

'Universal' Update/Serialize Operation Manual

Quaesta Instruments

Version: 1.0.0 (Open to suggestions phase)

The screenshot shows a Windows application window titled "Super Fast Universal Update and Settings Tool". The interface includes a menu bar with "Refresh", "Options", and "ST-Link Flash". Below the menu bar, it says "Available NPMs (12 Connected)". A list of 12 NPMs is displayed, each with a checkbox and a label: "N022-0000 : COM36", "N022-0001 : COM26", "N022-0002 : COM27", "N022-0003 : COM28", "N022-0004 : COM29", "N022-0005 : COM30", "N022-0006 : COM31", "N022-0007 : COM32", "N022-0008 : COM33", "N022-0009 : COM34", "N022-0010 : COM35", and "N022-0011 : COM37". To the right of the list is a text area labeled "Drag .crp here" and a button labeled "Select". Below the text area are two buttons labeled "or" and "Clear". Further down is a text area labeled "Additional Commands (one per line)". At the bottom right, there are two checkboxes labeled "Secret Commands?" and "Serialize?". A large green "Go" button is located at the bottom center. At the bottom left, there are two buttons labeled "Select All" and "Select None". The status bar at the bottom left says "Waiting....".

Super Fast Universal Update and Settings Tool

Refresh Options ST-Link Flash

Available NPMs (12 Connected)

☐ N022-0000 : COM36
☐ N022-0001 : COM26
☐ N022-0002 : COM27
☐ N022-0003 : COM28
☐ N022-0004 : COM29
☐ N022-0005 : COM30
☐ N022-0006 : COM31
☐ N022-0007 : COM32
☐ N022-0008 : COM33
☐ N022-0009 : COM34
☐ N022-0010 : COM35
☐ N022-0011 : COM37

Drag .crp here

or Select or Clear

Additional Commands (one per line)

Secret Commands? ☐
Serialize? ☐

Go

Select All Select None

Waiting....

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Selecting Devices

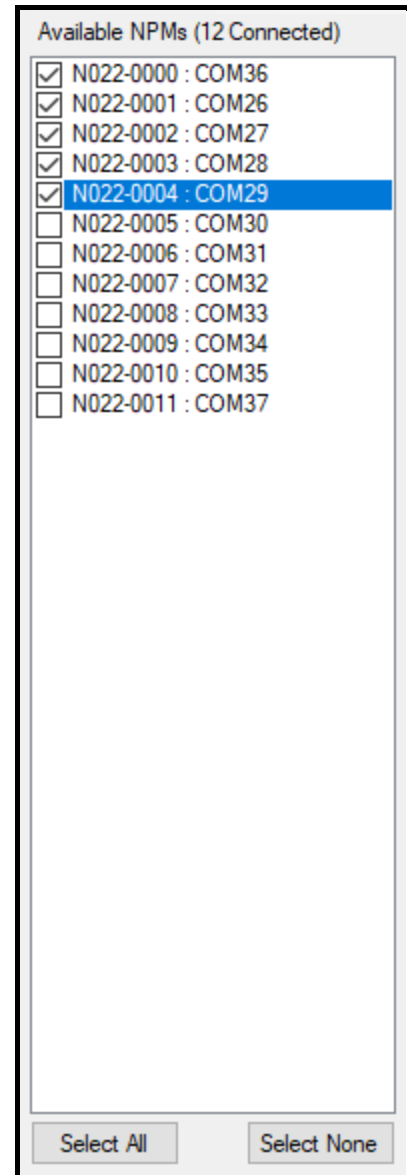
The big list of checkable devices will populate given the following parameters:

1. Device is reachable. Make sure TeraTerm or any other tool is not connected to the desired NPM.
2. Device has a valid connection to the computer. A COM port must be assigned and windows must recognize the device as valid.

Click Refresh at the top of the application to refresh this list.

Displayed is the current NPM serial number and its respective COM port.

Simply click an individual NPM to select it.



Selecting vs Checking

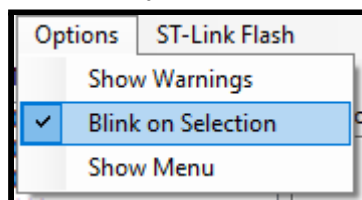
A *Selected* device will be highlighted in blue. This happens when the user uses the arrow keys or clicks an NPM.

A *Checked* device will have a little check mark in its box. Check or uncheck an NPM by clicking it, or either of the buttons at the bottom.

Selected NPMs are disregarded when the user clicks the Go button. Only devices which are *Checked* will undergo the serialization/update process.

Blinking

Selected NPMs can be made to blink on selection by going to Options → Blink on Selection. This is off by default.

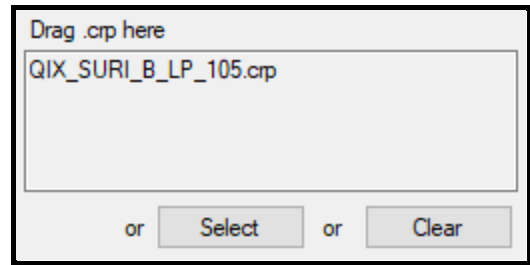


Firmware

Updating Firmware

To choose firmware, you may either

1. Drag a .crp File from your PC to the box.
2. Press Select, and navigate to the correct .crp file.

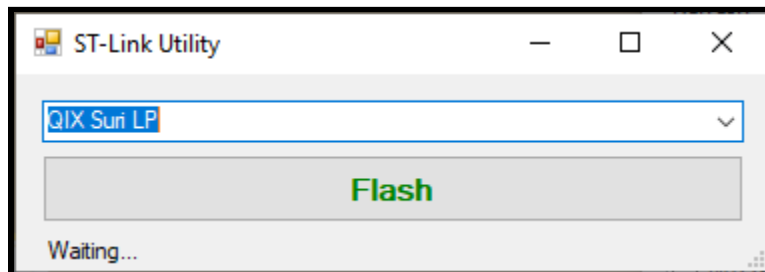


Selecting firmware isn't necessary, only do this step if you believe the NPMs are on older firmware. Though, including it won't ever hurt, it will just be redundant.

Clear the selected firmware by pressing the clear button.

Flashing Firmware With ST-LINK/V2

Click the ST-Link Flash option at the top of the application. Right next to Options. A window like below should pop up:



Select the correct firmware to flash.

Make sure the NPM has power. It needs to be plugged into a USB source.

The ST-LINK must be connected with the red wire toward the end of the NPM with the USB port.

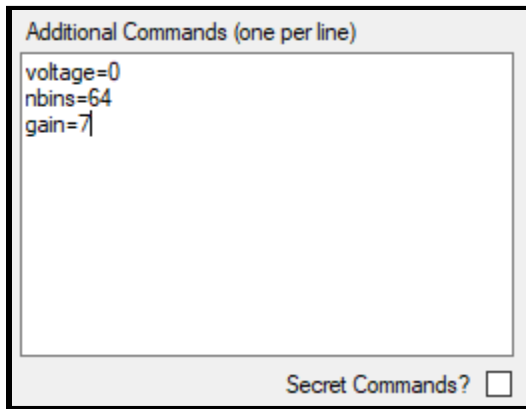
Simply click "Flash" to begin the process. It should only take a couple seconds to

1. Erase the NPM
2. Upload the respective firmware
3. Validate the firmware with the known hex

You may do this as many times as you like, just move the ST-Link and click the button.

Additional Commands

The user may also enter additional commands to run after the firmware section. These commands are done AFTER updating firmware if the user selects any. This is to prevent a firmware change overwriting any secret commands.

A screenshot of a software window titled "Additional Commands (one per line)". Inside the window is a text area containing three lines of text: "voltage=0", "nbins=64", and "gain=7". At the bottom right of the window, there is a checkbox labeled "Secret Commands?" which is currently unchecked.

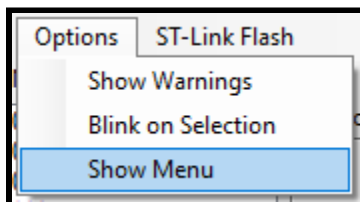
Type one command per line, the process will execute the commands in order.

NOTE: Save yourself some time. If you're setting the voltage, set MaxVoltage as well BEFORE voltage. If MaxVoltage is lower than voltage, it won't set properly.

Secret commands may also be accessed, but require the "Secret Commands?" checkbox to be checked. This is not recommended unless you know what you're doing.

Show a Menu

If you need a reference to the available commands, just select an NPM, go to Options, and click "Show Menu"



Understanding Serial Formats

Upon checking the “Serialize?” checkbox, the below control will appear:

Serialize? ☒

Previous Serial Number Format (Optional)

ex:

Desired Serial Number Format (Required)

ex:

Type

Format Strings

Every format string has a couple components:

1. The Base: These are characters which show up regardless on every generated serial number.
2. The Variable: A variable is surrounded in curly braces, and includes a format indicator and padding length. Padding is indicated by the number of repeated format indicators.

To date, there are 3 available format indicators.

1. **N**: Most important. This indicator represents the number this npm will be assigned.
2. **Y**: Year
3. **M**: Month

Case doesn't matter.

It's easier to just give some examples.

EX:

NU{YY}-{NNNN}	Evaluates to	NU22-0017
N0{yy}{mm}-{NNNNN}	Evaluates to	N02204-00017
{nnnn}	Evaluates to	0017
{ahsjkdhalksd}	Evaluates to	{ERR}

Desired Serial Number Format (Required)

NU{yy}-{nnnn}

ex: NU22-0017

Serializing Vs Re-serializing

Terminology:

Serializing: Pretend the selected NPM is not one we've ever seen before. Maybe it's fresh off the flashing process and brand new.

Re-Serializing: The NPM has already been seen by the testing process, and has been serialized before. In this case, we'd like to keep the important information in the previous serialization such as its number and dates.

To **Serialize**, you need only to type in a "Desired" Format. This is the second textbox. The NPM will choose the next available number in the server and format it to fit whatever format you gave it.

To **Re-Serialize**, you must also fill in the previous format to match whatever it currently has. This must be perfectly formatted, or the process will fail.

EX:

To match the format of an npm serialized as

NU21-0056

the previous format should be

NU{yy}-{nnnn}

Imagine your desired serial format is

N0{yy}-{nnnn}

The new serial number will be

N021-0056

Even though the next available number might not be 56, and the year may not be 2021.

This data carries over from the previous serial number.

Type

This just refers to the type of NPM you're serializing. There should be some preset options in the dropdown box, or you may type in your own.

Pressing Go

Once all the options have been filled out, simply press the go button and wait a bit. Progress will be displayed at the bottom of the tool. The application will give you a brief summary at the end they you can flip through.