**TN-W0020**
**Technical Note**

# G-Link®
# V-Link®
# SG-Link®
# SG-Link® OEM
# DVRT-Link™


## Optional Boot Mode

### Overview

MicroStrain's standard V-Link®, G-Link®, SG-Link®, SG-Link® OEM and DVRT-Link™ wireless nodes have a specialized function known as 'optional boot mode'. Optional boot mode allows the user to provision the node so that when power is applied, the node will initialize and immediately begin operation in one of these modes:

- Low duty cycle (LDC)
- Streaming
- High Speed Streaming
- Datalogging
- Sleeping

There are many uses for such functionality. An interesting example would be to provision a G-Link® to boot in datalogging mode. The user could begin a roller coaster ride by switching on the G-Link®, allowing it to datalog during the ride without a host computer. This could be done for many rides in succession, giving the user a number of measurement sessions which captured the G forces felt throughout the ride.

### To provision the node in Agile-Link or Node Commander® software

Using a G-Link® with channels 1, 2 and 3 enabled as an example:

- Establish communication between base station and node as normal.
- Right-click the node.
- A drop-down menu will appear.
- Click Datalogging.
- Click Erase.
- The Confirm Erase window will appear.
- Click OK, the erase progress bar will appear, erasing will occur, and the progress bar will disappear, indicating the node has no datalogging sessions on-board.
- Right-click the node.
- A drop-down menu will appear.
- Click Configure.
- The Configuration window will appear.
- Click the Datalogging tab.
- Set the Sample Rate to 512 Hz.
- Uncheck Enable Sensor Event Driver Trigger.

- Uncheck Continuous Datalogging.
- Set a Sweep Rate of 2000.
- Click Apply.
- If you have **Agile-Link** software:
    - Click OK and the Configuration window will disappear.
    - Right-click the node and the drop-down menu will appear.
    - Click Read/Write EEPROM.
    - The Read/Write EEPROM window will appear.
    - Set the value in the left hand number scroll box to 18.
    - Set the value in the right hand text box to 4.
    - Click Write.
    - Click OK and the Read/Write EEPROM window will disappear.
- If you have **Node Commander®** software:
    - Click the Power Management tab.
    - Set the Boot Mode to Datalog on Startup.
    - Click Apply.
    - Click OK and the Configuration window will disappear.
- The G-Link® is now provisioned to begin datalogging at 512 samples per second per channel for 3.9 seconds when you cycle the power.
- Try it! Watch the green Activity LED after you turn the power back on.
- It will initialize with several rapid blips followed by a steady glow for the 3.9 seconds, indicating datalogging is in process. When the datalogging is completed, the Activity LED will return to its normal state, throbbing on and off, on and off .
- Do it several times by cycling the power switch.
- Now download the datalogging sessions and you will have datalogging data as if you had triggered the datalogging through the software.

### To provision the node programmatically

If you are writing your own software, you can provision the Optional Boot Mode by writing values to EEPROM address 18 on the node. Use the Write Node EEPROM command found in the Agile-Link Data Communications Protocol along with values given in the table below.

| Boot mode | Value |
|---|---|
| Normal start-up | 0 |
| LDC on start-up | 1 |
| Stream on start-up | 2 |
| High speed stream on start-up | 3 |
| Datalog on start-up | 4 |
| Sleep on start-up | 5 |

**Note:** The Optional Boot Mode only works for ‘hard’ resets (power cycling); the ‘soft’ reset available by manipulating EEPROM 250 will not respond to any optional boot mode setting.

## SUMO

SUMO or Startup Mode Override may be of value to the user who is employing the Optional Boot Mode. SUMO is a function available on the node that provides the user with a manual method to exit optional boot modes. SUMO can be triggered by first physically turning the node off, followed by physically turning the node on-off-on in rapid fashion, similar to a double-click. This will place the node in a safe startup mode and prevent automatic execution of the optional boot mode. The user can now reset the node with software to another boot mode or turn off the optional boot mode.

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