SVI FF Firmware Upgrade

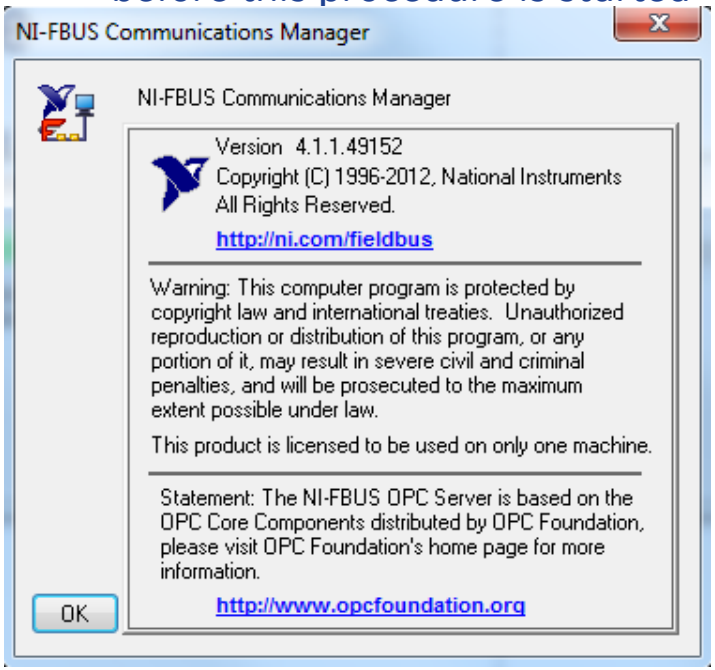
From Version 1 to Version 2

imagination at work

Prerequisites

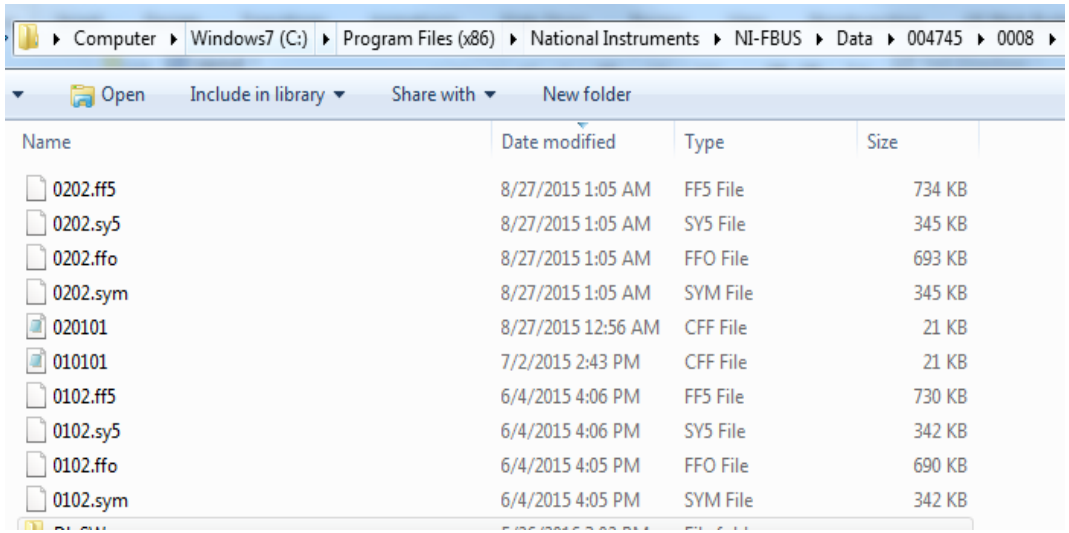
National Instruments software

- NI FBUS software version 4.1.1.49152 must be installed and configured before this procedure is started



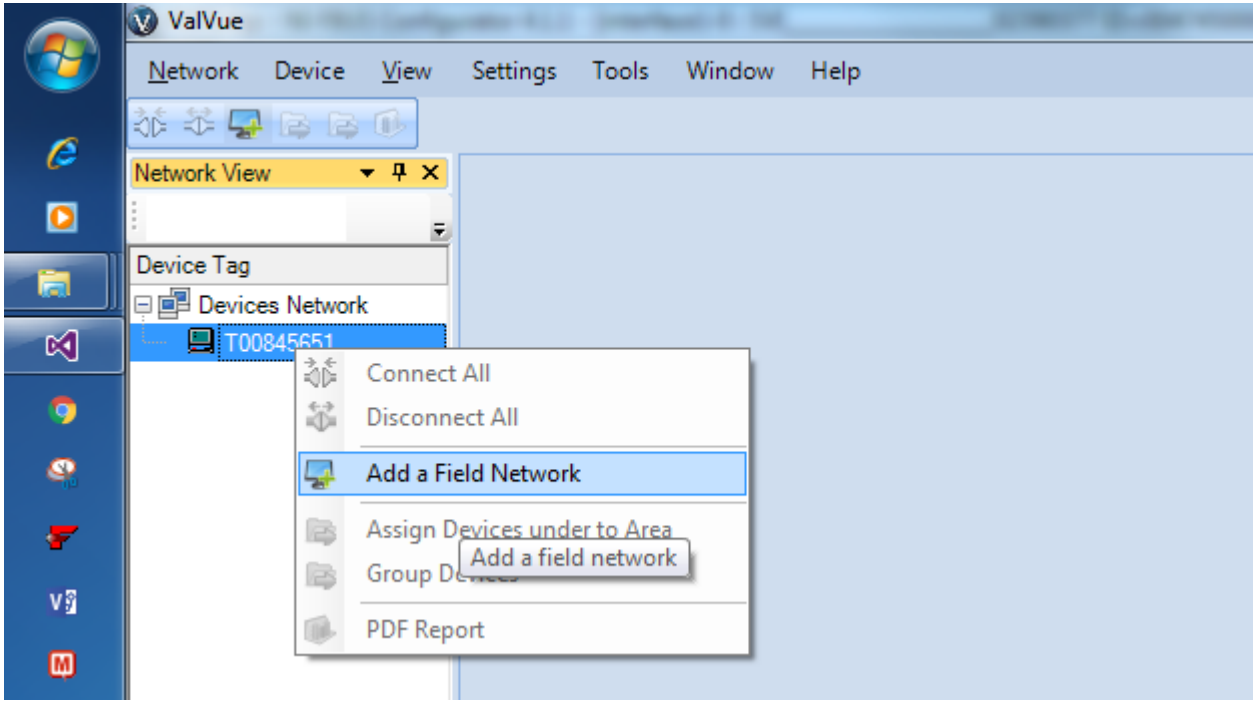
SVI FF Device Description Files (DDs)

- DD files for SVI FF for shall be imported in the NI Software
  - Version 1
  - Version 2



Create a fieldbus network

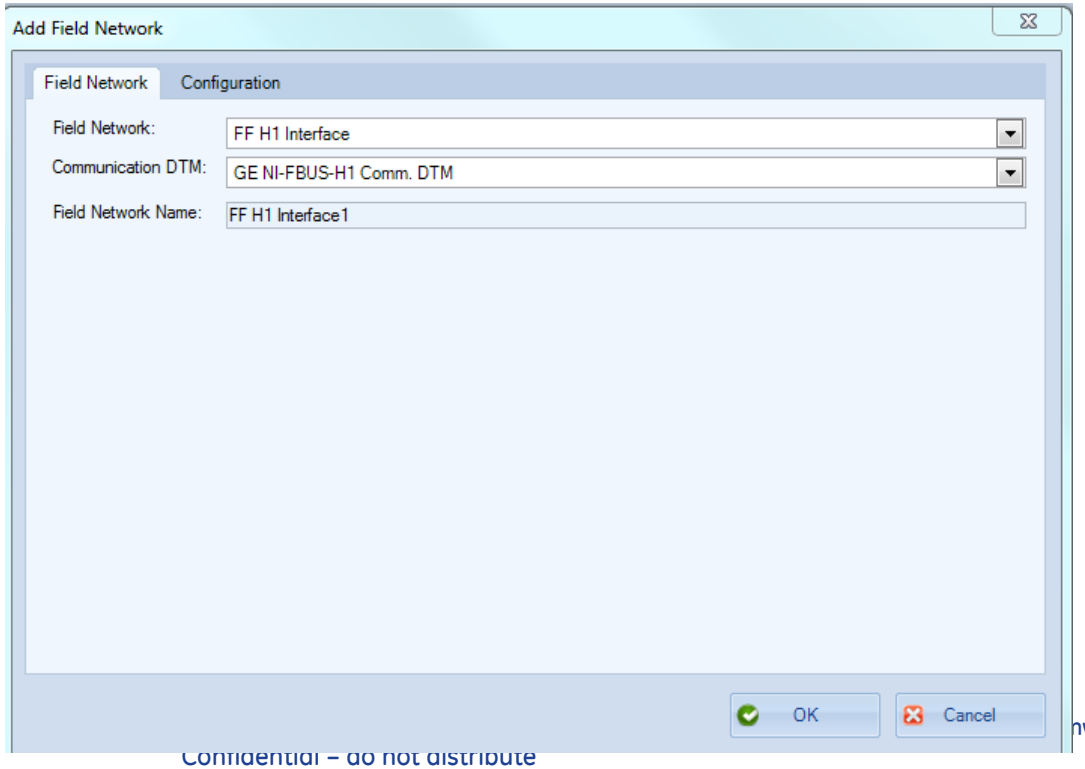
If the FF network does not exists, Add a Field Network:



Add Field Network

Select FF H1 Interface

Make sure that GE NI-FBUS-H1 Comm. DTM is selected

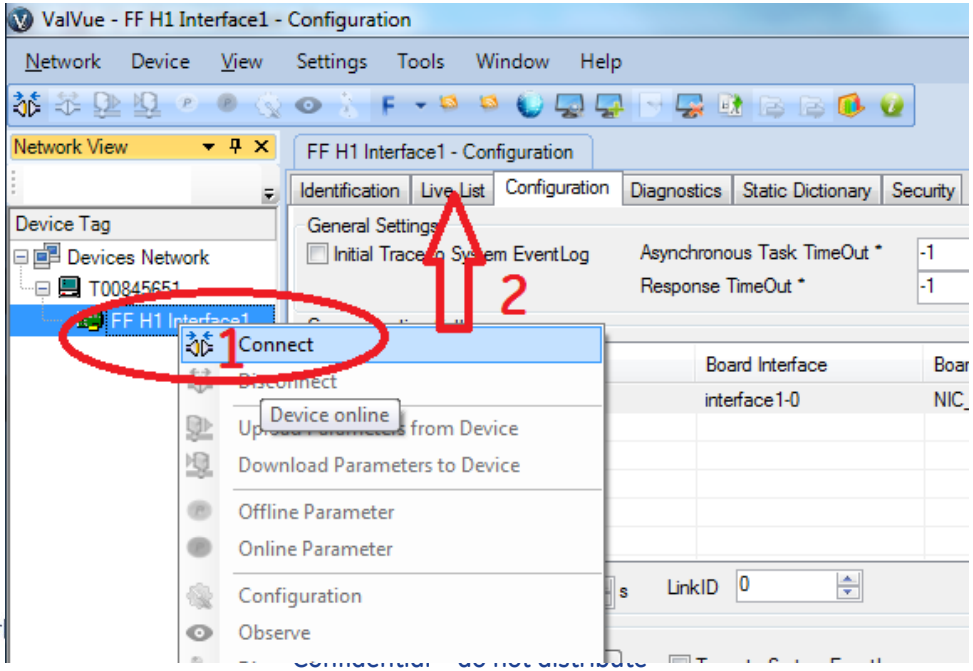


Connect to FF H1 Interface

Connect the Device Version 1 to FF segment

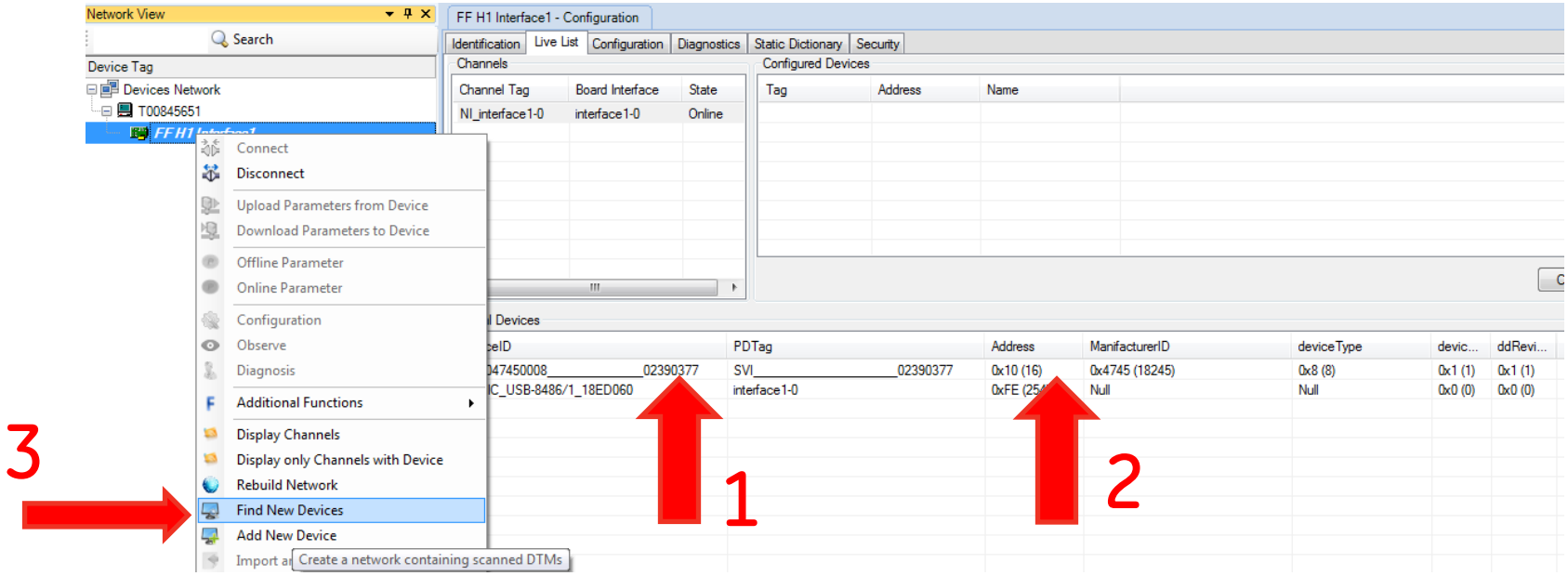
Right Click on the FF H1 Interface and select connect

Select Live list tab



Find New Devices

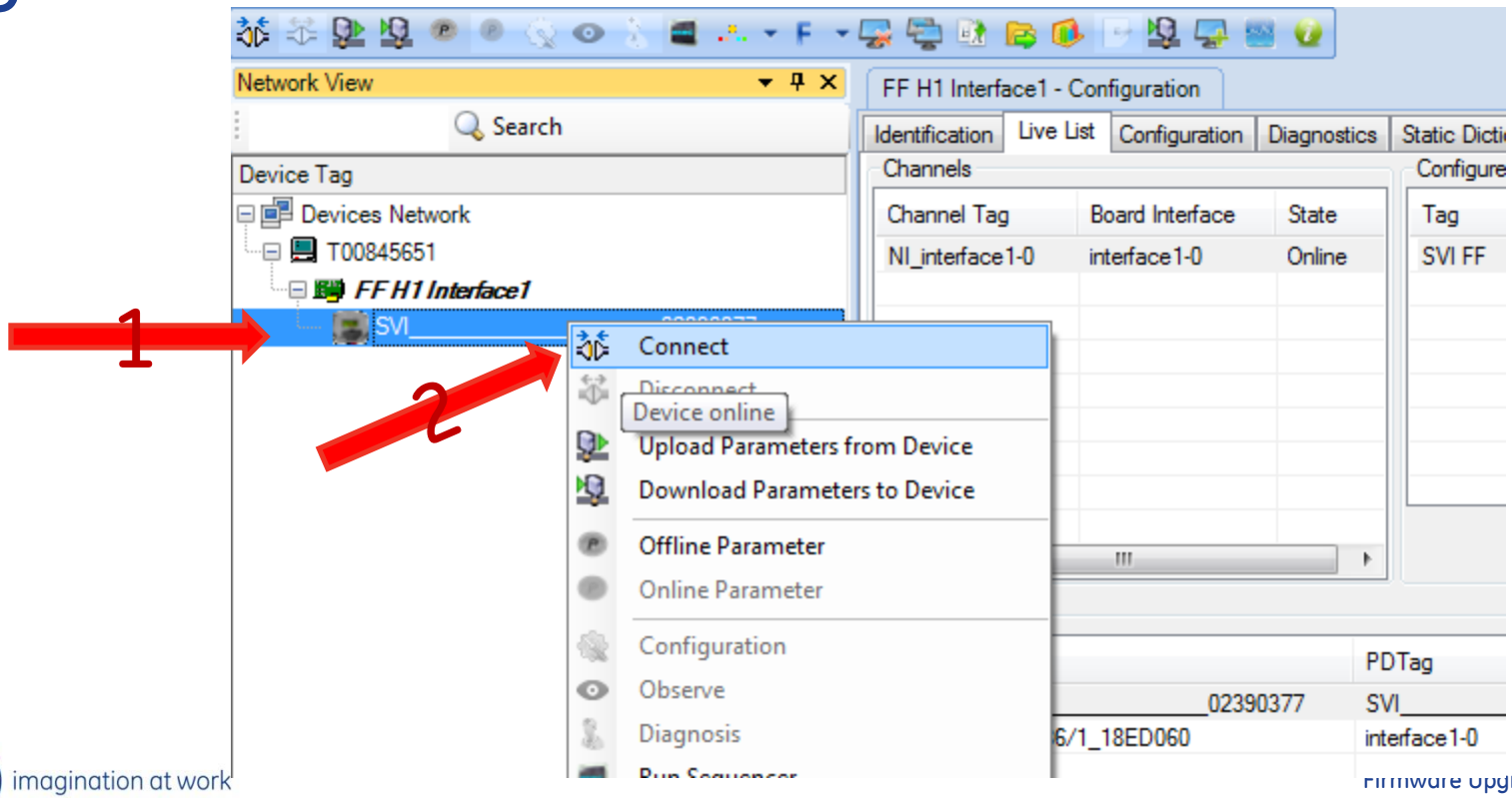
1. Observe that the device is in the live list
2. Preserve the Address of the device
3. Right Click on the FF H1 interface and select Find New Devices



Connect to Device (Version 1)

The new device will appear on the Network View in disconnected state.

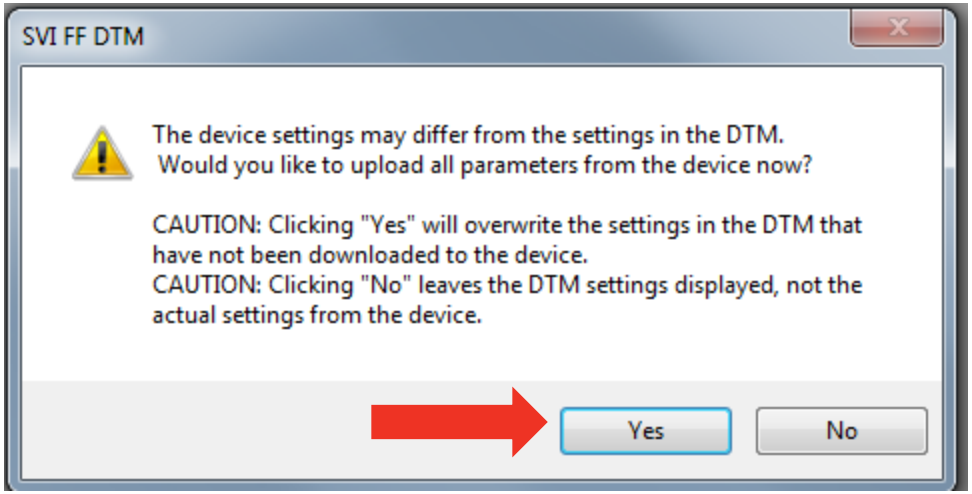
Right Click on the device and select connect



Upload all parameters from the device

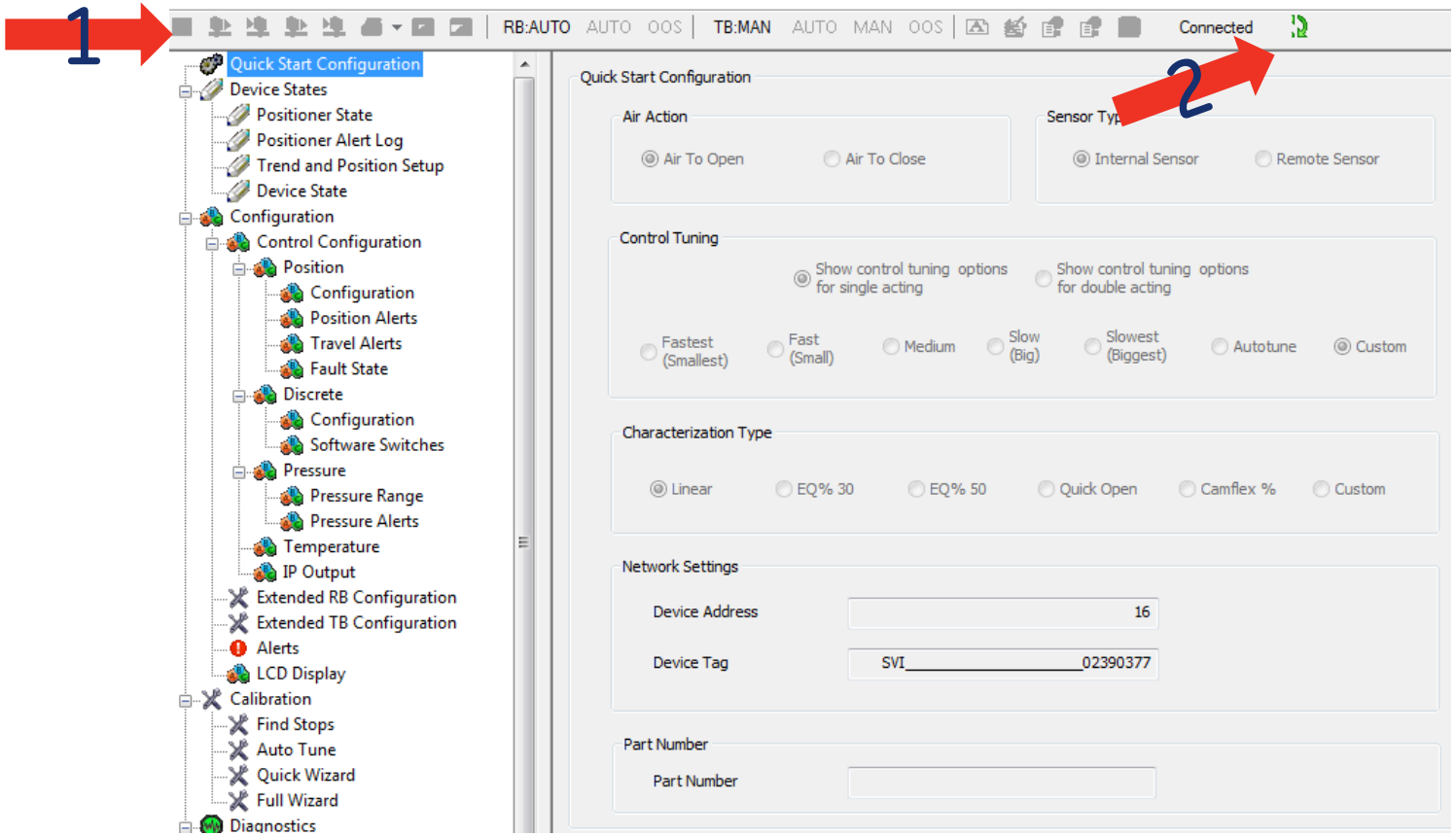
The SVI FF DTM will ask to upload the parameters from the device.

Select Yes



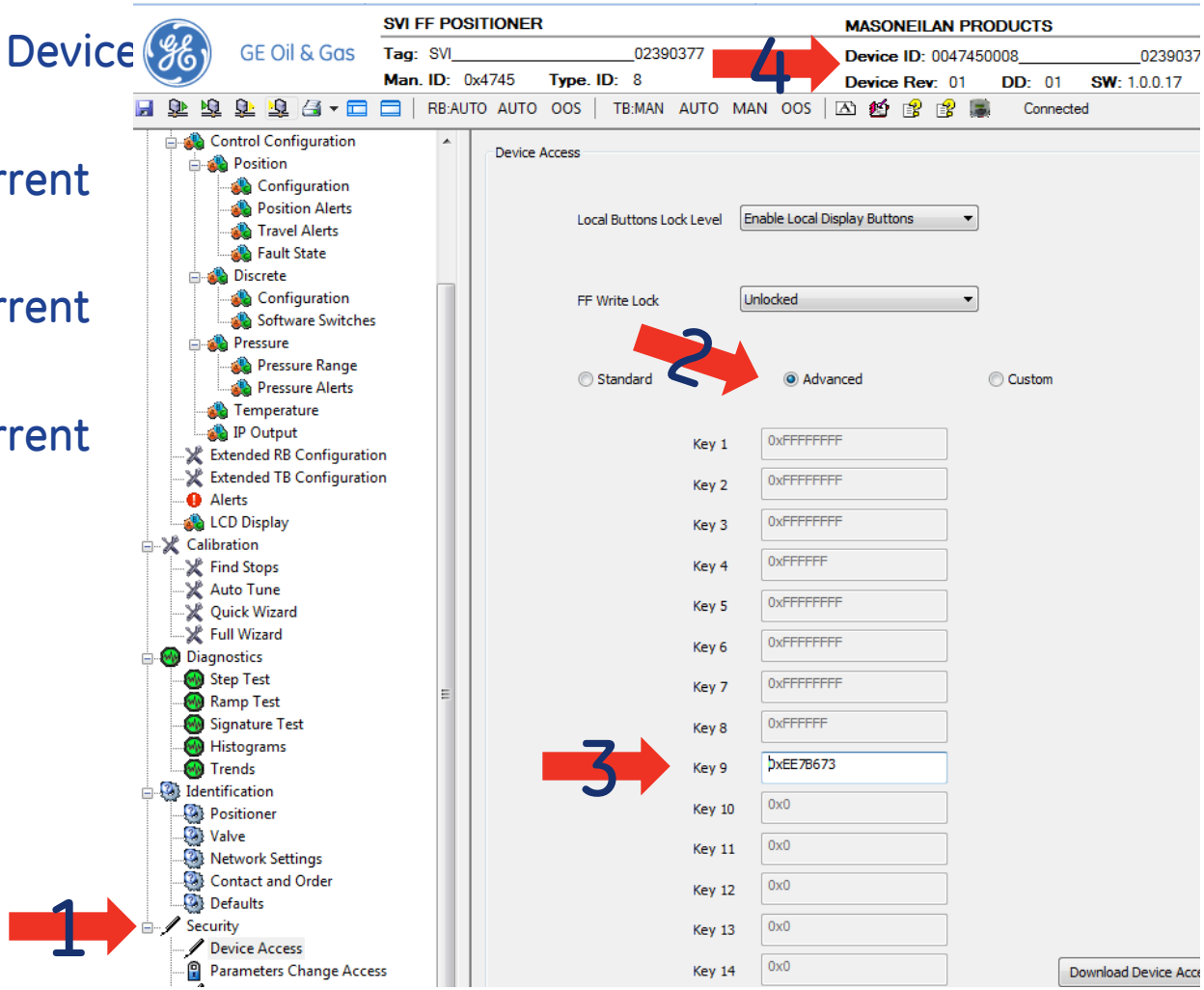
Uploading the parameters

1. The DTM icons are grayed out during Upload.
2. Green arrow indicates the upload.



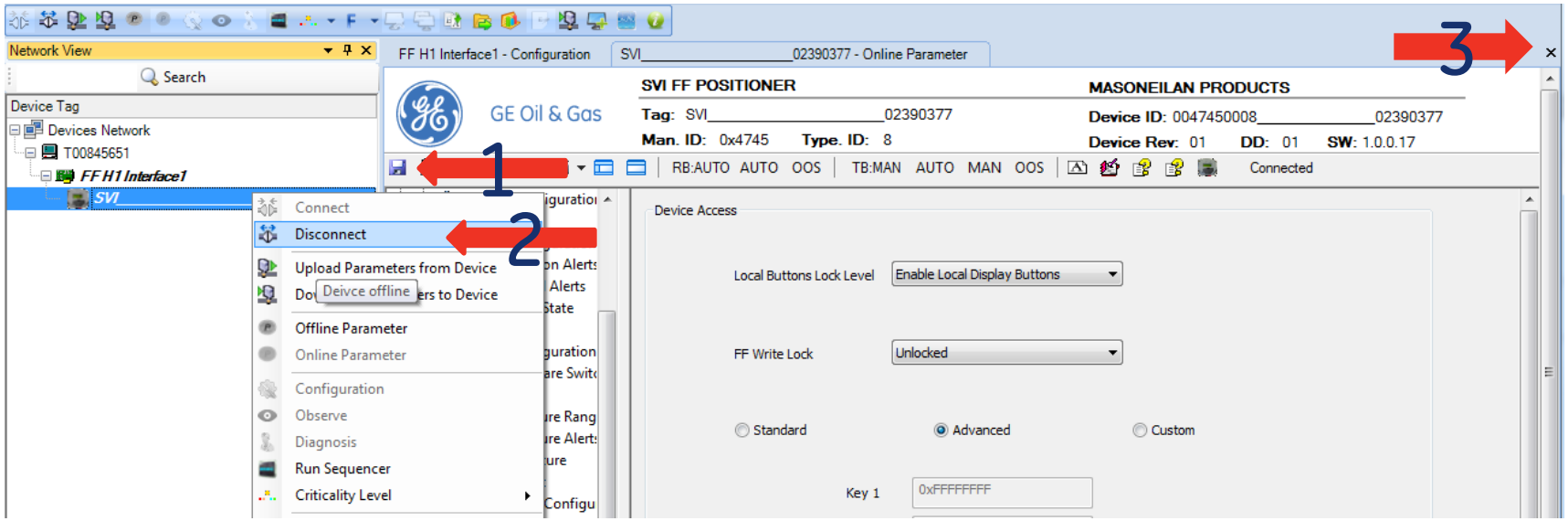
Preserve the Advance Settings

1. Click on Security-> Device Access menu
2. Write down the current advanced setting
3. Write down the current value of Key 9
4. Write down the current Device ID

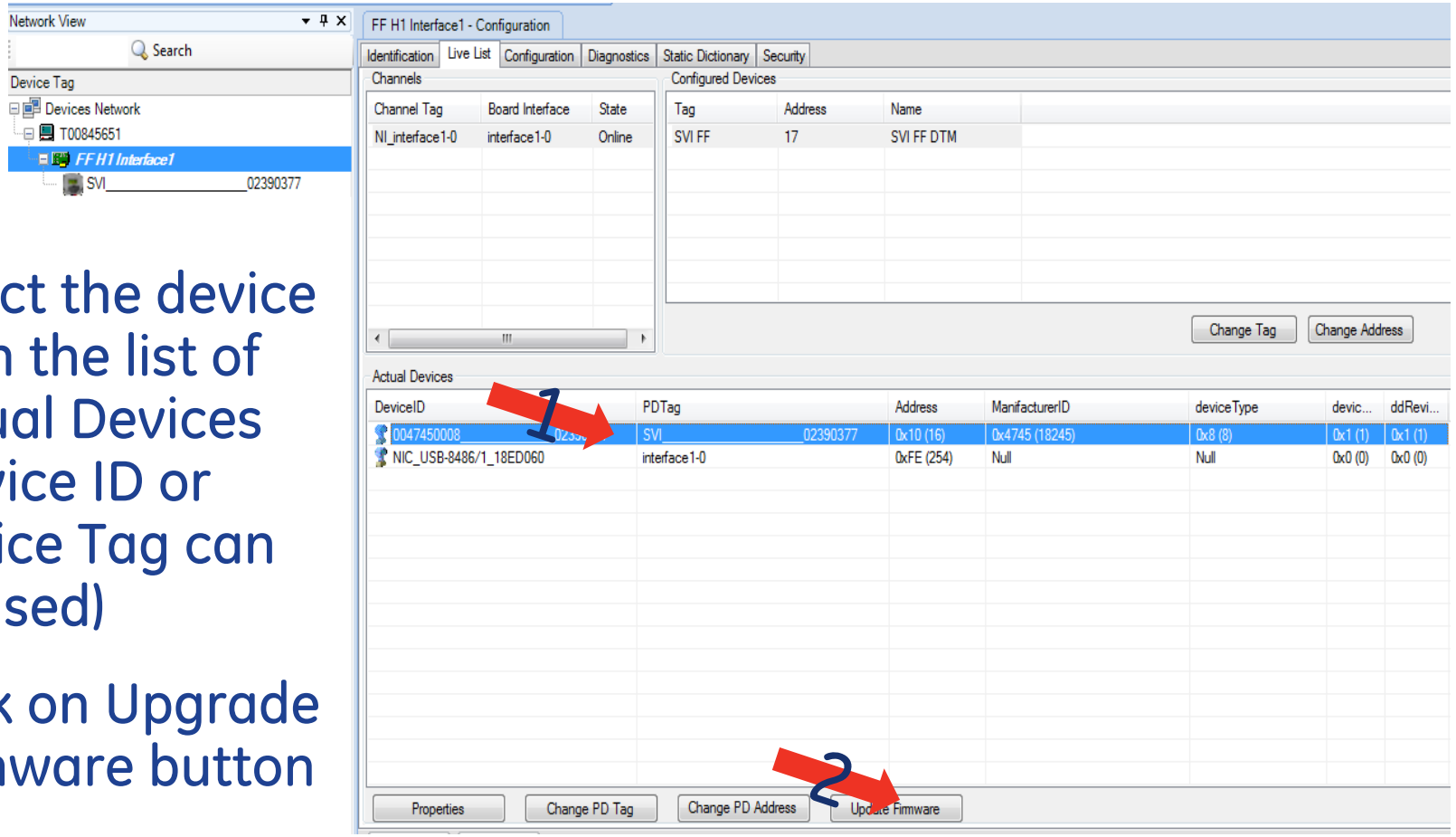


Save, Disconnect and Close

1. Click on Save icon to save device settings
2. Right Click on the device in the Network View and select Disconnect
3. Close the Device DTM



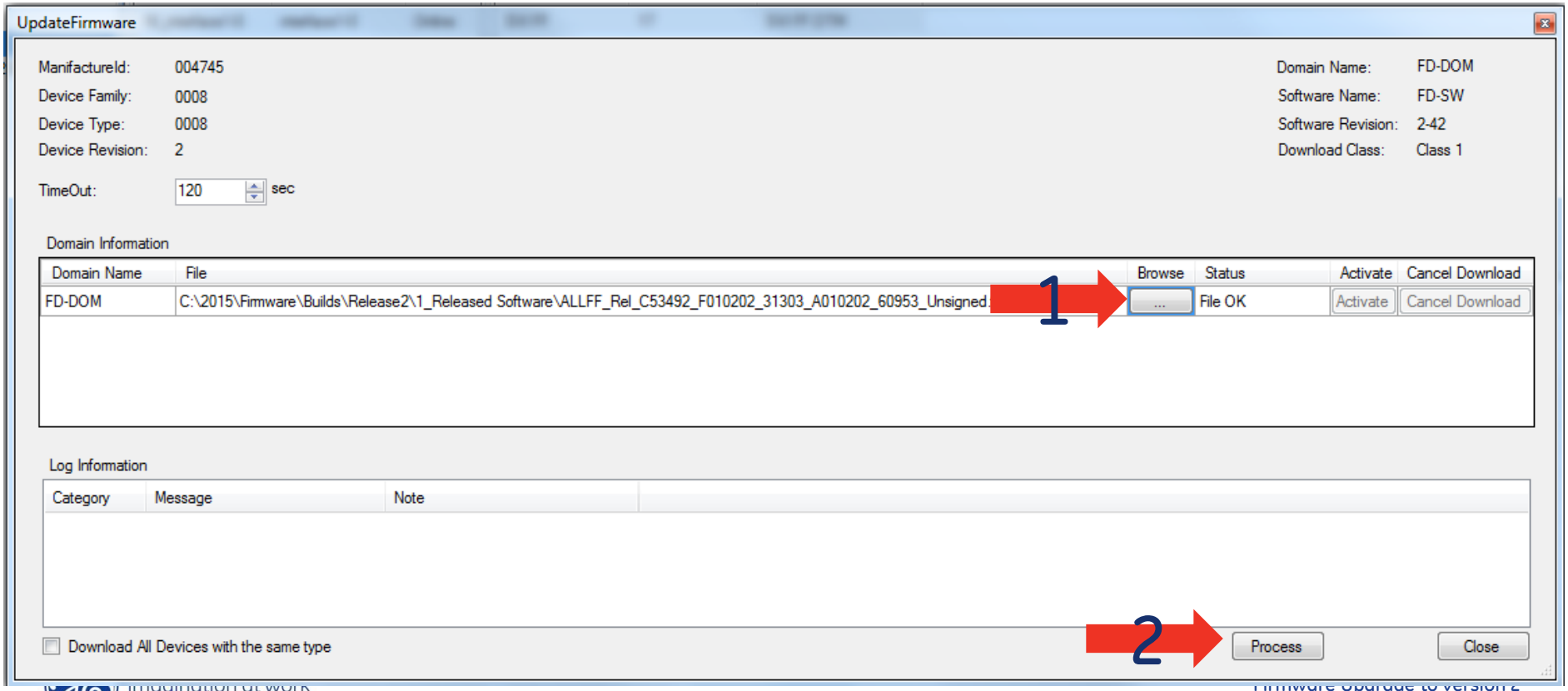
Select the device and invoke Update Firmware



1. Select the device from the list of Actual Devices (Device ID or Device Tag can be used)
2. Click on Upgrade Firmware button

Select the Firmware File
Process the download

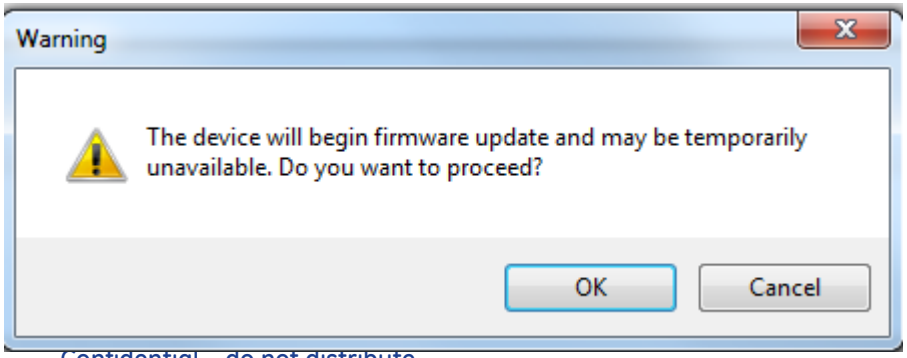
1. Click on Browse button. Point to the firmware file from GE
2. Press the Process button to start the firmware Download



Confirm the download

Click on OK button to confirm

The firmware download will be safer if the device is not connected to any running process.



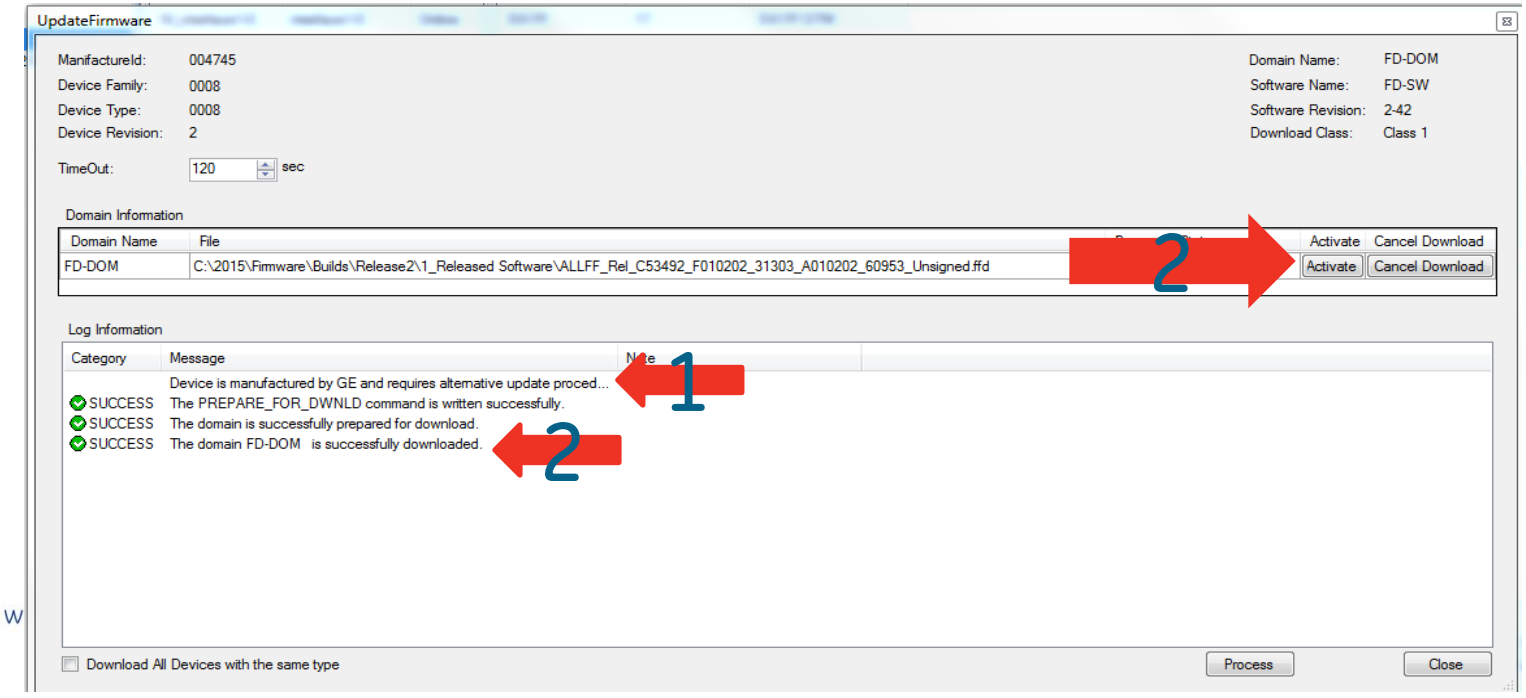
Successful Download

Activate

1. **WARNING The first message in the Log Information screen should be: "Device is manufactured by GE and requires Alternative Update Process. If it is not the first message, Cancel Download and contact GE support for latest DTM.**
2. A message indicating that the Domain FD-DOM is successfully Downloaded indicates that the firmware is downloaded in the device, but the original firmware is still running in the device.

WARNING the device will be rebooted (valve de-energized) during the activation.

2. Click on Activate button to activate new firmware when the process conditions allow it.



Activation Processing

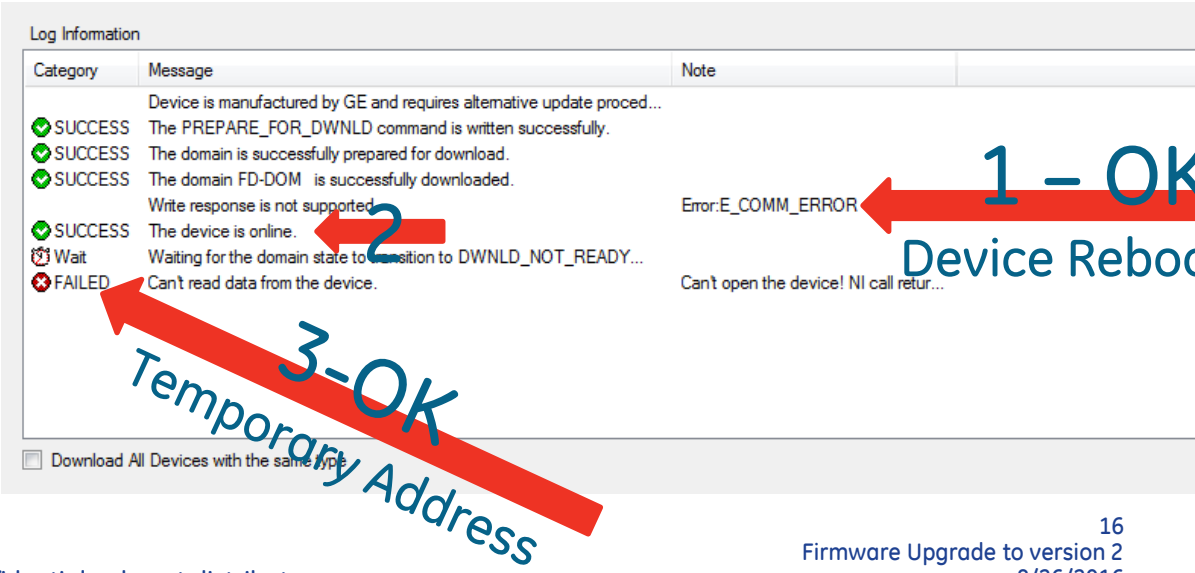
1. A command will be send to the device to Activate the new firmware and reboot the device. The device may reboot before the reply message is delivered to the ValVue3 application and an error may be reported.

Error: E_COMM_ERROR is **NOT** an indication that the Activation Failed.

2. "The Device is Online" is indicating that the device is detected on the network.

3. If the device comes at a temporary address (quite common), the message "Can't read Data from the device" will be reported

This is **NOT** and indication that the activation failed

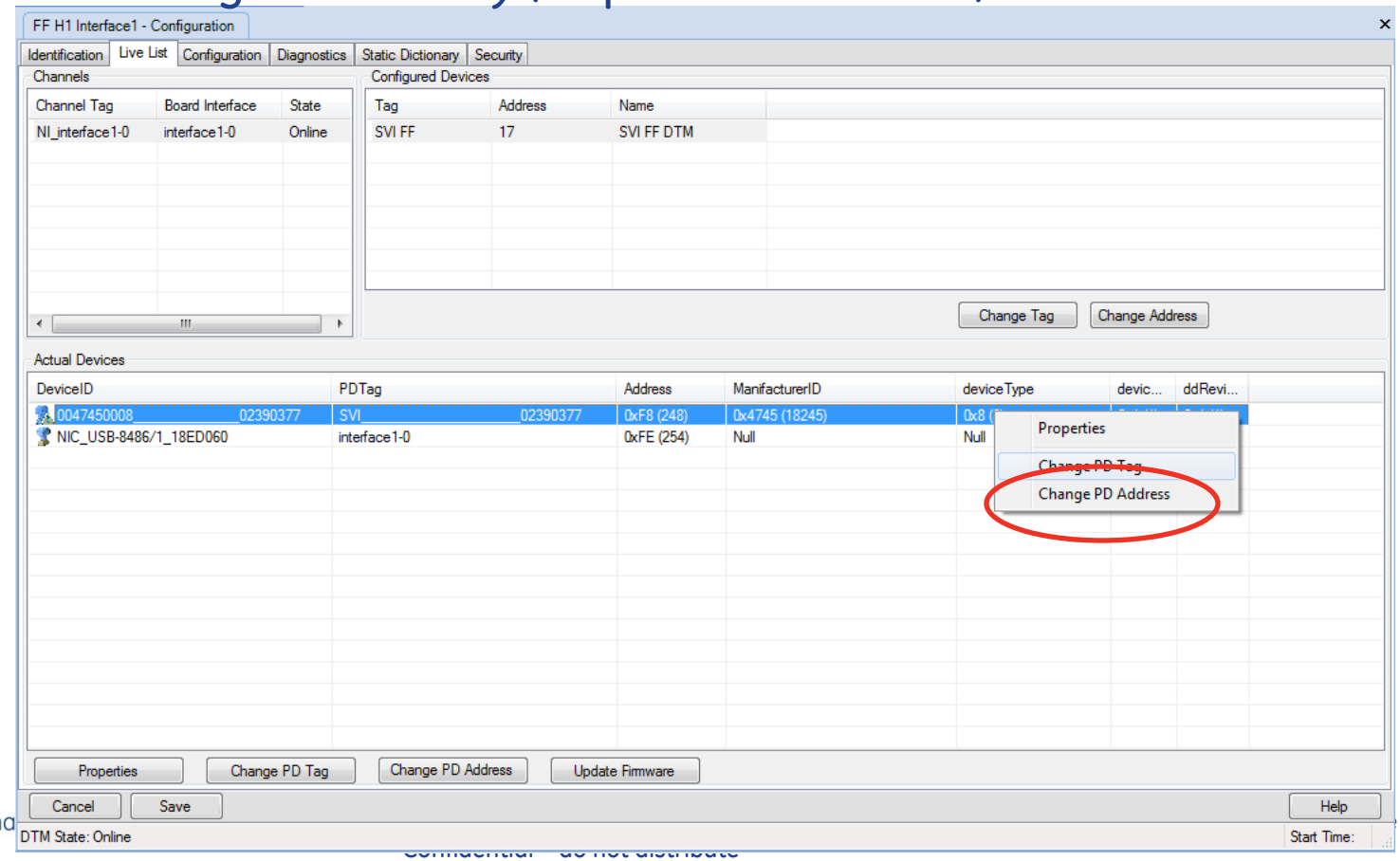


Change Tag and Address if necessary

New firmware device may come on a temporary Address.

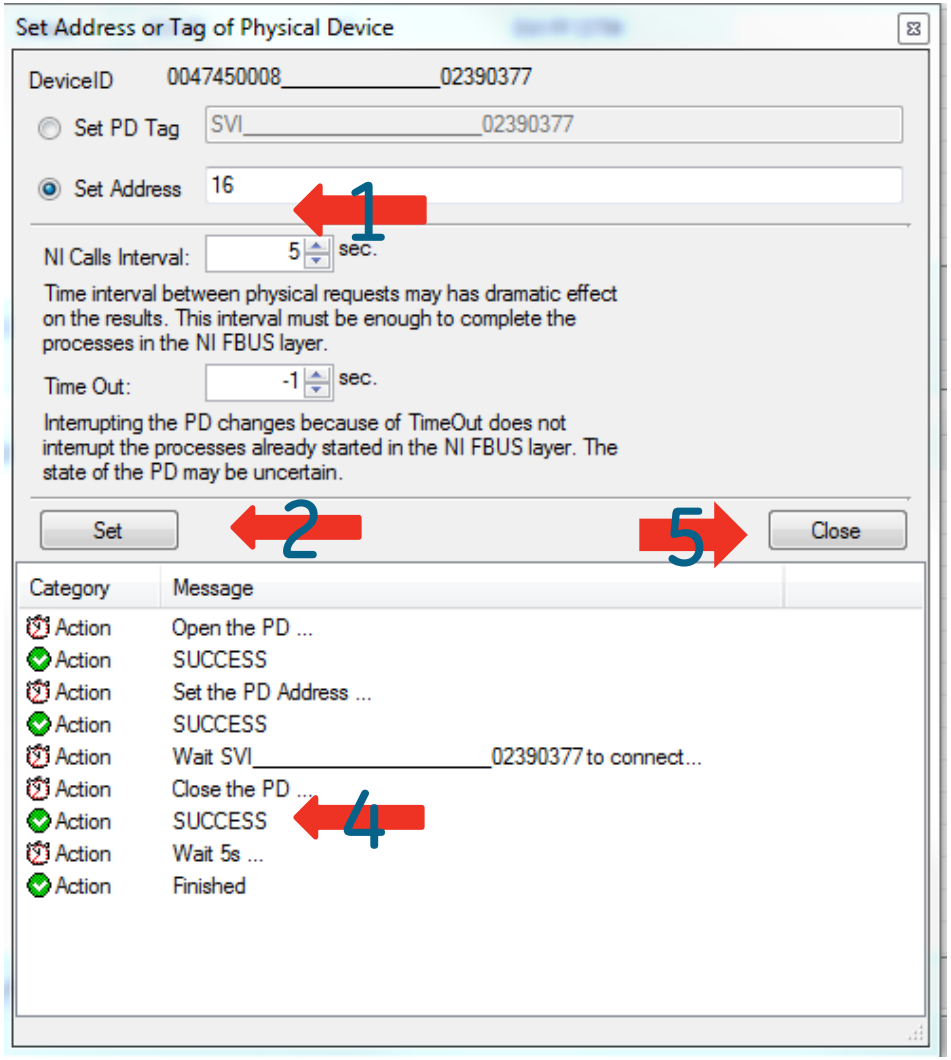
Right Click on the device and select Change PD Address

Change the PD Tag if necessary (as preserved before)



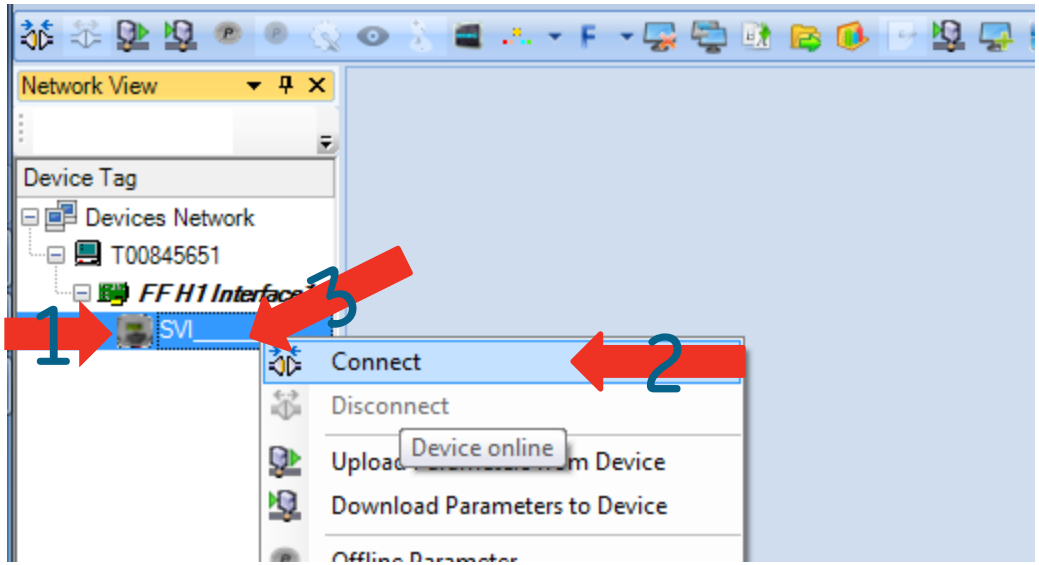
Set Address Dialog

1. Type the preserved address from the Device Version 1
2. Start the Set Address procedure by clicking on Set Button
3. Wait
4. Observe the result
5. Close the dialog



Connect to the device and open DTM

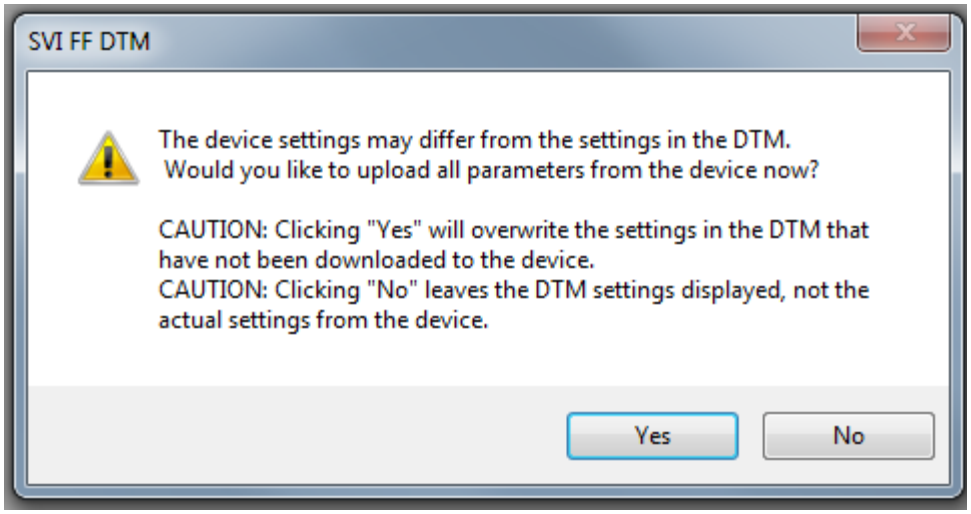
1. Right click on the device in the Network View
2. Select Connect from the menu
3. Double click on the device to open in connected state



Do NOT upload the settings

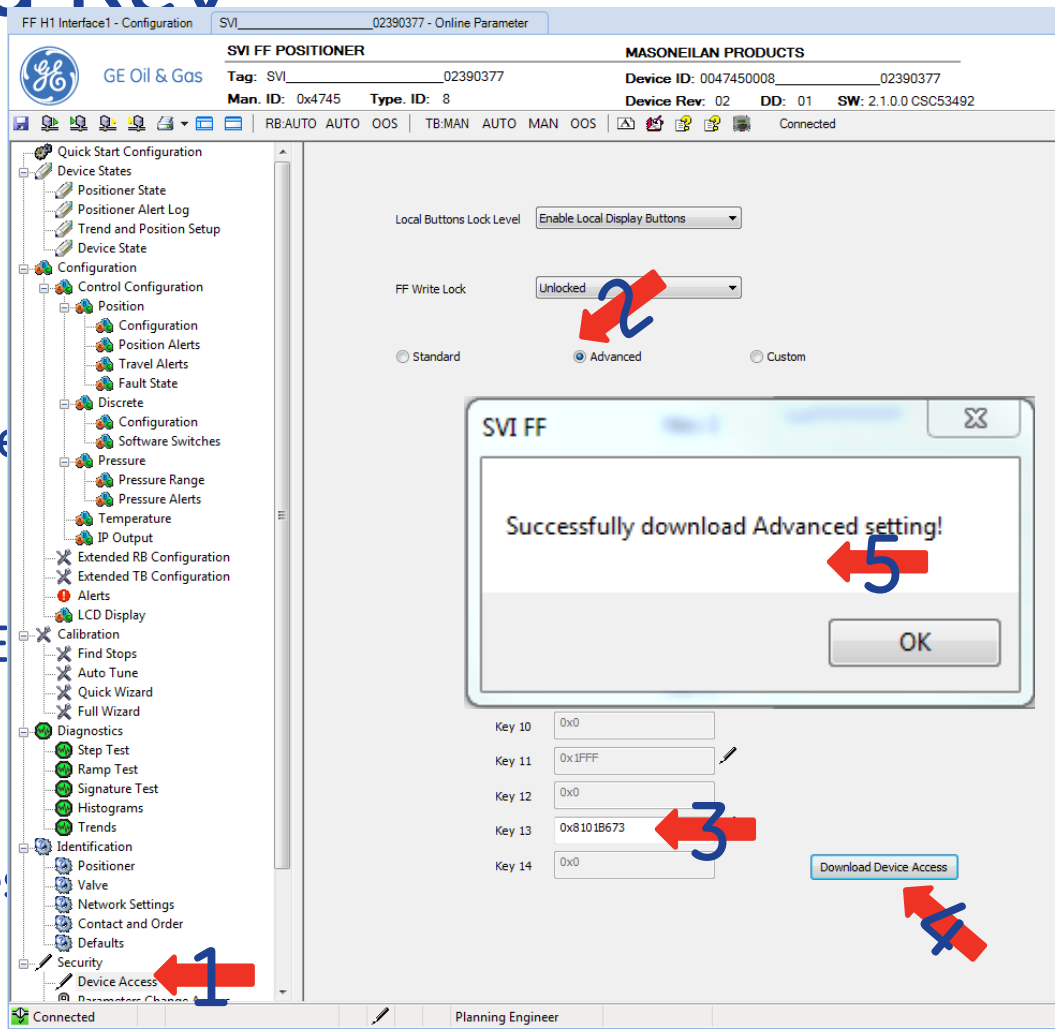
When the DTM offer to Upload the parameters from the device – do NOT upload the settings

Click No



Set the Advanced Key

1. In the DTM menu select Security -> Device Access
2. Switch TB to OOS mode.
3. Switch RB to OOS mode.
4. Select the radio button for the device, as preserved in a previous slide
5. Enter the Key, provided by GE
6. Click on Download Device Access
7. The following screen indicates that the firmware is downloaded successfully

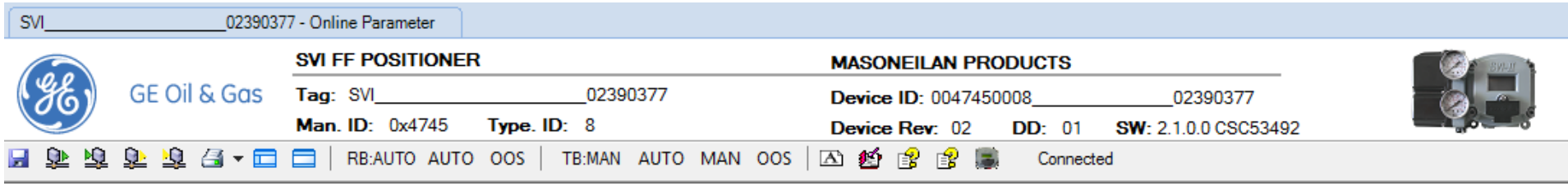


<u>Warning</u>: Make sure that the Resource and Transducer Blocks are in OOS mode before you Download Device Access!

Verify the device firmware version

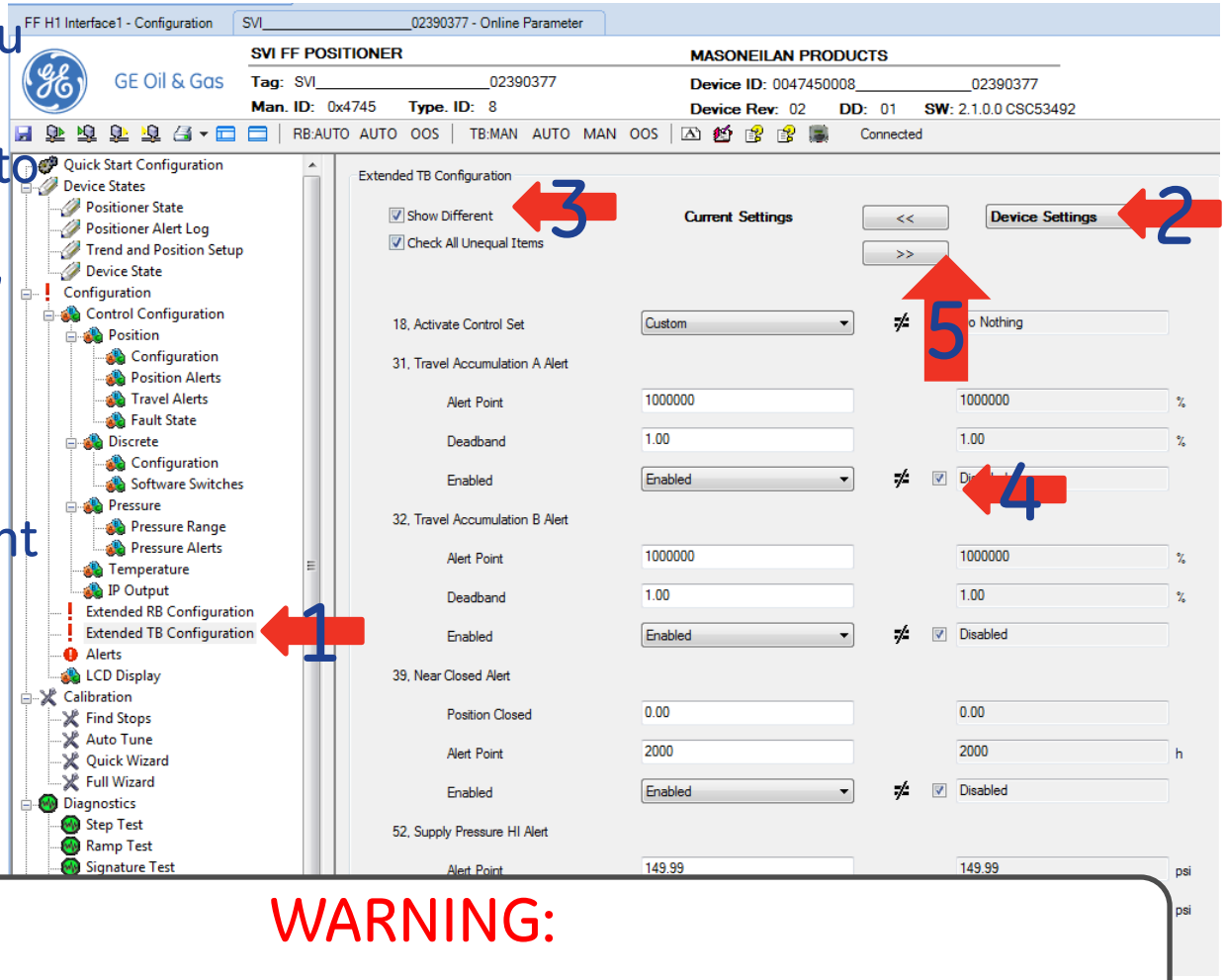
In the DTM, verify:

1. Device Rev is correctly reported (e.g. 2)
2. DD is correctly reported (e.g. 1)
3. SW is correctly reported: e.g. 2.1.0.0 CS53492



Download the preserved settings

1. Open Extended TB configuration DTM menu
2. Select Device Settings and wait for the values to be updated
3. Select “Show Different” and “Check All Unequal Items” check boxes
4. Uncheck the check boxes if you do NOT want the values to be downloaded to the device
5. Set the Checked items to the device



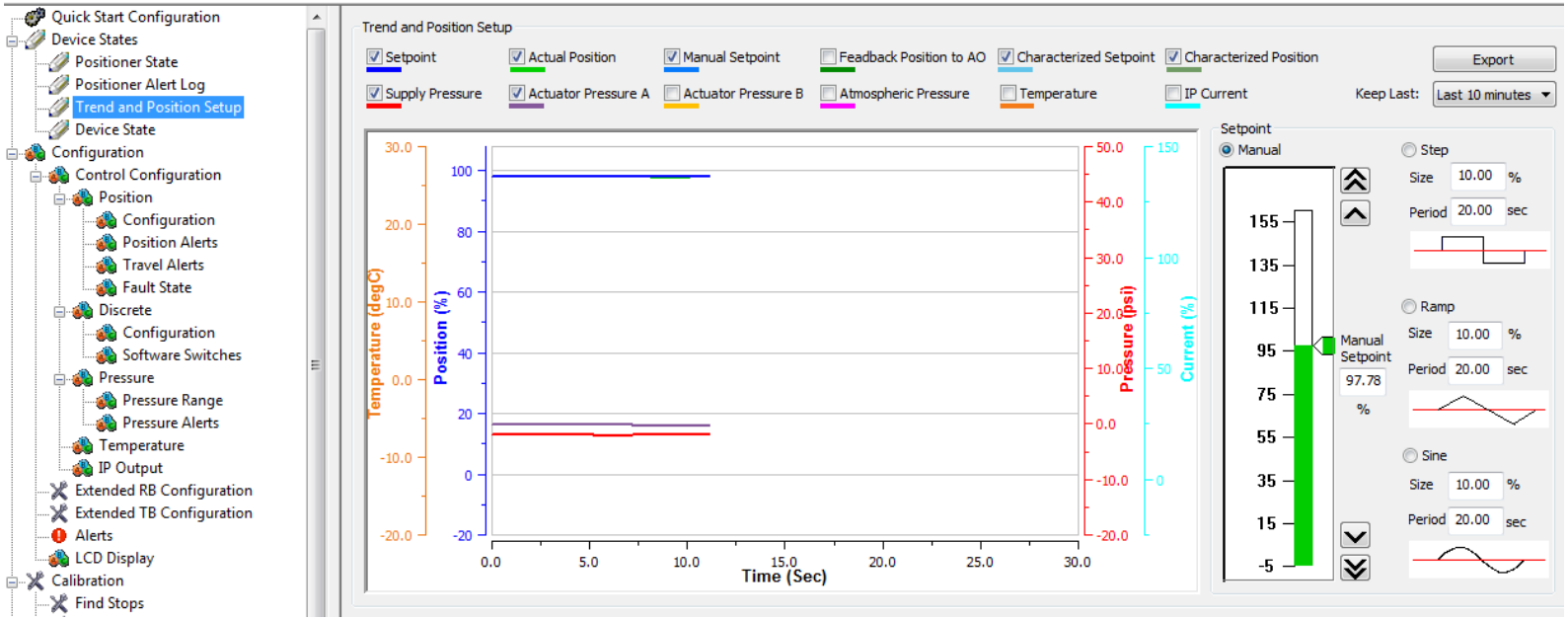
WARNING:

All checked items will be downloaded to the device

Start Using the positioner

If the steps of these process are followed correctly, the calibration and tuning of the positioner will be preserved and the positioner can be used in the applications.

Go to Trend and Position Setup menu to observe the dynamic parameter values in the positioner

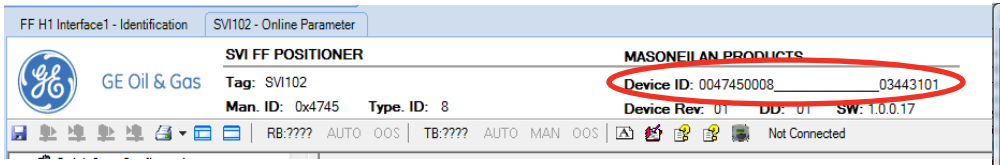


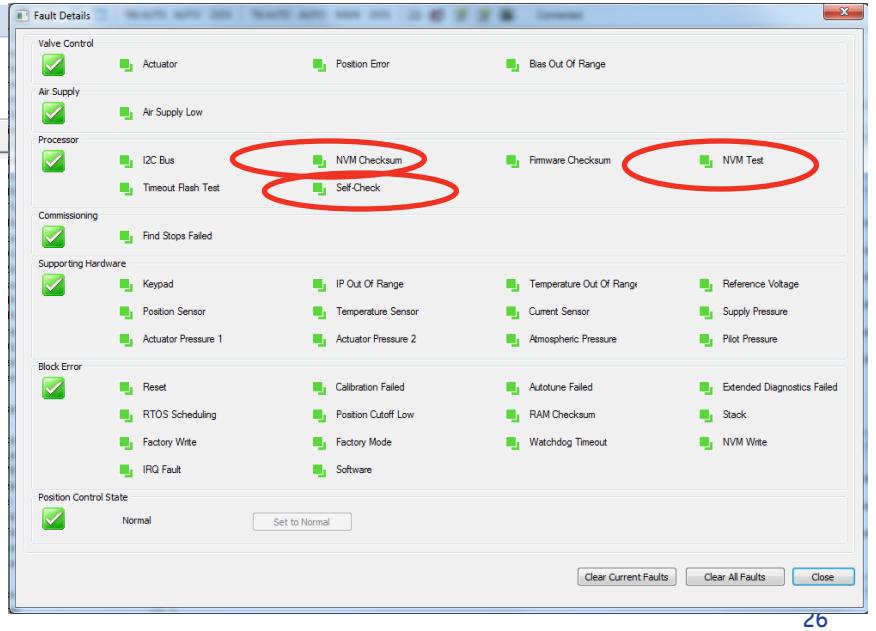
Troubleshooting

Device lost NV memory

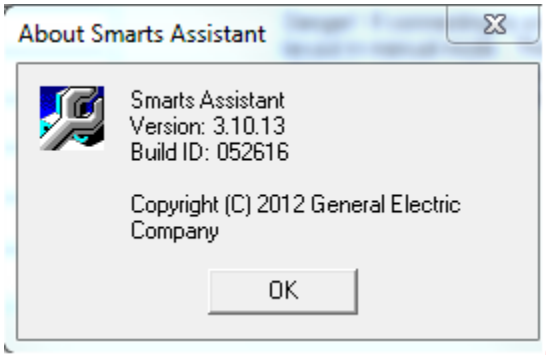
If the power is interrupted during the process of firmware upgrade or if an old version of the ValVue3 software is used the device may lose the content of the NV Memory.

You will know that the device NV memory is lost if the last 8 numbers in the device ID are changed to 00000000 or if NV Memory error is reported.





Install Smart Assistant version 3.10.13 or later:



NV Memory Bank Used

These steps determine what bank is used by the firmware:

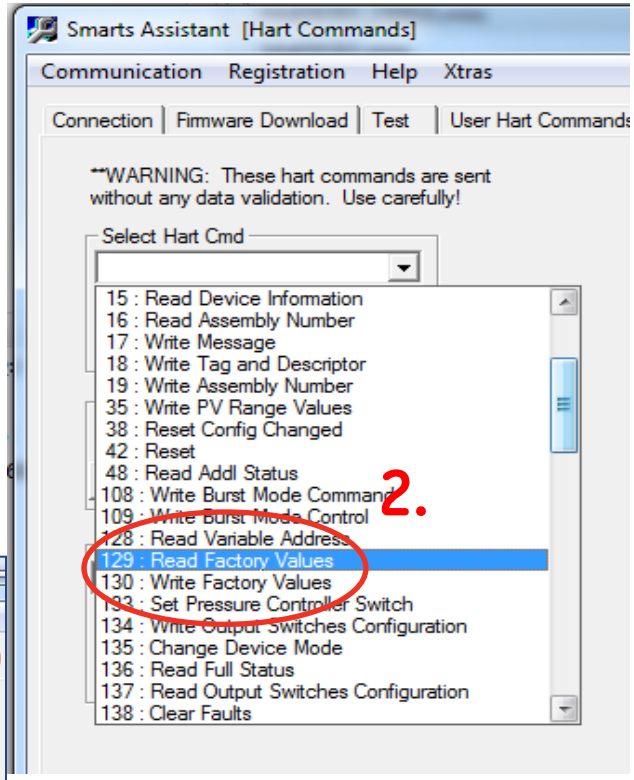
1. Connect to the device. It doesn't matter whether over ISP or over HART/FF
2. In HART Commands page,
   - Use command 129.41 to read active flash bank (0 or 1);

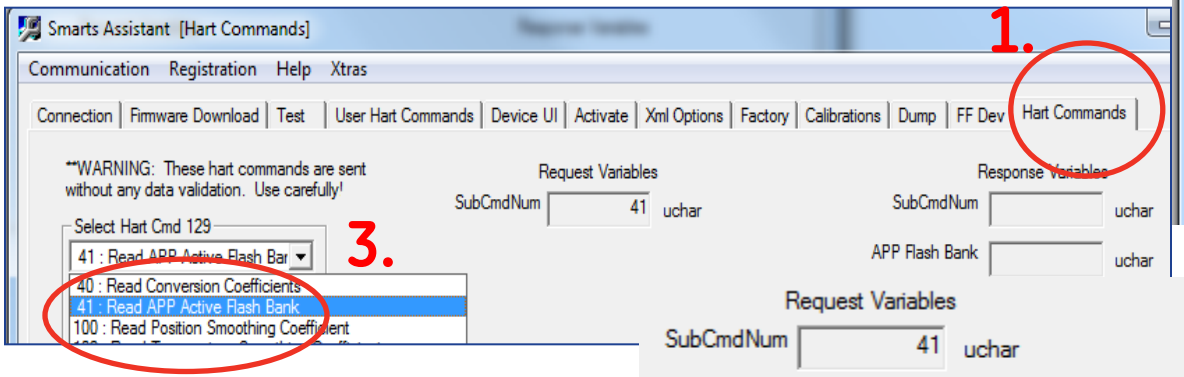
If the active bank is 1, the following steps describe the procedure to read the other bank 0 (at address 0000) and write it to the active bank 1 (at address 8192).

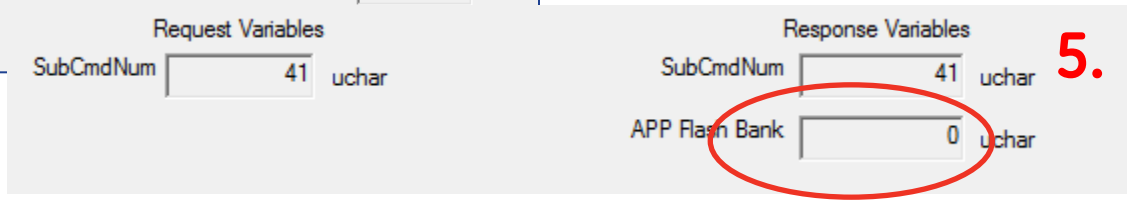
If the active bank is 0, you will need to modify the procedure to read the other bank 1 (at address 8192) and write it to the active bank 0 (at address 0000).

Active NV Memory Bank

1. Navigate to Hart Command Tab (it may look differently, depending on the version of Smart Assistant that you have)
2. Select Hart Cmd #129
3. Select sub-command 41
4. Send Command
5. Observe the value in APP Flash Bank

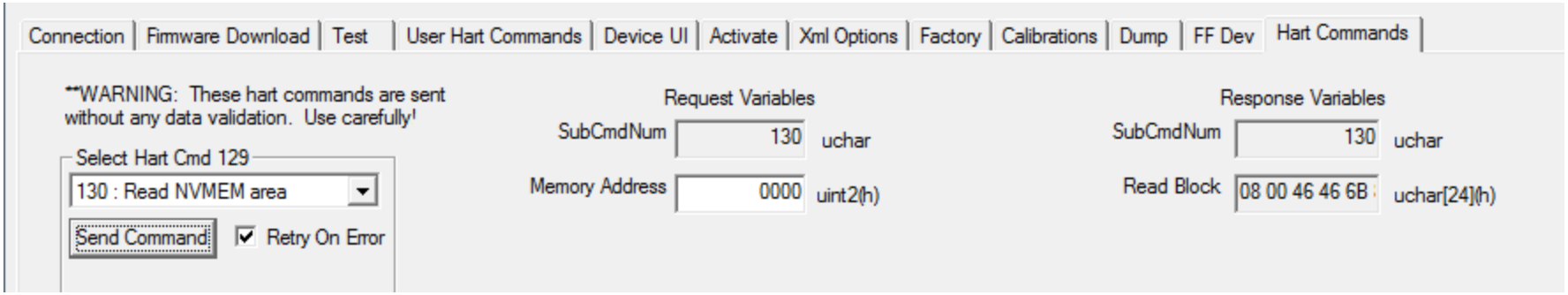






Verify the content of the backup bank

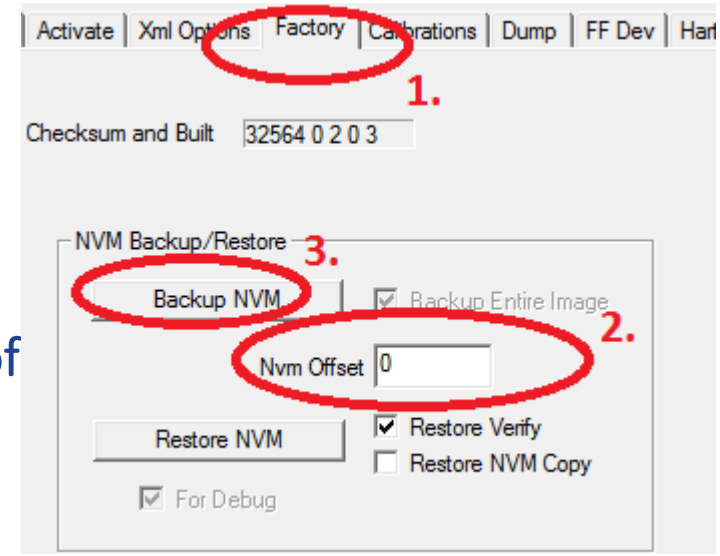
1. Select Command 129.130
2. If the active bank was 1, put a value of 0000 in Memory Address and send command
3. If the active bank was 0, put a value of 8192 in Memory Address and send the command



2. Review the content of the Read Block and verify that the 3rd and 4th bytes have a value of 46. If they have different value, that is the indication that the backup bank content is not reliable and the NV memory recovery may not work.

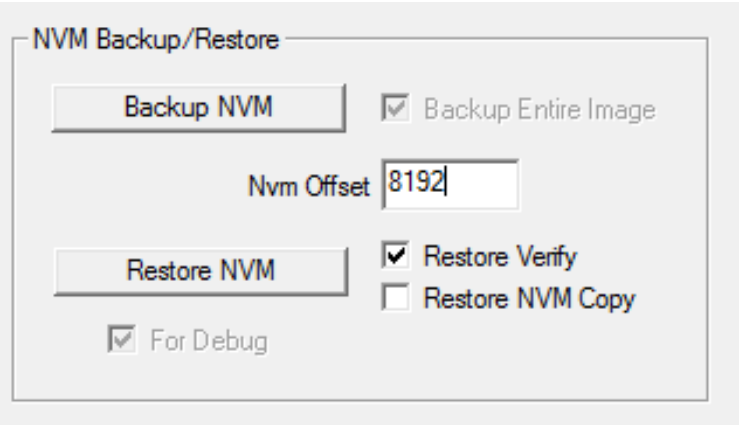
Read the content of backup bank

1. Select the Factory Tab
2. Enter the Nvm Offset value of 0 if the active bank is 1
   Enter the Nvm Offset value of 8192 if the active bank is 0
3. Click the Backup NVM
4. In the Save As dialog enter the name of the file to be equal to the Serial Number of the device – e.g. 03390129
5. Wait until the operation is completed and the window is closed. It will take several minutes to upload the NV memory



Write content to Active Bank

1. Enter the Nvm Offset value of 8192 if the active bank is
   Enter the Nvm Offset value of 0 if the active bank is 0
2. Click on Restore NVM
3. Select the file that was saved during the Backup NVM
4. Wait until the operation is completed and the window is closed. It will take several minutes to download the NV memory to the device



Verify the device in ValVue3

1. Restart the device
2. Open ValVue3
3. Re-Connect the NI DTM
4. Review the live list and verify that the device comes with the original serial number (not 00000000)