Information Sheet IS25005

GV/NVLT Series: Upgrading Backplane Firmware

Issue 1.0 ..... 18 November 2025

Nautel Limited
10089 Peggy's Cove Road,
Hackett's Cove, NS, Canada B3Z 3J4
T.877 6 nautel (628835) or +1.902.823.2233
F.+1.902.823.3183 info@nautel.com

U.S. customers please contact:
Nautel Inc.
201 Target Industrial Circle, Bangor ME 04401
T.877 6 nautel (628835) or +1.207.947.8200
F.+1.207.947.3693 info@nautel.com

e-mail: support@nautel.com
www.nautel.com

IS25005: GV/NVLT Series: Upgrading Backplane Firmware

INFORMATION SHEET

1 INTRODUCTION

Some transmitters are unable to complete certain software upgrades due to issues related to entering and exiting bootloader mode at the rack level. This Information Sheet provides instructions for Nautel customers to upgrade the backplane firmware to allow the transmitter to complete its necessary upgrade.

NOTE

The requirement for this Information Sheet is a possible outcome of an associated Information Sheet [e.g., IS24005 - GV Series: Using the System Health Eligibility Evaluation Program (SHEEP)], which verifies if the transmitter is eligible for certain software upgrades.

This Information Sheet is likely also associated with a Field Modification kit, provided by Nautel to perform a specific upgrade, and should only be performed when prompted in an associated Field Modification document or by a Nautel Customer Service agent. Items from the associated Field Modification Kit will be required during this procedure.

1.1 Equipment Affected

This procedure applies to any GV/NVLT transmitter shipping with Backplane FW 1.1.29.10 (i.e., GV SW 4.5 or higher, NVLT 4.6 or higher).

1.2 Responsibility for Implementation

This procedure should be carried out by qualified station maintenance personnel who are familiar with the associated transmitter.

1.3 Scheduling

The transmitter will be “off air” during this procedure.

1.4 Manpower Requirements

Implementing these instructions will require approximately 30 minutes.

1.5 Special Tools/Test Equipment

- Laptop/PC with Windows
- USB mouse
- Slot-head screwdriver
- Microchip Studio utility from https://www.microchip.com/en-us/tools-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 IS24005* PDF in http://www3.nautel.com/pub/Utilities/SystemHealthEligibilityEvaluationProgram/

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.

1.6 Publications Affected

This modification does not affect the transmitter documentation.

2 INSTALLING RACK FIRMWARE

2.1 Preliminary Tasks

(a) Install Microchip Studio (see paragraph 1.5 for location) on the laptop.

(b) Set the transmitter to its **RF Off** state. From the rear of the transmitter, use a slot-head screwdriver to remove all upper rear panels to gain access to the module control/interface PWBs, noting there is one PWB per 10 kW block in the transmitter (e.g., three PWBs for 30 kW transmitter, four PWBs for a 40 kW transmitter).

3.2 Installing Firmware

Perform the following procedure for each module control/interface PWB in the transmitter that reported an error during the performing of 'IS24005 - GV Series: Using the System Health Eligibility Evaluation Program (SHEEP).

(a) Download the GV_Rack_V2.0.0.4.hex file (see paragraph 1.5 for location) to the laptop.

(b) Obtain the ATMEL-ICE programmer dongle (e.g., Nautel Part # UB103) from the associated 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).

NOTE

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

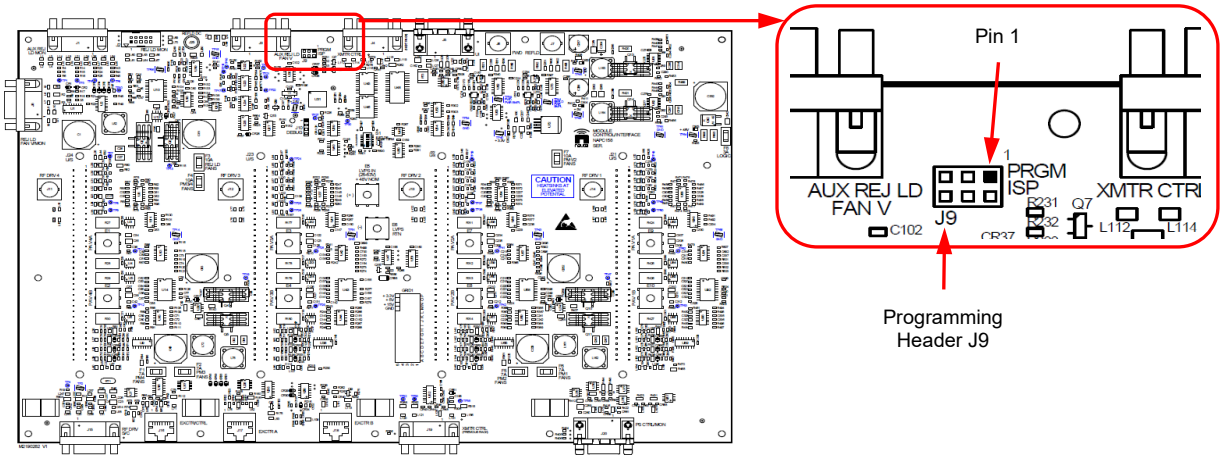

Figure 1: Location of Programming Header J9 on Module Control/Interface PWB

(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.

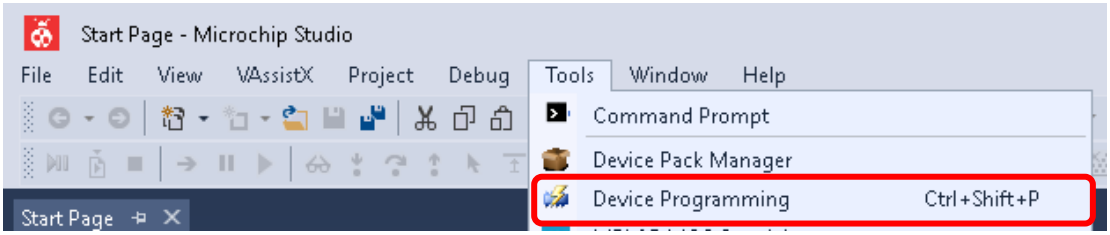

Figure 2: Atmel Device Programming Menu

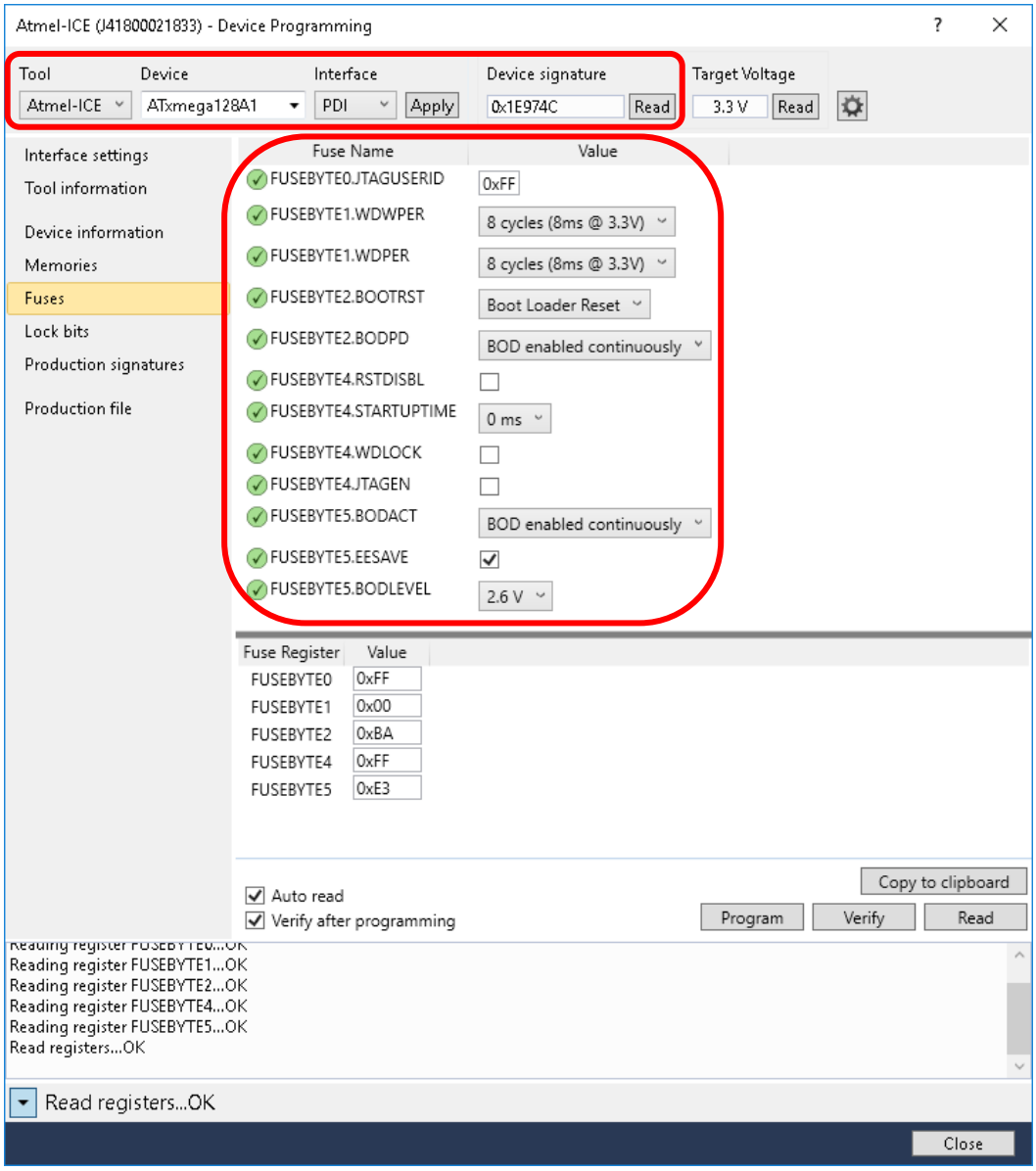

Figure 3: Atmel Device Programming Menu (Fuses tab shown)

(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 at programming header J9 on the module control/interface PWB.

(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.

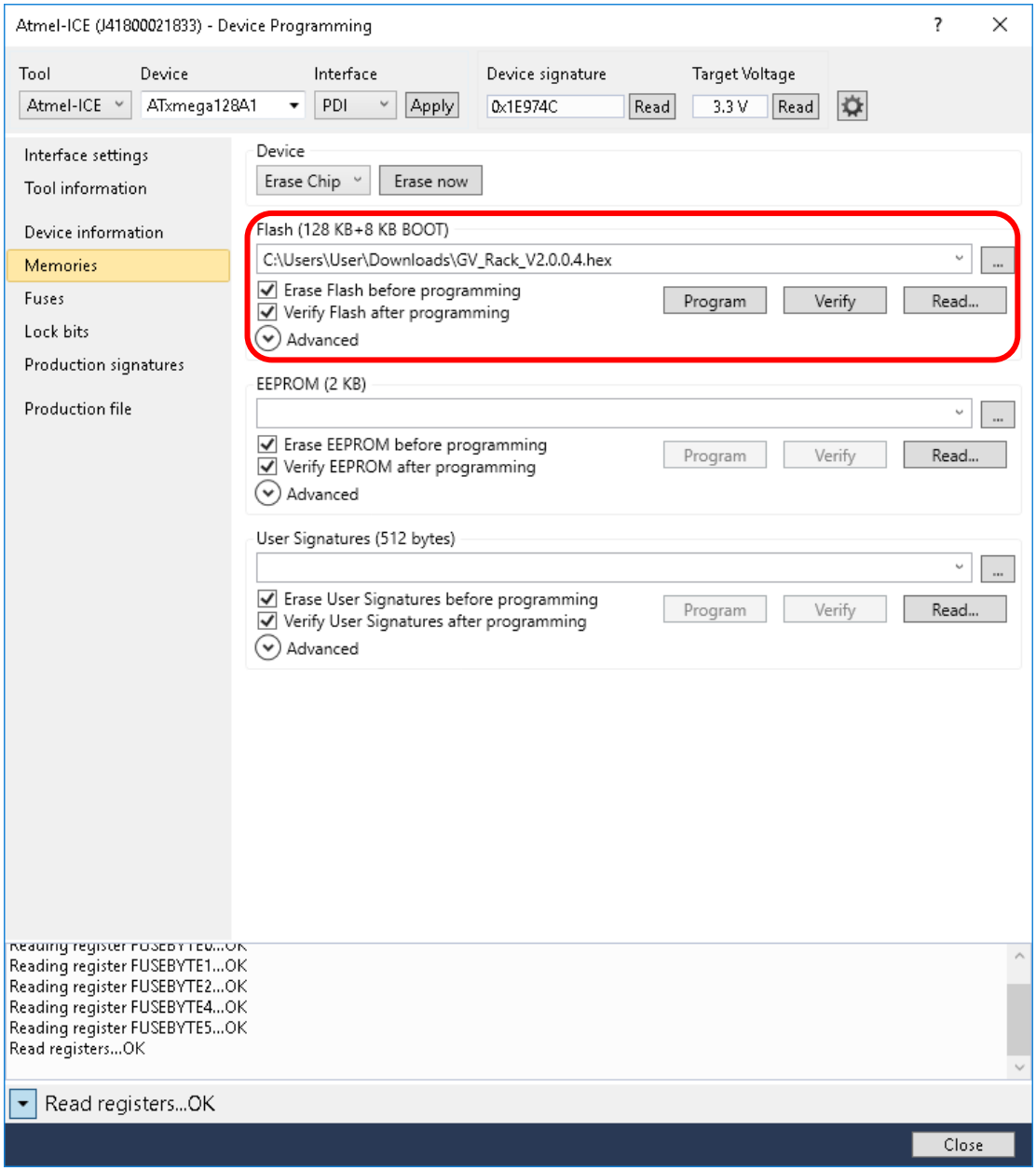

Figure 4: Atmel Device Programming Menu (Memories tab shown)

(l) 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.

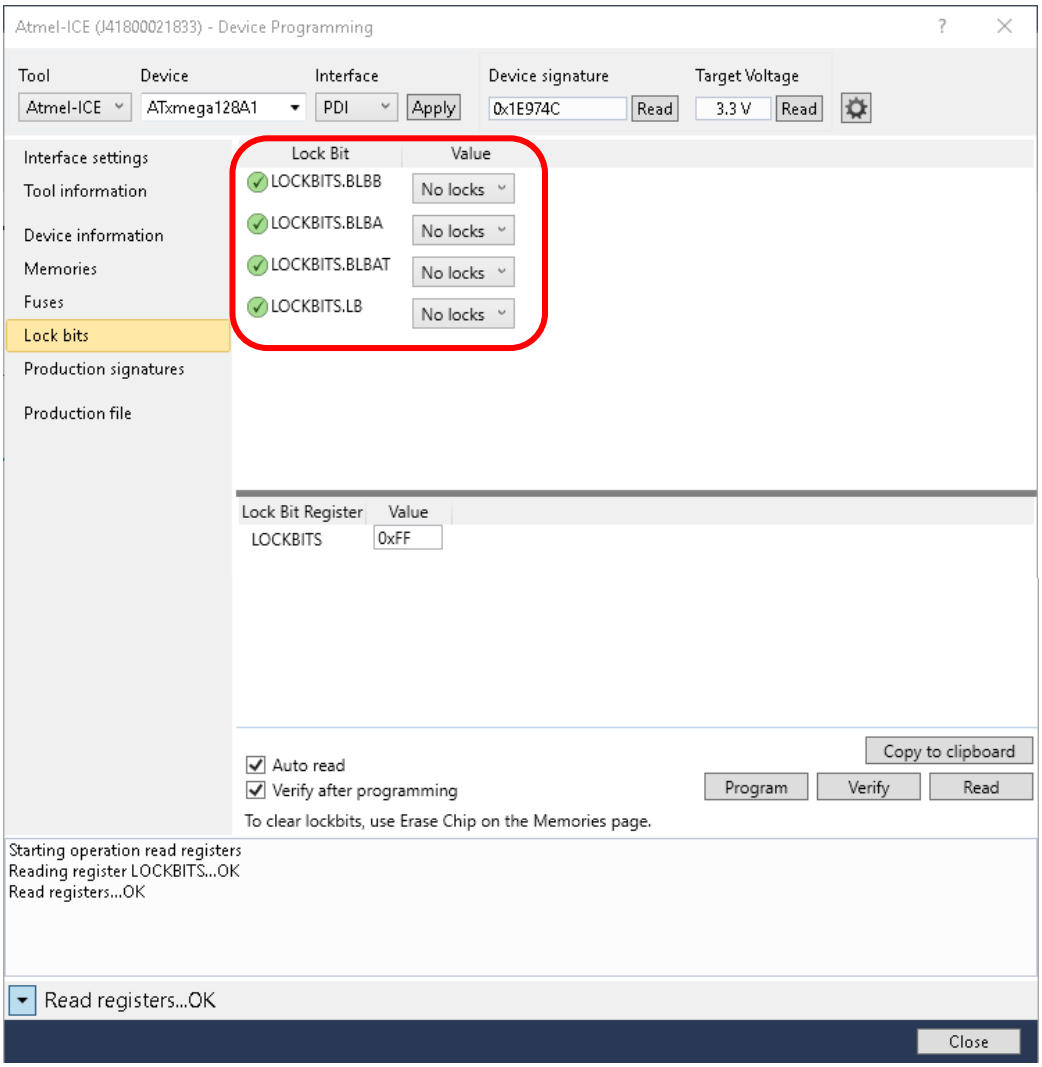

Figure 5: Atmel Device Programming Menu (Lock bits tab shown)

(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 (support@nautel.com).

(o) Disconnect the Atmel programming dongle from the module control/interface PWB.

(p) Repeat steps (d) through (o) for each module control/interface PWB in the transmitter that reported an error during the performing of 'IS24005 - GV Series: Using the System Health Eligibility Evaluation Program (SHEEP)'.

(q) Close the Microchip Studio utility on the laptop.

(r) Repeat IS24005 to verify a successful transmitter evaluation. If the transmitter fails the evaluation again, contact Nautel Customer Service.

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

Telephone:1-877-662-8835
Email: support@nautel.com