

## Setup

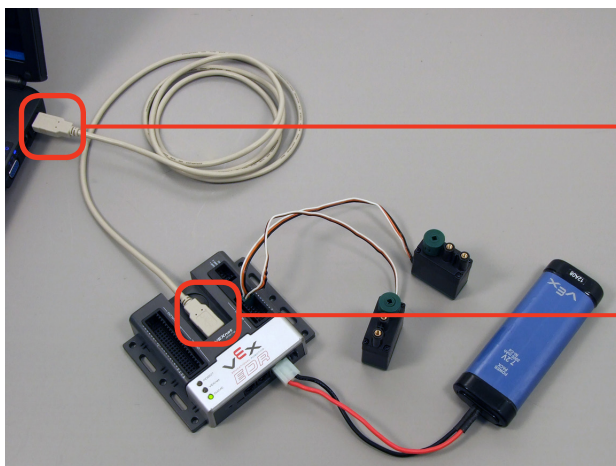
# Downloading ROBOTC Firmware over USB

*This document is a guide for downloading the ROBOTC firmware to the VEX Cortex using the USB A-to-A cable.*

You will need:

- 1 VEX Cortex Microcontroller with one 7.2V Robot Battery
- A computer with ROBOTC for Cortex and PIC installed
- 1 USB A-to-A Cable

1. Leaving the POWER switch in the OFF position, connect your Cortex to the computer using the USB A-to-A cable. Once the cable is attached, move the POWER switch to the ON position.



- 1a. Connect the Cortex to your PC**  
Use the USB A-to-A cable to connect your Cortex to your PC.

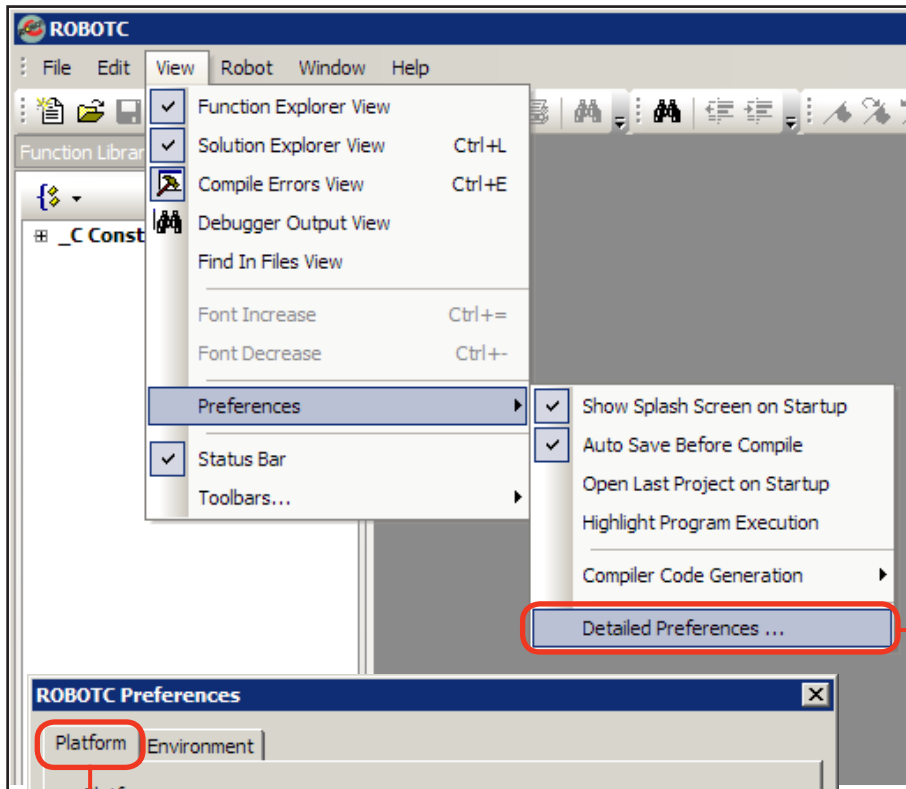


- 1b. Turn the Cortex ON**  
Make sure a 7.2V Robot battery is connected and move the POWER switch on the Cortex to ON.

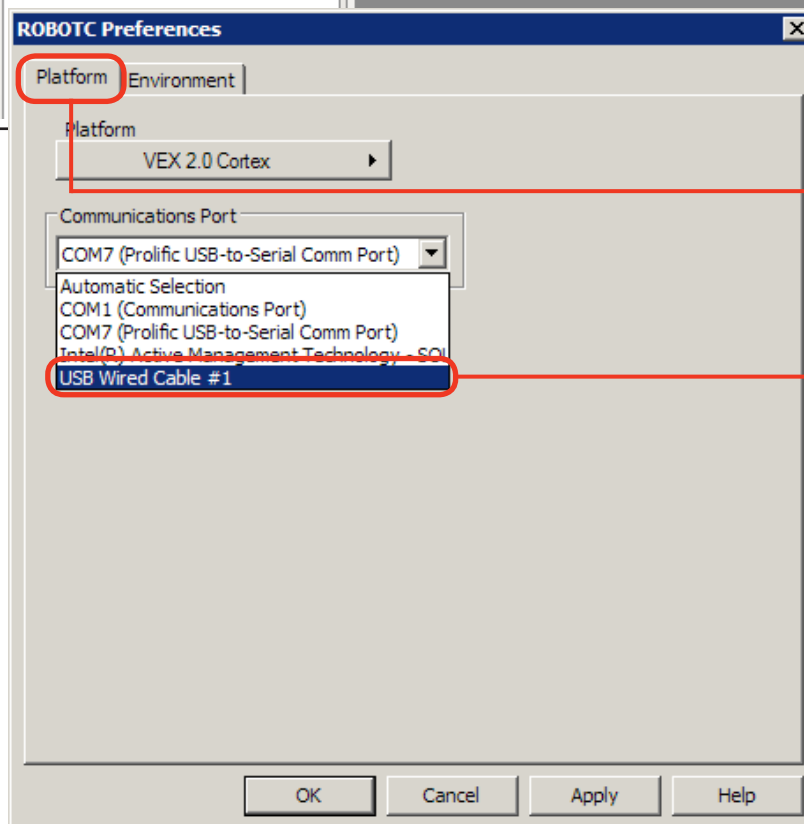
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## Downloading ROBOTC Firmware over USB (cont.)

2. Specify how your Cortex is connected to the computer in the ROBOTC Preferences.



**2a. Detailed Preferences...**  
Go to View > Preferences and select Detailed Preferences...



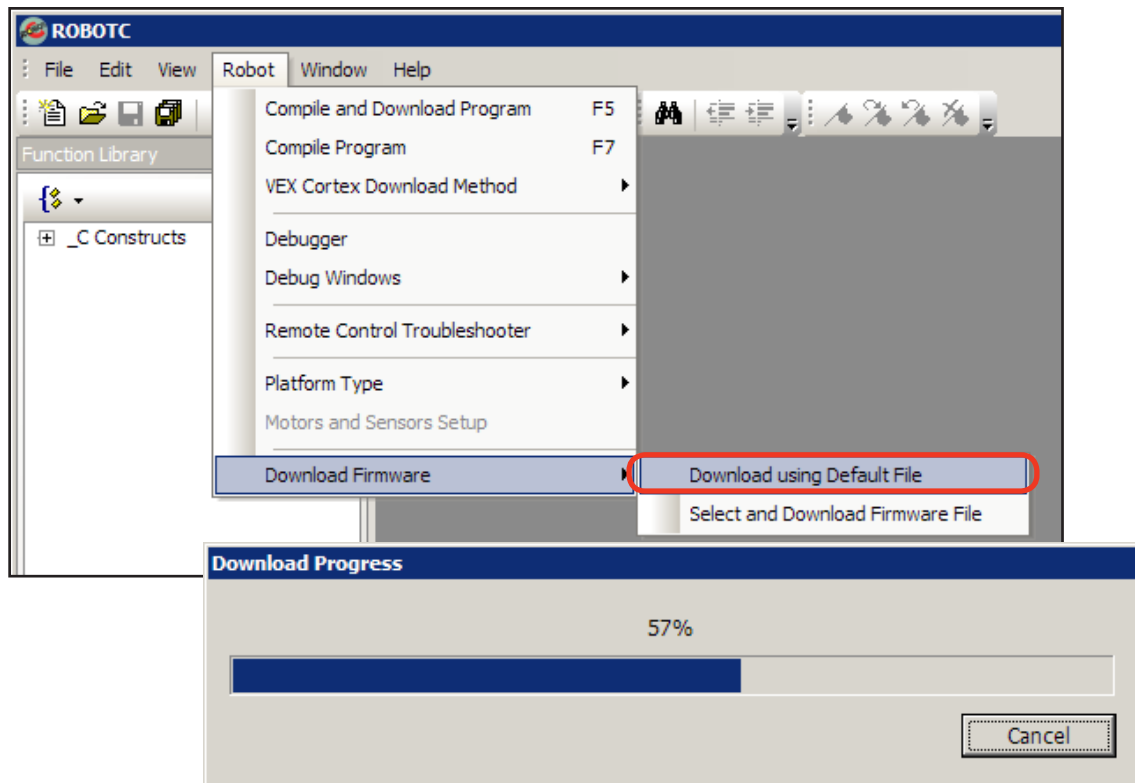
**2b. Platform Tab**  
Make sure that the Platform tab is selected on the ROBOTC Preferences window.

**2c. Communication Port**  
To program directly over the USB A-to-A cable, select the option that specifies the USB Wired Cable. Press OK to finalize your setting.

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### Downloading ROBOTC Firmware over USB (cont.)

- The ROBOTC Firmware enables you to download ROBOTC programs to your robot and utilize the various debug windows. Go to *Robot > Download Firmware* and select *Download using Default File* to download the ROBOTC Firmware to your robot.



#### 3. Download Progress

A *Download Progress* window will appear and begin the download process. When the window closes, the firmware download is complete.

**Note:** You only need to download the ROBOTC Firmware once. Switching programs or download methods does not require a re-download.

#### End of Lesson

Once the *Download Progress* window closes, the ROBOTC Firmware download is complete. Your robot is now ready to be programmed in ROBOTC.

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### Downloading ROBOTC Firmware over USB (cont.)

#### Troubleshooting

**Problem:** Communication using the USB A-to-A cable between ROBOTC and the Cortex is very slow, or not working.

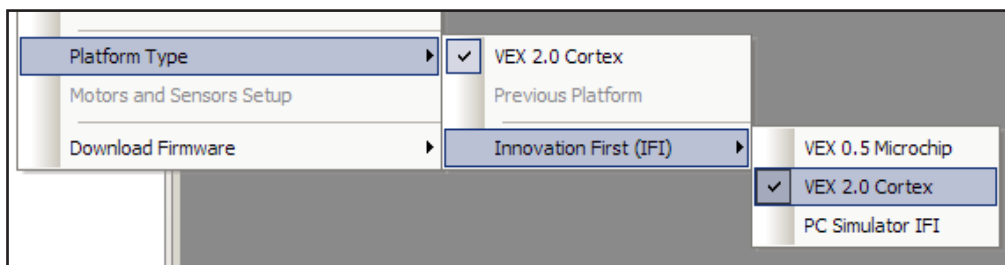
**Resolution:** Verify each of the following options, and re-test your communication link before moving on:

Is the USB A-to-A cable connecting the computer to your Cortex? The USB cable will provide some power to the Cortex, powering some of its status lights. If not, try rebooting your system.

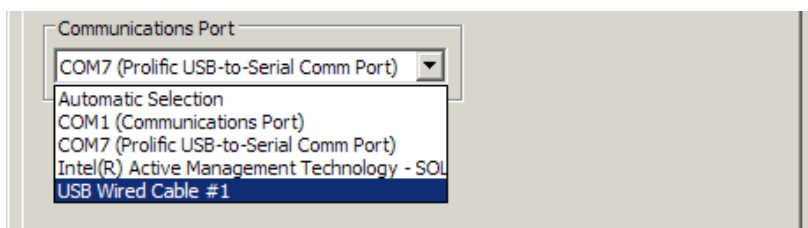
Is your robot also connected to and powered on by a charged battery?

Did you have the robot powered on before you connected it to the computer using the USB A-to-A cable? The robot must first be connected to the computer using the USB A-to-A cable, and then powered on with the battery.

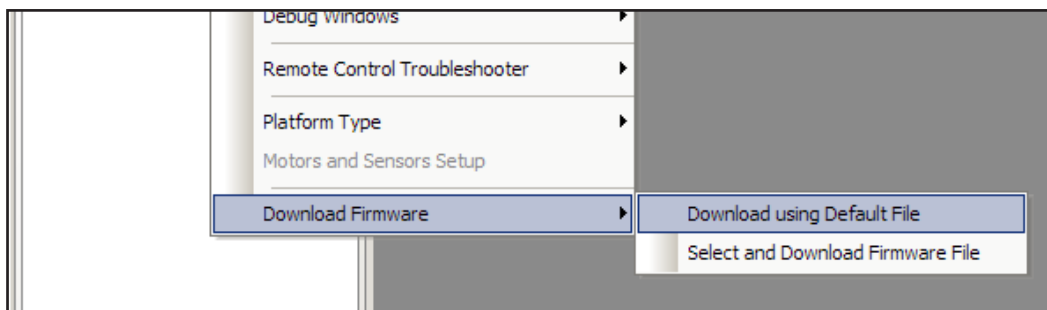
Is VEX 2.0 Cortex selected as the Platform Type in ROBOTC?



Have you selected the correct Communication Port in the ROBOTC Preferences?



Have you downloaded the ROBOTC Firmware to the Cortex?



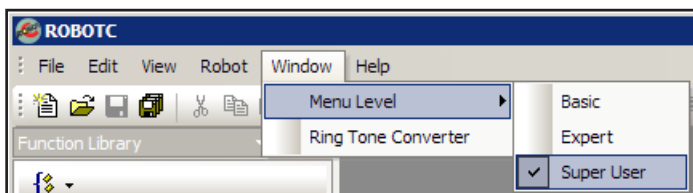
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### Downloading ROBOTC Firmware over USB (cont.)

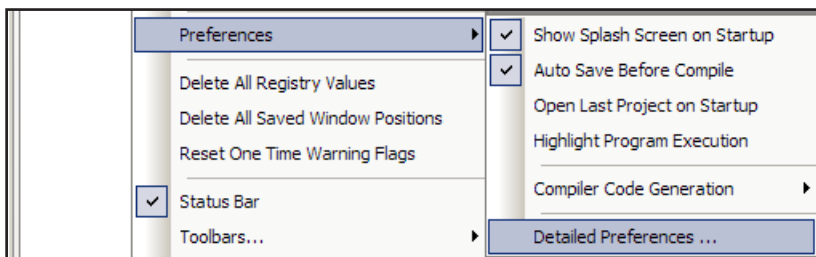
#### Troubleshooting

If you've verified all of the previous options with no success, you can enable "Message Tracing" to put ROBOTC into a persistent communication mode.

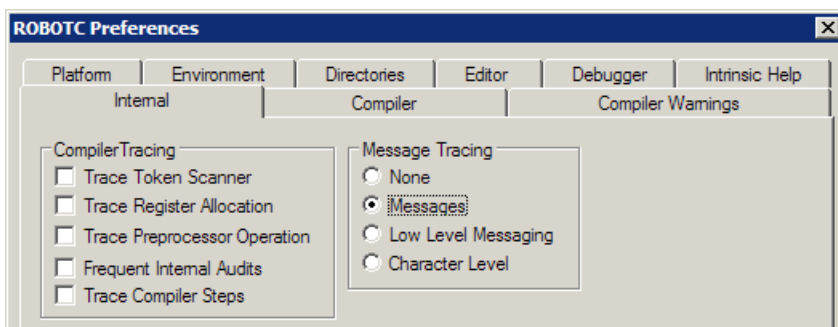
Begin by going to *Window > Menu Level* and selecting *Super User* to switch your viewing preferences to the Super User level.



Then go to *View > Preferences* and select *Detailed Preferences...*



On the *Internal* tab, select *Messages* under *Message Tracing* to put ROBOTC into its persistent communication mode. Press *OK* to verify your setting.



Now when you download a program, ROBOTC will also open the *Message Log* with the Cortex in a new tab. You can switch back and forth between your program and the Message Log by clicking on the desired tab.

