

160RM USER MANUAL

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IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated, dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (i.e.: servicing) instructions in the literature accompanying the product.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Don't use this apparatus near water.
- Clean only with a dry cloth.
- Don't block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Don't install near any heat sources such as radiators, heat registers, stoves, or other apparatuses (including amplifiers) that produce heat.
- Don't defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the plug provided does not fit into your outlet, consult an electrician to replace the obsolete outlet.
- Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms, or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as damage to the power-supply cord or plug, contact with liquid (or any object small enough to enter the apparatus), exposure to rain or moisture, drop damage, or upon experiencing any abnormal operation.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, **DO NOT** EXPOSE THIS APPARATUS TO RAIN OR MOISTURE

WARNING:

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT

WARNING:

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE

WARNING:

THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE

INFORMATION FOR USERS IN EUROPE

This equipment with the CE marking complies with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can 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 is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

INFORMATION FOR USERS IN THE U.S.A.

FCC Class A Digital Device or Peripheral

This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can 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 is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

WARNING

Changes or modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

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TABLE OF CONTENTS

1.	OVERVIEW	1
2.	INSTALLATION.....	2
2.1.	POWER CONNECTIONS	2
2.2.	CONNECTING TO AN ETHERNET NETWORK.....	2
2.3.	IR INTERFACE	3
2.4.	VIDEO INPUTS.....	3
2.5.	AUDIO INPUTS	4
2.6.	S-VIDEO INPUT.....	4
2.7.	REMOTE CONTROL CONNECTIONS	4
3.	SPECIFICATIONS.....	5
3.1.	ANALOG VIDEO INPUTS.....	5
3.2.	VIDEO FORMATS SUPPORTED	5
3.3.	ANALOG AUDIO INPUTS	5
3.4.	AUDIO FORMATS SUPPORTED	5
3.5.	IP/STREAMING INTERFACE	5
3.6.	IR INTERFACE	5
3.7.	POWER	5
3.8.	PHYSICAL.....	5
4.	CONFIGURATION.....	6
4.1.	SET UP THE IP ADDRESS USING SERIAL INTERFACE	6
4.2.	CONFIGURING THE 160RM USING A WEB BROWSER	8
4.2.1.	Main Tab.....	10
4.2.1.1.	Encoder Setup	11
4.2.2.	Input Standard Page.....	12
4.2.3.	AVM Control Page.....	12
4.2.4.	STB Control Page.....	13
4.2.5.	Cycling Control	14

4.2.6. Advanced Controls Page	15
4.2.7. SNMP Controls	15
4.2.8. Administrator Controls Page	16
4.2.9. System Status Page	17
4.2.10. Firmware Upgrade Page	17

FIGURES

Figure 1-1: 160RM System	1
Figure 2-1: 160RM Front Plate	2
Figure 2-2: 160RM Rear Plate	2
Figure 4-1: COM1 Properties	6
Figure 4-2: Login Page	9
Figure 4-3: 160RM Control Page	10
Figure 4-4: Encoder Setup	11
Figure 4-5: Input Standard Page	12
Figure 4-6: AVM Control Page	12
Figure 4-7: STB Control Page	13
Figure 4-8: Cycling Control Page	14
Figure 4-9: Sample CSV File	14
Figure 4-10: Advanced Controls Page	15
Figure 4-11: SNMP Control	15
Figure 4-12: Administration Controls Page	16
Figure 4-13: System Status Page	17
Figure 4-14: Firmware Upgrade Page	18
Figure 4-15: Firmware Upgrade Status Page	19
Figure 4-16: Login Page	20

TABLES

Table 2-1: Standard RJ45 Wiring Color Codes	3
Table 2-2: COM 1 Connector Pin Definitions	4

REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	First Release	Feb 2010
1.1	Updates made throughout manual	July 2011

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Although every attempt has been made to accurately describe the features, installation and operation of this product in this manual, no warranty is granted nor liability assumed in relation to any errors or omissions unless specifically undertaken in the Evertz sales contract or order confirmation. Information contained in this manual is periodically updated and changes will be incorporated into subsequent editions. If you encounter an error, please notify Evertz Customer Service department. Evertz reserves the right, without notice or liability, to make changes in equipment design or specifications.

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1. OVERVIEW

Evertz 160RM Remote Monitoring System offers a reliable way to monitor remote sites from a central location. The 160RM is outfitted with the ability to easily interface with a consumer STB using standard connectors and an IR interface to replicate the “remote” control of the STB. The IR interface offers a simple way to manually select a channel or scan through hundreds of channels looking for problems. The control protocols for the STB can be learned by the 160RM and can include advanced control such as special menus and VOD services.

Features

- Multicast streaming of captured audio and video inputs via IP to a central location or multiple locations using Evertz StreamLINK[®] technology
- Optimal remote manual tuning of channels for troubleshooting purposes
- Automatic channel cycling, using an advanced cycling algorithm for best coverage
- Optional on-board storage for recording captured content
- IR interface control over a wide range of STBs
- Configurable content analysis of video, audio and metadata
- Optional freeze, black and macro block detection for video quality analysis
- Error reporting via SNMP to a central location or multiple locations

Advanced Monitoring

- Video Loss
- Freeze Detection (Evertz patented technology)
- Black Detection (Evertz patented technology)
- Data service missing alters, including CC, XDS, etc.
- Audio Loss
- Audio Over/Distortion Detection
- Audio Under/Quiet Detection
- Audio Phase Reversal Detection
- Audio Mono Detection



Figure 1-1: 160RM System

2. INSTALLATION

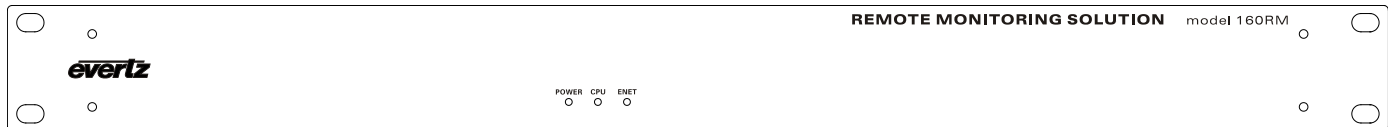


Figure 2-1: 160RM Front Plate

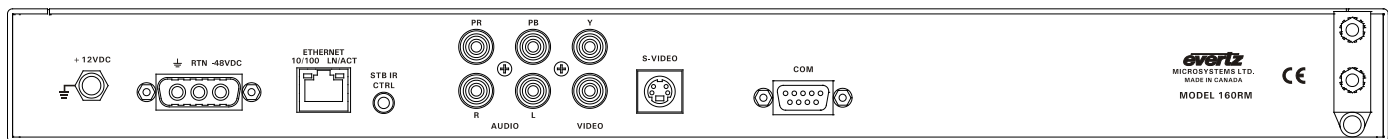


Figure 2-2: 160RM Rear Plate

2.1. POWER CONNECTIONS

12V DC: An external 12 VDC input is supplied to provide fully redundant powering of the unit. The DC input connector is a 0.218 inch diameter center positive miniature DC power jack.

To connect the 12 VDC supply use an AC to DC converter rated at 12 VDC, 3 A minimum. A power supply converter can be ordered from your Evertz Products dealer (Evertz part # VSHES34-120300). The DC cable of the voltage adapter should be connected to the DC power jack on the rear panel. The voltage adapter DC connector-fastening collar can be screwed to the DC power jack to prevent accidental disconnection.

48V DC: An optional -48V DC input.

2.2. CONNECTING TO AN ETHERNET NETWORK

The 160RM is designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as *Fast Ethernet*, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be “straight-through” with a RJ-45 connector at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the 160RM and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-1. A color code wiring table is provided in Table 2-1 for the current RJ 45 standards (AT&T 258A or EIA/TIA 258B color coding shown). Also refer to the notes following the table for additional wiring guide information.

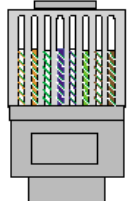
Pin 1 	Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
	1	1	Transmit +	White/Green	White/Orange
2	2	Transmit –	Green/White or White	Orange/White or Orange	X
3	3	Receive +	White/Orange	White/Green	X
4	4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	5	N/A	White/Blue	White/Blue	Not used (required)
6	6	Receive –	Orange/White or Orange	Green/White or Green	X
7	7	N/A	White/Brown	White/Brown	Not used (required)
8	8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-1: Standard RJ45 Wiring Color Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ 45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins; a crossover cable made for one will also work with the other.
- Pairs may be solid colors and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the 160RM and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 160RM and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The 160RM's rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100: This Amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose Green LED indicates that the 160RM has established a valid linkage to its hub, and whether the 160RM is sending or receiving data. This LED will be ON when the 160RM has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the 160RM is sending or receiving data. The LED will be OFF if there is no valid connection.

2.3. IR INTERFACE

STB IR CTRL: A 3-5mm plug-style adapter is supplied for STB control.

2.4. VIDEO INPUTS

Four RCA plugs are for component (YcbCr) and composite inputs.

2.5. AUDIO INPUTS

Two RCA plugs are for Left and Right input.

2.6. S-VIDEO INPUT

One S-Video input is available for direct connection to satellite IRD's for improved picture display quality.

2.7. REMOTE CONTROL CONNECTIONS

COM: A 9 pin female 'D' connector for the RS-232 serial interface used for updating the firmware.

Pin #	Name	Description
1	GND	Chassis ground
2	Tx-/TxD	RS-232 Transmit Output / RS-422 Tx-
3	Rx-/RxD	RS-232 Receive Input / RS-422 Rx-
4		
5	Sig Gnd	RS-232 Signal Ground
6		
7	Rx+/RTS	RS-232 RTS Input / RS-422 Rx+
8	Tx+/CTS	RS-232 CTS Output / RS-422 Tx+
9		

Table 2-2: COM 1 Connector Pin Definitions

3. SPECIFICATIONS

3.1. ANALOG VIDEO INPUTS

- Composite input (single RCA)
- Component (three RCAs)
- S-Video (DIN connector)

3.2. VIDEO FORMATS SUPPORTED

- NTSC/PAL analog video (using composite, S-Video, component input)
- 1080i/50, 1080i/60, 720p/60 (all using component input)

3.3. ANALOG AUDIO INPUTS

- Left and Right audio inputs (two RCAs)

3.4. AUDIO FORMATS SUPPORTED

- Left and Right stereo analog audio (uncompressed)

3.5. IP/STREAMING INTERFACE

- 10/100 Ethernet port
- Multicast/Unicast network topology support (UDP)
- H.264 SD compression
- 800Kbps up to 6Mbps (recommended 2Mbps)

3.6. IR INTERFACE

- IR blaster interface (included with 160RM)
- 3-5mm plug-style adapter at back of unit
- IR emitter adhered to front of STB

3.7. POWER

- 30W power consumption
- 12V DC input (unit comes with 110V/240V AC to 12V DC adapter)
- Optional -48V DC input option

3.8. PHYSICAL

- 19" rack mountable
- 1RU height

4. CONFIGURATION

4.1. SET UP THE IP ADDRESS USING SERIAL INTERFACE

1. Connect the serial port to the back of the unit from a PC.
2. Open serial terminal software, example HyperTerminal.
3. Use the following serial port settings:

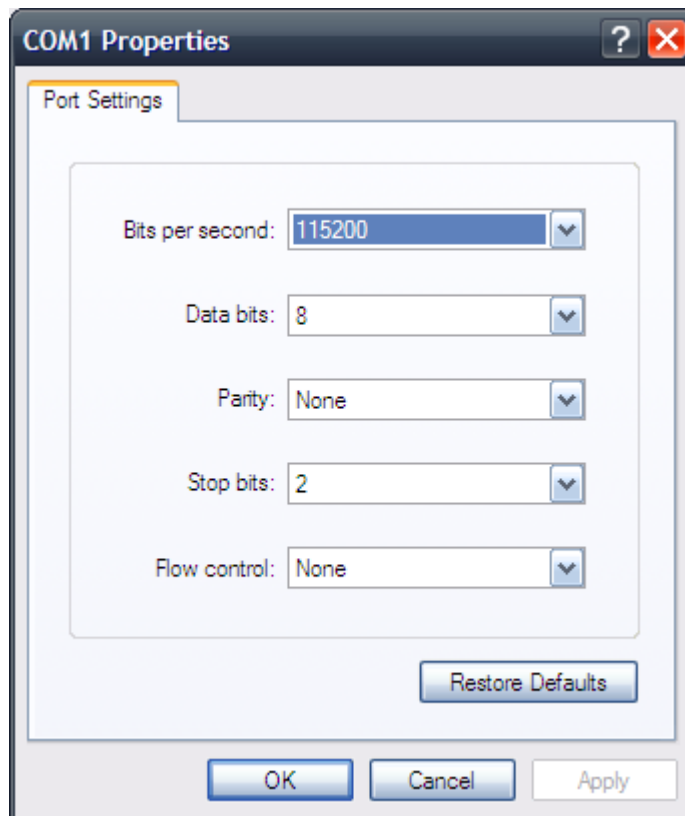


Figure 4-1: COM1 Properties

4. Power on the 160RM.
5. Observe boot up sequence and wait until prompted with user login, example:

Login: customer

Password: customer

Login and password is "customer".

6. After logging in, the following menu will be presented:

Evertz Microsystems Ltd. 2008

**** Main Menu ****

- (1) Network Setup
- (2) SNMP Setup
- (3) Engineering Debug Tool
- (4) Command Line Debug Tool

- (X) Exit
- (W) Exit without saving to flash

7. To see the IP address on the 160RM, select option (1):

```
*****  
* WARNING: *  
* Improper changes to IP addresses may affect *  
* network configuration. Incorrect IP addresses *  
* could potentially affect other devices on the *  
* network. It is good practice to confirm *  
* validity of all IP addresses with your IT/IS *  
* departments prior to configuration. *  
*****
```

**** Network Setup ****

- (1) IP Address [192.168.9.50]
- (2) Netmask [255.255.255.0]
- (3) Gateway [192.168.9.1]
- (4) Broadcast [192.168.9.255]

- (X) Exit

8. After setting the IP address, netmask, gateway, and broadcast addresses – select X to return to the main menu.

**** Main Menu ****

- (1) Network Setup
- (2) SNMP Setup
- (3) Engineering Debug Tool
- (4) Command Line Debug Tool

- (X) Exit
- (W) Exit without saving to flash

9. To setup the SNMP trap address on the 160RM, select option (2):

**** SNMP Setup Menu ****

- (1) Read Community String [public]
- (2) Read/Write Community String [private]
- (3) Trap Setup

- (X) Exit

10. Select option (3) to setup trap destinations:

**** Trap Setup Menu ****

- (1) Add Trap Destination
- (2) Remove Trap Destination
- (3) Show All Trap Destinations

- (X) Exit

11. After setting trap destinations – select X to return to the main menu.

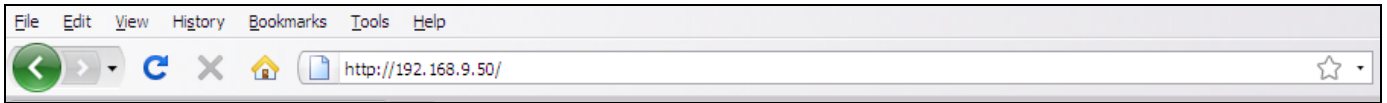
12. Select (X) from the main menu to save the settings and exit. Upon selecting (X) the unit will reboot automatically.

13. The serial port can be removed following the last step.

4.2. CONFIGURING THE 160RM USING A WEB BROWSER

1. Connect the Ethernet port on the 160RM to a network, Evertz recommends using an Ethernet switch for proper Ethernet communications.
2. Connect control PC to same network and set network adapter on PC to match to same network as the 160RM.

3. Open a web browser, example Mediafire and type in the 160RM's IP address in the address toolbar, see example:



4. After entering the IP address and assuming the network is configured correct, the 160RM will serve back a web page. There is a user login when first connecting to the device which offers a level of security and management over how the 160RM can be used over the network.

□ **Please login to continue**

Username:

Password:

Figure 4-2: Login Page

Default Login:

Username: admin

Password: password

5. Once logged in, the control page will appear as illustrated in Figure 4-3.

4.2.1. Main Tab

Encoding Engine:	H.264/AVC
Firmware Version:	R117-20110615
Total Bit Rate:	1.5 Mbps
SAP Program Name:	evertz
Unicast/Multicast Address:	239.255.100.1
IP Address:	192.168.9.193
Net Mask:	255.255.255.0
Gateway Address:	192.168.9.1
Port Number:	4,321
TTL Number:	64
Transport Mode:	MPEG

Figure 4-3: 160RM Control Page

1. The opening screen displays all the pertinent configuration settings for the 160RM.
2. To configure the general settings of the 160RM, click the “Configure” button near the bottom of the web page.

4.2.1.1. Encoder Setup

StreamLINK Encoder Setup		Done	Cancel
Total Bit Rate	1.5 Mbps		
SAP Program Name	evertz		
Unicast/Multicast Address	239.255.100.1		
IP Address	192.168.9.193		
Net Mask	255.255.255.0		
Gateway Address	192.168.9.1		
Port Number	4321		
TTL Number	64		
Transport Mode	MPEG		

Figure 4-4: Encoder Setup

Total Bit Rate: Allows the user to adjust the max bit rate used during streaming for the transport stream produced by the 160RM. Bit rate can be adjusted from 1 to 10Mbps – minimum optimal bit rate is 2.5Mbps.



Please Note: Bit rate will be adjusted based on Frame Rate and Frame Scaling settings under the Advanced Controls tab.

SAP Program Name: Allows the user to set the name used for SAP (session announcement protocol). The 160RM can be used under a SAP service, where each 160RM can be independently identified using SAP.

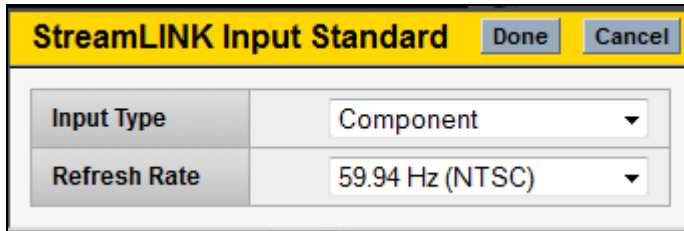
Unicast/Multicast Address: Allows the user to set the multicast or unicast IP address for streaming.

Port Number: Enter port number for streaming.

TTL Number: Allows the user to set the TTL (Time to Live) value. Using the multicast IP protocol, the TTL value indicates the scope or range in which a packet may be forwarded.

4.2.2. Input Standard Page

This page enables the user to set the **Input Type** to “Component”, “Composite” or “S-Video” and the **Refresh Rate** to 59.94Hz or 50Hz.

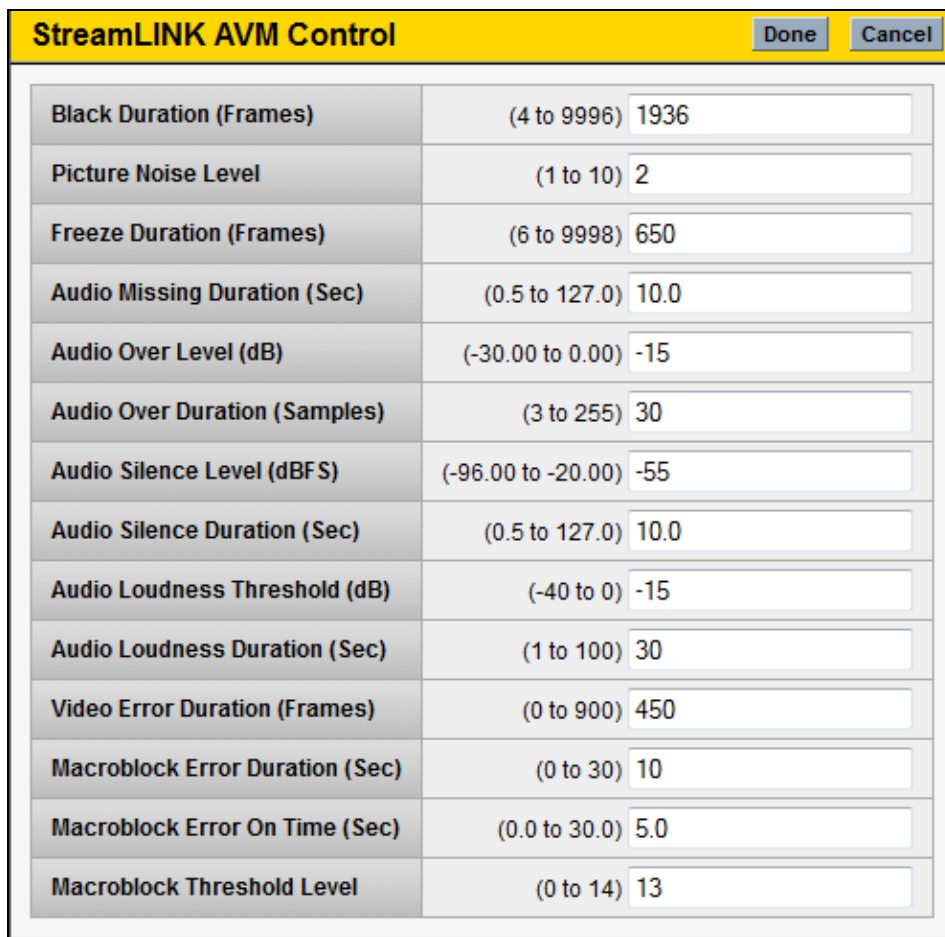


The dialog box titled "StreamLINK Input Standard" has a yellow header bar with "Done" and "Cancel" buttons. It contains two rows of controls: "Input Type" with a dropdown menu set to "Component", and "Refresh Rate" with a dropdown menu set to "59.94 Hz (NTSC)".

Figure 4-5: Input Standard Page

4.2.3. AVM Control Page

This page enables the user to configure fault parameters and threshold for Video Black, Picture Freeze, Audio Missing, Audio Over, Audio silence, Audio Loudness and Macroblock.



The dialog box titled "StreamLINK AVM Control" has a yellow header bar with "Done" and "Cancel" buttons. It contains a table of 14 rows, each with a parameter name, a range, and a value field.

Parameter	Range	Value
Black Duration (Frames)	(4 to 9996)	1936
Picture Noise Level	(1 to 10)	2
Freeze Duration (Frames)	(6 to 9998)	650
Audio Missing Duration (Sec)	(0.5 to 127.0)	10.0
Audio Over Level (dB)	(-30.00 to 0.00)	-15
Audio Over Duration (Samples)	(3 to 255)	30
Audio Silence Level (dBFS)	(-96.00 to -20.00)	-55
Audio Silence Duration (Sec)	(0.5 to 127.0)	10.0
Audio Loudness Threshold (dB)	(-40 to 0)	-15
Audio Loudness Duration (Sec)	(1 to 100)	30
Video Error Duration (Frames)	(0 to 900)	450
Macroblock Error Duration (Sec)	(0 to 30)	10
Macroblock Error On Time (Sec)	(0.0 to 30.0)	5.0
Macroblock Threshold Level	(0 to 14)	13

Figure 4-6: AVM Control Page

4.2.4. STB Control Page

This page enables the user to choose the type of Set Top Box that will be controlled by the 160RM. This page also allows for general control of the Set Top Box from one menu.

StreamLINK STB Control		Apply	Close
5. Motorola R5000HD ▾	Button One		
Power Switch	Button Two		
Ir Menu	Button Three		
Menu Up	Button Four		
Menu Down	Button Five		
Menu Left	Button Six		
Menu Right	Button Seven		
Menu OK	Button Eight		
Menu Exit	Button Nine		
461	Button Zero		
Channel Up	Play		
Channel Down	Pause		
Volume Up	Forward		
Volume Down	Backward		

Figure 4-7: STB Control Page

4.2.5. Cycling Control

This page enables the user to set up the list of sources that need to be monitored in cycle with the AVM parameter per channel.



Note: This option will be enabled if +CCA option is purchased.

StreamLINK Cycling Control
Close

Index	Input Type	Channel #	Channel Name	Monitor	Tune Time	Monitor Time	Trap Control	AVM Control
0	component	0	New_Channel	Y	1	1	Traps	AVM
1	component	0	New_Channel	Y	1	1	Traps	AVM

Cycling
Import
Export
Start
Reset
Refresh
Add Row
Delete Index #:

Figure 4-8: Cycling Control Page

- Import:** Allows the user to update the channel list file in the 160RM.
- Export:** Allows the user to retrieve the channel list file for editing from the 160RM.
- Start:** Allows the user to start channel cycling through the channel list.
- Reset:** Allows the user to start the cycling from the first channel in the list.
- Refresh:** Allows the user to refresh the channel list.
- Add Row:** Allows the user to add a channel to the list.
- Delete Index #:** Allows the user to remove a channel from the cycling list. The first column in the cycling list provides an Index number for each row. Enter the Index number you wish to remove into the **Delete Index #** text field.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
Input Co	Chan	Monitor	VideoM	PictureFr	PictureBl	MacroBlo	AudioLeft	AudioRight	AudioLeft	AudioRight	AudioLeft	AudioRight	AudioLeft	AudioRight	Tune_Ti	Monitor	BlackDur	PictureN	AudioMis	AudioOver	AudioSite	AudioSite	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	
ponent	el:1	Name:1	N	ssng:N	eeze:N	ack:N	ck:N	Missing:N	Missing:N	Over:N	Over:N	Silence:N	cc:N	N	me:1	Time:1	ation:800	ons:Leve	FreezeDu	singDurati	AudioOver	Duration:3	ncel:lev	ncelDurati	on:10.00	15	0	ion:450	ration:10	Time:5.0	eshold:8
Input Co	Chan	Name:	Monitor	VideoM	PictureFr	PictureBl	MacroBlo	AudioLeft	AudioRight	AudioLeft	AudioRight	AudioLeft	AudioRight	AudioLeft	AudioRight	Tune_Ti	Monitor	BlackDur	PictureN	AudioMis	AudioOver	AudioSite	AudioSite	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou	AudioLou
ponent	el:2	hannel	Y	ssng:Y	eeze:Y	ack:Y	ck:Y	Missing:Y	Missing:Y	Over:Y	Over:Y	Silence:Y	cc:Y	Y	me:2	Time:1	ation:800	ons:Leve	FreezeDu	singDurati	AudioOver	Duration:3	ncel:lev	ncelDurati	on:10.00	15	0	ion:450	ration:10	Time:5.0	eshold:8

Figure 4-9: Sample CSV File

4.2.6. Advanced Controls Page

This page enables the user to set the frame rate and frame scaling.

Figure 4-10: Advanced Controls Page

Frame Rate: The user can choose from the following frame rates: 30, 25, 20, 15, 10 or 5.

Frame Scaling: The user can choose from the following frame scaling settings: Full, 640x480, 640x352, 480x352, 480x288, 352x288, 352x192 or 192x144.



Please Note: The Bit Rate will change based on the Frame Rate and Frame Scaling settings.

4.2.7. SNMP Controls

This page enables the user to configure the SNMP controls.

StreamLINK SNMP Controls		Done	Cancel
Read Community String	public		
Read/Write Community String	private		
Add Trap Destination	19	Add	
Remove Trap Destination	Destination #1	Remove	
Trap Destination #1:	127.0.0.1		
Trap Destination #2:	192.168.9.10		
Trap Destination #3:	192.168.9.15		
Trap Destination #4:	NONE		
Trap Destination #5:	NONE		
Trap Destination #6:	NONE		
Trap Destination #7:	NONE		
Trap Destination #8:	NONE		

Figure 4-11: SNMP Control

Read Community String: The user can set the Read Community String to “Public” or “Private”.

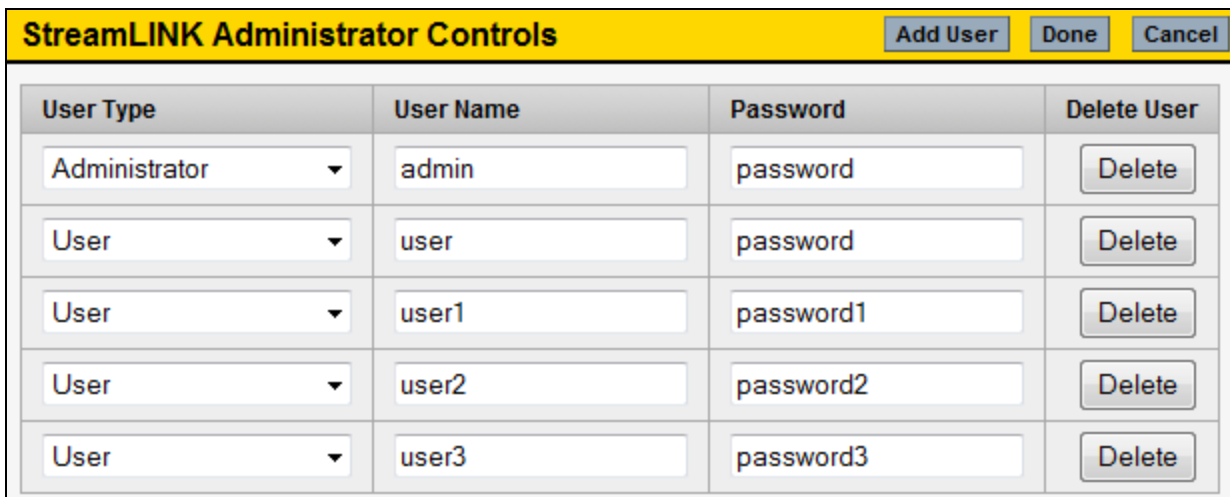
Read/Write Community String: The user can set the Read/Write Community String to “Public” or “Private”.

Add Trap Destination: The user can add up to 8 Trap Destinations. Enter an IP address in the **Add Trap Destination** text field and click on “Add” to submit the IP address.

Remove Trap Destination: To remove a Trap Destination, select a destination number from the drop down menu and click on “Remove” to delete the IP address from the list.

4.2.8. Administrator Controls Page

This page enables you to configure user settings and properties.



StreamLINK Administrator Controls				Add User	Done	Cancel
User Type	User Name	Password	Delete User			
Administrator	admin	password	Delete			
User	user	password	Delete			
User	user1	password1	Delete			
User	user2	password2	Delete			
User	user3	password3	Delete			

Figure 4-12: Administration Controls Page

Add User: Add a new user by selecting this button.

User Type: Select whether a user is an “Administrator” or a “User”.

User Name: Enter a name for the user.

Password: Enter a password for the user.

Delete User: Select the Delete button to remove a user from the list.

4.2.9. System Status Page

This page enables the user to check the status of 160RM.

StreamLINK Encoder Status Close	
Input Video	HD 1080i 60
Input Audio	Audio Present
Encoder Status	Running
Picture Freeze	Not Frozen
Picture Black	Not Black
MacroBlock	Error
Audio Missing Left	Not Missing
Audio Missing Right	Not Missing
Audio Over Left	Level OK
Audio Over Right	Level OK
Audio Silence Left	Not Silence
Audio Silence Right	Silence
Audio Loudness	-42 dB

Figure 4-13: System Status Page

4.2.10. Firmware Upgrade Page

This page enables the user to upgrade the firmware on the 160RM.

1. Using a web browser, log in to the 160RM to access the configuration page.
2. Select the **Upgrade Firmware** tab and the following page will appear as illustrated in Figure 4-14.

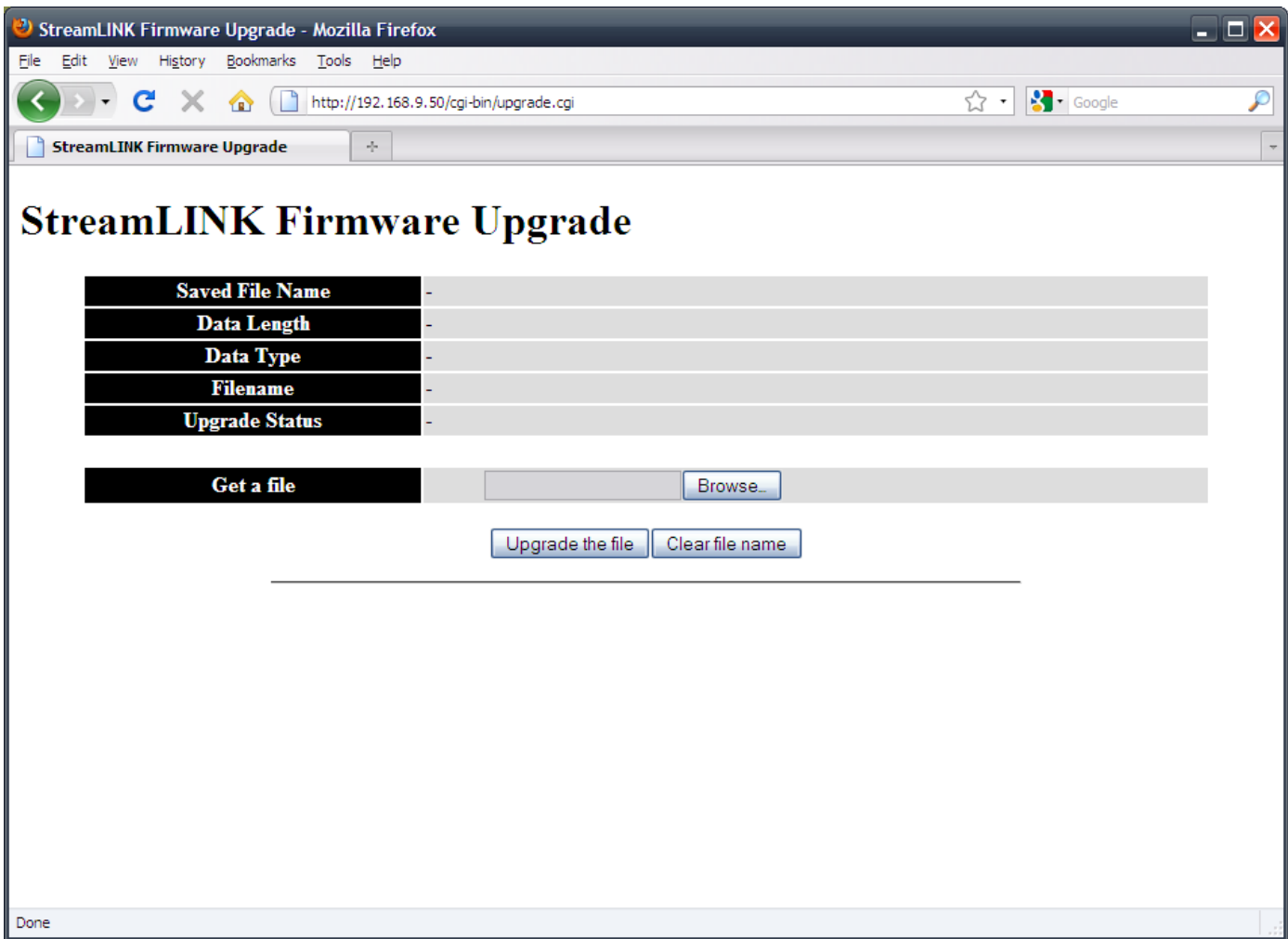


Figure 4-14: Firmware Upgrade Page

3. Browse to the location of the file, select the file and then click the “Upgrade the File” button.
4. After the upgrade is complete, the page will refresh as illustrated in Figure 4-15.



Please Note: Connection will be lost when the unit reboots.

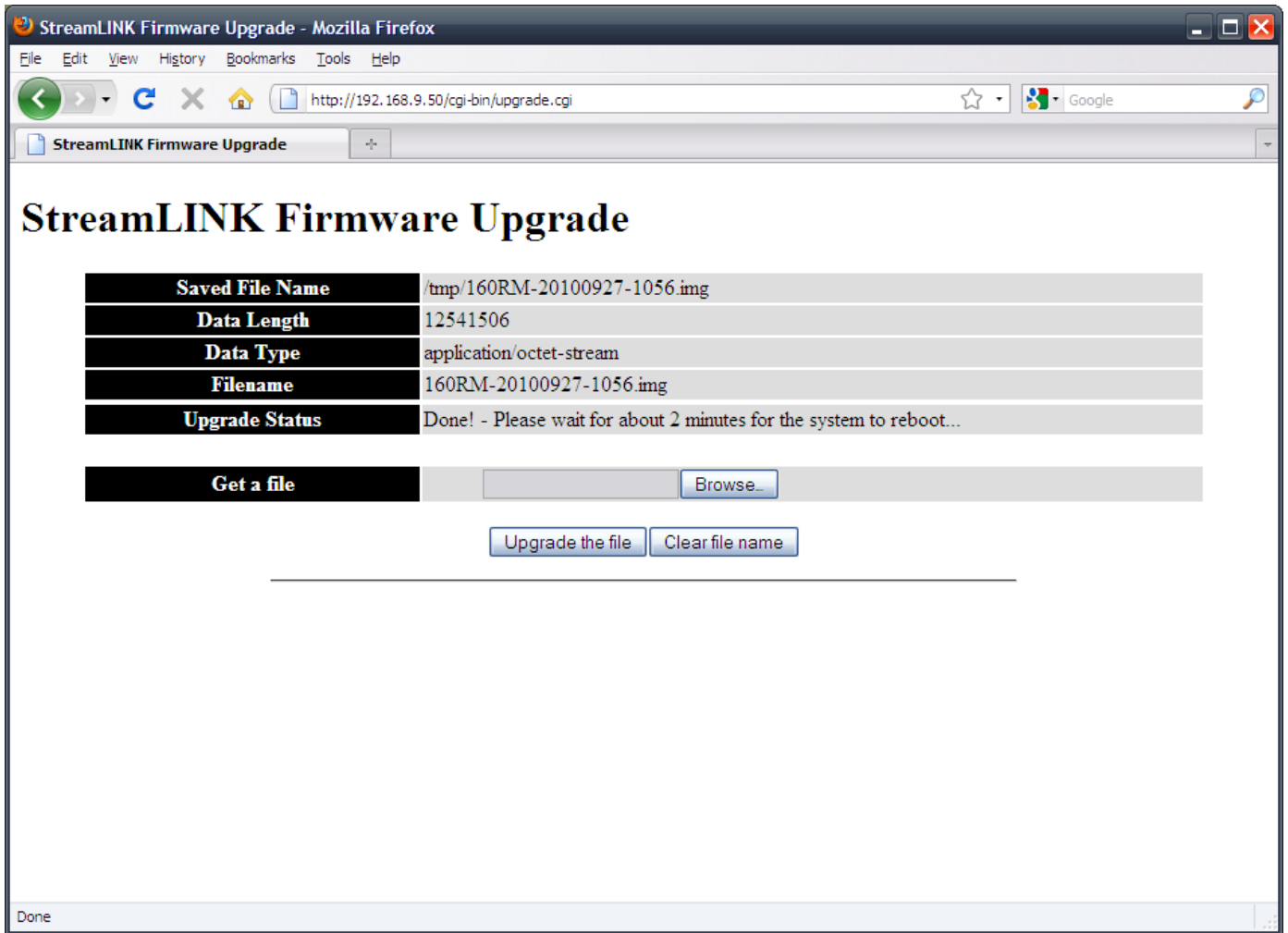


Figure 4-15: Firmware Upgrade Status Page

5. Re-enter the 160RM address to log back in to the configuration page.

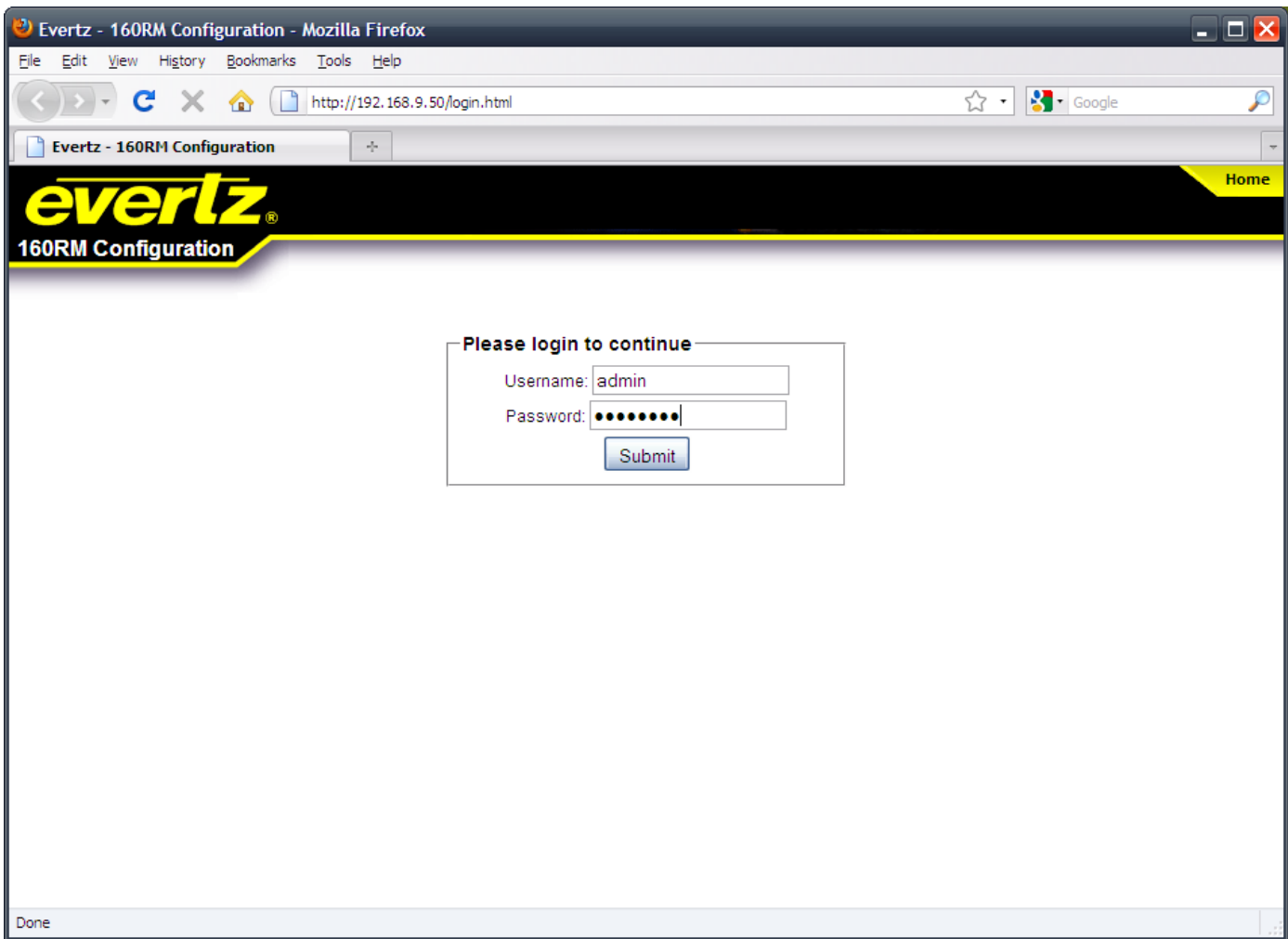


Figure 4-16: Login Page

6. Once the IP address is entered, the 160RM will serve back the login page as illustrated in Figure 4-16. A username and password are required to access the configuration for the device. The default login from the factory is:

Username: admin
Password: password



Please Note: The default username and password can be changed once the user has entered the configuration page.