

Grass valley A BELDEN BRAND NV8500 v3.6.2 Upgrade and Downgrade Procedures

Overview

This document presents 4 procedures:

Upgrading an NV8500 router to v3.6.2 from firmware versions 2.2.0 or later	Page 2
Upgrading an NV8500 router to v3.6.2 from any firmware version <i>prior to</i> v2.2.0	Page 21
Reverting an NV8500 router from firmware version 3.6.2 to versions 2.2.2 or newer	Page 41
Reverting an NV8500 router from firmware version 3.6.2 to versions 1.1 or 1.5	Page 57

The two upgrade procedures differ because of a bug that was fixed at v2.2.0.

The two downgrade (or reversion) procedures differ substantially because there are substantial architectural differences between versions 1.x and 2.2.2.

Be careful to follow the procedure for your system and follow that procedure exactly.

MRC

You should use version 3.5.0 of MRC or later. The latest firmware (.rf) file will be sent to you with the MRC installation file

Requirements

The upgrade has certain requirements.

• A PC running MRC (version 3.5.0 or later).

Do not attempt to run MRC (or NV9000-SE Utilities) on the NV9000.

• The firmware file(s). You will need a version 3.6.2 firmware file for an upgrade, and an earlier version of the firmware file (1.1, 1.5, 2.x, 3.1.x, etc.) if a downgrade becomes necessary.

At this revision, the applicable firmware file is NV8500_HYB_FW_3.6.2.3104.RF.

• If your router has frame sync cards, you will need a frame sync application software file. The name of this file, at this release, is APC2_160build0039.bin. This file is shipped with the NV8500_HYB_FW_3.6.2.3104.RF file.

If you need to revert to an earlier version of the frame sync application software, you will need the software file for that version.

See Updating Frame Sync Card Application Software on page 73 for the frame sync upgrade/downgrade procedure.

• If you want the benefit of MADI updates in this release, you will have to upgrade the firmware in your NV8900s. It is easy to do using MRC and the NV8500_HYB_FW_3.6.2.3104.RF file. See Updating NV8900 Firmware on page 75.

Limitations

These procedures disrupt router service for a period of approximately one-half hour, but possibly more.

If your facility cannot tolerate this disruption, contact Grass Valley Customer Service.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

Most of this procedure is order-dependent. Do not deviate from the procedure.

Upgrade Summary

This is a summary of the upgrade procedure. Details follow after the summary.

- 1 Install the latest version of MRC.
- 2 Disconnect (or stop) the NV9000 (or third-party) control system.
- 3 Create a router configuration "snapshot."
- 4 Update the boot ROMs in control cards (if yours are -03 or earlier).
- Let the active control card be called Card A and the standby control card be called Card B.
- 5 Remove Card B. Then update to newer firmware in Card A.
- 6 Update to newer firmware for all IOXM¹ cards.
- 7 Redefine the I/O card types, using the 'Module Types' page of MRC, for Card A.
- 8 Set input attributes (if needed) for Card A.

Card A now has new firmware and a correct configuration.

- 9 Remove Card A. Reinsert Card B. Then update to newer firmware in the Card B (which is now active).
- 10 Reinsert **Card A**. Reset **Card B** (currently active). **Card A** becomes active and **Card B** becomes standby (as they were before you started)
- 11 Copy the control card configuration from Card A to Card B using the 'Copy Settings' page of MRC.

Card B now has new firmware and the same configuration as Card A.

12 Create another snapshot of the router in MRC. Reconnect (or restart) the NV9000 (or third-party) control system.

1 MRC

 \checkmark

1 Install the latest version of MRC. The installation is quick.

You contacted Grass Valley customer service either to obtain an upgrade for your NV8500 router or because Grass Valley recommended an upgrade. A Grass Valley service technician will have sent you (1) a copy of the MRC software installer, (2) the (.rf) firmware file you need to perform the upgrade, (3) the .rf firmware file for the system you have presently in case you need to revert to your old firmware, and (4) this technical note that you are reading.

The means by which you receive the upgrade materials depends on an agreement between you and the Grass Valley technician. You might receive the materials through an FTP site, through the mail, or by courier. A technician might visit your site and bring the materials to your site.

To install MRC....

Copy the MRC installer and the .rf file(s) (either from an FTP site or from the USB device you received, as the case may be) to a folder in the PC that you use for configuring the router.

^{1.} IOXM is a term that means input, output, crosspoint (XPT) and monitor cards.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

Double-click the installer file to launch the installer. The initial installer window appears:



Click 'Next'.

A window appears in which you can designate the location on the PC in which to install MRC:

Miranda N¥ISION Series Router Configu	rator Installer	
Select Destination Location Where should Miranda NVISION Series Ro	uter Configurator be ins	talled?
Setup will install Miranda NVISIOI following folder.	N Series Router Configu	rator into the
To continue, click Next. If you would like t	o select a different folde	er, click Browse.
C:\Program Files\NVISION\Router Config	urator	Browse
🔽 Create a desktop icon		
At least 8.7 MB of free disk space is requi	red.	
	< Back N	ext > Cancel

The window presents the default location. If you prefer another location, click 'Browse . . .' to navigate to a different folder.

Uncheck 'Create a desktop icon' if you do not want an MRC shortcut to appear on your PC desktop.

The window tells you the disk space needed for the installation. If you do not have that much space, the installation will fail.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

When you are satisfied with the pathname and options, click 'Next'. A confirmation window appears:

🔂 Miranda NVISION Series Router Configurator Installer	_ 🗆 🗙
Ready to Install Setup is now ready to begin installing Miranda NVISION Series Router Configurator on your computer.	R
Click Install to continue with the installation, or click Back if you want to review o change any settings.	or
Destination location: C:\Program Files\NVISION\Router Configurator	*
Start Menu folder: NVISION	
Additional tasks: Create a desktop icon	
<u>र</u>	V V
< Back Install	Cancel

If the options presented are not correct, click 'Back' to go back to the previous window and re-enter a pathname or change options.

Otherwise, click 'Next' to start the installation or click 'Cancel' to stop the installer.

When you start the installation, a progress window appears:

🔀 Miranda N¥ISION Series Router Configurator Installer	
Installing Please wait while Setup installs Miranda NVISION Series Router Configurator on your computer.	R
Extracting files C:\Program Files\NVISION\Router Configurator\Support.dll	
	Cancel

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

After several seconds, the installation will complete. The completion window appears:



Uncheck 'Launch Grass Valley Router Configurator' if you do not want to run MRC immediately. Click 'Finish'.

2 Control System

Disconnect the NV9000 (or third-party) control system from the router.

- **Preferred Method:** Use this method if you have an NV9000 control system and you can stop the NV9000 without disrupting your entire system.
 - 1 Stop the NV9000. To stop the NV9000, launch NV9000-SE Utilities. Go to the 'System Management' page and click the 'Stop Controller 2' button and the 'Stop Controller 1' button.

It is recommended that you stop the inactive controller before you stop the active controller.

- Alternate Method: Use this method if you cannot stop the NV9000 or if you have a third-party control system.
 - 1 Remove the cables (whether serial or Ethernet) from the control ports of the router. (Doing this will cause alarms in the NV9000 system. You can safely ignore the alarms.)

If you have MRC running, removing Ethernet cables from the router's control cards will cause MRC to lose contact with the router.

2 Connect your PC (that is running MRC) to the router's control ports via a small Ethernet switch.

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The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

3 Router Snapshot

These steps create a file that records all the router settings. It is important to have this file, which you can send to Grass Valley, if your upgrade does not succeed. Make this file before doing anything else.

- 1 Launch MRC. Go to its 'Copy Settings' page.
- 2 Select the active control card in the upper section of the page.
 - 3 Choose 'Export' in the lower section of the page.
 - 4 Click 'Copy Settings'

Select	Online	Name	Type	IP Address 🔺	Expansion
0	Standby	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	🔍 🔍 Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone

Standby				Expanoior
	TSQ_8576	NV8576	192.168.102.210	Stand Alone
O New Virtual	Create Configuration			
 Export 	To File			

 \checkmark

 \checkmark

5 A dialog appears in which you can browse to name a file and location in which to store the settings:



Choose a folder and a file name. The saved file will be a .zip file.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

6 Click 'Save' and wait for the confirmation notice:

Success		×
i	Configuration successfully saved to file: C:\TEST\TSQ_8576 up 130722.zip	
	OK	

4 Boot ROM

For each EM0833 control card, ensure that the boot ROM is up-to-date. You need a -04 or -05 boot ROM. The -05 boot ROM is a requirement only for expanded NV8576-Plus frames.

The boot ROM is in the same location (U10) on all revisions of the EM0833 control cards. The part number for the ROM is UZ0453-00. Its code is SV1038-05. The label for the -05 version reads:

```
MIRANDA © 11
SV1038-05,A
V 2.0.0.0
CS=0x2625
```

To change the boot ROM, remove the old boot ROM from its socket. Note the orientation of the ROM IC. Insert a new boot ROM in the socket with the same orientation.

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

Frame1	Frame2	▲ Keep the router door closed as much as possible when you are doing this.
\checkmark	\checkmark	1 Remove the standby control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Follow the instructions under <u>Replacing the Boot ROM</u> on page 40. Then replace the standby card in the frame.
\checkmark	\checkmark	2 Switch control to the standby card. To do that, press the reset button on the active control card. Wait for the standby card to become the active card. (When a control card is active, its amber LED is on.)
\checkmark	\checkmark	3 Remove the formerly active control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Follow the instructions under <u>Replacing the Boot ROM</u> on page 40Then replace that control card in the frame.
\checkmark	\checkmark	4 Switch control back to the formerly active control card.

(In the following steps, call the presently active control card Card A and the standby control card Card B.)

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

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5 Firmware Update for Card A

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

- 1 Completely remove **Card B** (the standby control card, assuming there is one). Close the router door.
 - 2 Go to the 'Firmware' page in MRC. Click 'Refresh Summary'.

3 Select Card A at the bottom of that page.

Select / Network F Control (All Select If M rame Summary Cards Network	Needs Update Select None	Select	✓ Update only if ve	rsions are different
Select	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
					2
			1		
C Refr	esh Summary	Update Firmware	/iew Past Update	Logs Reset Control	Card

The stand-by card (Card B) should read 'Off-Line'.

4 Click the 'Choose' button, at the top of the page, to locate the firmware file. At this revision, that is NV8500_HYB_FW_3.6.2.3104.RF.

Choose...

The 'Choose Router Firmware' dialog appears:

C	hoose th	e Router Firmware			X
	Please	select the Router Firmware File to upda	te with:		
	Select	Firmware File Name	Active	Available	E .11
	0	NV8500_HYB_FW_3.2.0.2426.RF	In Use	On Router	Fliter:
	۲	NV8500_HYB_FW_3.6.2.3104.RF		On PC	Used on this Control Card
					All available
					List the RF files that reside on this PC or Control Card and are available for use.
		ОК	Cancel	Browse f	or RF file

Because you are installing new firmware, click 'Browse for RF File'.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

The 'Select Router Firmware' dialog appears:

W Select the Ro	Jter Firmware	×
Look <u>I</u> n:	TEST 🗾 🔽	
My Recent Documents Desktop Desktop My Documents My Computer	 OLD NV8500_HYB_FW_3.1.3.2388.RF NV8500_HYB_FW_3.2.0.2426.RF NV8500_HYB_FW_3.3.0.2504.RF NV8500_HYB_FW_3.4.0.2679.RF NV8500_HYB_FW_3.6.2.3104.RF 	
My Network Places	File Name: NV8500_HYB_FW_3.6.2.3104 Select Files of Type: Router Firmware Files (*.rf) Cancel	

Here, navigate to a folder that contains the firmware file you want. At this revision, the file is NV8500_HYB_FW_3.6.2.3104.RF. Highlight the file and click 'Select'.

The	'Firmware'	page	changes	to	highlight	all	cards in n	eed	of up	dating	(in	red)):
-----	------------	------	---------	----	-----------	-----	------------	-----	-------	--------	-----	------	----

Router Firm	nware File			
NV8500_H	YB_FW_3.6.2.310	4		Choose
- · · · ·				
Current Fin	mware Versions-			
Update	Needs Update	Name	Version	Description
		CPLD	1.0.0.0	
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32
	r	Control Card	3.2.0.2426	EM0833 Firmware - Nov 7, 2012
	₽	IOXM-UI-004	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
	V	IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
	₽∕	IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
	₽ ∕	IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
	V	IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)
	₽∕	IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
	✓	IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
	¥	IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
	₽⁄	IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
	V	IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
	V	IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
	V.	IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
	¥	IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
	V	IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)
	¥	IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)
	¥	IOXM-XR-005	0.0.0.14	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
	V	IOXM-XR-006	0.0.0.16	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
Select A	II Select If I	leads Undate Sele	ct None Selec	✓ Undete only if versions are different
	Jelect III	Cour opdate Dele	Delec	
Network Fr	ame Summary —			
Control C	ards Network I	Levels		

Frame1 Frame2

 \checkmark

5 Click 'Select None' to deselect all cards. Then select the control card by marking its check box in the 'Update' column.

Make sure that this is the only card that has a check mark.

 \checkmark

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later



If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

Because you have updated the firmware, but have not yet updated the IOXM cards, you might see a message such as "Setting of default values for module types failed" as shown in the illustration above. You can safely ignore that message.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

Firmware Updates for IOXM² Cards 6

Do this for both frames if you are updating firmware of an expanded NV8576-Plus. Frame1 Frame2

\checkmark 1 Remain in the 'Firmware' page in MRC. Ensure that Card A at the bottom of the page is selected.

Г	Network F	rame Summary —					
	Control	Cards Network L	evels				
	Select	Online	Name	Туре	IP Address 🔺	Expansion	
	0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone	
	۰	🔍 Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone	
							-
	C Refr	esh Summary	🔘 Update Firmware	√iew Past Update	Logs Reset Control	I Card	

 \checkmark

 \checkmark

 \checkmark

2 The 'Firmware' page should report the same firmware file you used to update the control card. If it does not, locate and select the firmware file as you did in step 5.4. At this revision, the firmware file name is NV85ØØ_HYB_FW_3.6.2.31Ø4.RF.

The 'Update Firmware' page highlights all cards in need of updating (in red):

	blanda Undata	blanca.	Vanaian	Description
pdate	Needs Opdate	Name	4 0 0 0	Description
		ROM	4.0.0.0	EM0922DOM Oct 1 2010 00:27:22
		Control Card	3.6.2.3104	EM0833 Firmware - Jul 25, 2014
~		IOXM-UI-004	7.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
-		IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	► ►	IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
2	₽ P	IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)
~	V	IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	V	IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	₽	IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	₽ E	IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	V	IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	Ľ	IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~		IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)
<u> </u>	Ľ	IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)
		IOXM-XR-UU5	0.0.0.14	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
~	₽	IOXM-XR-UU6	0.0.0.16	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)



3 Click the 'Selected if Needs Update' button.



 \checkmark

 \checkmark

4 Make sure that the control card is unselected.

^{2.} IOXM cards include Input, Output, XPT (crosspoint), and Monitor cards.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

🔒 Save...

💾 Print.

\checkmark	\checkmark	5 Click 'Update Firmware' (at the bottom of the page).
		O Update Firmware
		Click 'Yes' in the confirmation dialog that appears:
		Update Firmware Image: Constraint of the selected modules? Are you sure you want to update the selected modules? This router should be offline in a service window. This update will take an estimated 16 minutes. Image: Provide the selected modules?
Frame1	Frame2	MRC proceeds to update all selected cards in order of card type. It updates all input TDM (MADI) cards, in parallel, then all disembedder cards, also, in parallel, and so on, until all selected cards are updated.
\checkmark	\checkmark	6 When the update is complete, MRC displays a log of the updates. It should normally say "All updates were successful."
		W Firmware Update Status
		7/9/14 11:46:22 AM: Updating IOXM-X-001 firmware from "EM0817-00, SV0985-04, Build: 2" to "EM0817, SV0985-06, Build: 0" 7/9/14 11:46:42 AM: Multiple IOXM Update 7/9/14 11:46:42 AM: Updating IOXM-X-001 NV8500 288X288 3Gig XPT HYBRID (EM0817, SV0985-04) 7/9/14 11:46:42 AM: Updating IOXM-X-003 NV8500 288X288 3Gig XPT HYBRID (EM0817, SV0985-04) 7/9/14 11:49:36 AM: Update Succeeded
		7/9/14 11:49:37 AM: Updating NV8500 288X288 3Gig RED XPT HYBRID (EM0818-00, SV1092-00, SV1093-00) 7/9/14 11:49:37 AM: Updating IOXM-XR-005 firmware from "EM0818-00, SV1092-00, Build: 14" to "EM0818, SV1092-01, Build: 0"
		7/9/14 11:49:57 AM: Updating IOXM-XR-005 NV8500 288X288 3Gig RED XPT HYBRID (EM0818-00, SV1092-00, SV1093-00) 7/9/14 11:52:35 AM: Update Succeeded
		7/9/14 11:52:36 AM: Updating NV8500 288X288 3Gig RED XPT HYBRID (EM0818-00, SV1094-00) 7/9/14 11:52:36 AM: Updating IOXM-XR-006 firmware from "EM0818-00, SV1094-00, Build: 16" to "EM0818, SV1094-02, Build: 0"
		7/9/14 11:52:38 AM: Updating IOXM-XR-006 NV8500 288X288 3Gig RED XPT HYBRID (EM0818-00, SV1094-00) 7/9/14 11:53:54 AM: Update Succeeded
		7/9/14 11:53:54 AM: All updates were successful

Examine the update log. If it reports any failure, retry the update for the failed card.

▲ If the update for an individual card fails, respond 'Skip' to the Retry message that appears. Perform all retry attempts after the update finishes and produces its report.

Cards for which the update failed will remain red in the table. Make sure that these are selected and click 'Update Firmware' again. Again, observe whether the update report says 'All updates were successful'.

None of the cards listed in the 'Firmware' page should be red.

Close

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

7 Redefine the I/O Card Types (for Card A)

✓ 1 Go to the 'Module Types' page of MRC.

 \checkmark

 \checkmark

 \checkmark

2 Choose **Card A** of the router you are updating:

Edit	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
	S.				
	27 10				
	<i>4</i>				

If you are updating an expanded NV8576-Plus, you must select **Card A** of the master frame. MRC will present a dialog asking you to identify the slave frame. Choose the slave frame in this dialog. (But do *not* select the slave frame in the 'Control Cards' tab at the bottom of the 'Module Types' page!)

3 It is possible that, after you perform step 6 (Firmware Updates for IOXM Cards) the 'Module Types' page reports errors—with red text—for some or all of your modules:

Module Type S	ettings –			_
Location	Present	Module		Γ
Upper Output	No		•	Ŀ
Upper Output	No		▼	
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	L
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	L
Upper Output	No		•	l
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	l
Upper Output	No		•	
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)		L
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)		1
Upper Output	No		•	
Upper Output	No		•	ľ
Upper Output	Yes	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM	0	ŀ
Upper Output	No		•	ŀ
Upper Output	No		-	L
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	l
Upper Output	No		•	L
Upper Output	No		-	
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	
Lower Output	No		•	
Lower Output	No		-	

This is not an immediate cause for alarm. It can occur because of differences in configuration requirements between your old system and the new firmware and software.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

Right-click the module list anywhere to display the page's context menu:

Clear All Locations without actual Modules	
Select All	
Select All Input Locations	
Select All Output Locations	
Select All Crosspoint Locations	
Select All Monitor Locations	
Select All Control Card Locations	
Select All Power Supply Locations	
Set Selected Input Locations To	•
Set Selected Output Locations To	→
Set Selected Crosspoint Locations To	→
Set Selected Monitor Locations To	→
Set Selected Control Card Locations To	►
Set Selected Power Supply Locations To	►

Click the 'Clear All Locations without Actual Modules' command. A warning appears:

Warr	ning	X
\triangle	This action cannot be undone. Are y	ou sure you want to do this?
	Clear Visible Clear All	Cancel

Choose 'Clear All'.

 \checkmark

MRC will do just that: all rows of the table for which there is no card in the corresponding slot become blank. Red text for the slots that do have cards will remain red. However, clicking the 'Update Control Card' button in the next step will eliminate the red text and complete the redefinition step.

4 Click the 'Update Control Card' button. MRC repopulates the list of modules according the card types known to control card. (Because you are upgrading, there should be no unknown card types.)

If you are updating an expanded NV8576-Plus, MRC displays all the modules of the entire router (both frames).

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

8 Set Input Attributes (for Card A)

Skip this step if you have no input attributes to set.

If you are upgrading from firmware version 2.2.2, you will not need to change any input attributes.

At present, there is a single input attribute (applicable to any input) and that is the "force embedder ON" attribute. When this attribute is set, the router forces the output embedder involving this input to be used. Otherwise, the output embedder's state (either used or bypassed) is determined by a routing logic sometimes called "switching rules."

1 Go to the 'Input Attributes' page of MRC.

2 Choose **Card A** of the router you are updating:

Edit	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
	1				
					8
	1				
	2				

If you are updating an expanded NV8576-Plus, you must select **Card A** of the master frame. MRC will present a dialog asking you to identify the slave frame. Choose the slave frame in this dialog.

If you are updating an expanded NV8576-Plus, MRC displays all the modules of the entire router (both frames).

 \checkmark

 \checkmark

 \checkmark

3 Select any required input cards. You can select multiple cards using click, shift-click, and control-click methods. Selected cards are highlighted in dark green:

Input	Attributes				
Input	Output Embedder Attrit	ou	Location	Module	
25	Use Switching Rules	-	UI-003		1
26	Use Switching Rules	-	UI-003		
27	Use Switching Rules	-	UI-003		F
28	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C	
29	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C	
30	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C	
31	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C	
32	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C	
33	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C	
34	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C	
35	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C	
36	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C	
37	Use Switching Rules	•	UI-005		
38	Use Switching Rules	•	UI-005		
39	Use Switching Rules	-	UI-005		
40	Use Switching Rules	-	UI-005		
41	Use Switching Rules	•	UI-005		
42	Use Switching Rules	•	UI-005		-

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

4 Right-click anywhere in the list to display the context menu. In the context menu, choose the attribute for the selected input card:



 \checkmark

 \checkmark

5 Click 'Update Control Card' at the bottom of the page:

🔟 Update Control Card 👘

MRC sets the input attributes according to your select and writes the data to the control card.

9 Firmware Update for Card B

Skip this step if there is no standby control card (Card B).

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.



- 2 Reinsert the **Card B** in the slot from which it came. Close the router door. Wait for **Card B** to boot up. It becomes the active control card. It takes a few seconds.
- 3 Go to the 'Firmware' page in MRC. Select Card B at the bottom of that page.

Select	Online	Name	Туре	IP Address 🔺	Expansion
•	🔍 Active	TSQ_8576	NV8576	192.168.102.210	Stand Alone
0	Off-Line		NV8576	192.168.102.211	Stand Alone

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

4 Click the 'Choose' button, at the top of the page.

Choose...

The 'Choose Router Firmware' dialog appears:

Belect	Firmware File Name	Active	Available	Eileen
0	NV8500_HYB_FW_3.2.0.2426.RF	In Use	On Router	Filler.
۲	NV8500_HYB_FW_3.6.2.3104.RF		On PC	📄 🔾 Used on this Control Car
				All available
				• All available
				list the RE files that reside (
				this BC or Control Cord and
				this PC or Control Card and
	2			are available for use.

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

Because you are installing new firmware, choose 'All Available' at the right side of the dialog and click 'Browse for RF File'.

The 'Select Router Firmware' dialog appears:

W Select the Ro	uter Firmware	×
Look <u>I</u> n:	TEST 🗾 📝 📴	
My Recent Documents Desktop Desktop My Documents My Computer	 OLD NV8500_HYB_FW_3.1.3.2388.RF NV8500_HYB_FW_3.2.0.2426.RF NV8500_HYB_FW_3.3.0.2504.RF NV8500_HYB_FW_3.4.0.2679.RF NV8500_HYB_FW_3.6.2.3104.RF 	
My Network Places	File Name: NV8500_HYB_FW_3.6.2.3104 Select Files of Iype: Router Firmware Files (*.rf) Cancel	

Here, navigate to a folder that contains the firmware file you want. Use the same file you used to update **Card A**. Highlight the file and click 'Select'.

Router Firr	nware File			
NV8500_H	IYB_FW_3.6.2.310	4		Choose
Current Fir	mware Versions-			
Update	Needs Update	Name	Version	Description
		CPLD	1.0.0.0	A
		ROM	2.0.0.0	EM0833ROM Jun 10 2011 11:40:33
1		Control Card	3.2.0.2426	EM0833 Firmware - Nov 7, 2012
		IOXM-UI-004	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-UI-018	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-UI-020	Missing From RF	EM0000-00, SV0000-00
		IOXM-UI-024	Missing From RF	EM0000-00, SV0000-00
		IOXM-UI-025	Missing From RF	EM0001-00, SV0000-00
		IOXM-LI-033	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-LI-044	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-LI-045	10.0.0.1	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)
		IOXM-LI-063	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
		IOXM-UO-001	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
		IOXM-UO-017	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-UO-018	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-UO-020	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-UO-026	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
		IOXM-UO-029	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-UO-032	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-LO-052	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
		IOXM-X-001	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)
		10XM-X-003	0.0.0.0	NV8500 288X288 3Gid XPT HYBRID (EM0817)

Ignore any messages such as "Missing from RF" in the illustration above.

Frame1 Frame2



5 Click 'Select None' to deselect all cards.

6 Check the check box in the 'Update' column to select the control card. *Make sure that this is the only card that has a check mark.*

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later



10 Reinsert Card A and Make it Active

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Re-insert Card A.

Either press the (physical) reset button on **Card B** or, while **Card B** is still selected in MRC, right-click in the 'Network Frame Summary' section of the 'Firmware' page and choose 'Reset Control Card' from the global context menu:



This context menu is also available in the 'From Device' section of the 'Copy Settings' page.

Respond 'Yes' in the confirmation dialog:

Confirm	Reset	×
?	Select the reset type:	_
	Reset Only	
	Write to Serial EE and then Reset	
	Are you sure you want to reset this control card	?

Card A becomes active and Card B becomes standby (as they were before you started).

 \checkmark

 \checkmark

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

11 Copy the Configuration from Card A to Card B

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Go to the 'Copy Settings' page of MRC.

 \checkmark

 \checkmark

2 Select **Card A** in the 'From Device' table at the top of the page. The 'To Device' table, at the bottom of the page, will redisplay according to your selection. Select **Card B** in the 'To Device' table.

Select O	Online Standby Active	Name TSQ_8576 TSQ_8576	Type NV8576 NV8576	IP Address - 192.168.102.210 192.168.102.211	Expansion Stand Alone Stand Alone
Settings '	To Be Copied		Pood	Only Status Data	
Conlig	Ination Data		Reau	Only Status Data	
🗈 Net	work Settings			ontrol Card State	
	IP Address and	Subnet Mask		ystem Status	
V	Network Gatewa	ay Address		'ersion Data	
V	Device Name			F File Version Data	
	- Configuration Lo	ck	□ A	vailable Protocols	
	r ooningerenon ze		□s	tatus of Modules	
Con 🗎	nfiguration Setting	ls		erial EE Chip Status	
	Router Levels			ontrol Card Running Log	
	Input Attributes			ontrol Card Startun Log	
V	AES Reference	Setting		ontrol Oard Otantap Log	
	Dual Reference	Setting			
	I Output Attributo	~ ~			
					Check All Uncheck
ору То-					
Select	Online	Name	Type	IP Address 🔺	Expansion
•	Standby	TSQ_8576	NV8576	192.168.102.210	Stand Alone
0	 New vinual Export 	To File			

- 3 Leave the entries in the 'Settings to Be Copied' section, in the middle of the page, at their defaults.
- 4 Click the 'Copy Settings' button.

Respond 'Yes' to the confirmation message:

	×
?	Are you sure you want to copy settings?
	From:
	TSQ_8576 - 192.168.102.211
	To:
	TSQ_8576 - 192.168.102.210
	Remember the response to this message
	Yes No

The Upgrade Procedure for Routers at Firmware Version 2.2.0 and Later

5 MRC copies the configuration from **Card A** to **Card B**. At the end of the copy, MRC asks you whether you want to reset the control card:

		×
?	Settings copied successfully to (TSQ_8576 - 192.168.102.210) Do you want to reset it?	
	Remember the response to this message	
	Yes No	

Respond 'Yes'.

6 After the reset, MRC displays a completion message:

	×
i	The settings were copied and verified successfully.
	OK

12 Completion

If the copy in step 11 reported success, your upgrade is finished.

If there were unresolved failures, contact Grass Valley customer service.

Create another snapshot—as you did in step 3 on page 6—of the router in MRC, especially if there were failures. In the event of failures, you will be asked to send both snapshots—this one and the one you made in step 3—to Grass Valley customer service.

1 If you disconnected your control system, reconnect it, disconnecting any temporary Ethernet connections you might have made between your PC and the router. However, if you stopped the NV9000, you may now restart it.

13 Testing

 \checkmark

You can perform these quick tests to determine whether the firmware upgrade was successful.

These tests are discretionary and not part of the procedure itself.

1 Observe the LEDs on the control cards, crosspoint cards, I/O cards, and monitor cards.

I/O and monitor cards should all have their amber 'FPGA loaded' LED on (and steady) and they should have their green 'Good COM' LEDs on. No card should have its red 'Bad COM' LED on.

Each crosspoint card will have a green "health" LED on.

Each control card will also green health LED on. The active control card will have its amber LED on.

- 2 Examine the I/O cards in the 'Module Status' page of MRC. Modules with problems are highlighted in the table with red circles. Good modules have green circles.
- 3 In the 'Crosspoints' page of MRC, perform a few takes. (This is minimally helpful, but it will show whether the router is functioning.

More extensive testing is beyond the scope of this document.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

Most of this procedure is order-dependent. Do not deviate from the procedure.

Upgrade Summary

This is a summary of the upgrade procedure. Details follow after the summary.

- 1 Install the latest version of MRC.
- 2 Disconnect (or stop) the NV9000 (or third-party) control system.
- 3 Create a router configuration "snapshot."
- 4 Update the boot ROMs in control cards (if yours are -03 or earlier).
- Let the active control card be called **Card** A and the standby control card be called **Card** B.
- 5 Remove Card B. Then update to newer firmware in Card A.
- 6 Remove all monitor cards, from the frame, that do not report in the MRC firmware page or that have SV0872-10 or older code. A Grass Valley service technician must JTAG these cards at this step.
- 7 Reinsert all monitor cards that have been JTAG'd.
- 8 Update to newer firmware for all IOXM³ cards.
- 9 Redefine the I/O card types, using the 'Module Types' page of MRC, for Card A.
- 10 Set input attributes (if needed) for Card A.
- Card A now has new firmware and a correct configuration.
- 11 Remove Card A. Reinsert Card B. Then update to newer firmware in the Card B (which is now active).
- 12 Reinsert **Card A**. Reset **Card B** (currently active). **Card A** becomes active and **Card B** becomes standby (as they were before you started)
- 13 Copy the control card configuration from Card A to Card B using the 'Copy Settings' page of MRC.

Card B now has new firmware and the same configuration as Card A.

14 Create another snapshot of the router in MRC. Reconnect (or restart) the NV9000 (or third-party) control system.

1 MRC

 \checkmark

1 Install the latest version of MRC. The installation is quick.

You contacted Grass Valley customer service either to obtain an upgrade for your NV8500 router or because Grass Valley recommended an upgrade. A Grass Valley customer service technician will have sent you (1) a copy of the MRC software installer, (2) the (.rf) firmware file you need to perform the upgrade, (3) the .rf firmware file for the system you have presently in case you need to revert to your old firmware, and (4) this technical note that you are reading.

The means by which you receive the upgrade materials depends on an agreement between you and the Grass Valley technician. You might receive the materials through an FTP site, through the mail, or by courier. A technician might visit your site and bring the materials to your site. *To install MRC*...

^{3.} IOXM is a term that means input, output, crosspoint (XPT) and monitor cards.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

Copy the MRC installer and the .rf file(s) (either from an FTP site or from the USB device you received, as the case may be) to a folder in the PC that you use for configuring the router.

Double-click the installer file to launch the installer. The initial installer window appears:



Click 'Next'.

A window appears in which you can designate the location on the PC in which to install MRC:

🐻 Miranda N¥ISION Series Router Configur	ator Installer		<u> </u>
Select Destination Location Where should Miranda NVISION Series Rou	ter Configurator	be installed?	S
Setup will install Miranda NVISION following folder. To continue, click Next. If you would like to	Series Router C	onfigurator into nt folder, click Bi	the
C:\Program Files\NVISION\Router Configu	rator		Browse
🔽 Create a desktop icon			
At least 8.7 MB of free disk space is require	ed.		
	< Back	Next >	Cancel

The window presents the default location. If you prefer another location, click 'Browse . . .' to navigate to a different folder.

Uncheck 'Create a desktop icon' if you do not want an MRC shortcut to appear on your PC desktop.

The window tells you the disk space needed for the installation. If you do not have that much space, the installation will fail.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

When you are satisfied with the pathname and options, click 'Next'. A confirmation window appears:

iranda NVISION Series Router Configu	ırator Installer		
eady to Install Setup is now ready to begin installing Mira Configurator on your computer.	anda NVISION Serie:	s Router	Ş
Click Install to continue with the installation change any settings.	on, or click Back if yo	ou want to review	v or
Destination location: C:\Program Files\NVISION\Router C	onfigurator		*
Start Menu folder: NVISION			
Additional tasks: Create a desktop icon			
T			*
	< Back	Tostall	Cancel

If the options presented are not correct, click 'Back' to go back to the previous window and re-enter a pathname or change options.

Otherwise, click 'Next' to start the installation or click 'Cancel' to stop the installer.

When you start the installation, a progress window appears:

🚏 Miranda NVISION Series Router Configurator Installer	_ 🗆 🗙
Installing Please wait while Setup installs Miranda NVISION Series Router Configurator on your computer.	R
Extracting files C:\Program Files\NVISION\Router Configurator\Support.dll	
	Cancel

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

After several seconds, the installation will complete. The completion window appears:



Uncheck 'Launch Grass Valley Router Configurator' if you do not want to run MRC immediately. Click 'Finish'.

2 Control System

Disconnect the NV9000 (or third-party) control system from the router.

- Preferred Method: Use this method if you have an NV9000 control system and you can stop the NV9000 without disrupting your entire system.
 - 1 Stop the NV9000. To stop the NV9000, launch NV9000-SE Utilities. Go to the 'System Management' page and click the 'Stop Controller 2' button and the 'Stop Controller 1' button.

It is recommended that you stop the inactive controller before you stop the active controller.

- Alternate Method: Use this method if you cannot stop the NV9000 or if you have a third-party control system.
 - 1 Remove the cables (whether serial or Ethernet) from the control ports of the router. (Doing this will cause alarms in the NV9000 system. You can safely ignore the alarms.)

If you have MRC running, removing Ethernet cables from the router's control cards will cause MRC to lose contact with the router.

2 Connect your PC (that is running MRC) to the router's control ports via a small Ethernet switch.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

3 Router Snapshot

These steps create a file that records all the router settings. It is important to have this file, which you can send to Grass Valley, if your upgrade does not succeed. Make this file before doing anything else.

- 1 Launch MRC. Go to its 'Copy Settings' page.
 - 2 Select the active control card in the upper section of the page.
 - 3 Choose 'Export' in the lower section of the page.
 - 4 Click 'Copy Settings'

C Refresh Summary

Select	Online	Name	Туре	IP Address 🔺	Expansion
\odot	Standby	TSQ_8576	NV8576	192.168.102.210	Stand Alone
۰	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
Copy To-					
Copy To- Select	Online	Name	Туре	IP Address	Expansion
Copy To- Select	Online Standby	Name TSQ_8576	Type 19: NV8576 19:	IP Address 🔺 2.168.102.210	Expansion Stand Alone
Copy To- Select	Online Standby New Virtual	Name TSQ_8576 Create Configuration	Туре NV8576 19:	IP Address 🔺 2.168.102.210	Expansion Stand Alone

 \checkmark

 \checkmark

 \checkmark

 \checkmark

5 A dialog appears in which you can browse to name a file and location in which to store the settings:

🖻 Import Configuration..

🕂 Save					×
Save <u>I</u> n:	🛅 TEST		•	P	
My Recent Documents Desktop Desktop My Documents My Computer	СLD №8500_НҮВ_	FW_1.5.0.1976.RF			
	File <u>N</u> ame:	TSQ_8576		Save	
My Network Places	Files of <u>T</u> ype:	Config Archives (*.zip)		 Cancel 	

Choose a folder and a file name. The saved file will be a .zip file.

Copy Settings..

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0



4 Boot ROM

 \checkmark

For each EM0833 control card, ensure that the boot ROM is up-to-date. You need a -04 or -05 boot ROM. The -05 boot ROM is a requirement only for expanded NV8576-Plus frames.

The boot ROM is in the same location (U10) on all revisions of the EM0833 control cards. The part number for the ROM is UZ0453-00. Its code is SV1038-05. The label for the -05 version reads:

```
MIRANDA © 11
SV1038-05,A
V 2.0.0.0
CS=0x2625
```

To change the boot ROM, remove the old boot ROM from its socket. Note the orientation of the ROM IC. Insert a new boot ROM in the socket with the same orientation.

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

Frame1	Frame2	▲ Keep the router door closed as much as possible when you are doing this.
\checkmark	\checkmark	1 Remove the standby control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Follow the instructions under <u>Replacing the Boot ROM</u> on page 40. Then replace the standby card in the frame.
\checkmark	\checkmark	2 Switch control to the standby card. To do that, press the reset button on the active control card. Wait for the standby card to become the active card. (When a control card is active, its amber LED is on.)
\checkmark	\checkmark	3 Remove the formerly active control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Follow the instructions under <u>Replacing the Boot ROM</u> on page 40. Then replace that control card in the frame.
\checkmark	\checkmark	4 Switch control back to the formerly active control card.

(In the following steps, call the presently active control card Card A and the standby control card Card B.)

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

5 Firmware Update for Card A

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

- 1 Completely remove **Card B** (the standby control card, assuming there is one). Close the router door.
 - 2 Go to the 'Firmware' page in MRC. Click 'Refresh Summary'.

3 Select **Card A** at the bottom of that page.

ame Summary ards Network L	evels			
Online	Name	Туре	IP Address 🔺	Expansion
Off-Line		NV8576	192.168.102.210	Stand Alone
Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
	arme Summary — ards Network L Online Off-Line	ards Network Levels Online Name Off-Line Active TSQ_8576	ards Network Levels Online Name Type Off-Line NV8576 Active TSQ_8576 NV8576	ards Network Levels Online Name Type IP Address Off-Line NV8576 192.168.102.210 Active TSQ_8576 NV8576 192.168.102.211

The stand-by card (Card B) should read 'Off-Line'.

4 Click the 'Choose' button, at the top of the page, to locate the firmware file. At this revision, that is NV8500_HYB_FW_3.6.2.3104.RF.

Choose...

The 'Choose Router Firmware' dialog appears:

C	hoose the Router Firmware 🔀						
	Please	select the Router Firmware File to upda	ate with:				
	Select	Firmware File Name	Active	Available	F 10		
	0	NV8500_HYB_FW_1.5.0.1976.RF	In Use	On Router	Filter:		
	۲	NV8500_HYB_FW_3.6.2.3104.RF		On PC	Used on this Control Card		
			2	8	All cupilable		
			2		All available		
					5		
			1		List the DE files that as side on		
					List the RF files that reside on		
					this PC or Control Card and		
					are available for use.		
		OK	Cancel	Browse f	or RF file		

Because you are installing new firmware, click 'Browse for RF File'.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

The 'Select Router Firmware' dialog appears:

W Select the Rou	uter Firmware		×
Look <u>I</u> n:	TEST		
My Recent Documents Desktop Desktop My Documents My Computer		FW_1.5.0.1976.RF FW_3.6.2.3104.RF	
My Network Places	File <u>N</u> ame: Files of <u>T</u> ype:	NV8500_HYB_FW_3.6.2.3104.RF Sele Router Firmware Files (*.rf) Cancel	ct ;el

Here, navigate to a folder that contains the firmware file you want. At this revision, the file is NV8500_HYB_FW_3.6.2.3104.RF. Highlight the file and click 'Select'.

Router Firn	Router Firmware File 🥮					
NV8500_H	NV8500_HYB_FW_3.6.2.3104 Choose					
Current Fir	Current Firmware Versions					
Update	Needs Update	Name	Version	Description		
		CPLD	1.0.0.0			
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32		
1	2	Control Card	1.5.0.1976	EM0833 Firmware - December 14, 2011		
	V	IOXM-UI-004	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
	V	IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
	₽	IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
	V	IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
	V	IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)		
	V.	IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
	V	IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
	V.	IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	V	IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	V	IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	V	IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
	V	IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	₽	IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	V	IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
	V	IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
	V	IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
	V	IOXM-OM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)		
	V	IOXM-IM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)		
Select A	Select All Select If Needs Update Select None Select 🗹 Update only if versions are different					
Network Fr	ame Summary —					
Control C	ards Network L	evels				

The 'Firmware' page changes to highlight all cards in need of updating (in red):

Frame1 Frame2

 \checkmark

 \checkmark

5 Click 'Select None' to deselect all cards. Then select the control card by marking its check box in the 'Update' column.

Make sure that this is the only card that has a check mark.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0



If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

Because you have updated the firmware, but have not yet updated the IOXM cards, you might see a message such as "Setting of default values for module types failed" as shown in the illustration above. You can safely ignore that message.

6 JTAG Out-of-Date Monitor Cards

Frame1 Frame2

 \checkmark

 \checkmark

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

- 1 Remain in the firmware page in MRC.
- 2 Remove any monitor cards that do not report in the MRC firmware page or that do not have SV0872-11 firmware or newer.
- 3 JTAG each monitor card that you removed. (A Grass Valley service technician must perform this step.)
- 4 Replace the JTAG'd monitor cards in the frame.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

Firmware Updates for IOXM⁴ Cards 7

Do this for both frames if you are updating firmware of an expanded NV8576-Plus. Frame1 Frame2

 \checkmark 1 Remain in the 'Firmware' page in MRC. Ensure that Card A at the bottom of the page is selected.

-1	Vetwork F Control (rame Summary Cards Network L	evels				
ſ	Select	Online	Name	Type	IP Address 🔺	Expansion	
I	0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone	
	•	active 🎱	TSQ_8576	NV8576	192.168.102.211	Stand Alone	
ŀ							
ŀ							
							_
Ē	C Refr	esh Summary	💽 Update Firmware	View Past Update	Logs Reset Contro	I Card	

 \checkmark

 \checkmark

 \checkmark

2 The 'Firmware' page should report the same firmware file you used to update the control card. If it does not, locate and select the firmware file as you did in step 5.4. At this revision, the firmware file name is NV85ØØ_HYB_FW_3.6.2.31Ø4.RF.

The 'Update Firmware' page highlights all cards in need of updating (in red):

-Router Firm	Router Firmware File 🥑					
NV8500 H	NV8500 HVR FW 3.6.2.3104 Choose					
- Current Fin	Current Firmware Versions					
Undata	bloode Lindete	blomo	Version	Description		
Opuate	Neeus Opuale	CDLD	1 0 0 0	Description		
		ROM	4000	EM0922BOM Oct 1 2010 09:27:22		
		Control Card	3 6 2 3104	EM0833 Eirmware - Jul 25, 2014		
~		IOXM.UIL004	7.0.0.0	NV/8500 3Gig SDI DEM 8 COAX IN (EM0814)		
r i i i i i i i i i i i i i i i i i i i		IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
~	V	IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
~	► V	IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
r	V	IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)		
~	¥	IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
~	V	IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
~	V	IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~	V	IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~	V	IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~	₽ /	IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
~	V	IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~		IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~	V	IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
~	V	IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
r		IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
		IOXM-OM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)		
~	V	IOXM-IM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)		
Select A	II Select If N	leeds Update Sele	ect None Selec	t ☑ Update only if versions are different		
- Network Er	ame Summary					
	verwork mane summary					

Control Cards Network Levels

3 Click the 'Selected if Needs Update' button.

4 Make sure that the control card is unselected . You are updating only IOXM cards in this step.

 \checkmark

 \checkmark

 \checkmark

 \checkmark

^{4.} IOXM cards include Input, Output, XPT (crosspoint), and Monitor cards.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0



Examine the update log. If it reports any failure, retry the update for the failed card.

▲ If the update for an individual card fails, respond 'Skip' to the Retry message that appears. Perform all retry attempts after the update finishes and produces its report.

Cards for which the update failed will remain red in the table. Make sure that these are selected and click 'Update Firmware' again. Again, observe whether the update report says 'All updates were successful'.

None of the cards listed in the 'Firmware' page should be red.

Frame1 Frame2

х

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

8 Redefine the I/O Card Types (for Card A)

- 1 Go to the 'Module Types' page of MRC.
- √ 2

 \checkmark

 \checkmark

2 Choose Card A of the router you are updating:

Edit	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
			2		
					2

If you are updating an expanded NV8576-Plus, you must select **Card A** of the master frame. MRC will present a dialog asking you to identify the slave frame. Choose the slave frame in this dialog. (But do *not* select the slave frame in the 'Control Cards' tab at the bottom of the 'Module Types' page!)

3 It is possible that, after you perform step 6 (Firmware Updates for IOXM Cards) the 'Module Types' page reports errors—with red text—for some or all of your modules:

Location	Present	Module	
Upper Output	No		•
Upper Output	No		•
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)
Upper Output	No		•
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)
Upper Output	No		•
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)	
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)	
Upper Output	No		•
Upper Output	No		•
Upper Output	Yes	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM	IO
Upper Output	No		•
Upper Output	No		-
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)
Upper Output	No		•
Upper Output	No		•
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)
Lower Output	No		•
Lower Output	No		-

This is not an immediate cause for alarm. It can occur because of differences in configuration requirements between your old system and the new firmware and software.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

Right-click the module list anywhere to display the page's context menu:

Clear All Locations without actual Modules
Select All
Select All Input Locations
Select All Output Locations
Select All Crosspoint Locations
Select All Monitor Locations
Select All Control Card Locations
Select All Power Supply Locations
Set Selected Input Locations To
Set Selected Output Locations To
Set Selected Crosspoint Locations To
Set Selected Monitor Locations To
Set Selected Control Card Locations To
Set Selected Power Supply Locations To

Click the 'Clear All Locations without Actual Modules' command. A warning appears:

Warr	ning	×
	This action cannot be undone. Are y	ou sure you want to do this?
	Clear Visible Clear All	Cancel

Choose 'Clear All'.

MRC will do just that: all rows of the table for which there is no card in the corresponding slot become blank. Red text for the slots that do have cards will remain red. However, clicking the 'Update Control Card' button in the next step will eliminate the red text and complete the redefinition step.

4 Click the 'Update Control Card' button. MRC repopulates the list of modules according the card types known to control card. (Because you are upgrading, there should be no unknown card types.)

If you are updating an expanded NV8576-Plus, MRC displays all the modules of the entire router (both frames).

 \checkmark

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

9 Set Input Attributes (for Card A)

Skip this step if you have no input attributes to set.

If you are upgrading from firmware version 2.2.2, you will not need to change any input attributes.

At present, there is a single input attribute (applicable to any input) and that is the "force embedder ON" attribute. When this attribute is set, the router forces the output embedder involving this input to be used. Otherwise, the output embedder's state (either used or bypassed) is determined by a routing logic sometimes called "switching rules."

1 Go to the 'Input Attributes' page of MRC.

2 Choose **Card A** of the router you are updating:

Edit	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
	3		0	5	6
	3		0		0
	5		0		S
	1		2		

If you are updating an expanded NV8576-Plus, you must select **Card A** of the master frame. MRC will present a dialog asking you to identify the slave frame. Choose the slave frame in this dialog.

If you are updating an expanded NV8576-Plus, MRC displays all the modules of the entire router (both frames).

 \checkmark

 \checkmark

3 Select any required input cards. You can select multiple cards using click, shift-click, and control-click methods. Selected cards are highlighted in dark green:

Input	Output Embedder Attrit	ou	Location	Module
25	Use Switching Rules	•	UI-003	
26	Use Switching Rules	Ŧ	UI-003	
27	Use Switching Rules	•	UI-003	
28	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
29	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C
30	Use Switching Rules	•	UI-004	NV8500 3Gig SDI DEM 8 C
31	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
32	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
33	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
34	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
35	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
36	Use Switching Rules	-	UI-004	NV8500 3Gig SDI DEM 8 C
37	Use Switching Rules	•	UI-005	
38	Use Switching Rules	-	UI-005	
39	Use Switching Rules	-	UI-005	
40	Use Switching Rules	•	UI-005	
41	Use Switching Rules	•	UI-005	
42	Use Switching Rules	-	UI-005	
			lun ana	

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

4 Right-click anywhere in the list to display the context menu. In the context menu, choose the attribute for the selected input card:



 \checkmark

 \checkmark

 \checkmark

 \checkmark

5 Click 'Update Control Card' at the bottom of the page:

🔞 Update Control Card 🚽

MRC sets the input attributes according to your select and writes the data to the control card.

10 Firmware Update for Card B

Skip this step if there is no standby control card (Card B).

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

- 1 Completely remove Card A.
- 2 Reinsert the **Card B** in the slot from which it came. Close the router door. Wait for **Card B** to boot up. It becomes the active control card. It takes a few seconds.
- 3 Go to the 'Firmware' page in MRC. Select **Card B** at the bottom of that page.

Belect	Online	Name	Туре	IP Address 🔺	Expansion
۰	Active	TSQ_8576	NV8576	192.168.102.210	Stand Alone
\odot	Off-Line	TSQ_8576	NV8576	192.168.102.211	Stand Alone

 \checkmark

 \checkmark

 \checkmark

 \checkmark

4 Click the 'Choose' button, at the top of the page.

Choose...

The 'Choose Router Firmware' dialog appears:

Select	Firmware File Name	Active	Available	Filter
0	NV8500_HYB_FW_1.5.0.1976.RF	In Use	On Router	Filler.
۲	NV8500_HYB_FW_3.6.2.3104.RF		On PC	Used on this Control Card
				All available
				List the RF files that reside o this PC or Control Card and
_		3		are available for use.

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

Because you are installing new firmware, choose 'All Available' at the right side of the dialog and click 'Browse for RF File'.

W Select the Rou	iter Firmware					x
Look In:	🗀 TEST			- 0	i 📂 🛄	·
My Recent Documents Desktop Desktop My Documents My Computer	 ОLD №8500_НҮВ. №8500_НҮВ. 	FW_1.5.0.1976.RF FW_3.6.2.3104.RF				
	File <u>N</u> ame:	NV8500_HYB_FW	/_3.6.2.3104.RF	 		Select
My Network Places	Files of <u>T</u> ype:	Router Firmware	Files (*.rf)		-	Cancel

The 'Select Router Firmware' dialog appears:

Here, navigate to a folder that contains the firmware file you want. Use the same file you used to update **Card A**. Highlight the file and click 'Select'.

r Router Firmware File 🤍 🥑								
NV8500_HYB_FW_3.6.2.3104 Choose								
Current Firmware Versions								
Update	Needs Update	Name	Version	Description				
		CPLD	1.0.0.0]•[
		ROM	2.0.0.0	EM0833ROM Jun 10 2011 11:40:33				
1	∠	Control Card	1.5.0.1976	EM0833 Firmware - December 14, 2011				
		IOXM-UI-004	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)				
		IOXM-UI-018	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)				
		IOXM-LI-033	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)				
		IOXM-LI-044	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)				
		IOXM-LI-045	10.0.0.1	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)				
		IOXM-LI-063	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)				
		IOXM-UO-001	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)				
		IOXM-UO-017	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-UO-018	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-UO-020	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-UO-026	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)				
		IOXM-UO-029	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-UO-032	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-LO-052	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)				
		IOXM-X-001	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)				
		IOXM-X-003	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)				
		IOXM-XR-005	1.0.0.0	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)				
		IOXM-OM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)				
		IOXM-IM	11.0.0.1	NV8500 3Gig SDI 2 Monitor (EM0663)				
					-			

The 'Firmware' page changes to highlight the control card (in red):

Ignore any messages such as "Missing from RF" in the illustration above.

Frame1 Frame2



5 Click 'Select None' to deselect all cards.

6 Check the check box in the 'Update' column to select the control card.

Make sure that this is the only card that has a check mark.
The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

 7 Click 'Update Firmware' (at the bottom of the page).
 Update Firmware...
 The update takes about 5 minutes. Click 'Yes' in response to any confirmation or warning messages.
 8 When the update has finished, MRC displays a report of the updates. It should normally say "All updates were successful" at the end. If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

(Card A now has both new firmware and a correct configuration.)

11 Reinsert Card A and Make it Active

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Re-insert Card A.

 \checkmark

 \checkmark

Either press the (physical) reset button on **Card B** or, while **Card B** is still selected in MRC, right-click in the 'Network Frame Summary' section of the 'Firmware' page and choose 'Reset Control Card' from the global context menu:



This context menu is also available in the 'From Device' section of the 'Copy Settings' page.

Respond 'Yes' in the confirmation dialog:

Confirm	Reset X
?	Select the reset type: Reset Only Write to Serial EE and then Reset
	Are you sure you want to reset this control card?

Card A becomes active and Card B becomes standby (as they were before you started).

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

12 Copy the Configuration from Card A to Card B

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

 \checkmark

1 Go to the 'Copy Settings' page of MRC.

2 Select **Card A** in the 'From Device' table at the top of the page. The 'To Device' table, at the bottom of the page, will redisplay according to your selection. Select **Card B** in the 'To Device' table.

Select	Online Online	Name TSQ_8576	NV8	Type 1576	IP Address I92.168.102.210 102.158.402.214	Expansion Stand Alone
	Active	154_8576	INV8	5/6	192.168.102.211	Stand Alone
					<u></u>	
Settings	To Be Copied					
- Config	uration Data			- Read Only	Status Data	
Coning	ulation Data				l Card State	
🗈 Ne	twork Settings					
	IP Address and	Subnet Mask		Syster	m Status	
	Network Gatewa	ay Address		Versio	in Data	
	Device Name			RF Fil	e Version Data	
	- Configuration Lo	ck		🗌 Availa	ble Protocols	
-		un en		Status	s of Modules	
Co	nfiguration Setting	ļS			EE Chin Status	
	Router Levels			Contro	Card Dunning Log	
F	Input Attributes				in Card Running Log	
	AES Reference	Setting			ol Card Startup Log	
		Sotting				
		Setting				
	CLUTPUT OTTOPUTO	<u></u>			C	heck All Uncheck
Copy To		1	-		15 4 11	
Select	Online Standby	TSO 8576	INV8576	/pe	IP Address 🔺	Expansion Stand Alone
ŏ	 New Virtual 	Create Configuration			192.100.102.210	
0	Export	To File				

- 3 Leave the entries in the 'Settings to Be Copied' section, in the middle of the page, at their defaults.
- 4 Click the 'Copy Settings' button.

Respond 'Yes' to the confirmation message:

	×
?	Are you sure you want to copy settings?
	From:
	TSQ_8576 - 192.168.102.211
	To:
	TSQ_8576 - 192.168.102.210
	Remember the response to this message
	Yes <u>No</u>

The Upgrade Procedure for Routers with Firmware prior to Version 2.2.0

5 MRC copies the configuration from **Card A** to **Card B**. At the end of the copy, MRC asks you whether you want to reset the control card:

		×
?	Settings copied successfully to (TSQ_8576 - 192.168.102.210) Do you want to reset it?	
	Remember the response to this message	
	Yes No	

Respond 'Yes'.

6 After the reset, MRC displays a completion message:

	<u>×</u>
i	The settings were copied and verified successfully.
	OK

13 Completion

If the copy in step 11 reported success, your upgrade is finished.

If there were unresolved failures, contact Grass Valley customer service.

Create another snapshot—as you did in step 3 on page 6—of the router in MRC, especially if there were failures. In the event of failures, you will be asked to send both snapshots—this one and the one you made in step 3—to Grass Valley customer service.

1 If you disconnected your control system, reconnect it, disconnecting any temporary Ethernet connections you might have made between your PC and the router. However, if you stopped the NV9000, you may now restart it.

14 Testing

 \checkmark

You can perform these quick tests to determine whether the firmware upgrade was successful.

These tests are discretionary and not part of the procedure itself.

- 1 Observe the LEDs on the control cards, crosspoint cards, I/O cards, and monitor cards.
 - I/O and monitor cards should all have their amber 'FPGA loaded' LED on (and steady) and they should have their green 'Good COM' LEDs on. No card should have its red 'Bad COM' LED on.

Each crosspoint card will have a green "health" LED on.

Each control card will also green health LED on. The active control card will have its amber LED on.

- 2 Examine the I/O cards in the 'Module Status' page of MRC. Modules with problems are highlighted in the table with red circles. Good modules have green circles.
- 3 In the 'Crosspoints' page of MRC, perform a few takes. (This is minimally helpful, but it will show whether the router is functioning.

More extensive testing is beyond the scope of this document.

Replacing the Boot ROM

Replacing the Boot ROM

- ▲ Care must be taken regarding ESD (electrostatic discharge).
- ▲ Use caution when extracting ROMs from their sockets. Damaging the socket will render the circuit board inoperable. Use a chip extraction tool, such as the one shown here, to prevent breakage.



- 1 Remove the control card from the frame.
- 2 Place it in an ESD bag.
- 3 Take it to an ESD lab bench. Use a wrist strap to ground yourself to the ESD mat of the bench while you're working on the ROM.
 - ▲ If you do not have an ESD lab bench, handle the control card very carefully, touching only non-metal parts. (You can touch the aluminum front plate.)
- 4 Replace its boot ROM.
 - a Carefully note the orientation of the old ROM chip in the socket. (On the NV8500 control card, the socket is labeled U10.)

b Place the prongs of the extraction tool at the corners of the old chip in the socket.



- c Squeeze the handles of the extraction tool and pull upwards. The prongs grip the ROM chip and hold the chip against the body of the tool as you squeeze. Pulling upwards frees the chip from the socket without damage.
- d Place the new chip in the socket in the same orientation as the old chip. Use gentle finger pressure to seat the new chip in the socket.
- 5 Return the control card to its ESD bag. Replace the card in the frame, removing it from the ESD bag just prior to replacement in the router frame.

The Procedure for Downgrading to V2.2.2 or Newer

The Procedure for Downgrading to V2.2.2 or Newer

It is anticipated that you will perform the downgrade procedure only if the upgrade procedure fails.

The assumption in this procedure is that you have performed the *entire* upgrade procedure. If you have not completed the entire upgrade procedure, contact Grass Valley customer service before proceeding.

This downgrade (or reversion) procedure is similar to the upgrade procedure, but differs in 2 ways:

- · You will revert the IOXM cards before reverting the control cards.
- You will use a .rf file for the earlier version (2.2.2 or 3.1.0) of the firmware.

This is a summary of the downgrade procedure.

- 1 Continue to use the latest version of MRC.
- 2 Disconnect (or stop) the NV9000 (or third-party) control system.
- 3 Make another snapshot of the router. This is the router in a (presumably) failed state.

Let the active control card be called Card A and the standby control card be called Card B.

- 4 Remove the standby control card (Card B).
- 5 Revert to older firmware for all IOXM⁵ cards.
- 6 Then revert to older firmware in Card A.
- 7 Redefine the I/O card types, using the 'Module Types' page of MRC, for Card A.

Card A now has old firmware and a correct old configuration.

- 8 Remove Card A and reinsert the Card B. Revert to older firmware in Card B (which has now become active).
- 9 Reinsert Card A. Reset Card B (currently active). Card A becomes active and Card B becomes standby (as they were before you started).
- 10 Copy the control card configuration from Card A to Card B using the 'Copy Settings' page of MRC.

Card B now has the reverted firmware and the same configuration as Card A.

- 11 Revert to the old boot ROMs (if yours were -03 or earlier).
- 12 Reconnect (or restart) the NV9000 (or third-party) control system.

^{5.} IOXM is a term that means input, output, crosspoint (XPT) and monitor cards.

The Procedure for Downgrading to V2.2.2 or Newer

1 MRC

 \checkmark

It is advisable not to revert to an older version of MRC. Continue to use the new version.

▲ The downgrade procedure described here does not work with earlier versions of MRC.

If you do want to revert to an older version of MRC, follow the steps given in step 1 on page 2, but using the MRC installer appropriate for the older version.

2 Control System

Disconnect the NV9000 (or third-party) control system from the router.

Preferred Method: Use this method if you have an NV9000 control system and you can stop the NV9000 without disrupting your entire system.

1 Stop the NV9000. To stop the NV9000, launch NV9000-SE Utilities. Go to the 'System Management' page and click the 'Stop Controller 2' button and the 'Stop Controller 1' button.

It is recommended that you stop the inactive controller before you stop the active controller.

Alternate Method: Use this method if you cannot stop the NV9000 or if you have a third-party control system.

1 Remove the cables (whether serial or Ethernet) from the control ports of the router. (Doing this will cause alarms in the NV9000 system. You can safely ignore the alarms.)

If you have MRC running, removing Ethernet cables from the router's control cards will cause MRC to lose contact with the router.

2 Connect your PC (that is running MRC) to the router's control ports via a small Ethernet switch.

The Procedure for Downgrading to V2.2.2 or Newer

3 Router Snapshot

 \checkmark

 \checkmark

These steps create a file that records all the router settings. You are probably downgrading because an upgrade failed. It is *very important* to create a snapshot of the failed router to send to your Grass Valley customer service technician for diagnosis.

- ▲ If you have done no configuration since the final snapshot of your upgrade, it is sufficient to use that snapshot and you do not need to perform these steps.
- 1 Launch MRC. Go to its 'Copy Settings' page.
- 2 Select the active control card in the upper section of the page.
- 3 Choose 'Export' in the lower section of the page.
- 4 Click 'Copy Settings'.

Select	Online		Name	T	/pe IF	P Address 🔺	Expansior
\bigcirc	Standby	TSQ_	_8576	NV857	6 192.1	68.102.210	Stand Alone
۰	Active	TSQ_	_8576	NV857	6 192.1	68.102.211	Stand Alone
		-					
Copy To-							
Copy To-	Online		Name	Туре	IP Add	dress 🔺	Expansio
Copy To Select	Online Standby		Name TSQ_8576	Type NV8576	IP Add 192.168.102	dress	Expansio Stand Alone
Copy To- Select	Online Standby New Virtual		Name TSQ_8576 Create Configuration	Type NV8576	IP Add 192.168.102	dress	Expansio Stand Alone
Copy To- Select	Online Standby New Virtual Export		Name TSQ_8576 Create Configuration To File	Type NV8576	IP Adı 192.168.102	dress 🔺 .210	Expansio Stand Alone
Copy To Select	Online Standby New Virtual Export		Name TSQ_8576 Create Configuration To File	Type NV8576	IP Add 192.168.102	dress 🔺	Expansio Stand Alone

5 A dialog appears in which you can browse to name a file and location in which to store the settings. In this dialog, choose a folder and a file name. The saved file will be a .zip file.
 Then click 'Save' and wait for the confirmation notice.

4 Remove the Standby Card

Completely remove Card B (the standby control card, assuming there is one). Close the router door.

The Procedure for Downgrading to V2.2.2 or Newer



C	noose th	ne Router Firmware			×
	Please	select the Router Firmware File to upd	ate with:		
	Select	Firmware File Name	Active	Available	F .11
	۲	NV8500_HYB_FW_2.2.2.2277.RF		On PC	Filter:
	0	NV8500_HYB_FW_3.6.2.3104.RF	In Use	On Router	Used on this Control Card
					All available
					List the RF files that reside on this PC or Control Card and are available for use.
		OK	Cancel	Browse	for RF file

Because you are reverting to older firmware, choose 'All Available' at the right side of the dialog and click 'Browse for RF File'.

^{6.} IOXM cards include Input, Output, XPT (crosspoint), and Monitor cards

The Procedure for Downgrading to V2.2.2 or Newer

The 'Select Router Firmware' dialog appears:

W Select the Rou	iter Firmware		×
Look <u>I</u> n:	TEST		
My Recent Documents Desktop Desktop My Documents My Computer	С NV8500_HYB	FW_2.2.2.2277.RF _FW_3.6.2.3104.RF	
Ndu Naturali	File <u>N</u> ame:	NV8500_HYB_FW_2.2.2.2277.RF S	elect
Places	Files of <u>T</u> ype:	Router Firmware Files (*.rf)	ancel

Here, navigate to a folder that contains the firmware file you want. The firmware file is named something like NV85ØØ_HYB_FW_2.2.2.2277.RF. Highlight the file and click 'Select'.

You should have been given this file. If you do not have this file, contact Grass Valley customer support.

The 'Firmware' page changes to highlight *all* cards in need of updating (in red):

urrent Fir	mware Versions-			
Update	Needs Update	Name	Version	Description
		CPLD	1.0.0.0	
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32
	₽	Control Card	3.6.2.3104	EM0833 Firmware - Jul 25, 2014
~	V	IOXM-UI-004	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-UI-018	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-033	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-044	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-045	10.0.0.1	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)
~	V	IOXM-LI-063	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-UO-001	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	V	IOXM-UO-017	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-018	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-020	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-026	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	V	IOXM-UO-029	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-032	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-LO-052	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-X-001	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)
~	V	IOXM-X-003	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)
~	V	IOXM-XR-005	1.0.0.0	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
~	V	IOXM-XR-006	2.0.0.0	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)

Frame1 Frame2



3 Make sure that no control card is selected.

4 Click 'Update Firmware' (at the bottom of the page).

```
💽 Update Firmware...
```

The Procedure for Downgrading to V2.2.2 or Newer

	Click 'Yes' in response to any confirmation messages the	hat appea	r.		
	MRC proceeds to update (in this case, revert) all selecte input TDM (MADI) cards, in parallel, then all disembed selected cards are updated.	ed cards i ider card	n order of card t s, also, in parall	ype. It procesel, and so on,	sses all until all
Frame1 Frame2	Depending on the number and type of I/O cards in your amount of time, probably 15 minutes or more.	router, tł	ne IOXM update	e can take a si	gnificant
\checkmark	5 When the update is complete, MRC displays a log of the were successful." Examine the update log. If it reports a	e updates my failur	s. It should norm e, retry the upda	ally say "All te for the fail	updates led card.
	 If, during the update, an individual card fails, respor form all retry attempts after the update finishes and 	nd 'Skip' produces	to the Retry me its report.	ssage that ap	pears. Per-
	Cards for which the update failed will remain red in click 'Update Firmware' again. Again, observe whe Successful'.	the table ther the ι	e. Make sure that update report say	t these are sel /s 'All Updat	ected and es
	Ideally, none of the cards in the 'Firmware' page should	l be red <i>e</i>	<i>xcept</i> the contro	ol card.	
6	Revert to Old Firmware for the Active Cor	ntrol C	ard		
	Do this for both frames if you are updating firmware of an e	expanded	NV8576-Plus.		
\checkmark	1 Remain in the 'Firmware' page in MRC. Ensure that Ca	ard A is s	selected at the b	ottom of the	page.
	Select Online Name	Туре	IP Address 🔺	Expansion	
	○ ● Off-Line TSQ_8576	NV8576	192.168.102.210	Stand Alone	
	Active TSQ_8576	NV8576	192.168.102.211	Stand Alone	
	Refresh Summary Opdate Firmware View Past Upd	ate Logs	Reset Control Ca	rd	
\checkmark	2 The 'Firmware' page should report, at the top of the page	ge, the sa	me firmware file	e you used to	revert the

2 The 'Firmware' page should report, at the top of the page, the same firmware file you used to revert the IOXM cards. If it does not, locate and select the firmware file as you used for the IOXM cards. The firmware file name is something like NV8500_HYB_FW_2.2.2.2277.RF.

The Procedure for Downgrading to V2.2.2 or Newer

The 'Update Firmware' page changes to highlight all cards in need of updating (in red). At this step, the only card to update is the control card:

Router Firr	nware File								
NV8500_H	IYB_FW_2.2.2.227	7.RF		Choose					
Current Firmware Versions									
Update	Needs Update	Name	Version	Description					
		CPLD	1.0.0.0						
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32					
v	V	Control Card	3.6.2.3104	EM0833 Firmware - Jul 25, 2014					
		IOXM-UI-004	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)					
		IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)					
		IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)					
		IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)					
		IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)					
		IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)					
		IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)					
		IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)					
		IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)					
		IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)					
		IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)					
		IOXM-XR-005	0.0.0.14	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)					
		IOXM-XR-006	0.0.0.16	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)					
Select A	Select If N	Veeds Update Sel	ect None Selec	Update only if versions are different					
- Notwork E									

Frame1 Frame2



 \checkmark

3 Click 'Select None' to deselect all cards.

4 Check the check box in the 'Update' column to select the control card.

Make sure that this is the only card that has a check mark.



5 Click 'Update Firmware' (at the bottom of the page).

🔞 Update Firmware...

The update takes about 5 minutes. Click 'Yes' in response to any confirmation or warning messages.

The Procedure for Downgrading to V2.2.2 or Newer

Frame1 Frame2

- \checkmark
- 6 When the update has finished, MRC displays a log of the updates. It should normally say "All updates were successful" at the end.

Update Status Log History	×
07/14/14 7:31:23 PM: Updating MTRX3 firmware from "SV1044-01E	
EM0833Mtrx8576 Oct 11 2012 14:24:15" to "SV1044-03A EM0833Mtrx8576	
Dec 2 2012 11:24:43"	
07/14/14 7:31:25 PM: Update Succeeded	
07/14/14 7:31:26 PM: Updating MTRX4	
07/14/14 7:31:26 PM: Updating MTRX4 firmware from "SV1045-01E	
EM0833Mtrx8576Plus Oct 11 2012 14:24:22" to "SV1045-03E	
EM0833Mtrx8576Plus Dec 2 2012 11:24:51"	
07/14/14 7:31:28 PM: Update Succeeded	
07/14/14 7:31:29 PM: Updating OS	
07/14/14 7:31:29 PM: Updating OS firmware from "SV1051-01C EM0833OS Sep 13	
2013 15:46:20" to "SV1051-03A EM0833OS Dec 2 2012 11:25:41"	
07/14/14 7:31:47 PM: Update Succeeded	
07/14/14 7:34:01 PM: All updates were successful	-
Save Print	e

If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

The Procedure for Downgrading to V2.2.2 or Newer

7 Redefine the I/O Card Types (for Card A)

1 Go to the 'Module Types' page of MRC.

 \checkmark

2 Choose **Card A** of the router you are updating:

Edit	Online	Name	Туре	IP Address 🔺	Expansion
0	Off-Line	TSQ_8576	NV8576	192.168.102.210	Stand Alone
•	Active	TSQ_8576	NV8576	192.168.102.211	Stand Alone
	ñ				
	2				2

If you are updating an expanded NV8576-Plus, you must select **Card A** of the master frame. MRC will present a dialog asking you to identify the slave frame. Choose the slave frame in this dialog. (But do *not* select the slave frame in the 'Control Cards' tab at the bottom of the 'Module Types' page!)

3 It is possible that, after you perform step 6 (Firmware Updates for IOXM Cards) the 'Module Types' page reports errors—with red text—for some or all of your modules:

Module Type S	ettings –			_
Location	Present	Module		
Upper Output	No		•	4
Upper Output	No		•	L
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	L
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	
Upper Output	No		▼	
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	
Upper Output	No		•	
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)		L
Upper Output	Yes	NV8500 3Gig SDI 18 COAX OUT (EM0785)		
Upper Output	No		•	
Upper Output	No		▼	n
Upper Output	Yes	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM	0	F
Upper Output	No		•	H
Upper Output	No		•	L
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	L
Upper Output	No		•	
Upper Output	No		•	
Upper Output	Yes	NV8500 3Gig SDI EMB 16 COAX OUT (EM08	15)	
Lower Output	No		•	
Lower Output	No		-	-

This is not an immediate cause for alarm. It can occur because of differences in configuration requirements between your old system and the new firmware and software.

The Procedure for Downgrading to V2.2.2 or Newer

Right-click the module list anywhere to display the page's context menu:

Clear All Locations without actual Modules.	
Select All	
Select All Input Locations	
Select All Output Locations	
Select All Crosspoint Locations	
Select All Monitor Locations	
Select All Control Card Locations	
Select All Power Supply Locations	
Set Selected Input Locations To	€
Set Selected Output Locations To	⊁
Set Selected Crosspoint Locations To	⊁
Set Selected Monitor Locations To	•
Set Selected Control Card Locations To	€
Set Selected Power Supply Locations To	►

Click the 'Clear All Locations without Actual Modules' command. A warning appears:

Warr	ning	×
	This action cannot be undone. Are y	you sure you want to do this?
	Clear Visible Clear All	Cancel

Choose 'Clear All'.

 \checkmark

MRC will do just that: all rows of the table for which there is no card in the corresponding slot become blank. Red text for the slots that do have cards will remain red. However, clicking the 'Update Control Card' button in the next step will eliminate the red text and complete the redefinition step.

4 Click the 'Update Control Card' button. MRC repopulates the list of modules according the card types known to control card. (Because you are upgrading, there should be no unknown card types.)

If you are updating an expanded NV8576-Plus, MRC displays all the modules of the entire router (both frames).

The Procedure for Downgrading to V2.2.2 or Newer

8 Revert to Old Firmware for Card B

Skip this step if there is no standby control card (Card B).

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Completely remove **Card A**.

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

 \checkmark

2 Reinsert **Card B** in the slot from which it came. Close the router door. Wait for **Card B** to boot up. It becomes the active control card. It takes a few seconds.

3 Go to 'Firmware' page in MRC. Select the active control card at the bottom of that page.

Belect	Online	Name	Type	IP Address 🔺	Expansion
•	Active	TSQ_8576	NV8576	192.168.102.210	Stand Alone
۲	Off-Line	TSQ_8576	NV8576	192.168.102.211	Stand Alone
C Refr	esh Summary	Update Firmware View Past U	ndate Logs	Reset Control Ca	ırd

4 The 'Firmware' page should report the same firmware file you used to revert the IOXM cards and **Card A**. If it does not, locate and select the firmware file as you did for **Card A**. The firmware file name is named something like NV8500_HYB_FW_2.2.2.2277.RF.

The 'Firmware' page changes to highlight all cards in need of updating (in red):

CPLD 1.0.0.0 ROM 4.0.0.0 EM0833ROM Oct 1 2010 09:37:32 Control Card 3.6.2.3104 EM0833 Firmware - Jul 25, 2014 IOXM-UI-004 7.0.0.0 IOXM-UI-018 7.0.0.0 IOXM-LI-033 7.0.0.0 IOXM-LI-033 7.0.0.0 IOXM-LI-044 7.0.0.0 IOXM-LI-045 6.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-UO-011 12.0.0.1 IOXM-UO-017 12.0.0.1 IOXM-UO-018 12.0.0.1 IOXM-UO-017 12.0.0.1 IOXM-UO-018 12.0.0.1 IOXM-UO-019 12.0.0.1 IOXM-UO-020 12.0.0.1 IOXM-UO-021 12.0.0.1 IOXM-UO-022 12.0.0.1 IOXM-UO-023 12.0.0.1 IOXM-UO-026 12.0.0.1	CPLD 1.0.0.0 ROM 4.0.0.0 EM0833ROM Oct 1 2010 09;37:32 Control Card 3.6.2.3104 EM0833 Firmware - Jul 25, 2014 IOXM-UI-004 7.0.0.0 IOXM-UI-018 7.0.0.0 IOXM-LI-033 7.0.0.0 IOXM-LI-033 7.0.0.0 IOXM-LI-044 7.0.0.0 IOXM-LI-033 7.0.0.0 IOXM-LI-045 6.0.0.0 IOXM-LI-045 6.0.0.0 IOXM-LI-045 6.0.0.0 IOXM-LI-063 7.0.0.0 IOXM-U-063 7.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 7.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-045 6.0.0.0 IOXM-U-046 7.0.0.1 IOXM-U-047 12.0.1 IOXM-U-020 12.0.1 IOXM-U-022	Update	Needs Update	Name	Vers	sion	Description
ROM 4.0.0.0 EM0833ROM Oct 1 2010 09:37:32 P Control Card 3.62.3104 EM0833 Firmware - Jul 25, 2014 IOXM-UI-004 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UI-018 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UI-018 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-033 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-044 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-045 6.0.0.0 NV8500 3Gig COAX 8 SDI /1 TDI IN (EM0814) IOXM-LI-063 7.0.0.0 NV8500 3Gig COAX 18 SDI /2 TDM OUT (EM0814) IOXM-UO-011 12.0.0.1 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UO-011 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-018 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-026 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-032 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-032 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-032 12.0.0.1 NV8500 3Gig	ROM 4.0.0.0 EM0833ROM Oct 1 2010 09:37:32 P Control Card 3.6.2.3104 EM0833 Firmware - Jul 25, 2014 IOXM-UI-004 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UI-018 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UI-033 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-044 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-045 6.0.0 NV8500 3Gig COAX 8 SDI /1 TDM IN (EM0814) IOXM-LI-063 7.0.0.0 NV8500 3Gig COAX 8 SDI /1 TDM IN (EM0814) IOXM-U-063 7.0.0.0 NV8500 3Gig COAX 16 SDI /2 TDM OUT (EM0815) IOXM-U-063 7.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-U-0011 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-U-0-018 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-U-0-029 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-U-0-029 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-U-0-029 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-VO-032 12.0.0.1 NV8500			CPLD	1.0.0.0		
Image: Provide and the set of th	Image: Proceeding of the second sec			ROM	4.0.0.0	EMO	833ROM Oct 1 2010 09:37:32
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Select All Select II Needs Opdate Select None Select	Natwork Frame Summary	Select A	II Select If I	Needs Update	Select None	Select	✓ Update only if versions are different of the second
Click 'Select None' to deselect all cards		0			•urus.		
Click 'Select None' to deselect all cards.			1 1 1	· /1 (TT 1	, , , , ,	1 (1	. 1 1
Click 'Select None' to deselect all cards.		Sheck the	e check box	in the Upda	te' column to	select the	control card.
Click 'Select None' to deselect all cards. Check the check box in the 'Update' column to select the control card.	Check the check box in the 'Update' column to select the control card.				1.1.1		1
Click 'Select None' to deselect all cards. Check the check box in the 'Update' column to select the control card.	Check the check box in the 'Update' column to select the control card.	VI (1 K Ø S 11 1	e that this is	ς της οπίν ca	ra that has a	CHECK MA	ľK

The Procedure for Downgrading to V2.2.2 or Newer

The update takes about 5 minutes. Click 'Yes' in response to any confirmation or warning messages.

Frame1 Frame2

 \checkmark

8 When the update has finished, MRC displays a log of the updates. It should normally say "All updates were successful" at the end.



If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

The Procedure for Downgrading to V2.2.2 or Newer

9 Reinsert Card A and Make it Active

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Re-insert Card A.

 \checkmark

 \checkmark

Either press the (physical) reset button on **Card B** or, while **Card B** is still selected in MRC, right-click in the 'Network Frame Summary' section of the 'Firmware' page and choose 'Reset Control Card' from the global context menu:

	Configuration Locked
•	Reset Control Card
	Export Configuration
	Set Expansion Frames

This context menu is also available in the 'From Device' section of the 'Copy Settings' page.

Respond 'Yes' in the confirmation dialog:

Confirm	Reset 🔀
?	Select the reset type:
	Reset Only
	○ Write to Serial EE and then Reset
	Are you sure you want to reset this control card?

Card A becomes active and Card B becomes standby (as they were before you started).

The Procedure for Downgrading to V2.2.2 or Newer

10 Copy the Configuration from Card A to Card B

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

 \checkmark

1 Go to the 'Copy Settings' page of MRC.

2 Select **Card A** in the 'From Device' table at the top of the page. The 'To Device' table, at the bottom of the page, will redisplay according to your selection. Select **Card B** in the 'To Device' table.

Select O O	Online Standby Active 	Name TSQ_8576 TSQ_8576	NV8 NV8	Type 576 576	IP Address 192.168.102.210 192.168.102.211	Expansion Stand Alone Stand Alone
Settings	To Be Copied —					
Config	uration Data			Read Only	Status Data	
🗈 Ne	twork Settings			Control	I Card State	
	IP Address and	Subnet Mask		System System	n Status	
F	Network Gatewa	ay Address		Version	n Data	
	Device Name			RF File	e Version Data	
F	Configuration Lo	ck		🗌 Availab	le Protocols	
Co	nfiguration Setting	19		Status	of Modules	
	Router Levels	10		Serial I	EE Chip Status	
	✓ Input Attributes			Control	I Card Running Log	
F	AES Reference	Setting		Control	I Card Startup Log	
F	Dual Reference	Setting				
	- I Output Attributo	~				
					c	heck All Uncheck
Сору То						
Select	Online	Name	Ту	pe	IP Address 🔺	Expansion
	 Standby New Virtual Export 	Create Configuration To File	INV8576		92.168.102.210	Istand Alone

- 3 Leave the entries in the 'Settings to Be Copied' section, in the middle of the page, at their defaults.
- 4 Click the 'Copy Settings' button.

Respond 'Yes' to the confirmation message:

	×
?	Are you sure you want to copy settings?
	From:
	TSQ_8576 - 192.168.102.211
	To:
	TSQ_8576 - 192.168.102.210
	Remember the response to this message
	Yes No

The Procedure for Downgrading to V2.2.2 or Newer

5 MRC copies the configuration from **Card A** to **Card B**. At the end of the copy, MRC asks you whether you want to reset the control card:

		×
?	Settings copied successfully to (TSQ_8576 - 192.168.102.210) Do you want to reset it?	
	Remember the response to this message	
	Yes No	

Respond 'Yes'.

6 After the reset, MRC displays a completion message:

	<u>×</u>
i	The settings were copied and verified successfully.
	OK

11 Revert to the Old Boot ROM(s)

You should not need to revert to old boot ROMs. If you want to do so, find your -03 boot ROMs and reinsert these in the ROM sockets on the control cards of your router. Refer to <u>Replacing the Boot ROM</u> on page 40.

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

\checkmark	\checkmark	1 Remove the standby control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Then replace the standby card in the frame.
\checkmark	\checkmark	2 Switch control to the standby card. To do that, press the reset button on the active control card. Wait for the standby card to become the active card. (When a control card is active, its amber LED is on.)
\checkmark	\checkmark	3 Remove the formerly active control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Then replace that control card in the frame.
\checkmark	\checkmark	4 Switch control back to the formerly active control card.
		▲ Keep the router door closed as much as possible when you are doing this.

The Procedure for Downgrading to V2.2.2 or Newer

12 Completion

The downgrade is finished.

If there were unresolved failures, contact Grass Valley customer service.

Create another snapshot of the router in MRC, especially if there were failures. In the event of failures, you will be asked to send all snapshots to Grass Valley customer service.

I If you disconnected your control system, reconnect it, disconnecting any temporary Ethernet connections you might have made between your PC and the router. However, if you stopped the NV9000, restart it.

13 Testing

You can perform these quick tests to determine whether the firmware upgrade was successful.

These tests are discretionary and not part of the procedure itself.

1 Observe the LEDs on the control cards, crosspoint cards, I/O cards, and monitor cards.

I/O and monitor cards should all have their amber 'FPGA loaded' LED on (and steady) and they should have their green 'Good COM' LEDs on. No card should have its red 'Bad COM' LED on.

Each crosspoint card will have a green "health" LED on.

Each control card will also green health LED on. The active control card will have its amber LED on.

- 2 Examine the I/O cards in the 'Module Status' page of MRC. Modules with problems are highlighted in the table with red circles. Good modules have green circles.
- 3 In the 'Crosspoints' page of MRC, perform a few takes. (This is minimally helpful, but it will show whether the router is functioning.

More extensive testing is beyond the scope of this document.

The Procedure for Downgrading to V1.1 or V1.5

The Procedure for Downgrading to V1.1 or V1.5

It is anticipated that you will perform the downgrade procedure only if the upgrade procedure fails.

The assumption in this procedure is that you have performed the *entire* upgrade procedure. If you have not completed the entire upgrade procedure, contact Grass Valley customer service before proceeding.

This downgrade (or reversion) procedure is similar to the upgrade procedure, but differs in 3 ways:

- · You will revert the IOXM cards before reverting the control cards.
- You will use a.rf file for the earlier version (1.1 or 1.5) of the firmware.
- Setting the I/O card types requires the use of the router's console commands.

This is a summary of the downgrade procedure.

- 1 Continue to use the latest version of MRC.
- 2 Disconnect (or stop) the NV9000 (or third-party) control system.
- 3 Make another snapshot of the router. This is the router in a (presumably) failed state.

Let the active control card be called Card A and the standby control card be called Card B.

- 4 Remove the standby control card (Card B).
- 5 Revert to older firmware for all IOXM⁷ cards.
- 6 Then revert to older firmware in Card A.
- 7 Redefine the I/O cards, using console commands.
- Card A now has old firmware and a correct old configuration.
- 8 Remove Card A and reinsert the Card B. Revert to older firmware in Card B (which has now become active).
- 9 Reinsert Card A. Reset Card B (currently active). Card A becomes active and Card B becomes standby (as they were before you started).
- 10 Copy the control card configuration from Card A to Card B using the 'Copy Settings' page of MRC.

Card B now has the reverted firmware and the same configuration as Card A.

- 11 Revert to the old boot ROMs (if yours were -03 or earlier).
- 12 Reconnect (or restart) the NV9000 (or third-party) control system.

^{7.} IOXM is a term that means input, output, crosspoint (XPT) and monitor cards.

The Procedure for Downgrading to V1.1 or V1.5

1 MRC

 \checkmark

It is advisable not to revert to an older version of MRC. Continue to use the new version.

▲ The downgrade procedure described here does not work with earlier versions of MRC.

If you do want to revert to an older version of MRC, follow the steps given in step 1 on page 2, but using the MRC installer appropriate for the older version.

2 Control System

Disconnect the NV9000 (or third-party) control system from the router.

Preferred Method: Use this method if you have an NV9000 control system and you can stop the NV9000 without disrupting your entire system.

1 Stop the NV9000. To stop the NV9000, launch NV9000-SE Utilities. Go to the 'System Management' page and click the 'Stop Controller 2' button and the 'Stop Controller 1' button.

It is recommended that you stop the inactive controller before you stop the active controller.

Alternate Method: Use this method if you cannot stop the NV9000 or if you have a third-party control system.

1 Remove the cables (whether serial or Ethernet) from the control ports of the router. (Doing this will cause alarms in the NV9000 system. You can safely ignore the alarms.)

If you have MRC running, removing Ethernet cables from the router's control cards will cause MRC to lose contact with the router.

2 Connect your PC (that is running MRC) to the router's control ports via a small Ethernet switch.

3 Router Snapshot

These steps create a file that records all the router settings. You are probably downgrading because an upgrade failed. It is *very important* to create a snapshot of the failed router to send to your Grass Valley customer service technician for diagnosis.

- ▲ If you have done no configuration since the final snapshot of your upgrade, it is sufficient to use that snapshot and you do not need to perform these steps.
- 1 Launch MRC. Go to its 'Copy Settings' page.
 - 2 Select the active control card in the upper section of the page.
 - 3 Choose 'Export' in the lower section of the page.
- 4 Click 'Copy Settings'.

 \checkmark

Select	Online		Name	Ty	pe	IP Address 🔺	Expansion
\circ	Standby	TSQ_	_8576	NV857	6 192	168.102.210	Stand Alone
٠	Active	TSQ_	_8576	NV857	6 192	168.102.211	Stand Alone
		-					
Copy To-							
Copy To-	Online		Name	Туре	IP A	ddress 🔺	Expansio
Copy To- Select	Online Standby		Name TSQ_8576	Туре NV8576	IP A	ddress 🔺 12.210	Expansio Stand Alone
Copy To- Select	Online Standby New Virtual		Name TSQ_8576 Create Configuration	Type NV8576	IP A 192.168.10	ddress A	Expansio Stand Alone
Copy To- Select	Online Standby New Virtual Export		Name TSQ_8576 Create Configuration To File	Type NV8576	IP A 192.168.10	ddress A 12.210	Expansion Stand Alone
Copy To- Select	Online Standby New Virtual Export		Name TSQ_8576 Create Configuration To File	Type NV8576	IP A 192.168.10	ddress A J2.210	Expansio Stand Alone

5 A dialog appears in which you can browse to name a file and location in which to store the settings. In this dialog, choose a folder and a file name. The saved file will be a.zip file.
 Then click 'Save' and wait for the confirmation notice.

4 Remove the Standby Card

Completely remove Card B (the standby control card, assuming there is one). Close the router door.

The Procedure for Downgrading to V1.1 or V1.5



Because you are reverting to older firmware, choose 'All Available' at the right side of the dialog and click 'Browse for RF File'.

^{8.} IOXM cards include Input, Output, XPT (crosspoint), and Monitor cards

The Procedure for Downgrading to V1.1 or V1.5

The 'Select Router Firmware' dialog appears:

W Select the Rou	ter Firmware		×
Look <u>I</u> n:	🔁 TEST	▼ 100 -	
My Recent Documents Desktop Desktop My Documents My Computer	С NV8500_НҮВ	FW_1.5.0.1976.RF _FW_3.6.2.3104.RF	
My Network	File <u>N</u> ame:	NV8500_HYB_FW_1.5.0.1976.RF Select]
Places	Flies of <u>Type</u> :	Router Firmware Files (".m)	

Here, navigate to a folder that contains the firmware file you want. The firmware file is named something like NV85ØØ_HYB_FW_1.5.Ø.1976.RF. Highlight the file and click 'Select'.

You should have been given this file. If you do not have this file, contact Grass Valley customer support.

The 'Firmware' page changes to highlight *all* cards in need of updating (in red):

Current Fir	mware Versions-			
Update	Needs Update	Name	Version	Description
		CPLD	1.0.0.0	
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32
		Control Card	3.6.2.3104	EM0833 Firmware - Jul 25, 2014
~	V	IOXM-UI-004	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	¥	IOXM-UI-018	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-033	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-044	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-LI-045	10.0.0.1	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)
~	V	IOXM-LI-063	10.0.0.1	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)
~	V	IOXM-UO-001	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	₽∕	IOXM-UO-017	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-018	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	₽ V	IOXM-UO-020	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-026	16.0.0.0	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)
~	V	IOXM-UO-029	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-UO-032	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-LO-052	16.0.0.0	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)
~	V	IOXM-X-001	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)
~	V	IOXM-X-003	6.0.0.0	NV8500 288X288 3Gig XPT HYBRID (EM0817)
~	V	IOXM-XR-005	1.0.0.0	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
V	V	IOXM-XR-006	2.0.0.0	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)
Select A	Select If h	loode Undato	alact Nana Sala	last

Frame1 Frame2



4 Make sure that no control card is selected.

5 Click 'Update Firmware' (at the bottom of the page).

The Procedure for Downgrading to V1.1 or V1.5

		Click 'Yes' in response	se to any confirmation message	es that appea	ar.				
		MRC proceeds to upd input TDM (MADI) c selected cards are upd	late (in this case, revert) all selecards, in parallel, then all diserrelated.	ected cards in the sected	in order of card t ls, also, in parall	type. It proces	sses all until all		
Frame1 Frame2		Depending on the nur amount of time, proba	Depending on the number and type of I/O cards in your router, the IOXM update can take a signific amount of time, probably 15 minutes or more.						
\checkmark	6 When the update is complete, MRC displays a log of the were successful." Examine the update log. If it reports an			f the update ts any failu	e updates. It should normally say "All updates my failure, retry the update for the failed card.				
		▲ If, during the upda form all retry atter	ate, an individual card fails, res mpts after the update finishes a	pond 'Skip	to the Retry me its report.	essage that app	pears. Per-		
		Cards for which the click 'Update Firm Successful'.	ne update failed will remain rec nware' again. Again, observe v	d in the table whether the	e. Make sure tha update report sa	t these are sel ys 'All Updat	ected and es		
		Ideally, none of the ca	ards in the 'Firmware' page sho	ould be red a	except the contro	ol card.			
	6	Revert to Old Firm	nware for the Active (Control C	Card				
		Do this for both frames if	you are updating firmware of	an expanded	d NV8576-Plus.				
\checkmark	\checkmark	1 Remain in the 'Firmw	vare' page in MRC. Ensure that	t Card A is	selected at the b	oottom of the j	page.		
		Select Online	Name	Туре	IP Address 🔺	Expansion			
		Off-Line Active	TSQ_8576	NV8576	192.168.102.210	Stand Alone			
					152.100.102.211				
							T		
		Refresh Summary	Update Firmware View Past	Opdate Logs	Reset Control Ca	ard			

2 The 'Firmware' page should report, at the top of the page, the same firmware file you used to revert the IOXM cards. If it does not, locate and select the firmware file as you used for the IOXM cards. The firmware file name is something like NV8500_HYB_FW_1.5.0.1976.RF.

 \checkmark

The Procedure for Downgrading to V1.1 or V1.5

The 'Update Firmware' page changes to highlight all cards in need of updating (in red). At this step, the only card to update is the control card:

CRouter Firmware File						
NV8500_HYB_FW_1.5.0.1976.RF Choose						
Current Firmware Versions						
Update	Needs Update	Name	Version	Description		
		CPLD	1.0.0.0			
		ROM	4.0.0.0	EM0833ROM Oct 1 2010 09:37:32		
v	V	Control Card	3.6.2.3104	EM0833 Firmware - Jul 25, 2014		
		IOXM-UI-004	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
		IOXM-UI-018	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
		IOXM-LI-033	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
		IOXM-LI-044	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
		IOXM-LI-045	6.0.0.0	NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814)		
		IOXM-LI-063	7.0.0.0	NV8500 3Gig SDI DEM 8 COAX IN (EM0814)		
		IOXM-UO-001	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
		IOXM-UO-017	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-UO-018	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-UO-020	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-UO-026	12.0.0.1	NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815)		
		IOXM-UO-029	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-UO-032	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-LO-052	12.0.0.1	NV8500 3Gig SDI EMB 16 COAX OUT (EM0815)		
		IOXM-X-001	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
		IOXM-X-003	4.0.0.2	NV8500 288X288 3Gig XPT HYBRID (EM0817)		
		IOXM-XR-005	0.0.0.14	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)		
		IOXM-XR-006	0.0.0.16	NV8500 288X288 3Gig RED XPT HYBRID (EM0818)		
Select A	Select All Select If Needs Update Select None Select 🗹 Update only if versions are different					
- Naturaliz Ex	Natural Franz Cumman					

Frame1 Frame2



 \checkmark

3 Click 'Select None' to deselect all cards.

4 Check the checkbox in the 'Update' column to select the control card.

Make sure that this is the only card that has a check mark.



5 Click 'Update Firmware' (at the bottom of the page).

🔞 Update Firmware...

The update takes about 5 minutes. Click 'Yes' in response to any confirmation or warning messages.

The Procedure for Downgrading to V1.1 or V1.5

Frame1 Frame2

- \checkmark
- 6 When the update has finished, MRC displays a log of the updates. It should normally say "All updates were successful" at the end.

Update Status Log History	
07/14/14 7:31:23 PM: Updating MTRX3 firmware from "SV1044-01E	1
EM0833Mtrx8576 Oct 11 2012 14:24:15" to "SV1044-03A EM0833Mtrx8576	
Dec 2 2012 11:24:43"	
07/14/14 7:31:25 PM: Update Succeeded	
07/14/14 7:31:26 PM: Updating MTRX4	
07/14/14 7:31:26 PM: Updating MTRX4 firmware from "SV1045-01E	
EM0833Mtrx8576Plus Oct 11 2012 14:24:22" to "SV1045-03E	
EM0833Mtrx8576Plus Dec 2 2012 11:24:51"	
07/14/14 7:31:28 PM: Update Succeeded	
07/14/14 7:31:29 PM: Updating OS	
07/14/14 7:31:29 PM: Updating OS firmware from "SV1051-01C EM0833OS Sep 13	
2013 15:46:20" to "SV1051-03A EM0833OS Dec 2 2012 11:25:41"	
07/14/14 7:31:47 PM: Update Succeeded	
07/14/14 7:34:01 PM: All updates were successful	
Save Print	ise

If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

7 Redefine the I/O Card Types (for the Active Control Card)

▲ This a complex and important step, requiring detailed knowledge of the card types in your router. But, because customer configurations differ, we cannot describe this step in detail.

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

Updating a control card erases the I/O card type definitions stored in the control card. The card type information must be regenerated.

Use console commands to respecify the I/O card types of your router.

See Redefining the I/O Card Types on page 70 for general instructions.

8 Revert to Old Firmware for Card B

Skip this step if there is no standby control card (Card B).

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

- 1 Completely remove Card A.
 - 2 Reinsert **Card B** in the slot from which it came. Close the router door. Wait for **Card B** to boot up. It becomes the active control card. It takes a few seconds.

 \checkmark

 \checkmark

 \checkmark

 \checkmark

IP Address 🔺

Туре

NV8576

The Procedure for Downgrading to V1.1 or V1.5

Expansion

Stand Alone

Off-Line TSQ 8576 NV8576 192.168.102.211 Stand Alone C Refresh Summary 🔟 Update Firmware. View Past Update Logs. Reset Control Card. \checkmark \checkmark 5 The 'Firmware' page should report the same firmware file you used to revert the IOXM cards and Card A. If it does not, locate and select the firmware file as you did for **Card A**. The firmware file name is named something like NV8500_HYB_FW_1.5.0.1976.RF. The 'Firmware' page changes to highlight all cards in need of updating (in red): Router Firmware File 0 NV8500_HYB_FW_1.5.0.1976.RF Choose Current Firmware Versions Update Needs Update Version Description Name CPLD 1.0.0.0 EM0833ROM Oct 1 2010 09:37:32 ROM. 4.0.0.0 V V Control Card 3.6.2.3104 EM0833 Firmware - Jul 25, 2014 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UI-004 7.0.0.0 IOXM-UI-018 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-033 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-044 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-LI-045 6.0.0.0 NV8500 3Gig COAX 8 SDI / 1 TDM IN (EM0814) IOXM-LI-063 7.0.0.0 NV8500 3Gig SDI DEM 8 COAX IN (EM0814) IOXM-UO-001 12.0.0.1 NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815) IOXM-UO-017 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-018 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-020 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-026 12.0.0.1 NV8500 3Gig COAX 16 SDI / 2 TDM OUT (EM0815) NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-UO-029 12.0.0.1 IOXM-UO-032 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) 12.0.0.1 IOXM-LO-052 12.0.0.1 NV8500 3Gig SDI EMB 16 COAX OUT (EM0815) IOXM-X-001 4.0.0.2 NV8500 288X288 3Gig XPT HYBRID (EM0817) NV8500 288X288 3Gig XPT HYBRID (EM0817) IOXM-X-003 4.0.0.2 IOXM-XR-005 0.0.0.14 NV8500 288X288 3Gig RED XPT HYBRID (EM0818) IOXM-XR-006 0.0.0.16 NV8500 288X288 3Gig RED XPT HYBRID (EM0818) Select If Needs Update Select None Select. Update only if versions are different Select All Notwork Frama Summar \checkmark 6 Click 'Select None' to deselect all cards. \checkmark \checkmark 7 Check the checkbox in the 'Update' column to select the control card. Make sure that this is the only card that has a check mark. \checkmark \checkmark 8 Click 'Update Firmware' (at the bottom of the page). 🛈 Update Firmware.

3 Go to 'Firmware' page in MRC. Click 'Refresh Summary'.4 Select the active control card at the bottom of that page.

TSQ 8576

Name

CUNITOL CALOS INSTANT

Online

Active

Select

•

The update takes about 5 minutes. Click 'Yes' in response to any confirmation or warning messages.

Frame1 Frame2

 \checkmark

The Procedure for Downgrading to V1.1 or V1.5

Frame1 Frame2

- \checkmark
- 9 When the update has finished, MRC displays a log of the updates. It should normally say "All updates were successful" at the end.

Update Status Log History	
07/14/14 7:31:23 PM: Updating MTRX3 firmware from "SV1044-01E	ŕ
EM0833Mtrx8576 Oct 11 2012 14:24:15" to "SV1044-03A EM0833Mtrx8576	
Dec 2 2012 11:24:43"	
07/14/14 7:31:25 PM: Update Succeeded	
07/14/14 7:31:26 PM: Updating MTRX4	
07/14/14 7:31:26 PM: Updating MTRX4 firmware from "SV1045-01E	
EM0833Mtrx8576Plus Oct 11 2012 14:24:22" to "SV1045-03E	
EM0833Mtrx8576Plus Dec 2 2012 11:24:51"	
07/14/14 7:31:28 PM: Update Succeeded	
07/14/14 7:31:29 PM: Updating OS	
07/14/14 7:31:29 PM: Updating OS firmware from "SV1051-01C EM0833OS Sep 13	
2013 15:46:20" to "SV1051-03A EM0833OS Dec 2 2012 11:25:41"	
07/14/14 7:31:47 PM: Update Succeeded	
07/14/14 7:34:01 PM: All updates were successful	
Save Clo	se

If the update was not successful, try the update again, once or twice. If the update continues to fail, try resetting the control card and try the update again. If the update fails after that, contact Grass Valley customer service.

9 Reinsert Card A and Make it Active

Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Re-insert Card A.

Either press the (physical) reset button on **Card B** or, while **Card B** is still selected in MRC, right-click in the 'Network Frame Summary' section of the 'Firmware' page and choose 'Reset Control Card' from the global context menu:



This context menu is also available in the 'From Device' section of the 'Copy Settings' page.

Respond 'Yes' in the confirmation dialog:

Confirm	Reset 🔀			
?	Select the reset type:			
· · ·	Reset Only			
	◯ Write to Serial EE and then Reset			
	Are you sure you want to reset this control card?			

Card A becomes active and Card B becomes standby (as they were before you started).

 \checkmark

The Procedure for Downgrading to V1.1 or V1.5

10 Copy the Configuration from Card A to Card B

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

1 Go to the 'Copy Settings' page of MRC.

 \checkmark

 \checkmark

2 Select **Card A** in the 'From Device' table at the top of the page. The 'To Device' table, at the bottom of the page, will redisplay according to your selection. Select **Card B** in the 'To Device' table.

Select O	Online Standby Active	Name TSQ_8576 TSQ_8576	Type NV8576 NV8576	IP Address - 192.168.102.210 192.168.102.211	Expansion Stand Alone Stand Alone			
Settings '	To Be Copied		Pood	Only Status Data				
Conlig	Ination Data		Reau	Only Status Data				
🗈 Net	work Settings			ontrol Card State				
	IP Address and	Subnet Mask		ystem Status				
V	Network Gatewa	ay Address		'ersion Data				
V	Device Name			F File Version Data				
	- Configuration Lo	ck	□ A	vailable Protocols				
	r ooningeretion ze		□s	tatus of Modules				
Con 🗎	nfiguration Setting	ls		Serial EE Chip Status				
	Router Levels			Control Card Running Log				
	Input Attributes			Control Card Startun Log				
V	AES Reference	Setting		ontrol Oard Otantap Log				
	Dual Reference	Setting						
	I Output Attributo	~ ~						
					Check All Uncheck			
ору То-								
Select	Online	Name	Type	IP Address 🔺	Expansion			
•	Standby	TSQ_8576	NV8576	192.168.102.210	Stand Alone			
0	 New vinual Export 	To File						

- 3 Leave the entries in the 'Settings to Be Copied' section, in the middle of the page, at their defaults.
- 4 Click the 'Copy Settings' button.

Respond 'Yes' to the confirmation message:

	×
?	Are you sure you want to copy settings?
	From:
	TSQ_8576 - 192.168.102.211
	To:
	TSQ_8576 - 192.168.102.210
	Domember the response to this measure
	Remember the response to this message
	Yes No

The Procedure for Downgrading to V1.1 or V1.5

5 MRC copies the configuration from **Card A** to **Card B**. At the end of the copy, MRC asks you whether you want to reset the control card:

		×
Settings copied successfully to (TSQ_8576 - 192.168.102.210) Do you want to reset it?		
	Remember the response to this message	
	Yes No	

Respond 'Yes'.

6 After the reset, MRC displays a completion message:

	×
i	The settings were copied and verified successfully.
	OK

11 Revert to the Old Boot ROM(s)

You should not need to revert to old boot ROMs. If you want to do so, find your -03 boot ROMs and reinsert these in the ROM sockets on the control cards of your router. Refer to <u>Replacing the Boot ROM</u> on page 40.

Frame1 Frame2 Do this for both frames if you are updating firmware of an expanded NV8576-Plus.

\checkmark	\checkmark	1 Remove the standby control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Then replace the standby card in the frame.
\checkmark	\checkmark	2 Switch control to the standby card. To do that, press the reset button on the active control card. Wait for the standby card to become the active card. (When a control card is active, its amber LED is on.)
\checkmark	\checkmark	3 Remove the formerly active control card. Place it in an ESD bag. Take it to an ESD lab bench. Replace its boot ROM. Then replace that control card in the frame.
\checkmark	\checkmark	4 Switch control back to the formerly active control card.
		▲ Keep the router door closed as much as possible when you are doing this.

The Procedure for Downgrading to V1.1 or V1.5

12 Completion

The downgrade is finished.

If there were unresolved failures, contact Grass Valley customer service.

Create another snapshot of the router in MRC, especially if there were failures. In the event of failures, you will be asked to send all snapshots to Grass Valley customer service.

1 If you disconnected your control system, reconnect it, disconnecting any temporary Ethernet connections you might have made between your PC and the router. However, if you stopped the NV9000, restart it.

13 Testing

 \checkmark

You can perform these quick tests to determine whether the firmware upgrade was successful.

These tests are discretionary and not part of the procedure itself.

- 1 Observe the LEDs on the control cards, crosspoint cards, I/O cards, and monitor cards.
 - I/O and monitor cards should all have their amber 'FPGA loaded' LED on (and steady) and they should have their green 'Good COM' LEDs on. No card should have its red 'Bad COM' LED on.

Each crosspoint card will have a green "health" LED on.

Each control card will also green health LED on. The active control card will have its amber LED on.

- 2 Examine the I/O cards in the 'Module Status' page of MRC. Modules with problems are highlighted in the table with red circles. Good modules have green circles.
- 3 In the 'Crosspoints' page of MRC, perform a few takes. (This is minimally helpful, but it will show whether the router is functioning.

More extensive testing is beyond the scope of this document.

Redefining the I/O Card Types

You must use the console application (described in the next section) to redefine card types. The redefinition must be performed for every control card that is updated to new firmware (or reverted to old firmware).

There are 6 applicable console commands. Two of the commands are simple:

cnfgOcTypeUpdate	Configures all output card types to match the currently installed output cards.	
	The command takes no parameters.	
cnfgIcTypeUpdate	Configures all input card types to match the currently installed input cards.	
	The command takes no parameters.	

Issue both of these commands first.

Then check the results by issuing the following commands:

cnfgOcType 1, <n>, <f></f></n>	This produces a list of all the <i>output</i> cards from 1 to <i>n</i> for frame <i>f</i> . The frame parameter is optional and needed only for an expanded NV8576-Plus. The value of <i>n</i> should be 8 for the NV8144, 32 for the NV8280, and 64 for NV8576 and NV8576-Plus routers.
cnfgIcType 1, <n>, <f></f></n>	This produces a list of all the <i>input</i> cards from 1 to <i>n</i> for frame <i>f</i> . The frame parameter is optional and needed only for an expanded NV8576-Plus. The value of <i>n</i> should be 16 for the NV8144, 32 for the NV8280, and 64 for NV8576 and NV8576-Plus routers.

These commands produce a list of numbers identifying the types of all I/O cards. Review the lists carefully. The numbers used are as follows:

0	standard input card	or	standard output card
1	disembedder (input) card	or	embedder (output) card
2	MADI input card	or	MADI output card

If you need to change the type of any particular input or output card, use one of the following commands:

cnfg0cTypeSet

cnfgIcTypeSet

- ▲ Refer to <u>The Console Application</u>, next, for details and syntax of the commands.
- ▲ The console commands have changed in firmware revisions later than v1.5.
- ▲ The console commands are not needed in v2.2.2, v3.1.0, or v3.1.1.

The Console Application

The Console Application

You will need to use the console application if you wish to perform a firmware downgrade.

Using a Serial Connection

The port is physically a 3-pin Phoenix connector located at the front edge of Unicon controllers. You will need a serial cable that makes these connections:

	(\cdot)	
	•	4
2	•	I
3	•	2
	•	2
5	•	5
	\ /	

3-pin Phoenix connector	9-pin serial connector
1 (Tx, top)	2 (Rx)
2 (Rx, middle)	3 (Tx)
3 (Gnd, bottom)	5 (Gnd)

The port operates at 9600 Baud, 8 data bits, no parity, and one stop bit and must be connected to your PC running a terminal emulator such as Hyper-Terminal or ProComm Plus. (ProComm Plus is preferred.)

▲ There is a small chance that pins 2 and 3 of the DE9 are Tx and Rx, respectively. If that is the case, Phoenix pin 1 must connect to DE9 pin 3 and Phoenix pin 2 must connect to DE9 pin 2.

Follow these steps to start the console application:

- 1 Launch ProComm (or your preferred terminal emulator).
- 2 Type 'console' (all lower-case letters).
- 3 At the prompt, begin issuing commands. You can type 'appHelp' to see a list of available commands.

Using an Ethernet Connection

No special equipment or software is required, but your PC must be on the same Ethernet subnet as the router.

In your PC's Command Prompt window (i.e., "DOS box"), type

telnet <ip>

where <ip> is the IP address of one of the router's control cards. Then you can issue console commands as you would with a serial connection.

Console Commands for Slot Types

There are 6 console commands that relate to card type. In the following descriptions, the characters '[' and ']' indicate the enclosed item or group of items is optional. The characters ' \langle ' and ' \rangle ' indicate that the enclosed term is something for which you substitute a value. *You should not type the characters '[', ']', '\langle', or ' \rangle'.*

[1]	cnfgOcTypeUpd	ate	Configures all output card types to match the cur- rently installed output cards. The command takes no parameters.	
[2]	cnfgOcTypeSet	<type>, <os>, <endos> [, <frm>]</frm></endos></os></type>	Configures the specified range of output cards to the given type.	
	Param <type> <os> <end0s> <frm></frm></end0s></os></type>	Desc Card type First output card slot # Last output card slot # frame	Attribute(s) 0 = standard; 1 = embedder; 2 = MADI See note 1, following See note 1, following See note 2, following	

The Console Application

[3]	cnfgOcType [<	:os> [, <num> [, <frm>]]]</frm></num>	Tallies the specified range of output cards.	
	Param <os> <num> <frm> The cnfgOc</frm></num></os>	Desc First output card slot # Number of slots to tally frame Type command returns output card type	Attribute(s) See note 1, following See note 2, following : 0 = standard; 1 = embedder; 2 = MADI. The param-	
	eters are op first 16 valu	tional. If you omit the parameters from tasks.	the command, the console application will print the	
[4]	cnfgIcTypeUpc	late	Configures all input card types to match the cur- rently installed input cards. The command takes no parameters.	
[5]	cnfgIcTypeSet	: <type>, <is>, <endis> [, <frm>]</frm></endis></is></type>	Configures the specified range of input cards to the given type.	
	Param	Desc	Attribute(s)	
	<type></type>	Card type	0 = standard; $1 =$ disembedder; $2 =$ MADI	
	<is></is>	First input card slot #	See note 1, following	
	<endis></endis>	Last input card slot #	See note 1, following	
	<frm></frm>	frame	See note 2, following	
[6]	cnfgIcType [<	:is> [, <num> [, <frm>]]]</frm></num>	Tallies the specified range of input cards.	
	Param	Desc	Attribute(s)	
	<is> <num></num></is>	First input card slot # Number of slots to tally	See note 1, following	
	<frm></frm>	frame	See note 2, following	
	The cnfgIc	Type command returns output card type tional. If you omit the parameters from t	: 0 = standard; $1 = $ embedder; $2 = $ MADI. The param-	

The cnfglcType command returns output card type: 0 = standard; 1 = embedder; 2 = MADI. The parameters are optional. If you omit the parameters from the command, the console application will print the first 16 values.

Note 1: The input and output slot numbering matches the labeling of slots at the rear of the router.

Note 2: An NV8576-Plus router has two frames. The <frm> parameter identifies the frame with which you are communicating: a value of 0 means frame 1 and a value of 1 means frame 2. Sometimes frame 1 is called the master frame, or the primary frame, and frame 2 is called the slave frame or the secondary frame. If you are not communicating with an NV8576-Plus, the commands do not require a frame number.

Examples

Set input cards 2 through 7 to use (dis)embedder cards:

-> cnfgIcTypeSet 1,2,7

Set output cards 17 through 19 to use standard cards:

-> cnfgOcTypeSet Ø,17,19

Tally the 5 output cards beginning at card 3, for the *slave* frame (or frame 2) of an NV8576-Plus router:

The results indicate that output cards 3, 5, and 6 are embedder cards. Card 4 is a standard card and card 7 is a MADI card.
Updating Frame Sync Card Application Software

Updating Frame Sync Card Application Software

(The procedure described here works for both upgrades and downgrades.)

Each frame sync input card has an internal browser application through which you can update its application software, among other things.

To use the application, enter the IP address of the frame sync card in the address field of your browser (Internet Explorer, Firefox, Chrome, Safari, etc.)

If you do not know the IP address of the frame sync card, you will need to look it up (or assign it) in the 'Ethernet Settings' page of MRC. See the *MRC Users Guide* for further information.

You will have to update the firmware in each frame sync input card individually.

To update frame sync software, follow these steps:

1 Make an Ethernet connection between the configuration port of the frame sync input card and your PC:



2 In your browser, enter the IP address of the frame sync input card.

The application initially displays its main page or home page:

APCII	+
() 192.168.102.148	☆ マ C 🛛 🖉 י Yahoo 👂 🖡 🏫
Miranda A BELDEN BRAND	APC II : 8500 Router Input Card
 Home Upgrade IP Address Debug MENU access Technical Support 	Upgrade Change the firmware version of the APCII. IP Address Change the IP Address of the APCII board. Debug Download debug information to send to Miranda's technical support team. Technical Support Contact technical support or get online information on the APCII.

Note that the term "APC II" represents the frame sync input card.

NV8500 v3.6.2 Upgrade and Downgrade Procedures

Updating Frame Sync Card Application Software

3 Click 'Upgrade' in the navigation pane (at the left). The 'Upgrade' page appears:

	+
€ € 192.168.102.148	רבי לי ער אאסט אין אין אין אין אאסט אין
Miranda A BELDEN BRAND	APC II : 8500 Router Input Card
• Home	Upgrade APCII
● Upgrade	Please choose the upgrade file and press "Upgrade" to replace the firmware version on the APCII (the file extension must be .bin)
IP Address Dobug	Upgrade file: Firmware version currently in APCII : 100.0073 Firmware version selected : 100.0077
MENU access	
● Technical Support	Valid firmware, ready to load

To update the frame sync software:

a Click the 'Browse' button. In the dialog that appears, navigate to select a .bin file for the card.

If you choose a valid .bin file, the message area tells you so, as shown above. If you choose file that has older software, the message informs you:

```
The selected version is anterior to the current version
```

Nevertheless, you will be able to upload the software.

If the file you choose is not an appropriate .bin file, the message will be 'Version cannot be retrieved':

Firmware version currently in APCII : 100.0073 Firmware version selected : Version cannot be retrieved

b When you have chosen a valid file, click the 'Upgrade' button.

The upgrade (or downgrade if that is the case) proceeds automatically to completion.

The process takes about a minute. During that time, the application presents a series of progress messages. When the upgrade is complete, the application gives you a "successful completion" message and returns to its normal state.

4 Repeat these steps for other frame sync input cards.

Updating NV8900 Firmware

The process of upgrading (or downgrading) firmware in NV8900 modules is the same as updating firmware in any router module.

Updating NV8900 modules is not order-dependent in any way. You can update an NV8900 at any time, before, or after, the updates to your router modules.

Follow these guidelines:

- 1 Go to the 'Ethernet Settings' page in MRC.
- 2 Locate and place a check mark on all the NV8900 modules that you want to update.
- 3 Choose NV8500_HYB_FW_3.6.2.3104.RF for the firmware file.
- 4 Click the 'Update Firmware' button at the bottom of the page.

The firmware page will generate a status report when the update is complete.