



ViewCast[®]

Niagara[®] Pro II User Guide



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Corporate Contact Information

ViewCast collaborates and partners with various clients to integrate products into their individual environments.

Niagara Technical Support: Phone: 972.488.7157, Fax: 972.488.7111 or submit the technical support online request from the ViewCast website.

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Before You Begin

Thank you for purchasing the ViewCast Niagara Pro II streaming media system. This user guide provides step-by-step instructions for installing and using your new streaming media system. For the latest ViewCast product information and news, visit our website at www.viewcast.com.

Product description

The Niagara Pro II is an easy-to-use streaming device. You simply connect your audio and video source to the system, select your target playback format, enter your streaming server information, and press the **Stream** button. The Niagara Pro II supports live Adaptive streaming to Adobe® and Apple® (iPhones® and iPads®), Adobe Flash® H.264, AVI, MPEG-4, H.264, and H.263, and Windows Media (Silverlight®) standard definition, Microsoft Live IIS Smooth Streaming, as well as container support for 3GPP and 3GPP2.

You can configure and use the Niagara Pro II right out of the box for most streaming uses. For more advanced settings or to control your Niagara Pro II from another computer on the same network, use the client interface for the Niagara SCX remote management software. The web interface in Niagara SCX allows you to set many other system parameters for your Niagara Pro II device. In addition, you can customize the front panel of your Niagara Pro II streaming media system using the Niagara Pro II configuration web browser interface.

Figure 1. ViewCast Niagara Pro II



Audience

The audience for this publication includes anyone who uses or administers the Niagara Pro II. They should have a basic technical understanding of streaming media. This user guide provides information on the Niagara Pro II only.

Conventions for this guide

This guide uses the following document conventions to help you identify different types of information.

Convention	Description	Example
Bold text	Characters to enter when referenced in a procedure. The name of fields or keys to press.	In the example, enter DTMF as the group type. Press Enter to save your changes.
<i>Note:</i>	Provides supplemental information.	<i>Note: The prompt may not display if ...</i>
<i>IMPORTANT!</i>	Provides important data that affects how the system or software responds.	<i>IMPORTANT! You must install Niagara SCX prior to configuring SCX options...</i>
<i>CAUTION!</i>	Provides information to help avoid possible damage to hardware or a system crash (without data loss).	<i>CAUTION! Use case sensitive commands to keep from destroying...</i>
<i>WARNING!</i>	Provides information to ensure you avoid potential injury, death, or permanent system damage.	<i>WARNING! Do not touch exposed wires.</i>

Rack mount safety instructions

- Operating Temperature** The operating ambient temperature of a rack environment may be greater than room ambient if installed in a closed or multi-unit rack assembly. Therefore, you should install the equipment in an environment compatible with the maximum ambient temperature of 40° C.
- Reduced Air Flow** You must not compromise the airflow required for safe equipment operation when you install the equipment in a rack.
- Mechanical Loading** Mounting of the equipment in the rack should be such that you do not cause a hazard due to uneven mechanical loading.
- Circuit Overloading** Consider the connection of the equipment to the supply circuit and the effect that the overloading of the circuits might have on current protection and supply wiring. You must also consider and use the equipment nameplate ratings when you address this concern.
- Reliable Grounding** You must maintain reliable earth grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as using power strips).

FCC notice

WARNING! You must connect this device and peripherals using shielded cables to comply with FCC radio emission limits.

WARNING! Modifications to this device not approved by ViewCast Corporation could void the FCC-granted authority for you to operate the device.

WARNING! The Niagara Pro II complies with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits provide reasonable protection against harmful interference when you operate the equipment in a commercial environment. This equipment generates, uses, and may radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area will likely cause harmful interference. In this case, you must correct the interference at your own expense.

To CATV Installer: Pay special attention to Section 820-40 of the NEC that provides guidelines for proper grounding. It particularly specifies that you must connect the cable ground to the grounding system of the building as close to the point of cable entry as practical.

WARNING! Equipment installation must comply with local and national electrical codes.

Environmental notices

Product Disposal Information:

Dispose of this product in accordance with local and national disposal regulations (if any) including those regulations governing the recovery and recycling of Waste Electrical and Electronic Equipment (WEEE).

RoHS Compliant:



ViewCast Corporation commits to compliance with the European directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, Directive 2002/95/EC, the RoHS directive.

This product supplied to the European Union does comply with the RoHS directive. ViewCast certifies that this equipment shipped to the European Union conforms to the 2002/95/EC directive.

For current RoHS statement, see www.viewcast.com.

Underwriters Laboratories Inc. Statement



Underwriters Laboratories Inc. has not tested the performance or reliability of the security or signaling aspects of this product. UL only tested for fire, shock, and casualty hazards as outlined in UL's Standard for Safety UL 60950-1. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL does not represent, warranty, or certify the performance of reliability of any security or signaling related functions of this product.

Warnings

Only trained and qualified personnel should install, replace, or service this equipment.

Do not attempt to open the case of the system. If you do so, you incur a high risk of electrical shock that may cause damage to the system or personal physical injury or death to you and/or others. No user-serviceable parts exist inside the system. If you open the system case or make unauthorized changes to the case, ViewCast voids your warranty.

Install the system away from any heat sources. This remains vital to the safety of the product users. Do not install the system near any heat sources such as:

- Radiators
- Heat registers
- Stoves
- Other heat-producing equipment

WARNING! Installing the system near heat sources could result in personal injury or death.

Never insert objects of any kind into the system through any system openings, as the objects may touch dangerous voltage points, short out parts, and result in a risk of fire or electrical shock.

Do not stack the system atop or below other electronic devices as this can cause heat build-up and vibration of the system. These conditions can damage the system thereby voiding the limited warranty.

Note: You may stack multiple Niagara Pro II units as these appliances accommodate stacking.

Do not install the system in any area where the temperature is less than 5°C or more than 40°C. Transfer from temperature extremes may cause condensation. Let the system remain unplugged at room temperature for at least 45 minutes before connecting it.

Use an outlet with surge suppression or ground fault protection when using the system. Unplug the power cord from the wall outlet and disconnect the lines between the system and the video source for added protection:

- During a lightning storm
- During dangerous weather conditions
- When the encoder remains unattended or unused for long periods

Reduce the risk of fire or electric shock. Do *not* expose the system to any rain or moisture. Exposing the system to rain or other types of moisture could result in system damages. Do not place any liquids on or near the system. If you place liquids in any form on or near the system, do so at your own risk, for you incur a high risk of electrical shock that could occur and cause damage to the system.

WARNING! Exposing the system to rain or other types of moisture could result in physical injury or death. Any liquids on or near the system may result in electrical shock and personal injury or death.

Refer all servicing to authorized service personnel. You must have authorized personnel only service any damaged system. Relevant damage may occur with but is not limited to the following:

- An unplugged or damaged power supply cord
- Spilled liquid on the system
- Fallen objects in or on the system
- Appliance exposure to rain or other moisture or liquid
- Failure to perform as described in the User Guide
- A dropped system

ViewCast assumes no liability or responsibility for any damaged system that clients continue using.

Use only attachments, accessories, or equipment specified by the manufacturer with the system. Using accessories or attachments not recommended by the encoder manufacturer voids the Limited Warranty.

Do not attempt to service the system yourself. If you open or remove covers, you may be exposed to dangerous voltage. Such action voids the Limited Warranty. Refer all servicing issues to authorized service personnel only.

The plug-socket combination that serves as the main disconnecting device must be accessible at all times.

Protect the power cord from anyone walking on it and being strained or pinched particularly at plugs, electrical receptacles, and the point where the power cord exits the system.

Do not use adapter plugs or remove the grounding prong from the power cable.

Use only the type of power source indicated on the marking label on the back panel of the unit to operate the system. Unplug the system power cord by gripping the plug and removing it from the power source. Do not pull the cord to remove the power source from the system.

Do not plug the system into a wall outlet that contains an overload of electrical cords or power strips/extension cords. This type of overload may result in fire or electrical shock risks.

Always handle the system carefully. Always avoid excessive shock and vibration to the system. Excessive shock or vibration can damage the system.

WARNING! Excessive shock or vibration to the system may result in electrical shock and personal injury or death.

Installing additional software

The Niagara systems run an embedded version of the Microsoft® Windows 7 operating system (OS), which is a sub-set of the normal retail version. The Microsoft License agreement specifies that only software intended for the specific function of the unit may be installed.

The Microsoft Update process is disabled by default to prevent interruptions during live streaming events. It is also not advised to use a Windows installation CD to add features to the system or the system may fail.

You also need to ensure the primary drive is not full or the system will fail. In the event of a problem, you may need to perform a Factory Restore, which returns the system to the original software load. You may save the current encoder profiles and reload them when the Factory Restore is complete.

You can perform a Factory Restore at any time. This process returns the system to the software load that came with the system. Perform a Factory Restore if the system becomes unstable due to installed applications, viruses, etc. Please refer to the user guide for instructions.

ViewCast Support can provide assistance should the system fail to start. In most cases, you can restore a system to operation without returning it to ViewCast. There is a fee in the event a user returns a system due to applications the user installed or if the system failed because the primary partition (drive C) is full.

Connecting to the Internet

The Internet is a dangerous place. Never connect a Niagara system directly to the Internet. ViewCast recommends taking precautions against unwanted access such as installing Niagara systems behind a router or firewall. The speed of the router or switch should match or exceed the speed of the system's network card. See your network administrator for recommendations.

Overview

Before you can use your Niagara Pro II streaming media system, you first need to set up and configure it. This chapter is dedicated to providing you with the details and step-by-step instructions you need to make your installation as quick and easy as possible.

All you need to get started are the four following requirements:

- AC power source (100 - 240 V)
- Your audio and video source (such as a camera, video player, or other audio visual (AV) output device)
- A streaming media server or hosting provider
- IP connection and/or Internet connection

The Niagara Pro II, an easy-to-use streaming device, allows you to:

- Connect to a compatible browser on a dynamic host configuration protocol/domain name server (DHCP/DNS) network.
- Configure and connect your audio and video source to the Niagara Pro II.
- Select your output formats and streaming settings.
- Enter your streaming server information.
- Start streaming your media.

You can configure and use the Niagara system straight from the box for any streaming activities. Use the web interface for setting options and controlling your system from another networked computer, as well as advanced options.

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

Media system functions

Although it has many features and capabilities, the Niagara Pro II streaming media system performs the following basic functions:

- Takes analog audio and video inputs
- Captures the signals
- Encodes the signals into digital IP video formats
- Delivers the IP audio and video content to a storage device or streams it over an IP network

Install overview

This section addresses the high-level actions you must perform to physically connect and set up your system.

You must complete the following primary tasks to install the Niagara Pro II:

1. Address and comply with all prerequisites.
2. Connect the Niagara Pro II streaming media system using its power source.
3. Connect the video source (camera or video recorder) to the system.
4. Connect the Niagara Pro II to an IP network.
5. Configure the Niagara Pro II system.

Prerequisites

Before installing and connecting the system, ensure you comply with the following prerequisites:

- All packaged items are undamaged and in working order.
- Your environment meets all system requirements.
- Safety instructions, notices, and warnings detailed in *Before You Begin* including:
 - *Rack Mount Safety Instructions*
 - *FCC Notice*
 - *Environmental Notices*
 - *Warnings*

Package contents

Completely unpack all contents from the box and inspect each item for damage. Ensure that you have all the components listed below:

- | | |
|---------------------|---|
| System | • Niagara streaming media system |
| Power Cables | • One of the following: <ul style="list-style-type: none">○ <i>North America power cable (110 vac)</i>○ <i>International power cable (220 vac)</i>○ <i>UK power cable (220 vac)</i> |
| Adapters | • BNC-to-RCA, male-to-female (8) |
| Hardware | • 75 OHM BNC terminator |
| | • 1 pair rack slide rails |
| | • 2 rack handles |
| | • 3 pin plug |
| | • Rubber feet (4) |

- | | |
|---------------|---|
| Guides | <ul style="list-style-type: none">• User guide (on CD in PDF format)• Quick Start Guide• 1 Niagara CD |
| Other | <ul style="list-style-type: none">• Package insert (end-user license agreement, welcome letter, package content list)• Registration card |

If any components are missing or damaged, do not continue with the installation. Contact the ViewCast reseller from which you purchased your Niagara streaming media system for assistance in obtaining any missing parts or for parts replacement.

System requirements

Ensure your computer meets the following system requirements.

- | | |
|--------------------------|---|
| Browser interface | Any Internet Explorer (IE)-based computer, workstation, or laptop that interfaces to a dynamic host configuration protocol/domain name server (DHCP/DNS)-compatible network |
| User interface | High-speed Internet, dial-up, and mobile device users |

Specifications

- Dual Quad core processors
- 4 GB RAM
- 250 GB SATA HDD
- 2 RU (17" W x 23" D)
- 35 lbs (15.9 kg)
- 400 W power supply

Niagara Pro II front panel

You should familiarize yourself with the front panel controls for the Niagara Pro II. Besides the basic buttons for power, start/stop, and audio volume control, several indicator lights also exist. Figure 2 and the table below illustrate the buttons and lights that constitute the front panel functions and interfaces.

Figure 2. Niagara Pro II Front Panel



A	<ul style="list-style-type: none"> Confidence monitor displays incoming video source.
B	<ul style="list-style-type: none"> Press the Ta or Tb button to switch the video streaming to Channel A or Channel B to the composite test signal video input. The green indicator light shows which channel is in use. If the button is pressed when the audio/video (A/V) signal is present, the indicator light blinks orange three times, then returns to steady green. If the button is pressed when no A/V signal is present, the indicator light blinks orange three times, blinks green three times, then returns to steady off.
C	<ul style="list-style-type: none"> Audio level meter indicates audio input presence.
D	<ul style="list-style-type: none"> Volume buttons control the audio level output of the headphone connection.
E	<ul style="list-style-type: none"> Stereo headphone connection is for audio monitoring.
F	<ul style="list-style-type: none"> Audio/video output for Channel A.
G	<ul style="list-style-type: none"> Audio/video output for Channel B.
H	<ul style="list-style-type: none"> Assign an encoder group to the A, B, or C button. Press the assigned button then the Stream button to start the encoder(s). Press the assigned button then the Stop button to stop the encoder(s). Green indicator light blinks to indicate when the stream is preparing to start. Green indicator light remains solid once you begin streaming.
I	<ul style="list-style-type: none"> USB ports allow the exporting of files to USB storage devices, installing updates or firmware, or connecting USB devices.
J	<ul style="list-style-type: none"> Press the Menu button to activate the system menu on the LCD display.
K	<ul style="list-style-type: none"> Press Enter to accept the menu choice highlighted on the LCD display.
L	<ul style="list-style-type: none"> Press the Up or Down arrow buttons to navigate the system menu on the LCD

	display.
M	<ul style="list-style-type: none"> ● Press the Stop button once to stop the encoder profile that is highlighted in the LCD display.
N	<ul style="list-style-type: none"> ● Press the Stream button once to start the encoder profile that is highlighted in the LCD display.
O	<ul style="list-style-type: none"> ● Press to view a log of the most recent alarms recorded. ● Press Enter to clear alarms from the log.
P	<ul style="list-style-type: none"> ● The LCD display shows the status and system menu and allows you to perform functions for the Niagara Pro II.
Q	<ul style="list-style-type: none"> ● Press the Power button once to start the system. ● Press the Power button once to turn off the system. ● Press and hold the Power button for 5 seconds to execute an immediate power off.
R	<ul style="list-style-type: none"> ● Indicator light remains solid when an application alert has occurred.
S	<ul style="list-style-type: none"> ● Indicator light remains solid when another user accesses the system across the network.
T	<ul style="list-style-type: none"> ● Video preview buttons allow you to change the video source that appears on the LCD display.

Niagara Pro II back panel

The connectors and other components are on the Niagara Pro II back panel (Figure 3).

Figure 3. Back Panel



Using the reference chart below, you can connect the appropriate device and power to the Niagara Pro II.

A	AC Power input	<ul style="list-style-type: none"> Provides system power.
B	Video Test	<ul style="list-style-type: none"> BNC connector for composite video IN/OUT. Use to connect a video test signal, such as a color bar generator, to calibrate the video settings for video capture sessions.
C	USB 2.0 Connectors	<ul style="list-style-type: none"> Use to connect USB storage devices, or USB devices such as, keyboard and mouse.
D	Control RS-422 Connector	<ul style="list-style-type: none"> Standard RS-422 port (9-pin D connector) that you can use with deck control software. <p><i>Note: ViewCast does not currently provide software for this port.</i></p>
E	Auxiliary VGA Connector	<ul style="list-style-type: none"> Use to connect an external VGA monitor, so you can view the operating system interface.
F	Network Ports (line 1 and 2)	<ul style="list-style-type: none"> Dual Ethernet ports provide redundant connections to your network.
G	Alarm Relay Connector	<ul style="list-style-type: none"> Use to connect an external device (such as an audible bell or buzzer) so if the system fails it triggers an external audible sound. (Not currently implemented)

H	Channel A & B AV Inputs	<p>Each AV input channel provides the following input ports:</p> <ol style="list-style-type: none"> 1. Left/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 	
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Connecting the system

Complete the following steps to configure all Niagara Pro II connections. The example uses composite video input and unbalanced audio. The following steps refer to a direct connection to the Niagara Pro II only.

To connect the Niagara Pro II:

1. Connect the right and left audio. Refer to Figure 3 item H for left and right connections.
2. Connect the power AC adaptor (item A on Figure 3).
3. Attach the Niagara Pro II to the network input (item F on Figure 3).
4. Press **Power** (item Q on Figure 2).

System menu

The system menu (Figure 4) is located on the LCD panel on the front of the unit. The menu allows you to configure the Niagara Pro II quickly and easily. See *Appendix D: System Menu (LCD Display)* for a complete reference guide to the function available through the menu. You use the **Up** and **Down** arrow buttons to navigate through the different functions on the menu.

Figure 4. System menu



Encode	<ul style="list-style-type: none"> • Start an encoding session. • Stop an encoding session. • View the status of an encoding session.
Access Health	<ul style="list-style-type: none"> • Check the CPU status. • View available memory. • Check the current temperature of the unit. (Not applicable) • Check the software version.
Setup System	<ul style="list-style-type: none"> • Set the Preset A,B,C buttons. • View network settings. • Configure primary or secondary settings. • Configure DHCP settings. • Configure Gateway settings. • View link status. • Set the network MAC address. • Set time and date. • Set video standard. • View temperature alarm. • Perform a factory restore.
Export Files	<ul style="list-style-type: none"> • Export files to a USB storage device.
Shutdown System	<ul style="list-style-type: none"> • Restart system. • Power off system.

Home page

The home page (Figure 5) is the first page presented after you log into the Niagara SCX remote management software. From this page, you can access the different pages for configuring, controlling, and monitoring the activities and alerts from Niagara Pro II.

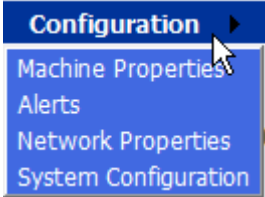
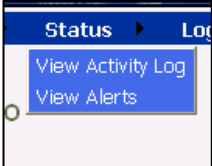
Figure 5. Niagara Pro II Home Page



Menu bar commands

The home page menu bar allows you to use Niagara SCX commands.

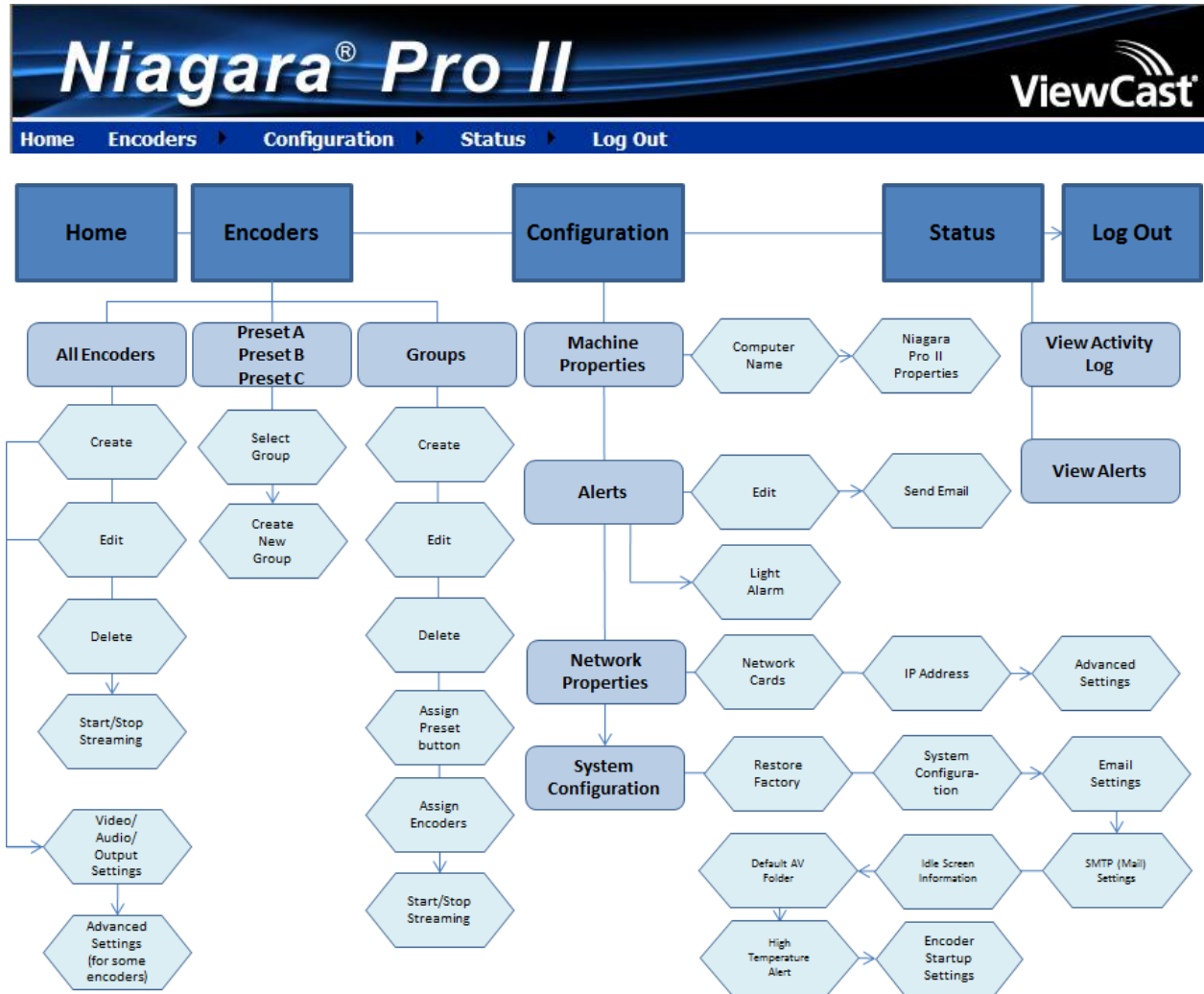
Menu	Command	Function
Home		<ul style="list-style-type: none"> View general administrative information about the Niagara Pro II.
Encoders		<ul style="list-style-type: none"> All Encoders – View the encoder profiles. Preset A – Assign an encoder group to the A button on the front panel of the Niagara Pro II. Preset B – Assign an encoder group to the B button on the front panel of the Niagara Pro II. Preset C – Assign an encoder group to the C button on the front panel of the Niagara Pro II. Groups – Manage specific encoder groups that have one or more encoders assigned.

Menu	Command	Function
Configuration		<ul style="list-style-type: none"> • Machine Properties – View details on the machine properties including the network name, serial number, and all software versions installed. • Alerts – Modify the settings to control how the system manages application alerts that occur during normal operations or streaming. • Network Properties – View information on network properties and addresses for both NIC ports and modify these properties. • System Configuration – Modify the system configuration including setup for email alerts from the system whenever it encounters an operation error.
Status		<ul style="list-style-type: none"> • View Activity Log – View all system activities including the time and date for each event. • View Alerts – View all alerts including the time and date for each alert.
Log Out		<ul style="list-style-type: none"> • Log out of the system and return to the web site login screen.

Niagara Pro II browser windows flow

Figure 6 shows the interrelationship and flow of the available configuration windows you may use to configure the Niagara system.

Figure 6. Niagara Pro II Browser Windows



Easy Setup

You use two interfaces to operate your Niagara Pro II streaming media system.

- Front panel LCD display and buttons
- Web interface through Niagara SCX remote management software

You can perform most of the basic operations from the front panel.

You should perform most setup and operations by accessing the Niagara SCX web interface from a computer that resides on the same network as your system.

With the web interface, you can customize your encoding settings and assign specific encoding profiles to the Preset ABC buttons on the front panel. The web interface provides the ability to control your system remotely from a computer that can be rooms or continents away from the system if both your system and the computer have Internet access to communicate with each other.

The easy setup option explores the optimal configurations for the novice user to set up the Niagara system easily and quickly. Easy setup includes actions you can perform on your system using the web interface to include configuring the following:

- Encoder settings
- Groups
- Network properties
- Machine properties
- System
- System alerts

Web interface

The web interface presents a logical flow of configuration information for the system. Refer to Figure 6 for a diagram and the following menu bar commands:

- Home
- Encoders
 - *All Encoders including Encoder Properties*
 - *Presets A, B, and C*
 - *Groups*
- Configuration
 - *Machine Properties*
 - *Alerts including Settings*
 - *Network Properties*
 - *System Configuration*
- Status
 - *Activity Log*
 - *Alerts*
- Log Out

Easy first time set up

You should read all instructions, notices, and warnings in the *Before You Begin* section before getting started with your new Niagara Pro II hardware for the first time. Also, ensure you have all required parts and meet all system requirements before installing this product.

Do not continue with the installation if you find any components missing or damaged. Contact the ViewCast reseller where you purchased your Niagara system for assistance in obtaining any missing or replacement parts.

Connecting to an electrical power source

Niagara Pro II ships with one of the following power cables:

- North America power cable
- International power cable
- UK power cable

To connect the power source:

1. Attach the block end to the power input located on the upper corner on the rear panel.
2. Plug the other end of the cable into a wall outlet or surge protection enabled power strip connected to a wall outlet or other common power source.

***WARNING!** The plug-socket combination must remain accessible at all times as it serves as the main disconnecting device.*

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

Performing the initial startup

The first time you power up the system, a series of menus appear on the LCD display that will assist you in setting up the system clock, date, and video input format (NTSC (North America/Japan) or PAL).

The following steps refer to a *direct* connection to the Niagara Pro II system only.

To perform the initial startup:


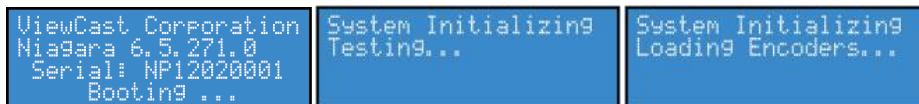
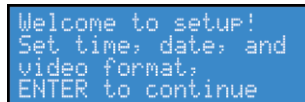
1. Ensure that you connect all devices (power cords, appliances, streaming devices, etc.) to the Niagara Pro II.
2. Press **Power**  on the front panel to start the Niagara Pro II. The LCD readout displays the initializing messages (Figure 7).

Figure 7. Initializing Messages



After the system powers up the first time, the Welcome message appears:




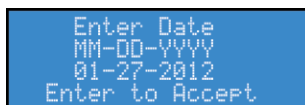
3. Press **Enter** . The system prompts you to set the date (Figure 8).

Figure 8. Date Screen




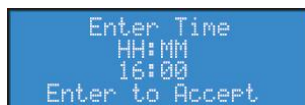
4. To set the month, use the **Up** and **Down** arrow buttons  to change the numerical value.
5. Press **Stop** to move to the right. Press **Stream** to move to the left.
6. Once you are satisfied with your settings, press **Enter** to accept the settings and move to the next screen to set the system clock (Figure 9). Niagara Pro II uses a 24-hour clock format for its system clock entries.

Figure 9. Time Screen



7. Use the **Up** and **Down** arrow buttons to change the numerical value of the hour.
8. Press **Stream** to enter the value and move to the **Minute** field.

9. Use the **Up** and **Down** arrow buttons to increment the numerical value of the minute.
10. Press **Enter**. The select video format screen appears.

Figure 10. Select video format screen

```
Select the video
format to use for
all encoders.
ENTER to Continue
```

11. Press **Enter**. The Video Format screen appears.

Figure 11. Video format screen

```
→NTSC
PAL
```

12. Use the **Up** and **Down** arrow buttons to select the format.
13. Press **Enter**. The confirmation screen appears (Figure 12) confirming you have successfully setup the Niagara Pro II.

Figure 12. Confirmation screen

```
First run completed.
ENTER to Continue
```

14. Press **Enter** to exit the setup menu and reboot the system. The booting screen appears (Figure 13).

Figure 13. Booting screen

```
ViewCast Corporation
Niagara 6.5.271.0
Serial: NP12020001
Booting ...
```

Connecting to an IP network

The Niagara Pro II network settings for its two 1,000 megabit network interfaces default to dynamically obtain an IP address from a DHCP server on the network.

Note: If you are not familiar with network protocols, contact your network administrator for assistance. If you are not able to browse to the unit with a DHCP network, you may connect a monitor, keyboard, and mouse to the system to determine and set the network connections.

Changing the network settings

For most networks, it is not necessary to modify the default settings. However, if you wish to assign a static IP address to the Network Interface Cards (NICs), you may change the network setting using the front panel menu.

To change the network settings:

1. Press the **Menu** button. The system menu appears.
2. Select the **Setup System** option.

Note: Use the Up and down arrow buttons to select the proper option.

3. Press **Enter**. The setup menus appear (Figure 14).

Figure 14. Setup menus



4. Select **Network**.
5. Press **Enter**. The network interface screen appears (Figure 15).

Figure 15. Interface screen



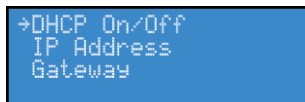
6. Select the network interface you wish to modify.
7. Press **Enter**. The settings screen appears (Figure 16).

Figure 16. Settings screen



8. Select **Change Settings**.
9. Press **Enter**. The network settings screen appears (Figure 17).

Figure 17. Network settings screen



Note: Once you modify the setting, the system saves the changes until you modify the settings again or until you restore the system back to its original factory settings.

10. Select **DHCP On/Off**.

- Press **Enter**. The enable DHCP screen appears (Figure 18).

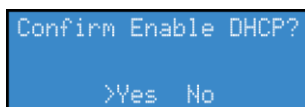
Figure 18. Enable DHCP screen



*Note: Press **Menu** to cancel this action and exit.*

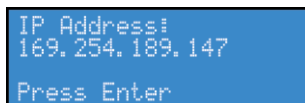
- Select **No**.
- Press **Enter**. The confirmation screen appears.

Figure 19. Confirmation screen



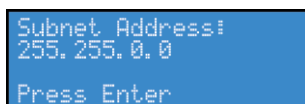
- Select **Yes**.
- Press **Enter**. The network settings screen appears.
- Select **IP Address**.
- Use the **Up** and **Down** arrow buttons to input a static address for the IP address.
- Press **Enter**. The IP address screen appears (Figure 20).

Figure 20. IP Address screen



- Use the **Up** and **Down** arrow buttons to change the numeric value.
- Press **Stream** to move to the next field.
- Press **Enter**. The subnet address screen appears (Figure 21).

Figure 21. Subnet Address screen



- Use the **Up** and **Down** arrow buttons to change the numeric value.
- Press **Enter**. The network settings screen appears.

Note: To remove a static IP and/or Gateway address, follow steps 9 through 13 to enable DHCP. The system removes any previously entered static address.

- Select **Gateway**.
- Press **Enter**. The gateway screen appears (Figure 22).

Figure 22. Gateway Address screen



26. Use the **Up** and **Down** arrow buttons to change the numeric value.
27. Press **Stream** to move to the next field.
28. Press **Enter**. The network settings screen appears.

Basic Operations

You may customize your encoder settings and assign specific encoder profiles using the front panel.

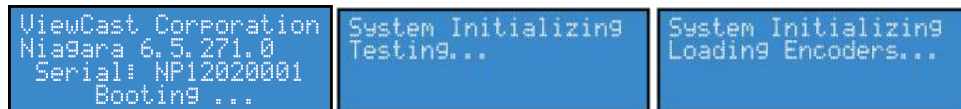
Starting up

If this is the first time you are using the system, refer to the *First Start Setup* section before continuing.

To start up:

1. Press **Power** . The LCD readout displays the initializing messages (Figure 23).

Figure 23. Initializing Messages



When the system is ready, the LCD display alternates between status readouts similar to the following:



2. Press **Menu**. The system menu appears.

Shutting down

Allow the system to power down normally. If you force the system to shut down improperly, your data can be corrupted. If so, the next time you start the system it can take several minutes to complete startup.

To shut down:

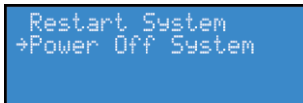
1. Press **Menu**. Select **Shutdown System** (Figure 24).

Figure 24. System menu



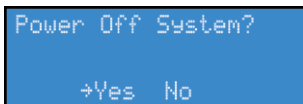
2. Press **Enter**. The shutdown screen appears.

Figure 25. Shutdown screen



3. Select **Power Off System**. Press **Enter**. The Power Off System? screen appears.

Figure 26. Power Off System? screen



4. Select **Yes** and press **Enter**. The shutdown screens appear.

Figure 27. Shutdown screens



The system shuts down.

You can also shut down the system using the following steps:

1. Briefly press **Power**. The system stopping messages appear (Figure 28).

Figure 28. System Stopping Messages



After a few seconds, the system powers off.

Starting an encoder

Niagara Pro II 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 (1 Mbps) and at the same time stream video at CIF resolution (300 kbps).

The Niagara Pro II LCD displays a list of available encoder profiles you can use and the status of each.

To start an encoder:

1. Press **Menu**. The system menu appears.
2. Press **Enter**. The encoder screen appears.
3. Use the **Up** and **Down** arrow buttons to select the encoder profile you want to use for this encoding session.
4. Press **Stream** to start the encoder. The starting screen appears (Figure 29).

Figure 29. Starting screen

```
AVI
AVI Encoder Driver
Status: Starting
Preset: Not Assigned
```

5. The system menu appears with Encode selected. Press **Enter**.
The encoder screen appears indicating that the encoder you selected has begun streaming (Figure 30).

Figure 30. Encoder Screen

```
ADAPTIVE_AP Stopped
ADAPTIVE_FL Stopped
→AVI Started
FLASH Stopped
```

*Note: If the encoder you started is assigned to one of the **Preset A,B,C** buttons, the corresponding button illuminates during and after the starting process.*

6. Repeat this method to start streaming multiple encoders at the same time.
WARNING! There is a limit to how many encoders the system can stream at one time. If you exceed this limit, the streams will drop frames lose audio and video synchronization, and the video will appear to stutter resulting in a poor viewer experience. If you do not reduce the number of streams to lessen the CPU load, all encoders could self-terminate without warning. Refer to the Checking CPU usage section to understand the limitations.

7. If you press a Preset button and no encoder groups are assigned to this button, the No encoders screen appears.

Figure 31. No encoders screen

```
No Encoder(s)
defined for Preset
button B
ENTER to Continue
```

Press **Enter**. The assign an encoder screen appears (Figure 32).

Figure 32. Assign an encoders screen

```
Assign an encoder
Group to Preset
button B?
Yes >No
```

Note: You must define encoder groups before you can assign them to a Preset button.

8. Select **Yes**.
9. Press **Enter**. The select group screen appears (Figure 33).

Figure 33. Select group screen

```
Select the Group for
Preset B
Enter to Continue
```

10. Press **Enter**. A screen with the list of available groups appears (Figure 34).

Figure 34. Group screen

```
+group1
group2
group3
```

11. Select the appropriate group.
12. Press **Enter**. A confirmation screen appears (Figure 35).

Figure 35. Confirmation screen

```
Preset B assigned to
Group: group1
ENTER to Continue
```

13. Press **Enter**. A group is now assigned to the Preset button.

Checking CPU usage

When the system is idle (no encoders are streaming), the CPU percentage is normally 4 % or less. If one or more encoders are streaming, the percentage is much higher and fluctuates in a range of +/- 10 %. If the system is using less than 80 %, you may start another encoder without adversely affecting system performance.

To check CPU usage:

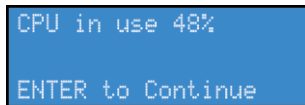
1. Press **Menu**. The system menu appears.
2. Use the **Up** and **Down** arrow buttons to select **Access Health**.
3. Press **Enter**. The access health menu appears (Figure 36).

Figure 36. Access health menu



4. Select **CPU**.
5. Press **Enter**. A screen appears (Figure 37) with the amount of CPU cycles currently in use.

Figure 37. CPU Cycles Screen



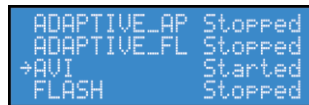
6. Press **Enter**. The access health menu appears.

Stopping an encoder

To stop an encoder:

1. Press **Menu**. The system menu appears.
2. Press **Enter**. The Encoder screen appears (Figure 38).

Figure 38. Encoder Screen



3. Use the **Up** and **Down** arrow buttons to highlight the encoder you wish to stop.
4. Press **Stop**. The stopping screen appears (Figure 39).

Figure 39. Stopping Screen



Connecting an external storage device

The back panel has two USB ports and the front panel has one. You can connect almost any standard USB storage device to one or both of these ports. You can then export any AV files you may have created on the system's local storage drive. The local storage drive is drive D when you use the **Save to File setting** from the web interface.

When you insert a USB storage device in one of the USB ports on the system, it automatically detects the removable storage device, and assigns a drive letter to the device. This device can capture files directly or you can use the **Export File** function on the front panel menu.

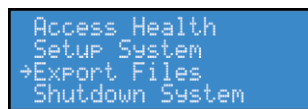
Exporting captured video files

You can export captured video files to an external USB storage device, but first you must set a default location through the web interface. Refer to *Configuring default directory setting* before completing the steps below.

To export captured video files:

1. Insert a USB storage device into a USB port.
2. Press **Menu** on the front panel. The system menu appears.
3. Use the **Up** and **Down** arrow buttons to select **Export Files** (Figure 40).

Figure 40. Export files



4. Press **Enter**. The USB device screen appears (Figure 41).

Figure 41. USB Device Screen



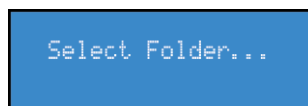
5. Press **Enter**. The destination screens appear with a list of active USB drives (Figure 42).

Figure 42. Destination Screens



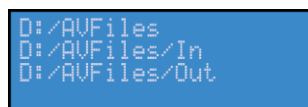
6. Select the drive destination.
7. Press **Enter**. The select folder screen appears (Figure 43).

Figure 43. Destination screens



Then the source file screen appears (Figure 44).

Figure 44. Source File Screen



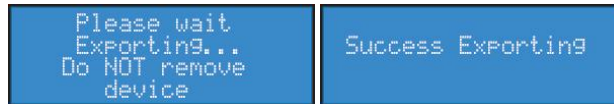
Note: The file name on this screen is for instructional purposes only.

8. Select the desired file for export.

Note: You can only select the USB root as a destination.

9. Press **Enter**. The exporting screens appear (Figure 45).

Figure 45. Exporting Screens



Note: When the system is finished exporting the file, remove the USB device.

Advanced Operations

The Niagara system includes a 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 system.

Advanced operations include but are not limited to the following:

- Creating an encoder
- Viewing all encoders
- Starting/stopping an encoder
- Editing an encoder
- Configuring the Preset A,B,C buttons
- Creating a group
- Configuring machine properties
- Viewing alert status
- Configure network properties

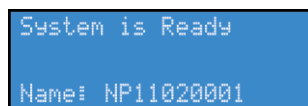
The web interface works with any computer that has a current web browser and operating system. For the best experience, ViewCast recommends Internet Explorer or FireFox. The Niagara system must either reside on a shared IP network with the computer or can be directly connected to a Windows computer using an Ethernet cable (RJ45).

Logging in

To log in:

1. You can either locate the serial number:
 - On the right side of the system (in the format **np12xxxxxx**).
 Or
 - On the LCD display when the system is idle (Figure 46).

Figure 46. System Ready screen



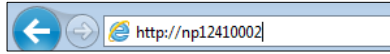
*Note: If the system ready screen does not immediately display, use the **Up** and **Down** arrow buttons to toggle through the system information until the system ready screen appears.*

2. Open the web browser on your computer.

3. You can either:

- Type the system's serial number in the Address bar (Figure 47).

Figure 47. Address Bar



Or

- Type the IP address in the Address bar (Figure 48).

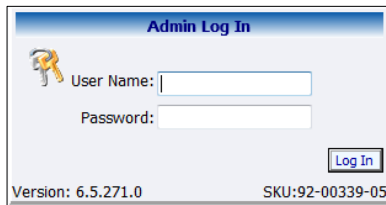
Figure 48. IP Address



Note: The IP address appears on the system ready screen when the system is idle.

The Admin Log In window appears (Figure 49).

Figure 49. Admin Log In Window



4. Type the **User Name** and **Password**.

IMPORTANT! The setting to log in for the first time, defaults to the user name admin and the password admin.

Note: System administrators should previously configure all user names and passwords for those who they allow to log on to the system.

5. Press **Login**. The **Welcome** window and **Menu Bar** appear (Figure 50).

Figure 50. Welcome Window




Viewing all encoders

The Encoders window provides a list of all of the encoder profiles loaded on the Niagara Pro II. On the home page, click **Encoders** ➤ **All Encoders**.

Figure 51. Encoders Window

A	B	Type C	Name D	Status E	Message F	Streaming I
Edit	Del	ADAPTIVE_APPLE	ADAPTIVE_APPLE	Stopped	Success	Stopped (Red)
Edit	Del	ADAPTIVE_FLASH	ADAPTIVE_FLASH	Encoding Live	Success	Started (Blue)
Edit	Del	ADAPTIVE_SS	ADAPTIVE_SS	Stopped	Success	Stopped (Red)
Edit	Del	AVI	AVI	Stopped	Success	Stopped (Red)
Edit	Del	FLASH	FLASH	Stopped	Success	Stopped (Red)
Edit	Del	MPEG	MPEG	Stopped	Success	Stopped (Red)
Edit	Del	WME	WME	Stopped	Success	Stopped (Red)

Niagara Pro II Total Encoders: 7 L

A	Click this link to edit the encoder properties, streaming settings, and advanced streaming settings.
B	Click this link to delete an encoder from the list.
C	Displays the encoder type (for example the Flash icon ).
D	Displays the name you assigned the encoder. This name appears on the LCD display on the front panel.
E	Displays the status of the last action.
F	Displays the result of the last action.
G	Click this link to create a new encoder.
H	Displays the amount of CPU usage.
I	Displays as either Started (blue circle button) or Stopped (red circle button) as the options for streaming for this encoder. The encoder can be started or stopped by clicking the icons.
J	Click this link to view and edit encoder groups.
K	Click this link to stop all encoders.
L	Displays the total number of encoders.

You can also view encoders by clicking on the **View all Encoders** link at the bottom of the Preset A, B, or C window.

Creating an encoder

To create an encoder, on the home page click **Encoders**.

To create an encoder:

1. Click the **Create New Encoder** link. The Create New Encoder window displays (Figure 52).

Figure 52. Create New Encoder window

Create New Encoder

Create a new Encoder on the Niagara Pro II. Enter a unique encoder name for each Encoder added. A new Encoder's properties can be "cloned" from an existing one to create similar Encoders.

Encoder Type: Adaptive Live Streaming Encoder

Encoder Name:

Publisher: Apple HTTP Live Streaming

Clone Properties From: None

[View All Encoders](#)

2. Select the **Encoder Type** from the drop-down list.
3. Enter the name of the encoder.
Note: Valid characters are alphanumeric, space, dash, underscore, and dot.
4. Select the Publisher from the drop-down list.
Note: This field is only valid for an Adaptive Live Streaming Encoder.
5. To use the same properties from another encoder, enable **Clone Properties From**.
6. Select the encoder from the drop-down list.
7. Click **Create New Encoder**.

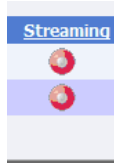
Starting an encoder

To start an encoder, on the home page click **Encoders** ➤ **All Encoders**.

To start an encoder:

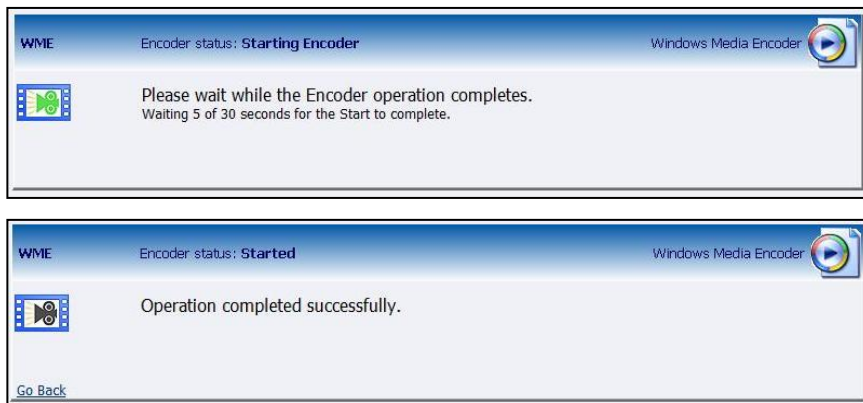
1. Click the red circle **Stopped** icon (Figure 53) in the Streaming column for the encoder you want to start streaming.

Figure 53. Stopped Icon



2. Messages appear detailing the encoder start progress (Figure 54).

Figure 54. Encoder Start Status



3. The Encoders window appears with the encoder status updated and the streaming indicator changes to a blue circle **Started** icon (Figure 55).

Figure 55. Encoders Window



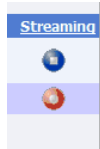
Stopping an encoder

To stop an encoder, on the home page click **Encoders** ➤ **All Encoders**.

To stop an encoder:

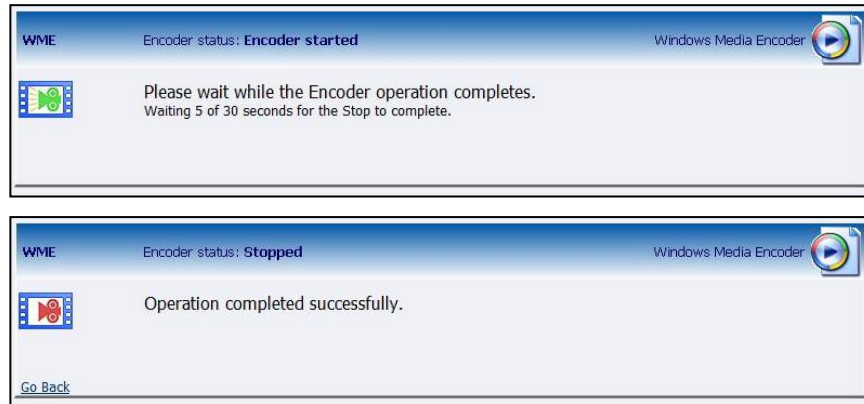
1. Click the blue **Started** icon of the encoder you wish to stop streaming (Figure 56).

Figure 56. Started Icon



2. Messages appear detailing the encoder stop progress (Figure 57).

Figure 57. Encoder Stop Status



Note: If the encoder was saving to file, stopping can take longer than if that encoder was only streaming to the network.

3. The Encoders window appears with the encoder status updated to reflect the **Stopped** mode and the streaming indicator changes to a red circle **Stopped** icon (Figure 58).

Figure 58. Encoders Window



Editing an Adaptive Apple HTTP encoder

To create an adaptive encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field > **Publisher** drop-down list.

When you create a new encoder, the Encoder Properties window appears. The Encoder Properties windows for editing a new encoder or an existing encoder are identical. You must configure the video and audio settings for each encoder type.

Use the Video, Audio, and Output tabs to edit the settings. Begin with configuring the video and audio settings, then the streaming properties. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 59), you can set the encoder to start streaming automatically by clicking the **Auto Start** check box. You can also start an encoder from this window by clicking the **Start Apple HTTP Live Streaming Encoder** link in the top right corner of the window.

***IMPORTANT!** If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 59. Adaptive Apple Encoder Properties

Encoder Properties

ADAPTIVE_APPLE Auto Start [Start Apple HTTP Live Streaming Encoder](#)

Video **Audio** **Output**

Video Input Settings

Source: Osprey-5X0 Video Device 1.1
 Input: Composite
 Proportions: Standard
 Input Size: Standard (4:3) 400x304

Video Stream Settings

GOP/Segment Length: 10 seconds

BitRate	FPS	Width	Height	Profile
64	1	400	304	Base
150	5	400	304	Base
315	12.5	400	304	Base
540	25	400	304	Base
925	25	400	304	Base

Video Filter Settings

Brightness: 0 — 200 100
 Contrast: 0 — 200 100
 Hue: -90 — 90 0
 Saturation: 0 — 200 100

De-Interlace

None
 Auto
 InverseTelecine
 MotionAdaptive

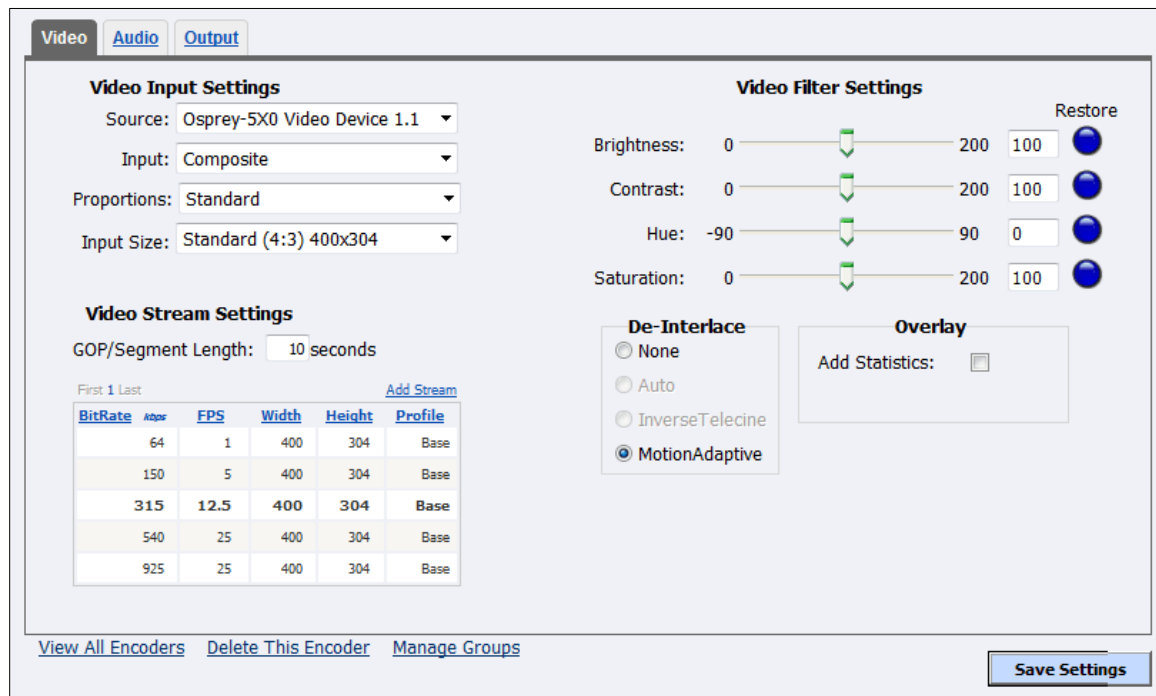
Overlay

Add Statistics:

[View All Encoders](#) [Delete This Encoder](#) [Manage Groups](#) **Save Settings**

Video tab

Figure 60. Video tab



To configure video settings:

1. Select the video input **Source** from the drop-down list.

Note: When SimulStream is enabled, you may use the same input source in another encoding profile. This lets you encode the same audio and video at multiple data rates and multiple formats to provide the best user experience for different viewing audiences.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4

2. In the **Input** field, select the video input.

IMPORTANT! The video input must match the connectors on the back of the system and your video source.

- Composite
- SVideo

- SerialDigital
 - 1394
3. Select the **Proportions** setting from the drop-down list.
 - **Standard** – Square pixels for a VGA monitor
 - **CCIR601** – Elongated pixels for a TV monitor
 4. In the **Input Size** field, select the pre-determined size of the encoded video from the drop-down list.
 - Standard
 - Widescreen
 - Custom

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

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be (Figure 61).

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

Figure 61. Custom fields

The screenshot shows a user interface for setting video size. At the top, there is a dropdown menu labeled 'Size' with 'CUSTOM' selected. Below this, there are two input fields: 'Width' with the value '400' and 'Height' with the value '304'.

5. Enter the seconds for the **GOP/Segment Length**.
6. In the adaptive encoder video stream table, indicate which stream the player will use first (see

Adaptive encoder video stream table).

7. Drag the sliders to adjust the **Brightness, Contrast, Hue, and Saturation** (Figure 91).

Figure 62. Video Filter Settings

The screenshot shows a 'Video Filter Settings' panel. It contains four rows of controls:

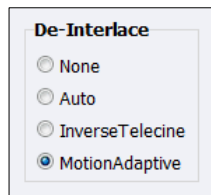
- Brightness:** A slider from 0 to 200, with a value of 100. To the right is a 'Restore' button (a blue circle) and a small input field containing '100'.
- Contrast:** A slider from 0 to 200, with a value of 100. To the right is a 'Restore' button and a small input field containing '100'.
- Hue:** A slider from -90 to 90, with a value of 0. To the right is a 'Restore' button and a small input field containing '0'.
- Saturation:** A slider from 0 to 200, with a value of 100. To the right is a 'Restore' button and a small input field containing '100'.

*Note: Click **Restore** to the right of the filter to reset the settings to the default.*

8. Click the **De-Interlace** setting you want to apply (Figure 63). Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.

- Applies motion adaptive de-interlacing to all video that is not telecine.
- Switches dynamically between the two modes as the content changes.
- Available for NTSC video only.
- **Inverse Telecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
- **Motion Adaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 63. De-Interlace Settings



*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **InverseTelecine** choices when you select either **PAL** or **SECAM** as the video standard.*

9. Select **Add Statistics** to overlay video statistics within the video stream for diagnostic purposes.

Note: This feature is used to add testing information to the stream and is not recommended for long term streaming sessions.

10. Click **Save Settings**.

Adaptive encoder video stream table

The adaptive encoder video stream table (Figure 64) contains five default streams. You can add a new stream, edit, delete, disable, and set which stream the player will use first. You can sort each column by clicking on the column heading.

The system validates the stream settings according to the capabilities of your Niagara system.

Figure 64. Adaptive encoder video stream table

BitRate	FPS	Width	Height	Profile
64	1	400	304	Base
150	5	400	304	Base
315	12.5	400	304	Base
540	25	400	304	Base
925	25	400	304	Base

A.	The table displays five streams at a time. Additional streams display on additional pages. Click the page number to display the streams on that page. You can also click First to go to the first page or click Last to go to the last page.
B.	Click this link to add a stream. <i>Note: If you click Custom as the Input Size, the system will automatically adjust the width and height of subsequent streams according to the custom settings.</i>
C.	The bit rate displays in kilobits per second. This field can only contain whole numbers. <i>Note: Two streams at the same bit rate cannot run simultaneously.</i>
D.	Displays the frames per second. You can enter up to two decimal places.
E.	Displays the width of the picture frame in the stream.
F.	Displays the height of the picture frame in the stream.
G.	The profile field has two settings: <ul style="list-style-type: none"> • Base – This profile is typically for video conferencing and mobile applications and has the lowest demands on CPU load and memory usage, but lowest resulting quality. • Main – This profile is targeted at standard-definition TV. This profile is not acceptable for streaming to iPhone mobile devices.

When you hover your cursor over a stream setting, additional functions display (Figure 65).

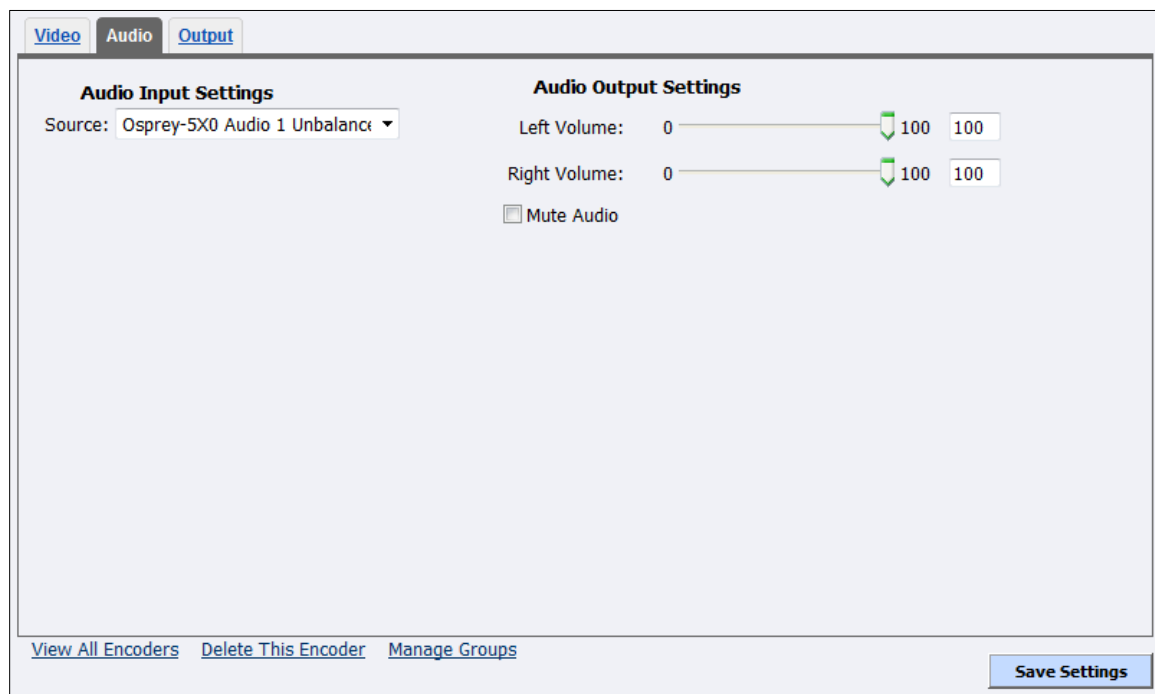
Figure 65. Additional functions

First 1 Last		Add Stream							
Edit	Del	Disable	Initial	BitRate	<i>kbps</i>	FPS	Width	Height	Profile
					925	25	400	304	Base
					540	25	400	304	Base
					315	12.5	400	304	Base
					150	5	400	304	Base
					64	1	400	304	Base

Edit	Click this link to change the settings for a particular stream. Click Update to accept the changes. <i>Note: Click Cancel to stop this action.</i>
Del	Click this link to delete the stream.
Disable	Click this link to disable this stream. The settings are still visible but appear to be “crossed out.” <i>Note: If the setting is disabled, an Enable link displays here.</i>
Initial	Click this link to have the player use this stream first. The settings for the initial stream appear in bold.

Audio tab

Figure 66. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list. Options include:
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced
2. Drag the slider to adjust the **Left Volume** and **Right Volume**.
3. (Optional) Select **Mute Audio** to silence audio.
4. Click **Save Settings**.

Output tab

Figure 67. Output tab

To configure output settings:

1. Select **Stream to Network Host**.

CAUTION!: Simultaneously publishing to server and file system increases CPU usage.

2. Select the Host Address.

Note: When you select **ftp://**, the *Passive FTP Mode* displays. Select this field to use passive FTP mode or clear this field to use active FTP mode.

3. Enter the address in the next field.

4. Indicate the maximum **HTTP Cache** by dragging the slider for the number of files to maintain.

Note: The **Stream Path** that displays is a combination of the Host Address, Subfolder, and Filename.

5. Select **Create unique Subfolder** to create a file that the system does not overwrite.

Note: The format is *Subfolder_YYMMDD_HHMMSS*.

6. Enter the name of the **Subfolder** used in the network destination and/or the local file system full filename.

7. Enter the name of the variant playlist file in the **Filename** field.

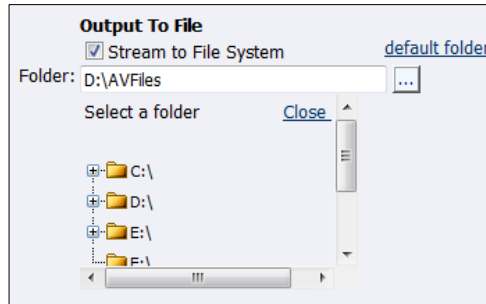
8. Enter the **Number of Segments Per Folder**.

9. Select **Stream to File System** to enable archiving content to the file system.

- Accept the default location that displays in the **Folder** field or choose your own location for the file. To choose your own personal location, select the link (horizontal ellipses or ...) to the right of the **Folder** field to display the options.

Note: By default, the system sets this folder to D:\AVFiles.

Figure 68. Select a folder



WARNING! You can save media files only to drive D. Check drive properties for available free space to determine your storage capacity.

A better practice would be to use the streaming server to save a file or to save it to a remote drive. If you inadvertently fill all available space, you risk losing your stream during a streaming event.

Note: The File System that displays is a combination of the Folder, Subfolder, and Filename.

- Select **Allow client to cache content**.
- Select **Encrypt Media Segment Files** to protect the content.
- Select the **Key File**.

*Note: **http://** is currently the only choice.*

- Enter the **URL**.
- Enter the authentication **Type**. If the host address is:
 - http://**, the selections are None and Akamai
 - ftp://**, the selections are None or FTP
- Enter the **Username** or Query String.
- Enter the **Password** or Salt.
- Click **Save Settings**.

Editing an Adaptive Adobe Flash Dynamic streaming encoder

To create an adaptive encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field > **Publisher** drop-down list.

When you create a new encoder, the Encoder Properties window appears. The steps for editing a new encoder or an existing encoder are identical. You must configure the audio and video settings for each encoder type.

Use the Video, Audio, and Output tabs to edit the settings. Begin with configuring the video and audio settings, then the server and destination settings. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 69), you can set the encoder to start streaming automatically by clicking the **Auto Start** check box. You can also start the encoder from this window by clicking the **Start Adobe Flash Dynamic Streaming Encoder** link in the top right corner of the window.

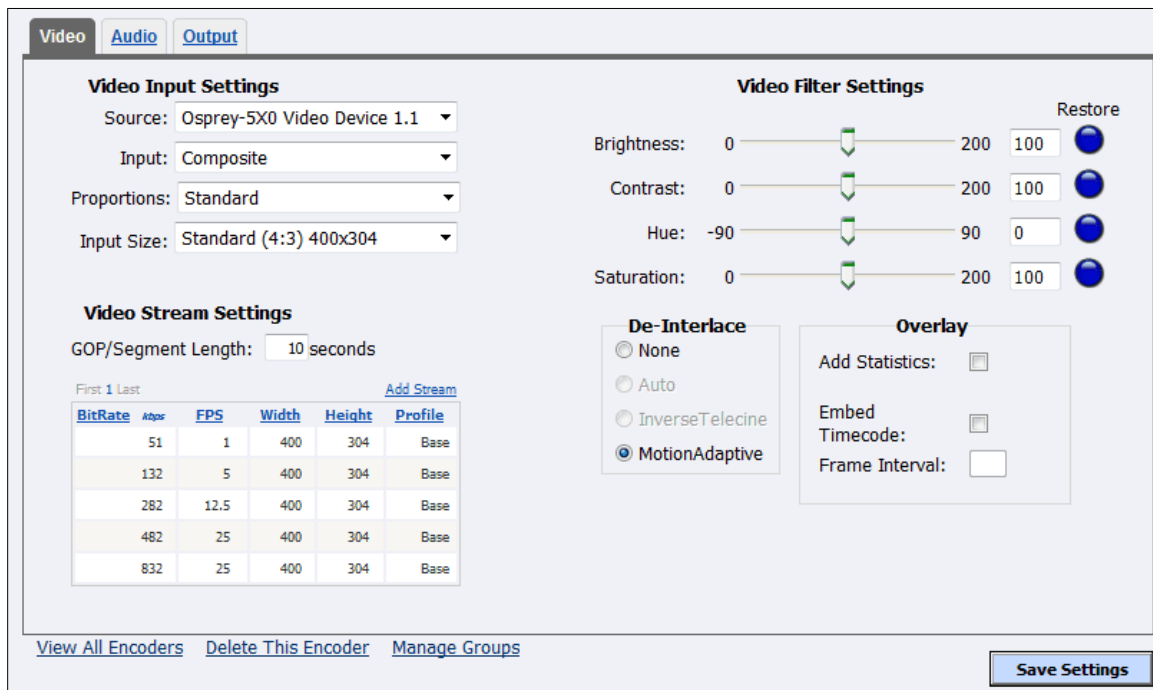
*IMPORTANT! If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 69. Adobe Flash Dynamic streaming encoder



Video tab

Figure 70. Video tab



To configure video settings:

1. Select the video input **Source** from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number “1” denotes the physical input and the decimal “.4” denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4

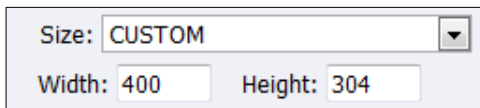
2. In the **Input** field, select the video input. Options include:
 - Composite
 - SVideo
 - SerialDigital
 - 1394
3. Select the **Proportions** setting from the drop-down list:
 - **Standard** – Square pixels for a VGA monitor
 - **CCIR601** – Elongated pixels for a TV monitor
4. In the **Input Size** field, select the pixel size of the encoded video. The standard sizes include:
 - Standard
 - Widescreen
 - Custom

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

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be (Figure 71).

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

Figure 71. Custom fields



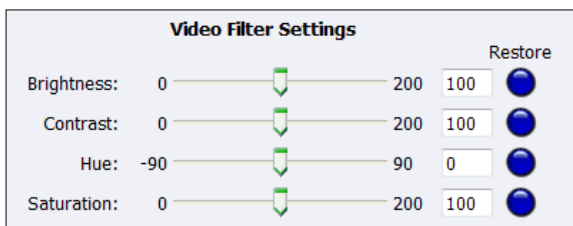
The screenshot shows a user interface for video settings. At the top, there is a dropdown menu labeled 'Size:' with 'CUSTOM' selected. Below this, there are two input fields: 'Width:' with the value '400' and 'Height:' with the value '304'.

5. Enter the seconds for the **GOP/Segment Length**.
6. In the adaptive encoder video stream table, indicate which stream the player will use first (see

Adaptive encoder video stream table).

7. Drag the sliders to adjust the **Brightness, Contrast, Hue, and Saturation** (Figure 72).

Figure 72. Video Filter Settings

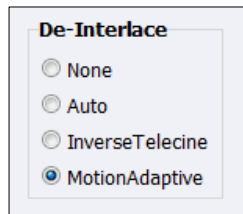


The screenshot shows a 'Video Filter Settings' panel. It contains four sliders: 'Brightness' (0 to 200, set to 100), 'Contrast' (0 to 200, set to 100), 'Hue' (-90 to 90, set to 0), and 'Saturation' (0 to 200, set to 100). Each slider has a green arrowhead. To the right of the sliders is a 'Restore' button with a blue circular icon.

*Note: Click the **Restore** button to the right of the filter to reset the settings to the default.*

8. Click the **De-Interlace** setting you want to apply (Figure 73). Options include:
- **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **InverseTelecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **MotionAdaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 73. De-Interlace settings



*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **InverseTelecine** choices when you select either PAL or SECAM as the video standard.*

9. Select **Add Statistics** to overlay video statistics within the video stream for diagnostic purposes.
- Note: This feature is uses to add testing information to the stream and is not recommended for long term streaming sessions.*
10. Select **Embed Timecode** to enable embed system time as timecode. This action tags individual video frames with timecode data. Use this feature if embedded timecode is required but your capture device cannot generate it.
11. Specify the **Frame Interval** at which timecode should embedded into the video stream in the **Frame Interval** field.
- 0 = disabled
The range is 1 to 30 frames.
12. Click **Save Settings**.

Encoder video stream table

The adaptive encoder video stream table (Figure 74) contains five default streams. You can add a new stream, edit, delete, disable, and set which stream the player will use first. You can sort each column by clicking on the column heading.

The system validates the stream settings according to the capabilities of your Niagara system.

Figure 74. Encoder video stream table

BitRate	Kbps	FPS	Width	Height	Profile
51	1	400	304	Base	
132	5	400	304	Base	
282	12.5	400	304	Base	
482	25	400	304	Base	
832	25	400	304	Base	

A.	The table displays five streams at a time. Additional streams display on additional pages. Click the page number to display the streams on that page. You can also click First to go to the first page or click Last to go to the last page.
B.	Click this link to add a stream. <i>Note: If you click Custom as the Input Size, the system will automatically adjust the width and height of subsequent streams according to the custom settings.</i>
C.	The bit rate displays in kilobits per second. This field can only contain whole numbers. <i>Note: Two streams at the same bit rate cannot run simultaneously.</i>
D.	Displays the frames per second. You can enter up to two decimal places.
E.	Displays the width of the picture frame in the stream.
F.	Displays the height of the picture frame in the stream.
G.	The profile field has two settings: <ul style="list-style-type: none"> • Base – This profile is typically for video conferencing and mobile applications and has the lowest demands on CPU load and memory usage, but lowest resulting quality. • Main – This profile is targeted at standard-definition TV. This profile is not acceptable for streaming to iPhone mobile devices.

When you hover your cursor over a stream setting, additional functions display (Figure 75).

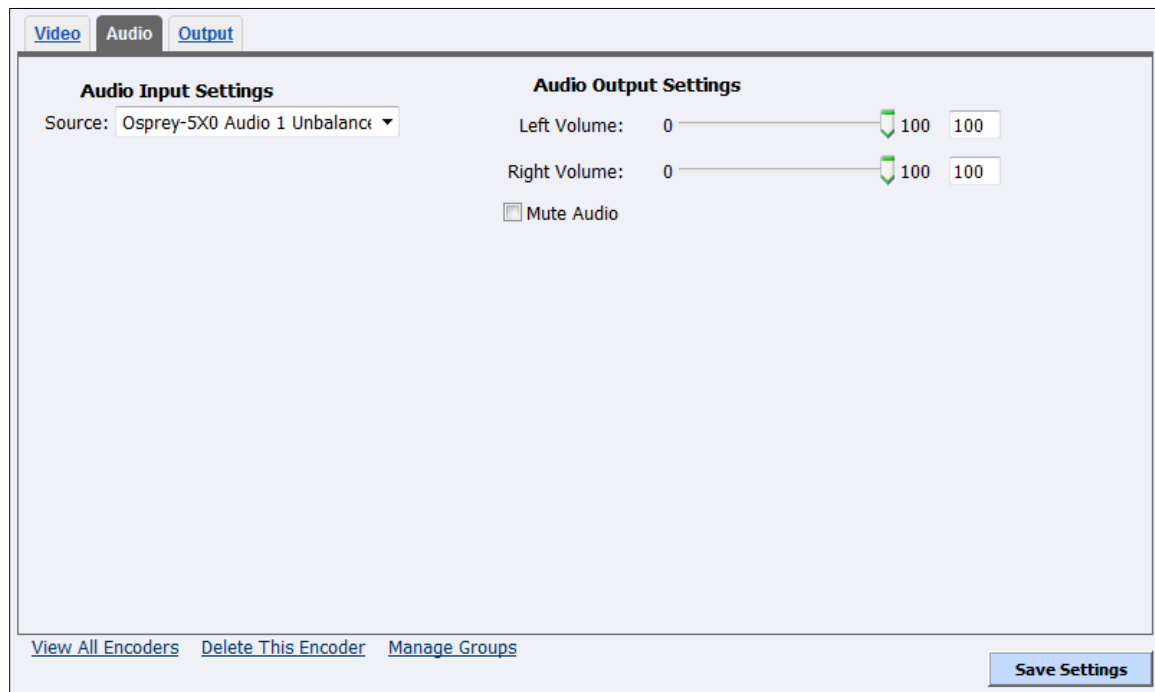
Figure 75. Additional functions

First 1 Last		Add Stream						
Edit	Del	Disable	BitRate	<i>Kbps</i>	FPS	Width	Height	Profile
			51		1	400	304	Base
			132		5	400	304	Base
			282		12.5	400	304	Base
			482		25	400	304	Base
			832		25	400	304	Base

Edit	Click this link to change the settings for a particular stream. Click Update to accept the changes. <i>Note: Click Cancel to stop this action.</i>
Del	Click this link to delete the stream.
Disable	Click this link to disable this stream. The settings are still visible but appear to be “crossed out.” <i>Note: If the stream is disabled, the Enable link displays here.</i>

Audio tab

Figure 76. Audio tab



To configure audio settings:

- In the **Source** field, select an audio source from the drop-down list:
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey 5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced
- Drag the sliders to adjust the **Left Volume** and **Right Volume**.
- (Optional) Select **Mute Audio** to silence the audio.
- Click **Save Settings**.

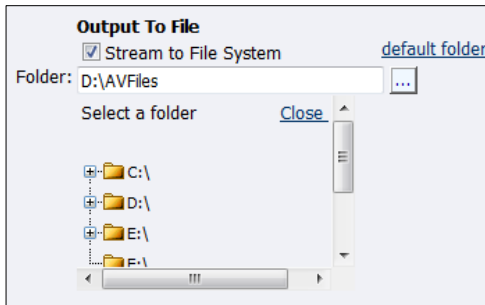
Output tab

Figure 77. Output tab

To configure output settings:

1. Select **Stream to Flash Media Server**.
CAUTION! Simultaneously publishing to server and file system increases CPU usage.
2. Enter the destination **FMS Address**.
*Note: The **Stream Path** that displays is a combination of the FMS (Flash Media Server) address and the stream name.*
3. Enter the **Stream Name**.
4. Select **Stream to File System** to enable archiving content to the file system.
5. Accept the default location that displays in the **Folder** field or choose your own location for the file. To choose your own personal location, select the link (horizontal ellipses or ...) to the right of the **Folder** field and display the options (Figure 78).
Note: By default, the system sets this folder to D:\AVFiles. See Connecting an external storage device for instructions on saving video files to a USB storage device.

Figure 78. Select a folder



***WARNING!** You can save media files only to drive D. Check drive properties for available free space to determine your storage capacity.*

A better practice would be to use a Flash Media server to save a file or to save it to a remote drive. If you inadvertently fill all available space, you risk losing your stream during a streaming event.

6. Select a **Create unique folder** to create a file that the system does not overwrite.
7. Enter the user authentication Type. If the host address is:
 - None
 - Adobe
 - Akamai
 - Limelight
8. Enter the **Username**.
9. Enter the **Password**.
10. Click **Save Settings**.

Editing an Microsoft Adaptive Smooth Streaming encoder

To create an adaptive encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field > **Publisher** drop-down list.

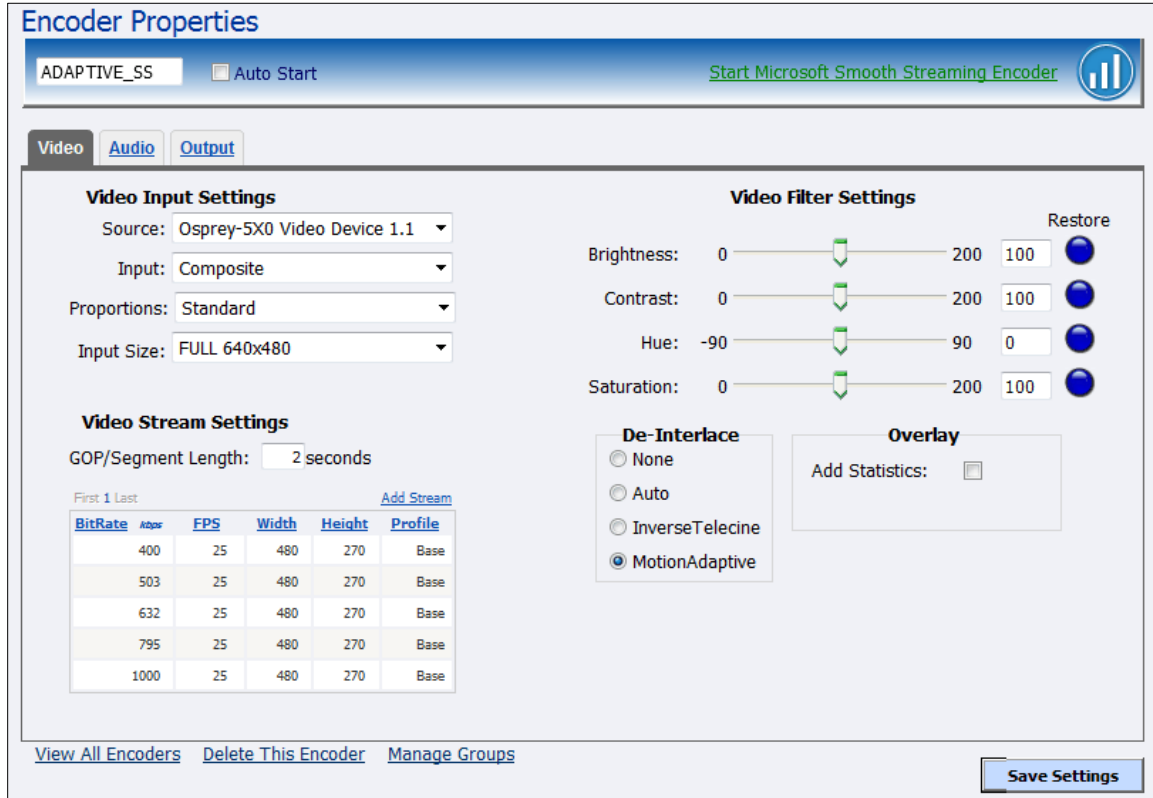
When you create a new encoder, the Encoder Properties window appears. The Encoder Properties windows for editing a new encoder or an existing encoder are identical. You must configure the audio and video settings for each encoder type.

Use the Video, Audio, and Output tabs to edit the settings. Begin with configuring the video and audio settings, then the streaming properties. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 79), you can set the encoder to start streaming automatically by selecting the **Auto Start** check box. You can also start the encoder from this window by clicking the **Start Microsoft Smooth Streaming Encoder** link in the top right corner of the window.

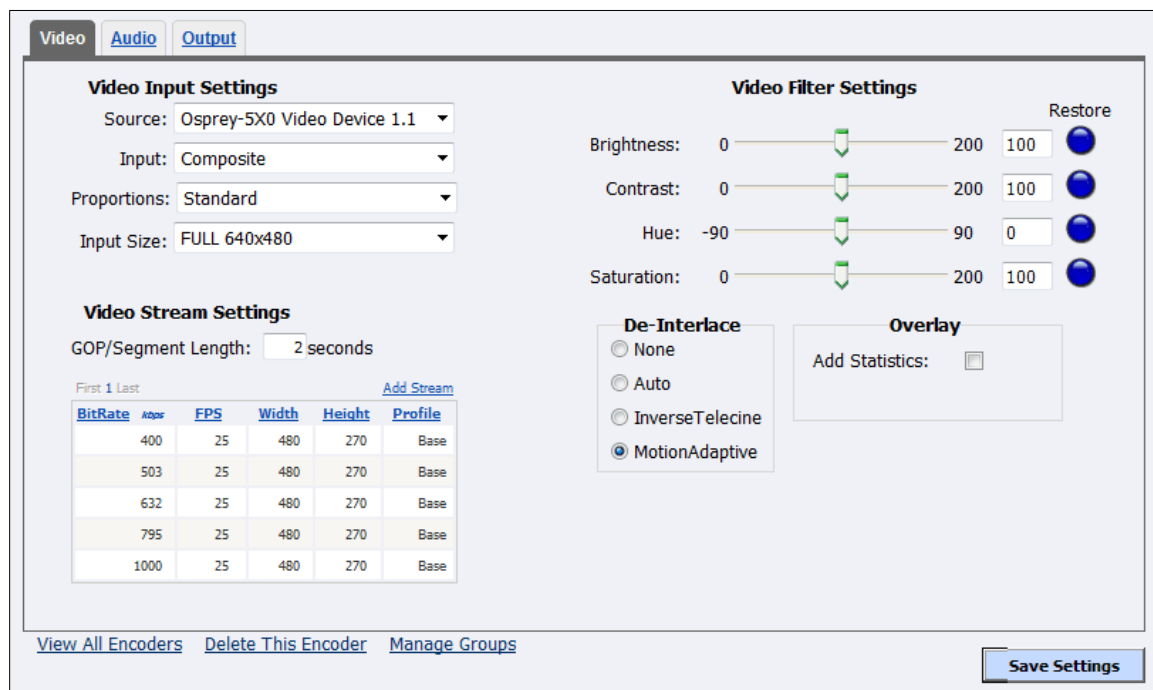
*IMPORTANT! If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 79. Microsoft Smooth Streaming encoder



Video tab

Figure 80. Video tab



To configure video settings:

1. Select the video input **Source** from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number "1" denotes the physical input and the decimal ".4" denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4

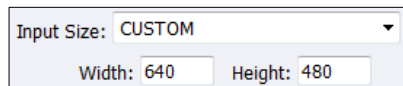
2. In the **Input** field, select the video input.
IMPORTANT! The video input must match the connectors on the back of the system and your video source.
 - Composite
 - SVideo
 - SerialDigital
 - 1394
3. Select the **Proportions** setting from the drop-down list.
 - **Standard** – Square pixels for a VGA monitor.
 - **CCIR601** – Elongated pixels for a TV monitor.
4. In the **Input Size** field, select the pre-determined size of the encoded video from the drop-down list.
 - Full-size 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
 - Custom

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

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

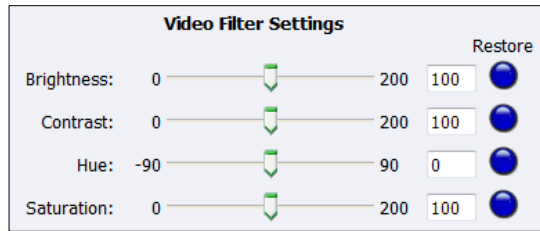
Figure 81. Custom fields



The image shows a screenshot of a video settings window. At the top, there is a dropdown menu labeled 'Input Size' with 'CUSTOM' selected. Below this, there are two input fields: 'Width: 640' and 'Height: 480'.

5. Enter the length seconds for the **GOP/Segment Length** field.
 - A shorter time will produce more frequent I-frames, a better picture quality, and a more editable stream.
 - A longer time will have better compression, a less editable stream and the quality may suffer.
6. In the adaptive encoder video stream table, indicate which stream the player will use first (see *Adaptive encoder video stream table*).
7. Drag the sliders to adjust the **Brightness**, **Contrast**, **Hue**, and **Saturation** (Figure 82).

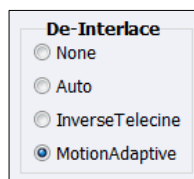
Figure 82. Video Filter Settings



*Note: Click the **Restore** button to the right of the filter to reset the settings to the default.*

8. Click the **De-Interlace** setting you want to apply. Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **InverseTelecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **MotionAdaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion. It then applies different processing to each scenario.

Figure 83. De-Interlace settings



*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **Inverse Telecine** choices when you select either **PAL** or **SECAM** as the video standard.*

9. Select **Add Statistics** to overlay video statistics within the video stream for diagnostics purposes.

Note: This feature is used to add testing information to the stream and is not recommended for long term streaming sessions.

10. Click **Save Settings**.

Adaptive encoder video stream table

The adaptive encoder video stream table (Figure 84) contains five default streams. You can add a new stream, edit, delete, and disable. You can sort each column by clicking on the column heading.

The system validates the stream settings according to the capabilities of your Niagara system.

Figure 84. Adaptive encoder video stream table

BitRate	Kbps	FPS	Width	Height	Profile
400		25	960	540	Base
503		25	960	540	Base
632		25	960	540	Base
795		25	960	540	Base
1000		25	960	540	Base

A.	The table displays five streams at a time. Additional streams display on additional pages. Click the page number to display the streams on that page. You can also click First to go to the first page or click Last to go to the last page.
B.	Click this link to add a stream. <i>Note: If you click Custom as the Input Size, the system will automatically adjust the width and height of subsequent streams according to the custom settings.</i>
C.	The bit rate displays in kilobits per second. This field can only contain whole numbers. <i>Note: Two streams at the same bit rate cannot run simultaneously.</i>
D.	Displays the frames per second. You can enter up to two decimal places. <i>Note: These FPS roles will usually be all the same or divisible by 1/2, 1/4, 1/8 of the highest number for any of the streams. For example, 25, 12.5, 5, 1. A “valid” but unsupported entry will be rounded to the nearest supported FPS rate automatically.</i>
E.	Displays the width of the picture frame in the stream.
F.	Displays the height of the picture frame in the stream.
G.	The profile field has two settings: <ul style="list-style-type: none"> ● Base – This profile is typically for video conferencing and mobile applications and has the lowest demands on CPU load and memory usage, but lowest resulting quality. ● Main – This profile is targeted at standard-definition TV.

When you hover your cursor over a stream setting, additional functions display (Figure 85).

Figure 85. Additional functions

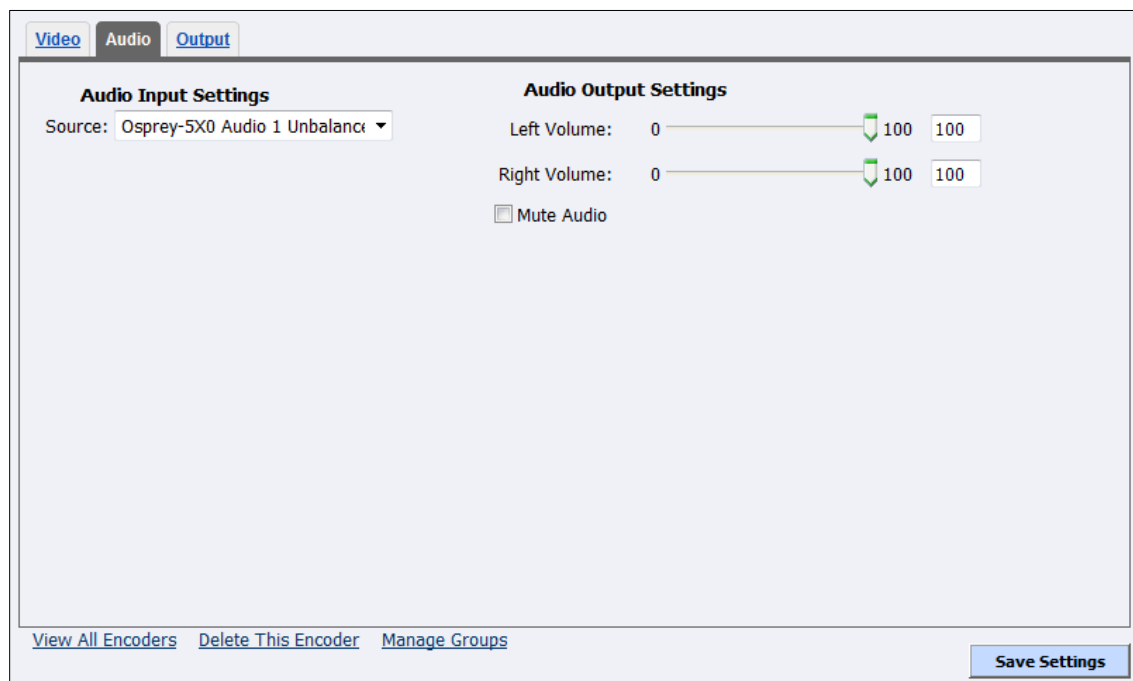
The screenshot shows a table with columns: BitRate (kbps), FPS, Width, Height, and Profile. The second row is highlighted, and a context menu is open over it with options: Edit, Del, and Disable. A mouse cursor is pointing at the 'Edit' option.

BitRate	kbps	FPS	Width	Height	Profile
400		25	960	540	Base
503		25	960	540	Base
632		25	960	540	Base
795		25	960	540	Base
1000		25	960	540	Base

Edit	Click this link to change the settings for a particular stream. Click Update to accept the changes. <i>Note: Click Cancel to stop this action.</i>
Del	Click this link to delete the stream.
Disable	Click this link to disable this stream. The settings are still visible but appear to be “crossed out.” <i>Note: If this stream is disabled, the Enable link displays here.</i>

Audio tab

Figure 86. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list.
 - Osprey-5X0 Audio 2 Unbalanced
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4

IMPORTANT! The audio input must match the connectors on the back of the system and your audio source.

2. Drag the sliders to adjust the **Left Volume** and **Right Volume**.
3. (Optional) Select **Mute Audio** to silence the audio.
4. Click **Save Settings**.

Output tab

Figure 87. Output tab

The screenshot shows the 'Output' tab configuration window. At the top, there are three tabs: 'Video', 'Audio', and 'Output', with 'Output' being the active tab. The main area is divided into several sections:

- Server Settings:** Includes a checkbox for 'Publish to IIS Host', a 'Host Address' field (set to http://www.mystream.com), and a 'Stream Path' field.
- Destination Settings:** Includes a 'Publish Point' field (set to myEvent) with a '.ismv' suffix.
- PlayReady Settings:** Includes a checkbox for 'PlayReady DRM', a 'Key URL' field (set to http://), a 'Key ID' field with a 'Create' button, and a 'Key Seed' field.
- Output To File:** Includes a checked checkbox for 'Stream to File System' with a 'default folder' link, a 'Folder' field (set to D:\AVFiles), a 'Filename' field (set to capture) with a '.ismv' suffix, and a 'File System' field (set to D:\AVFiles\capture_<streamrate>kbps.ismv).
- User Authentication:** Includes 'Username' and 'Password' fields.

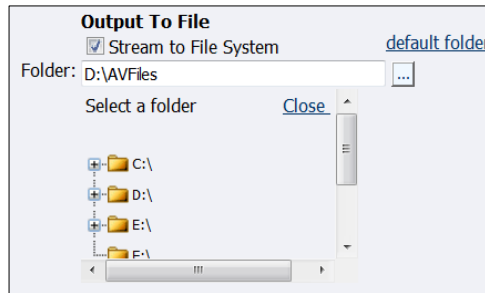
At the bottom of the window, there are links for 'View All Encoders', 'Delete This Encoder', and 'Manage Groups', and a 'Save Settings' button.

To configure output settings:

1. Select **Publish to IIS Host**.
2. Enter the destination **Host Address**.
*Note: The **Stream Path** that displays is a combination of the host address and the publish point.*
3. Enter the **Publish Point**.
4. Select **PlayReady DRM** to enable Digital Rights Management support. PlayReady requires external License Server provider support. The URL and the seed must be acquired from the license hosting provider.
5. Select the **Key URL**:
 - http://
 - https://
6. Enter the PlayReady key **URL**.
7. Enter the **Key ID** by clicking **Create**.
8. Enter the **Key Seed**.
9. Click **Stream to File System**.
10. Accept the default location that displays in the **Folder** field or choose your own location for the file. To choose your own personal location select the link (horizontal ellipses or ...) to the right of the Folder field and display the options (Figure 88).

Note: By default, the system sets this folder to D:\AVFiles. See Connecting an external storage device for instructions on saving video files to a USB storage device.

Figure 88. Select a folder



WARNING! *You can only save media files to drive D. Check drive properties for available free space to determine your storage capacity.*

A better practice would be to use a remote file server to save a file or to save it to a remote drive. If you fill all available space, you risk losing your stream during a streaming event.

Smooth Streaming files created when you enable Output to File are not designed to be played locally by a media player but should be hosted on an IIS server for Video On Demand services.

12. Enter the **Username**.

Note: You can enter a maximum of 80 characters.

IIS authentication types supported are Basic and Digest.

13. Enter the **Password**.

Note: You can enter a maximum of 20 characters.

14. Click **Save Settings**.

Editing an AVI Encoder

To create an encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field.

When you create a new encoder, the Encoder Properties window appears. The Encoder Properties windows for editing a new encoder or an existing encoder are identical. You must configure the video and audio settings for each encoder type.

Use the Video, Audio, and Output tabs to edit the settings. Begin with configuring the Video and Audio tabs, then the Output tab. The streaming properties and advanced streaming settings are different for each type of encoder.

From the Encoder Properties window (Figure 89), you can set the encoder to start streaming automatically by clicking the **Auto Start** check box. You can also start an encoder from this window by clicking the **Start AVI Encoder** link in the top right corner of the window.

***IMPORTANT!** If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 89. AVI Encoder Properties

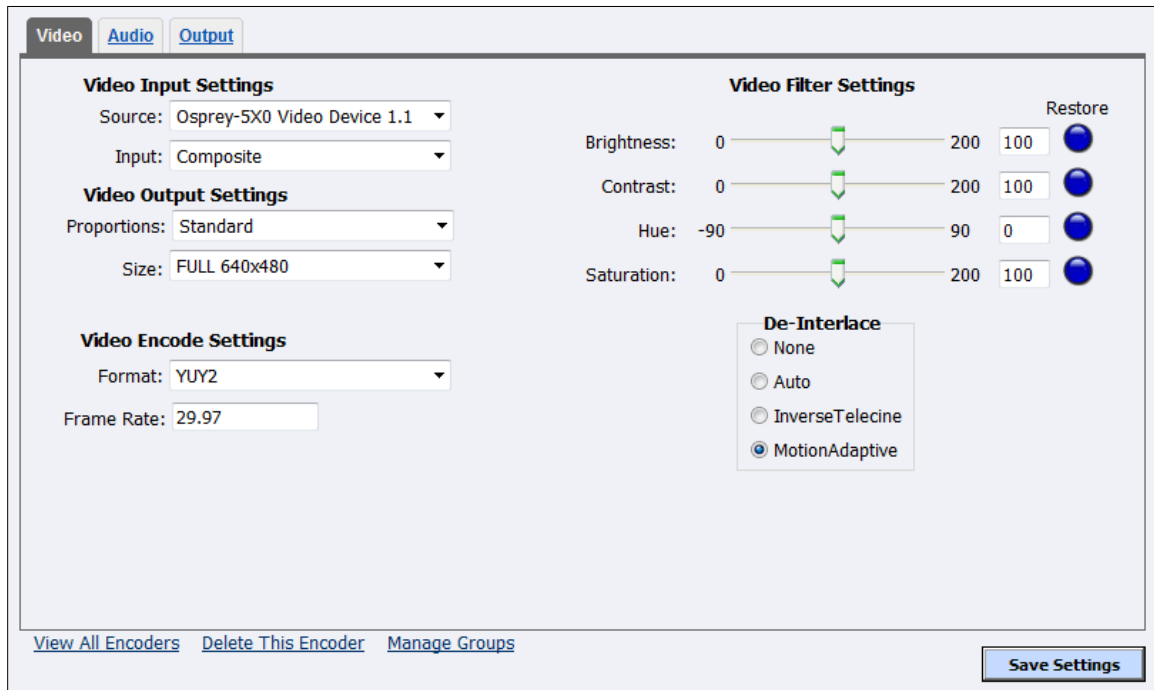
The screenshot displays the 'Encoder Properties' window for an AVI encoder. At the top, there is a header bar with the encoder name 'AVI', an 'Auto Start' checkbox, and a 'Start AVI Encoder' button with an AVI icon. Below the header are three tabs: 'Video', 'Audio', and 'Output', with 'Video' currently selected. The main content area is divided into several sections:

- Video Input Settings:** Source: Osprey-5X0 Video Device 1.1, Input: Composite.
- Video Output Settings:** Proportions: Standard, Size: FULL 640x480.
- Video Encode Settings:** Format: YUY2, Frame Rate: 29.97.
- Video Filter Settings:** Includes sliders for Brightness (0-200), Contrast (0-200), Hue (-90-90), and Saturation (0-200). Each slider has a numerical input field and a 'Restore' button.
- De-Interlace:** Radio buttons for None, Auto, InverseTelecine, and MotionAdaptive (which is selected).

At the bottom of the window, there are links for 'View All Encoders', 'Delete This Encoder', and 'Manage Groups', along with a 'Save Settings' button.

Video tab

Figure 90. Video tab



To configure video settings:

1. Select the video input **Source** from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number “1” denotes the physical input and the decimal “.4” denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4

2. In the **Input** field, select the video input.

- Composite
- SVideo
- SerialDigital
- 1394

IMPORTANT! The video input must match the connectors on the back of the system and your video source.

3. Select the **Proportions** setting from the drop-down list:

- **Standard** – Square pixels for a VGA monitor
- **CCIR601** – Elongated pixels for a TV monitor

4. In the **Size** field, select the pixel size of the encoded video from the pre-determined sizes in the drop-down list.

- Full-size 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
- Custom

Customization is useful when you are capturing video to play on a mobile video-device that requires a non-standard size for compatibility.

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be (Figure 91).

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

Figure 91. Custom Fields

The image shows a software interface for video settings. At the top, there is a dropdown menu labeled 'Size' with 'CUSTOM' selected. Below this are two input fields: 'Width' containing the number '640' and 'Height' containing the number '480'.

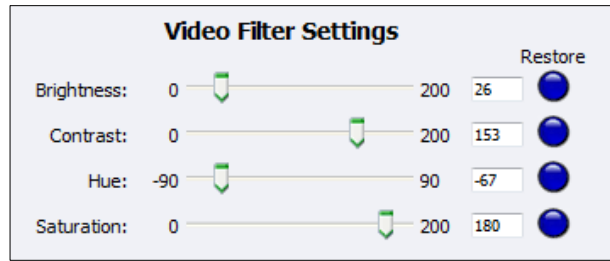
IMPORTANT! Ensure all of the encoders using the same video Proportion and Size settings also use the same Video and Audio Source settings. For example, all encoders capturing at Standard proportion and CIF size are set to Osprey-5X0 video Device 1.1 while encoders capturing at Standard proportion but QCIF resolution are set to Osprey-5X0 Video Device 1.2.

5. Select the **Format** field from the drop-down list.

6. In the **Frame Rate** field, enter the frames per second.

7. Drag the sliders to adjust the **Brightness, Contrast, Hue, and Saturation** (Figure 92).

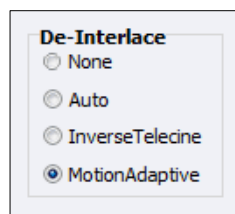
Figure 92. Video Filter Settings



*Note: Click **Restore** to the right of each filter to return the setting to the default.*

8. Click the **De-Interlace** setting you want to apply (Figure 93). Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **Inverse Telecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **Motion Adaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 93. De-Interlace Settings

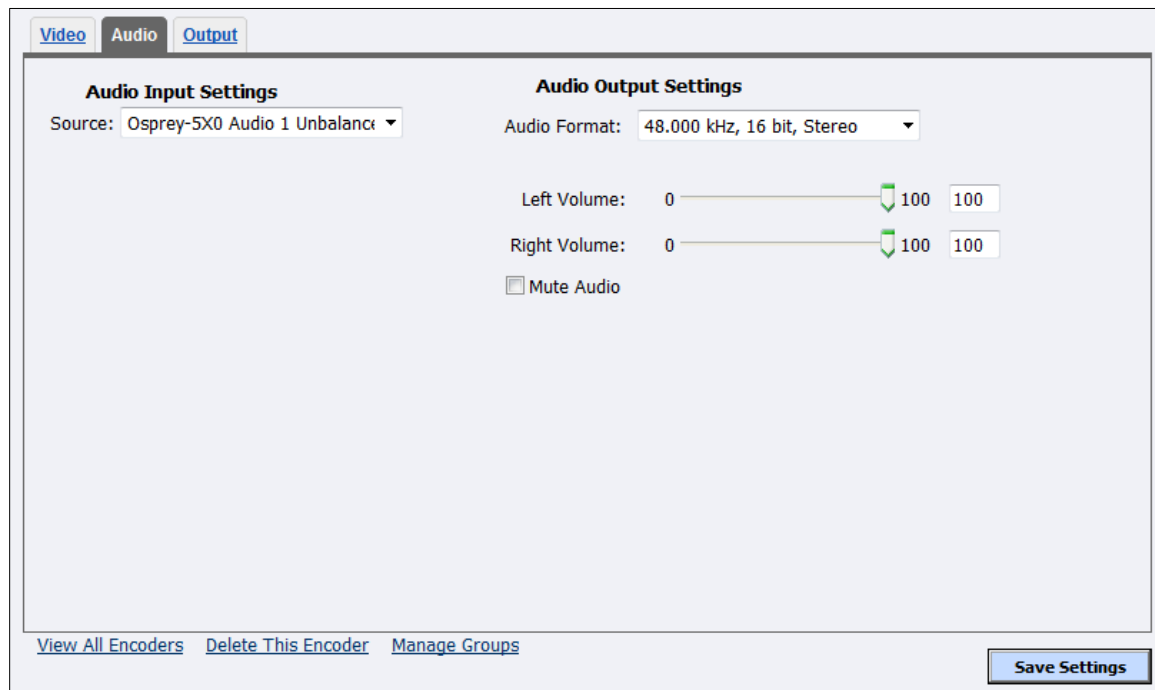


*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **Inverse Telecine** choices when you select either **PAL** or **SECAM** as the video standard.*

9. Click **Save Settings**.

Audio tab

Figure 94. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list.
 - Disabled
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced

IMPORTANT! The audio input must match the connectors on the back of the system and your video source.

2. Click the **Audio Format** from the drop-down list.
3. Drag the sliders to adjust the **Left Volume** and **Right Volume**.

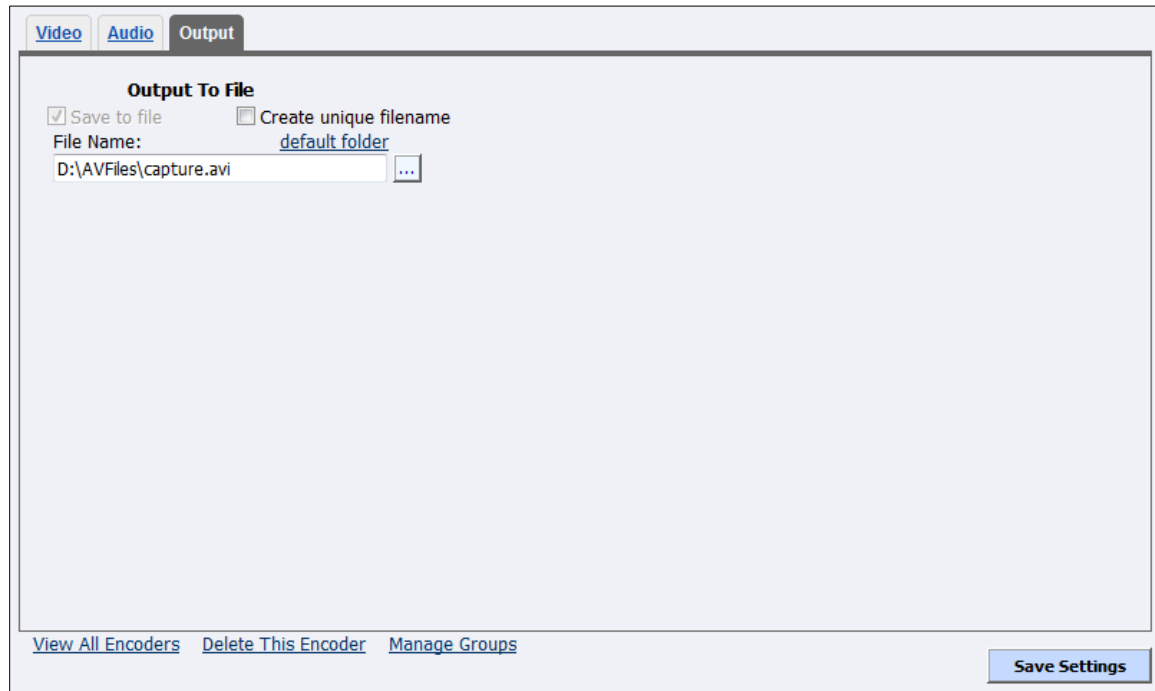
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4. (Optional) Select **Mute Audio** to silence the audio.
5. Click **Save Settings**.

Output tab

You can only save an AVI output to a file. Enter a unique name and location for this file or use the default name and location (Figure 95).

Figure 95. Output Tab



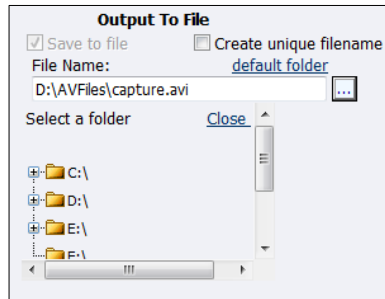
To configure output settings:

1. You can either:
 - Use the default setting, **Save to File**, to save the encoded content to a file. Each time you start this encoder, the system overwrites the previous file.
 - Click **Create unique file** to create a file that the system does not overwrite.
2. Accept the default location that displays in the **File Name** field or choose your own location for the file. To choose your own personal location select the link (horizontal ellipses or ...) to the right of the **File Name** field and display the options (Figure 96).

*Note: By default, the system sets this folder to **D:\AVFiles\Out** with a default filename of **capture.avi**.*

See Connecting an external storage device section for instructions on saving video files to a USB device.

Figure 96. Select a folder



***WARNING!** You can save media files only to drive D. Check drive properties for available free space to determine your storage capacity.*

A better practice would be to use the streaming server to save a file or to save it to a remote drive. If you inadvertently fill all available space, you risk losing your stream during a streaming event.

***IMPORTANT:** The Niagara Pro II is designed for live streaming. Be careful saving AVI files. AVI files are uncompressed and large video sizes may require a greater transfer rate than the system can handle.*

3. Click **Save Settings**.

Editing an Adobe Flash H.264 encoder

To create an encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field.

When you create a new encoder, the Encoder Properties window appears. The Encoder Properties windows for editing a new encoder or an existing encoder are identical. You must configure the video and audio settings for each encoder type.

Use the tabs Video, Audio, Output, and H.264 Presets to edit the settings. Begin with configuring the video and audio settings, then the streaming properties. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 97), you can set the encoder to start streaming automatically by selecting the **Auto Start** check box. You can also start the encoder from this window by clicking the **Start Flash Encoder** link in the top right corner of the window.

***IMPORTANT!** If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 97. Adobe Flash H.264 Encoder Properties



Video tab

Figure 98. Video tab

The screenshot shows a web-based configuration interface for video settings. It features a top navigation bar with tabs for 'Video', 'Audio', 'Output', and 'H.264 Presets', and a 'Submit' button. The main content area is organized into five sections:

- Video Input Settings:** Source: Osprey-5X0 Video Device 1.3, Input: Composite.
- Video Output Settings:** Proportions: Standard, Size: FULL 640x480.
- Video Encode Settings:** Video Encoder: H264, Frame Rate: 29.97 fps, Bitrate: 768 kbps.
- Video Filter Settings:** Brightness, Contrast, Hue, and Saturation sliders, each with a 'Restore' button.
- De-Interlace:** Radio buttons for None, Auto, InverseTelecine, and MotionAdaptive (selected).

At the bottom of the interface, there are links for 'View All Encoders', 'Delete This Encoder', and 'Manage Groups'.

To configure video input settings:

1. Select the video input **Source** from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number "1" denotes the physical input and the decimal ".4" denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4
- Disabled

2. In the **Input** field, select the video input.

- Composite
- SVideo
- SerialDigital
- 1394

IMPORTANT! The video input must match the connectors on the back of the system and your video source.

3. The **Proportions** field has two settings:

- **Standard** – Square pixels for a VGA monitor
- **CCIR601** – Elongated pixels for a TV monitor

Click the setting that reflects the type of display on which your viewers will view your content. For example, if you want to stream your video on the Internet for the user to view on a computer monitor, select **Standard**. If you select an inaccurate setting, your video will be distorted.

4. In the **Size** field, select the pixel size of the encoded video from the drop-down list.

- Full-size 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
- Custom

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

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be (Figure 99).

*Note: The size in the **Width** and **Height** field must be divisible by 2.*

Figure 99. Custom Fields

The screenshot shows a user interface for video settings. At the top, there is a 'Size' dropdown menu with 'CUSTOM' selected. Below this, there are two input fields: 'Width' with the value '640' and 'Height' with the value '480'.

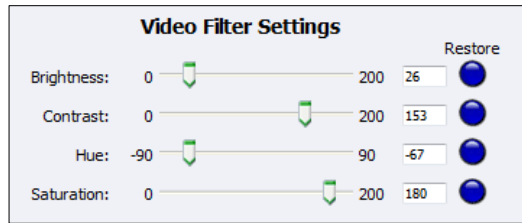
5. Select the **Video Encoder** from the drop-down list.

6. Enter the frames per second in the **Frame Rate** field.

7. Enter the kilobits per second in the **Bitrate** field.

8. Drag the sliders to adjust the **Brightness**, **Contrast**, **Hue**, and **Saturation** (Figure 100).

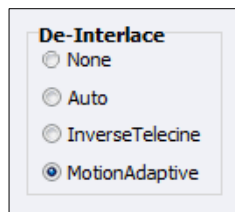
Figure 100. Video Filter Settings



*Note: Click **Restore** to the right of the filter to reset the settings to the default.*

9. Click the **De-Interlace** setting you want to apply (Figure 101). Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **Inverse Telecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **Motion Adaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 101. De-Interlace Settings

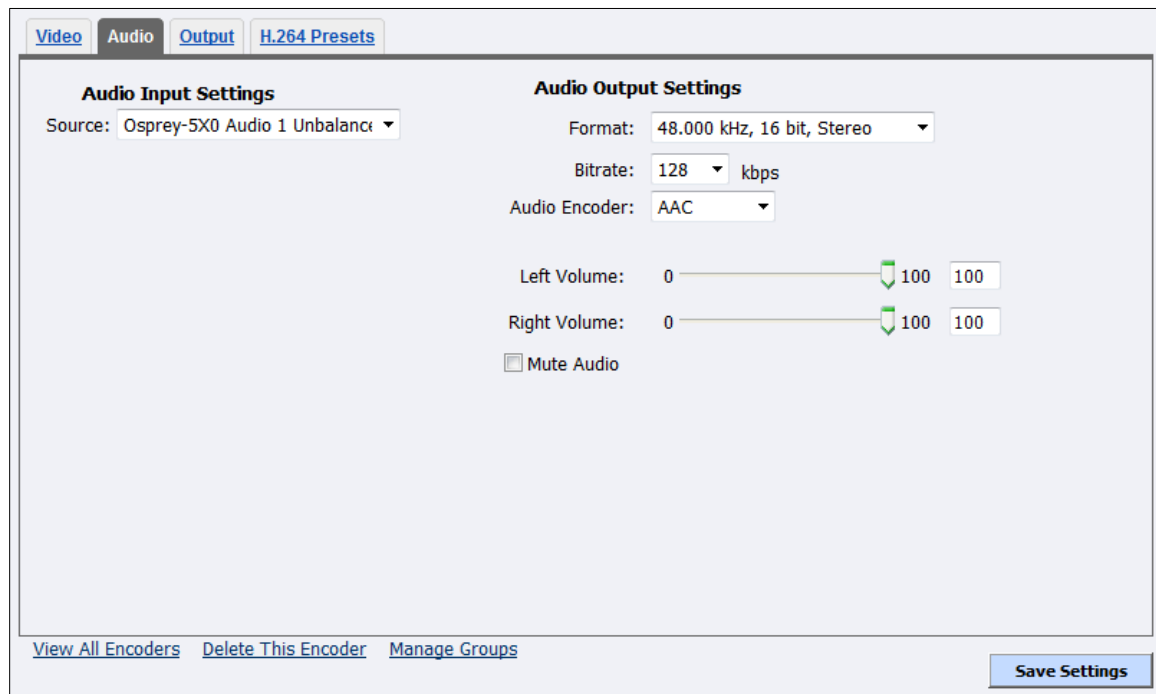


*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **Inverse Telecine** choices when you select either **PAL** or **SECAM** as the video standard.*

10. Click **Save Settings**.

Audio tab

Figure 102. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list.

IMPORTANT! The audio input must match the source connected on the back of the system and your audio source.

- Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced
2. The default audio **Format** is 48.000 kHz, 16 bit, Stereo.
 3. Click the **Bitrate** from the drop-down list.
 4. The default **Audio Encoder** setting is AAC.

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5. Drag the sliders to change the **Left Volume** and **Right Volume**.
6. (Optional) Select **Mute Audio** to silence the audio.
7. Click **Save Settings**.

Output tab

Figure 103. Output tab

The screenshot shows the 'Output' configuration window. At the top, there are four tabs: 'Video', 'Audio', 'Output' (selected), and 'H.264 Presets'. Below the tabs, the window is divided into two main sections: 'Server Settings' and 'Output To File'.
Server Settings:
 Enable Streaming
 Server Address:
 Stream Name:
 Authentication Type:
 User Name:
 Password:
 Embed System Time as Timecode
 Frame Interval:
Output To File:
 Save to file Create unique filename
 File Name:
 ...
 At the bottom of the window, there are three links: [View All Encoders](#), [Delete This Encoder](#), and [Manage Groups](#). A **Save Settings** button is located in the bottom right corner.

To configure output settings:

1. Select **Enable Streaming** to enable live Flash streaming.
2. Enter the proper IP address or Hostname in the **Server Address** field.
3. Enter the **Stream Name**.
4. Click the **Authentication Type** from the drop-down list. Options are available for streaming directly to Adobe, Akamai, and Limelight CDNs.
5. Enter the **User Name** and **Password**.
6. Select **Enable System Time as Timecode**.
7. Click the **Frame Interval** from the drop-down list.
8. Enable **Save to File** to save the encoded content to a file. Each time you start this encoder, the system overwrites the previous file.

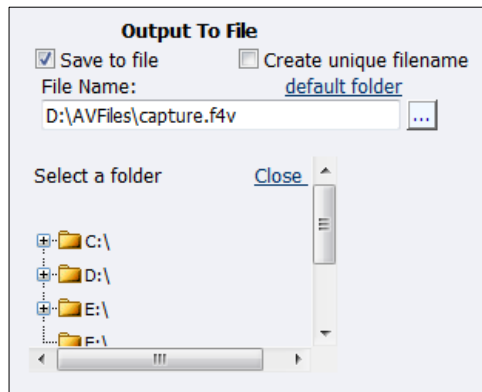
*Note: You must enable either **Enable Streaming** or **Save to File**. If both **Enable Streaming** and **Save to File** are disabled, the encoder will not start and an error is generated.*

9. Select **Create unique file** to create a file that the system does not overwrite.
10. Accept the default location that displays in the **File Name** field or choose your own location for the file. To choose your own personal location select the link (horizontal ellipses or ...) to the right of the **File Name** field and display the options (Figure 104).

Note: By default, the system sets this folder to D:\AVFiles\ with a default filename

of capture.f4v.

Figure 104. Select a folder



WARNING! You can only save media files to drive D. Check drive properties for available free space to determine your storage capacity.

A better practice would be to use the streaming server to save a file or to save it to a remote drive. If you fill all available space, you risk losing your stream during a streaming event.

11. Click **Save Settings**.

H.264 Presets tab

These advanced presets affect the way the encoder performs and if set incorrectly may lead to abnormal encoder operations (Figure 105). Each preset (listed in the drop-down list) contains properties that you can modify. Refer to *Appendix B: H.264 Advanced Settings* for the type of video you are streaming.

Figure 105. H.264 Presets tab

Advanced Encoder Settings

Use this form to optimize the encoder's settings, or select a Custom Preset to use typical settings for your audience.

Custom Presets
Main Profile Default

Property	Value	Min	Max
Edit BFramesMax	0	0	4
Edit GopSize	180	1	4000
Edit GOPSizeMin	25	1	4000
Edit InLoopDeblockingFilterAlpha	0	-6	6
Edit InLoopDeblockingFilterBeta	0	-6	6
Edit LookaheadFrames	40	0	200
Edit NoiseReduction	0	0	1500
Edit QuantizerMax	51	1	51
Edit QuantizerMin	10	1	51
Edit ReferenceFrames	3	0	16
Edit SceneChangeDetectThreshold	60	0	4000
Edit TrellisRDQuantization	0	0	2

Note: Advanced settings affect the Encoder performance and if set incorrectly may lead to abnormal operations. [Restore Defaults](#)

[View All Encoders](#) [Delete This Encoder](#) [Manage Groups](#)

Save Settings

To configure H.264 presets:

1. Click the **Custom Preset** from the drop-down list.
2. Click **Edit** next to the setting you want to modify.

IMPORTANT! These advanced settings affect the way the encoder performs and if set incorrectly may lead to abnormal encoder operations. Refer to Appendix B: H.264 Advanced Settings in for suggested values for the type of video you are streaming.

3. Change the value.
4. Click **Update**.
5. Click the **Restore Defaults** link at the bottom of the window to return the settings to the defaults.

*Note: The database has seven profiles. Clicking **Restore Defaults** for one profile will change all profiles back to the default settings.*

6. Click **Save Settings**.

Editing an MPEG-4 Encoder

To create an encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field.

When you create a new encoder, the Encoder Properties window appears. You must configure the video and audio settings for each encoder type. The Encoder Properties windows for editing a new encoder or an existing encoder are identical.

Use the Video, Audio, Output, H.264 Presets, and MPEG-4 Presets tabs to edit the settings. Begin with configuring the video and audio settings, then the streaming properties. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 106), you can set the encoder to start streaming automatically by clicking the **Auto Start** checkbox. You can also start an encoder from this window by clicking the **Start MPEG4 Encoder** link in the top right corner of the window.

Click **Encoders** > **All Encoders** from the home page. Then select the **Edit** link next to the encoder whose properties you wish to modify. The system displays the Encoder Properties window for the selected encoder.

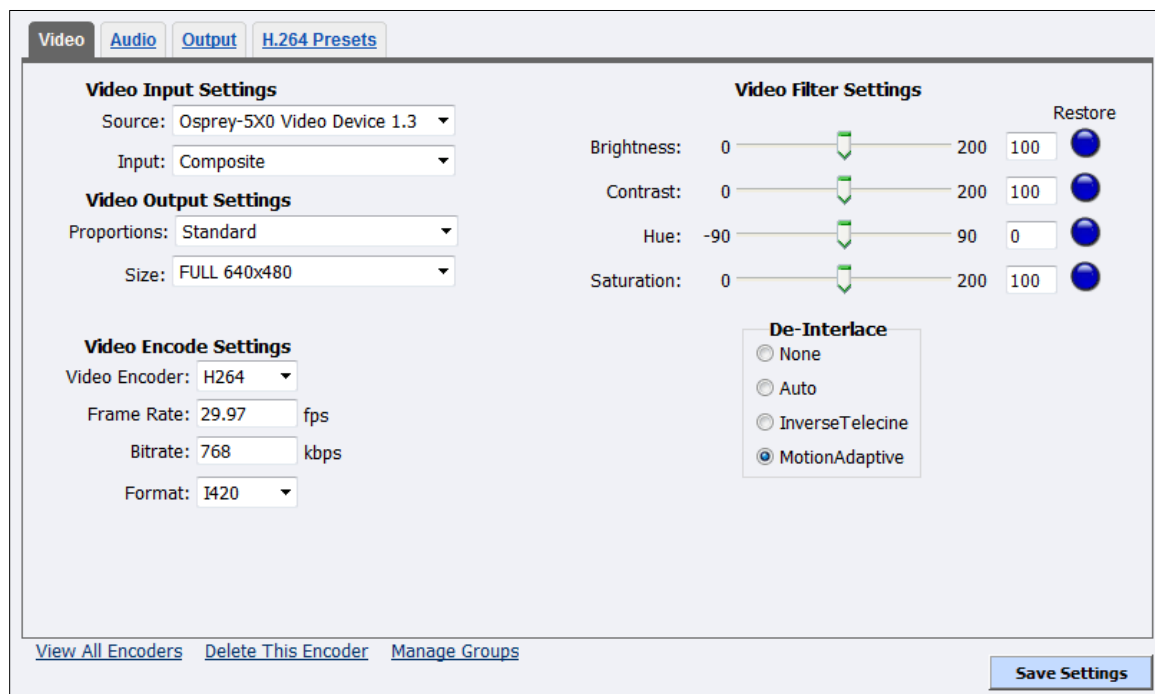
*IMPORTANT! If you make any changes to the Encoder Properties window, you must click **Submit**. Otherwise, all your changes will be lost.*

Figure 106. MPEG-4 Encoder Properties



Video tab

Figure 107. Video tab



To configure video settings:

1. In the **Source** field, click a device from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number "1" denotes the physical input and the decimal ".4" denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4
- Disabled

2. In the **Input** field, select the video input from the drop-down list.
 - Composite
 - SVideo
 - SerialDigital
 - 1394

IMPORTANT! The video input must match the connectors on the back of the system and your video source.

3. The **Proportions** field has two settings:
 - **Standard** – Square pixels for a VGA monitor
 - **CCIR601** – Elongated pixels for a TV monitor

Click the setting that reflects the type of display on which your viewers will view your content. For example, if you want to stream your video on the Internet for the user to view on a computer monitor, select **Standard**. If you select an inaccurate setting, your video will be distorted.

Note: Selecting proportions and video standard settings may change video size selections.

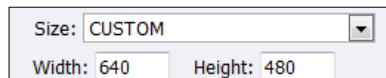
4. In the **Size** field, select the pixel size of the encoded video. The standard sizes include:
 - Full-size for full screen video
 - CIF for video scaled from full-size to ¼ size
 - QCIF for video scaled from full-size to ¼ of CIF size
 - Custom

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

When you click **Custom**, two additional fields (Figure 108) appear so you can enter the exact size you want the resulting video to be.

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

Figure 108. Custom Fields



The image shows a screenshot of a software interface for setting video parameters. It features a 'Size' dropdown menu currently set to 'CUSTOM'. Below this, there are two input fields: 'Width' with the value '640' and 'Height' with the value '480'. The fields are arranged in a grid-like format within a light gray border.

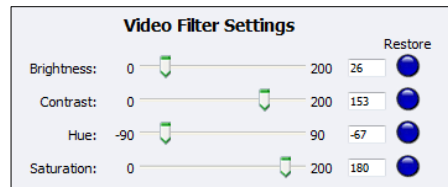
IMPORTANT! Ensure all of the encoders using the same video Proportion and Size settings use the same Video and Audio Source settings. For example, all encoders capturing at Standard proportion and CIF size are set to Osprey-5X0 Video Device 1.1 while encoders capturing at Standard proportion but QCIF resolution are set to Osprey-5X0 Video Device 1.2.

5. Click the type of **Video Encoder** for Internet video, mobile phones, set top boxes, and create media files for other MPEG-4 compatible devices according to the Motion Picture Expert Group (MPEG) types (refer to Table 1 and Table 2).

IMPORTANT! Select the container type (MP4, 3GP, or 3G2) on the Output tab.

6. Enter the frames per second in the **Frame Rate** field.
7. Enter the kilobits per second in the **Bitrate** field.
8. In the **Format** field, indicate the color space format.
9. Drag the sliders to adjust the **Brightness**, **Contrast**, **Hue**, and **Saturation** (Figure 109).

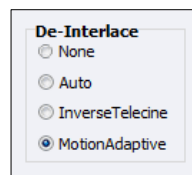
Figure 109. Video Filter Settings



*Note: Click **Restore** to the right of the filter to reset the settings to the default.*

10. Click the **De-Interlace** setting you want to apply (Figure 110). Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **Inverse Telecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **Motion Adaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 110. De-Interlace Settings



*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **Inverse Telecine** choices when you select either PAL or SECAM as the video standard.*

11. Click **Save Settings**.

Table 1. MPEG encoder and container descriptions

MPEG4 – MP4	MPEG-4 Part 2 is for situations where low bit rate and low resolution are mandated by other conditions of the applications, such as network bandwidth or device size. Examples of video applications for MPEG-4 are cell phones, some low-end video conferencing systems, and surveillance systems. MPEG-4 is important for legacy handheld devices that do not support H.264.
H264 – MP4	H.264, MPEG-4 Part 10, or AVC (Advanced Video Coding) was designed for high data compression while maintaining better quality than its predecessor, H.263. It also addresses 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. Niagara SCX’s H.264 is Baseline Profile.
<p>The Third Generation Partnership Project (3GPP) defined 3GP as a multimedia container format for use on 3G mobile phones. It stores video streams such as MPEG-4 or H.264 and audio streams such as AAC.</p> <p>This format has two defined standards:</p> <ul style="list-style-type: none"> • 3GPP for GSM-based mobile phones • 3GPP2 for CDMA-based mobile phones <p>This setting creates an H.263 stream stored in a 3GP container.</p>	
H264 – 3GP	This setting creates an H.264 stream stored in a 3GP container.
H264 – 3G2	This setting creates an H.264 stream stored in a 3G2 container.
MPEG4 – 3GP	This setting creates an MPEG-4 stream stored in a 3GP container.
MPEG4 – 3G2	This setting creates an MPEG-4 stream stored in a 3G2 container.
H263 – 3GP	This setting creates an H.263 stream stored in a 3GP container.
H263 – 3G2	This setting creates an H.263 stream stored in a 3G2 container.

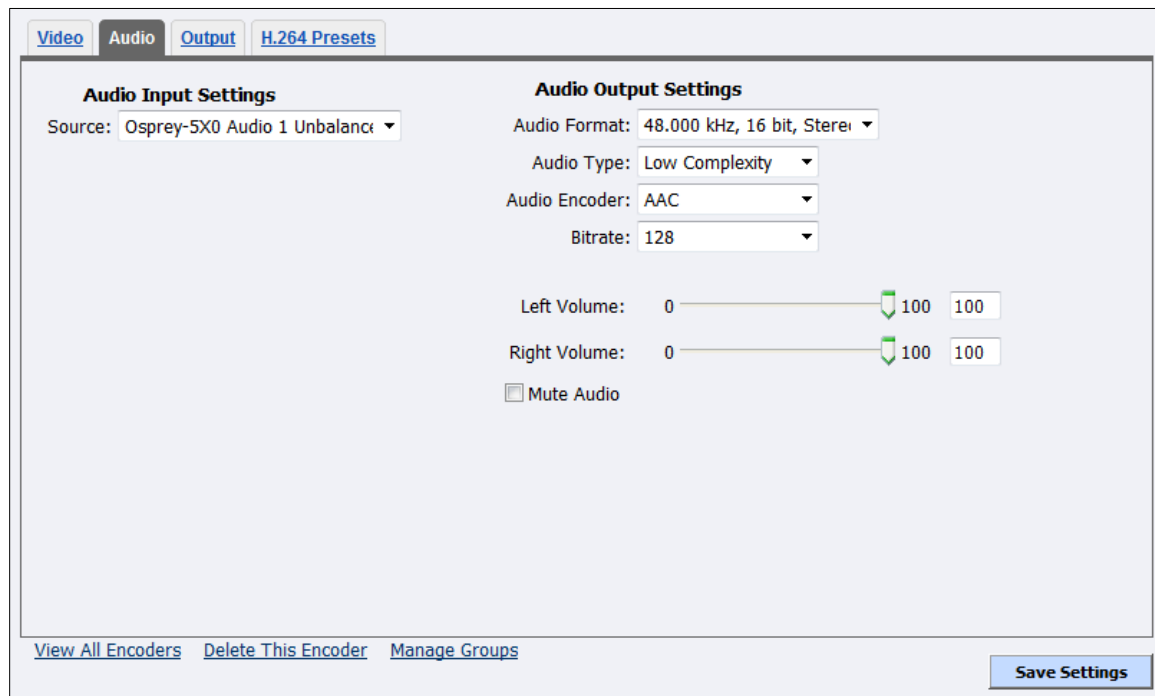
Table 2. Valid output container selections for video encoder types

Container	H.263 Video	MPEG-4 Video	H.264 Video
MP4	N/A	✓	✓
3GP	✓	✓	✓
3G2	✓	✓	✓

IMPORTANT! You must select container type 3GP or 3G2 on the Output tab before video encoder H263 will appear on video tab.

Audio tab

Figure 111. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list:
 - Disabled
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI 1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced
2. Click the **Audio Format** from the drop-down list.
3. Click the **Audio Type**. The drop-down list box provides two choices:
 - **Main** – The same as Low Complexity, but adds backward prediction.
 - **Low Complexity** – The simplest and most widely used AAC audio format type.

Note: Depending on the player on which the resulting stream will be rendered,

either choice will use a specific set of tools to encode the audio stream. Make your choice based on the requirement of the playback software or device. The most widely supported format is the Low Complexity profile.

4. The default **Audio Encoder** is AAC (Advanced Audio Coding) – a standardized, lossy compression and encoding scheme for digital audio. AAC achieves better audio quality than MP3. AAC and MP3 are MPEG standards.
5. Click the **Bitrate** from the drop-down list.
6. Drag the sliders to change the **Left Volume** and **Right Volume**.
7. (Optional) Select **Mute Audio** to silence the audio.
8. Click **Save Settings**.

Output tab

Figure 112. Output tab

The screenshot shows the 'Output' configuration tab. It includes the following settings:

- Server Settings:**
 - Enable Streaming
 - Destination IP: 239.1.1.1
 - Callback IP: 0.0.0.0
 - Video Port: 5050
 - Audio Port: 5052
 - Time to Live: 30
 - Stream Info: Stream Info Here.
 - Stream Title: Streaming Server
 - SDP File: D:\AVFiles\capture.sdp
- Output To File:**
 - Save to file
 - Create unique filename
 - File Name: default folder
 - D:\AVFiles\capture.mp4
 - Container Type: MP4
- SDP Injection Settings:**
 - Enable Injection
 - Server User Name:
 - Server Password:
 - Server SDP File Name: InjectedFile.sdp
 - Server Port Number: 554

At the bottom of the window, there are links for [View All Encoders](#), [Delete This Encoder](#), and [Manage Groups](#), and a **Save Settings** button.

To configure output settings:

1. Click the **Enable Streaming** checkbox to stream your audiovisual content via RTSP.
2. Set the appropriate streaming properties.

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

3. In the **SDP File** field, enter a name and a destination path for the resulting SDP file created when you start the stream. 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.

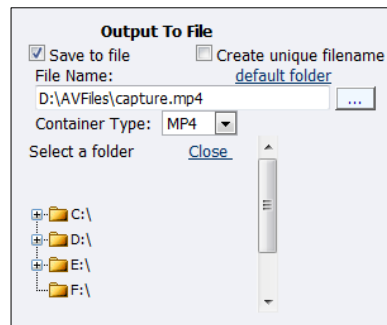
Note: You can stream point-to-point by selecting a share destination directory for the saved SDP file. Remember to disable multicasting by entering in the IP address of the PC to which you want to stream.

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 recommended that you view the stream on the same system as the Niagara SCX encoder unless you have a powerful system (dual-core processors or better). Doing so may overtax the host CPU, which will cause video quality degradation and encode session failure.

4. Select **Save to File** to save the encoded content to a file. Each time you start this encoder, the system overwrites the previous file.
5. Click **Create unique file** to create a file that the system does not overwrite.
6. Accept the default location that displays in the **File Name** field or choose your own location for the file (Figure 113). To choose your own personal location select the link (horizontal ellipses or ...) to the right of the **File Name** field and display the options.

Note: By default, the system sets this folder to D:\AVFiles\ with a default filename of capture.mp4.

Figure 113. Select a folder



WARNING! You can save media files only to drive D. Check drive properties for available free space to determine your storage capacity.

A better practice would be to use the streaming server to save a file or to save it to a remote drive. If you inadvertently fill all available space, you risk losing your stream during a streaming event.

7. Click the **Container Type** (Table 2).
8. Select the **Enable Injection** check box to inject an SDP file onto your server.
9. Enter the username and password.
10. Enter the **Server SDP File Name**.
11. Enter the **Server Port Number**.
12. Click **Save Settings**.

H.264 Presets tab

Figure 114. H.264 Presets tab

Advanced Encoder Settings

Use this form to optimize the encoder's settings, or select a Custom Preset to use typical settings for your audience.

Custom Presets
Main Profile Default

Property	Value	Min	Max
Edit BFramesMax		0	4
Edit GopSize		1	4000
Edit GOPSizeMin		1	4000
Edit InLoopDeblockingFilterAlpha		-6	6
Edit InLoopDeblockingFilterBeta		-6	6
Edit LookaheadFrames		0	200
Edit NoiseReduction		0	1500
Edit QuantizerMax		1	51
Edit QuantizerMin		1	51
Edit ReferenceFrames		0	16
Edit SceneChangeDetectThreshold		0	4000
Edit TrellisRDQuantization		0	2

Note: Advanced settings affect the Encoder performance and if set incorrectly may lead to abnormal operations. [Restore Defaults](#)

[View All Encoders](#) [Delete This Encoder](#) [Manage Groups](#) [Save Settings](#)

To configure H.264 presets:

1. Click the **Custom Preset** from the drop-down list.
2. Click **Edit** next to the setting you want to modify.

IMPORTANT! These advanced settings affect the way the encoder performs and if set incorrectly may lead to abnormal encoder operations. Refer to Appendix B: H.264 Advanced Settings for suggested values for the type of video you are streaming.

3. Change the **Value**.
4. Click **Update**.
5. Click the **Restore Defaults** link at the bottom of the window to return the settings to the default.

*Note: The database has seven profiles. Clicking **Restore Defaults** for one profile will change all profiles back to the default settings.*

MPEG-4 Presets tab

Figure 115. MPEG-4 Presets tab

Advanced Encoder Settings

Use this form to optimize the encoder's settings, or select a Custom Preset to use typical settings for your audience.

Custom Presets
Main Profile Default

Property	Value	Min	Max
Edit BFramesMax	0	0	4
Edit GopSize	85	1	4000
Edit GOPSizeMin	25	1	4000
Edit InterlacedDCTComparison	8	0	14
Edit LookaheadFrames	30	0	200
Edit MotionEstimationComparison	0	0	256
Edit MotionEstimationMethod	5	5	10
Edit MotionEstimationPenaltyCompensation	256	0	256
Edit MotionEstimationSubPixelComparison	0	0	256
Edit MpegQuant	0	0	1
Edit QuantizerMax	31	1	51
Edit QuantizerMin	2	1	51

1 2

Note: Advanced settings affect the Encoder performance and if set incorrectly may lead to abnormal operations. [Restore Defaults](#)

[View All Encoders](#) [Delete This Encoder](#) [Manage Groups](#)

Save Settings

To configure MPEG-4 presets:

1. Click the **Custom Preset** from the drop-down list.
2. Click **Edit** next to the setting you want to modify.

IMPORTANT! These advanced settings affect the way the encoder performs and if set incorrectly may lead to abnormal encoder operations. Refer to Appendix B: H.264 Advanced Settings for suggested values for the type of video you are streaming.

3. Change the **Value**.
4. Click **Update**.
5. Click the **Restore Defaults** link at the bottom of the window to return the settings to the default.

*Note: The database has seven profiles. Clicking **Restore Defaults** for one profile will change all profiles back to the default settings.*

Editing a Microsoft® Windows Media encoder

To create an encoder, **Encoders** > **All Encoders** > **Create New Encoder** link > **Encoder Name** field.

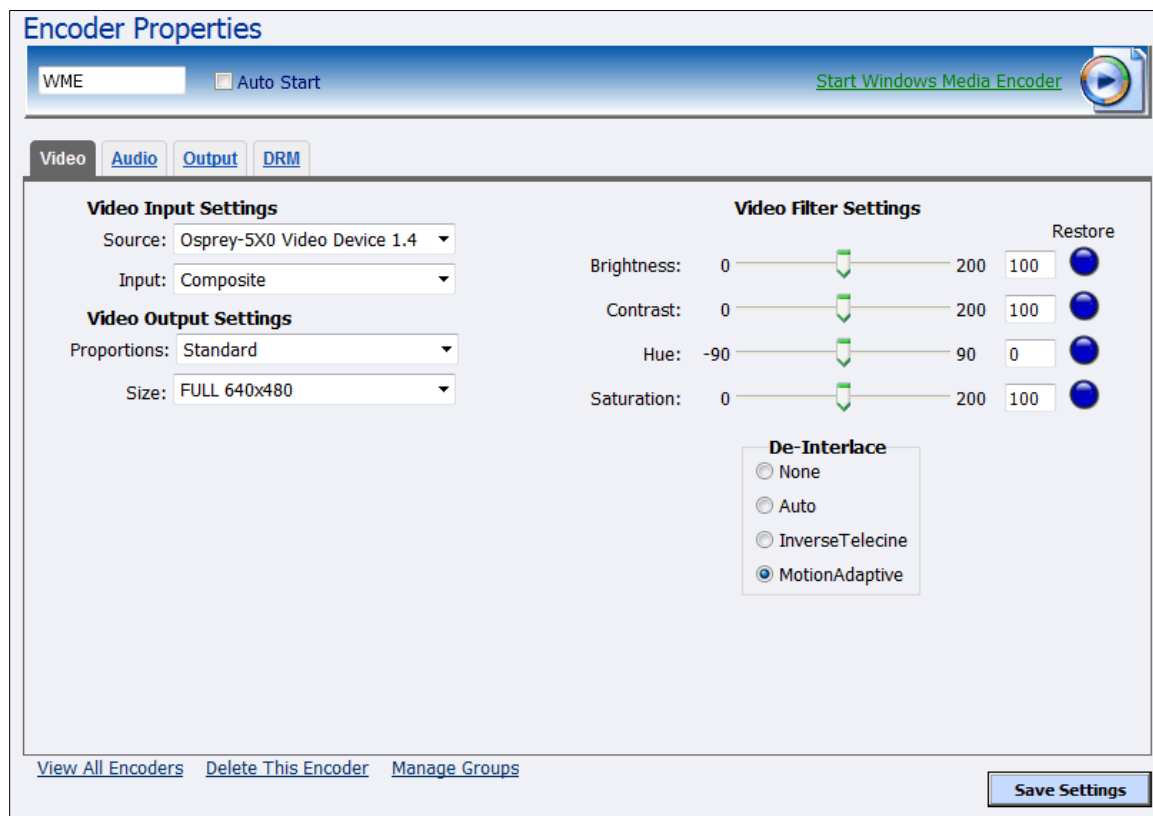
When you create a new encoder, the Encoder Properties window appears. The Encoder Properties windows for editing a new encoder or an existing encoder are identical. You must configure the video and audio settings for each encoder type.

Use the Video, Audio, Output, and DRM tabs to edit the settings. Begin with configuring the Video and Audio tabs. The server and destination settings are different for each type of encoder.

From the Encoder Properties window (Figure 116), you can set the encoder to start streaming automatically by selecting the **Auto Start**. You can also start this encoder from this window by clicking the **Start Windows Media Encoder** link at the top right corner of the window.

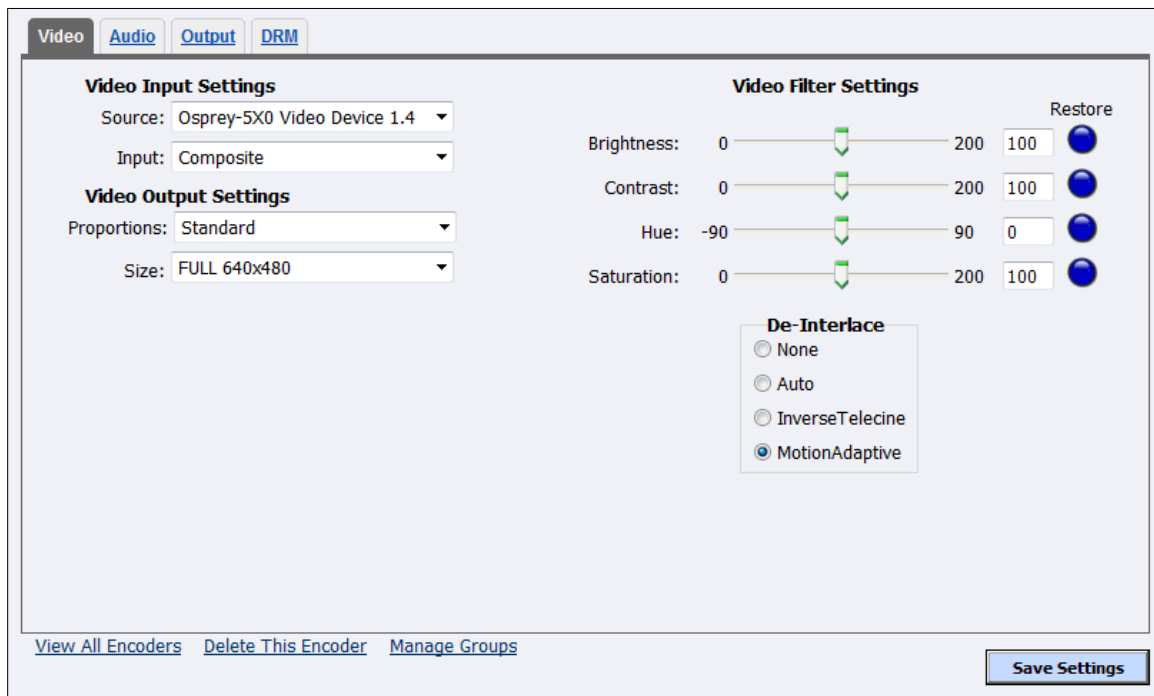
***IMPORTANT!** If you make any changes to the Encoder Properties window, you must click **Save Settings**. Otherwise, all your changes will be lost.*

Figure 116. Windows Media Encoder properties



Video tab

Figure 117. Video tab



To configure video settings:

1. In the **Source** field, select a device from the drop-down list.

Note: Because the Niagara Pro II is a two-channel encoder, you can capture from two independent audio and video sources at any given time. However, you can also capture multiple streaming formats and resolutions simultaneously from the same video source.

The video source can be initialized into multiple inputs denoted below. The whole number denotes the physical input and the decimal denotes the virtual input. For example for device 1.4, the whole number "1" denotes the physical input and the decimal ".4" denotes the virtual input. The audio input is tied to the physical channel and must be the same for all virtual inputs for the corresponding physical channels.

- Osprey-5X0 Video Device 1.1
- Osprey-5X0 Video Device 1.2
- Osprey-5X0 Video Device 1.3
- Osprey-5X0 Video Device 1.4
- Osprey-5X0 Video Device 2.1
- Osprey-5X0 Video Device 2.2
- Osprey-5X0 Video Device 2.3
- Osprey-5X0 Video Device 2.4
- Disabled

2. In the **Input** field, select the video input:

- Composite
- SVideo
- SerialDigital
- 1394

IMPORTANT! The video input must match the source connected on the back of the system and your video source.

3. The **Proportions** field has two settings:

- **Standard** – Square pixels for a VGA monitor
- **CCIR601** – Elongated pixels for a TV monitor

Click the setting that reflects the type of display on which your viewers will view your content. For example, if you want to stream your video on the Internet for the user to view on a computer monitor, select **Standard**. If you select an inaccurate setting, your video will be distorted

4. In the **Size** field, select the pixel size of the encoded video. The standard sizes include:

- Full-size 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
- Custom

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

When you click **Custom**, two additional fields appear so you can enter the exact size you want the resulting video to be (Figure 118).

*Note: The size in the **Width** and **Height** fields must be divisible by 2.*

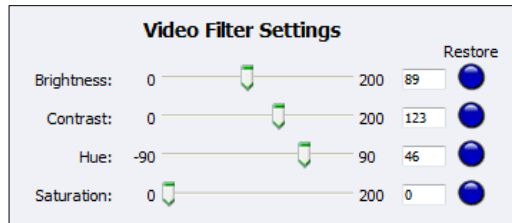
Figure 118. Custom Fields

The image shows a software interface for video settings. At the top, there is a dropdown menu labeled 'Size' with 'CUSTOM' selected. Below this, there are two input fields: 'Width: 640' and 'Height: 480'. The fields are arranged horizontally.

*IMPORTANT! Ensure all of the encoders using the same video **Proportion** and **Size** settings 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.*

5. Drag the sliders to adjust the **Brightness, Contrast, Hue, and Saturation**.

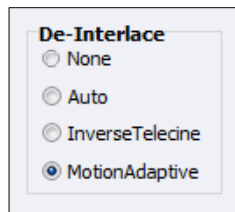
Figure 119. Video Filter Settings



*Note: Click **Restore** to the right of each field to return the setting to the default.*

6. Click the **De-Interlace** settings you want to apply (Figure 120). Options include:
 - **None**
 - Performs no de-interlacing of any kind.
 - **Auto**
 - Applies inverse telecine de-interlacing to all telecine video.
 - Applies motion adaptive de-interlacing to all video that is not telecine.
 - Switches dynamically between the two modes as the content changes.
 - Available for NTSC video only.
 - **Inverse Telecine**
 - Drops the redundant fields and reassembles the video in a 24 fps progressive format.
 - Applies inverse telecine de-interlacing to all telecine video.
 - Performs no de-interlacing of video that is not telecine.
 - Available for NTSC video only.
 - **Motion Adaptive**
 - Is an algorithm for de-interlacing pure video (non-telecine) content.
 - Applies motion adaptive interlacing to all video. It detects which portions of the image are still and which portions are in motion then applies different processing to each scenario.

Figure 120. De-Interlace Settings

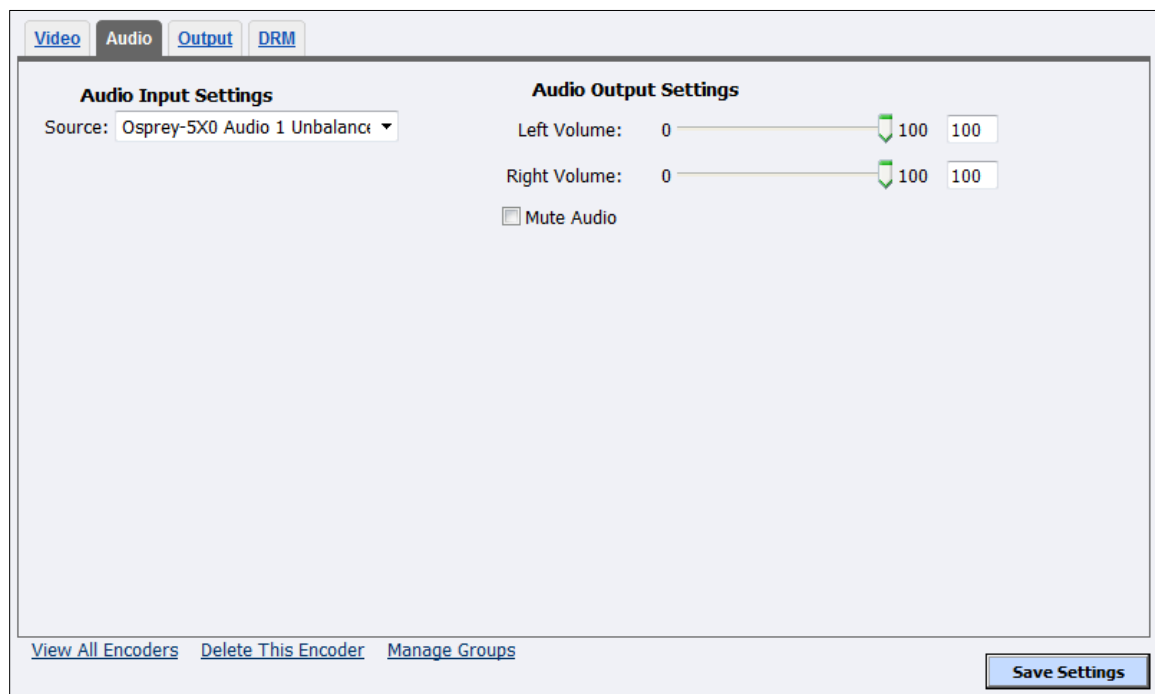


*Note: Telecine and inverse telecine only apply to NTSC video. They are not used for PAL and SECAM video. The system disables **Auto** and **Inverse Telecine** choices when you select either **PAL** or **SECAM** as the video standard.*

7. Click **Save Settings**.

Audio tab

Figure 121. Audio tab



To configure audio settings:

1. In the **Source** field, select an audio source from the drop-down list.
 - Disabled
 - Osprey-5X0 Audio 1 AES/EBU
 - Osprey-5X0 Audio 1 Balanced
 - Osprey-5X0 Audio 1 DV-1394
 - Osprey-5X0 Audio 1 SDI-1/2
 - Osprey-5X0 Audio 1 SDI-3/4
 - Osprey-5X0 Audio 1 Unbalanced
 - Osprey-5X0 Audio 2 AES/EBU
 - Osprey-5X0 Audio 2 Balanced
 - Osprey-5X0 Audio 2 DV-1394
 - Osprey-5X0 Audio 2 SDI-1/2
 - Osprey-5X0 Audio 2 SDI-3/4
 - Osprey-5X0 Audio 2 Unbalanced
2. Drag the sliders to adjust the **Left Volume** and **Right Volume**.
3. (Optional) Select **Mute Audio** to silence audio.
4. Click **Save Settings**.

Output tab

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.

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

When streaming audio and video, the two methods of delivery are pull and push.

Pull method

In the pull method, the system 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. You should only use this method if the encoder and server reside within the same network firewall.

To enable clients to pull the stream from the system, set up a session and begin broadcasting directly from the system. Clients (Windows Media servers or players) can connect to the stream at any time. You can use mms or http scheme with either the IP address or DNS host name. For example:

```
http://encoding_computer_name:port
```

Push method

With the push method, the system maintains a secure connection to Windows Media Server. This connection allows it to pass a user name and password to authenticate access to the server. You can use mms or http scheme to connect. For example:

```
http://IP_address:port/publishing point
```

By default, the system supports up to 50 direct connections during a broadcast, but if you're sending to a lot of clients, push to Windows Media Server. Use the pull method for testing. Use the push method for a wide distribution.

Note: The more direct connections to the system, the more system resources are required. ViewCast does not recommend directly connecting players to the system. Streaming servers should connect to the system and, in turn, players should connect to the servers.

Figure 122. Output tab

To configure output settings:

1. Click on a **Windows Media Capture Profile**.
2. Select **Enable Pull**.
3. Enter a port number that the server will use to pull the stream.
4. Select **Enable Push**.

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

5. Enter a port number that the client will use to push the stream.
6. Enter the **Server** name or IP address.
7. Enter the **User Name**.
8. Enter the **Password**.
9. Select **Enable Scripting** to embed closed captions.

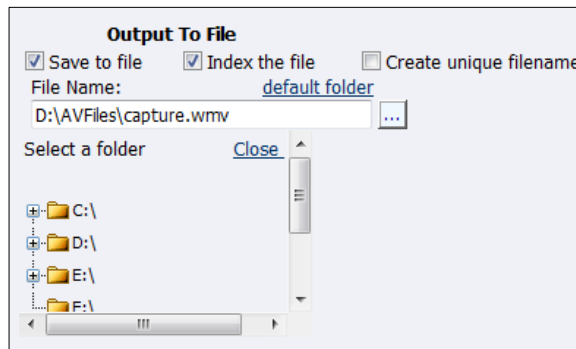
Note: If you enable closed captions through the Osprey driver, you cannot enable scripting.

10. You can either:
 - Select **Save to File** to save the encoded content to a file. Each time you start this encoder, the system overwrites the previous file.
 - Select **Index the file** to drag the slider to any point in your video capture.
 - Select **Create unique file** to create a file that the system does not overwrite.

11. Accept the default location that displays in the **File Name** field or choose your own location for the file. To choose your own personal location select the link (horizontal ellipses or ...) to the right of the **File Name** field and display the options (Figure 123).

Note: By default, the system sets this folder to D:\AVFiles\ with a default filename of capture.wmv.

Figure 123. Select a folder



WARNING! You can save media files only to drive D. Check drive properties for available free space to determine your storage capacity.

A better practice would be to use the streaming server to save a file or to save it to a remote drive. If you inadvertently fill all available space, you risk losing your stream during a streaming event.

12. Click **Save Settings**.

DRM tab

You can protect your content 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 are required to obtain a license to play to content. This license contains the key to unlock the content and the rights that govern its use (Figure 124).

Refer to *Appendix A* on how to set up and import a DRM profile.

Figure 124. DRM tab

The screenshot shows the DRM Settings tab with the following elements:

- Navigation tabs: Video, Audio, Output, **DRM**
- Section: **DRM Settings**
- Enable DRM:
- Profile: None (dropdown menu)
- Description: None
- Key: N/A
- Note: Changing the capture profile may change the current video height/width settings as well as the audio/video input capture selection.
- Footer links: [View All Encoders](#), [Delete This Encoder](#), [Manage Groups](#)
- Save Settings button

To configure DRM settings:

1. Select **Enable DRM**.
2. Click the DRM **Profile** you wish to apply from the drop-down list.

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

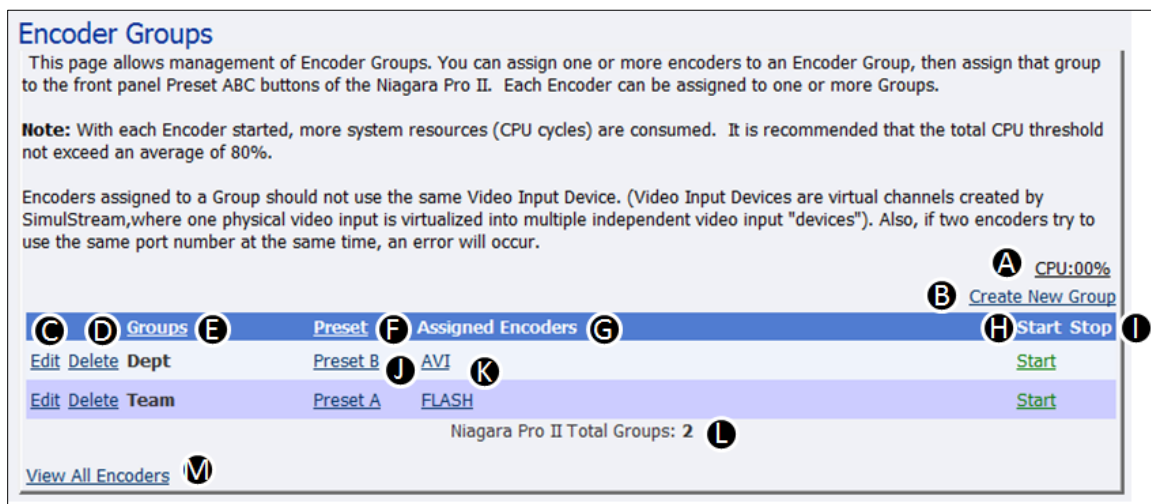
3. Click **Save Settings**.

Viewing encoder groups

Encoder groups represent the cornerstone for streaming on the Niagara system. The system comes with five default encoders and one profile for each encoder type. You must have at least one group assigned on the system and one encoder profile assigned to that group. The **Stream** button on the system remains unusable until you have this minimum configuration. You must create a group with at least one encoder before assigning it to a preset button.

The **Encoder Groups** window (Figure 125), a subset of **Encoders** (on the Encoders window), allows you to view the list of encoder groups available for assignment to the Niagara Pro II. Click **Encoders** > **Groups** from the menu bar on the home page.

Figure 125. Encoder Groups fields



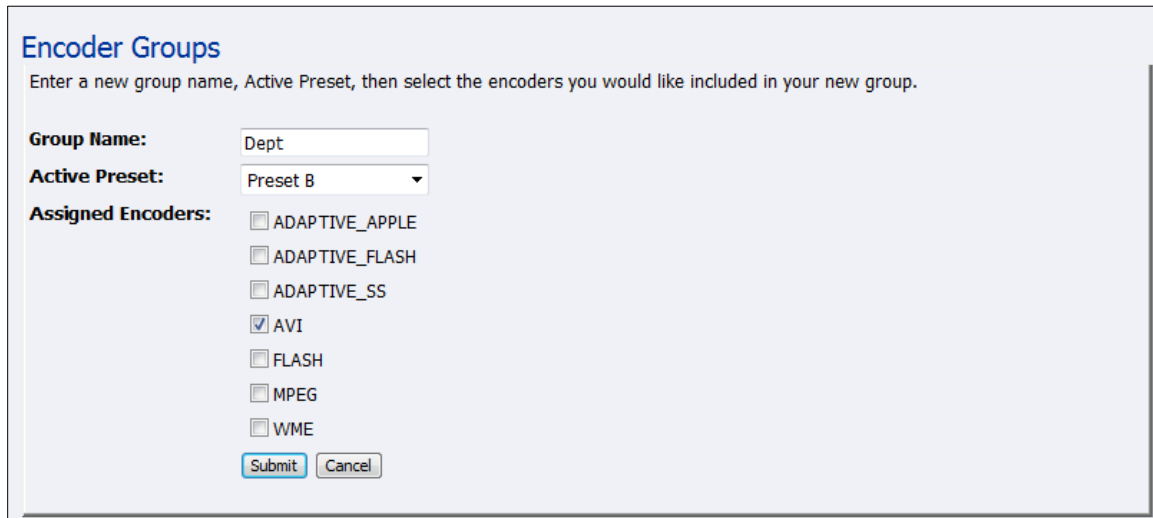
A	Indicates the CPU usage.
B	Allows you to create a new group.
C	Allows you to edit a group.
D	Allows you to delete a group.
E	Displays the name of the group.
F	Indicates which preset button is assigned to this group.
G	Indicates the encoders assigned to this group.
H	Allows you to start this group.
I	Allows you to stop this group.
J	Click this link to access the Encoder Group for this preset button.
K	Click this link to access the Encoder Properties window for this encoder.
L	Indicates the total number of groups on the Niagara Pro II.
M	Click this link to access the Encoders window.

Creating encoder groups

If two encoders try to use the same port number at the same time, an error will occur.

Select the **Create New Group** link on the **Encoder Groups** window. The encoder groups fields display (Figure 126).

Figure 126. Encoder Groups fields



The screenshot shows a window titled "Encoder Groups" with a light blue header. Below the title is a subtitle: "Enter a new group name, Active Preset, then select the encoders you would like included in your new group." The form contains three main sections: "Group Name:" with a text input field containing "Dept"; "Active Preset:" with a dropdown menu showing "Preset B"; and "Assigned Encoders:" with a list of checkboxes. The checkboxes are: ADAPTIVE_APPLE (unchecked), ADAPTIVE_FLASH (unchecked), ADAPTIVE_SS (unchecked), AVI (checked), FLASH (unchecked), MPEG (unchecked), and WME (unchecked). At the bottom of the form are two buttons: "Submit" and "Cancel".

To create encoder groups:

1. Enter the name of the group.
2. Click on the preset button you want to assign to this encoder group.
3. Click on the encoders you want to assign to the group.
4. Click **Submit**.

Note: It is possible to assign an encoder to two different encoder groups.

Starting an encoder group

To start an encoder group, click the **Start** link to the right in the **Start** column of the group you want to start. The encoder group will start in a few seconds. The system displays any errors on the Starting window while the group starts.

Note: With each encoder started, more system resources (CPU cycles) are consumed. It is recommended that the total CPU threshold not exceed an average of 80 %. Refer to the Checking CPU usage section.


Stopping an encoder group

To stop an encoder group, click the **Stop** link to the right in the **Stop** column of the group you want to stop. The encoder group will stop in a few seconds. The system displays any errors on the Stopping window while the group stops.

Editing encoder groups

Select the **Edit** link on the **Encoder Groups** window. The encoder group fields display (Figure 127).

Figure 127. Encoder Groups



The screenshot shows the Niagara Pro II web interface. At the top, there is a navigation bar with the following links: Home, Encoders, Configuration, Status, and Log Out. The main content area is titled "Encoder Groups" and contains the following fields and options:

- Group Name:** A text input field containing the text "Dept".
- Active Preset:** A dropdown menu currently set to "Preset B".
- Assigned Encoders:** A list of checkboxes for selecting encoders:
 - ADAPTIVE_APPLE
 - ADAPTIVE_FLASH
 - AVI
 - FLASH
 - MPEG
 - WME

At the bottom of the form are two buttons: "Submit" and "Cancel".

To edit encoder groups:

1. Enter the name of the group.
2. Click on the preset button you want to assign to this encoder group.
3. Click on the encoders you want to assign to the group.
4. Click **Submit**.

Configuring the Preset ABC buttons

The Niagara streaming media system provides one-button streaming via the Preset ABC buttons located on the front panel of the system. By default, these buttons are not assigned. Use the web interface to configure or preset each button to a specific encoder. (A preset is a quick way to select and stream a group of encoder profiles.) Before you can configure the Preset ABC buttons, you need to configure groups. The controls to configure these buttons are on the **Encoder Preset A**, **Encoder Preset B**, and **Encoder Preset C** windows. Each window shows a graphic representation of the front panel of the Niagara Pro II.

If you previously assigned an encoder to a letter and you attempt to assign it to another letter, the Niagara Pro II will remove the association to the previous button in favor of the most current request. An **Edit Encoder** link appears next to the **View All Encoders** link at the bottom of the window if an encoder is assigned to this button.

To begin configuring the Preset ABC buttons, on the home page click **Encoders** > **Preset A**. The **Encoder Group Preset A** window appears.

Figure 128. Encoder Group Preset A

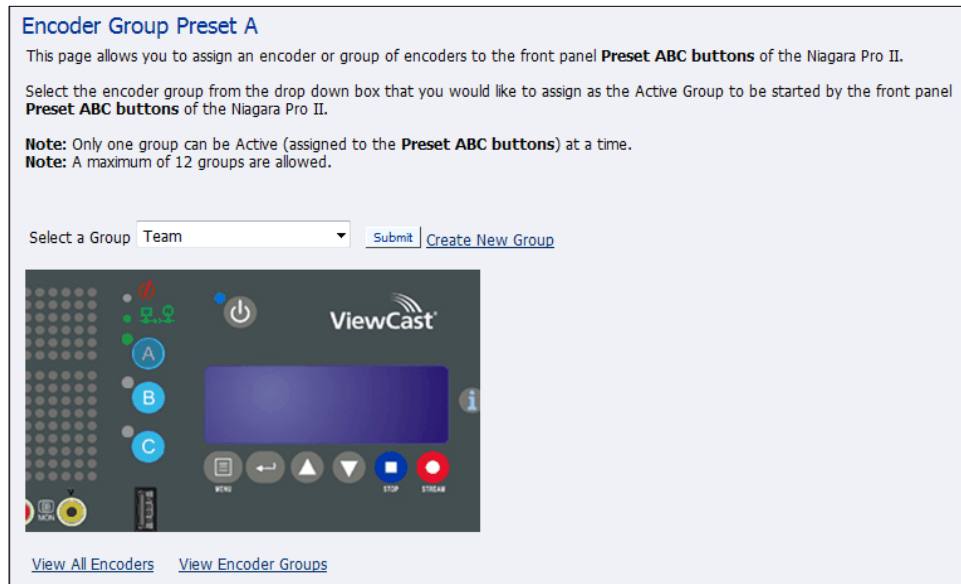


To assign Preset A:

1. Click the drop-down list in the **Select a Group** field. A complete list of all groups available appears.
2. Select a group.
3. Click **Submit**.

The **Encoder Preset A** window updates with the encoder information.

Figure 129. Select a Group



Note: The A button in the graphic is highlighted to show an encoder is assigned to this button.

4. Repeat steps one through three to set an encoder for the B and C buttons.

Using Preset ABC buttons to start an encoder group

Use the **ABC** preset buttons on the front panel to start the assigned encoder group.

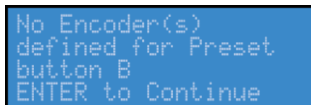
To use preset buttons to start encoding:

1. Press the **A**, **B**, or **C** button on the front panel.
2. Press **Stream** to start encoding. The indicator light next to the preset button displays to indicate a positive video stream and the audio meters display to indicate positive audio tracking.

WARNING! Limitations exist for the number of streams you can encode simultaneously. If you attempt to encode more streams than the system can process simultaneously, the streams drop frames and the video stutters. This results in a poor viewer experience. If you fail to reduce the number of sessions to reduce CPU load, unexpected system behavior can occur.

3. If you press a Preset button and no encoder groups are assigned to this button, the no encoders screen appears (Figure 130).

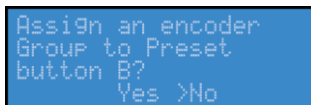
Figure 130. No Encoders Screen



```
No Encoder(s)
defined for Preset
button B
ENTER to Continue
```

Press **Enter**. The assign an encoder screen appears (Figure 131).

Figure 131. Assign an Encoders Screen

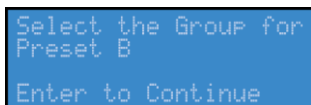


```
Assign an encoder
Group to Preset
button B?
Yes >No
```

Note: You must define encoder groups before you can assign them to a Preset button.

4. Use the **Up** and **Down** arrows to select **Yes**.
5. Press **Enter**. The select group screen appears (Figure 132).

Figure 132. Select Group Screen



```
Select the Group for
Preset B
Enter to Continue
```

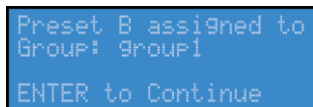

- Press **Enter**. A screen with the list of available groups appears (Figure 133).

Figure 133. Group Screen



- Use the **Up** and **Down** arrows to select the appropriate group.
- Press **Enter**. A confirmation screen appears (Figure 134).

Figure 134. Confirmation Screen

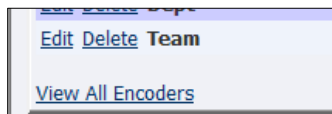


- Press **Enter**. A group is now assigned to the Preset button.

Viewing all encoders

After assigning encoder profiles to the **Preset ABC** icons, the system updates the **Preset** column on the Encoder window to reflect these changes. To view these changes, click the **View All Encoders** link at the bottom of the Encoder Groups window (Figure 135).

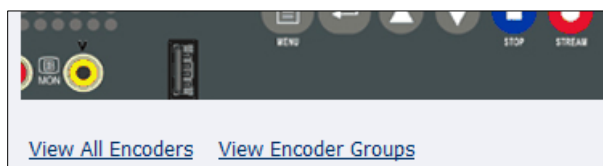
Figure 135. View All Encoders



Editing preset encoders

After assigning encoder profiles to the **A, B, and C** buttons, you can access the Encoder Properties window by clicking on the **View All Encoders** link at the bottom of the **Preset** window (Figure 136).

Figure 136. Editing Preset Encoders



Configuring machine properties

The **Machine Properties** window (Figure 137) provides details on software versions, network name, serial number, and hard drive configurations. Click **Configuration** ➤ **Niagara Pro II Properties** from the menu bar on the home page.

Figure 137. Machine Properties



Most of the data on this window provides information only and users cannot alter it. However, you can modify two fields:

- Computer Name
- Admin password

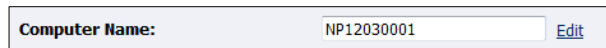
Changing computer name

The **Computer Name** field contains the current network name for the Niagara system. This name is the same name you typed into the web browser to access the Niagara SCX web interface.

To change the computer name:

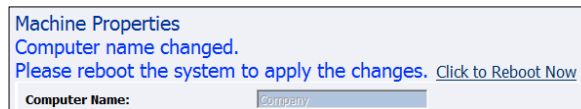
1. Click the **Edit** link next to the **Computer Name** field (Figure 138).

Figure 138. Computer Name Field



2. The screen refreshes and the **Computer Name** field becomes an editable text field. Type in a new name for the system.
3. Click **Submit** at the bottom of the page.

Figure 139. Reboot Message



Note: The page refreshes, and the system prompts you to reboot the system. Your changes do not take effect until the system restarts (Figure 139).

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

Note: The restart process takes approximately two minutes to complete.

*When the system restarts, use the new system name in the IE browser URL to return to the **Login** window.*

If you close your web browser and later want to log into the web interface, you must use the new computer name you created or the IP address of the system to access it.

Changing the login password from the factory default

The Niagara Pro II Properties section has two fields: **User Name** and **Serial Number**. Only the **User Name** field can be changed, which changes the **User Password** from the factory default (Figure 140).

Figure 140. Properties Section

Niagara Pro II Properties:	
User Name:	admin
Serial Number:	NP12030001

To change Login password:

1. Click the [admin](#) link in the **User Name** field.

Note: The system displays a new window (Figure 141) that allows you to change your login password for the web interface.

Figure 141. Password Change Window

The screenshot shows a web browser window titled "Niagara Pro II" with the ViewCast logo in the top right. The main content area displays the text "Change your password for the Niagara Pro II web login." Below this, a message states "Passwords are case sensitive". A modal dialog box titled "Change Your Password" is open, containing four input fields: "User Name" (with "admin" entered), "Password", "New Password", and "Confirm New Password". At the bottom of the dialog are "Change Password" and "Cancel" buttons. Below the dialog, there is a "Back to home page" link.

*Note: You cannot change the **User Name** for the web interface from this window.*

2. Type your current password in the **Password** field. Continue by typing your desired new password in both the **New Password** and **Confirm New Password** fields. The web interface password is case sensitive.
3. Click the **Change Password** button. The system displays a confirmation page. You must log back into the web interface with your password.

Restoring the login password to the factory default

If you forget or lose your password, you can restore the default password by running the **Restore Niagara Pro II Factory Defaults** option. For more information, see *Restore Niagara Pro II Factory Defaults* in the *System Configuration* section later in this chapter.

Configuring alerts

Click **Configuration** > **Alerts** from the menu bar on the home page. The Alerts Window (Figure 142) allows you to configure alerts for different situations that may occur during streaming or other operations.

Figure 142. Alerts fields

Niagara Pro II ViewCast

Home Encoders Configuration Status Log Out

Alerts

This page allows you to control how Niagara Pro II handles application alerts that may occur during streaming or normal operations. Niagara Pro II can optionally send an email for each condition selected below.

Warning!!! Email Configuration is incomplete. Click to see the Niagara Pro II [Email address](#). **A**

Niagara Pro II Alerts			
Send Email	Light Alarm	Displayed Text	Description
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	System Error E	The Niagara Pro II has encountered a system error F
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Encoder Error D	An Encoder has failed to start or stop due to an error in the encoder profile
<input type="checkbox"/>	<input type="checkbox"/>	Encoder Started	Encoder has been started on the Niagara Pro II
<input type="checkbox"/>	<input type="checkbox"/>	Encoder Stopped	Encoder has been stopped on the Niagara Pro II
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Niagara SCX Service Stopped	The Niagara SCX Streaming service has stopped, streaming disabled.
<input type="checkbox"/>	<input type="checkbox"/>	Niagara SCX Service Started	The Niagara SCX Streaming service has started, streaming available.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	High Temperature	A high temperature condition exists!

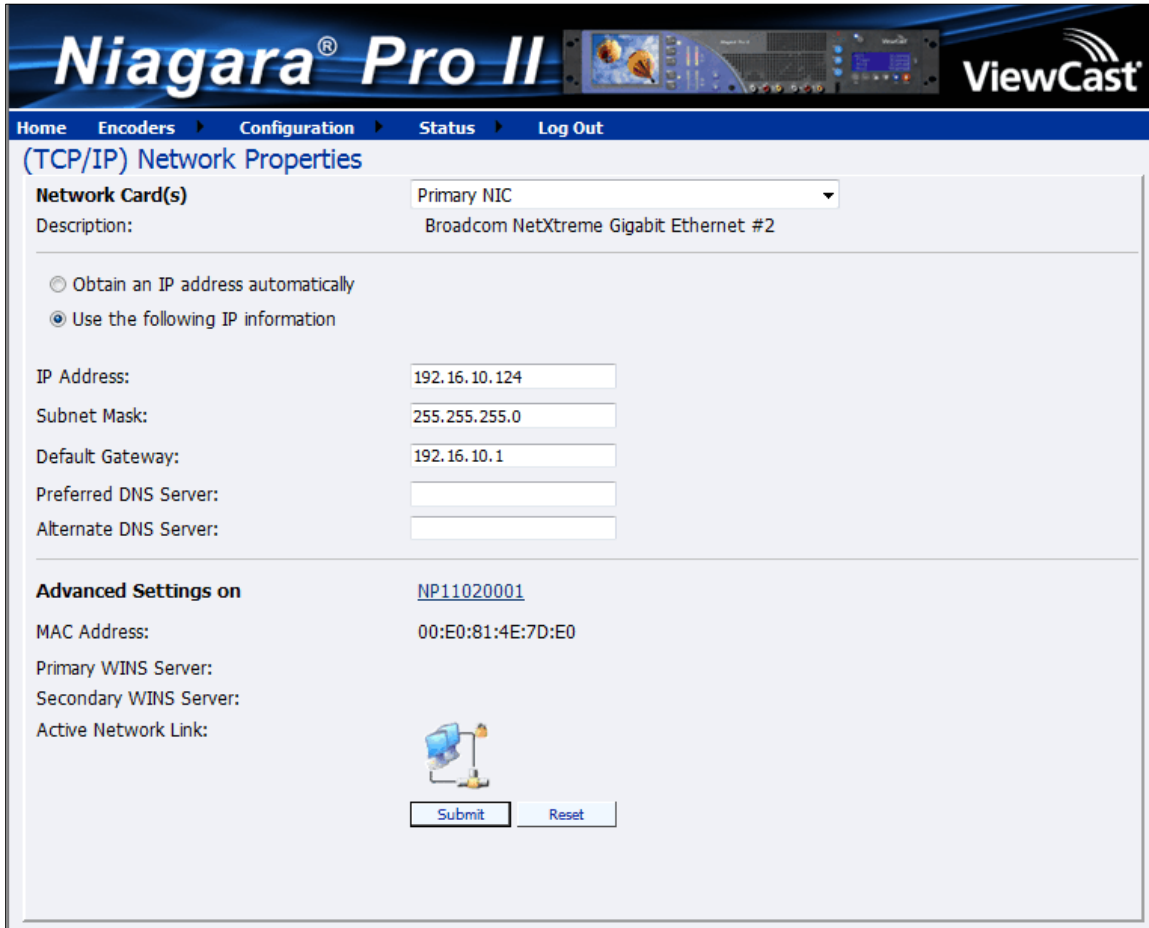
To configure alerts:

A	Click this link to configure email settings on the System Configuration Settings window.
B	Click the Edit link next to the alert you want to change settings on.
C	Click the Send Email checkbox to send an email to multiple recipients should an alarm occur. <i>Note: You can optionally send an email alert to specific email address in the event of an application alarm. You must specify the email address where you want an alert sent, along with your email server user name, password, and server name. For more information about configuring the system to send email alerts, see the System Configuration section.</i>
D	Select Light Alarm . The alarm light on the front panel of the system will automatically light when an alarm condition exists.
E	Displays the type of alert.
F	Provides a description of the type of alert.

Configuring network properties

The **Network Properties** window (Figure 143) provides detailed information on the current network settings for the Niagara Pro II **Network Cards**. Click **Configuration** > **Network Properties** from the menu bar on the home page.

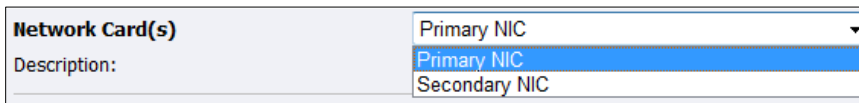
Figure 143. Network Properties Window



Configuring network card(s)

The Niagara Pro II has two Gigabit network connections available on the Network Properties window, **Network Card(s)** field). Select the card you wish to view from the drop-down menu in the **Network Card(s)** field (Figure 144) to view the current properties for each card.

Figure 144. Network Card Options



Configuring IP address

Depending on your system configuration, you may need to configure the **IP Address** (Figure 145).

Figure 145. IP Address

Obtain an IP address automatically
 Use the following IP information

IP Address:
 Subnet Mask:
 Default Gateway:
 Preferred DNS Server:
 Alternate DNS Server:


To configure IP Address:

1. Click the **Use the following IP information** checkbox.
2. Enter the appropriate information in the **IP Address**, **Subnet Mask**, **Default Gateway**, **Preferred DNS Server** and **Alternate DNS Server** fields.
3. Click **Submit**.

Configuring advanced network settings



Advanced network settings provides the network name, MAC Address, and server IP address settings (Figure 146).

Figure 146. Advanced Settings

Advanced Settings on [NP11020001](#)
 MAC Address: 00:E0:81:4E:7D:E0
 Primary WINS Server:
 Secondary WINS Server:
 Active Network Link: 

The network name (**NP11020001**) is a link. If you click this link, the system transfers you to the Machine Properties window. From this window, you can change the name of the system.

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

	The system detects the network link.
	The system does <i>not</i> detect the network link.

System configuration settings

The **System Configuration Settings** window (Figure 147) allows you to modify your default system settings. You can configure email settings to enable the system to send an email to predefined email addresses any time the encoder encounters an alert condition. You can also customize the information the system displays on its front panel when the system is in idle mode.

This window also allows you to restore your system to its original factory disk image and return all the system settings to their original states. Using the **Restore Niagara Pro II Factory defaults** option removes all custom settings. It takes approximately 15 to 40 minutes to complete.

Click **Configuration** > **System Configuration** from the menu bar on the home page.

Figure 147. System Configuration Settings

The screenshot shows the 'System Configuration Settings' web page for Niagara Pro II. The page has a blue header with the 'Niagara Pro II' logo and 'ViewCast' branding. A navigation bar includes 'Home', 'Encoders', 'Configuration', 'Status', and 'Log Out'. The main content area is titled 'System Configuration Settings' and includes a brief description: 'This page allows you to modify your Niagara Pro II default system settings. Enter valid email settings to have Niagara Pro II send emails for alert conditions.' A link for 'Restore Niagara Pro II Factory defaults' is located in the top right.

Current System Configuration:

- Current Time: Hour 2, Minutes 51, PM. [Change Date: 1/13/2011](#)
- Video Standard: NTSC for all Encoders.

Email Settings:

- Send Emails To: [text input]
- Email From: [text input]
- Subject: System Status Report on NP11020001

SMTP (Mail) Settings:

- User Name: [text input]
- Password: [text input]
- SMTP Host: [text input] [Save and Send Test Email](#)

Idle Screen Information:

Cycle this information in the display when Niagara Pro II is idle.

- Active IP
- Computer Name
- CPU
- Memory
- Hard Drive
- Temperature

Idle Screen text: Note: Each line in the display is 20 characters.

- System is Ready Line 1
- Line 2
- Line 3
- Line 4

Default AV Folder: D:\AVFiles [Browse](#) Apply folder to all encoders.

High Temperature Alert: 60 degrees Celsius. ([View Alert Configuration](#)) [Generate Test Alert](#)

Encoder Startup Settings:

- CPU Threshold: Start an Encoder when the CPU is below Disabled % Optional settings
- CPU Threshold Timeout: Wait 5 seconds for the CPU to fall below the threshold before starting encoders.

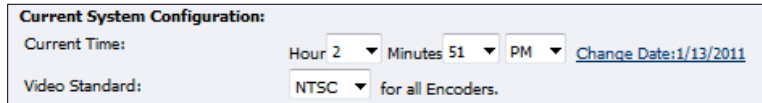
SimulStream Settings: Show 4 filters per video device.

[Submit](#)

Setting current system configuration

You can set the current time, date, and the video standard for all encoders (Figure 148).

Figure 148. Current System Configuration



The screenshot shows a web form titled "Current System Configuration". It contains two rows of controls. The first row is labeled "Current Time:" and includes three dropdown menus: "Hour" with the value "2", "Minutes" with the value "51", and "PM". To the right of these is a blue hyperlink labeled "Change Date:1/13/2011". The second row is labeled "Video Standard:" and includes a dropdown menu with the value "NTSC" and the text "for all Encoders." to its right.

To set current time:

1. Click the **Hour** in the drop-down list.
2. Click the **Minutes** in the drop-down list.
3. Click **AM** and **PM** in the drop-down list.
4. Click the **Change Date** link. A calendar appears.
5. Click the date on the calendar.
6. Click the **Video Standard** from the drop-down list.
7. Click **Submit**.

Configuring email/SMTP settings

Figure 149. Email/SMTP Settings Fields

The screenshot shows a configuration window with the following fields and content:

- Email Settings:**
 - Send Emails To: [Empty text box]
 - Email From: [Empty text box]
 - Subject: System Status Report on NP11020001
- SMTP (Mail) Settings:**
 - User Name: [Empty text box]
 - Password: [Empty text box]
 - SMTP Host: [Empty text box]

A button labeled "Save and Send Test Email" is positioned at the bottom right of the form area.

To configure email settings:

1. Enter the email address you want the system to send the email. Separate multiple email addresses with a comma.
2. Enter a valid originating email address.
3. Enter a subject line for your email alert.

To configure SMTP (mail settings):

1. Enter the SMTP user name for server access.

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

2. Enter the password if required.

*Note: For security purposes, the **password** for your account does not display once the system enters it into the **Niagara Pro II** settings. Although this field appears blank after you click **Submit**, the system retains the password information.*

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

3. Enter the name of the SMTP server.
4. Click the **Save** and **Send Test Email** to test your settings. The resulting window reports the email as successful or it sends information that a send failure occurred.
5. Click **Submit**.

Configuring idle screen information

You can modify the information displayed in the LCD display on the front panel. The information you select cycles through the LCD display screen and alternates between status and encoder information (Figure 150).

Figure 150. Idle Screen Information

Idle Screen Information:			
Cycle this information in the display when Niagara Pro II is idle.	<input checked="" type="checkbox"/> Active IP	<input checked="" type="checkbox"/> Computer Name	<input checked="" type="checkbox"/> CPU
	<input checked="" type="checkbox"/> Memory	<input checked="" type="checkbox"/> Hard Drive	<input checked="" type="checkbox"/> Temperature
Idle Screen text:	System is Ready		
<small>Note: Each line in the display is 20 characters.</small>			Line 1
			Line 2
			Line 3
			Line 4

To configure idle screen information:

1. Click the checkboxes next to the information you wish the screen to display.
2. The default text for **Line 1** is System is Ready. Enter the message you wish to appear.
3. Enter the text you want to appear in **Lines 2, 3, and 4**.
4. Click **Submit**.

Configuring default directory setting

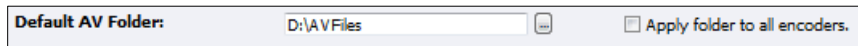
The Niagara Pro II stores AV files when you select the Save to File option in the encoder profile in the **Default AV Folder** field (Figure 151). Refer to the **Save to File** option under the Flash Encoder Properties sections for information on setting an encoder profile to create an AV file.

Note: ViewCast strongly recommends 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 system, the system could delete the files when you use the Restore to Niagara Pro II Factory Defaults feature.

Only drive D has available storage to save your files. Check the driver properties for available free space to determine your storage capacity.

Use drives C, E, and F strictly for the Niagara operational programs. Any modifications to these drives can permanently damage your system and void your warranty.

Figure 151. Default AV Folder Field



The screenshot shows a user interface element for setting the default AV folder. It consists of a label 'Default AV Folder:' followed by a text input field containing 'D:\AVFiles'. To the right of the input field is a small icon of a folder. Further to the right is a checkbox labeled 'Apply folder to all encoders.' which is currently unchecked.

Setting CPU thresholds

You may set the **CPU Threshold** field (Figure 152) to accommodate optimal encoding capabilities. You also may set the time between repetitive intervals for checking the CPU threshold.

Figure 152. Encoder Startup Settings

The image shows two screenshots of a web-based configuration interface. The top screenshot is titled "Encoder Startup Settings:" and contains two fields: "CPU Threshold:" with a dropdown menu set to "50" and the text "Start an Encoder when the CPU is below 50 % Optional settings:"; and "CPU Threshold Timeout:" with a dropdown menu set to "30" and the text "Wait 30 seconds for the CPU to fall below the threshold before starting encoders." The bottom screenshot is titled "Current System Configuration:" and shows various settings. A dropdown menu is open over the "CPU Threshold:" field, showing a list of values from 1 to 99. The "Encoder Startup Settings:" section at the bottom of this screenshot is identical to the top screenshot.

Note: ViewCast recommends a CPU threshold setting of 80 % or lower.

Setting SimulStream filters

You may indicate the number of SimulStream filters per video device using the **SimulStream Settings** field (Figure 153).

Figure 153. SimulStream Settings

The image shows two screenshots of a web-based configuration interface. The top screenshot is titled "SimulStream Settings:" and contains a field "Show 5 filters per video device." with a dropdown menu set to "5" and a "Submit" button below it. The bottom screenshot is identical to the top one, but the dropdown menu is open, showing a list of values from 1 to 9. The value "5" is highlighted in blue.

Restore factory defaults

Restore to Factory Defaults allows you to restore drive C to its original factory system defaults. This action removes all data (including stored files) on the primary drive and reinstalls the original factory image.

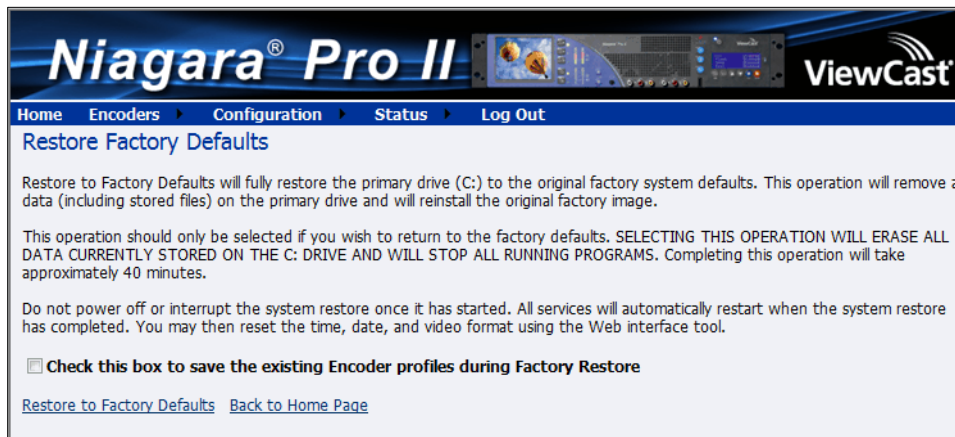
CAUTION! Select this option only if you wish to return your system to its factory defaults. Selecting this option erases all data currently stored on drive C and stops all currently running programs. Remove any USB storage device before performing a Factory Restore.

This operation takes approximately 15 to 45 minutes to complete. Do *not* power off or interrupt the system restore once it starts. All services automatically restart when the system restore completes. You may then use the web interface tool to reset the time, date, and video format.

Click the **Restore Niagara Pro II Factory defaults** link on the **Configuration > System Configuration Settings** window to start the process. The resulting window (Figure 154) allows you to return to the Home Page, thereby cancelling this action, or continue with the restore action.

When you select **Check this box to save the existing Encoder profiles during Factory Restore**, the settings for all your encoder profiles are retained and will display after the factory restore is complete.

Figure 154. Restore Factory Defaults



The window provides you details regarding the process you are about to execute and allows you the opportunity to once again cancel the process by clicking **Back to Home Page**.

*Note: **Restore to Factory Defaults** rebuilds the primary disk drive C with the original system image. You lose all custom settings and any files saved to drive C. You cannot reverse this process. However, you can manually re-enter your custom settings once the restore process is complete.*

*Use the default directory, D:\AV Files\, for saving your audio and video files. The system only re-images drive C when you use the **Restore to Factory defaults** option. It preserves all files and folders on drive D. Always use the default directory – drive D – for storage of personal files to ensure the system does not remove your personal files.*

***IMPORTANT!** Remember that the system deletes all previously stored encoder profiles and groups when you restore it to its factory defaults.*

Viewing the activity log

The Activity Log records the encoder Start and Stop events (Figure 155). The system updates the log for every event including the date and time. To view the activity log, on the home page click **Status** > **View Activity Log**.

Figure 155. Activity Log fields

The screenshot displays the Niagara Pro II Activity Log interface. At the top, there is a navigation bar with 'Home', 'Encoders', 'Configuration', 'Status', and 'Log Out'. Below this, the 'Activity Log' section is visible. It features a 'View Activity Types:' dropdown menu set to 'Show All', a 'Clear Activity Log' button, and a table with columns 'Created', 'Type', and 'Description'. The table lists various system events such as user connections and service status changes. At the bottom, it shows 'Activity Log | Total records : 24'.

Created	Type	Description
1/20/2012 2:59:03 PM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/20/2012 2:22:58 PM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/20/2012 12:11:32 PM	General	User:Niagara Pro IIWebUser connected to Niagara SCX from machine NP12030001
1/20/2012 12:03:19 PM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/20/2012 10:05:07 AM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/20/2012 8:57:59 AM	General	User:Niagara Pro IIWebUser connected to Niagara SCX from machine NP12030001
1/20/2012 8:49:02 AM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/20/2012 8:15:17 AM	General	User:USER_NP12030001 connected to Niagara SCX from machine NP12030001
1/19/2012 3:50:00 PM	General	Started Niagara Embedded UI Service successfully
1/19/2012 3:49:58 PM	General	Starting Niagara Embedded UI Service
1/19/2012 3:46:14 PM	General	Niagara Embedded UI Service Stopped
1/19/2012 3:46:12 PM	General	Logout from Niagara SCX service successful
1/19/2012 3:46:12 PM	General	Stopping Niagara Embedded UI Service
1/19/2012 3:31:28 PM	General	Started Niagara Embedded UI Service successfully
1/19/2012 3:31:25 PM	General	Starting Niagara Embedded UI Service
1/19/2012 3:21:15 PM	General	Niagara Embedded UI Service Stopped
1/19/2012 3:21:15 PM	General	Windows restart issued
1/19/2012 3:21:14 PM	General	Logout from Niagara SCX service successful
1/19/2012 3:21:12 PM	General	Stopping Niagara Embedded UI Service
1/19/2012 3:21:11 PM	General	Windows restart issued
1/19/2012 3:21:06 PM	General	First run settings completed.
1/19/2012 3:21:03 PM	General	Success installing encoder profiles for video format selection NTSC_M
1/19/2012 3:20:32 PM	General	Started Niagara Embedded UI Service successfully
1/19/2012 3:20:30 PM	General	Starting Niagara Embedded UI Service

A	Displays the system date and time stamps for each event.
B	Indicates the type of activity.
C	Select the types of activity you wish to view. Options include: <ul style="list-style-type: none"> • Show All • General • Errors

Advanced Operations

	<ul style="list-style-type: none">• Warnings
D	Displays a description of the activity.
E	Click this link to clear all logged activities.
F	Displays the total number of records for the selected view type. Click the printer icon for a printer

Viewing alerts

Click **Status** > **View Alerts** from the home page. The system records the encoder events that register as alerts (Figure 156). The Alerts Window updates with every alert event on the system. The alerts include any specific alert events for the encoder.

Figure 156. Alerts fields

Created	Description
1/13/2012 3:57:21 PM	Encoder:WME Failed to open port 7007 for streaming - the port may already be in use. (MsgID: 6043)
1/13/2012 3:56:24 PM	Encoder:Test Failed to connect to server pushing point [http://(null)/(null)]. (MsgID: 6050)

A	Click this icon to clear all alerts.
B	Indicates the number of alerts.
C	Displays the date and time the alert occurred.
D	Displays the message ID number for the alert and the description.

Connecting an external storage device

The Niagara Pro II has three USB ports, one on the front panel and two on the rear panel. You can connect almost any standard USB device to one or both of these ports. This allows you to export any audiovisual files you created on the local storage drive of the Niagara Pro II. The encoder defaults to set the local storage drive D when you use the **Save to File** setting with the web interface.

When you insert a USB storage device in one of the USB ports, the system automatically detects the removable storage device, and assigns a drive letter to the device. Use standard Windows methods to transfer audiovisual files from drive D to the attached USB storage device.

Using the Niagara SCX web interface

You may wish to perform even more advanced setup and operations. To do so, you may choose to access the Niagara SCX interface. You may access the Niagara SCX interface through a remote desktop or by connecting a monitor, keyboard, and mouse to the Niagara Pro II. Use the *Niagara SCX User Guide* for specific information on how to use the Niagara SCX and the Niagara SCX Explorer software.

Appendix A: DRM for Windows Media

You can protect your content 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 no DRM profiles are installed, the DRM functions in Niagara SCX are disabled. 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 using the Windows Media Encoder application included with Niagara streaming media appliances or available as a free download from Microsoft Corporation (<http://www.microsoft.com>).
3. Restart the unit 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 you create the DRM profile, you must use Windows Media Encoder to import the profile on the encoding system.

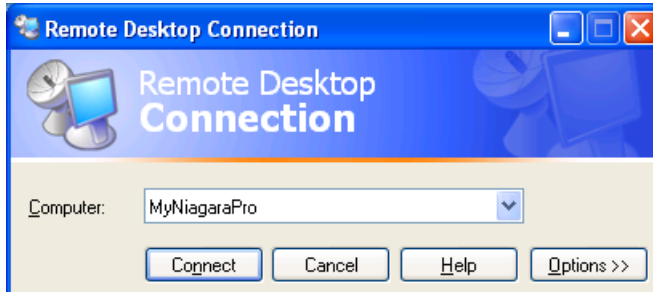
Windows Media Encoder is included in Niagara streaming media appliances that have Niagara SCX version 5.0 or later installed. To access the desktop of the Niagara system, attach a keyboard, a mouse, and a monitor to the system. If the system is installed in a location that does not provide physical access, you can use Windows Remote Desktop Connection to access the desktop.

***IMPORTANT!** When connecting to a Niagara system using a remote desktop connection, it is extremely important you set the Local Resources to **Leave at remote computer** before connecting to the system.*

To open a remote desktop connection:

1. Open the **Remote Desktop Connection** (Figure 157).

Figure 157. Remote Desktop Connection



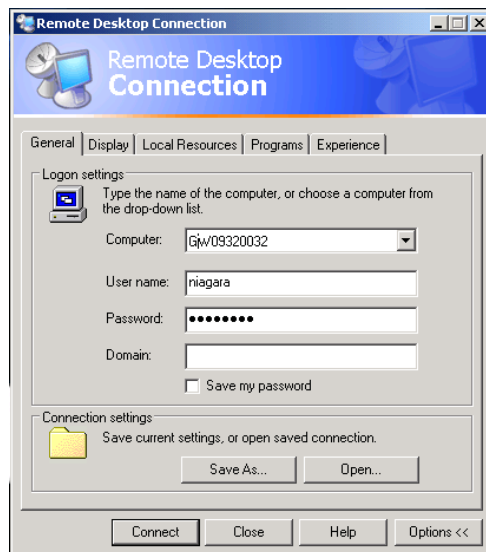
2. Click **Options**. The setting tabs display.
3. Click the **Local Resources** tab.
4. Under **Remote computer sound**, click **Leave at remote computer** option from the drop-down list (Figure 158).

Figure 158. Local Resources Tab



- Click the **General** tab (Figure 159).

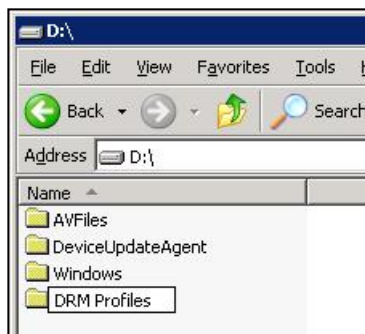
Figure 159. General Tab



- In the **User Name** field, type **Niagara**.
 - In the **Password** field, type **password** to connect the system using remote desktop.
- WARNING! When exiting from Remote Desktop Connection, do not log out. Instead, disconnect from the system. This step allows its internal programs to continue running.*
- Copy the DRM profiles to a protected location on the encoding system to ensure they are not removed or erased accidentally (Figure 160).

Note: ViewCast recommends you create a new directory on drive D and use this directory to store your DRM profiles.

Figure 160. DRM Profiles



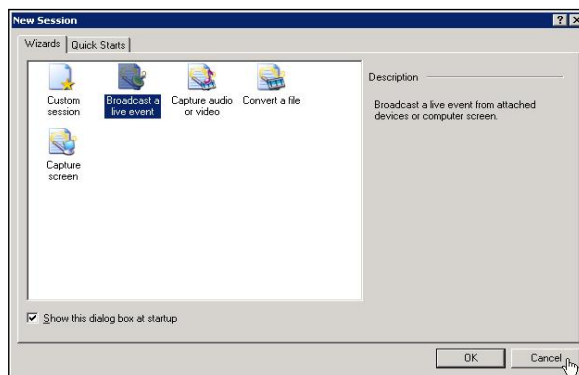
9. Start the Windows Media Encoder application on the system (Figure 161).

Figure 161. Starting Windows Media Encoder



10. When the New Session Wizard displays, click **Cancel** (Figure 162).

Figure 162. New Session Wizard



11. Click **Properties** under the top menu bar (Figure 163).

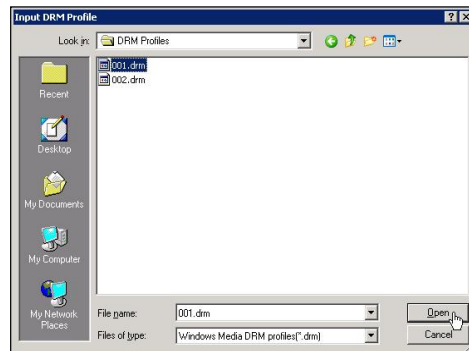
Figure 163. Properties Tab



12. Click the **Security** tab.
13. Click **Import** and browse to the location of the DRM profiles on the system's hard drive.

14. Select the DRM profile you wish to import and click **Open** (Figure 164).

Figure 164. DRM Profile

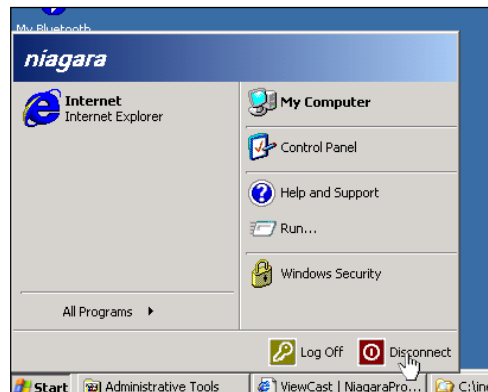


15. Repeat this process for each DRM profile you wish to import.
16. Exit from the Windows Media Encoder application when finished.

*Note: If the system prompts if you want to save your encoding session, click **No option**.*

17. Disconnect Remote Desktop Connection from Niagara Pro II (Figure 165). *Do not log out.*

Figure 165. Disconnect Remote Desktop



18. Restart the system.

Appendix B: H.264 Advanced Settings

H.264 Presets

In general, the Main Profile Default presets for the H.264 encoder Custom Presets will meet your streaming requirements. For devices with restricted bandwidths and under certain conditions such as low bit rates, motion specific, or constant bit rate applications, you may need to adjust the Advanced Encoder Settings values in each line. This section includes some information to help you select Advanced Encoder Settings. These examples are suggestions. You should understand and select the appropriate values for your streaming application. See *Settings* for explanations of each setting variable.

Setting	Value Range
BFramesMax	0 to 4
GOPSize	1 to 4000
GOPSizeMin	1 to 4000
InLoopDeblockingFilterAlpha	-6 to 6
InLoopDeblockingFilterBeta	-6 to 6
LookaheadFrames	0 to 200
NoiseReduction	0 to 1500
QuantizerMax	1 to 51
QuantizerMin	1 to 51
ReferenceFrames	0 to 16
SceneChangeDetectThreshold	0 to 4000
TrellisRDQuantization	0 to 2

The following Custom Presets are available for the H.264 Advanced Encoder Settings:

- Baseline Profile Default - Minimal CPU
- Main Profile Default
- High Profile Default - Max Video Quality
- Baseline Profile - User Adjustable
- Main Profile - User Adjustable
- High Profile - User Adjustable

You can adjust all of the Custom Presets above. The preset titles are only a suggestion that the last three be used for end-user custom modifications, while the first three could remain unmodified if you want to compare the defaults to their own settings. You may also select the **Restore Defaults** link on the lower right-hand corner of the table to set all values for all Custom Presets to the default settings.

Baseline profile is for video conferencing and mobile applications and has the lowest demands on CPU load and memory usage, but the lowest resulting quality. Main profile is for standard-definition TV, while high profile is best for HD video.

Note: You can use each profile for any resolution video with expected increases in video encode quality and corresponding impacts to CPU and memory. Finally, you may use additional changes to the Advanced Encoder Settings to further refine the video encoding.

Settings

Setting	Explanation
BFramesMax	This value sets the maximum number of concurrent B-frames you can use. More B-frames improve video quality but also increase CPU load, in some cases considerably. Only Main or High Profile support B-frames. Changing this value when Baseline Profile is selected has no effect.
GOPSize	This value sets the maximum interval between IDR (also called reference) frames. Theoretically, higher values improve compression because I-frames have more data but it can also increase the appearance of fluctuating quality because more P- or B-frames (partial) are used. If you see “pulsing” or “strobing” in the encoded video, this value may be too low.
GOPSizeMin	This value sets the minimum length between IDR (reference) frames. This setting limits the minimum length after each I-frame before another can be placed. The suggested default is 1 x the frame rate.
InLoopDeblockingFilterAlpha	This value affects the overall amount of deblocking applied to the video. Higher values remove blocky appearance more efficiently, but retain less detail causing the image to appear softened. This value is the most important parameter in determining the overall sharpness of your encode. To make a low bit rate encode look smoother, set this to a positive number. The default value is 0 and should be sufficient to eliminate most blocking. In general, values lower than -3 and higher than 3 are usually not used, but could be if so desired.
InLoopDeblockingFilterBeta	This value determines whether something in a block is a detail or not when deblocking is applied to it. Lower values apply less deblocking to more flat blocks with detail present and more deblocking to blocks without detail. Higher values cause more

Setting	Explanation
	deblocking to be applied to less flat blocks with details present. Raising the value of Beta deblocking is a good way to get rid of ringing artifacts by applying more aggressive filtering to blocks that are not very flat. Lowering the value of Beta deblocking is a good way to reduce the amount of DCT blocks without blurring the entire picture. Again, the default value of 0 usually is good enough. Set this to a positive number to smooth out low bit rate video encodes. In general, values lower than -3 and higher than 3 are usually not used, but could be if so desired.
LookaheadFrames	This value is the amount of frames the encoder keeps in its buffers to perform various calculations. The higher this value, the better the quality and the closer to a constant bit rate the encoded video will be; however the CPU load is higher and the latency from the source through the encoder is also higher. Setting this to 0 , depending on the encoder, will provide the lowest latency possible.
NoiseReduction	This value performs adaptive noise reduction, estimates film noise based on the value and attempts to remove the noise by dropping small details before quantization (100 to 1000 for denoising). As a result, using Noise Reduction can make the encoded video look smoother, but with much less detail.
QuantizerMax	This value sets the maximum for the quantizer. The range is 1 to 51 with 51 being the highest and least complex quantizer available. The value 51 provides the most encoding, thus making the picture quality farthest away from the original. However, lowering this value increases CPU load, in some cases considerably. Also, this value affects the bit rate with 51 keeping closer to a constant bit rate, while lower values cause the bit rate to vary.
QuantizerMin	This value sets the minimum quantizer ever used in the encoder. The lower the quantizer, the closer the encoded video is to the original. For most video, any value below 10 appears almost the same as the original video.
ReferenceFrames	This value is the number of previous frames each P-frame can use as a reference. More reference frames increase the quality of the encoded video but increases the CPU load. Each increase, however has reduced benefit and takes longer to encode.
SceneChangeDetectThreshold	Higher values of this setting cause the encoder to detect more scene changes. For example, a fast action movie that has many scenes can have this value set lower than a newscast, but the newscast video quality may suffer a bit at the same value. 60 is

Setting	Explanation
	a good default for most applications. 0 turns off scene change detection, but this is not recommended. Higher values also increase CPU usage.
TrellisRDQuantization	This value performs Trellis quantization to increase the visual quality of the encoded video: the higher the value, the better the qualities of the video, but the higher the CPU load. This value can also improve visual quality at lower bit rates. However, settings above 0 are applicable for Main or High Profile in the Custom Presets.

MPEG-4 Presets

In general, the Main Profile Default presets for the H.264 encoder Custom Presets will meet your streaming requirements. For devices with restricted bandwidths and under certain conditions such as low bit rates, motion specific, or constant bit rate applications, you may need to adjust the Advanced Encoder Settings values in each line. This section includes some information to help you select those Advanced Encoder Settings. These examples are suggestions and you should understand and select the appropriate values for your streaming application. See *Settings* for explanations of each setting variable.

Setting	Value Range
BFramesMax	0 to 4
GOPSize	1 to 4000
GOPSizeMin	1 to 4000
InterlacedDCTComparison	0 to 14
LookaheadFrames	0 to 200
MotionEstimationComparison	0 to 256
MotionEstimationMethod	5 to 10
MotionEstimationPenaltyCompensation	0 to 256
MotionEstimationSubPixelComparison	0 to 256
MpegQuant	0 to 1
QuantizerMax	1 to 51
QuantizerMin	1 to 51
SceneChangeDetectThreshold	0 to 4000
TrellisRDQuantization	0 to 2

Settings

Setting	Explanation
BFramesMax	This value sets the maximum number of concurrent B-frames that you can use. More B-frames improve video quality but also increase CPU load, in some cases considerably. Setting B-frames to a value more than 0 changes the video encoding format from Simple Profile to Advanced Simple Profile.
GOPSize	This value sets the maximum interval between key frames. Theoretically, higher values improve compression because I-frames have more data but it can also increase the appearance of fluctuating quality because more P- or B-frames (partial) are used.
GOPSizeMin	This value sets the minimum length between key frames. It limits the minimum length after each I-frame before another can be placed. The suggested default is 1 x the frame rate.
InterlacedDCTComparison	This value optimizes processing of interlaced video input. It is not usually used, but it may help the encoding quality of interlaced video.
LookaheadFrames	This value is the amount of frames the encoder keeps in its buffers to perform various calculations. The higher this value, the better the quality and the closer to a constant bit rate the encoded video will be, however the CPU load is higher and the latency from the source through the encoder is also higher. Setting this to 0 , depending on the encoder will provide the lowest latency possible.
MotionEstimationComparison	Setting this value causes the encoder to select what motion estimation comparison to use. 0 is the default for MPEG4 encoding. You can use higher values but they can increase CPU and memory usage, sometimes with minimal significant gain in quality. <i>Note: The correct range is 0 to 14, but a value of 256 that affects the color portion of the video only is available. Use this value only when you completely understand the encoding needs. All other values are ignored.</i>
MotionEstimationMethod	Setting this value causes the encoder to select what motion estimation method to use. 5 is the default for MPEG4 encoding. You can use higher values but they can increase CPU and memory usage, sometimes with no significant gain in quality.

Setting	Explanation
MotionEstimationPenaltyCompensation	Setting this value causes the encoder to apply a compensation for any errors that arise in the motion estimation while encoding the video. The actual value of 256 corresponds to a value of 1.0 and is set to maximum as the default.
MotionEstimationSubPixelComparison	Setting this value causes the encoder to select the sub-pixel motion estimation comparison. 0 is the default for MPEG4 Simple Profile encoding because only Advanced Simple Profile allows for sub-pixel motion estimation. You can use higher values but they can increase CPU and memory usage, sometimes with minimal significant gain in quality. <i>Note: The correct range is 0 to 14, but a value of 256 that affects the color portion of the video only is available. Only use this value when you completely understand the encoding needs. All other values are ignored.</i>
MpegQuant	Setting the value of this to 0 will use quantizers for Simple Profile MPEG4 encoding while using 1 will use quantizers for Advanced Simple Profile and for high bit rate encoding more detail from the original video will be preserved. For lower bit rate encoding, using 0 smooths out the video appearance.
QuantizerMax	This value sets the maximum for the quantizer in use. The range is 1 to 51 with 51 being the highest and least complex quantizer available. The value 31 is a good default. However lowering this value increases the CPU load, in some cases considerably. Values above 31 are available, but could significantly affect video quality negatively.
QuantizerMin	This value sets the minimum quantizer used in the encoder. The lower the quantizer, the closer the encoded video is to the original. For most video, any value below 10 appears almost the same as the original video.
SceneChangeDetectThreshold	Higher values of this setting cause the encoder to detect more scene changes and insert extra I-frames as needed. For example, a fast-action movie with many scenes could have this value set lower than a newscast, but the newscast video quality may suffer a little at the same value. 45 is a good default for most applications using MPEG4 encoding. 0 turns off scene change detection, but is not recommended. Higher values also increase CPU usage.

Setting	Explanation
TrellisRDQuantization	This value performs Trellis quantization to increase the visual quality of the encoded video by determining the optimal encoding: the higher the value, the better the video quality but the higher the CPU usage. This value can also improve visual quality at lower bit rates.

Appendix C: Mapped Network Drive Setup

Setting up the network drive for the Niagara Pro II to export files, requires setting up two administrator accounts on a remote PC where the shared folder will be located:

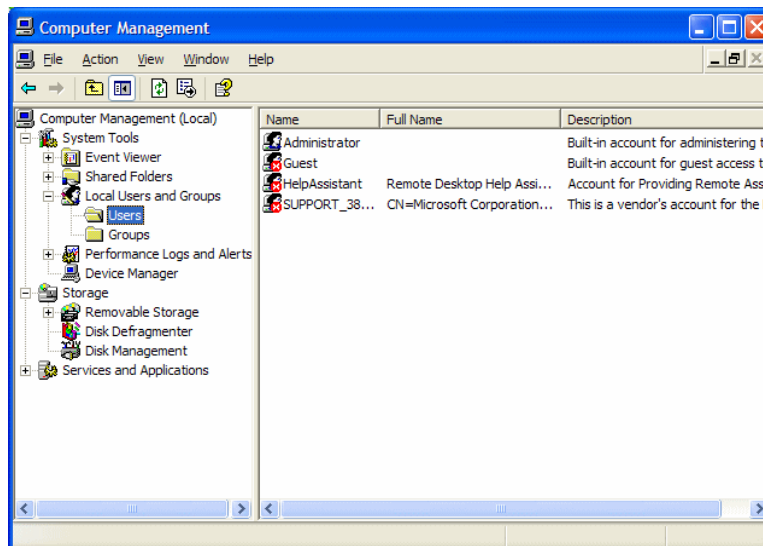
- One account for the username NPro2
- One account for the username SCXUser

The shared folder is created on the remote PC with full access for both Niagara Pro II and SCXUser. On the Niagara Pro II, the mapped network drive is created to reconnect at logon using the SCXUser username.

To set up user accounts on a remote PC:

1. Click on **Start** ➤ **Control Panel**.
2. Double-click on **Administrative Tools**.
3. Double-click on **Computer Management**.
4. Expand Local Users and Groups. Click on **Users**.

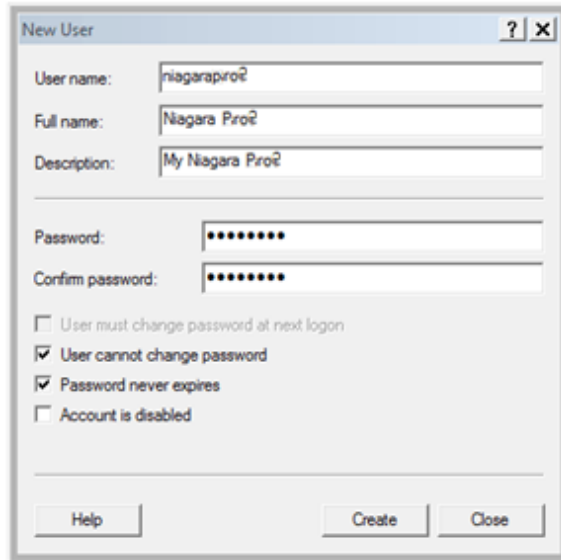
Figure 166. Users



5. Under **Action**, select **New User**.
6. Enter **niagarapro2** for the **User name**.
7. **Full name** and **Description** are optional.

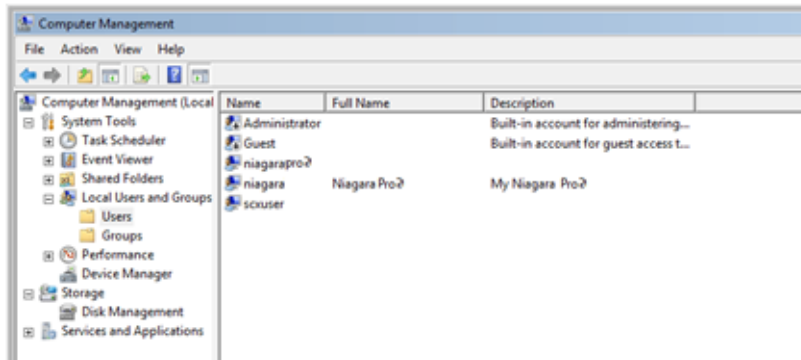
8. Enter **viewcast** for the **Password**.
9. Enter **viewcast** for the **Confirm password**.
10. Disable **User must change password at next logon**.
11. Enable **User cannot change password**.
12. Enable **Password never expires**.

Figure 167. New User window



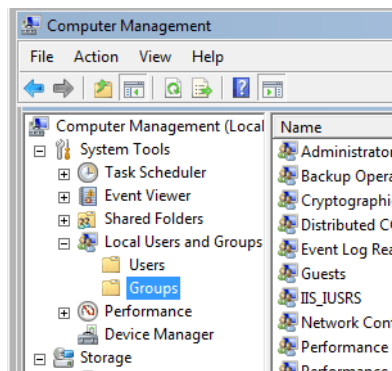
13. Click **Create**.
14. Repeat steps 5 through 13 to create the user **SCXUser** using the password **viewcast**.
15. Click **Close**.
16. The two new users appear in the users list.

Figure 168. Added Users



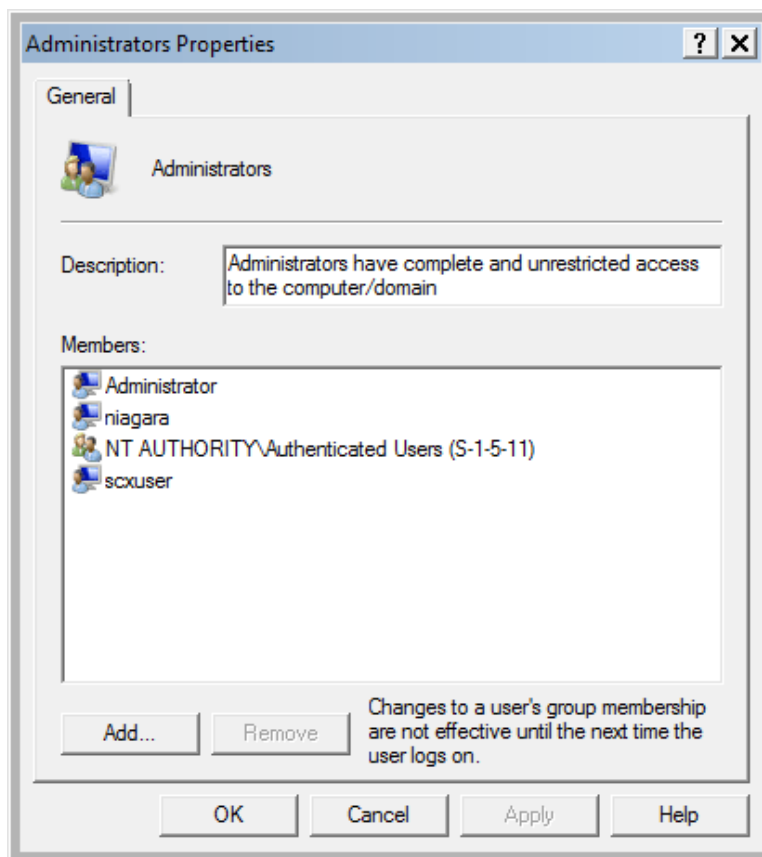
17. In Computer Management, click **Groups**.

Figure 169. Groups



18. Double-click on **Administrators**.
19. Click **Add**.

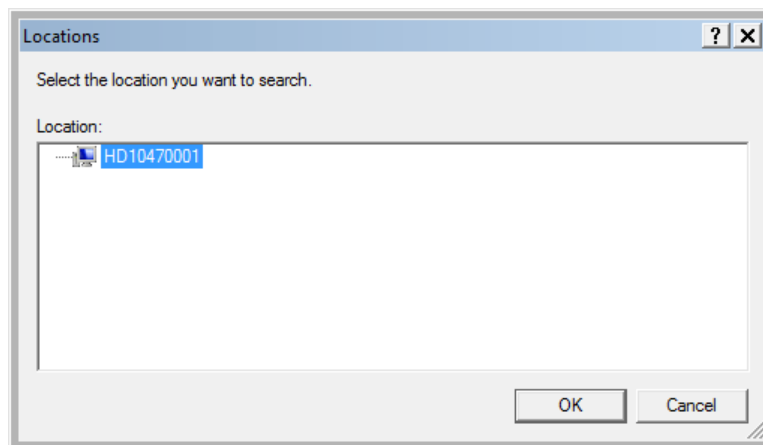
Figure 170. Administrators Properties window



20. Click **Add**. The Select Users window displays.
21. Click **Locations**.

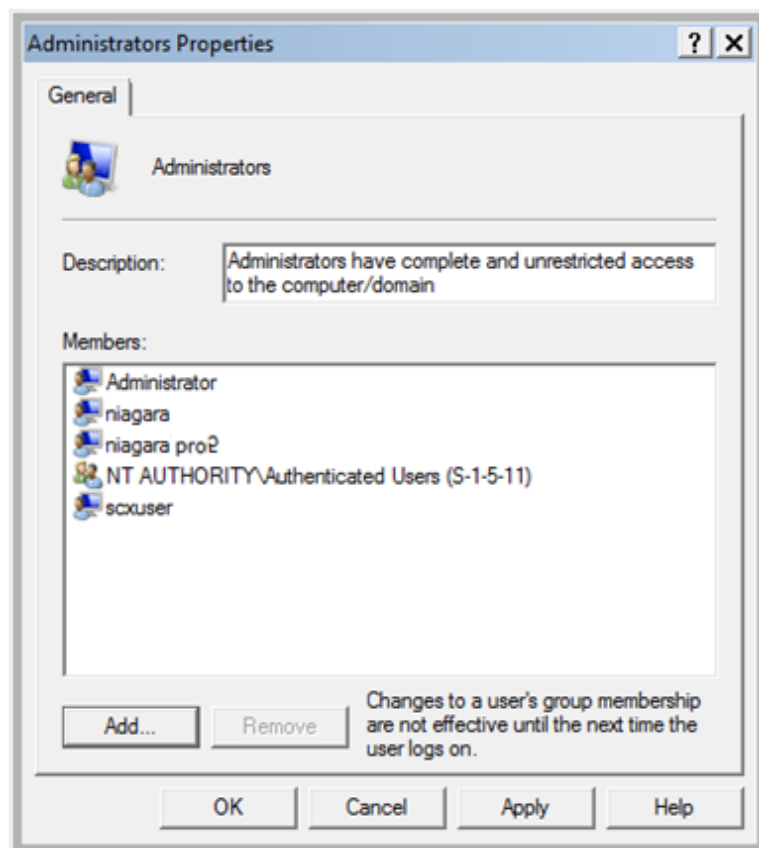
22. Select the PC, then click **OK**.

Figure 171. Locations window



23. Enter **niagarapro2** for the object name, and then click **OK**.
24. The user **niagarapro2** appears in the list of Administrators.

Figure 172. Administrator Properties

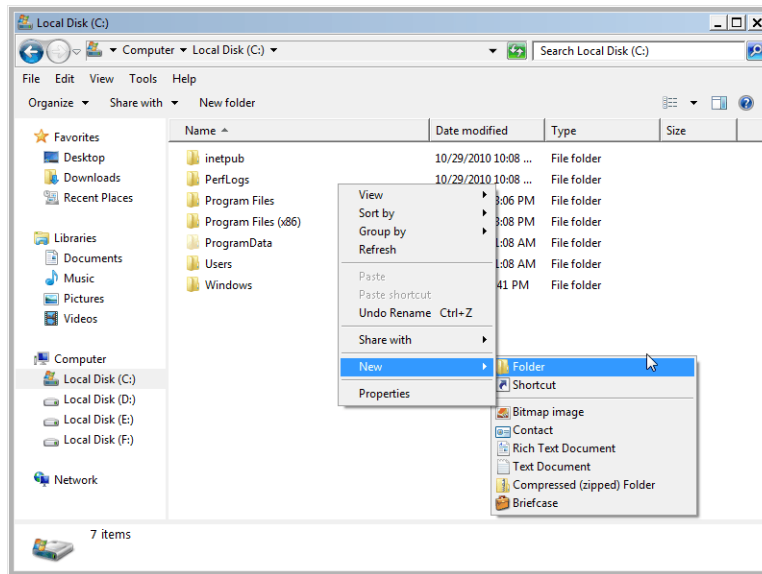


25. Repeat steps 19 through 22 to add SCXUser as an administrator.

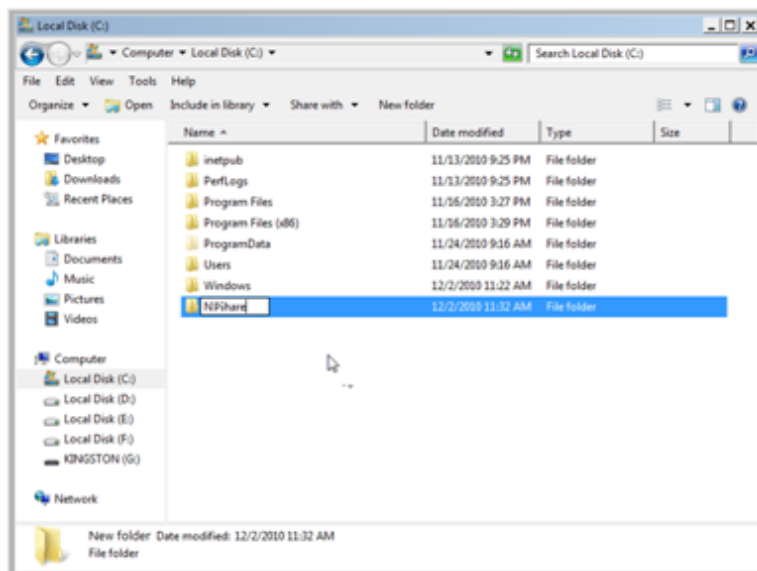
To create the shared folder:

Note: The shared folder(s) must be created on the remote PC.

1. Open **Computer**.
2. Open the drive where the shared folder will be created.
3. Right click, select **New**, then **Folder**.

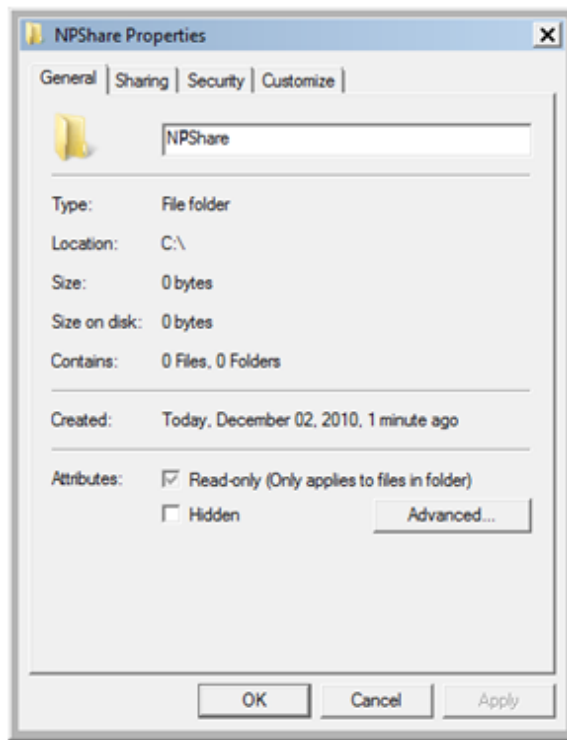
Figure 173. Create new folder

4. Enter a name for the folder (for example, NPShare).

Figure 174. Folder name

5. Right click on the folder, and then select **Properties**.

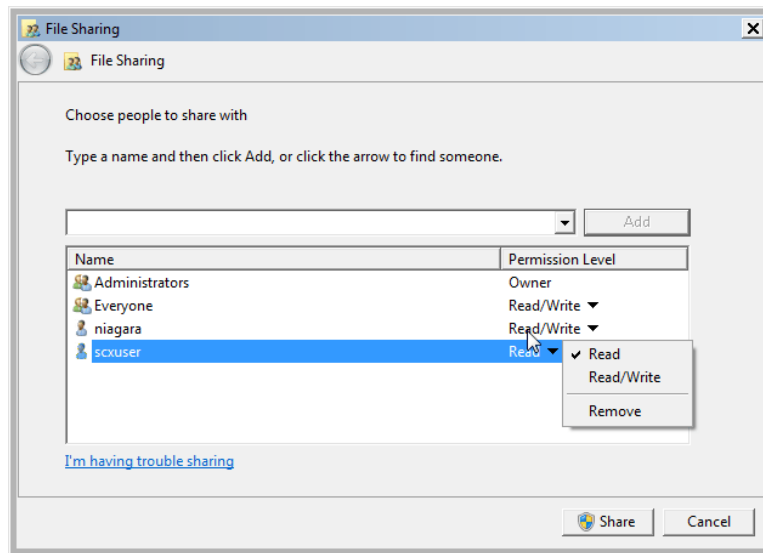
Figure 175. Folder Properties window



6. Click on the **Sharing** tab.
7. Click **Share**. The File Sharing window displays.
8. Type a name and then click **Add**, or click the arrow to select someone from the drop-down list.

- Use the drop-down list under permission level for this user and select Read/Write.

Figure 176. Read/Write permissions



- Click **Share**.
- Repeat steps 2 through 9 to add SCXUser to the Share Permissions.
- Click **Done**.
- Click **Close** to close the share properties.

To map the network drive:

Note: Create a mapped network drive to the remote shared folder that will reconnect at logon. Once the mapped drive is created and the Niagara Pro II is rebooted, the user will be able to export to the network drive.

- On the Niagara Pro II, open **Computer**.
- Under **Tools**, select **Map Network Drive**.
- Select a drive.
- In the text box for folder, enter the network path to the shared folder on the remote PC (for example, [\\DDSP052206\NPShare](#)).
- Make sure **Reconnect at logon** is enabled.
- Enable **Connect using different credentials**.
- Click **Finish**.
- Enter **SCXUser** as the **User name** and **viewcast** as the **Password**.








Appendix C: Mapped Network Drive Setup

9. Click **OK**.
10. Click **Finish**. After a few moments, the network share will open.
11. Close the window. The mapped drive will now appear in My Computer under Network Drives.
12. Reboot the Niagara Pro II.

Appendix D: System Menu (LCD Display)


This section provides the detail of the *LCD menu tree*. It is intended to be a complete reference to all levels and functions accessible using the Niagara Pro II 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 uses these graphical icons for the various button actions.


Button	Action
	Power on
	Access Menu/Return to Previous
	Enter/Execute Command
	Mover Pointer Up/Down
	Start Encoder
	Stop Encoder
	Load Encoder

Encoder menu

Encoder start

→Encode Access Health Setup System Export Files	←	→ADAPTIVE_LAP Stopped ADAPTIVE_FL Stopped ADAPTIVE_SS Stopped AVI Stopped	↑ ↓
AVI Stopped FLASH Stopped MPEG Stopped →WME Stopped		WME WME Encoder Driver Status: Starting Preset: Not Assigned	AVI Stopped FLASH Stopped MPEG Stopped →WME Started

Encoder stop

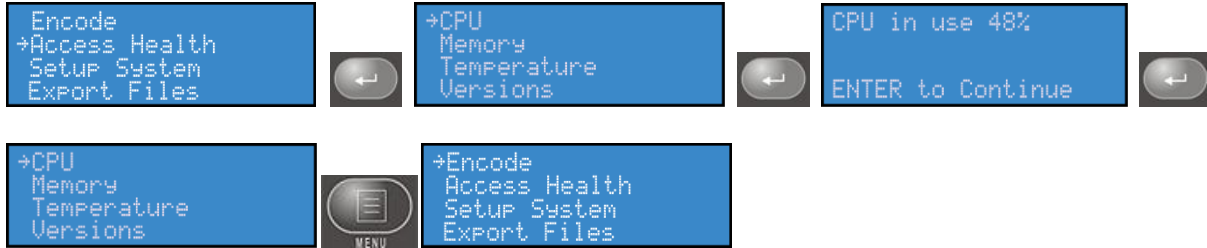
→Encode Access Health Setup System Export Files	←	→ADAPTIVE_LAP Stopped ADAPTIVE_FL Stopped ADAPTIVE_SS Stopped AVI Stopped	↑ ↓
AVI Stopped FLASH Stopped MPEG Stopped →WME Started		WME WME Encoder Driver Status: Stopping Preset: Not Assigned	AVI Stopped FLASH Stopped MPEG Stopped →WME Stopped

Encoder status

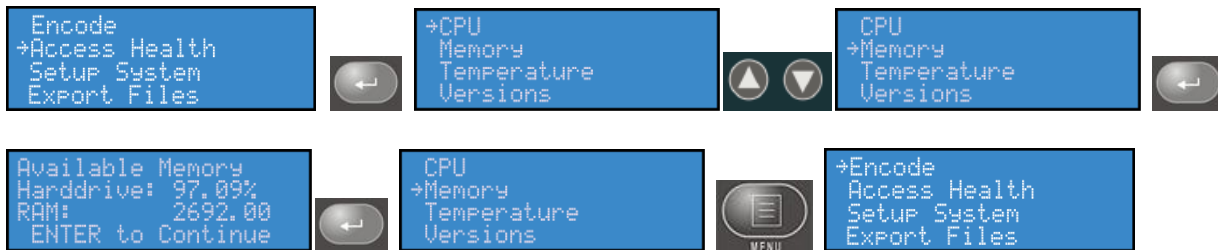
→Encode Access Health Setup System Export Files	←	→ADAPTIVE_LAP Stopped ADAPTIVE_FL Stopped ADAPTIVE_SS Stopped AVI Stopped	↑ ↓
AVI Stopped FLASH Stopped MPEG Stopped →WME Stopped	←	WME WME Encoder Driver Status: Stopped Preset: Not Assigned	

Access health menu

CPU status

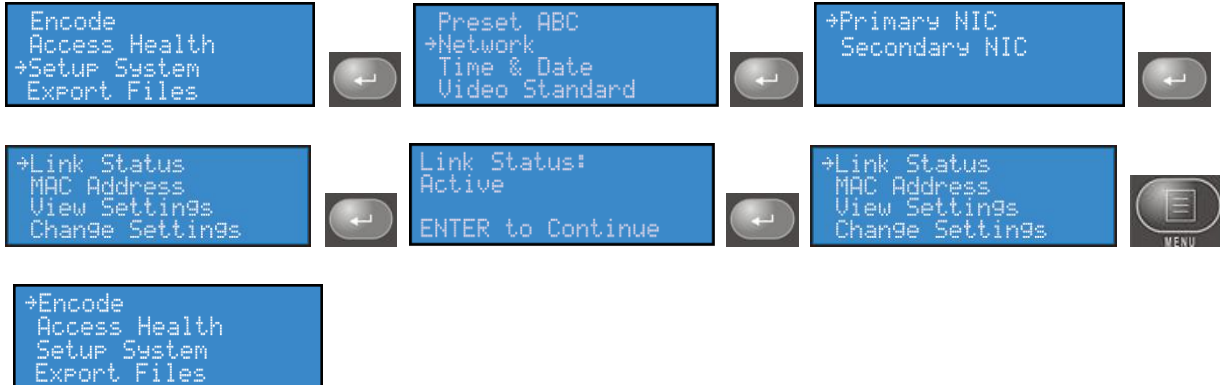


Memory available

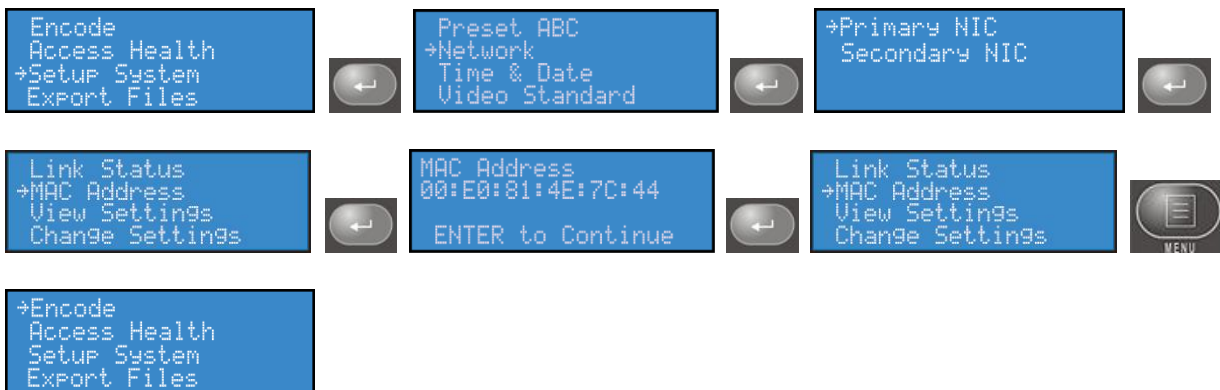


Setup system menu

Network link status



Network MAC address



View network settings

Encode Access Health →Setup System Export Files	←	Preset ABC →Network Time & Date Video Standard	←	→Primary NIC Secondary NIC	←
Link Status MAC Address →View Settings Change Settings	←	→DHCP On/Off IP Address(s) Subnet Gateway	←	DHCP Enabled: ON ENTER to Continue	←
→DHCP On/Off IP Address(s) Subnet Gateway	↑ ↓	DHCP On/Off →IP Address(s) Subnet Gateway	←	IP Address: 169.254.189.147 Press Enter	←
→DHCP On/Off IP Address(s) Subnet Gateway	↑ ↓	DHCP On/Off IP Address(s) →Subnet Gateway	←	Subnet Address: 255.255.0.0 Press Enter	←
→DHCP On/Off IP Address(s) Subnet Gateway	↑ ↓	DHCP On/Off IP Address(s) Subnet →Gateway	←	Gateway Address: 192.16.1.251 Press Enter	←
DHCP On/Off IP Address(s) Subnet →Gateway	☰ MENU	→Encode Access Health Setup System Export Files			

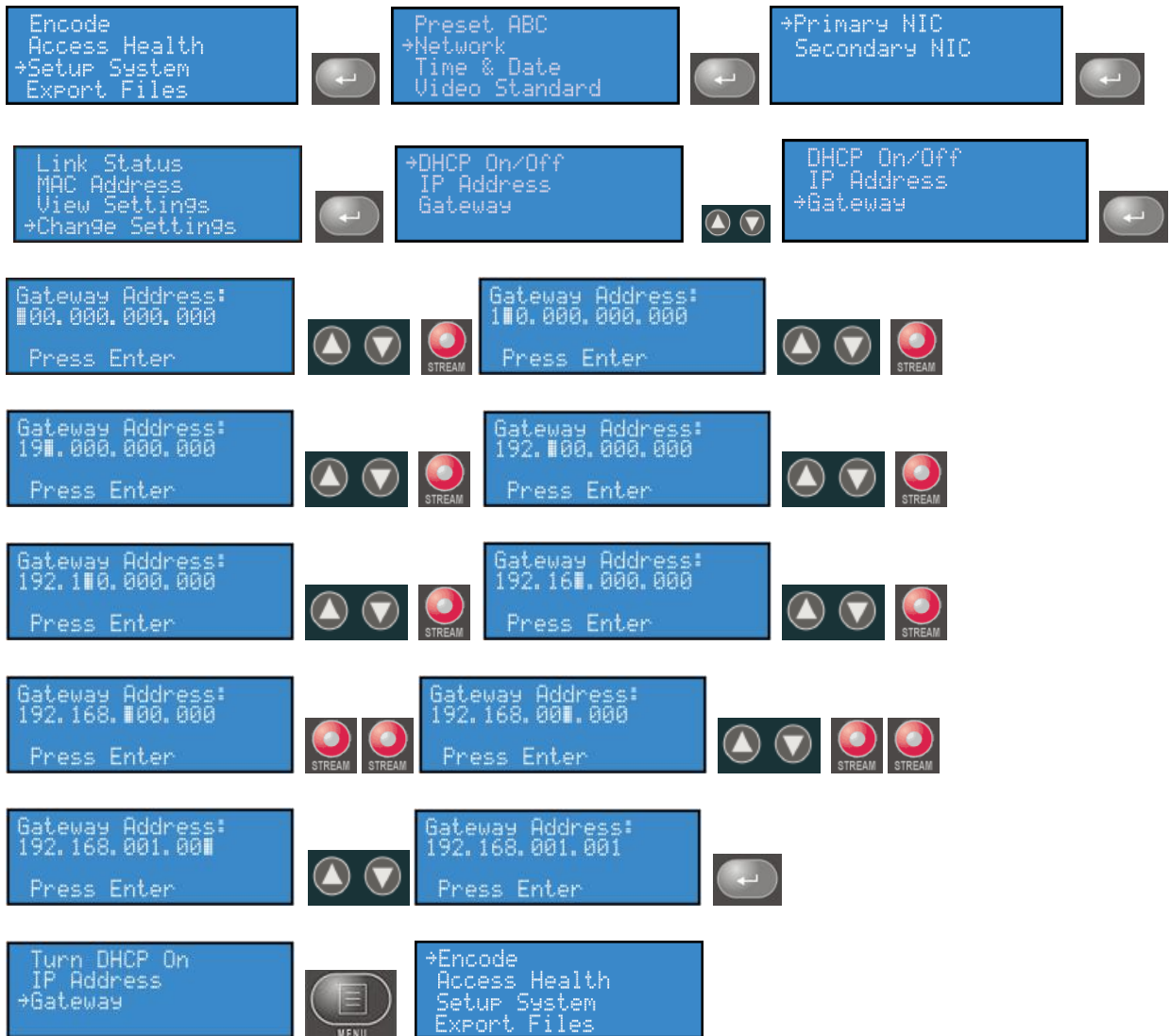
Enable DHCP

Encode Access Health →Setup System Export Files	←	Preset ABC →Network Time & Date Video Standard	←	→Primary NIC Secondary NIC	←
Link Status MAC Address View Settings →Change Settings	←	→DHCP On/Off IP Address Gateway	←	Enable DHCP? Yes →No	↑ ↓
Enable DHCP? →Yes No	←	Confirm Enable DHCP? Yes →No	↑ ↓	Confirm Enable DHCP? →Yes No	←
→DHCP On/Off IP Address Gateway	☰ MENU	→Encode Access Health Setup GoStream Export Files			

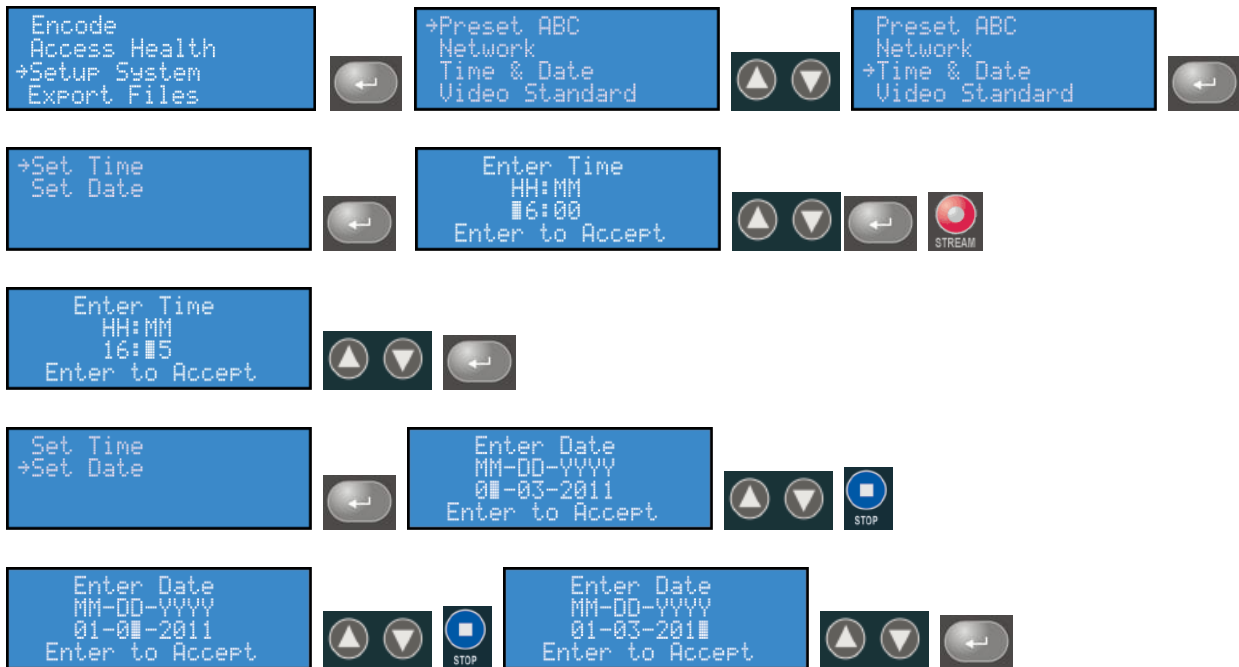
Set static IP addresses



Set gateway address



Set date and time



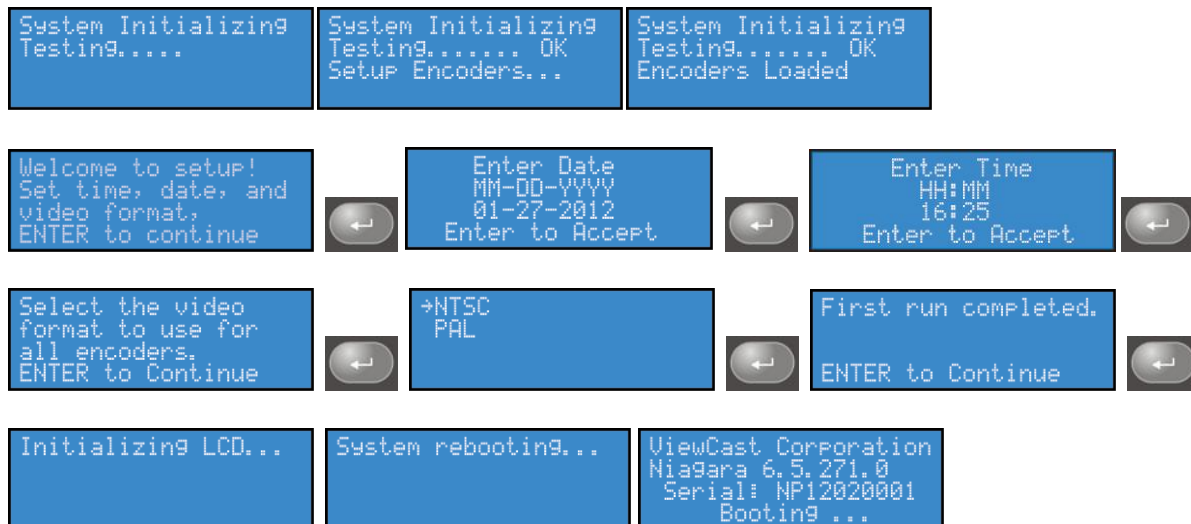
Set video standard



Factory restore

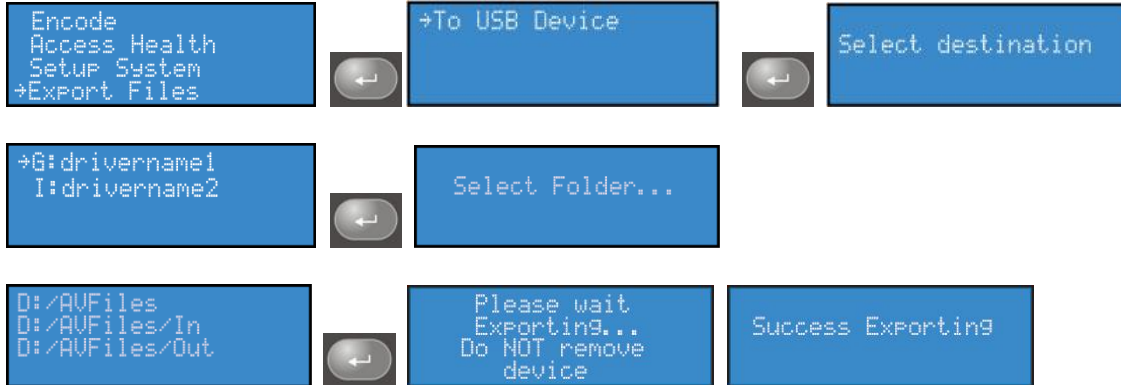


Note: This process takes approximately 10 minutes, please be patient.

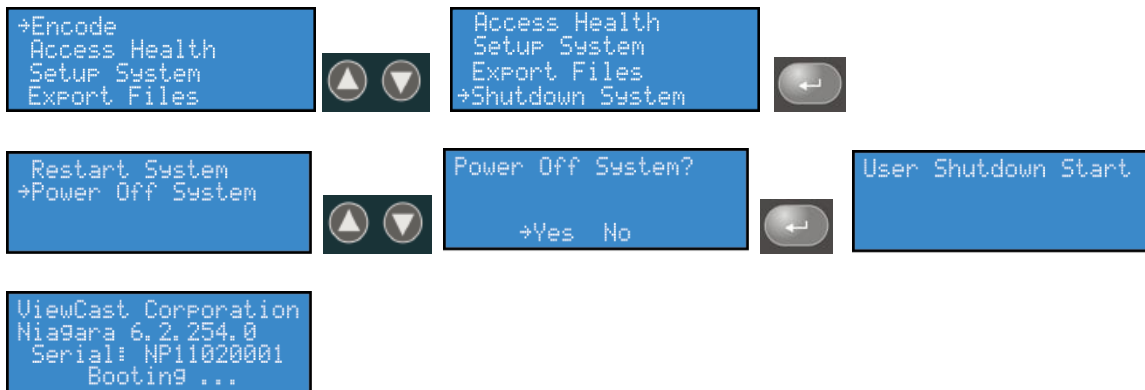


Export files menu

Export to USB drive



Shutdown Niagara Pro II



Or



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