TABOR ELECTRONICS

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LUCID SERIES

Update Tool
User Manual

Revision 1.3

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Document Revision History

Table 1.1 Document Revision History

Revision	Date	Description	Author
1.3	31-Mar-2025	• 1.1 Introduction: Changed from "te_update_tool_1.1.270" to " Update Tool x.y.z"	Jakob Apelblat
1.2	11-Mar-2025	• Supporting Lucid Control Panel Ver. 1.3.550 and TE Update Tool Ver. 1.1.270 or higher. • 3 TE Update Tool Operation: Added "FPGA Update".	Harshit Agrawal Jakob Apelblat
1.1	20-May-2021	• Minor updates.	Jakob Apelblat
1.0	01-Feb-2021	• Original release.	Jakob Apelblat

Acronyms & Abbreviations

Table 1.2 Acronyms & Abbreviations

Acronym	Description
µs or us	Microseconds
ADC	Analog to Digital Converter
AM	Amplitude Modulation
ASIC	Application-Specific Integrated Circuit
ATE	Automatic Test Equipment
AWG	Arbitrary Waveform Generators
AWT	Arbitrary Waveform Transceiver
BNC	Bayonet Neill–Concelm (coax connector)
BW	Bandwidth
CW	Carrier Wave
DAC	Digital to Analog Converter
dBc	dB/carrier. The power ratio of a signal to a carrier signal, expressed in decibels
dBm	Decibel-Milliwatts. E.g., 0 dBm equals 1.0 mW.
DDC	Digital Down-Converter
DHCP	Dynamic Host Configuration Protocol
DSO	Digital Storage Oscilloscope
DUC	Digital Up-Converter
ENoB	Effective Number of Bits
ESD	Electrostatic Discharge
EVM	Error Vector Magnitude
FPGA	Field-Programmable Gate Arrays
GHz	Gigahertz
GPIB	General Purpose Interface Bus
GS/s	Giga Samples per Second
GUI	Graphical User Interface
HP	Horizontal Pitch (PXIe module horizontal width, 1 HP = 5.08mm)
Hz	Hertz

Acronym	Description
IF	Intermediate Frequency
I/O	Input / Output
IP	Internet Protocol
IQ	In-phase Quadrature
IVI	Interchangeable Virtual Instrument
JSON	JavaScript Object Notation
kHz	Kilohertz
LCD	Liquid Crystal Display
LO	Local Oscillator
MAC	Media Access Control (address)
MDR	Mini D Ribbon (connector)
MHz	Megahertz
MIMO	Multiple-Input Multiple-Output
ms	Milliseconds
NCO	Numerically Controlled Oscillator
ns	Nanoseconds
PC	Personal Computer
PCAP	Projected Capacitive Touch Panel
PCB	Printed Circuit Board
PCI	Peripheral Component Interconnect
PRBS	Pseudorandom Binary Sequence
PRI	Pulse Repetition Interval
PXI	PCI eXtension for Instrumentation
PXIe	PCI Express eXtension for Instrumentation
QC	Quantum Computing
Qubits	Quantum bits
RADAR	Radio Detection And Ranging
R&D	Research & Development
RF	Radio Frequency
RT-DSO	Real-Time Digital Oscilloscope
s	Seconds
SA	Spectrum Analyzer
SCPI	Standard Commands for Programmable Instruments
SFDR	Spurious Free Dynamic Range
SFP	Software Front Panel
SMA	Subminiature version A connector
SMP	Subminiature Push-on connector
SPI	Serial Peripheral Interface
SRAM	Static Random-Access Memory
TFT	Thin Film Transistor
T&M	Test and Measurement
TPS	Test Program Sets
UART	Universal Asynchronous Receiver-Transmitter
USB	Universal Serial Bus
VCP	Virtual COM Port

Acronym	Description
Vdc	Volts, Direct Current
V p-p	Volts, Peak-to-Peak
VSA	Vector Signal Analyzer
VSG	Vector Signal Generator
WDS	Wave Design Studio

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1 General

The scope of this manual is to describe the installation and operating procedures of the TE Update Tool. It is a software package that can be downloaded from the Tabor web site. It enables update of the Tabor device's FPGA and firmware via a user-friendly graphical user interface.

1.1 Introduction

The Lucid/Lucid-X and Proteus series models comes with a powerful FPGA (Field-Programmable Gate Arrays). In order to update the FPGA or the device FW (Firmware), you should download the relevant FW file and the Update Tool "Update Tool x.y.z" from the Tabor Electronics website at http://www.taborelec.com/downloads.

Notes

This manual is applicable for all Tabor instruments. The examples are using Lucid, but it is interchangeable with any Tabor instrument.

The Lucid Control Panel (LCP) or the Wave Design Studio (WDS) should be installed before installing the TE Update Tool.

Verify the HW board version of your device, e.g., D, E or F, and download the correct FW version.

Verify the version of the FPGA firmware installed on the device is older than the version on the Tabor website, refer to Figure 3.1 TE Update Tool.

1.2 Related Documentation

- Lucid Control Panel (LCP) User Manual
- Wave Design Studio (WDS) User Manual

2 TE Update Tool Installation

Locate the “Update Tool x.y.z” installation file on the destination folder to which it was downloaded.

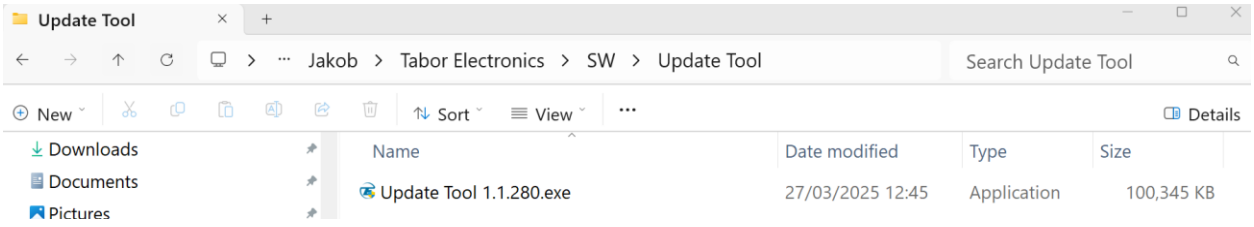

Figure 2.1 TE Update Tool Installation File

Double-click the “**Update Tool x.y.z”** installation file.

The welcome screen is displayed.

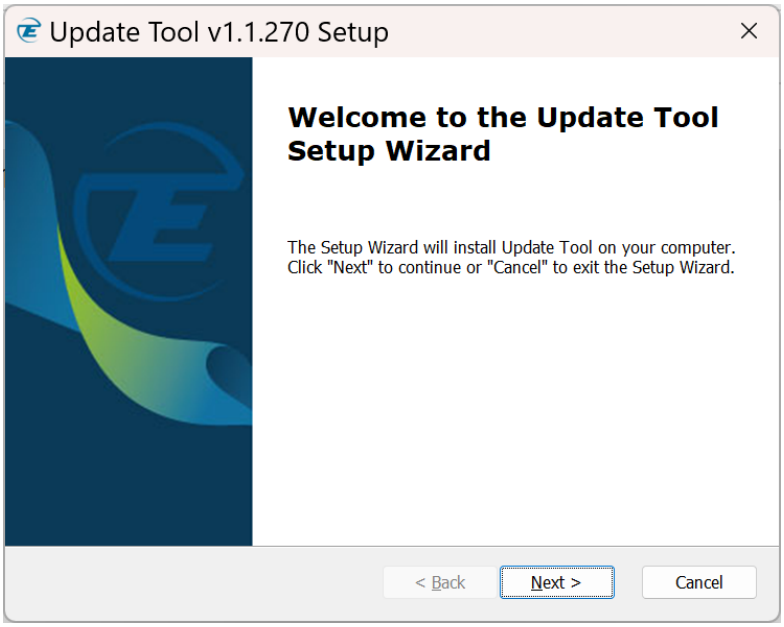

Figure 2.2 Welcome to the Update Tool Setup Wizard

Click **Next.**

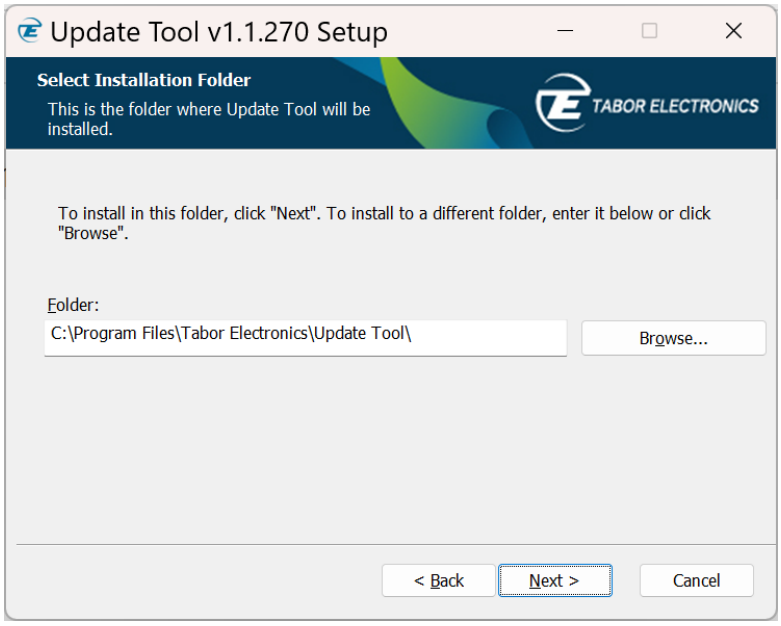

Figure 2.3 Select Installation Folder

Enter the destination directory for the **Update Tool** software or browse to a destination directory by clicking the **Browse** button.

Click the **Next** button.

The **Ready to Install** screen is displayed.

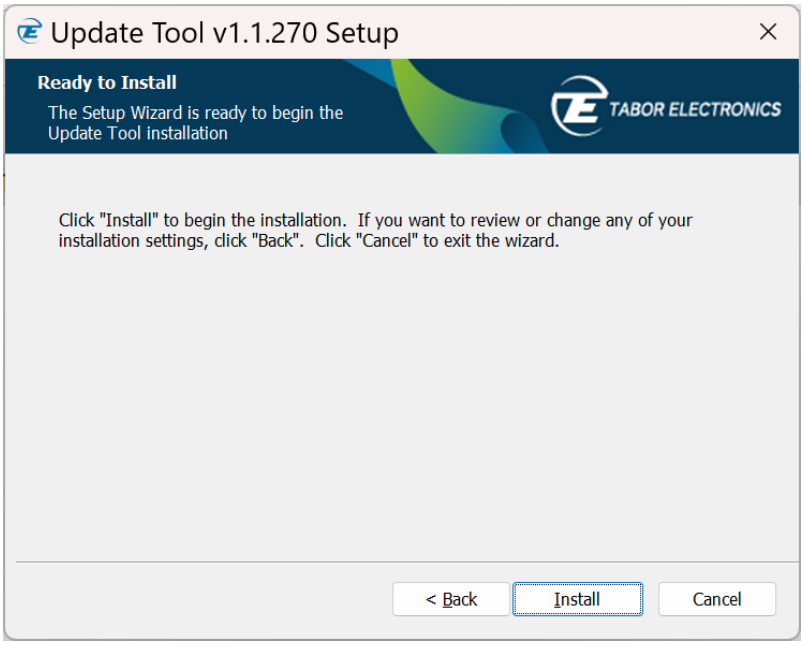

Figure 2.4 Ready to Install

Click the **Install** button.

The **Update Tool** software installation starts.

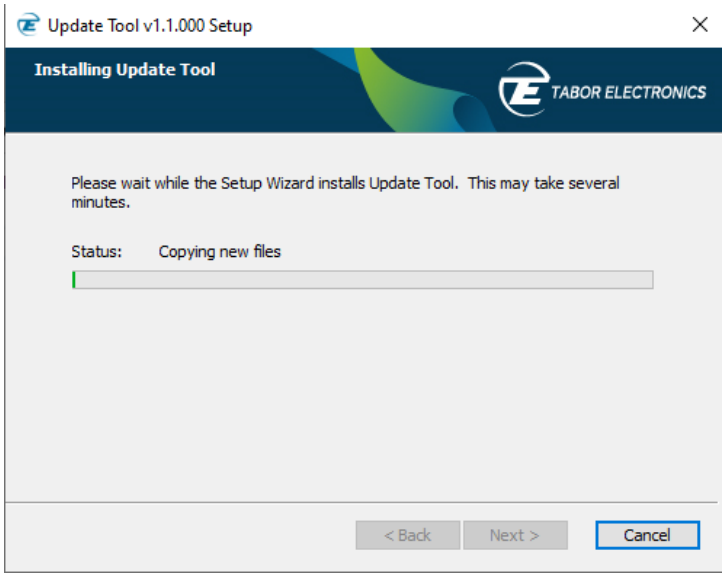

Figure 2.5 Installing Update Tool

Wait for the installation process to complete.

The **Installation Complete** window is displayed.

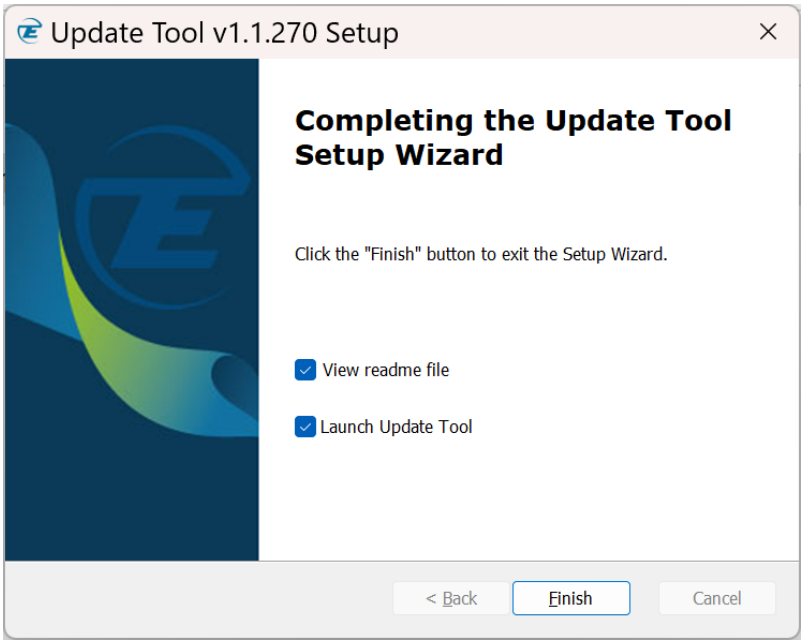

Figure 2.6 Completing the Update Tool Setup Wizard

Click the **Finish** button to finish the software installation process.

3 TE Update Tool Operation

Double-click the TE Update Tool shortcut on the desktop  .

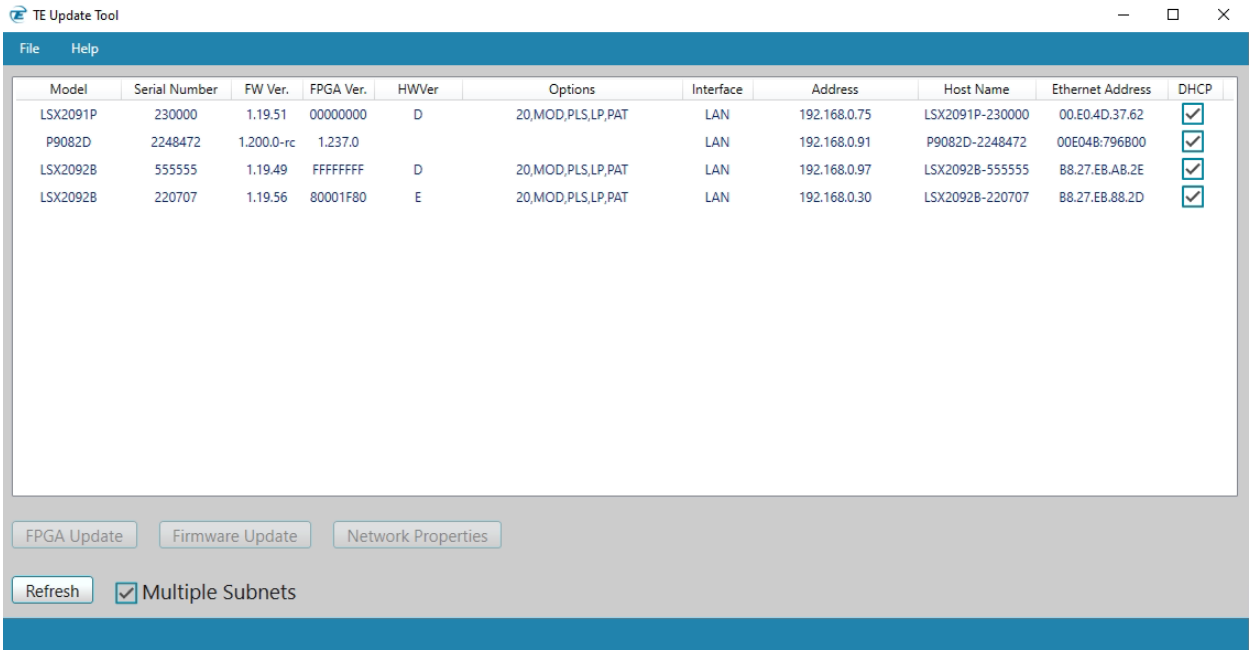

Figure 3.1 TE Update Tool

- **File** –Click the button to display a drop list.
  - **Find Device** – Enter the IP address of the device you want to update.

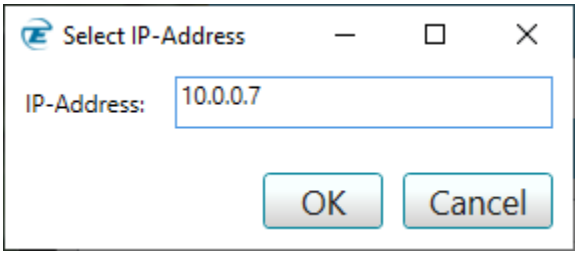

Figure 3.2 Select the IP-Address

  - **Exit** – Exit the TE Update Tool.
- **Help** – Click the button to display a drop list.
  - **About** – Display the application version.

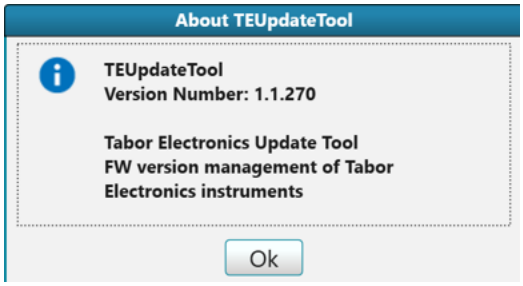

Figure 3.3 About TE Update Tool

- **View user manual** – Display the TE Update Tool user manual.

- **Model** – The ordering model name.
- **Serial Number** – The serial number of the generator.
- **FW Ver.** – The FPGA firmware version.
- **HW Ver**. – The device hardware board version.
- **Options** – The options available in the generator.
- **Interface** – Active communication interface.
  - USB
  - LAN
- **Address** – IP or USB physical address. For USB, the following parameters are displayed:
  - **vid** – Vendor ID.
  - **pid** – Product ID.
  - **serial** – A unique serial string programmed at the factory and used to distinguish between devices.
- **Host Name** – The model name and serial number. For older Tabor devices such as WW, WX, SE it is the "model name – 47" + last 4 digits of the serial number in HEX.
- **Ethernet Address** – The device MAC address.
- **DHCP** – Dynamic Host Configuration Protocol.
  - **Fixed** – Define a static IP Address. Verify that the PC running Lucid software is on the same network (default).
  - **Dynamic** – Get an IP address from the DHCP server. The IP Address, Port and Subnet Mask fields are not accessible.
- **FPGA Update** – Click the button to update the selected device's FPGA.
- **Firmware Update** – Click the button to update the selected device's firmware.

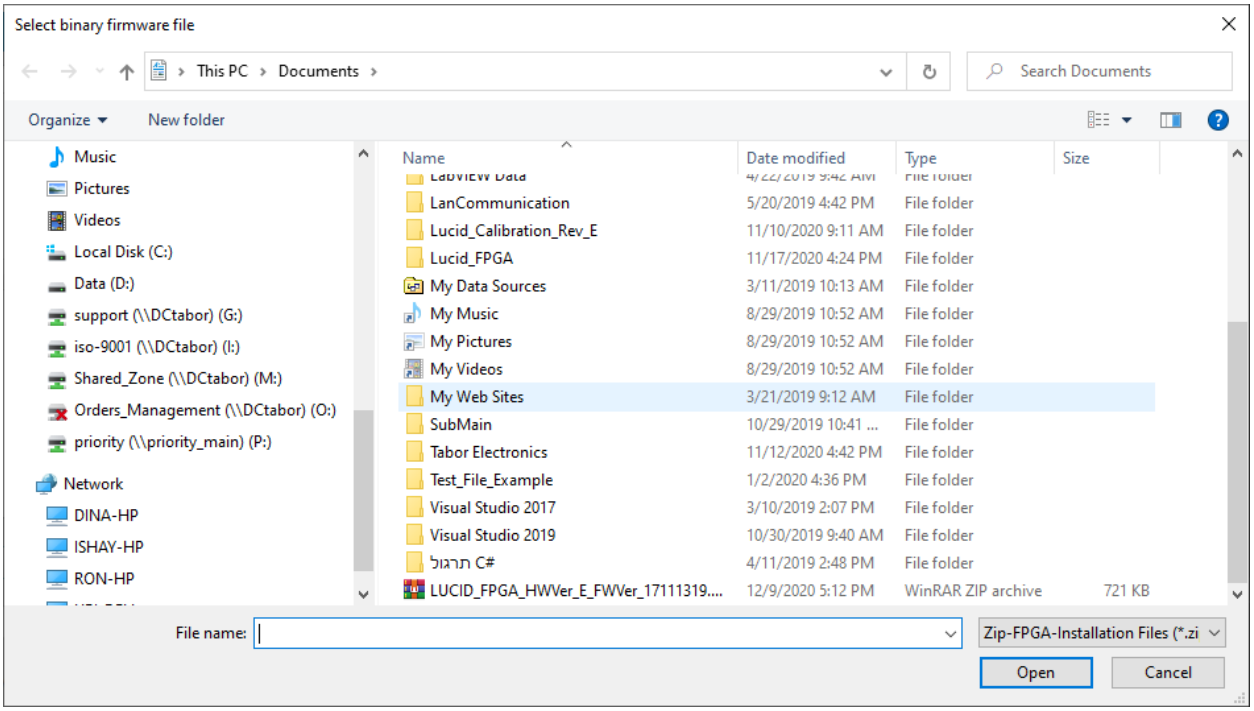

Figure 3.4 Select Binary Firmware File

- **Network Properties** – Click the button to change selected device's IP parameters.

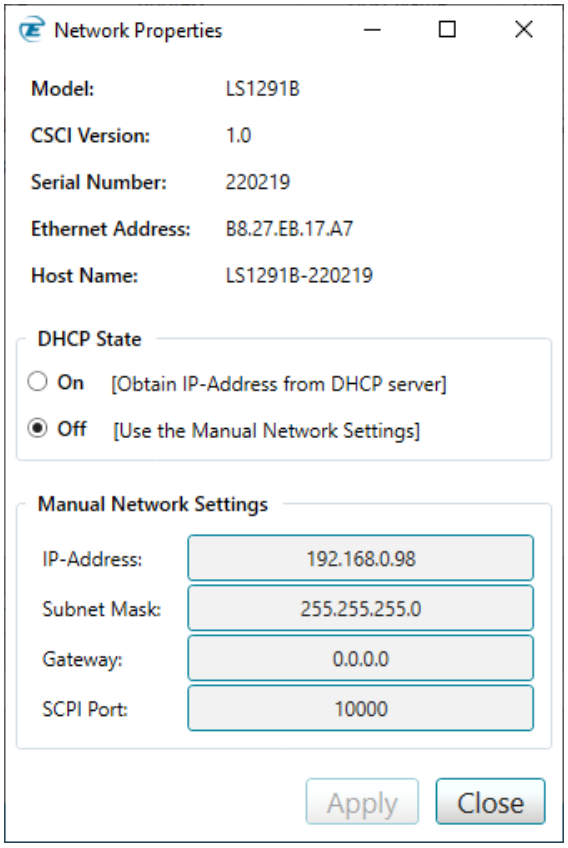

Figure 3.5 Network Properties

- **Refresh** – Click the button to update the display for all connected devices.
- **Multiple Subnets** – Check the box to search for devices in multiple subnets.

3.1 FPGA/FW Update

1. Connect your control PC to the Tabor device using any available LAN, USB or PXI connections.
2. Double-click the TE Update Tool shortcut on the desktop  .

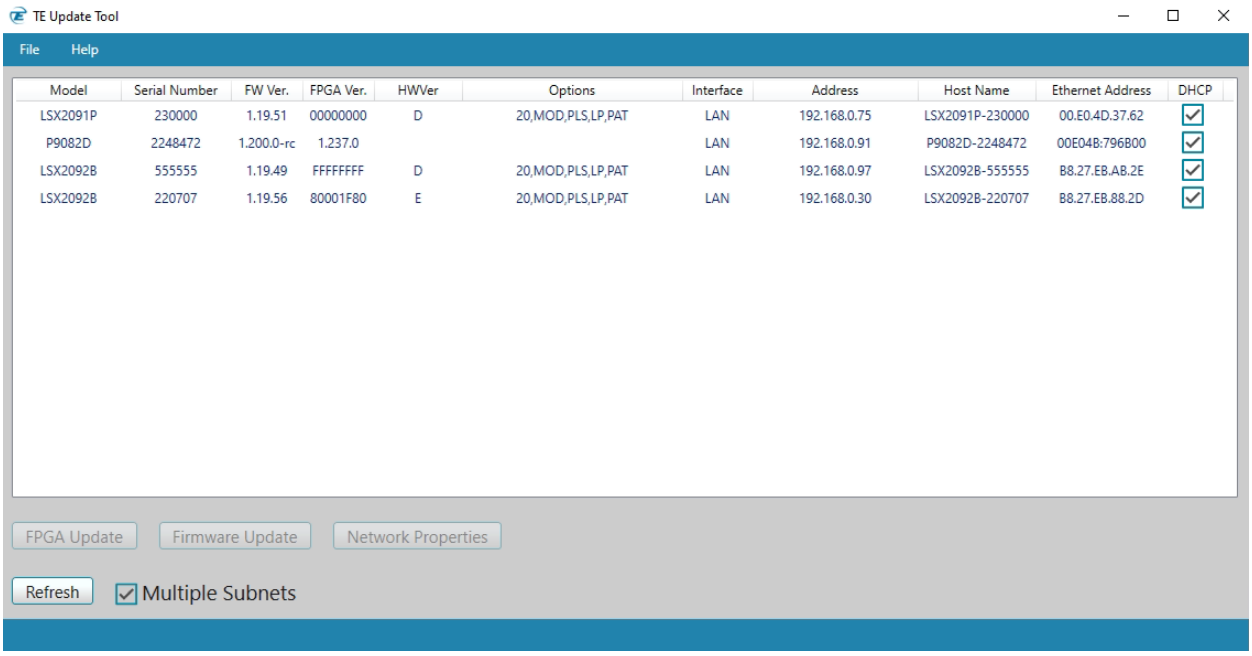

Figure 3.6 TE Update Tool

3. Select the unit and click the **Firmware Update** button.

Notes

Verify the HW board version of device, e.g., “D”, and download the correct “D” FW version.

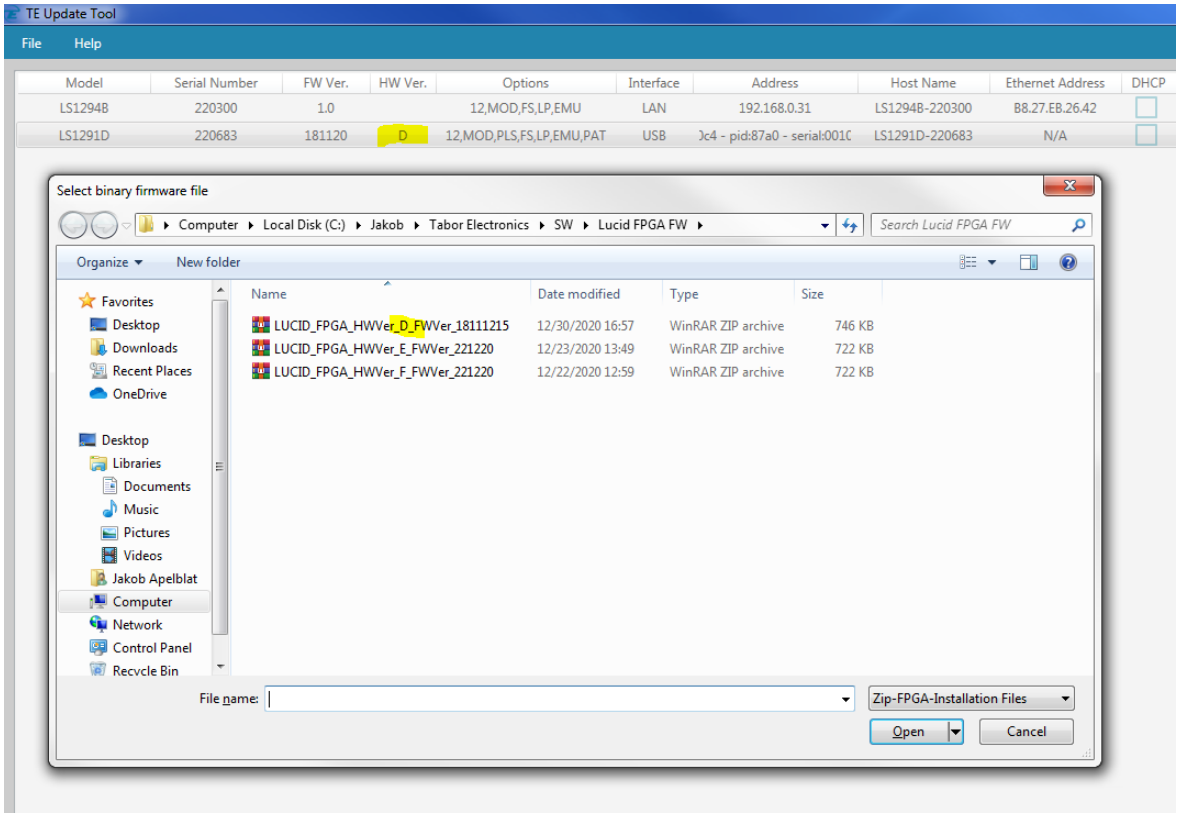

Figure 3.7 Select the FPGA Firmware File

4. Select the applicable zip file according to the HW Ver., and then click **Open.**
5. A warning dialog box will be displayed. Click OK. The update operation will start, and it will take several minutes depending on the device interface.

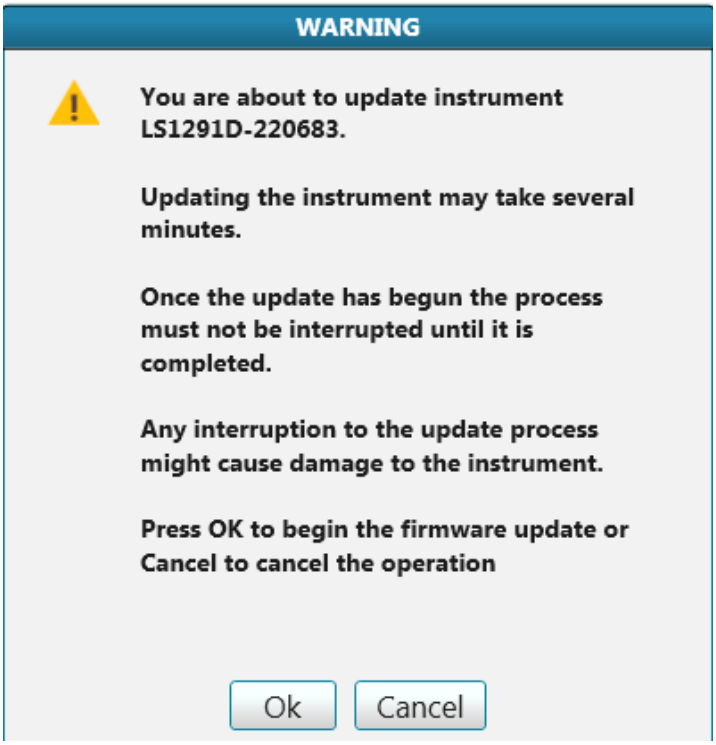

Figure 3.8 Warning

Caution!
The update operation shall not be interrupted as this will damage the device.

6. The TE Update Tool progress bar will show the update status.

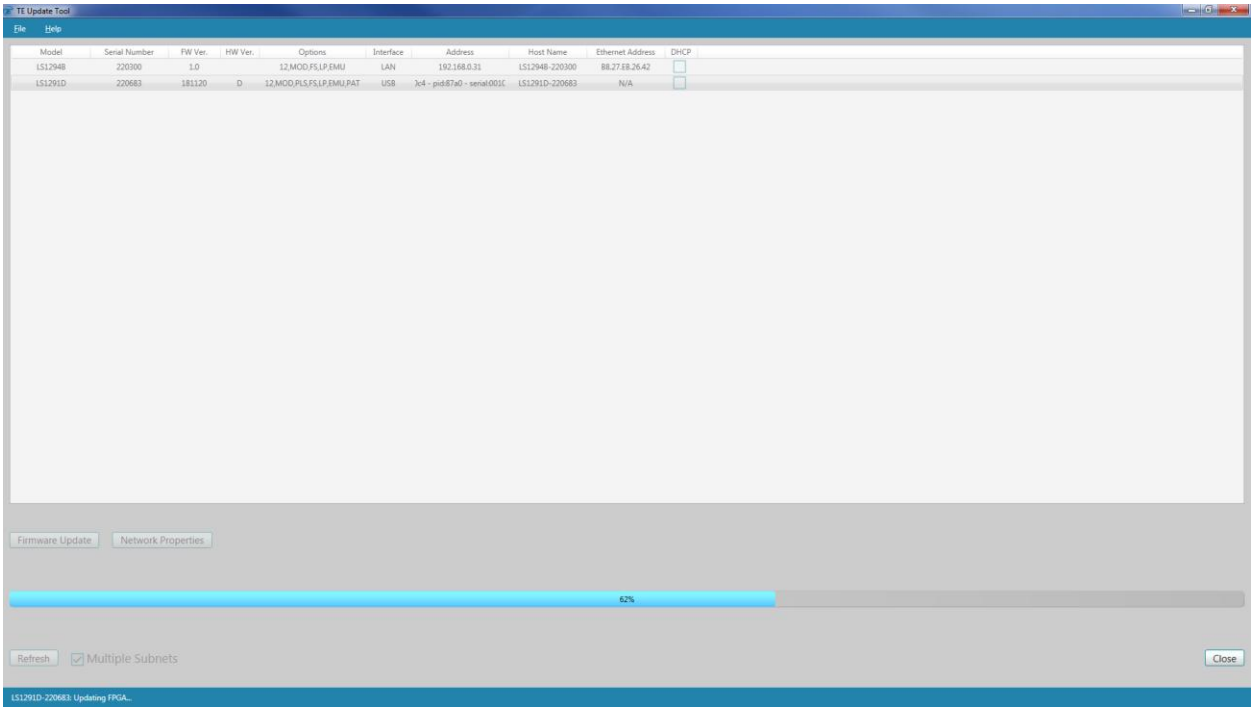

Figure 3.9 Progress Bar

7. When the firmware update has completed the Update Complete message box is displayed. Click **OK**.

Figure 3.10 Update Complete

8. Power cycle the device.
9. Click the Refresh button on the TE Update Tool to verify that the FPGA firmware has been updated.