

PowerXL Series DG1 Firmware Upgrade Process

Application Summary

The PowerXL Series DG1 adjustable frequency drive has the ability to upgrade firmware through a PC Firmware Upgrade Tool. It can be used to load a single packaged firmware file for the MCU, DSP, Keypad and Option boards. To load firmware to the drive, full line power is required to be able to program all the required processors. In addition, there are two different ways to load firmware depending on the method of connection to the DG1 drive, either the RJ45 Keypad Port or the RS485 A and B terminal.

Software Prerequisites

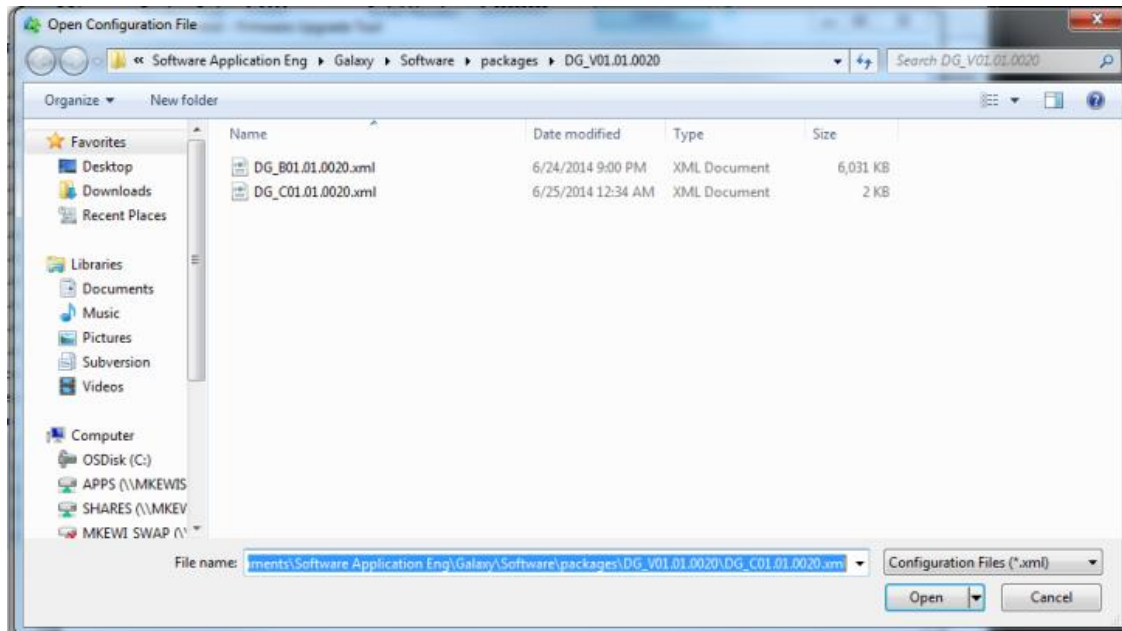
- a. **Install Eaton Power Xpert *inControl* - Firmware Upgrade Tool (FUT):** this can be found under the software tab at www.eaton.com/dg1 using the with the *One Installer* download file.
- b. **Firmware Bundle DG_VXX.XX.XXXX:** this bundle will include two .xml files; one being the code bundle DG_BXX.XX.XXXX and the other being the configuration file DG_CXX.XX.XXXX. In addition to the .xml files there will be release notes provided. The latest firmware file can be found at www.eaton.com/dg1.
- c. **ModBus Communication Adapter to Connect PC to the DG1 Drive:** Eaton has a USB to RJ45 connector cable available (Part Number: DXG-CBL-PCCABLE) that can be used for installing firmware though the keypad port with a driver that comes on a supplied CD. In addition, it is possible to connect through the green RS485 A and B control terminals on the drive control module.

NRI Notes:

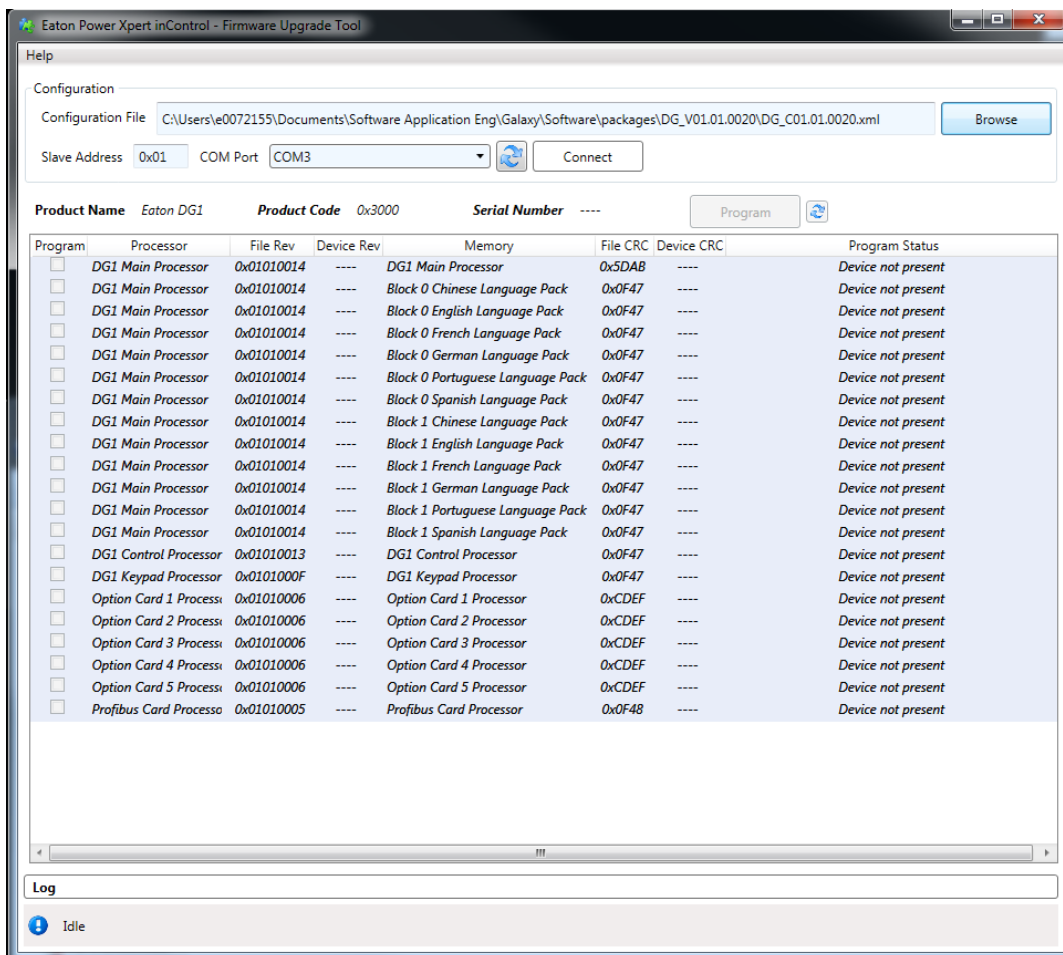
1. Make sure to download Eaton's Latest Manuals & Software for Connecting and Flashing VFD.
2. Make sure to download latest firmware. Check for compatibility with the VFD serial number.
3. If using RS-485, Use a notebook with a USB-485 Adapter from BB-Elec.
4. Preferably, use the Eaton RJ45 VFD Cable, if available.
5. When installing Eaton's Power Xpert *inControl* software to your notebook or desktop computer, make sure that your computer is connected to the Internet during the installation process, as a web-based installation of Microsoft's .NET libraries may be required.
6. If flash-programming through the RS-485 port of the DG1, you must make sure that the VFD's Modbus/RTU Port Parameters are set to 38400/8/Even-Parity/1. After changing Port Speed/Baud parameters, you must reboot the VFD for the changes to take effect.
7. After upgrade, factory-reset possibly needed: Menu 21.1.3 -- Set to 1: Load Factory Defaults.

Upgrading Through RJ45 Keypad Port

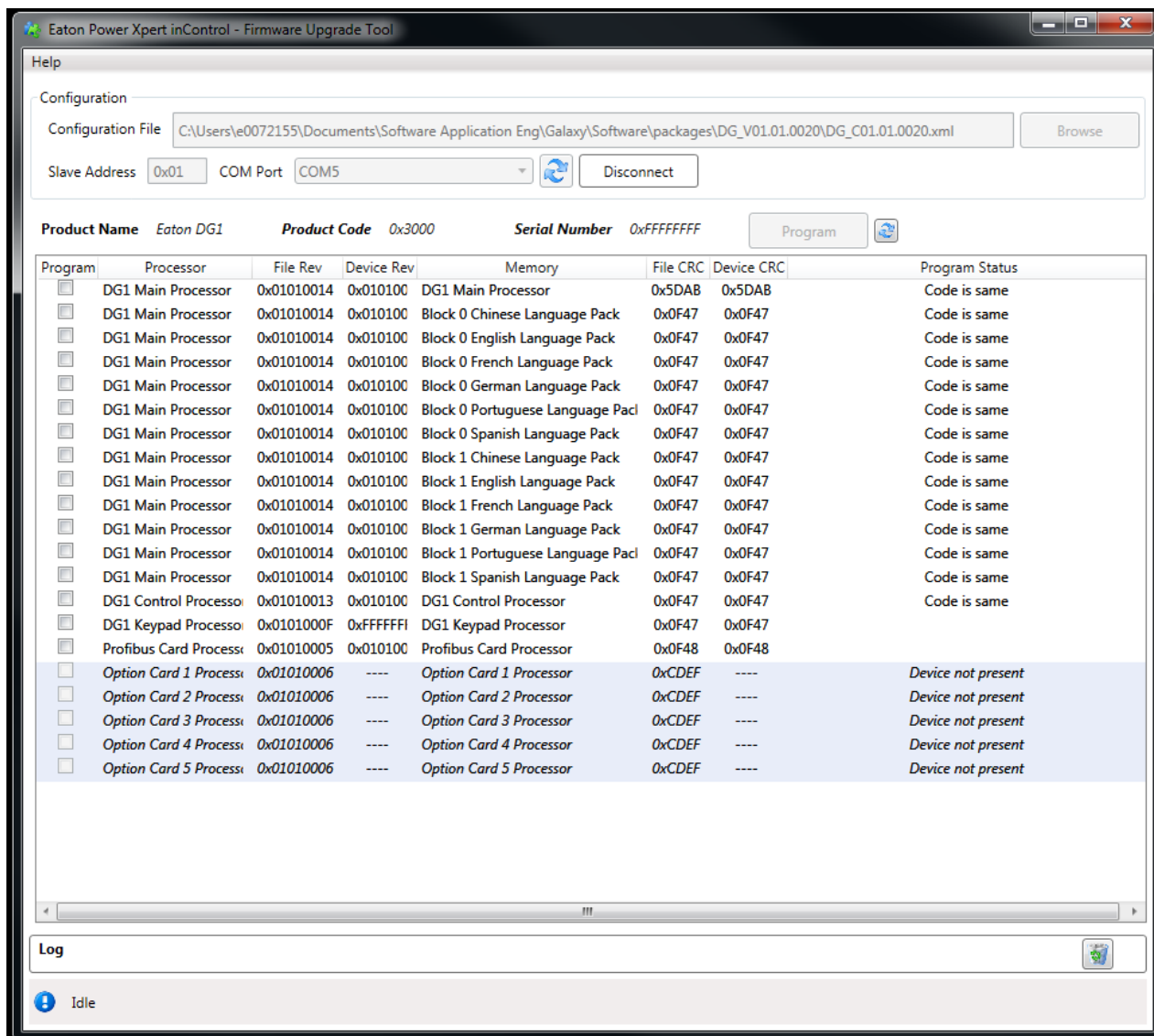
1. Open the Eaton Power Xpert *inControl* – Firmware Upgrade Tool(FUT). With the FUT open there will be a Configuration file path box to enter in the location of the DG_CXX.XX.XXXX file. Select the *Browse* button in the right hand side of the screen, located the Firmware Bundle DG_VXX.XX.XXXX, in that bundle will be the Configuration file DG_CXX.XX.XXXX. (The latest firmware bundle can be obtained from www.eaton.com/dg1.)



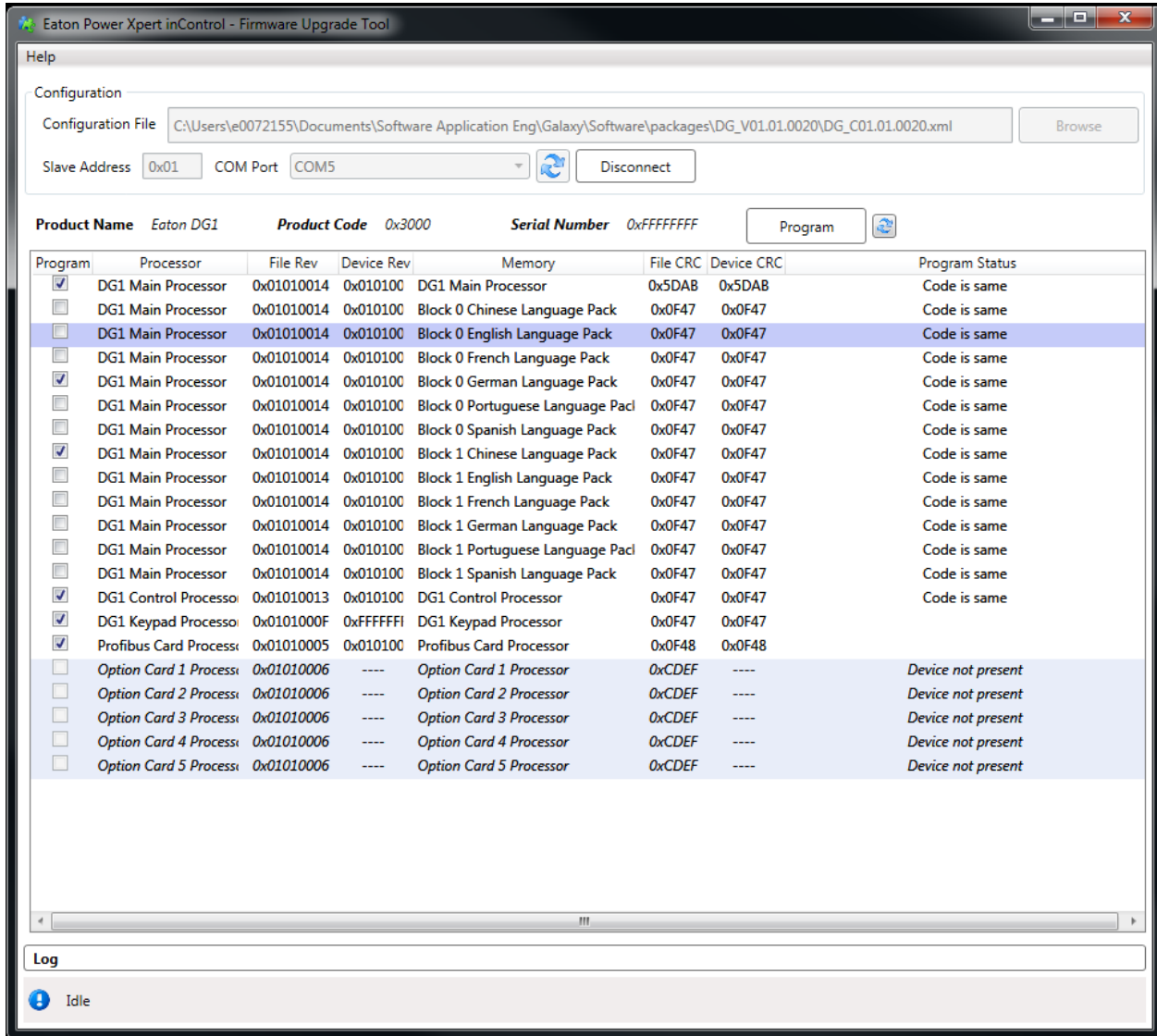
- 2a. **Upgrading through RJ45 Keypad Port:** Select that file and click *Open*. With the file open you will see all the processors that are loaded in the configuration file. When using the keypad port for loading, the slave address should stay at 1. (Slave address of keypad port is not changeable and does not port into boot loader, requiring it to stay at 1.) With the slave address set, select the *COM Port* that the computer set up for the USB Converter (To verify COM port, go into Windows Device Properties and look under the Ports drop down.) If the required COM Port does not show up in the tool, click the *Refresh* button to the right of the drop down. Once the settings are complete click the *Connect* button.
- 2b. **Upgrading through RS485 Terminals A and B:** Select that file and click *Open*. With the file open you will see all the processors that are loaded in the configuration file. When using the RS485 terminals for loading the slave address should be whatever the keypad has setup for the slave address (P20.2.1 should be set to Modbus and P20.2.2 should be the address of the drive). (Slave address gets ported into the boot loader using RS485 terminals.) With the *Address* set, select the *COM Port* that the computer set up for the USB Converter (To verify COM port, go into Windows Device Properties and look under the Ports drop down.) If the required COM Port does not show up in the tool click the *Refresh* button to the Right of the drop down. Once settings are set click the *Connect* button.



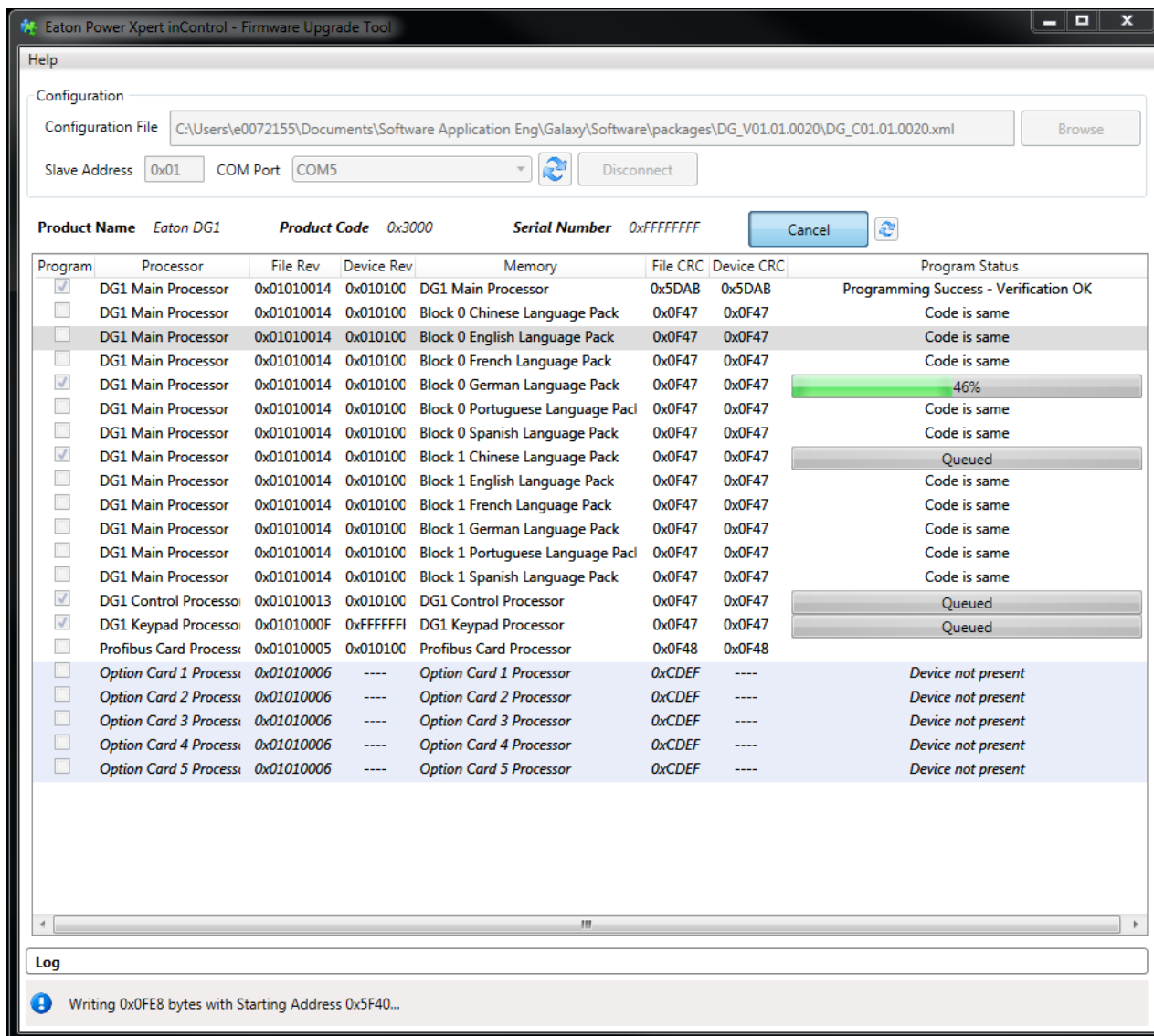
- After hitting the *Connect* button, the FUT will send messages to the drive to place it into boot loader mode. Once connected, the list of available processors in the DG1 will become active. (If processors are not available, they will show up highlighted in purple and the *Program Status* will indicate the *Device not present*.) To refresh the list of processors, click the *Refresh* button next to the *Program* button.



- The *Program Status* column will indicate if the code is the same as in the selected configuration file. To load firmware down to the drive, there is a *Program* column with a check box, select the *Processors* you want to load along with the language files required. (There are three languages stored on the DG1 drive, English is always standard and then two additional languages can be loaded in the two language blocks, one language per block.)



- Once processors required are selected press the *Program* button and the firmware will start loading. The *Program Status* will show the progress of the files being loaded.



- After all *Processors* are loaded, click the *Disconnect* button to take the drive out of the boot loader mode. Remove the RJ45 cable and plug keypad back into the drive. It then will go through an upgrade process to upgrade the keypad processor.
- Once completed, please power cycle the drive and the firmware update process is complete.

Additional Help

In the US or Canada: please contact the Technical Resource Center at 1-877-ETN-CARE or 1-877-326-2273 option 2, option 6.

All other supporting documentation is located on the Eaton web site at www.eaton.com/Drives

