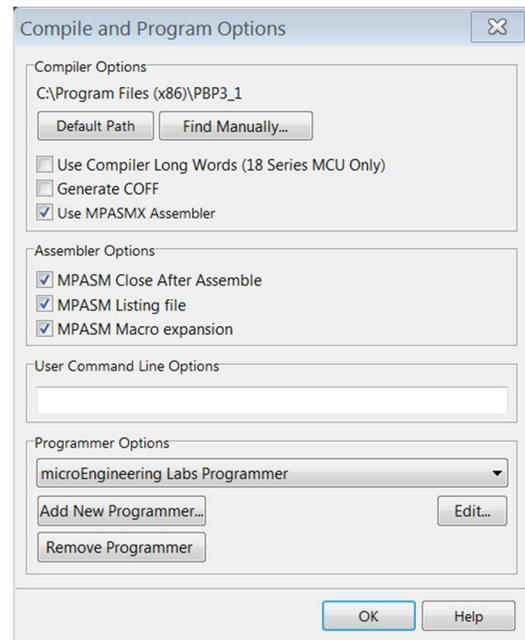
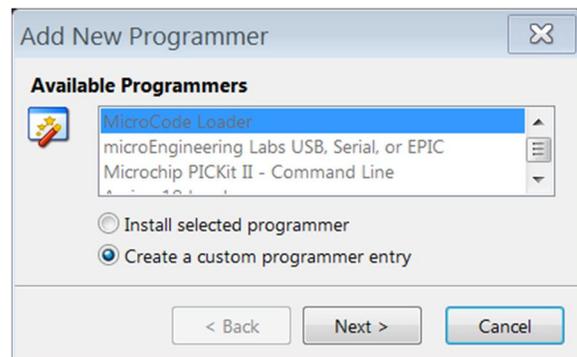


Installing Programmers For Use With Microcode Studio

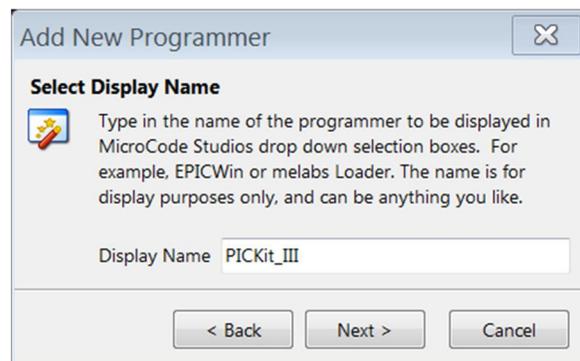
1. From Microcode Studio's main editor screen, click on **View / Compile and Program Options**, and the window shown to the right will appear.
2. At the bottom of the screen, **Programmer Options** appears with the currently used programmer listed. Clicking the drop-down might show other installed programmers, such as the MELabs Trainer.
3. Click on **Add New Programmer**, and another window pops up showing the **Available Programmers**.



4. The **Add New Programmers** window shows the **Available Programmers** currently installed. If the programmer you wish to use is not listed, select **Create a custom programmer entry**, and then click **Next >**

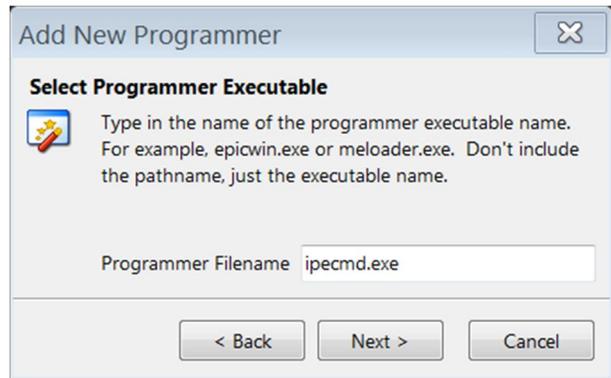


5. Another new window pops up showing **Select Display Name**. Enter the name you want to use for the programmer, such as *PICKit_III*, and click on **Next >**

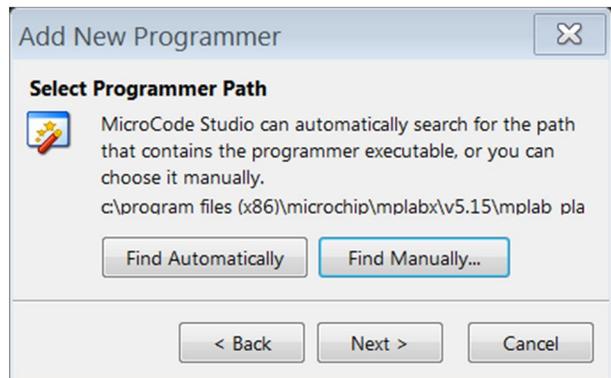


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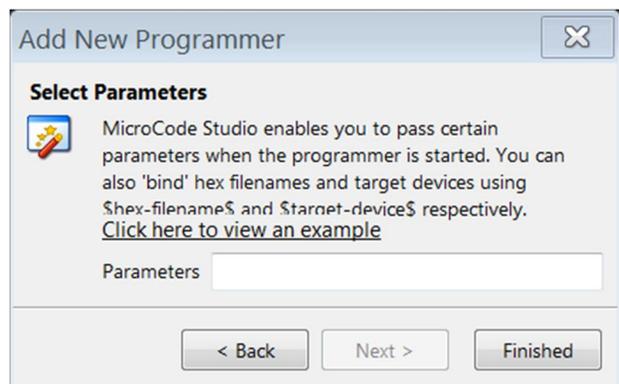
6. Another window pops up showing **Select Programmer Executable**. Enter *ipecmd.exe*, which is the file that works with Microchip's PICKits 3 & 4, and on-board programmers such as the one on its Curiosity Board. (This file should exist in a directory path such as *C:\Program Files (x86)\Microchip\MPLABX\v5.15\mplab_platform\mplab_ipe*). Click on **Next >** (See Note 1)



7. Another window pops up **Select Programmer Path**. This is the directory path where *ipecmd.exe* is located. Clicking **Find Automatically** should scan and find this file. Clicking **Find Manually** opens a navigation window where *ipecmd.exe* can be manually located (see directory in Step 6 above). Once located, this window doesn't completely show the directory path, so finding it manually is more reassuring that you've found it. Then click **Next >**



8. Another window **Select Parameters** pops up. This is the most critical and confusing entry. Contextual information for these parameters can be found in the file *Readme for IPECMD.htm* which should be found in the subdirectory *Microchip\...\V5.15\docs*



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9. In the *Readme for IPECMD* document, Section 14.1 identifies the short names for the programmers supported by the *ipecmd.exe* file, which are:

- TPPM3** to select the MPLAB PM3
- TPPK4** to select the MPLAB PICKit 4
- TPSNAP** to select the MPLAB Snap
- TPPK3** to select the PICKit 3
- TPRICE** to select the MPLAB REAL ICE
- TPICD4** to select the MPLAB ICD 4
- TPICD3** to select the MPLAB ICD 3
- TPPKOB** to select the PKOB
- TPPKOB4** to select the PKOB4
- TPAICE** to select the Atmel ICE

The programmer's short name is the first parameter element to enter in the **Select Parameters** box. In this example, for the PICKit_III programmer, the parameter is *-TPPK3*.

Next, the hex file and target device are automatically taken from those specified in the Microcode Studio settings, and should be entered as the aliases *-F\$hex-filename\$* and *-P\$target-device\$*

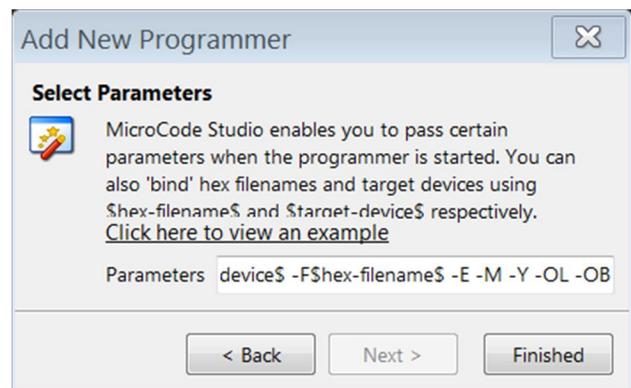
Next, Section 13 in the *Readme for IPECMD* document lists a collection of optional commands that can be added. The following commands are recommended:

- E Erase before programming
- M Program the target device's entire memory
- Y Verify after programming
- OL Release from reset
- OB Keep command line window open after programming

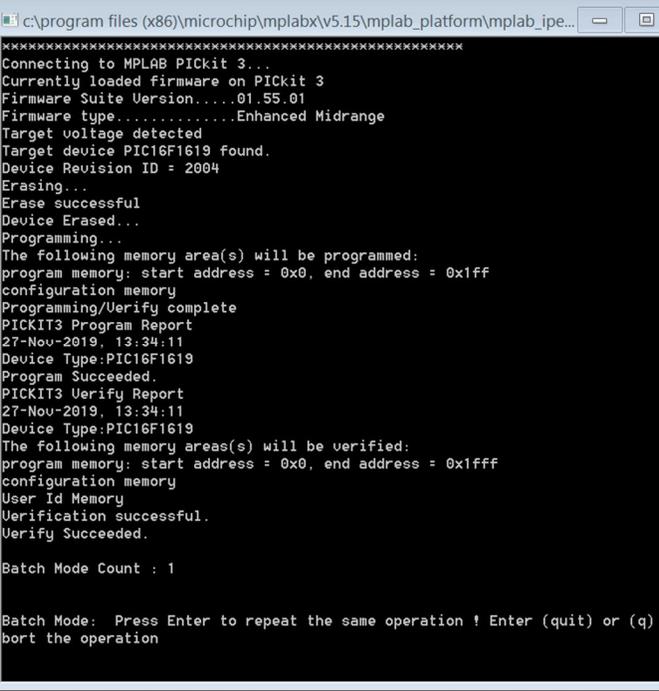
For the PICKit_III in this example, the completed parameter line in the **Select Parameters** box should appear (a dash "-" precedes and a space separates each parameter element):

-TPPK3 -P\$target-device\$ -F\$hex-filename\$ -E -M -Y -OL -OB

10. The **Select Parameters** window will appear as shown (place cursor in the box and scroll back and forth to review the entire parameter entry), and then click **Finished**



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<p>11. To use the new programmer, open the Compile and Program Options window as in Step 1, select the programmer <i>PICKit_III</i> in the Programmer Options box, and click OK</p>	<p>(see Step 1 illustration)</p>
<p>12. When Compile Program is clicked on from Microcode Studio (assuming no errors in the program) a command line window will open and it will display programming progress and completion. When it finishes, close the window using the "X" in the upper right hand corner. (This window can close automatically -- even before you can read it -- by deleting the <i>-OB</i> parameter in Step 9.)</p>	

Notes:

1. In Step 6, there may exist executables other than *ipecmd.exe* in the directory *Microchip\...\mplabx_ipe* that are provided for legacy programmers not included in those listed in the **Readme for IPECMD** file. These alternate executables should be similarly usable, and there should be Readme files for each in the *Microchip\...\docs* directory (the optional commands will likely be different than those in Step 9 for *ipecmd.exe*). Follow the same procedure as above, except enter the alternate executable file name in Step 6, and edit the optional commands accordingly in Step 9.
2. Some programmers (such as the Curiosity Board's) operate only in the LVP mode. If the target device has been previously configured LVP=OFF, an error will occur in Step 12 and programming will abort. Use your conventional LVP=OFF programmer to reconfigure the target device for LVP=ON, and try again.