

Field Modification FM24002

NAC124 & NAC124A Controller: Replacing the SSD and Upgrading from GV UB118 SW 5.0.1 to GV SW 6.1.2 or later

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FM24002: NAC124 and NAC124A Controller -Replacing the SSD and Upgrading from GV UB118 SW 5.0.1 to GV SW 6.1.2 or later

FIELD MODIFICATION

1 INTRODUCTION

This document provides instructions for Nautel customers or their appointed agents to replace the NAC124 or NAC124A Controller Module's solid-state drive (SSD) with software GV UB118 SW 5.0.1 and insert an SSD with GV SW 6.1.2 software or later.

1.1 Reason for Modification

This modification streamlines the software process by providing a pre-loaded SSD with GV SW 6.1.2 or later for replacement in the controller module.

IMPORTANT

Review the Software Release Notes for detailed information on the software version on the replacement SSD, particularly for features that may be unavailable. See the applicable Release Notes pdf in http://www3.nautel.com/pub/GV_Series/.

1.2 Equipment Affected

This procedure applies to all GV series transmitters - with controller module Nautel part number NAC124 or NAC124A - that require a software upgrade from GV UB118 SW 5.0.1 to GV SW 6.1.2 or later. The controller module part number (e.g., NAC124) can be found on the rear of the unit. The transmitter's advanced user interface (AUI) must be fully operational to perform this procedure.

1.3 Responsibility for Implementation of Procedure

This procedure should be carried out by qualified station maintenance personnel who are familiar with the GV series transmitter and its AUI.

1.4 Scheduling

This procedure should be completed at the earliest convenience of the transmitter maintenance personnel. The transmitter will need to be "off-air" when removing and inserting the SSD from the Controller and remain off until it can be re-installed. Allow approximately 30 minutes to replace the SSD. You will also be required to perform a software update when first powering up the transmitter which will require approximately 60 minutes of "off-air" time. If paragraph 3 is required, you will need an additional 30 minutes of "off-air" time.

IMPORTANT

Please read through the entire procedure to understand the requirements and plan accordingly.

1.5 Manpower Requirements

Implementing these procedures requires knowledge of the GV series transmitters, specifically Controller Module replacement. Refer to the Troubleshooting manual. This entire modification requires approximately 90 minutes (120 minutes, if paragraph 3 is required) to complete.



1.6 Special Tools, Equipment, Download Requirements

- #1 and #2 Phillips screwdriver
- M4 Socket screwdriver
- Anti-static mat and wrist strap (recommended)
- Laptop with Nautel Legacy App installed; available at Nautel's FTP site: <u>http://www3.nautel.com/pub/Legacy_AUI_Access/1.02/</u>
- LAN cable, straight-through or cross-over
 Information Sheet IS24005* PDF in http://www3.nautel.com/pub/Utilities/SystemHealthEligibilityEvaluationProgram/
- ** Microchip Studio utility from <u>https://www.microchip.com/en-us/tools-</u> resources/develop/microchip-studio
- ** GV_Rack_V2.0.0.4.hex file from the GV_Rack directory of http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/
- Information Sheet IS18005* from http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/
- USB keyboard, if IS18005* is required
- SSH program, e/g/. PuTTY from http://www3.nautel.com/pub/Utilities/puTTy/
- Replacement 'Operating the Transmitter' documentation from <u>http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/Handbooks/</u>
- GV SW 6.1.2 UB118 tgz file from <u>http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/UB118%20Installation%20Files/</u>

** items are only required if you received Field Modification Kit 219-5347 (see paragraph 1.7).

NOTE

Microchip Studio is licensed as freeware for PC or laptop with Windows 32 bit and 64-bit operating system. It is available as a free download.

1.7 Materials Provided

Table 1a or 1b lists the items in the Field Modification Kit to aid in completing this procedure.

<u>NOTE</u>

Depending on the outcome of performing the instructions in Information Sheet 'IS24005 - GV Series: Using the System Health Eligibility Evaluation Program (SHEEP)', also referenced in paragraph 2.1 (a), you will receive one of the two kits shown below. This document is valid for either kit, and contains conditional steps/procedures as required.

Table 1a: Field Modification Kit, GV Series - SSD Upgrade with HTML5

(Nautel Part 219-5340)

Item	Qty	Component	Description
2	1	FM24002	Field Modification Document
3	1	219-2131	SSD Mod, Programmed

Table 1b: Field Modification Kit, GV Series – Atmel Pod and SSD Upgrade with HTML5 (Nautel Part 219-5347)

ltem	Qty	Component	Description				
2	1	FM24002	Field Modification Document				
3	1	UB103	Dongle, Programmer, ATMEL-ICE-BASIC				
4	1	219-2131	SSD Mod, Programmed				

1.8 Identifying Modified Assemblies/Parts

Identifying modified assemblies informs future maintainers of the current configuration. Use indelible ink to mark the transmitter and Controller with "**FM24002**", on the rear, near the nameplate/serial number label.



1.9 Publications Affected

This modification affects technical documentation, as it introduces a new AUI interface. Download a new 'Operating the Transmitter' document for your GV model from the Nautel FTP site (<u>http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/Handbooks</u>/). This document provides full details on the new AUI and is intended to replace the 'Operating the Transmitter' chapter (3.2) in your *Operation and Maintenance Manual*.

2 PRELIMINARY TASKS

2.1 Evaluating the Transmitter for Software Eligibility

Some GV series transmitters are unable to complete certain software upgrades due to issues related to entering and exiting bootloader mode at the rack level. Before receiving either of the Field Modification Kits in Table 1a or Table 1b, you would have been prompted by Nautel to verify if the GV series transmitter is eligible for the software upgrade provided with this Field Modification document. This verification involves performing the procedure in Information Sheet document '*IS24005 - GV Series: Using the System Health Eligibility Evaluation Program (SHEEP)*'.

- (a) Ensure that *IS24005 GV Series: Using the System Health Eligibility Evaluation Program (SHEEP)*' has been performed. If unsure, see paragraph 1.6 for location.
 - If the evaluation was successful, continue to paragraphs 2.2 and 2.3, then complete paragraphs 4, 5 and 6. Skip paragraph 3.
 - If the evaluation was not successful, proceed directly to paragraph 3, 'Installing Rack Firmware'.

2.2 Recording Settings

<u>NOTE</u>

There are various settings and logged data that will not be saved in your transmitter when you replace the SSD. Before removing your SSD, Nautel recommends that you record these settings and logged data, so that you may re-enter them after inserting the new SSD.

- (a) With the transmitter on, record and retain the existing settings in the AUI pages listed below. Record settings manually or use the laptop/Nautel Legacy App and LAN cable to remotely connect to the transmitter to create screen images. Refer to your existing *GV Operations and Maintenance Manual*, if necessary, to navigate to these AUI pages.
 - Logs
 - User Accounts
 - Network Setup
 - Email Configuration

- Notifications
- Exgine Settings
- NTP Servers
- SNMP Configuration
- (b) Review the presets in the AUI's Presets page. For any presets that show Audio Player as their Audio Source, change the Audio Source to something other than Audio Player.

<u>NOTE</u>

Audio Player functionality is not available in GV SW 6.1.2. Nautel recommends recording all Audio Player related preset settings so that they can be restored when that functionality is available.

2.3 Disabling the Watchdog Feature



(a) From the controller UI, go to the System Settings -> Host Watchdog screen. Ensure that the setting is set to OFF (disabled).

3 INSTALLING RACK FIRMWARE (IF REQUIRED)

NOTE

Paragraphs 3, 3.1 and 3.2 are only required if step 2 (a) was unsuccessful. In this case, you have been provided Field Modification Kit 219-5347. If you have Field Modification Kit 219–5340, these paragraphs are not required.

3.1 Preliminary Tasks

- (a) Install Microchip Studio (see paragraph 1.6 for location) on the laptop.
- (b) Set the transmitter to its **RF Off** state. From the rear of the transmitter, remove the upper rear panel to gain access to the module control/interface PWB (see Figure 6 for reference), noting there is one PWB per rack in the transmitter.

3.2 Installing Firmware

- (a) Download the GV_Rack_V2.0.0.4.hex file (see paragraph 1.6 for location) to the laptop.
- (b) Obtain the ATMEL-ICE programmer dongle (Nautel Part # UB103) from the Field Modification Kit.
- (c) Connect the USB cable that comes with the dongle between the dongle and the laptop. Wait for any final USB driver pairing to complete.
- (d) Connect the 6-pin programming cable that comes with the dongle between the dongle and the programming header J9 on the module control/interface PWB (see Figure 1). Ensure proper orientation, pin 1 is slightly highlighted with a white background on the board silkscreen



Figure 1: Location of Programming Header J9 on Module Control/Interface PWB

NOTE

Ensure pin 1 on the Atmel programming tool (the red wire on the Atmel programming tool's ribbon cable indicates pin 1) is connected to pin 1 on connector J9.



- (e) Launch the Microchip Studio utility on the laptop.
- (f) Click **Tools** from the Start Page bar (see Figure 2) and select Device Programming. The screen in Figure 3 will appear.

ŏ	Start Page - Microchip Studio								
File	Edit	View	VAssistX	Project	Debug	Tools	Window	Help	
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ž 🕅	ř I	->	II ▶ 🕹	* @ 1	h 1	1	Device Pack N	/lanager	
Start F	ane te	x				4	Device Progra	mming	Ctrl+Shift+P
Start F	′age ≁	^							



Atmel-ICE (J418	00021833) - De	evice Progra	mming					?	×
Tool Atmel-ICE Y	Device ATxmega12	BA1 🔻	Interface PDI ~ Apply	Device signature Øx1E974C	Read	Target Voltage 3.3 V Read	₩		
Atmel-ICE Atmega12 Interface settings Tool information Device information Memories Fuses Lock bits Production signatures Production file		Fuse Name FUSEBYTE0.JTAGUSERID FUSEBYTE1.WDWPER FUSEBYTE1.WDPER FUSEBYTE2.BOOTRST FUSEBYTE2.BOOPD FUSEBYTE4.RSTDISBL FUSEBYTE4.STARTUPTIME FUSEBYTE4.WDLOCK FUSEBYTE4.JTAGEN FUSEBYTE5.BODACT FUSEBYTE5.EESAVE FUSEBYTE5.BODLEVEL		Value Value 0xFF 8 cycles (8ms @ 3.3V) ~ 8 cycles (8ms @ 3.3V) ~ Boot Loader Reset ~ BOD enabled continuously ~ 0 ms ~ 0 0 Denabled continuously ~ 2 2.6 V ~					
		Fuse Regis FUSEBYT FUSEBYT FUSEBYT FUSEBYT FUSEBYT	Value E0 0xFF E1 0x00 E2 0xBA E4 0xFF E5 0xE3						
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Reading register Reading register Reading register Reading register Reading register Read registersO	FUSEBYTEDC FUSEBYTE1C FUSEBYTE2C FUSEBYTE5C FUSEBYTE5C	ж Ж Ж							~
💌 Read regi	stersOK								
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Figure 3: Atmel Device Programming Menu (Fuses tab shown)

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- (g) In the Tool dropdown, select 'Atmel-ICE'.
- (h) In the Device dropdown, select 'ATxmega128A1'.
- (i) Click the **Apply** button.
- (j) Confirm connectivity: click the Device Signature **Read** button. If an error message appears, check the orientation of the 6-pin programming cable.
- (k) Select the Memories tab (see Figure 4). In the Flash section, browse to the hex file downloaded in step (a). Ensure the 'Erase Flash before programming' and 'Verify Flash after programming' checkboxes are selected as shown.

_					
Tool Device	Interface Device signature Target Voltage				
Atmel-ICE Y ATxmega12	RA1 • PDI · Apply 0x1E974C Read 3.3 V Read				
Interface settings	Device				
Tool information	Erase Chip ≚ 🛛 Erase now				
Device information	Flash (128 KB+8 KB BOOT)				
Memories C:\Users\User\Downloads\GV_Rack_V2.0.0.4.hex					
Fuses	 ✓ Erase Flash before programming ✓ Verify Flash after programming 	Read			
Lock bits	Advanced				
Production signatures	EEPROM (2 KB)				
Production file		~			
	Erase EEPROM before programming Verify Verify	Read			
	Advanced				
	User Signatures (512 bytes)				
		~			
	Erase User Signatures before programming Program Verify	Read			
	Verify User Signatures after programming				
eauing register POSEBY FEUC		,			
eading register FUSEBYTE1C eading register FUSEBYTE2C	vin K				
leading register FUSEBYTE4C leading register FUSEBYTE5C	Ж Ж				
lead registersOK					
 Read registersOK 					
		Close			
		Close			



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- (I) Select the Fuses tab (see Figure 3) and program the fuse Values as shown.
- (m) Select the Lock bits tab (see Figure 5) and program the lock bit Values as shown.

Atmel-ICE (J418	00021833) - De	evice Programming						?	×
Tool	Device	Interface		Device signature		Target Voltage			
Atmel-ICE 👻	ATxmega128	8A1 🔻 PDI 👻	Apply	0x1E974C	Read	3.3 V Read	\mathbf{Q}		
Interface settin	gs	Lock Bit	Valu	Je					
Tool information	on	COCKBITS.BLBB	No lock	s ~					
Device informa	ation	V LOCKBITS.BLBA	No lock	s ~					
Memories		✓ LOCKBITS.BLBAT	No lock	s ~					
Fuses		C LOCKBITS.LB	No lock	s ~					
Lock bits									
Production sig	natures								
Production file	1								
		Lock Bit Register Va	lue						
		LOCKBITS 0xF	F						
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		 Auto read Verify after progra 	mmina			Program	Verify	R	ead
		To clear lockbits, use E	rase Chip	on the Memories p	oage.				
Starting operatio Reading register Read registersC	n read register LOCKBITSOk)K	's <							
🔹 Read regi	istersOK								
							_	Clo	se

Figure 5: Atmel Device Programming Menu (Lock bits tab shown)

- (n) Select the Memories tab (see Figure 4). In the Flash section, click **Program**. Wait for confirmation that the programming is successful. If the programming is not successful, contact Nautel Customer Service (<u>support@nautel.com</u>).
- (o) Close the Microchip Studio utility on the laptop.
- (p) Disconnect the Atmel programming tool from the module control/interface PWB.
- (q) Repeat step 2.1 (a) to verify a successful SHEEP evaluation.



4 REMOVING THE SSD

<u>NOTE</u>

The SSD is located inside the controller module (A4) which will need to be removed from the transmitter to access.

(a) Press **RF OFF**. Turn off and lock out the transmitter's main ac power.

NOTE

If installed, disconnect power cable at J1 of the UPS interface assembly, located in the bottom rear of the transmitter. Refer to the UPS interface power supply replacement procedure in the Troubleshooting manual for reference.

- (b) From the rear of the transmitter, remove the upper rear panel (right most for multi-panel transmitters) and disconnect all mating connectors from the controller module (A4), noting connections. If applicable, remove and retain any USB drives connected to the rear of the controller.
- (c) From the front of the transmitter, open the front door (left most for multi-door transmitters) and remove and retain the two (2) M5 Phillips head screws that secure the controller module to the transmitter (see Figure 6). Remove the controller module from the transmitter.
- (d) Place the controller module on a suitable workbench.

NOTE

There are static sensitive components inside the controller. Use precautions when handling static sensitive devices. Nautel recommends using a properly grounded anti-static mat and wrist strap.



Figure 6: Front and rear view of the transmitter (GV5 shown as reference)



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- (e) Remove and retain the thirteen (13) M3 Phillips head screws, securing the top cover on the module.
- (f) Disconnect P1 (large black connector) from the SSD assembly (see Figure 7). **Do not** remove SATA1 or SATA_PWR1 connectors from P1.



Figure 7: SSD Assembly Removal

(g) Remove and retain the two (2) M4 lock nuts (Nautel part # HMN79) that secure the SSD Mounting Bracket to the chassis (see Figure 8). Remove the SSD Mounting Bracket and dismount the SSD from the SSD Mounting Bracket using a Phillips screwdriver. Retain Phillips hardware.



Figure 8: SSD Mounting Bracket Removal

- (h) Retain the SSD Mounting Bracket.
- (i) Record the brand of the removed SSD (for use in paragraph 5) and place the SSD in an anti-static bag for storage.



5 INSTALLING THE REPLACEMENT SSD

NOTE

Performing the instructions in this paragraph requires approximately 30 to 60 minutes of 'off-air' time while the transmitter installs the new software.

- (a) Obtain the replacement SSD (Nautel Part # 219-2131) from the Field Modification Kit. Compare the brand of the new SSD to the removed SSD, recorded in step 4 (i). If the brands are different, you will need to include step (e) of this procedure. If the brands are the same, you can skip step (e).
- (b) Reversing step 4 (h) through 4 (e), using retained hardware, install the new SSD (see Figure 7) and re-install the controller's top cover.
- (c) Using retained hardware from step 4 (c), re-install the controller and reconnect the mating connectors.

IMPORTANT!

Ensure the controller's connectors in step (b) are properly mated. Improper connections may result in failure of the upgrade.

- (d) Turn on the transmitter's main ac power and UPS power (if installed). Leave RF off.
- (e) If applicable [see step (a)], perform the instructions in IS18005 (see paragraph 1.6) to update the BIOS boot options.

NOTE

GV SW 6.1.2 will update firmware on the initial boot, then reboot the AUI for the firmware updates to take effect.

IMPORTANT!

DO NOT turn off ac to the transmitter until the AUI login screen appears and the controller UI either displays 'Upgrade successful!' (see Figure 13) or one of the failure screens shown in Figure 14. Turning off ac power to the transmitter prior to this point could result in the transmitter becoming inoperable.

<u>NOTE</u>

The single board computer will reboot multiple times during this upgrade process.

IMPORTANT!

If the upgrade of any component (exciter, rack, etc.) is initially unsuccessful, the system will automatically retry the update to that component and the controller UI will display messages indicating this. DO NOT interrupt this process or the transmitter may become inoperable. If all attempts fail, the controller UI will display one or more of the 'Unable to upgrade' screens shown in Figure 14 and the AUI will reboot. If one of these screens appears, proceed to step (m).

(f) The touchscreen monitor will turn on and a screen will appear prompting you to perform a Touchscreen Calibration. Perform the touchscreen calibration. The transmitter is now entering the initial firmware update.

<u>NOTE</u>

The events in steps (f) and (g) occur almost simultaneously. In some cases, the screen in Figure 9 may take approximately one (1) minute to appear.



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(g) The controller UI will display the screen in Figure 9. This firmware update may take up to five (5) minutes.



Figure 9: Controller UI – 'Updating DSP Image' screen

NOTE

During the firmware update, the AUI may display a screen stating, 'this site can't be reached'. This is normal and expected behavior until step (I) is completed (i.e., successful upgrade).

(h) When the DSP image update is complete, the controller UI will display the screen in Figure 10. The reboot takes approximately two (2) minutes.



Figure 10: Controller UI - 'Please wait while the transmitter reboots' screen

(i) When the reboot is complete, the controller UI will display the screen in Figure 11. This upgrade may take up to 15 minutes for each exciter (A and B, if applicable) in the transmitter.



Figure 11: Controller UI – 'Upgrading Exciter A/B' screen(s)

(j) When the exciter upgrade(s) is (are) complete, the controller UI will display the screen in Figure 12. This upgrade may take up to five (5) minutes for each rack (1 through 6, as applicable) in the transmitter. Note: one rack equals four (4) RF power modules; GV3.5 and GV5 transmitters only have two (2) RF power modules.



Figure 12: Controller UI – 'Upgrading Rack' screen(s)



NOTE

Throughout the upgrade, various RF power module LEDs will change from green to orange or will not be illuminated. Various power supply LEDs will show "!" blinking. When the rack upgrade(s) is (are) complete, RF power module and power supply LEDs will return to normal.

- (k) When upgrades are complete, the AUI will reboot again. The reboot takes approximately two (2) minutes.
- If the upgrade was successful, the controller UI will display the screen in Figure 13. If the upgrade was not successful, the controller UI will display one of the screens in Figure 14. In either case, proceed to the next step.



Figure 13: Controller UI – 'Upgrade successful!' screen







Figure 14: Controller UI – Examples of 'Unable to upgrade' screens

(m) Login using the default username/password combination of **Admin/change_me**. The AUI will prompt for an optional Chrome-style password-saving function.

NOTE

If the AUI login screen does not appear, cycle the ac power (turn off, then on).

NOTE

The following steps reference the new AUI's menu screens. Refer to the Operation and Maintenance Manual obtained in paragraph 1.9 (issue 6.0 or later) for assistance with navigating the new AUI menu.



- (n) When the AUI's Dashboard appears, a popup will appear with a firmware upgrade message that matches the controller UI's message. An Entered Firmware Upgrade alarm will also be triggered. Pressing the **OK** button will clear the popup on the AUI, the message on the controller's UI, and will clear the Entered Firmware Upgrade alarm to allow for the RF state to be changed. If the AUI is refreshed, the popup may appear once more. Pressing the **OK** button will clear the popup and it will not appear again in that AUI's session.
- (o) When the software upgrade is complete, navigate to the AUI's Software Versions page by selecting Menu (top right AUI icon), then Software -> Versions. Compare the installed versions shown for Controller, Exciter and Rack to the minimum acceptable versions in Table 2.

Name	Minimum Version					
controller	3.1.1.1					
exciter	1.9.1.1					
rack	2.0.0.4					

Table 2: Minimum Expected Device Versions

NOTE

Depending on your transmitter's model and configuration (e.g., multiple rack numbers, dual A/B exciters, HD exciters, etc.), the device names displayed on the Versions page may differ from those in Table 2. Look for the key words 'controller', 'exciter' and 'rack' in the device names.

- If the versions displayed on the AUI meet the minimum versions in Table 2, proceed to step (p).
- If the versions displayed on the AUI do not meet the minimum versions in Table 2, check for alarms (e.g., Exciter A Offline) by navigating the AUI to **Menu -> Alarms** and confirm that all controller and exciter cables are properly connected.
- If the versions displayed on the AUI still do not meet the minimum versions in Table 2, perform a software upgrade as follows:
 - i. On the AUI, go to Menu ->Software -> Upgrades page.
 - ii. Obtain/upload the UB118 .tgz file for GV SW 6.1.2 from <u>http://www3.nautel.com/pub/GV_Series/GV_SW_6.1.2/UB118%20Installation</u> <u>%20Files/</u>
 - iii. Select Start Upgrade.
 - iv. When the upgrade is complete, recheck the AUI software versions versus the minimum versions in Table 2.
- If the versions displayed on the AUI still do not meet the minimum versions in Table 2, contact Nautel Customer Service (<u>support@nautel.com</u>).

The Admin user now will automatically log into the local AUI after a reboot

- (p) In the local AUI, you can enable local auto AUI login through the following steps:
 - Select Menu -> Settings.
 - On the left-hand side of Settings list, select Users.
 - Select the pen and paper icon for the Admin user
 - Select the Auto-Login toggle
 - Select Save

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- (q) Reconfigure the network settings in the **Network Setup** page (in **Settings** ► **Network**). Refer to Table 3 for menu structure changes.
- (r) Reconfigure settings recorded as part of paragraph 2.2 using the appropriate settings in Menu ► Settings. Refer to Table 3 for menu structure changes.

Old AUI Menu New AUI Menu User Accounts Settings ► Users User Settings ► Network Setup Settings ► Network User Settings ► Email Configuration Settings ► Notifications User Settings ► Notifications Settings ► Notifications User Settings ► Exgine Settings Settings ► HD/DRM User Settings ► NTP Servers Settings ► Time User Settings ► SNMP Configuration Settings ► SNMP

Table 3: Old AUI versus new AUI menu structure changes

- (s) Install the transmitter's rear filter panel.
- (t) From the controller UI, go to the System Settings -> Host Watchdog screen and set to ON (enabled).
- (u) Press RF On and resume normal operation.

6 CHANGING THE OS PASSWORD

IMPORTANT!

This software ships with default root and Nautel passwords. These passwords must be changed to ensure the security of the system. Failure to change the password exposes the transmitter to unauthorized access.

The OS password must be changed for security purposes. To do this, you will need a way to remotely connect to a Linux computer using SSH. PuTTY is a common utility for Windows users (available at http://www3.nautel.com/pub/Utilities/puTTy/; if unable to open this link, use a search engine to find new URL), while Linux users can use 'ssh' from the command line. Change the password as follows:

- (a) Connect to the transmitter IP address using your selected SSH client.
- (b) Login with username nautel and password nautel.
- (c) At the prompt, type the command **passwd**. This is the Linux command to change your password.
- (d) Enter and confirm your new password. Consider using the last OS password as supplied by Nautel, provided with the original documentation for the transmitter or with a replacement SSD, for consistency. If not and you choose a new password, record it now in a secure location for safekeeping.
- (e) At the prompt, type **su** and press enter, then type **nautel** at the password prompt and press enter.



- (f) At the prompt, type the command passwd. This is the Linux command to change your root password. Record it in a secure location for safekeeping. Consider using the last OS password as supplied by Nautel, provided with the original documentation for the transmitter or with a replacement SSD, for consistency. If not and you choose a new password, record it now in a secure location for safekeeping.
- (g) Close the SSH client (e.g., PuTTY).
- (h) Return the transmitter to normal operation.

If you have any questions or require additional assistance, please contact Nautel's Customer Service Department at:

Telephone:1-877-662-8835 Email: <u>support@nautel.com</u>

