone who knows which network node is your DME and knows these login credentials can mount the file share and manipulate its files.

Advanced Operation: Using the Niagara SCX Web Interface

This section includes the following topics:

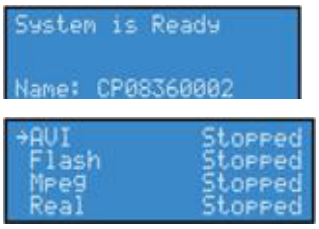
Accessing the Web Interface

The ***Niagara SCX Web Interface*** does not require software and works with any computer that has a current web browser, including Microsoft® Windows®, Macintosh, and Linux® machines. The Cisco Digital Media Encoder 2200 system must either reside on a shared IP network with the computer or can be directly connected to a Windows computer by using an Ethernet cable (RJ-45).

To access the ***Niagara SCX Web Interface***, open the web browser on your computer and access the web interface by typing in the encoder machine name. For example, you would type http://cp08360002. The network name of the encoder is also its serial number and can be obtained from the LCD readout during the power up process.

If the encoder is already powered up, the serial number can be obtained from the LCD display while the system is idle.

At that time the encoder LCD display will alternate between readouts that are similar to the following display:

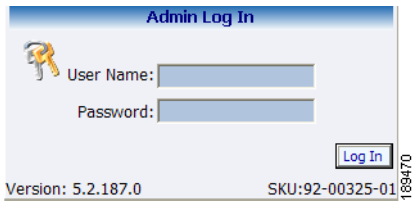


If the name is not immediately displayed on the **System is Ready** window, press the **<UP>** and **<DOWN>** arrow buttons to toggle through the system information until the name is displayed.

The serial number is also located on the bottom of the encoder.

Enter the encoder name in the web browser (as shown below), and press **enter**.

You will be prompted with a login screen that requires a user name and password. By default, the user name and password are both ***admin***.

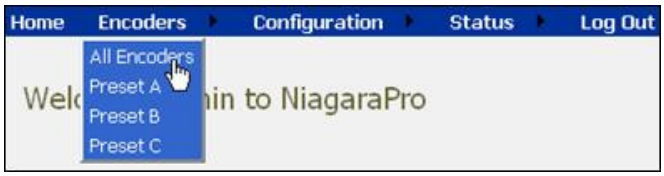


After logging in, you will have access to all of the web-enabled functions, including encoder operations, management, and system configuration tools.

Note If you cannot browse to the encoder by using its machine name, type in the encoder IP address instead. This information is also available from the **System is Ready** window when the system is idle.

Starting an Encoding Session

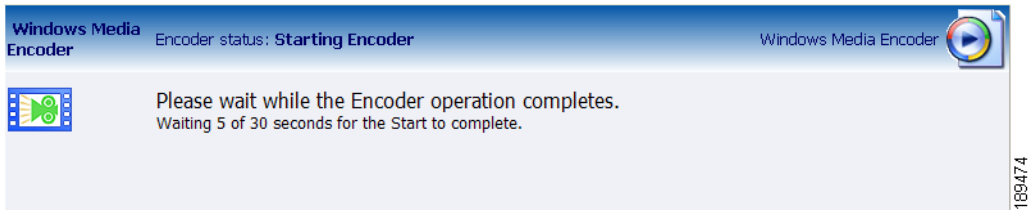
To start an encoding session, move the mouse pointer over **Encoders** in the menu bar, and click on **All Encoders** in the drop-down menu.

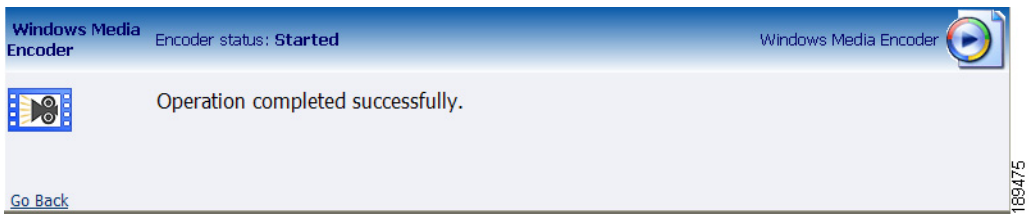


All of the encoder profiles loaded on the encoder will be presented in a list indicating format and current status.

Press the red **Stream** icon located in the right column of the encoder you wish to start.

The web page automatically updates with messages detailing the encoder start progress.

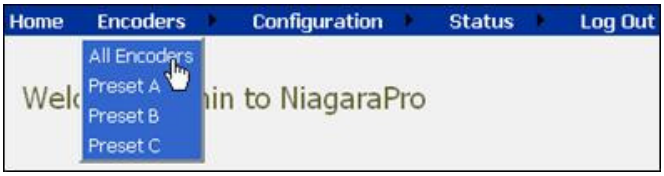




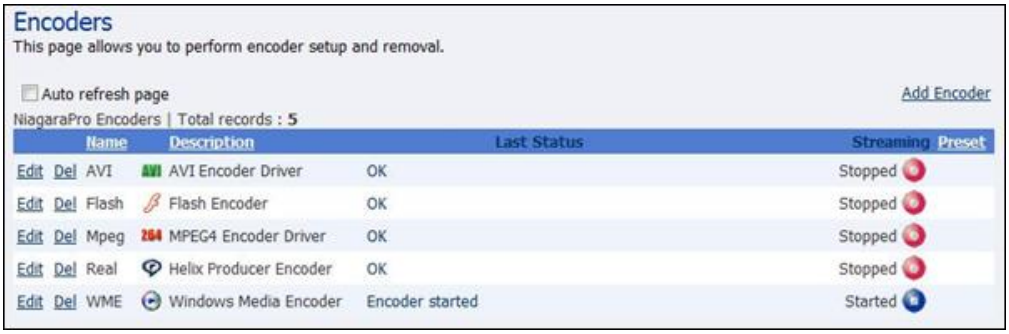
After the encoder has started successfully, the web page will return to the **All Encoders** page with the encoder status updated to reflect the **Started** mode.

Stopping an Encoding Session

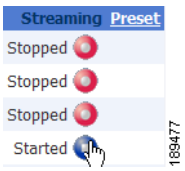
If you are not already on the **All Encoders** page, move your mouse over **Encoders** in the menu bar and click **All Encoders** in the drop-down menu.



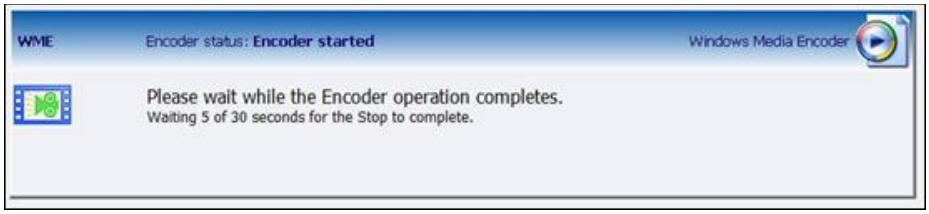
This will bring you to a web page similar to the following.



Press the blue icon, which indicates it is a streaming encoder, located in the right column of the encoder you wish to stop.



The web page automatically updates with messages detailing the encoder stop progress.

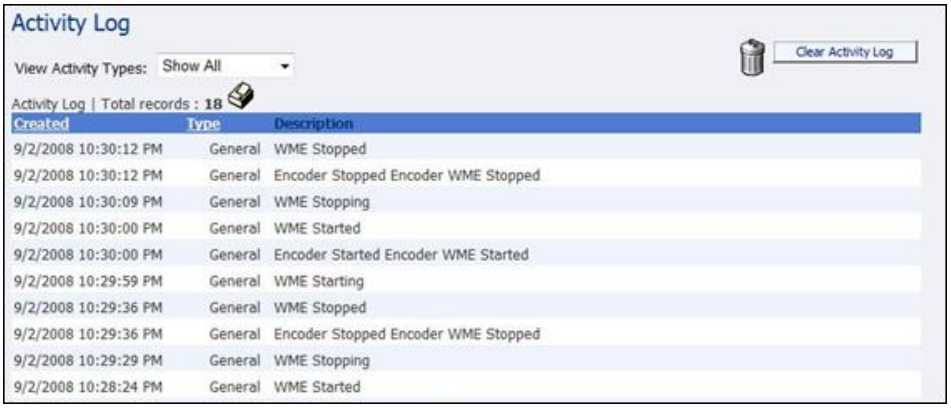


After the encoder has stopped successfully, the web page will return to the **All Encoders** page with the encoder status updated to reflect **Stopped** mode.

Viewing the Activity Log

The Activity Log records the Encoder Start and Stop events. To view the Activity Log, move the mouse pointer over **Status** in the menu bar, and click on **Activity Log** in the drop-down menu.

The log is updated for every event on the encoder. The log now includes the starting and stopping events for the encoder from the "Starting an Encoding Session" section on page 2-17 and "Stopping an Encoding Session" section on page 2-18.

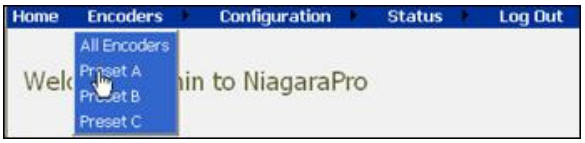


Each event is date and time stamped. Pressing the **Clear Activity Log** button in the upper-right clears all logged activities.

Configuring the EZStream Buttons

The encoder provides one-button streaming via the **EZStream** buttons located on the front panel of the system. By default, these buttons are not assigned to an encoder. The ***Niagara SCX Web Interface*** is used to configure each button to a specific encoder.

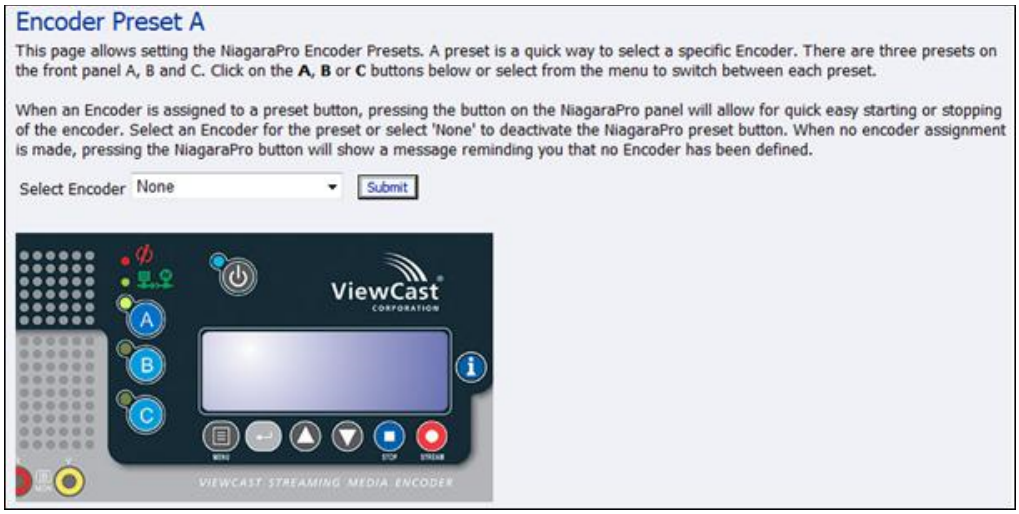
You can assign a preset encoder using the ***Niagara SCX Web Interface*** by moving your mouse pointer over **Encoders** in the menu bar and selecting **Preset A, B,** or **C** in the drop-down menu. A preset is a quick way to select and assign a specific encoder to Preset A, B, or C.



Encoder Preset (A, B, and C)

When you access the Encoder Preset A page, you are presented with the configuration page for the ***EZStream A*** button. This page contains a graphic representation of the front panel of the encoder. The **A** button is highlighted on this graphic representing that you are actively assigning an encoder to this corresponding ***EZStream*** button.

This page presents a **Select Encoder** field and a link at the bottom of the page to view the **View All Encoders** page. If an encoder has been assigned to the Preset, then you will also be presented with an **Edit** link next to the **View All Encoders** link.



Select Encoder

Click the drop-down list next to **Select Encoder**. This provides the complete list of encoders available on the system.

Select the encoder you wish to assign, and click the **Submit** button.

The web page will update the preset A and provide a message reporting ***Encoder Preset: A updated successfully.***

By clicking on the **B** and **C** buttons on the encoder graphic, you can assign encoders to the ***EZStream*** buttons in the same way, as shown in the following diagram.

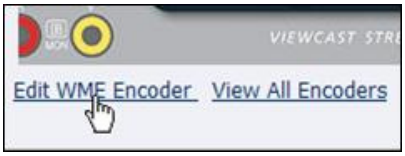
Note It is not possible to assign the same encoder to two ***EZStream*** buttons simultaneously. If an encoder is already assigned to a button and you assign it to another button, the encoder will remove the association to the previous button in favor of the most current request.

View All Encoders

After assigning encoders to the A, B, and C buttons, the **Presets** column on the **All Encoders** page updates to reflect these changes.

Edit Preset Encoder Profile

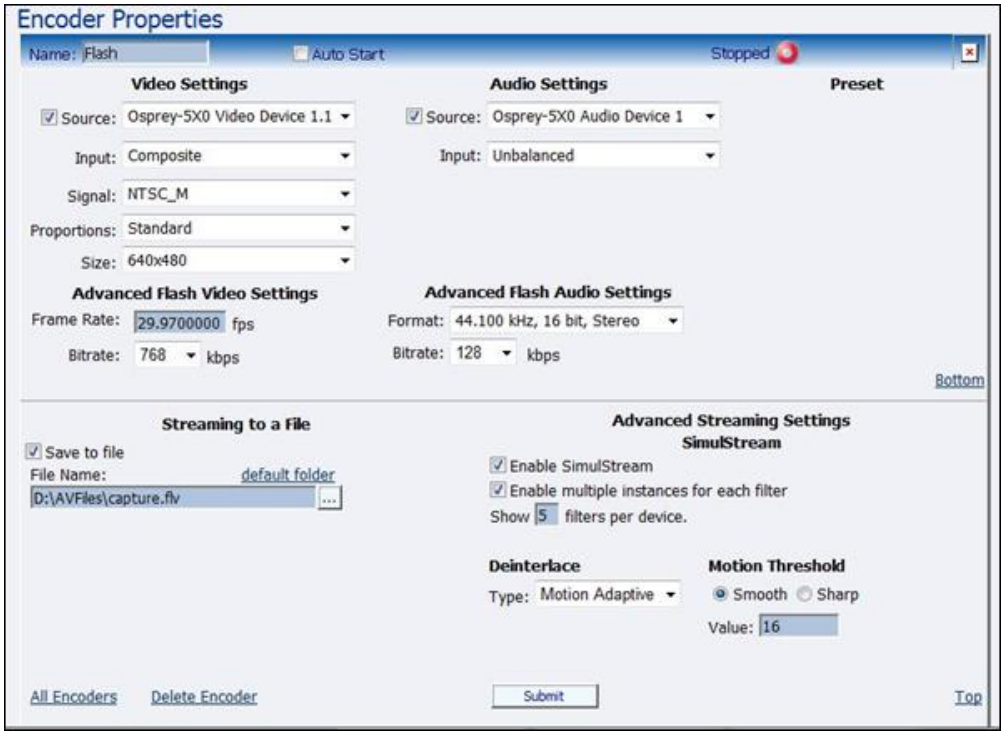
After assigning encoders to the **EZStream** buttons, you can access the encoder editing page by clicking the button **Edit Encoder** link at the bottom of the **Preset** page.



The following sections show what each encoding format property page looks like. For more information on setting up each type of encoder, see the "Editing an Encoder Profile" section on page 2-26.

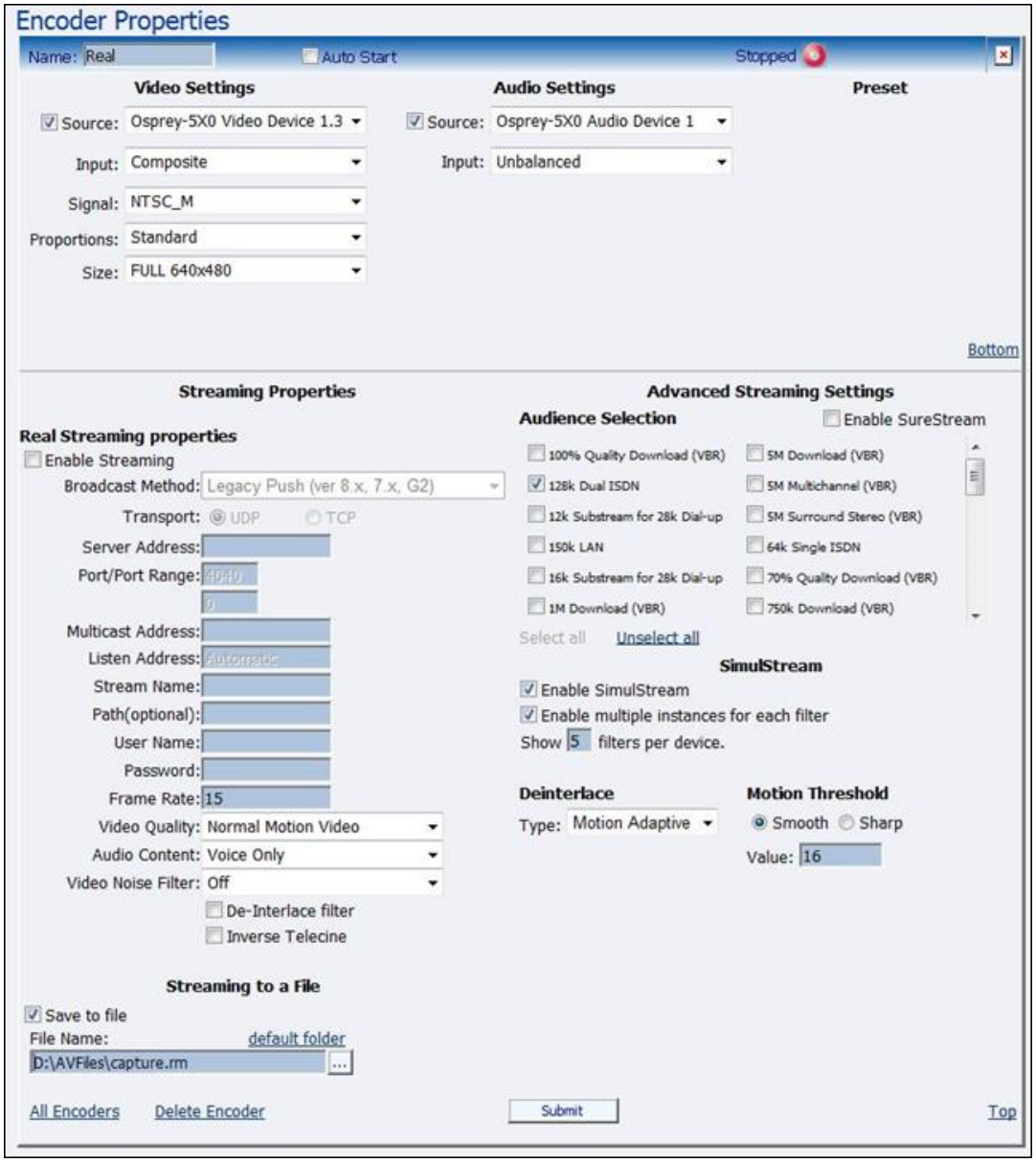
AVI Encoder Properties

Flash Encoder Properties



MPEG-4 Encoder Properties

Real Encoder Properties (Helix)



Windows Media Encoder Properties

Editing an Encoder Profile

When you create a new encoder, the **Encoder Properties** page appears. You will be able to edit the new profile provided by default to your specific encoder settings and requirements. The property windows for editing a new encoder or an existing encoder are identical.

You can also edit an existing encoder profile by going to the **All Encoders** page.

Click the **Edit** link next to the encoder whose properties you wish to modify.

The properties page for that encoder is then displayed.

Video & Audio Settings

Regardless of the encoder type, all types require that you set the audio and video properties. These values are the same for all encoder types except for the added color space setting for AVI and MPEG-4.

You can enable or disable video and/or audio by clicking the check box next to **Source** under Video Settings and/or Audio Settings. When enabled, the **Input**, **Signal**, **Proportions**, **Size** fields under **Video Settings**, and the **Input** field under **Audio Settings**, as shown in the following screenshot.

Although the Cisco Digital Media Encoder 2200 is a single channel encoder, meaning you can capture from two independent audio and video sources at any given time, you can capture multiple streaming formats and resolutions simultaneously from the same video source. To accomplish this, the video source is seen as multiple inputs denoted by incrementing decimal values. They appear in the following manner:

The audio source settings include the choices set forth below.

Warning **Ensure that all of the encoders using the same video *Proportion* and *Size* settings also use the same video and audio source settings. For example, all encoders capturing at Standard proportion and CIF size are set to Osprey-5x0 Video Device 1.1 while encoders capturing at Standard proportion but QCIF resolution are set to Osprey-5x0 Video Device 1.2.**

Set **Input** for both video and audio to match the connectors on the back of the encoder to which you have connected your video and audio source. This could be Composite or S-Video, or SD SDI for video input and Unbalanced, XLR Balanced, XLR AES/EBU, or embedded SDI for audio input.

When you performed the First Start Setup, you determine if your video signal was NTSC or PAL. The **Signal** field adds granularity for regional NTSC, PAL, and SECAM settings. If you are uncertain which setting applies, refer to the owner's manual for the video source you have connected to the encoder hardware.

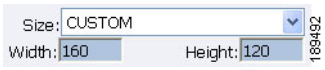
The **Proportions** setting uses the term Standard, meaning square pixels for a VGA monitor, and CCIR-601, meaning elongated pixels for a TV monitor. Choose the setting that reflects the type of display on which your content will be viewed. For example, if you will be streaming your video on the Internet to be viewed on a computer monitor, select **Standard**. If the inaccurate setting is selected, your streaming video will be distorted.

The **Size** field refers to the pixel size of the encoded video. The standard sizes are as follows:

- Full-size for full screen video
- CIF for video scaled from full-size to one-fourth size
- QCIF for video scaled from full-size to one-fourth of CIF size

You can also specify a custom size for your video. This is useful when capturing video to be played on a mobile video device that requires a non-standard size for compatibility.

If you select **Custom** from the drop-down menu, two additional fields will appear allowing you to type in the exact size you want the resulting video to be.



Note If you specify a video size that is not compatible with the color space of your source video, the encoder will automatically correct the size to the closest compatible setting when you click the **Submit** button. The color space format setting, entitled Format, is available only in **AVI** and **MPEG-4 Encoder Properties** and appears as an additional field under the **Size** setting (see below).

Now that you have completed all of the Video and Audio settings, you can proceed to the encoder type settings at the bottom of the page.

Streaming Properties

As previously stated, these settings will vary according to the encoder type. Please refer to each encoder properties page setting in this document for further explanation and detail on the **Streaming Properties Settings** and **Advanced Streaming Settings** sections of each encoder.

Advanced Streaming Settings

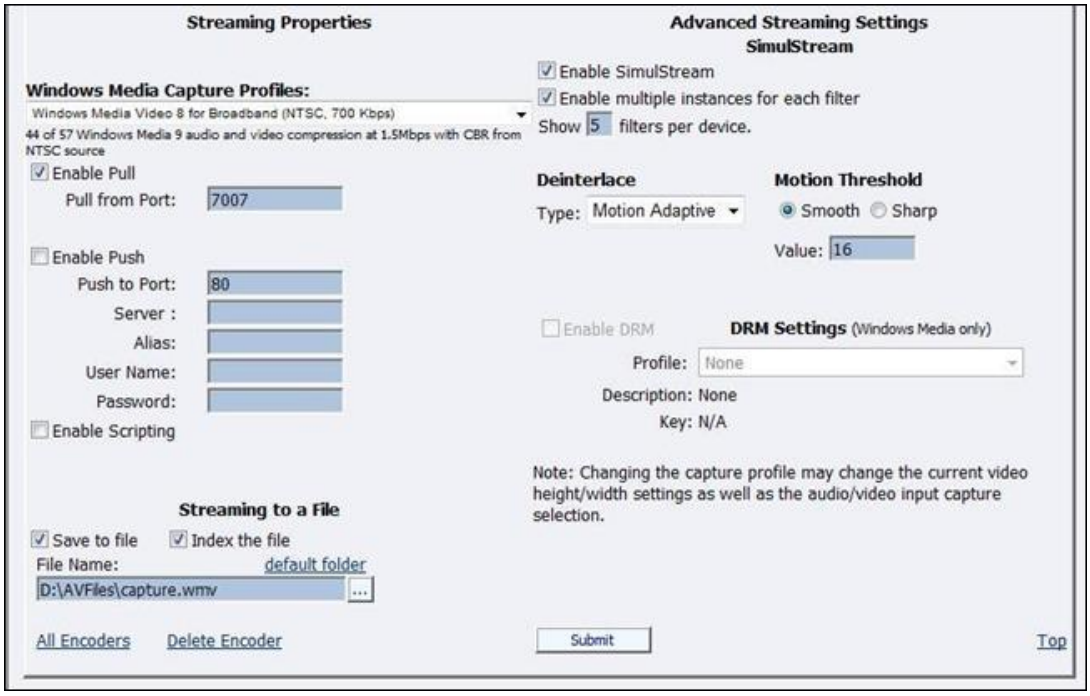
This section includes the following topics:

SimulStream

SimulStream employs filters to change the appearance of an image or part of an image by altering the shades and colors of the pixels in some manner. Filters are used to increase brightness and contrast as well as to add a wide variety of textures, tones and special effects to a picture. SimulStream filters have two interrelated purposes, as follows:

- They allow applications to enumerate and list video capture and preview pins or streams (each with different settings) as named entries in their video device select lists. The video device driver can be configured to show multiple filters per device. Each filter has one preview pin and one capture pin. Standard applications have the capability to access a particular filter without any custom programming specialized for Osprey devices.
- Each filter has independent settings for cropping, default output size, watermarks, and captions that can be stored between sessions. Compared with the previous “pin-based” method, no requirements are necessary for a particular startup order to associate settings with instantiations.

Please see the **Enable SimulStream** dialog box below.



The checkbox next to **Enable SimulStream** at the top of the dialog box, when checked, enables SimulStream to run for the currently selected encoder.

The encoder includes a full SimulStream license installed for each A/V channel, and this checkbox controls full SimulStreaming.

Note When you change the **Enable SimulStream** status and click **Submit**, you must restart the appliance. If you do not, SimulStream may become partially active, but the capture devices may be incorrectly named, and their pins may be incorrect.

Show filters per device

With the Show filters per device control, you can set the device driver to expose multiple filters per device for enumeration and selection by encoders. If, for example, 5 filters per device are chosen, device lists in applications will show four entries for the currently chosen device. For device 1, they are designated as 1.1, 1.2, 1.3, 1.4, and 1.5.

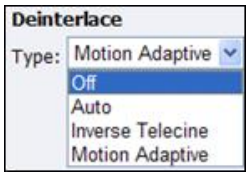
Note The number of filters you request will not display or work correctly until the system is restarted.

Note While it is possible to expose and enumerate multiple filters per device, the practical number of working filters will be less. The practical number of filters depends on the capability of the appliance, the types of filtering enabled, the types of scaling and color format conversions requested per encoder, and the type of processing employed. If the appliance has multiple capture channels, the number of filters is the total across all channels. In addition, some types of processing, such as deinterlacing and gamma corrections, which are performed once per channel may, in this case, occur multiple times. In summary,

an appliance can support multiple concurrent filters on one device if the processing per filter is light. However, only 2 or 3 simultaneously running filters can be supported if the processing load inside or outside the driver is particularly heavy.

Deinterlace

The **Deinterlace** field has four drop-down choices. These choices are Off, Auto, Inverse Telecine, and Motion Adaptive, as you can see below.



In further explanation of each choice, please see the following definitions.

- **Off** —Performs no deinterlacing of any kind.
- **Auto**—Applies inverse telecine deinterlacing to all telecine video. Applies motion adaptive deinterlacing to all video that is not telecine. Switches dynamically between the two modes as the content changes. Available for NTSC video only.
- **Inverse Telecine**—Applies inverse telecine deinterlacing to all telecine video. Performs no deinterlacing of video that is not telecine. Available for NTSC video only.
- **Motion Adaptive**—Applies motion adaptive deinterlacing to all video.

Deinterlace settings are applied and stored per-device and are applied to all filters and pins associated with a device.

Motion Adaptive Deinterlace

Motion adaptive deinterlace is an algorithm for deinterlacing pure video (non-telecine) content. It detects which portions of the image are still, and which portions are in motion, and then applies different processing to each scenario. Motion Adaptive Deinterlace is the only type of deinterlacing that uses **Motion Threshold** under **Advanced Streaming Settings—Simulstream**.

Telecine and Inverse Telecine

Telecine video is NTSC video which was originally created on film at 24 frames per second. In the telecine conversion process, certain fields are repeated in a regular, recurring sequence. If a telecined sequence is viewed directly on a progressive screen, interlacing artifacts will be visible.

The process called “inverse telecine” is the reverse of “telecine” — inverse telecine drops the redundant fields and reassembles the video in a 24 fps progressive format. Interlacing artifacts are 100 percent removed. If the video is viewed at 24 fps, you will see the exact timing and sequencing that was on the original film. If the video is viewed at 30 fps, every fifth frame will be repeated. However, there will be no deinterlacing artifacts.

Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The **Auto** and **Inverse Telecine** button choices will be disabled when either PAL or SECAM is selected as the video standard.

Motion Threshold

Motion Threshold adjusts the threshold of difference from spatially- and temporally-related pixels, which are judged to be "motion." If you enter a higher value, the number of pixels in motion will be greatly reduced. If you enter a lower value, the number of motion pixels greatly increases until the entire screen, more or less, is considered in motion. The recommended default is 16.

Sharp and Smooth Motion

When the **Sharp Motion** radio button is selected, detail in motion areas will be sharper, but at the expense of somewhat jagged diagonal edges.

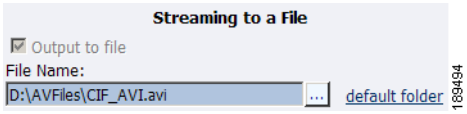
When the **Smooth Motion** radio button is selected, more loss of detail will occur in motion areas, but edges will be smoother.

Since the eye does not clearly see detail in areas of motion—and edge artifacts are highly intrusive—the **Smooth** algorithm is preferred for most applications. The Smooth algorithm uses a bit more CPU.

Both algorithms treat still areas in the same fashion, and there should be no loss of detail in still areas.

AVI Encoder Settings

AVI is an uncompressed audio and video storage format and, therefore, only has the ability to **save** to a file. You can type in a unique name for the generated AVI file and modify the directory path to the location the file will be stored. Clicking the **Default Folder** link will insert the path of the default folder for file storage on the encoder. By default the path is d:\AVFILES\.



Note It is not recommend that you store files in any other directory on the encoder.

Once you have saved your file to the encoder internal hard drive, we recommend that you move the drive to another external storage device such as a USB drive or a network drive for backup purposes.

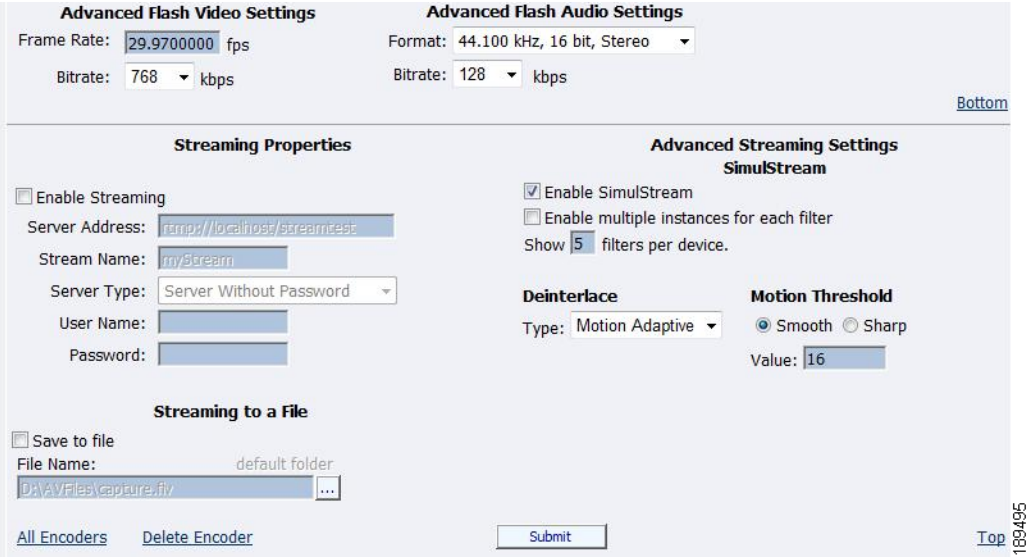
After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away from the current page to another web page without clicking Submit, your changes will be lost.**

Flash Encoder Settings

The **Flash Encoder Settings** are similar to the AVI settings for saving the audio and video to a file. However, Flash adds some additional frame and bit rate controls. The frame rate changes the frames per second at which the video will be encoded. The audio format setting can be used to modify the audio frequency and changes stereo to mono. The bit rate settings pertain to the amount of data per second the audio and video are captured. Decreasing the bit rate for both or either will decrease the playback viewing quality.

The **Flash encoder** creates a Flash format audio and video file. You can type in a unique name for the Flash file (.flv).



After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without clicking Submit, your changes will be lost.**

MPEG-4 Encoder Settings

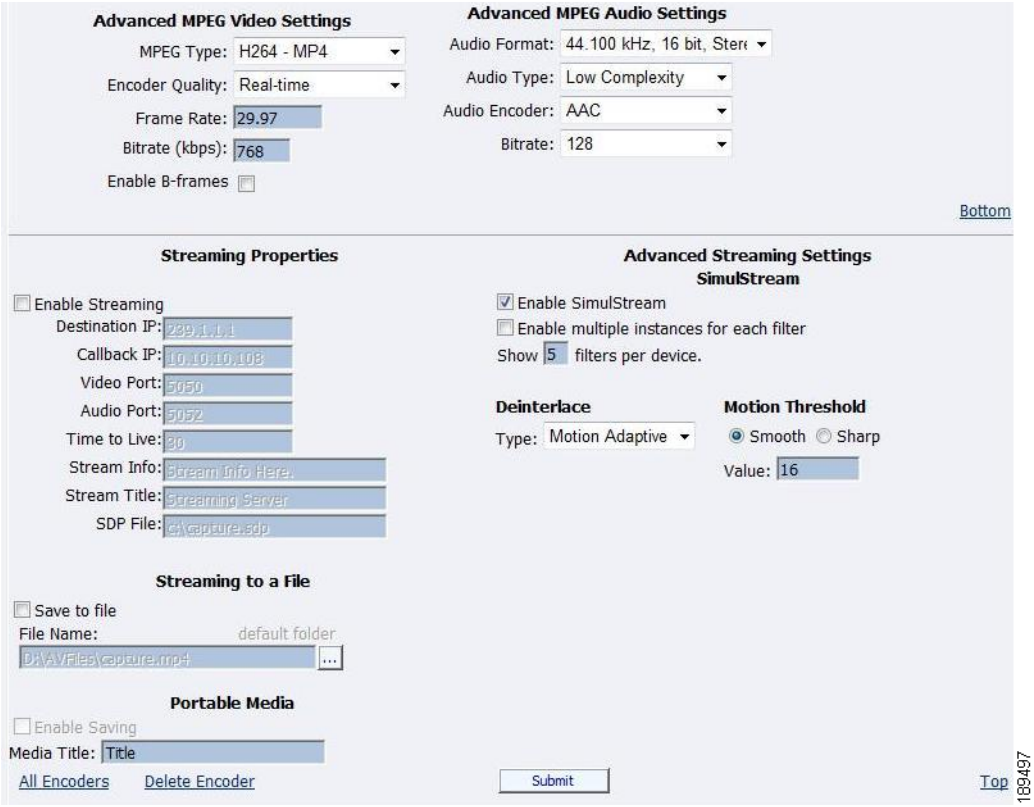
This section includes the following topics:

Encoder Settings Web Interface

The Cisco Digital Media Encoder 2200 software MPEG-4 compression engine provides (1) H.264, MPEG-4, Part 10, (Baseline Profile) (2) MPEG-4, Part 2, (Simple Profile) and (3) H263 (Simple Profile) encoding functionality. This product provides the capabilities to encode streams for Internet video, mobile phones, set top boxes and create media files for other MPEG-4 compatible devices such as iPods®.

The ***Niagara SCX Web Interface*** provides options for basic and advanced settings for the video and audio options of MPEG-4 available with the encoder.

The following figure illustrates the screen you will see after creating an encoder through the ***Niagara SCX Web Interface***.



The **Advanced MPEG Video Settings** provide you with the ability to choose the **MPEG Type** required for your output. These MPEG Types include the following:

- **H.264–MP4**: H.264, MPEG-4, Part 10, or AVC (Advanced Video Coding) was designed for very high-data compression while maintain better quality than its predecessor, H.263. It was also created to address a broad range of applications from low bit rate to high bit rate and from low resolution such as cell phones to high resolution such as broadcast. The encoder's H.264 is Baseline Profile.
- **H.264–3G2**: This setting will create an H.264 stream stored in a 3G2 container.
- **H.264–3GP**: This setting will create an H.264 stream stored in a 3GPP container.
- **MPEG4–MP4**: MPEG-4, Part 2, or H.263, is designed for situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth or device size. Examples of video applications for H.263 are cell phones, some low end video conferencing systems, and surveillance systems. H.263 is important for legacy handheld devices that do not support H.264.

  Note By default, the encoder's H.263 uses Simple Profile unless you select the **Enable B Frames** option. If B frames are enabled, then the resulting stream will be Advanced Simple Profile.

- **MPEG4–3G2**: This setting will create an H.263 stream stored in a 3G2 container.

- **MPEG4–3GP**: 3GP is a multimedia container format defined by the Third Generation Partnership Project (3GPP) for use on 3G mobile phones. It stores video streams such as MPEG-4 or H.264 and audio streams such as AMR or AAC. This setting will create an H.263 stream stored in a 3GPP container. There are two defined standards for this format:
  - 3GPP for GSM based mobile phones
  - 3GPP2 for CDMA based mobile phones
- **H263–MP4**: MPEG-4, Part 2, or H.263, is designed for situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth or device size. Examples of video applications for H.263 are cell phones, some low end video conferencing systems, and surveillance systems. H.263 is important for legacy handheld devices that do not support H.264.

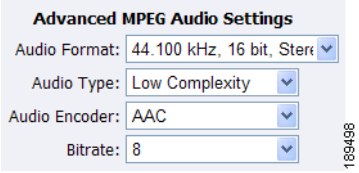
  Note By default, the encoder's H.263 uses Simple Profile unless you select the **Enable B Frames** option. If B frames are enabled, then the resulting stream will be Advanced Simple Profile.

- **H263–3G2**: This setting will create an H.263 stream stored in a 3G2 container.
- **H263–3GP**: This setting will create an H.263 stream stored in a 3GPP container.

Note The **Encoder Quality** setting is currently not active and will not affect the results of the encoding stream or file.

Note Some players, such as Quicktime® player, are not compatible with streams that include B frames. If your resulting stream has quality issues on playback, try disabling B frames to ensure compatibility with most players.

The Advanced MPEG Audio Settings, provide you with several Audio Formats, Audio Types, Audio Encoders, and Bitrates from which to choose. These choices include several options as to audio sampling, and whether the audio is to be encoded monophonically (mono) or stereo.



The **Audio Type** setting is only related to AAC Encoding. If you select **AMR** in the **Audio Encoder** field, this setting is not used. The Audio Type field provides you with a drop-down box, which includes the following two choices:

- **Main**: This format is the same as Low Complexity, but adds backward prediction.
- **Low Complexity (LC)**: The simplest and most widely used and support AAC audio format.

Note Depending on the player on which the resulting stream will be heard, either choice—Main or Low Complexity—will use a specific set of tools to encode the audio stream. You should make your choice based on the requirement of the playback software or device. The most widely supported format is LC profile.

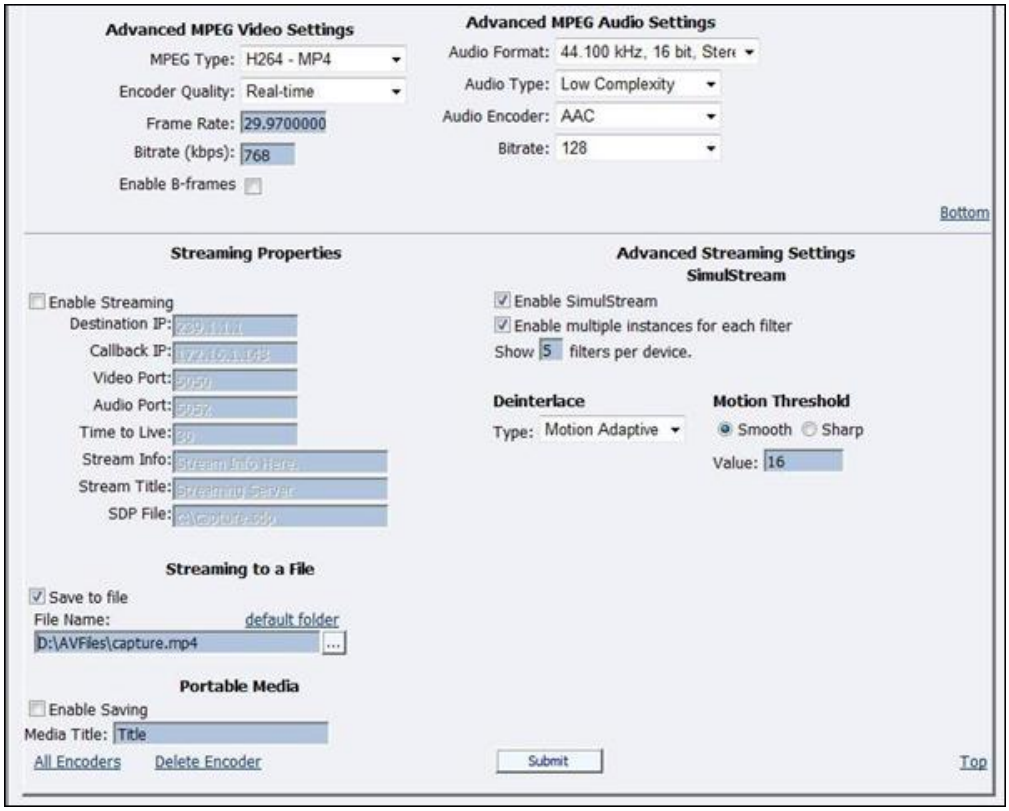
The **Audio Encoder** settings provides you with a drop-down box, which includes the following three choices:

- **AAC (Advanced Audio Coding)**: A standardized, lossy compression and encoding scheme for digital audio. AAC achieves better audio quality than MP3 and has been named a standard by the Motion Picture Experts Group (MPEG)
- **AMR-NB (Adaptive Multi-Rate Narrow-Band – 8 kHz)**: An audio data compression scheme optimized for speech coding. AMR was adopted as the standard narrowband speech codec by 3GPP and is widely used in GSM.
- **AMR-WB (Adaptive Multi-Rate Wide-Band – 16 kHz)**: An audio data compression scheme optimized for speech coding. AMR was adopted as the standard wideband speech codec by 3GPP and is widely used in GSM.

Note When you select **AMR Encoder** for audio, the audio will automatically be encoded using 8 kHz mono for playback on cell phones. When you select AMR-WB for audio, you must change the Audio Format to be 16 kHz, 16 bit, mono, for playback on cell phones.

The **Audio Bitrate** drop-down box provides you with several choices, ranging from 8 to 320.

The web interface for the encoder includes options for **Streaming Properties** and **Advanced Streaming Properties**. As to the broadcast type you choose, you have the option to check the **Enable Streaming** box. Please see the "Real Encoder Properties (Helix)" section on page 2-25 for a more detailed description of enabling pull. Another option provides you with the abilities to **Save to Portable Media** and provide a **Media Title**.



Under the **Advanced Streaming Settings** feature, you have the options to output to a file while streaming, or only output to a file. You must type in a unique name and location for this file.

Check the **Output to file** box if you would like to save the encoded content to a file. Enter a file destination in the field provided. By default, this folder is set to D:\AVFiles\Out.

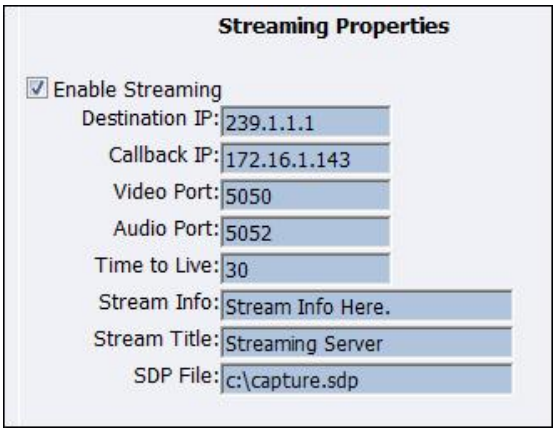
Check the **Save to Portable Media** box if you would like to save the stream from portable media to a file.

Note Remember the file name is referenced to the encoder system not to the system running SCX Explorer.

When SCX Manager and SCX Explorer are not on the same computer, always start your browse for files at My Network Places and work down or enter the entire file pathname beginning with the system name (for example, \\fileserver\c\videos). If you simply enter a file name, you may inadvertently browse your local computer when the media file resides on the remote computer.

To stream your MPEG-4 content, select **Enable Streaming**. Set the appropriate streaming properties.

Note Live streaming and streaming to a file cannot be accomplished at the same time. Only one box can be checked at a time. To stream Live and to file at the same time, a separate profile must be set up.



Note The default settings will enable multicast streaming. If this is not desired, change the IP address for Group to the IP address of the server to which you want to stream from the encoder.

The save **SDP File** field will require a name and destination path for the resulting SDP file created when the stream is started. If you are streaming to a Helix®, a Quicktime, or a Darwin server, refer to its respective documentation or online message boards for setup details specific for the individual streaming server.

Note You can stream point-to-point by selecting a share destination directory for the saved SDP file. Remember to disable multicasting by entering in the IP address of the PC to which you want to stream.

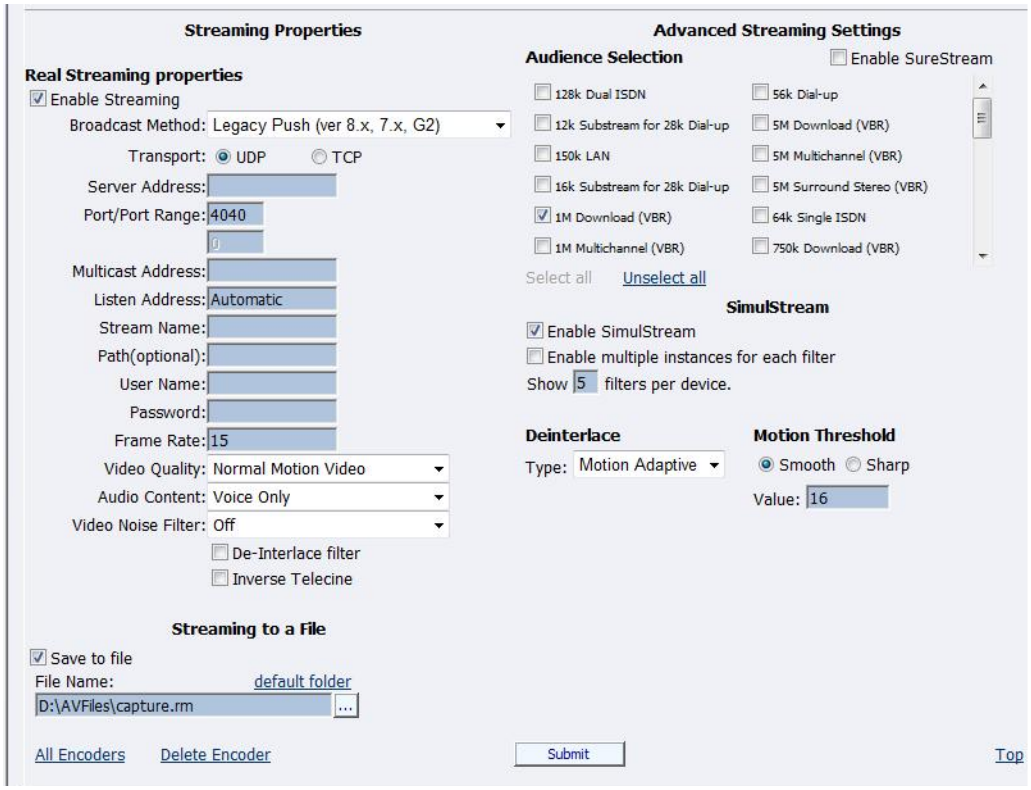
For example, if you want another PC to view the stream, save the SDP file to a share folder on the local drive. The other PC can open the SDP file and the stream can be played in a Quicktime or other MPEG-4 compatible streaming player. Since MPEG-4 encoding can be CPU intensive, it is not recommend that you view the stream on the same system as the encoder unless you have a very powerful system (dual-core processors or better). Doing so may overtax the host CPU which will cause video quality degradation and encode session failure.

After you have input your settings, click the **Submit** button at the bottom of the page to save your settings.

Warning **If you click away to another web page without clicking Submit, your changes will be lost.**

Real Encoder Settings (Helix)

Real (Helix) is both a storage format and a streaming format. In addition to the ability to output to a file, the Real Encoder can stream to a Helix Server. The settings for the Real Encoder include the ability to adjust parameters for connecting and streaming to the server.



Broadcast Method*:* There are several different broadcast types for streaming Real format video to a Helix Server, as follows:

- **Push, Account-Based Login (Helix Server)**: Account-based, push broadcasting allows you to send a stream to Helix Server version 9 or later. In this method, the encoder maintains a monitoring connection to Helix Server. This connection allows it to pass a user name and password to authenticate access to the server. Helix Server uses this connection to send statistics about the broadcast stream back to the encoder.
- **Push, Password-Only Login (Helix Server)**: Unlike account-based broadcasting, password-only broadcasting does not establish a monitoring connection. Therefore, this type of broadcasting requires less network overhead, but receives no feedback from Helix Server. This broadcast method allows you to send a live stream to Helix Server version 9 or later. However, you must set up the server as a receiver in a splitting arrangement. Please refer to Helix Server documentation for details.
- **Push, Multicast (Helix Server)**: In a multicast, the encoder can deliver the same broadcast stream to any number of Helix Servers without increasing its outgoing bandwidth. The Helix Servers will need to be pre-configured for a multicast from the encoder. Refer to your Helix Server documentation for details.
- **Pull (Helix Server)**: In pull broadcasting, the encoder begins to generate broadcast packets as soon as you start the encoding. However, it does not deliver the broadcast stream until Helix Server requests the stream, which occurs when the first RealPlayer® user requests the broadcast. In that

way, Pull broadcasting saves bandwidth between the encoder and Helix Server when no one is viewing the broadcast. This broadcast method allows you to send a stream to Helix Server version 9 or later.

- **Legacy Push (8.x, 7.x, G2)**: The legacy push method is similar to the account-based push method. However, the legacy push does not use a monitoring connection to provide server feedback and statistics and is not as robust a broadcast method as an account-based push. Use this broadcasting method only when sending a broadcast stream to a server that predates Helix Server version 9, such as RealSystem Server G2, 7, or 8.

Transport Protocol*:* When you use a push broadcast method, you specify whether to use UDP or TCP upon delivering the broadcast stream to Helix Server. UDP is the preferred protocol due to the lower network overhead. But you may want to use TCP when delivering the broadcast over a lossy environment.

For the **Server Address** field, enter the IP address or DNS name of the Helix Server used for the broadcast, such as 207.188.7.176 or helixserver.example.com.

For the **Port/Port Range** field, specify the HTTP port on Helix Server. The default value is port 80, which is the server's default HTTP port. If multicasting, indicate the range of ports on the Helix Server receivers where the broadcast packets will be sent. The encoder and Helix Server negotiate the actual ports to use once the broadcast begins. The default range is from 30001 to 30020.

If using a Multicast Address, enter the multicast address for the broadcast stream in the **Multicast Address** field. The Multicast Address must be in the range 224.0.0.0 to 239.255.255.255.

The **Listen Address** field is the IP address of your machine where Helix Producer will listen for resend requests from the server.

The listen address sets the IP address that Helix Mobile Producer Live uses to listen for packet resend requests from Helix Server. For the listen address, you can use one of the following possible values:

- **Automatic**: This is the safest setting, and will work with most firewall configurations
- **System IP**: The IP address of the machine
- **System IP 2**: The second IP of the machine is multi-homed
- An IP address typed in by the user

If your Helix Mobile Producer Live machine has multiple IP addresses, enter the IP address that Helix Mobile Producer Live should use for communications from Helix Server. If you are broadcasting through a firewall performing network address translation (NAT), set the listen address to the IP address of the firewall or the value 0.0.0.0. The 0.0.0.0 value tells Helix Server to allow a Helix Mobile Producer Live connection from any IP address. The connection still requires the valid password, however.

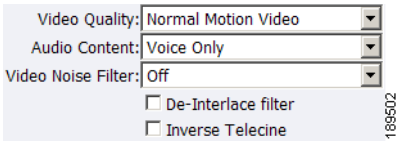
In the **Stream Name** field, enter a name for the broadcast stream. This name resembles a clip name and should use the appropriate extension, either .rm for a constant bit rate stream or .rmvb for a variable bit rate stream. This name appears in the broadcast URL.

The **Path (optional)** field specifies a virtual path, which can be used for archiving or splitting on Helix Server. Use a simple name followed by a forward slash, such as news/.

In the **User Name** and **Password** fields, enter the User Name and Password defined in each Helix Server receiver definition. The broadcast connection fails if the value is incorrect.

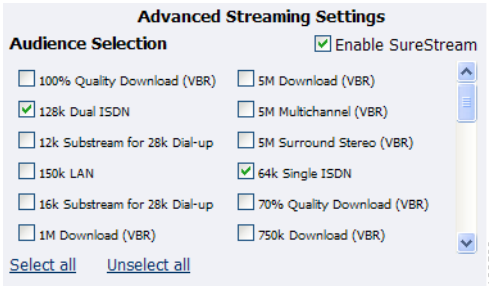
Frame Rate, or frame frequency, is the measurement of the frequency (rate) at which an imaging device produces unique consecutive images called frames. The term applies equally well to computer graphics, video cameras, film cameras, and motion capture systems. Frame rate is most often expressed in frames per second (fps), or simply hertz (Hz).

The next series of fields activate the Real Encoder's filters to improve video and audio quality. These filter settings will depend upon the type of content you are streaming and your subjective preference. It is recommended you experiment with these settings and view their results on a test capture.



The Cisco Digital Media Encoder 2200 features integrated de-interlacing and inverse telecine filters that automatically apply when needed. This allows the encoder to perform at maximum efficiency.

Note We recommend that you do not enable the Real Encoder de-interlace and inverse telecine filters since applying filters multiple times can produce undesirable results and consume additional system resources.



Enable SureStream™: SureStream allows you to encode the broadcast stream for multiple audiences. However, each primary stream or substream you choose increases the processor load during encoding and adds to the outgoing bandwidth requirements. For example, with SureStream enabled, you can choose the 56k Dial-up audience and the 128k Dual ISDN audience. In addition, with SureStream enabled, the encoding might require twice as much processing power.

Regardless of whether or not you enable SureStream, you must choose at least one **Audience Selection** for your stream.

You can also choose to output to a file while streaming or output only to a file. Type in a unique name for the file.

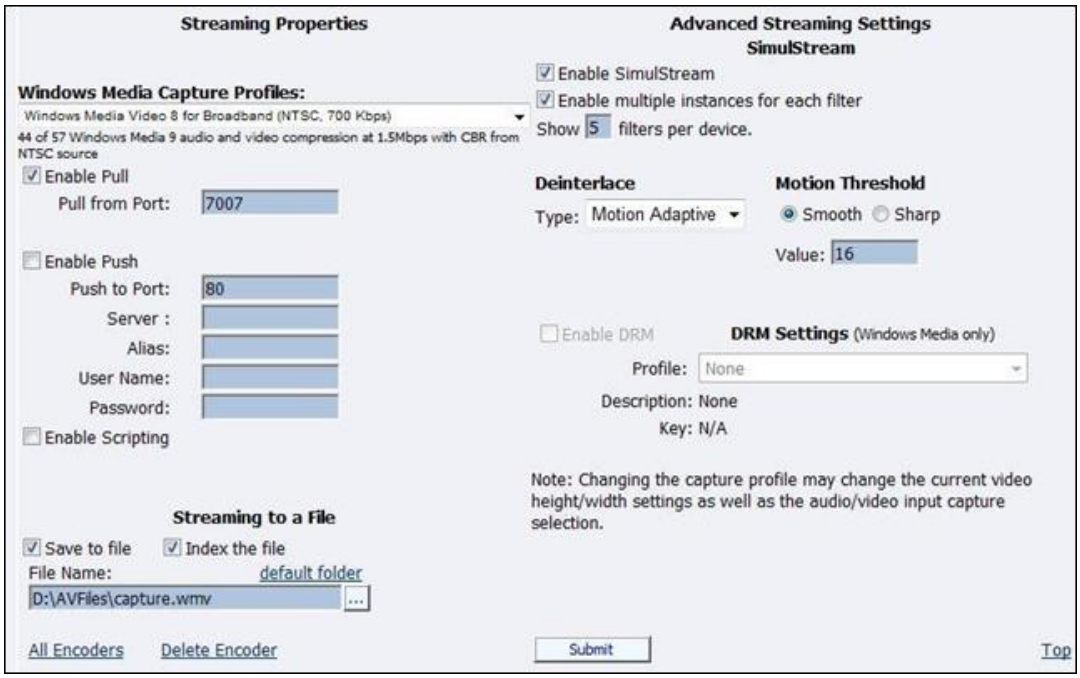
Note If you use the same name as a current file, the current file will be overwritten.

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking *Submit*, your changes will be lost.**

Windows Media Encoder Settings

Windows Media is both a storage format and a streaming format. In addition to the ability to output to a file, the Windows Media encoder can stream to a Windows Media Server. The settings for Windows Media encoder include the ability to set parameters for connecting and streaming to the server.



First, select a **Windows Media Capture Profile** from the drop-down menu.

Note Some Windows Media Capture Profiles have pre-defined video resolutions and input selections. When you select a Windows Media Capture Profile, verify that your current video and audio settings have not been modified. If they have been modified, simply change these settings back to their previous settings and click the **Submit** button.

When streaming audio and video, there are two methods of delivery, as follows:

- **Pull***:* Using this method, the encoder begins to generate broadcast packets as soon as you start the encoding. However, it does not deliver the broadcast stream until Windows Media Server requests the stream. This method does not provide a secure connection to the server and should only be used if the encoder and server reside within the same network firewall.
- **Push***:* Using this method, the encoder maintains a secure connection to Windows Media Server. This connection allows the encoder to pass a user name and password to authenticate access to the server.

To enable clients to pull the stream from Cisco Digital Media Encoder 2200, you set up a session and begin broadcasting directly from the encoder. Clients (Windows Media servers or players) can connect to the stream at any time by using the following URL format:

- http://IP_address:port (for Internet connections)
- http://encoding_computer_name:port (for LAN connections)

By default, the encoder supports up to 50 direct connections during a broadcast.

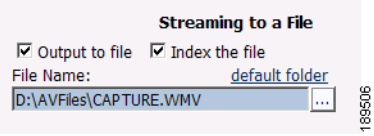
Note The greater the number of direct connections to the encoder, the more system resources are required. We do not recommend having players connect directly to Cisco Digital Media Encoder 2200. Streaming servers should connect to the encoder and, in turn, players should connect to the servers.

Select the **Enable Pull** check box. Then, enter a port number that will be used by the server to pull the stream from the encoder.

Note Be sure to enter a port number that is not already assigned to another encoder. If two encoders attempt to use the same port number, one or both encoders will fail to start.

Select **Enable Push** and enter a port number that is not assigned to another encoder. Then, enter the server name or IP address, Alias (optional), user name, and password.

You can also choose to output to file at the same time you are streaming to a server. However, you can set the server to archive the file and streaming, allowing the encoder to reserve its system resources for encoding. Refer to the Windows Media Server documentation for details.



If you check **Index the file**, viewers will be able to direct access any point within the Windows Media® file using the Windows Media player. **Indexing is also required for editing the Windows Media file using Microsoft Windows Media Utilities**.

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking Submit, your changes will be lost.**

The ***Niagara SCX Web Interface*** will then display the **All Encoders** list.

Deleting an Encoder Profile

You can also delete encoder profiles from the encoder. It is valuable to remove encoders you will not use, as every encoder profile, regardless if active or idle, uses active memory.

Note Once you delete a custom profile, you cannot restore it. It must be recreated.

Note If you delete a default encoder profile, you can restore it by using the **Restore Encoder Factory Defaults** function. Running the Restore Encoder Factory Defaults will remove any custom encoder profiles you have created and load only the default encoder profiles.

To delete an encoder profile, you must access the All Encoders list in the ***Niagara SCX Web Interface***.

You can delete an encoder by clicking the **Del** link next to the encoder you wish to remove.

Alternatively, you can click the **Edit** link to view the encoder profile, verify that it is the encoder that you wish to remove.

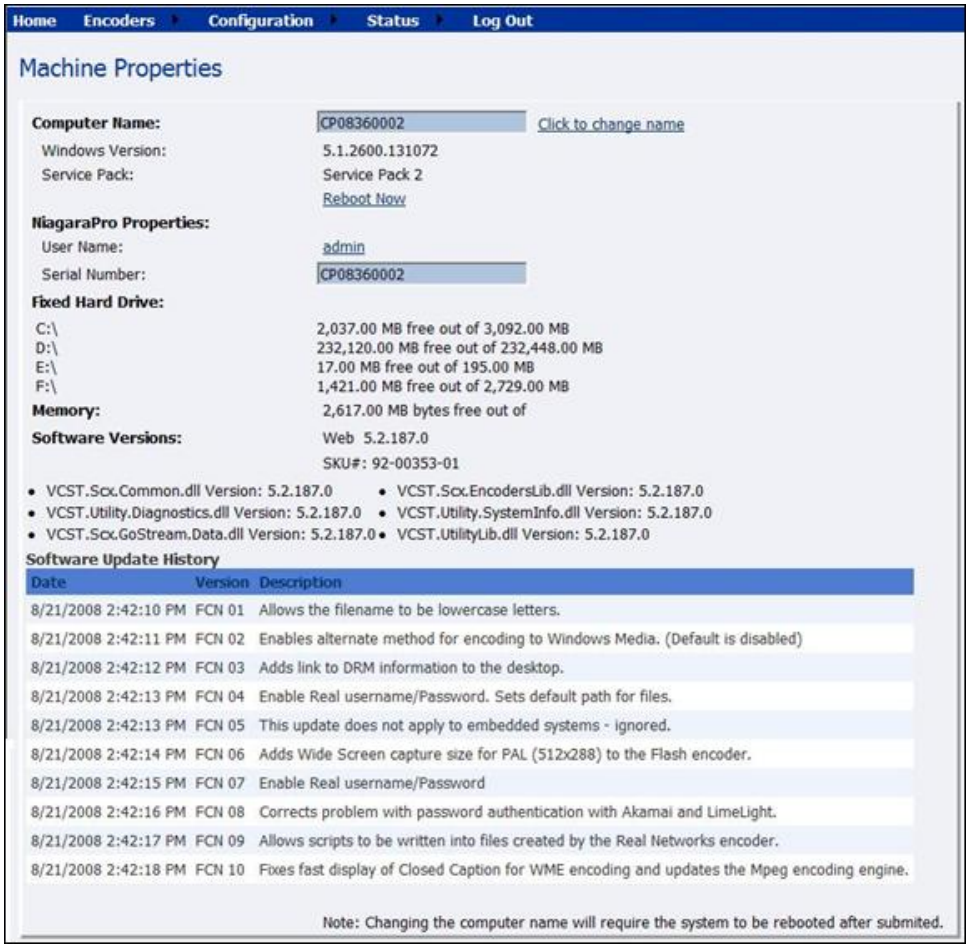
Then, click the **Delete Encoder** link at the bottom of the page once you have verified that it is the encoder you want to delete.

My Cisco Digital Media Encoder 2200

To link to the Cisco Digital Media Encoder 2200 page, go to **Configuration** on the menu at the top of the web page, and click on **My Niagara Pro II** from the drop-down list.

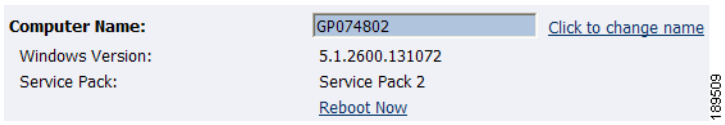
The **My Cisco Digital Media Encoder 2200** page provides details on software versions, network name, serial number, and hard drive configurations. Most of the data on this page is for informational purposes and cannot be altered. However, the following two fields allow modifications:

- Computer Name
- Admin password



Computer Name

The **Computer Name** field contains the current network name for the encoder. This is the same name that you typed into a web browser to access the ***Niagara SCX Web Interface***. You can change the Computer Name by clicking the **Click to change name** link next to this field.



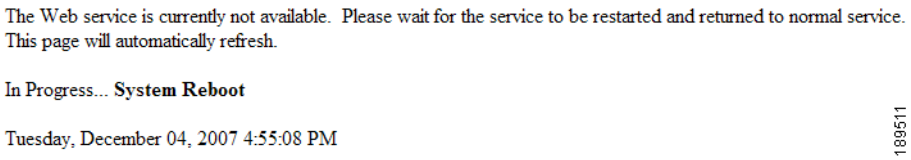
The screen will refresh and now the **Computer Name** field is an editable text field. Type in a new name for the encoder.

Then, click the **Submit** button at the bottom of the page.

The page will refresh and you will be prompted to reboot the encoder. Your changes will not take effect until the system is restarted.

Click the **Reboot Now** link to restart the system and apply the Computer Name change.

While the encoder is restarting, the following message will appear in the web interface.



Note The restart process takes approximately two minutes to complete.

When encoder has restarted, you will be returned to the Login screen.

Note If you close your web browser and later want to log into the ***Niagara SCX Web Interface***, you will need to use the new computer name you created to access the encoder.

Cisco Digital Media Encoder 2200 Properties

The encoder **Properties** section has two fields: User Name and Serial Number. Only the **User Name** field allows modification, which changes the User Password from the factory default.

- Changing the Login Password from the Factory Default, page 2-46
- Restoring the Login Password to the Factory Default, page 2-47

Changing the Login Password from the Factory Default

Click the **admin** link in the User Name field. You will be presented with a new screen that allows you to change your login password for the ***Niagara SCX Web Interface***.

Note You cannot change the User Name for the ***Niagara SCX Web Interface***.

Type in your current password in the **Password** field and then type in the new password in both the **New Password** and **Confirm New Password** fields.

Note The ***Niagara SCX Web Interface*** password is case sensitive.

Then, click the **Change Password** button. You will then be presented with the following results:

Note You will need to log back into the web interface with your new password.

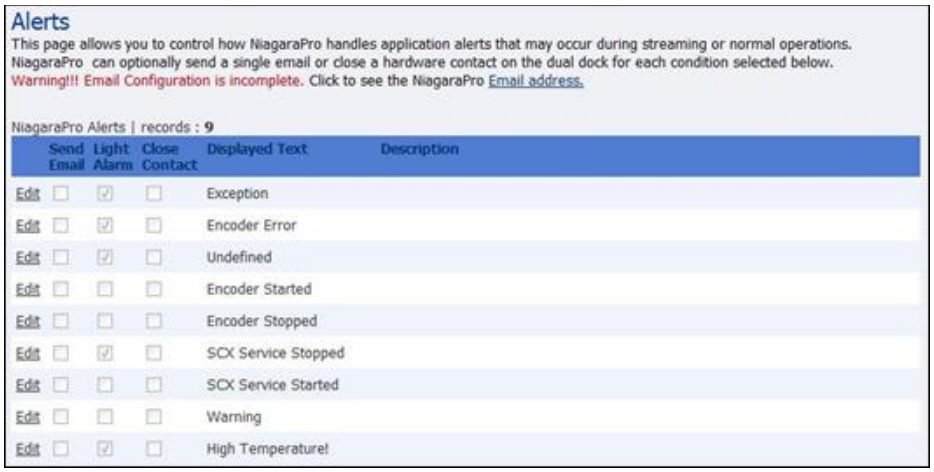
Restoring the Login Password to the Factory Default

If you have forgotten or lost your password, you can restore the default password by running the **Restore Factory Defaults** option. For more information, see the "Restore Factory Defaults" section on page 2-51.

Cisco Digital Media Encoder 2200 Alerts

The Alerts page can be viewed by navigating to the **Configuration** link at the top of the web page and clicking on the **Alerts** link.

The following is a representation of a page that allows you to control how the encoder handles application alerts that may occur during streaming or other operations. Cisco Digital Media Encoder 2200 can optionally send an email to multiple recipients should an alarm present itself. The alarm light on the front panel of the encoder automatically lights when there is an alarm.



Email Alert

You can optionally send an email alert to specific email address in the event of an application alarm. Checking **Send Email** will enable this feature. You must specify the email address to which an alert will be sent, along with your email server user name, password, and server name. For more information about configuring Cisco Digital Media Encoder 2200 to send email alerts, see the "System Configuration Settings" section on page 2-50.

Alarm Light

Checking the **Light Alarm** box will instruct the encoder to light the front panel alarm light should an alert become necessary.

Edit Alert Settings

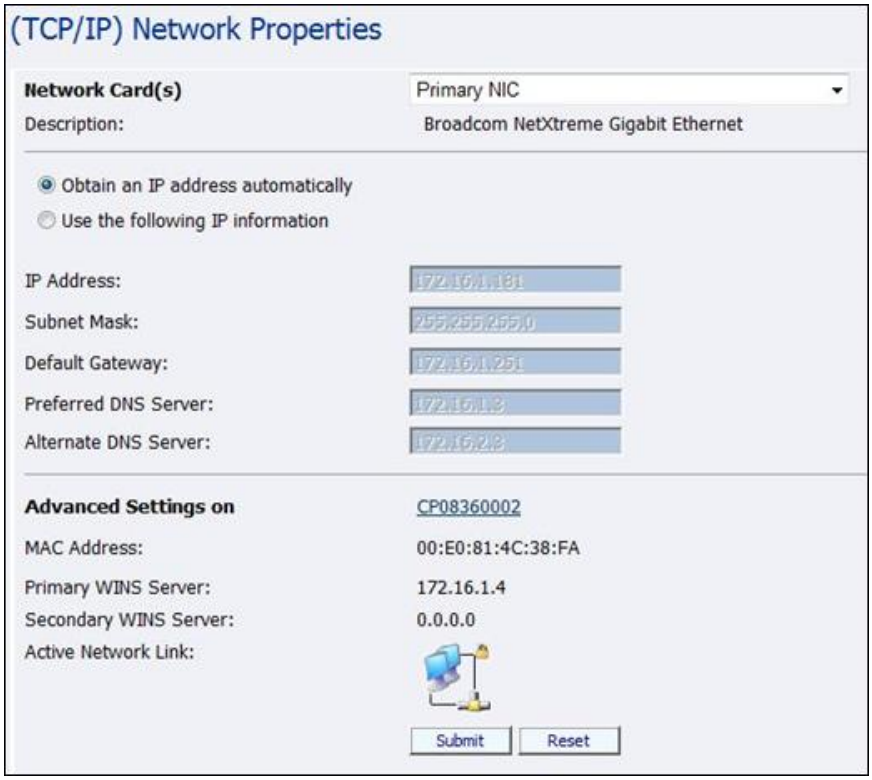
To edit the settings for each alert listed, click the **Edit** link in the row of the alert you want to modify. Note that at this juncture, you will be presented with two alternatives: to either update the alarm or cancel the alarm.

Should you decide to update, once you have made your modifications to the alert settings, click the **Update** link to enter your settings and return to the **Alerts** list.

Network Properties

The Network Properties page can be viewed by navigating to the **Configuration** link at the top of the web page and clicking on **Network Properties**.

The **Network Properties** page provides detailed information on the encoder's current network settings for the Network Interface Card (NIC).

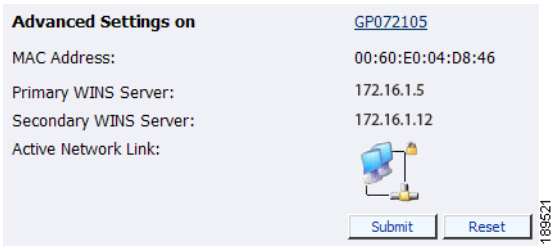


Network Card(s)

Cisco Digital Media Encoder 2200 has two 1,000 megabit network connections. To view the current properties for each card, select the card you wish to view from the drop-down menu in the **Network Card(s)** field.

Advanced Settings (Network)

Advanced Settings provides the encoder network name, MAC Address and server IP address settings.



The encoder network name is a link. If you click this link, you will be directed to the **My Cisco Digital Media Encoder 2200** page. From this page you can change the encoders's network name. For more information, see the "Computer Name" section on page 2-45.

The **Active Network Link** field uses two icons to indicate whether the network interface card selected has a network connected.

Table 2-3 Network Link Icons and Descriptions

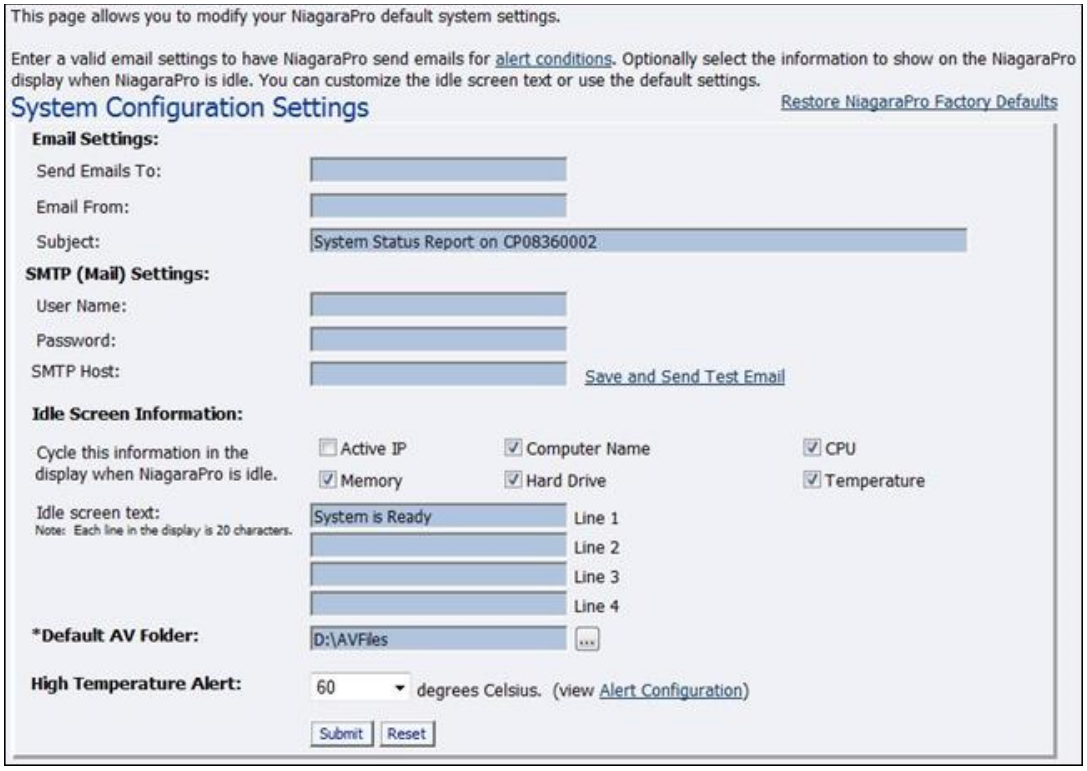
Icon	Description
	The network link is detected.
	The network link is not detected.

System Configuration Settings

The System Configuration page can be viewed by navigating to the **Configuration** link at the top of the web page and clicking on **System Configuration**.

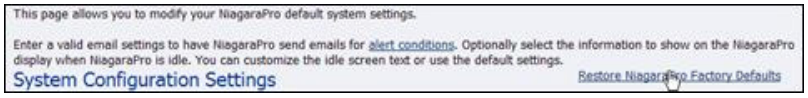
The **System Configuration Settings** page allows you to modify your encoder default system settings. You can configure email settings so that Cisco Digital Media Encoder 2200 can send an email to predefined email addresses whenever the encoder encounters an alert condition. You can also customize the information that the encoder displays on its front panel when the system is idle.

This page also provides the ability to restore your encoder to its original factory disk image, returning all of the system settings to their original state. Using the **Restore Factory Defaults** option will remove all custom settings and takes approximately 10 minutes to complete.

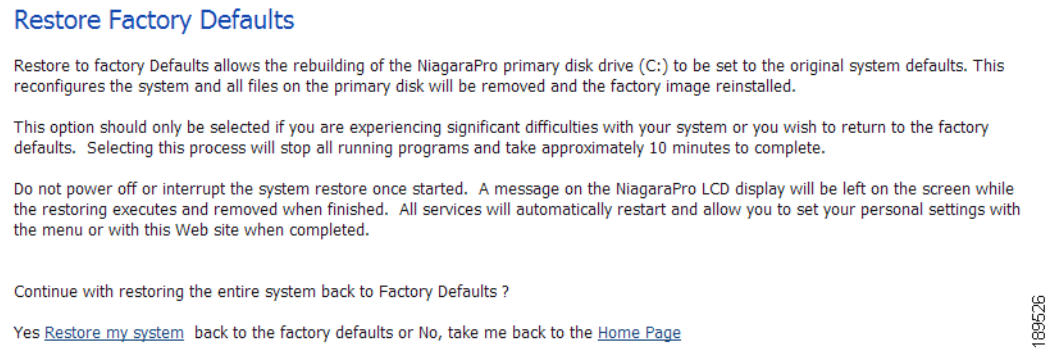


Restore Factory Defaults

Click the **Restore Factory Defaults** link to start the process.



The following screen gives details of the process that you are about to execute and allows you the opportunity to cancel the process.



Note **Restore Factory Defaults** rebuilds the encoder primary disk drive (C:) with the original system image. All custom settings and any files saved to drive C: will be lost. This process cannot be reversed. However, you can manually re-enter your custom settings once the encoder restore process is completed.

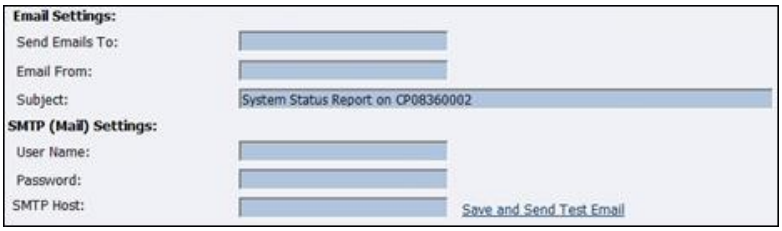
Note The default directory for saving your audio and video files is D:\AV Files\. When using the **Restore Factory Defaults** option, only drive C: is re-imaged. All files and folders on drive D: are preserved. To ensure your personal files are not removed, always use the default directory – drive D – for storage of personal files.

Email Settings

If you are unfamiliar with setting up an SMTP email account for sending email, please contact your network administrator for assistance.

To configure encoder **Email Settings**, you will need to enter the following information:

- The address to which to send the email (separate multiple email address with a comma)
- A valid email address from which the email comes
- A subject line for your email alert—required
- The SMTP (mail server) settings
  - User name for server access
  - Password (if required)
  - The name of the SMTP server



Note For security purposes, the password for your account will not be displayed once it has been entered into the settings. However, although this field appears blank after you click the **Submit** button, the password information has been retained.

Note If you change any information in this dialogue box, you will need to re-enter your SMTP password before clicking the **Submit** button. Not doing so will overwrite the previously entered password with a blank entry.

Once you have entered the information above, click the **Submit** button to save your changes.

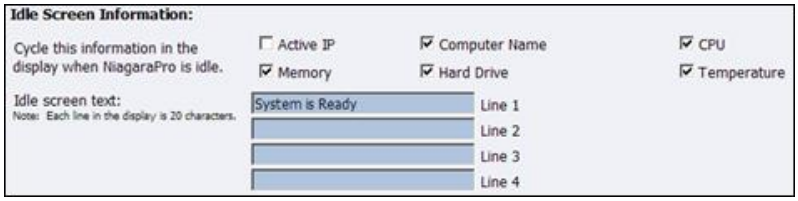
You can test your settings by clicking the **Save and Send Test Email** link. The resulting page will report if the email was successfully sent or there was a send failure.

Idle Screen Information

This section allows you to modify the information that is displayed in the encoder LCD display on its front panel.

Check the boxes next to the information you wish to be displayed. This information is cycled as the LCD display alternates between status information and encoder information.

At the top of the LCD idle screen is the default message **System is Ready**. You can customize this message.



Once you have entered the information above, click the **Submit** button to save your changes.

Default Directory Setting

Note We strongly recommend that you do not alter the default directory setting unless you understand the risk of saving your files to a directory not located on drive D. If you save your files to another drive on the encoder, these files could be deleted if you use the **Restore Factory Defaults** feature.

Note Only drive D on the encoder has available storage to save your files.

Note Drives C, E, and F are used strictly for encoder operational programs. Any modifications to these drives can permanently damage your system and void your warranty.

The Default AV Folder is the directory that the encoder stores AV files created whenever you select the **Save to File** option in an encoder profile. Refer to the Save to File option under the AVI Encoder Properties, Flash Encoder Properties, MPEG-4 Encoder Properties, Real Encoder Properties (Helix), and Windows Media Encoder Properties sections for information about setting an encoder profile to create an AV file.

High Temperature Alert

The Alert Configuration links to the Alerts page. For information on setting the Alerts, refer to the "Cisco Digital Media Encoder 2200 Alerts" section on page 2-47.

You can enable an alert if the encoder reaches a predefined maximum temperature level. To set the level, select from the **High Temperature Alert** drop-down menu.

CHAPTER 3

Using the Ease Menu and Niagara SCX Web Interface

Revised: October 9, 2008, OL-17938-01

This chapter includes the following sections:

EASE Menu (LCD Display)

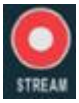
This section provides details about the LCD menu tree. It is intended to be a complete reference to all levels and functions accessible by using the encoder front panel LCD display.

It is designed to be a visual reference of the LCD screen including the front panel button action to move to the next screen.

This section includes the following topics:

Note This section will use the following graphical icons for the various button actions:

Icon	Description
	Power On
	Access Menu/Return to Previous

Icon	Description
	Enter/Execute Command
	Move Pointer Up/Down
	Start Encoder
	Stop Encoder
	Load Encoder

Encode Menu

This section includes the following topics:

Encode Start

Encode Stop

→Encode Access Health Setup System Export Files		→AVI Stopped Flash Stopped Mpeg Started Real Stopped	
AVI Stopped Flash Stopped →Mpeg Started Real Stopped		Mpeg Stopping	AVI Stopped Flash Stopped →Mpeg Stopped Real Stopped

Encode Status

→Encode Access Health Setup System Export Files		→AVI Stopped Flash Stopped Mpeg Stopped Real Stopped	
AVI Stopped Flash Stopped →Mpeg Stopped Real Stopped		Mpeg Controls a H264MPG C Preset: Not Assigned State: Stopped	—

Access Health Menu

This section includes the following topics:

CPU Status

Encode →Access Health Setup System Export Files		→CPU Memory Temperature	
CPU in use 48% PRESS ENTER		→Encode Access Health Setup System Export Files	—

Memory Available

Encode →Access Health Setup System Export Files		→CPU Memory Temperature	
CPU →Memory Temperature		Available Memory Harddrive: 97.09% RAM: 2692.00 Press Enter	
CPU →Memory Temperature		→Encode Access Health Setup System Export Files	—

Temperature Status

→Encode Access Health Setup System Export Files		→CPU Memory Temperature	 (X 2)
CPU Memory →Temperature		Current Temperature 39.75 C PRESS ENTER	
→CPU Memory Temperature		→Encode Access Health Setup System Export Files	—

Setup System Menu

This section includes the following topics:

Network Link Status

Encode Access Health →Setup System Export Files		→Network Time & Date Temperature Alarm Factory Restore	
→Primary NIC Secondary NIC		→Link Status MAC Address View Settings Change Settings	
Link Status: Active PRESS ENTER		→Link Status MAC Address View Settings Change Settings	
→Encode Access Health Setup System Export Files	—	—	—

Network MAC Address

			
			
			
	—	—	—

View Network Settings

Encode Access Health →Setup System Export Files		→Network Time & Date Temperature Alarm Factory Restore	
→Primary NIC Secondary NIC		Link Status MAC Address →View Settings Change Settings	
→DHCP On/Off IP Address(s) Subnet Gateway		DHCP Enabled: True PRESS ENTER	
→DHCP On/Off IP Address(s) Subnet Gateway		DHCP On/Off →IP Address(s) Subnet Gateway	
IP Address: 000.000.000.000 Press Enter		→DHCP On/Off IP Address(s) Subnet Gateway	
DHCP On/Off IP Address(s) →Subnet Gateway		Subnet Address: 000.000.000.000 PRESS ENTER	
→DHCP On/Off IP Address(s) Subnet Gateway		DHCP On/Off IP Address(s) Subnet →Gateway	

 Gateway Address: 000.000.000.000 Press Enter		 DHCP On/Off IP Address(s) Subnet →Gateway	
 →Encode Access Health Setup System Export Files	—	—	—

Enable DHCP

 Encode Access Health →Setup System Export Files		 →Network Time & Date Temperature Alarm Factory Restore	
 →Primary NIC Secondary NIC		 Link Status MAC Address View Settings →Change Settings	
 →Turn DHCP On IP Address Gateway		 Confirm Enable DHCP? Yes →No	
 Confirm Enable DHCP? →Yes No		 →Turn DHCP On IP Address Gateway	
 →Encode Access Health Setup System Export Files	—	—	—

Set Static IP Addresses

Encode Access Health →Setup System Export Files		→Network Time & Date Temperature Alarm Factory Restore	
→Primary NIC Secondary NIC		Link Status MAC Address View Settings →Change Settings	
→Turn DHCP On IP Address Gateway		Turn DHCP On →IP Address Gateway	
IP Address: ▮00.000.000.000 Press Enter		IP Address: 100.000.000.000 Press Enter	
IP Address: 1▮0.000.000.000 Press Enter	 (X 3)	IP Address: 130.000.000.000 Press Enter	
IP Address: 13▮.000.000.000 Press Enter	 (X 4)	IP Address: 134.000.000.000 Press Enter	
IP Address: 134.▮00.000.000 Press Enter	 (X 6)	IP Address: 134.000.000.▮00 Press Enter	 (X 5)
IP Address: 134.000.000.500 Press Enter		Subnet ▮00.000.000.000 Press Enter	

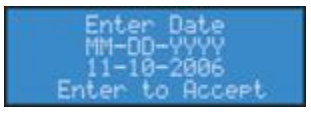
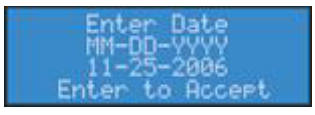
 Subnet 100.000.000.000 Press Enter	 STREAM	 Subnet 1▮0.000.000.000 Press Enter	 (X 3)
 Subnet 130.000.000.000 Press Enter	 STREAM	 Subnet 13▮.000.000.000 Press Enter	 (X 4)
 Subnet 134.000.000.000 Press Enter	 STREAM	 Subnet 134.▮00.000.000 Press Enter	
 Turn DHCP On →IP Address Gateway	 MENU	 →Encode Access Health Setup System Export Files	—

Set Gateway Address

			
			
	 (X 2)		
	 (X 1)		
 (X 9)			 (X 2)
		 (X 1)	
	 (X 6)		
 (X 8)			

	 (X 1)		
 (X 1)			
		—	—

Set Date & Time

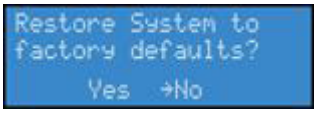
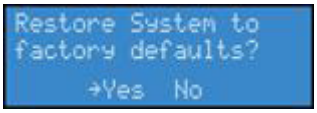
			
			
	 (X 5)		
	 (X 15)		
	 (X 2)		

			
	 (X 16)		
	 (X 25)		

Setting Temperature Alarm

		 (X 3)	
		 (X 2)	
		 (X 2)	
			

Factory Restore

		 (X 3)	
		 (X 3)	
			
			
			
		—	—

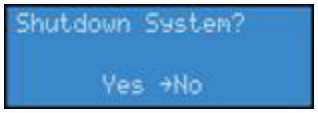
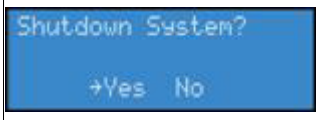
<10-minute delay>

Welcome to setup: Set time, date, and video format. PRESS ENTER ... 188228		Enter Date MM-DD-YYYY 0▮-10-2006 Enter to Accept	 **(X 5)**
Enter Date MM-DD-YYYY 11-10-2006 Enter to Accept		Enter Date MM-DD-YYYY 11-1▮-2006 Enter to Accept	 **(X 15)**
Enter Date MM-DD-YYYY 11-25-2006 Enter to Accept		Enter Date MM-DD-YYYY 11-25-200▮ Enter to Accept	 **(X 2)**
Enter Date MM-DD-YYYY 11-25-2008 Enter to Accept		Enter Time HH:MM 0▮:00 Enter to Accept	 **(X 16)**
Enter Time HH:MM 16:00 Enter to Accept 188233		Enter Time HH:MM 16:0▮ Enter to Accept	 **(X 25)**
Enter Time HH:MM 16:25 Enter to Accept		Select the video format to use for all encoders. PRESS ENTER ... 188234	
→NTSC PAL 188235		First time setup is completed. PRESS ENTER	

Export to USB Drive

Shutdown Cisco Digital Media Encoder 2200

	 (X 4)		
			
	—	—	—

Niagara SCX Web Interface

The Cisco Digital Media Encoder 2200 includes the ***Niagara SCX Web Interface***, which allows you to access the advanced system settings. The web interface also provides detailed settings and control over the encoder profiles installed on the encoder. This section details each setting and page of the ***Niagara SCX Web Interface***.

- Log In, page 3-17
- Home Page, page 3-18

Log In

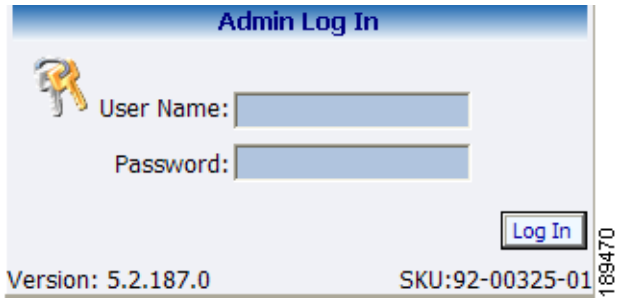
The ***Niagara SCX Web Interface*** does not require software and works with any computer that has a current web browser and current operating software for Windows, Macintosh, and Linux machines. The encoder system must either reside on a shared IP network with the computer or can be directly connected to a Windows computer using an Ethernet cable (RJ-45).

Open the web browser on your computer and access the web interface by typing in the encoder network name. The network name of the encoder is also its serial number and can be obtained from the LCD readout during the power-up process.

The serial number is also located on the right side of the encoder.

Enter the encoder name in the web browser (as shown below) and press **enter**.

You will be prompted with a login screen that requires a user name and password. By default, the user name and password are both **admin**.



Note If you cannot browse to the encoder by using its machine name, type in the encoder IP address instead. This information is available by accessing the LCD menus on the front panel of encoder.

Home Page

The **Home** page is the first page presented after you log into the ***Niagara SCX Web Interface***. From this page, you can access the different pages for configuring, controlling, and monitoring the activities and alerts from the encoder.

Menu Bar

The menu bar at the top of the **Home** page is consistent and available throughout the website.

With the exception of the **Home** and **Log Out** menu options in the menu bar at the top of the **Home** page, the other options in the menu bar have drop-down menus. These drop-down menus appear within **Encoders**, **Configuration**, and **Status**. Each drop-down menu provides a list of additional options available.

Home

The **Home** title is an active link. Clicking this link will direct you to the **Home** page of the website.

Encoders

The **Encoders** drop-down menu provides access to the following web pages that provide the following information:

- **All Encoders**: Lists all of the encoding profiles loaded on the encoder and provides management of those profiles
- **Preset A**: Allows you to assign a loaded encoding profile to the A button on the front panel of the encoder
- **Preset B**: Allows you to assign a loaded encoding profile to the B button on the front panel of the encoder
- **Preset C**: Allows you to assign a loaded encoding profile to the C button on the front panel of the encoder

Configuration

The **Configuration** drop-down menu provides access to the following:

- **My Encoder**: Provides details on the Machine Properties of the encoder, including the Network Name, Serial Number, and all software versions installed

- **Encoder Alerts**: Allows modification of the settings for each application alert that the encoder could generate during normal operations
- **Network Properties**: Provides information on the encoder network properties and addresses for both NIC ports and allows modification to these properties
- **System Configuration**: Allows modification of the system configuration including setup for email alerts from the encoder whenever it encounters an operation error

Status

The **Status** drop-down menu provides access to the following:

- **View Activity Log**: A list of all encoder activities with date and timestamp on each event
- **View Alert**: A list of encoder alerts with date and timestamp on each alert

Log Out

The **Log Out** option executes user log out from the encoder and returns you to the website Log In screen.

All Encoders

The All Encoders web page provides a list of all of the encoder profiles loaded on the encoder. On this page, you can do the following:

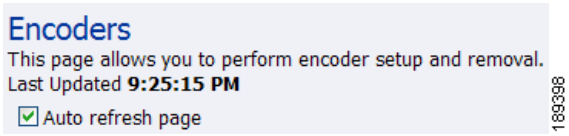
- View all of the loaded and available encoder profiles
- Start and Stop each encoder individually
- Access the Editing page for an encoder

- Delete an encoder profile
- Create an encoder profile

The **Encoders** list has five titled columns, as follows:

- **Name**: Provides the name of the encoder profile (this name is displayed in the encoder front panel LCD display)
- **Description**: Defines the type of encoder which are AVI, Flash, Helix Producer, and Windows Media
- **Last Status**: Provides the activity of the encoder when the information on this page was last refreshed (for example, Encoder started or Encoder failed to start)
- **Streaming**: Provides a column of buttons that allow you to start or stop an encoder
- **Preset**: Provides information on the ***EZStream*** button assignment for each encoder (if this field is blank then the encoder is not assigned to a ***EZStream*** button)

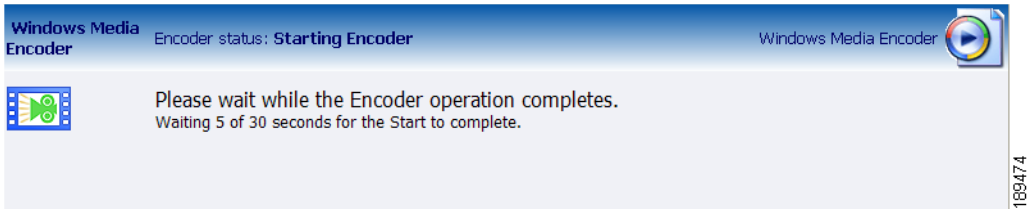
Enabling the **Auto Refresh Page** check box at the top of the page will execute a refresh of this page every 10 seconds. This is useful when you are monitoring the encoder while another user is operating it.

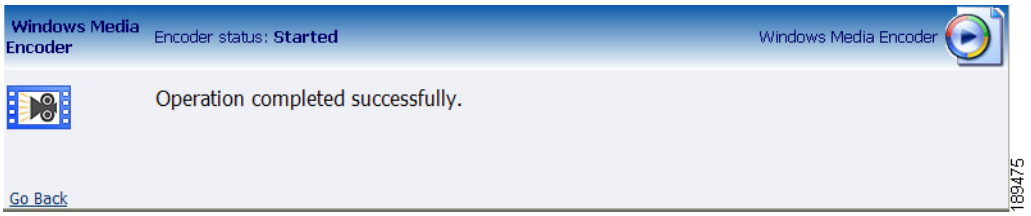


Start Encoder

Press the red **Stream** icon located in the right column of the encoder you wish to start.

The web page will automatically update with messages detailing the encoder start progress.

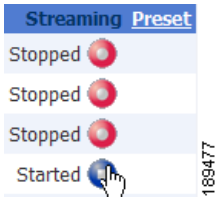




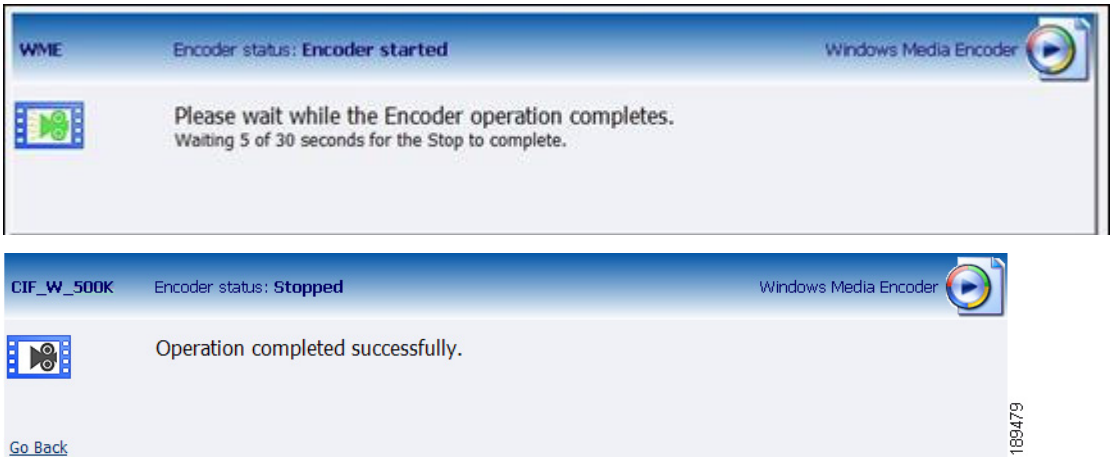
After the encoder has started successfully, the web page will return to the **All Encoders** page with the encoder status updated to reflect **Started** mode.

Stop Encoder

Press the blue icon located in the right column of the encoder you wish to stop.



The web page will automatically update with messages detailing the encoder stop progress.



After the encoder has successfully stopped, the web page will return to the **All Encoders** page with the encoder status updated to reflect **Stopped** mode.

Edit Encoder

To edit an encoder, click the **Edit** link in the first column.

The properties page for that encoder will be displayed.

Video & Audio Settings

The properties page for each encoder type uses the same Video and Audio Settings except for the added color space setting for AVI and MPEG-4.

You enable or disable video and/or audio by clicking the check box next to **Source**: When Source is enabled, the **Source**, **Input**, **Signal**, **Proportions**, **Size**, **Format**, and **Input** fields can be edited.

Source: This field displays a drop-down list of devices available on the encoder. The Cisco Digital Media Encoder 2200 is a two channel encoder, so there are two physical sets of audio and video inputs can be used at any one time. However, you can capture multiple streaming formats and resolutions simultaneously from this one set of video inputs. Video source is seen as multiple inputs denoted by incrementing decimal values. They appear in this manner:

- Osprey 5x0 Video Device 1.1
- Osprey 5x0 Video Device 1.2
- Osprey 5x0 Video Device 1.3
- Osprey 5x0 Video Device 1.4

Set **Input** for both video and audio to match the video and audio inputs on the back of the encoder to which you connected your video and audio source. This would be either Composite, S-Video or SDI for video input and Unbalanced, XLR Balanced, XLR AES/EBU or SDI for audio input.

When you performed the First Start Setup, you determined if your video signal was NTSC or PAL. The **Signal** field adds granularity for regional NTSC, PAL, and SECAM settings. If you are uncertain which setting applies, refer to the owner's manual for the video source that you have connected to the encoder.

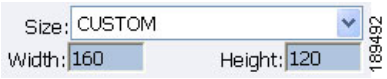
The proportion setting uses the term **Standard**, meaning square pixels for a VGA monitor, and **CCIR-601** meaning elongated pixels for a television monitor. Choose the setting that reflects the type of display on which your content will be viewed. For example, if you will be streaming your video on the Internet to be viewed on a computer monitor, select **Standard**. Selecting the incorrect setting can make the streaming video appear distorted.

The **Size** field refers to the pixel size of the encoded video. The standard sizes are as follows:

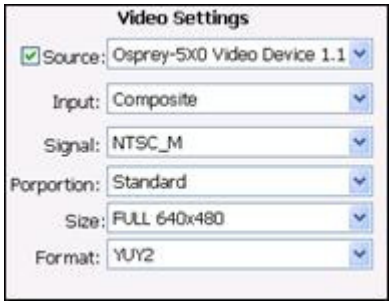
- Full for full screen video
- CIF for video scaled from full size to ¼ size
- QCIF for video scaled from full size to ¼ of CIF size

You can also specify a custom size for your video. This is useful when capturing video to be played on a mobile video device that requires a non-standard size for compatibility.

If you select **Custom** from the drop-down menu, two additional fields will appear allowing you to type in the exact size you want the resulting video to be.



Note If you specify a video size that is not compatible with the color space of your source video, the encoder will automatically correct the size to the closest compatible setting when you click the **Submit** button. The color space format setting is only available in AVI and Flash encoder properties and appears as an additional field under the **Size** setting (see below).



Now that you have completed all of the Video and Audio settings, you can proceed to the encoder type settings at the bottom of the page. As previously stated, these settings will vary according to the encoder type.

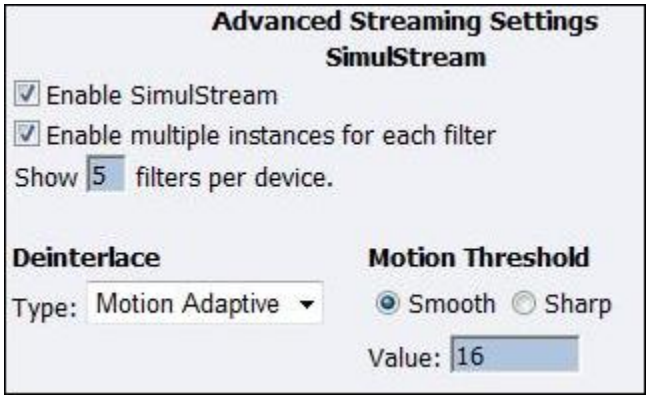
Advanced Streaming Settings

SimulStream and DirectShow Filters

SimulStream filters have two interrelated purposes, as follows:

- They allow applications to enumerate and list video capture and preview pins or streams (each with different settings) as named entries in their video device select lists. The video device driver can be configured to show multiple filters per device. Each filter has one preview pin and one capture pin. Standard applications have the capability to access a particular filter without any custom programming specialized for Osprey devices.
- Each filter has independent settings for cropping, default output size, watermarks, and captions that can be stored between sessions. Compared with the previous “pin-based” method, no requirements are necessary for a particular startup order to associate settings with instantiations.

Please see the **Enable SimulStream** checkbox below.



The checkbox next to **Enable SimulStream** at the top of the dialog box, when checked, enables SimulStream to run for the currently selected encoder.

The encoder includes a full SimulStream license installed for each A/V channel, and this checkbox controls full SimulStreaming.

Note When you change the **Enable SimulStream** status and click **Submit**, you must restart the appliance. If you do not, SimulStream may become partially active, but the capture devices may be incorrectly named, and their pins may be incorrect.

Show filters per device

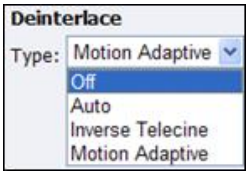
With this control, you can set the device driver to expose 1 to 10 filters per device for enumeration and selection by encoders. If, for example, 4 filters per device are chosen, device lists in applications will show four entries for the currently chosen device. For device 1, they are designated as 1.1, 1.2, 1.3, and 1.4.

Note The number of filters you request will not display or work correctly until the system is restarted.

Note While it is possible to expose and enumerate up to 10 filters per device, the practical number of working filters will be less. The practical number of filters depends on the capability of the appliance, the types of filtering enabled, the types of scaling and color format conversions requested per encoder, and the type of processing being done. If the appliance has multiple capture channels, the number of filters is the total across all channels. In addition, some types of processing, such as deinterlacing and gamma corrections, which are performed once per channel may, in this case, occur multiple times. In summary, an appliance can support 5, 6, or more concurrent filters on one device if the processing per filter is light. However, only 2 or 3 simultaneously running filters can be supported if the processing load inside or outside the driver is particularly heavy.

Deinterlace

The **Deinterlace** field has four drop-down choices. These choices are Off, Auto, Inverse Telecine, and Motion Adaptive, as you can see below.



In further explanation of each choice, please see the following definitions.

- **Off** —Performs no deinterlacing of any kind.
- **Auto**—Applies inverse telecine deinterlacing to all telecine video. Applies motion adaptive deinterlacing to all video that is not telecine. Switches dynamically between the two modes as the content changes. Available for NTSC video only.
- **Inverse Telecine**—Applies inverse telecine deinterlacing to all telecine video. Performs no deinterlacing of video that is not telecine. Available for NTSC video only.
- **Motion Adaptive**—Applies motion adaptive deinterlacing to all video.

Deinterlace settings are applied and stored per-device and are applied to all filters and pins associated with a device.

Motion Adaptive Deinterlace

Motion adaptive deinterlace is an algorithm for deinterlacing pure video (non-telecine) content. It detects which portions of the image are still, and which portions are in motion, and then applies different processing to each scenario.

Telecine and Inverse Telecine

Telecine video is NTSC video which was originally created on film at 24 frames per second. In the telecine conversion process, certain fields are repeated in a regular, recurring sequence. If a telecined sequence is viewed directly on a progressive screen, interlacing artifacts will be visible.

The process called Inverse Telecine is the reverse of Telecine — it drops the redundant fields and reassembles the video in a 24 fps progressive format. Interlacing artifacts are 100% removed. If the video is viewed at 24 fps, you will see the exact timing and sequencing that was on the original film. If the video is viewed at 30 fps, every fifth frame will be repeated. However, there will be no deinterlacing artifacts.

Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The Auto and Inverse Telecine buttons will be disabled when either PAL or SECAM is selected as the video standard.

Motion Threshold

Motion Threshold adjusts the threshold of difference from spatially- and temporally-related pixels, which are judged to be “motion.” If you enter a higher value, the number of pixels in motion will be greatly reduced. If you enter a lower value, the number of motion pixels greatly increases until the entire screen, more or less, is considered in motion. The recommended default is 16.

Sharp and Smooth Motion

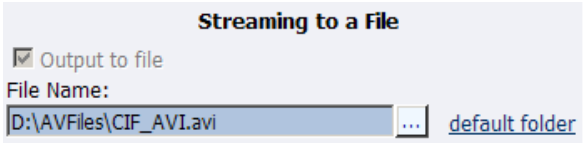
When the **Sharp Motion** radio button is selected, detail in motion areas will be sharper, but at the expense of somewhat jagged diagonal edges.

When the **Smooth Motion** radio button is selected, more loss of detail will occur in motion areas, but edges will be smoother.

Since the eye does not clearly see detail in areas of motion—and edge artifacts are highly intrusive—the **Smooth** algorithm is preferred for most applications. The Smooth algorithm uses a bit more CPU.

Both algorithms treat still areas in the same fashion, and there should be no loss of detail in still areas.

AVI Encoder Settings



AVI is an uncompressed audio and video storage format and therefore has only the ability to save to a file. You can type in a unique name for the generated AVI file and modify the directory path to where the file will be stored. Clicking the **Default Folder** link will insert the path of the default folder for file storage on the encoder. By default, the path is D:\AVFILES\.

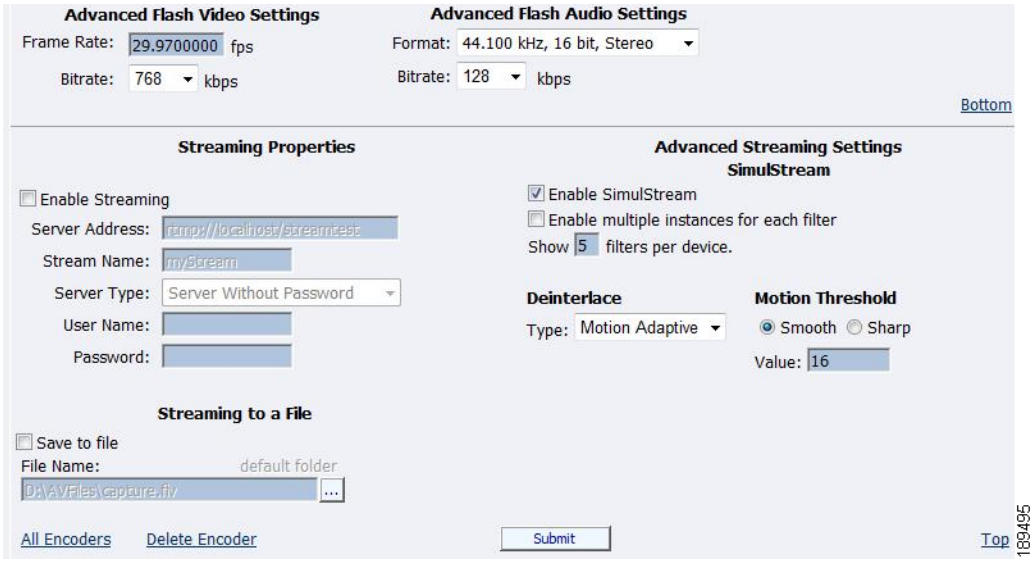
Note We do not recommend that you store files in any other directory on the encoder.

Once you save your file to the encoder's internal hard drive, we recommend that you move it to another external storage device such as a USB drive or a network drive.

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking *Submit*, your changes will be lost.**

Flash Encoder Settings



The Flash encoder settings are similar to the AVI settings for saving the audio and video to a file. To enable streaming to file, ensure the **Output to a File** box is selected. Flash adds some additional frame and bit rate controls. The frame rate changes the frames per second that the video will be encoded. The audio format setting can be used to modify the audio frequency and changes stereo to mono. The bit rate settings pertain to the amount of data per second the audio and video are captured. Decreasing the bit rate for both or either will decrease the playback viewing quality.

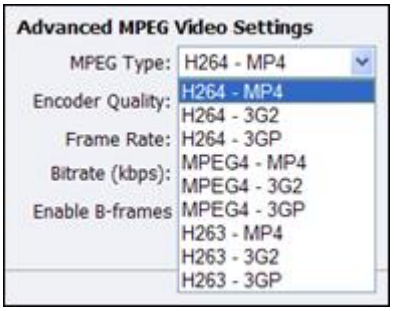
The Flash encoder creates a Flash format audio and video file. You can type in a unique name for the Flash file (.flv).

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without clicking *Submit*, your changes will be lost.**

MPEG-4 Encoder Settings

The encoder software MPEG-4 compression engine provides (1) H.264, MPEG-4, Part 10, (2) MPEG-4, Part 2, and (3) H263 – MP4, Part 2 Baseline encoding functionality. Please see the figure below.



This product provides the capabilities to encode streams for Internet video, mobile phones, set top boxes and create media files for other MPEG-4 compatible devices such as an iPod®.

The ***Niagara SCX Web Interface*** provides options for basic and advanced settings for the video and audio options of MPEG-4 available with the encoder.

The following figure illustrates the screen you will see after creating an encoder through the ***Niagara SCX Web Interface***.

The **Advanced MPEG Video Settings** provide you with the ability to choose the **MPEG Type** required for your output. As set forth in descriptions of the MPEG Types, these include the following:

- **H.264–MP4**: H.264, MPEG-4, Part 10, or AVC (Advanced Video Coding) was designed for very high-data compression while maintain better quality than its predecessor, H.263. It was also created to address a broad range of applications from low bit rate to high bit rate and from low resolution such as cell phones to high resolution such as broadcast. The encoder's H.264 is Baseline Profile.
- **H.264–3G2**: This setting will create an H.264 stream stored in a 3G2 container.
- **H.264–3GP**: This setting will create an H.264 stream stored in a 3GPP container.
- **MPEG4–MP4**: MPEG-4, Part 2, or H.263, is designed for situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth or device size. Examples of video applications for H.263 are cell phones, some low end video conferencing systems, and surveillance systems. H.263 is important for legacy handheld devices that do not support H.264.

Note By default, the encoder's H.263 uses Simple Profile unless you select the **Enable B Frames** option. If B frames are enabled, then the resulting stream will be Advanced Simple Profile.

- **MPEG4–3G2**: This setting will create an H.263 stream stored in a 3G2 container.
- **MPEG4–3GP**: 3GP is a multimedia container format defined by the Third Generation Partnership Project (3GPP) for use on 3G mobile phones. It stores video streams such as MPEG-4 or H.264 and audio streams such as AMR or AAC. This setting will create an H.263 stream stored in a 3GPP container. There are two defined standards for this format:
  - 3GPP for GSM based mobile phones
  - 3GPP2 for CDMA based mobile phones
- **H263–MP4**: MPEG-4, Part 2, or H.263, is designed for situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth or device size. Examples of video applications for H.263 are cell phones, some low end video conferencing systems, and surveillance systems. H.263 is important for legacy handheld devices that do not support H.264.

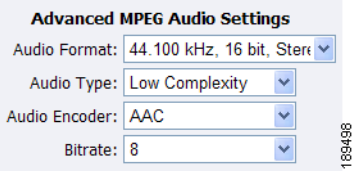
Note By default, the encoder's H.263 uses Simple Profile unless you select the **Enable B Frames** option. If B frames are enabled, then the resulting stream will be Advanced Simple Profile.

- **H263–3G2**: This setting will create an H.263 stream stored in a 3G2 container.
- **H263–3GP**: This setting will create an H.263 stream stored in a 3GPP container.

Note The **Encoder Quality** setting is currently not active and will not affect the results of the encoding stream or file.

Note Some players, such as Quicktime® player, are not compatible with streams that include B frames. If your resulting stream has quality issues on playback, try disabling B frames to ensure compatibility with most players.

The Advanced MPEG Audio Settings, provide you with several Audio Formats, Audio Types, Audio Encoders, and Bitrates from which to choose. These choices include several options as to audio sampling, and whether the audio is to be encoded monophonically (mono) or stereo.



The **Audio Type** setting is only related to AAC Encoding. If you select **AMR** in the **Audio Encoder** field, this setting is not used. The Audio Type field provides you with a drop-down box, which includes the following two choices:

- **Main**: This format is the same as Low Complexity, but adds backward prediction.
- **Low Complexity (LC)**: The simplest and most widely used and support AAC audio format.

Note Depending on the player on which the resulting stream will be heard, either choice will use a specific set of tools to encode the audio stream. You should make your choice based on the requirement of the playback software or device. The most widely supported format is LC profile.

The **Audio Encoder** settings provides you with a drop-down box, which includes the following three choices:

- **AAC (Advanced Audio Coding)**: A standardized, lossy compression and encoding scheme for digital audio. AAC achieves better audio quality than MP3 and has been named a standard by the Motion Picture Experts Group (MPEG)
- **AMR-NB (Adaptive Multi-Rate Narrow-Band – 8 kHz)**: An audio data compression scheme optimized for speech coding. AMR was adopted as the standard narrowband speech codec by 3GPP and is widely used in GSM.
- **AMR-WB (Adaptive Multi-Rate Wide-Band – 16 kHz)**: An audio data compression scheme optimized for speech coding. AMR was adopted as the standard wideband speech codec by 3GPP and is widely used in GSM.

Note When you select **AMR Encoder** for audio, the audio will automatically be encoded using 8 kHz mono for playback on cell phones. When you select **AMR-WB** for audio, you must change the Audio Format to be 16 kHz, 16 bit, mono, for playback on cell phones.

The **Audio Bitrate** drop-down box provides you with several choices, ranging from 8 to 320.

The web interface for the encoder includes options for **Streaming Properties** and **Advanced Streaming Properties**. As to the broadcast type you choose, you have the option to check the **Enable Streaming** box. Please see the "Real Encoder Settings (Helix)" section on page 3-34 for a more detailed description of enabling pull. Another option provides you with the abilities to **Save to Portable Media** and provide a **Media Title**.

Under the **Advanced Streaming Setting**s feature, you have the options to output to a file while streaming or output only to a file. You must type in a unique name and location for this file.

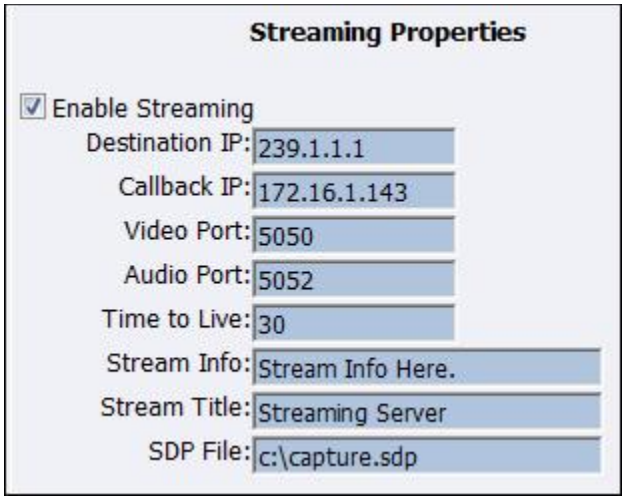
Check the **Save to file** box if you would like to save the encoded content to a file. Enter a file destination in the field provided. By default, this folder is set to D:\AVFiles\.

Check the **Save to Portable Media** boxif you would like to save the stream from portable media to a file.

Note Remember the file name is referenced to the encoder system not to the system that is running SCX Explorer.

When SCX Manager and SCX Explorer are not on the same computer, always start your browse for files at My Network Places and work down or enter the entire file pathname beginning with the system name (for example, \\fileserver\c\videos). If you simply enter a file name, you may inadvertently browse your local computer when the media file resides on the remote computer.

To stream your MPEG-4 content, select **Enable Streaming**. Set the appropriate streaming properties.



Note The default settings will enable multicast streaming. If this is not desired, change the IP address for Group to the IP address of the server to which you want to stream from the encoder.

The save **SDP File** field will require a name and destination path for the resulting SDP file created when the stream is started. If you are streaming to a Helix®, a Quicktime, or a Darwin server, refer to its respective documentation or online message boards for setup details specific for the individual streaming server.

Note You can stream point-to-point by selecting a share destination directory for the saved SDP file. Remember to disable multicasting by entering in the IP address of the PC to which you want to stream.

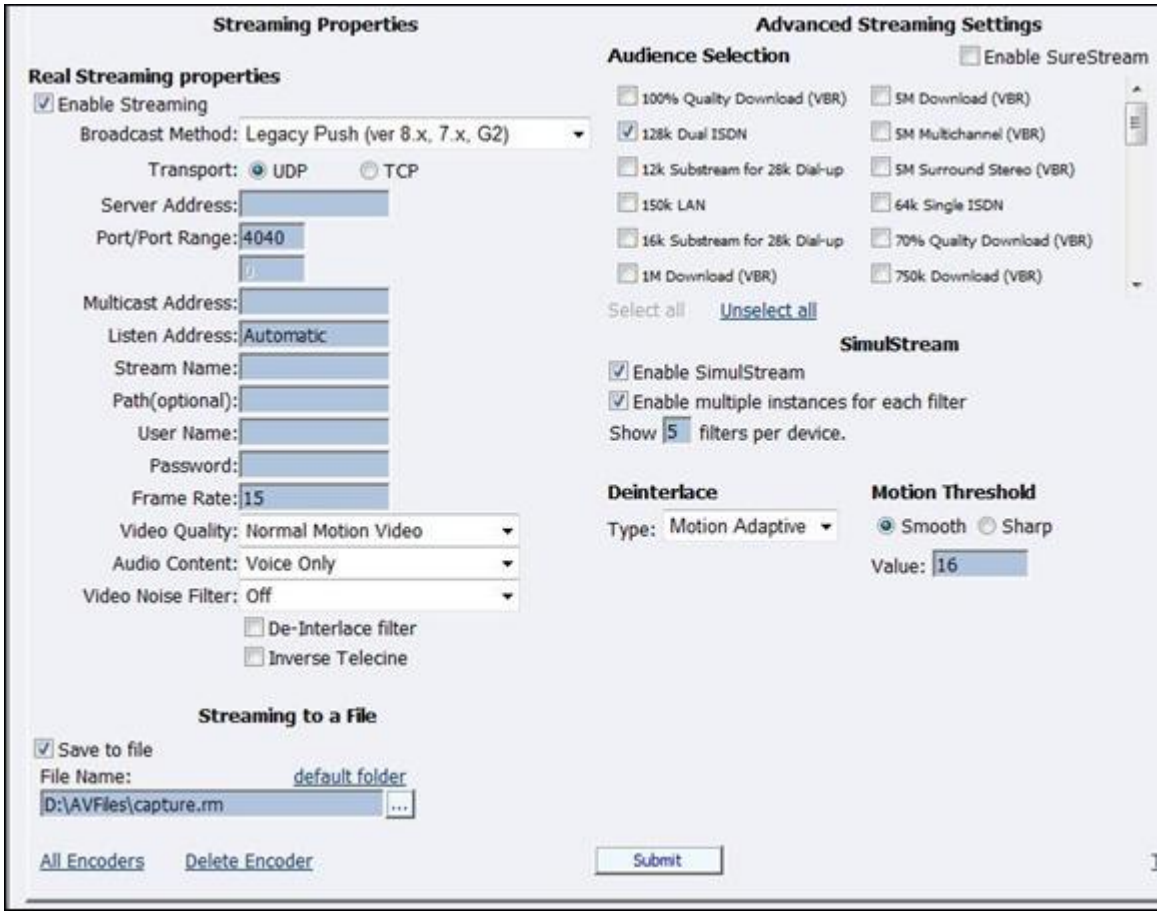
For example, if you want another PC to view the stream, save the SDP file to a share folder on the local drive. The other PC can open the SDP file and the stream can be played in a Quicktime or other MPEG-4 compatible streaming player. Since MPEG-4 encoding can be CPU intensive, it is not recommend that you view the stream on the same system as the encoder unless you have a very powerful system (dual-core processors or better). Doing so may overtax the host CPU which will cause video quality degradation and encode session failure.

After you have input your settings, click the **Submit** button at the bottom of the page to save your settings.

Warning **If you click away to another web page without clicking Submit, your changes will be lost.**

Real Encoder Settings (Helix)

Real (Helix) is both a storage format and a streaming format. In addition to the ability to output to a file, the Real Encoder can stream to a Helix Server. The settings for the Real Encoder include the ability to adjust parameters for connecting and streaming to the server.



Broadcast Method: There are several different broadcast types for streaming Real format video to a Helix Server. They are as follows:

- **Push, Account-Based Login (Helix Server)**: Account-based, push broadcasting allows you to send a stream to Helix Server version 9 or later. In this method, the encoder maintains a monitoring connection to Helix Server. This connection allows it to pass a user name and password to authenticate access to the server. Helix Server uses this connection to send statistics about the broadcast stream back to the encoder.
- **Push, Password-Only Login (Helix Server)**: Unlike account-based broadcasting, password-only broadcasting does not establish a monitoring connection. Therefore, this type of broadcasting requires less network overhead, but receives no feedback from Helix Server. This broadcast method allows you to send a live stream to Helix Server version 9 or later. However, you must set up the server as a receiver in a splitting arrangement. Please refer to Helix Server documentation for details.

- **Push, Multicast (Helix Server)**: In a multicast, the encoder can deliver the same broadcast stream to any number of Helix Servers without increasing its outgoing bandwidth. The Helix Servers will need to be pre-configured for a multicast from the encoder. Refer to your Helix Server documentation for details.
- **Pull (Helix Server)**: In pull broadcasting, the encoder begins to generate broadcast packets as soon as you start the encoding. However, it does not deliver the broadcast stream until Helix Server requests the stream, which occurs when the first RealPlayer® user requests the broadcast. In that way, Pull broadcasting saves bandwidth between the encoder and Helix Server when no one is viewing the broadcast. This broadcast method allows you to send a stream to Helix Server version 9 or later.
- **Legacy Push (8.x, 7.x, G2)**: The legacy push method is similar to the account-based push method. However, the legacy push does not use a monitoring connection to provide server feedback and statistics and is not as robust a broadcast method as an account-based push. Use this broadcasting method only when sending a broadcast stream to a server that predates Helix Server version 9, such as RealSystem Server G2, 7, or 8.

Transport Protocol*:* When you use a push broadcast method, you specify whether to use UDP or TCP upon delivering the broadcast stream to Helix Server. UDP is the preferred protocol due to the lower network overhead. But you may want to use TCP when delivering the broadcast over a lossy environment.

For the **Server Address** field, enter the IP address or DNS name of the Helix Server used for the broadcast, such as 207.188.7.176 or helixserver.example.com.

For the **Port/Port Range** field, specify the HTTP port on Helix Server. The default value is port 80, which is the server's default HTTP port. If multicasting, indicate the range of ports on the Helix Server receivers where the broadcast packets will be sent. The encoder and Helix Server negotiate the actual ports to use once the broadcast begins. The default range is from 30001 to 30020.

If using a Multicast Address, enter the multicast address for the broadcast stream in the **Multicast Address** field. The Multicast Address must be in the range 224.0.0.0 to 239.255.255.255.

The **Listen Address** field is the IP address of your machine where Helix Producer will listen for resend requests from the server.

The listen address sets the IP address that Helix Mobile Producer Live uses to listen for packet resend requests from Helix Server. For the listen address, you can use one of the following possible values:

- **Automatic**: This is the safest setting, and will work with most firewall configurations
- **System IP**: The IP address of the machine
- **System IP 2**: The second IP of the machine is multi-homed
- An IP address typed in by the user

If your Helix Mobile Producer Live machine has multiple IP addresses, enter the IP address that Helix Mobile Producer Live should use for communications from Helix Server. If you are broadcasting through a firewall performing network address translation (NAT), set the listen address to the IP address of the firewall or the value 0.0.0.0. The 0.0.0.0 value tells Helix Server to allow a Helix Mobile Producer Live connection from any IP address. The connection still requires the valid password, however.

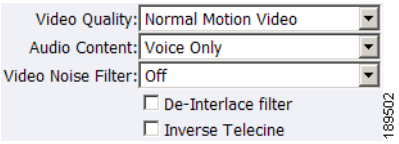
In the **Stream Name** field, enter a name for the broadcast stream. This name resembles a clip name and should use the appropriate extension, either .rm for a constant bit rate stream or .rmvb for a variable bit rate stream. This name appears in the broadcast URL.

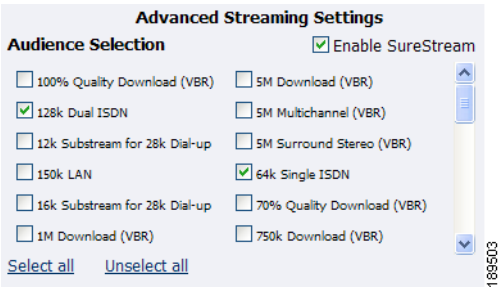
The **Path (optional)** field specifies a virtual path, which can be used for archiving or splitting on Helix Server. Use a simple name followed by a forward slash, such as news/.

In the **User Name** and **Password** fields, enter the User Name and Password defined in each Helix Server receiver definition. The broadcast connection fails if the value is incorrect.

Frame Rate, or frame frequency, is the measurement of the frequency (rate) at which an imaging device produces unique consecutive images called frames. The term applies equally well to computer graphics, video cameras, film cameras, and motion capture systems. Frame rate is most often expressed in frames per second (fps), or simply hertz (Hz).

The next series of fields activate the Real Encoder's filters to improve video and audio quality. These filter settings will depend upon the type of content you are streaming and your subjective preference. It is recommended you experiment with these settings and view their results on a test capture.





The Cisco Digital Media Encoder 2200 features integrated de-interlacing and inverse telecine filters that automatically apply when needed. This allows the encoder to perform at maximum efficiency.

Note We recommend that you employ the deinterlace and the inverse telecine filters under either **Streaming Properties** or under **Advanced Streaming Properties/Deinterlace**, but not both since applying filters multiple times can produce undesirable results and consume additional system resources.

Enable SureStream™: SureStream allows you to encode the broadcast stream for multiple audiences. However, each primary stream or substream you choose increases the processor load during encoding and adds to the outgoing bandwidth requirements. For example, with SureStream enabled, you can choose the 128k Dual ISDN and the 64k Single ISDN audiences. In addition, with SureStream enabled, the encoding might require twice as much processing power.

Regardless of whether or not you enable SureStream, you must choose at least one **Audience Selection** for your stream.

You can also choose to output to a file while streaming or output only to a file. Type in a unique name for the file.

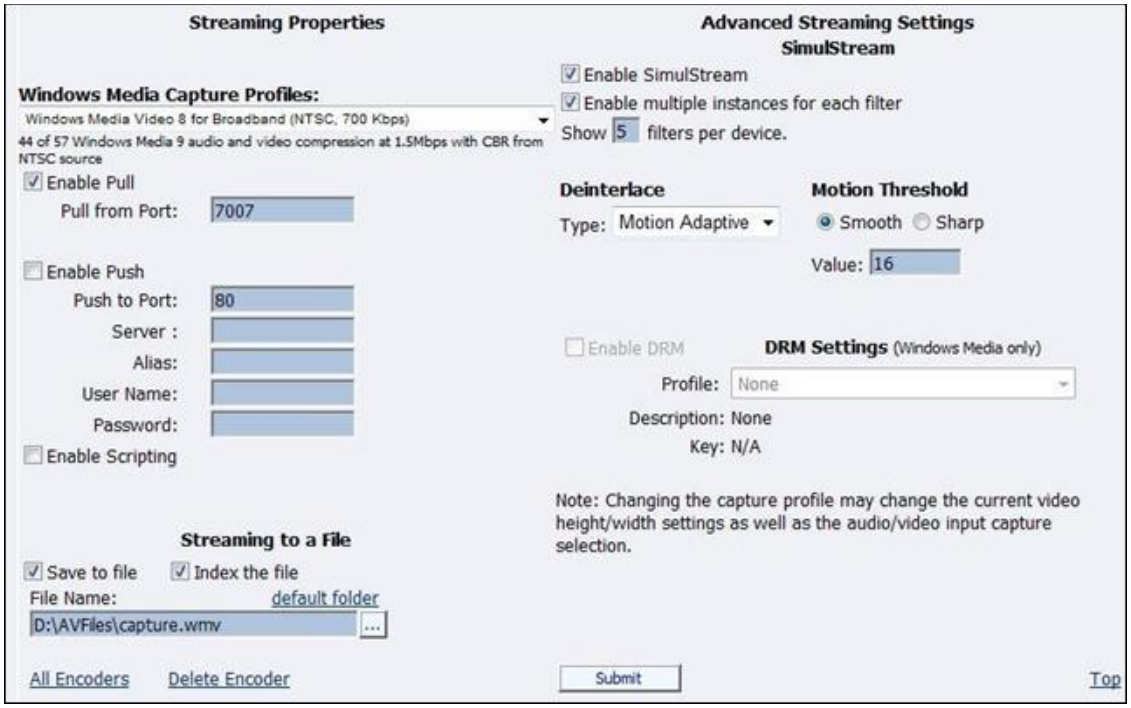
Note If you use the same name as a current file, the current file will be overwritten.

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking *Submit*, your changes will be lost.**

Windows Media Encoder Settings

Windows Media is both a storage format and a streaming format. Besides the ability to output to a file, the Windows Media encoder can stream to a Windows Media Server. The settings for Windows Media encoder include the ability to set parameters for connecting and streaming to the server.



First, select a **Windows Media Capture Profile** from the drop-down menu.

Note Some Windows Media Capture Profiles have pre-defined video resolutions and input selections. When you select a Windows Media Capture Profile, verify that your current video and audio settings have not been modified. If they have been modified, simply change these settings back to their previous settings, and click the **Submit** button.

When streaming audio and video, there are two methods of delivery, as follows:

- **Pull***:* Using this method, the encoder begins to generate broadcast packets as soon as you start the encoding. However, it does not deliver the broadcast stream until Windows Media Server requests the stream. This method does not provide a secure connection to the server and should only be used if the encoder and server reside within the same network firewall.
- **Push***:* Using this method, the encoder maintains a secure connection to Windows Media Server. This connection allows the encoder to pass a user name and password to authenticate access to the server.

To enable clients to pull the stream from Cisco Digital Media Encoder 2200, you set up a session and begin broadcasting directly from the encoder. Clients (Windows Media servers or players) can connect to the stream at any time by using the following URL format:

- http://IP_address:port (for Internet connections)
- http://encoding_computer_name:port (for LAN connections)

By default, the encoder supports up to 50 direct connections during a broadcast.

Note The greater the number of direct connections to the encoder, the more system resources are required. We do not recommend having players connect directly to Cisco Digital Media Encoder 2200. Streaming servers should connect to the encoder and, in turn, players should connect to the servers.

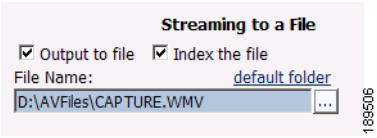
Select the **Enable Pull** check box. Then, enter a port number that will be used by the server to pull the stream from the encoder.

Note Be sure to enter a port number that is not already assigned to another encoder. If two encoders attempt to use the same port number, one or both encoders will fail to start.

Select **Enable Push** and enter a port number that is not assigned to another encoder. Then, enter the server name or IP address, Alias (optional), user name, and password.

You can also choose to output to file at the same time you are streaming to a server. However, you can set the server to archive the file and streaming, allowing the encoder to reserve its system resources for encoding. Refer to the Windows Media Server documentation for details.

If you check **Index the file**, viewers will be able to direct access any point within the Windows Media® file using the Windows Media player. **Indexing is also required for editing the Windows Media file using Microsoft Windows Media Utilities.**



After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking Submit, your changes will be lost.**

Niagara SCX Web Interface will then display the All Encoders list.

Digital Rights Management (DRM) for Windows Media

You can protect your content by using a technology called Digital Rights Management (DRM). Niagara SCX allows you to encrypt your content with DRM technology while you are encoding. You can apply DRM while encoding to a file and when broadcasting a stream. Users will be required to obtain a license to play the content. This license contains the key to unlock the content and the rights that govern its use.

Note Licenses are issued by a third-party license provider, so you must set up an account with a third-party license provider to protect your content.

Niagara SCX automatically detects any available DRM profiles imported on the encoding system. If there are no DRM profiles installed, the DRM functions in Niagara SCX are disabled. In order to enable the DRM function in Niagara SCX, you must do the following:

1. Set up an account with a third-party license provider, and create a DRM profile.
2. Import the DRM profile by using the Windows Media Encoder application included with Niagara Streaming Systems or available as a free download from Microsoft Corporation (http://www.microsoft.com).
3. Restart the encoding system on which Niagara SCX is installed, allowing the software to auto-detect and enable its DRM functions.

Importing a DRM Profile

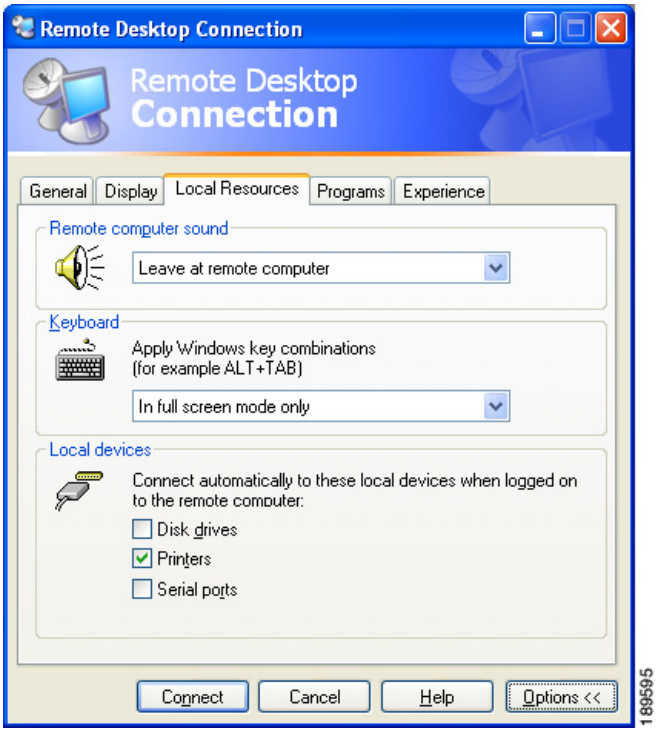
If you have not already done so, set up an account with a licensed provider and create a DRM profile. Once the DRM profile is created, you must use Windows Media Encoder to import the profile on the encoding system.

Windows Media Encoder is included in Niagara Streaming Systems that have Niagara SCX version 5.0 or later installed. To access the desktop of the encoder, use Windows Remote Desktop Connection on a computer that resides on the same network.

Note When connecting to an encoder by using a **Remote Desktop Connection**, it is extremely important that you set the **Local Resources** to **Leave at remote computer** before connecting to the system.

To set this appropriately, open **Remote Desktop Connection**.

Click the **Options** button so the settings tabs are viewable. Click the **Local Resources** tab. Under the Remote computer sound setting, change the drop-down selection to the **Leave at remote computer** option.



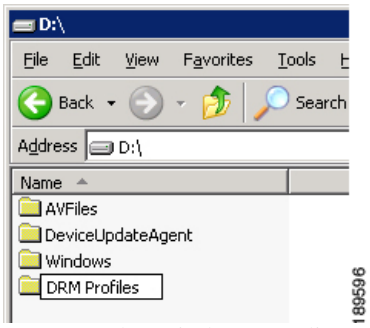
You may then enter the **user name** and **password** to access the encoder. The password for connecting to the encoder by using remote desktop is **password** and the user name depends upon the software running on the encoder:

Release	User Name
5.2.184.0 and earlier	gostream
later than 5.2.184.0	niagara

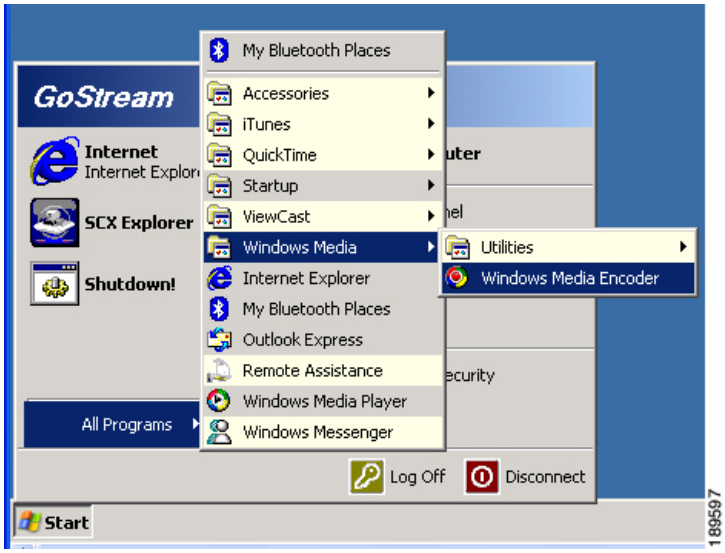
Note When exiting from Remote Desktop Connection, **DO NOT LOG OUT**. Instead, **DISCONNECT** from the encoder. This allows its internal programs to continue running.

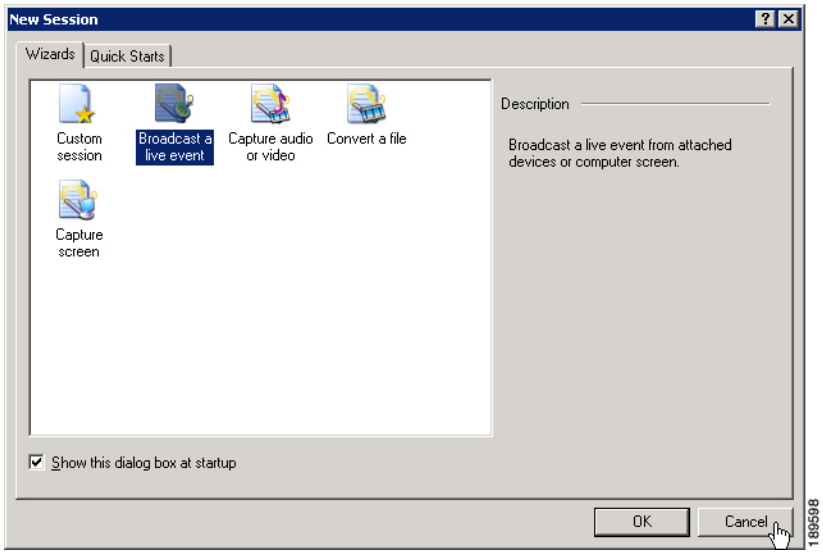
Next, complete the following steps:

- Copy the DRM profiles to a protected location on the encoding system to ensure they will not be accidentally removed or erased. We recommend that you create a new directory on the D: drive on the encoder, and use this directory to store your DRM profiles.

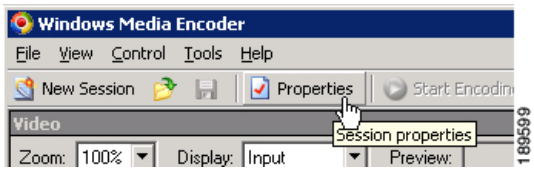


- Start the Windows Media Encoder application on the encoder. When the New Session Wizard appears, click the **Cancel** button.

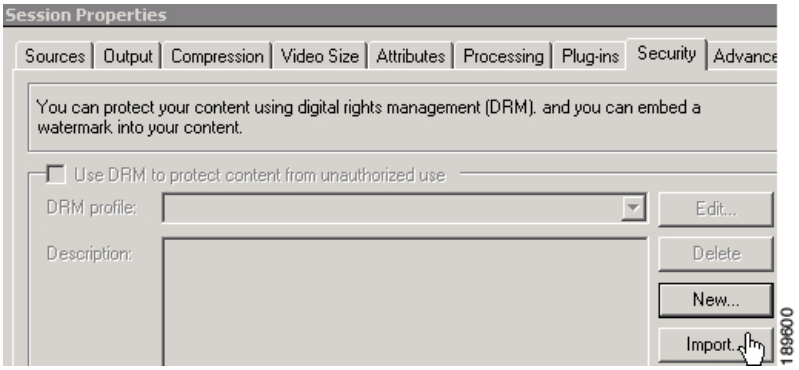




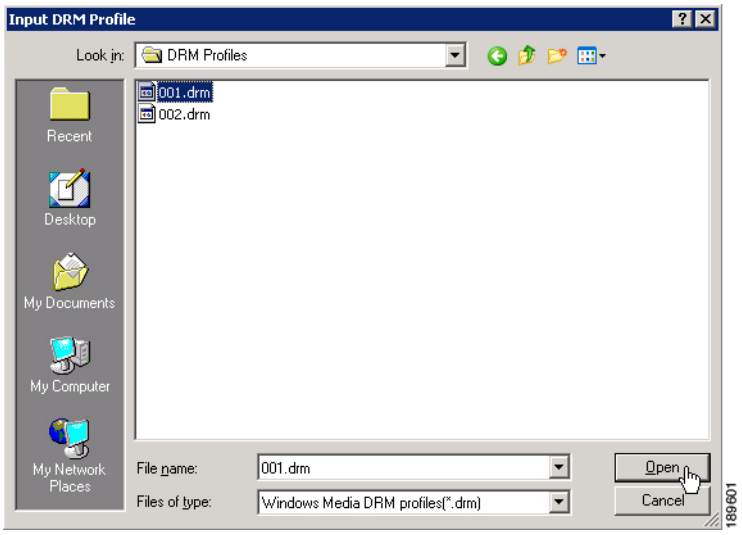
Click the **Properties** button under the top menu bar.



- Click the **Security** tab.

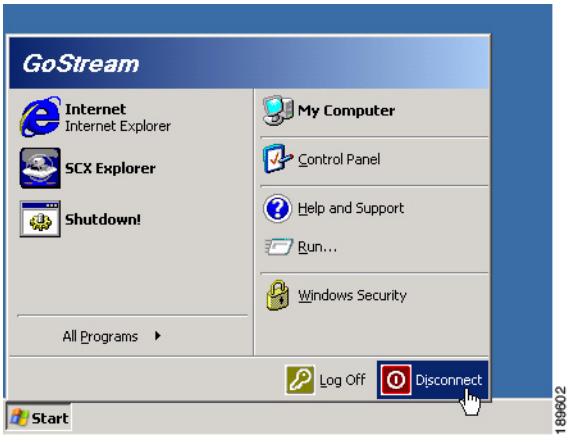


- Click the **Import** button, and browse to the location of the DRM profiles on the system's hard drive. Select the DRM profile you wish to import, and click the **Open** option.



- Repeat this process for each DRM profile you wish to import.
- Exit from the Windows Media Encoder application when finished. If you are asked if you want to save your encoding session, select the **No** option.

- Disconnect Remote Desktop Connection from the encoder. Do not log out.



- Restart the encoder.

Setting a DRM Profile in the Web Interface

To set the DRM Profile by using the encoder's ***Niagara SCX Web Interface***, complete the following steps:

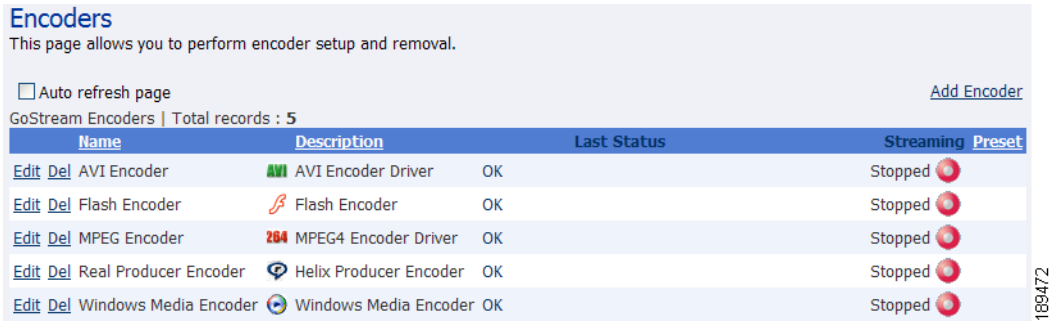
- Start Niagara SCX either locally on the encoding system or on a remote PC from which you control your encoding system.
- Either add or edit an existing Windows Media Encoder from the **All Encoders** page.
- To enable DRM, select the **Enable** check box, and select the DRM profile you wish to apply from the **DRM Settings** drop-down menu.

Note When you enable DRM, Niagara SCX will automatically change the **Windows Media Capture Profile** setting to a DRM-compatible **Windows Media 9** setting. You might need to adjust this setting after you enable DRM.

After you have input your settings, click the **Submit** button at the bottom of the page to save your changes.

Warning **If you click away to another web page without first clicking *Submit*, your changes will be lost.**

Niagara SCX Web Interface will then display the **All Encoders** list.



Delete an Existing Encoder

To delete an existing encoder listed, click the **Del** link next to the name of the encoder you wish to remove. The encoder profile with its settings will be immediately removed from the encoder.

Alternatively, you can click the **Edit** link to view the encoder profile, verify that it is the encoder that you wish to remove.

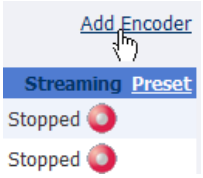
Then, click the **Delete Encoder** link at the bottom of the page once you have verified that it is the encoder you want to delete.

Note You cannot restore a deleted encoder. You must recreate the encoder by using the **Add Encoder** link at the top right-hand corner of the **All Encoders** page.

Create an Encoder

By default, the Cisco Digital Media Encoder 2200 has encoding profiles loaded and ready for use. You can create a new encoder for your custom streaming requirements.

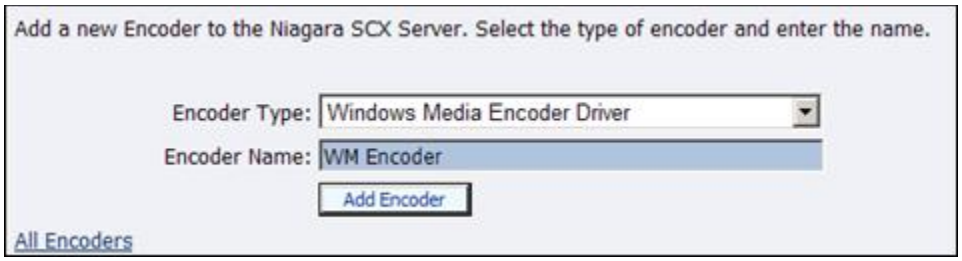
Click the **Add Encoder** link in the upper right corner of the screen.



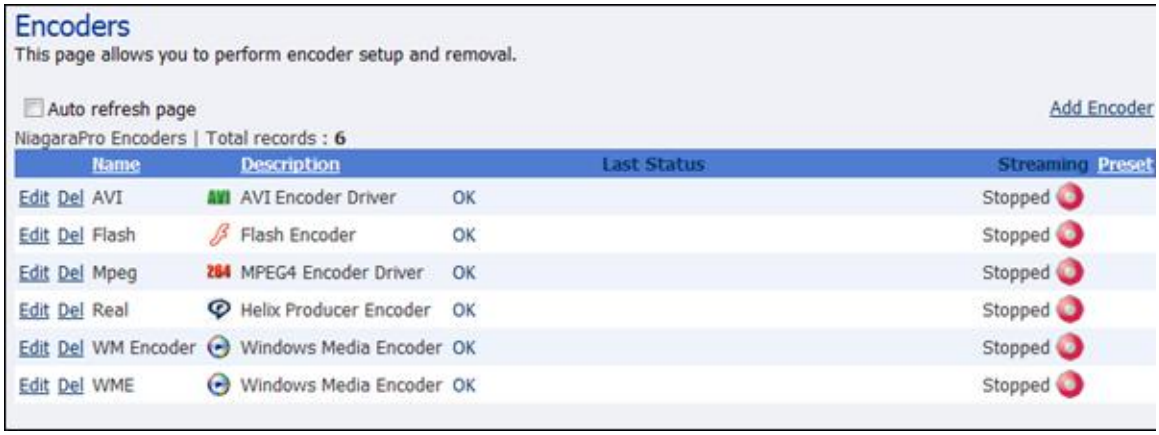
On the next screen, select the encoder type from the drop-down menu. There are four different types of encoders installed in the Cisco Digital Media Encoder 2200:

- **AVI**: An uncompressed audio and video file format
- **Flash**: An audio and video and streaming file format typically embedded in Flash-authored interactive content
- **MPEG-4**: An audio and video file and streaming format
- **RealVideo**: An audio and video file and streaming format
- **Windows Media**: An audio and video file and streaming format

After you have made your selection, give the encoder a unique name. Keep in mind that only the first 11 characters of the encoder can be displayed on the encoder's LCD display. Click the **Add Encoder** button when finished.



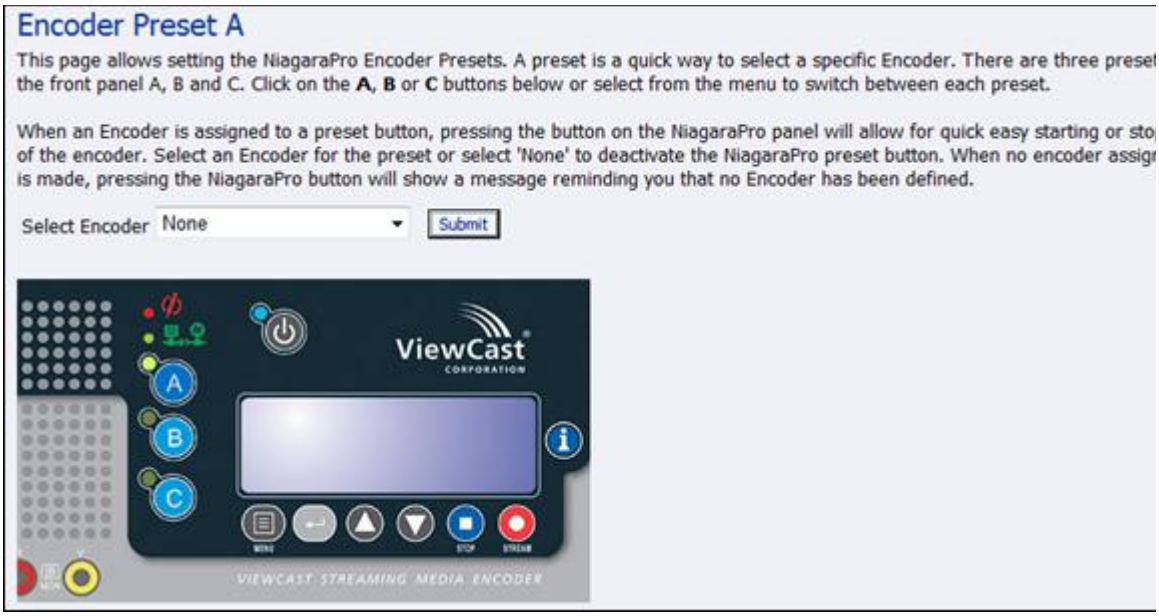
You then return to the **All Encoders** page. The new encoder you created is added to the encoder list. You can then edit that encoder by clicking the **Edit** link next to the encoder name. Read the "Edit Encoder" section on page 3-22 for information on how to edit the encoder you just created.



Encoder Preset (A, B, & C)

The Cisco Digital Media Encoder 2200 provides one-button streaming via the ***EZStream*** buttons located on the front panel of the encoder. By default, these buttons are not assigned to an encoder. The ***Niagara SCX Web Interface*** is used to configure each button to a specific encoder. The controls to configure these buttons are located in the ***Encoder Preset A***, ***Encoder Preset B***, and ***Encoder Preset C*** pages.

When you access the ***Encoder Preset A*** page, you are presented with the configuration option for the ***EZStream A*** button. On this page is a graphic representation of the front panel of the encoder. The ***A*** button is highlighted on this graphic, which sets forth that you are actively assigning an encoder to this corresponding ***EZStream*** button.



This page presents a **Select Encoder** field and a link at the bottom of the page to view the **View All Encoders** page. If an encoder has been assigned to the Preset, then you will also be presented with an **Edit** link next to the **View All Encoders** link.

Select Encoder

The **Select Encoder** field provides a drop-down menu, which presents the complete list of all encoders available on the Cisco Digital Media Encoder 2200.

To assign an encoder select an encoder from the list, and click the **Submit** button.

The web page will update the ***Preset A EZStream*** button and provide a message reporting ***Encoder Preset: A updated successfully***.

By clicking on the ***B*** and ***C*** buttons on the encoder graphic, you can assign encoders to those ***EZStream*** buttons in the same way.

Note It is not possible to assign the same encoder to two ***EZStream*** buttons simultaneously. If an encoder is already assigned to a button and you assign it to another button, the encoder will remove the association to the previous button in favor of the most current request.

View All Encoders

After assigning encoders to the ***A***, ***B***, and ***C*** buttons, the **Presets** column on the **All Encoders** page is update to reflect these changes. To view these changes, click the **All Encoders** link at the bottom of the page.

Edit Preset Encoder Profile

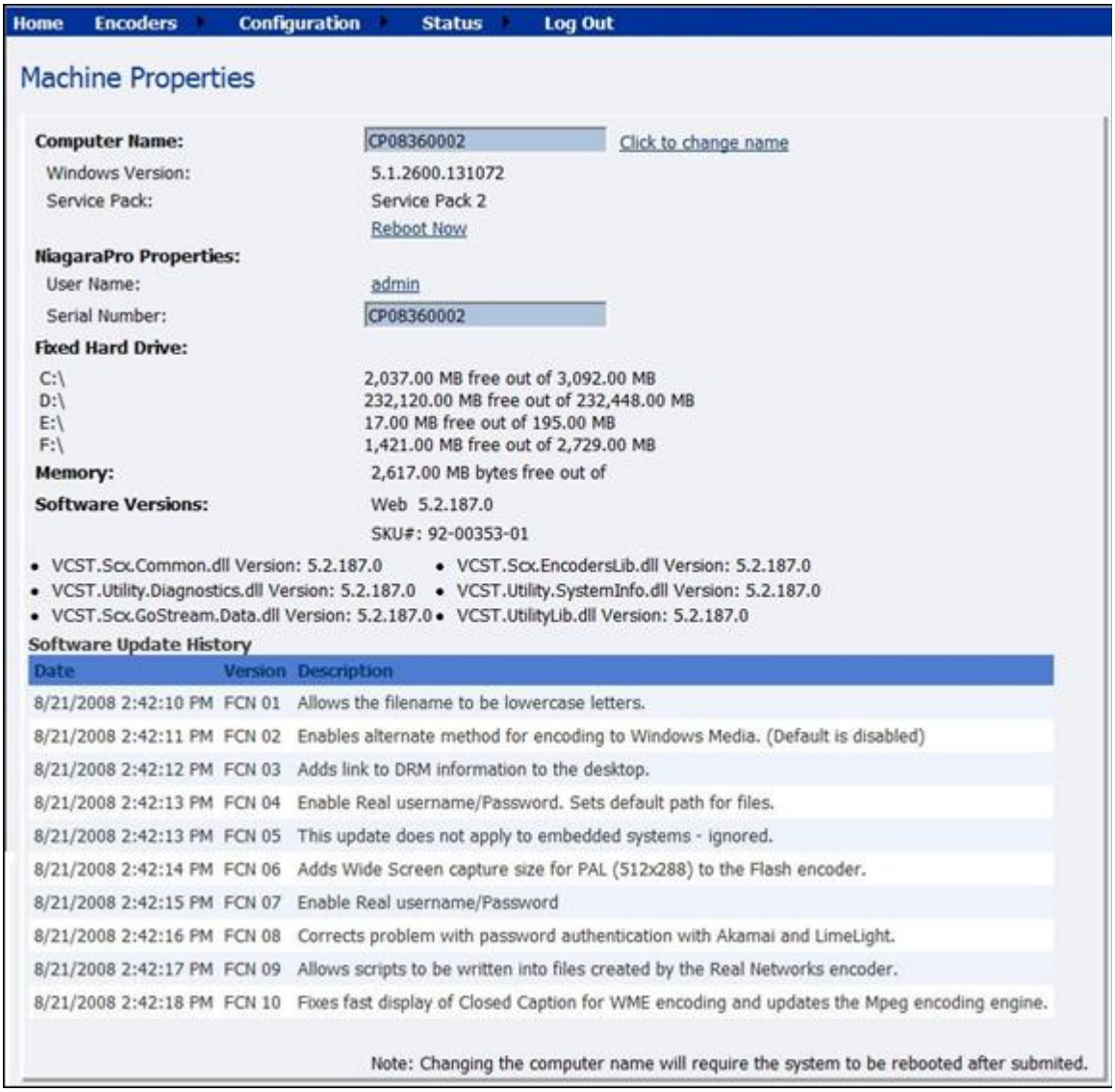
After assigning encoders to the ***EZStream*** buttons, you can access the encoder editing page by clicking the **Edit** button at the bottom of the **Preset** page.

My Cisco Digital Media Encoder 2200

To link to the My Cisco Digital Media Encoder 2200 page, go to **Configuration** on the menu at the top of the web page, and click on **My Niagara Pro II** from the drop-down list.

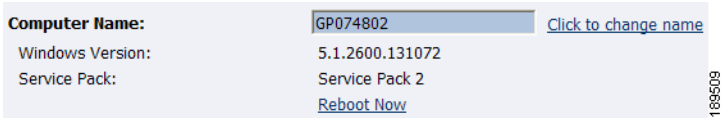
The **My Cisco Digital Media Encoder 2200** page provides details on software versions, network name, serial number, and hard drive configurations. Most of the data on this page is for informational purposes and cannot be altered. However, the following two fields allow modifications:

- Computer Name
- Admin password



Computer Name

The **Computer Name** field contains the current network name for the encoder. This is the same name that you typed into a web browser to access the ***Niagara SCX Web Interface***. You can change the Computer Name by clicking the **Click to change name** link next to this field.

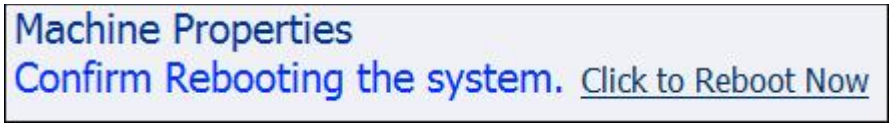


The screen will refresh and now the **Computer Name** field is an editable text field. Type in a new name for the encoder.

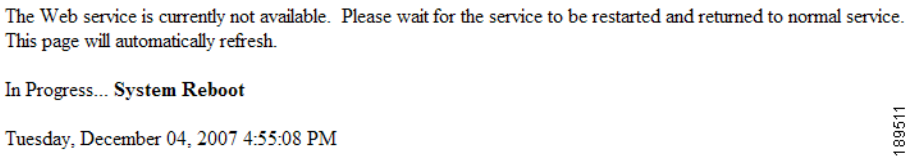
Then, click the **Submit** button at the bottom of the page.

The page will refresh and you will be prompted to reboot the encoder. Your changes will not take effect until the system is restarted.

Click the **Reboot Now** link to restart the system and apply the Computer Name change.



While the encoder is restarting, the following message will appear in the web interface.



Note The restart process takes approximately two minutes to complete.

When encoder has restarted, you will be returned to the Login screen.

Note If you close your web browser and later want to log into the ***Niagara SCX Web Interface***, you will need to use the new computer name you created to access the encoder.

Cisco Digital Media Encoder 2200 Properties

The encoder **Properties** section has two fields: User Name and Serial Number. Only the **User Name** field allows modification, which changes the User Password from the factory default.

- Changing the Login Password from the Factory Default, page 3-50
- Restoring the Login Password to the Factory Default, page 3-51

Changing the Login Password from the Factory Default

Click the **admin** link in the User Name field. You will be presented with a new screen that allows you to change your login password for the ***Niagara SCX Web Interface***.

Note You cannot change the User Name for the ***Niagara SCX Web Interface***.

Type in your current password in the **Password** field and then type in the new password in both the **New Password** and **Confirm New Password** fields.

Note The ***Niagara SCX Web Interface*** password is case sensitive.

Then, click the **Change Password** button. You will then be presented with the following results:

Note You will need to log back into the web interface with your new password.

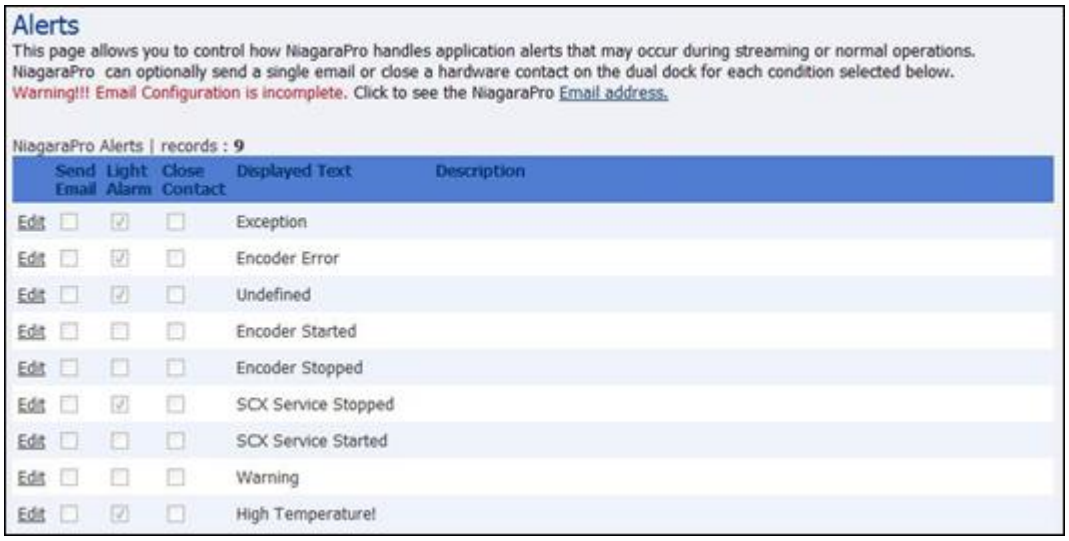
Restoring the Login Password to the Factory Default

If you have forgotten or lost your password, you can restore the default password by running the **Restore Factory Defaults** option. For more information, see the "Restore Cisco Digital Media Encoder 2200 Factory Defaults" section on page 3-55.

Cisco Digital Media Encoder 2200 Alerts

The Cisco Digital Media Encoder 2200 Alerts page can be viewed by navigating to the **Configuration** link at the top of the web page and clicking on **Alerts** link.

The following is a representation of a page that allows you to control how the encoder handles application alerts that may occur during streaming or other operations. Cisco Digital Media Encoder 2200 can optionally send an email to multiple recipientsshould an alarm present itself. The alarm light on the front panel of the encoder automatically lights when there is an alarm.



Email Alert

You can optionally send an email alert to specific email address in the event of an application alarm. Checking **Send Email** will enable this feature. You must specify the email address to which an alert will be sent, along with your email server user name, password, and server name. For more information about configuring Cisco Digital Media Encoder 2200 to send email alerts, see the "System Configuration Settings" section on page 3-54.

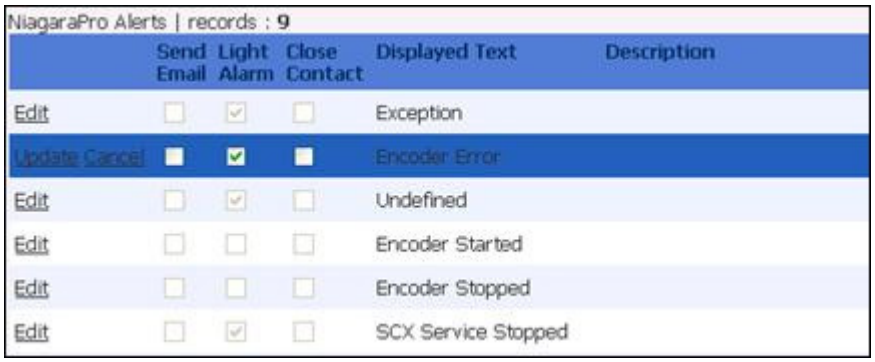
Alarm Light

Checking the **Light Alarm** box will instruct the encoder to light the front panel alarm light should an alert become necessary.

Edit Alert Settings

To edit the settings for each alert listed, click the **Edit** link in the row of the alert you want to modify. Note that at this juncture, you will be presented with two alternatives: to either update the alarm or cancel the alarm.

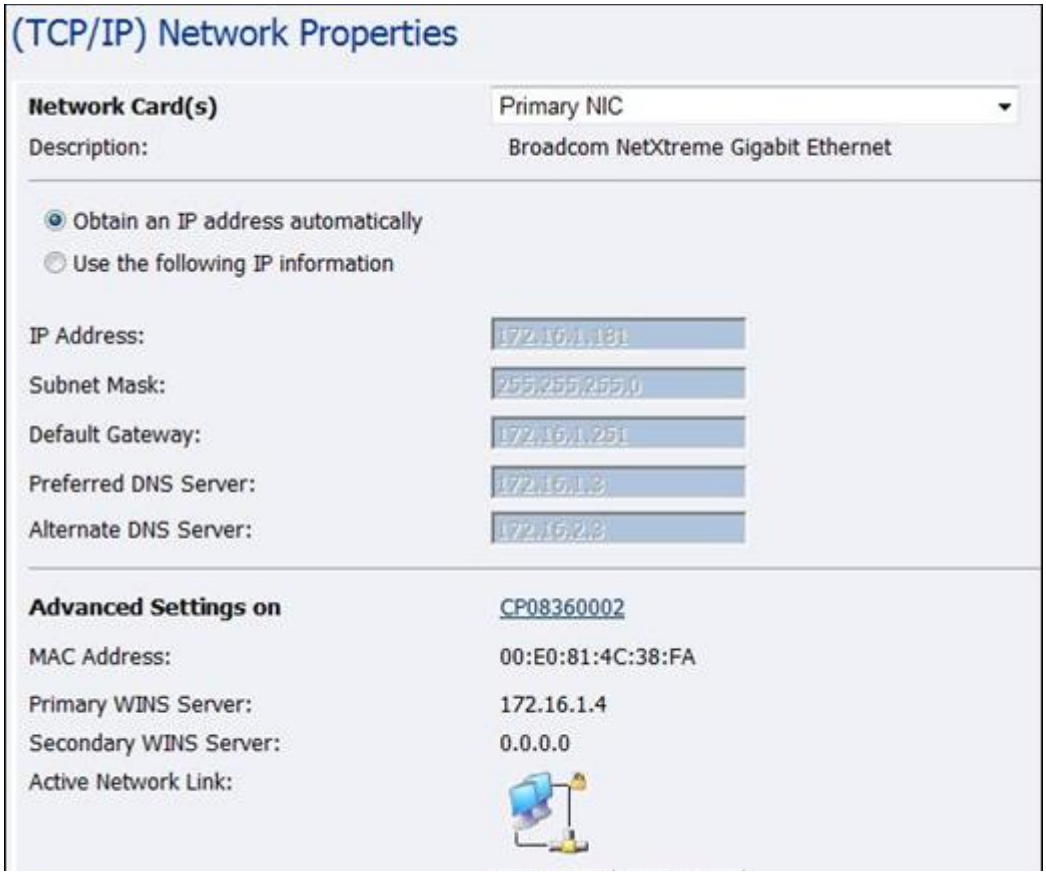
Should you decide to update, once you have made your modifications to the alert settings, click the **Update** link to enter your settings and return to the encoder Alerts list.



Network Properties

The Network Properties page can be viewed by navigating to the **Configuration** link at the top of the web page and clicking on Network Properties.

The **Network Properties** page provides detailed information on the encoder's current network settings for the Network Interface Card (NIC).

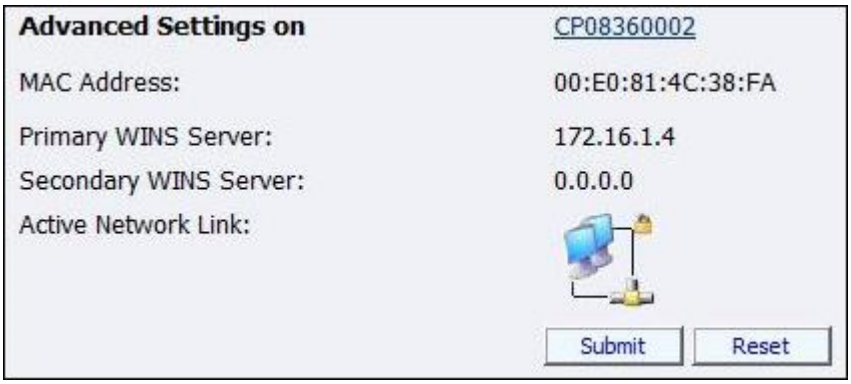


Network Card(s)

Cisco Digital Media Encoder 2200 has two 1,000 megabit network connections. To view the current properties for each card, select the card you wish to view from the drop-down menu in the **Network Card(s)** field.

Advanced Settings (Network)

Advanced Settings provides the encoder network name, MAC Address and server IP address settings.



The encoder network name is a link. If you click this link, you will be directed to the **My Encoder** page. From this page you can change the encoders's network name. For more information, see the "Computer Name" section on page 2-45.

The **Active Network Link** field uses two icons to indicate whether the network interface card selected has a network connected.

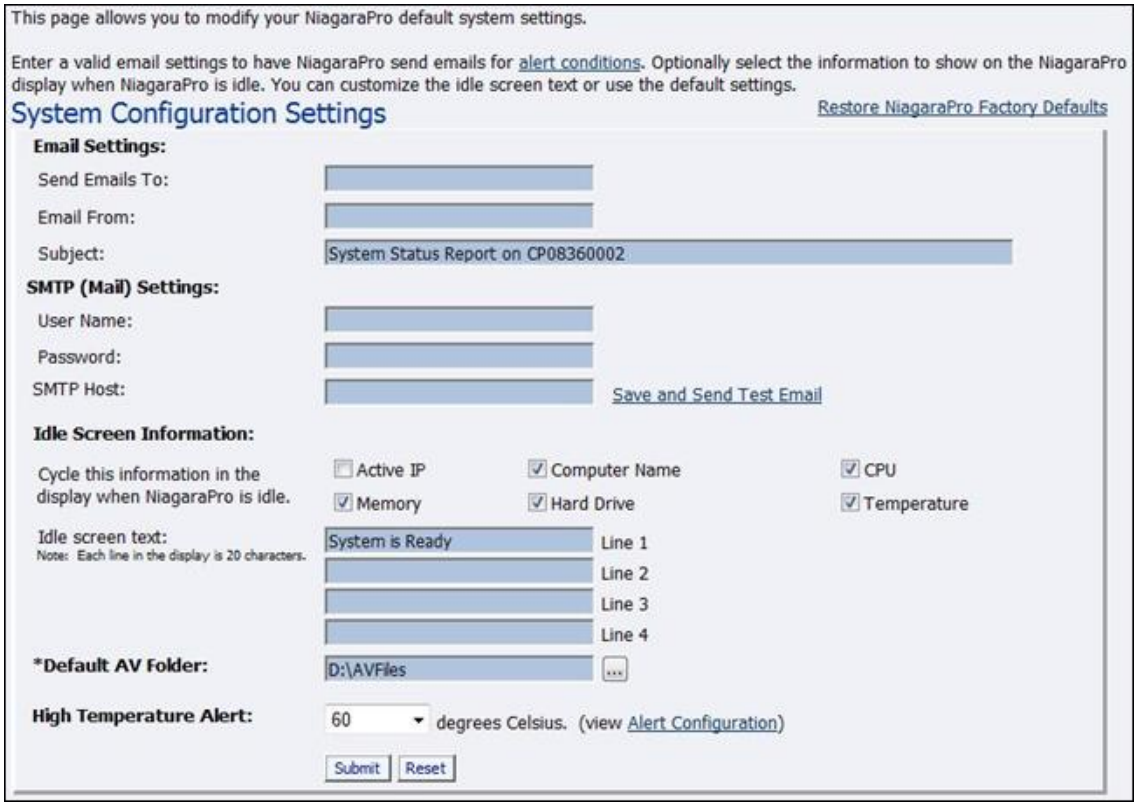
Table 3-1 Network Link Icons and Descriptions

Icon	Description
	The network link is detected.
	The network link is not detected.

System Configuration Settings

The **System Configuration Settings** page allows you to modify your encoder default system settings. You can configure email settings so that Cisco Digital Media Encoder 2200 can send an email to predefined email addresses whenever the encoder encounters an alert condition. You can also customize the information that the encoder displays on its front panel when the system is idle.

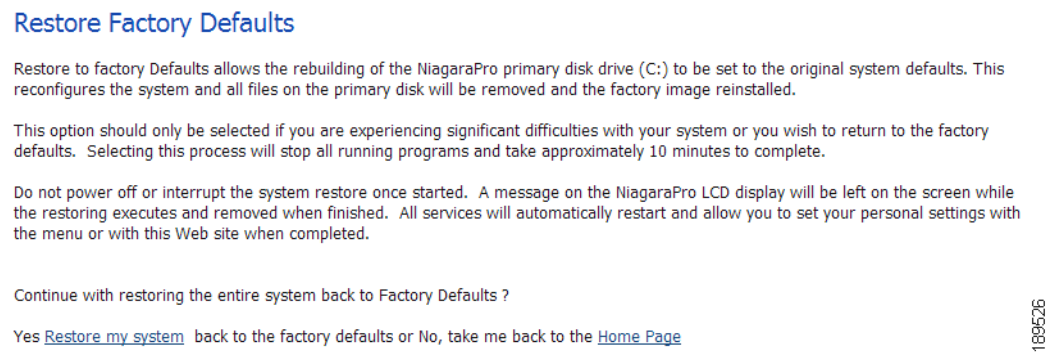
This page also provides the ability to restore your encoder to its original factory disk image, returning all of the system settings to their original state. Using the **Restore Factory Defaults** option will remove all custom settings and takes approximately 10 minutes to complete.



Restore Cisco Digital Media Encoder 2200 Factory Defaults

Click the **Restore Factory Defaults** link to start the process.

The following screen gives details of the process that you are about to execute and allows you the opportunity to cancel the process.



Note **Restore Factory Defaults** rebuilds the encoder primary disk drive (C:) with the original system image. All custom settings and any files saved to drive C: will be lost. This process cannot be reversed. However, you can manually re-enter your custom settings once the encoder restore process is completed.

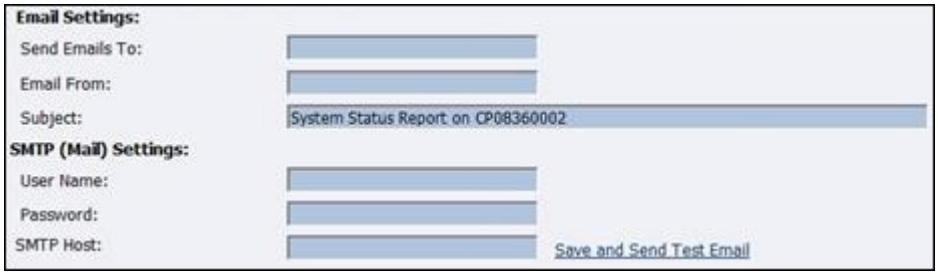
Note The default directory for saving your audio and video files is D:\AV Files\. When using the **Restore Factory Defaults** option, only drive C: is re-imaged. All files and folders on drive D: are preserved. To ensure your personal files are not removed, always use the default directory – drive D – for storage of personal files.

Email Settings

If you are unfamiliar with setting up an SMTP email account for sending email, please contact your network administrator for assistance.

To configure encoder **Email Settings**, you will need to enter the following information:

- The address to which to send the email (separate multiple email address with a comma)
- A valid email address from which the email comes
- A subject line for your email alert—required
- The SMTP (mail server) settings
  - User name for server access
  - Password (if required)
  - The name of the SMTP server



Note For security purposes, the password for your account will not be displayed once it has been entered into the settings. However, although this field appears blank after you click the **Submit** button, the password information has been retained.

Note If you change any information in this dialogue box, you will need to re-enter your SMTP password before clicking the **Submit** button. Not doing so will overwrite the previously entered password with a blank entry.

Once you have entered the information above, click the **Submit** button to save your changes.

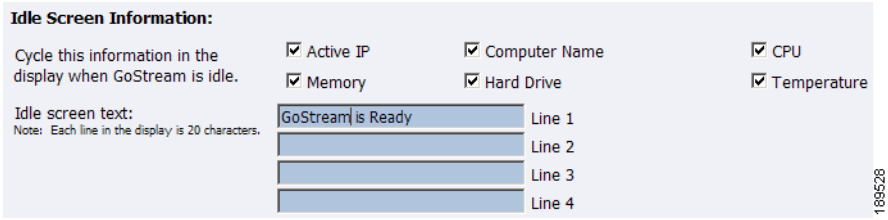
You can test your settings by clicking the **Save and Send Test Email** link. The resulting page will report if the email was successfully sent or there was a send failure.

Idle Screen Information

This section allows you to modify the information that is displayed in the encoder LCD display on its front panel.

Check the boxes next to the information you wish to be displayed. This information is cycled as the LCD display alternates between status information and encoder information.

At the top of the LCD idle screen is the default message **System is Ready**. You can customize this message.



Once you have entered the information above, click the **Submit** button to save your changes.

Default Directory Setting

Note We strongly recommend that you do not alter the default directory setting unless you understand the risk of saving your files to a directory not located on drive D. If you save your files to another drive on the encoder, these files could be deleted if you use the **Restore Factory Defaults** feature.

Note Only drive D on the encoder has available storage to save your files.

Note Drives C, E, and F are used strictly for encoder operational programs. Any modifications to these drives can permanently damage your system and void your warranty.

The Default AV Folder is the directory that the encoder stores AV files created whenever you select the **Save to File** option in an encoder profile. Refer to the Save to File option under the AVI Encoder Settings, Flash Encoder Settings, MPEG-4 Encoder Settings, Real Encoder Settings (Helix), and Windows Media Encoder Settings sections for information about setting an encoder profile to create an AV file.

High Temperature Alert

The Alert Configuration links to the Alerts page. For information about Alerts, refer to the "Cisco Digital Media Encoder 2200 Alerts" section on page 3-51.

You can enable an alert if the encoder reaches a predefined maximum temperature level. To set the level, select from the **High Temperature Alert** drop-down menu.

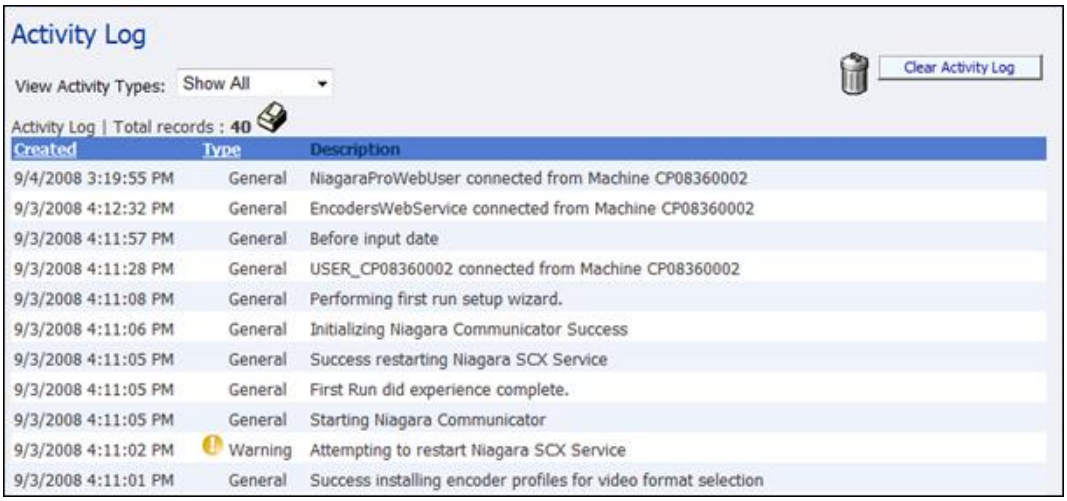
View Activity Log

The **Activity Log** records all operational activity, such as general activities that include starting an encoder or stopping an encoder. The **Activity Log** includes activities that generate warnings and errors.

You can view these activities by filters showing only the **General** activities, the **Warning** activities or the **Error** activities.

Click the **Clear Activity Log** button to remove all entries.

Note Once an activity has been cleared from the log, it cannot be retrieved.



View Alerts

All alerts defined on the encoder Alerts page are logged on the View Alerts page when those alerts occur. Once a user has cleared an alert by using the **Help** or **i** button on the front panel of the encoder, the alert is cleared from the **View Alerts** log page.

Alternatively, the Cisco Digital Media Encoder 2200 system informs you of an alert when the Alarm Indicator Light on the front panel of the system turns red. When this occurs, to determine what the alert is, you must press the **Help** or **i** button, which will cycle the alert occurring.

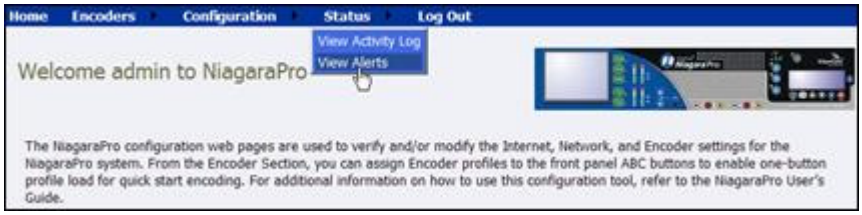
For more information, see the "The Help, or "i" Button, the Niagara SCX Web Interface, and Their Alert Settings" section on page 3-59.

The Help, or "i" Button, the Niagara SCX Web Interface, and Their Alert Settings

The ***Help*** button, or **"i"** button, on the front panel of the encoder allows you to view the alerts currently occurring in the Cisco Digital Media Encoder 2200. Directly below is a diagram of the ***Help*** or **"i"** button, which is located on the front panel of the encoder. The ***Help*** or **"i"** button allows you to view alerts of many types that can occur on the encoder based on the types of alerts you request of the system to notify you.

Note An alert is not necessarily an indication of a fault occurring. You might want to be made aware of changes in the system, which have nothing to do with errors that could occur on a Cisco Digital Media Encoder 2200. For example, you might want a notification set to signal you as to when an encoder has started or when as to when an encoder has stopped.

To view alerts occurring, you have a choice to view the alerts through use of the encoder or the ***Niagara SCX Web Interface***. If you use the web interface, the following is the first page of the ***Niagara SCX Web Interface*** you will see to **View Alerts**.

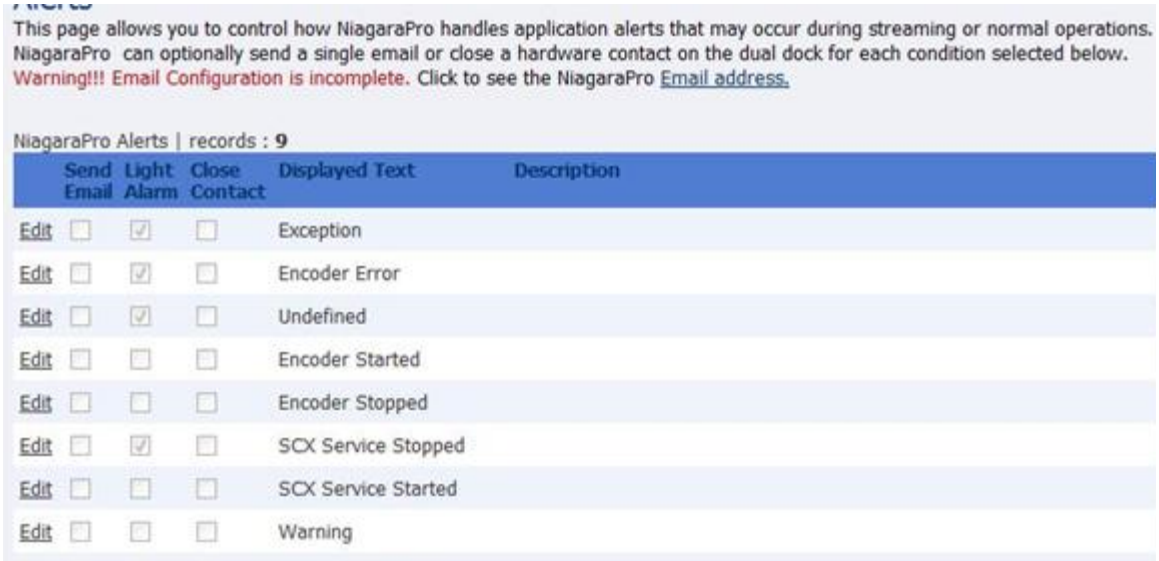


Any alerts will appear on the ***Niagara SCX Web Interface***, as follows:

Alerts will be available for viewing on the ***Niagara SCX Web Interface*** until you clear them by clicking on the **Clear Alerts** button**.**

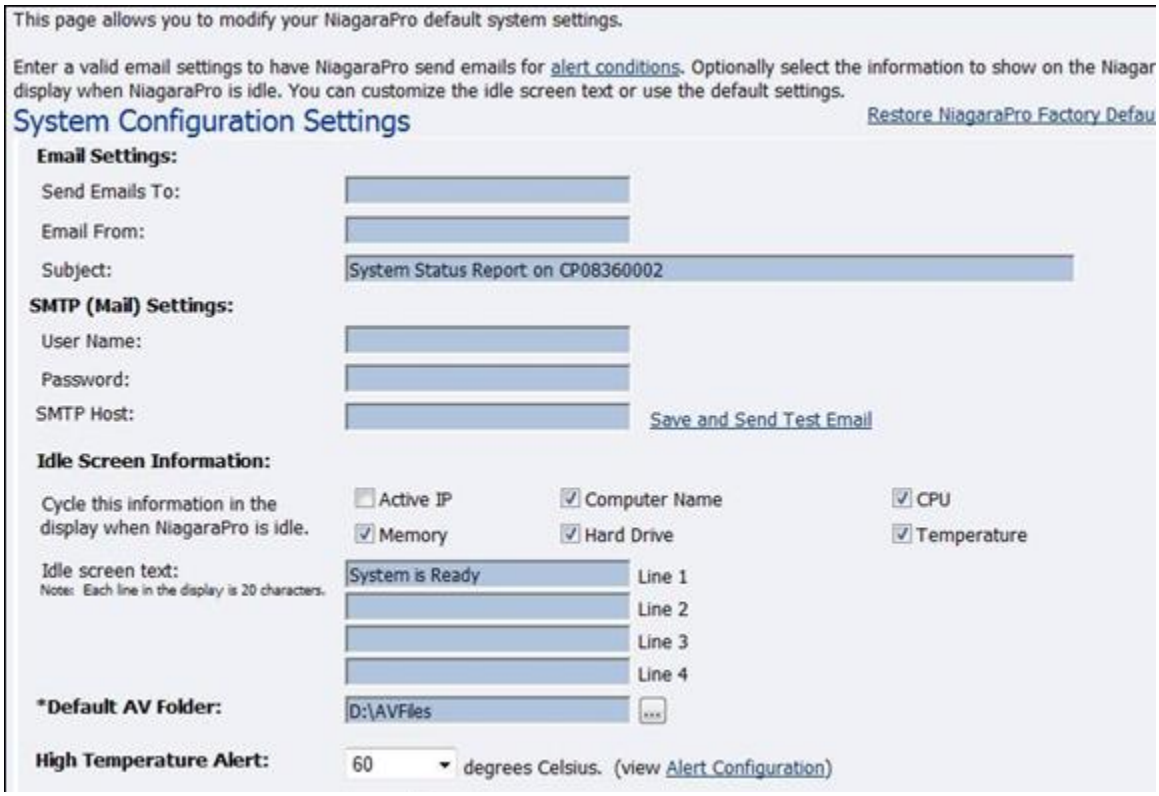
To see any alerts, you must have previously set the system to notify you of the alerts by choosing **NiagaraPro Alerts**.

This will bring you to the following screen. To set the alerts for which you want to be notified, you must click a notification method next to the type of alert. You can be notified of alerts, such as the ones indicated below, i.e., exceptions, encoder errors, encoders started, encoders stopped, alarm tests, SCX service stopped, SCX service started, and high temperature alerts, in addition to other alerts you set yourself.



To set your System Configuration Settings as to how you want to receive your alerts, please see the figure below. Click on **System Configuration**.

See your Network Administrator to set your email configurat7ions if you decide to receive email alerts.



Alternatively, the Cisco Digital Media Encoder 2200 informs you of an alert when the **Alarm Indicator Light** on the front panel of the system turns red. When this occurs on the encoder system, to determine what the alerts are, you must press the ***Help***, or ***"i"*** button, which will cycle the alerts occurring. The following screen showing an alert might look as follows:

Alerts will cycle the information in the display when the encoder is idle until all alerts have been identified, then the screen will return to its normal system cycling, and the alerts will not be shown again on the encoder.