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### **Top16 using Text Commands over a Virtual Comport**

Version 1.0 Updated 10-March-2009 TCTEC Pty Ltd

The following guide shows how to set the Top16 to be a virtual com port and use text commands.

The standard setup of the Top16 is *not* to load a virtual comport, but instead use a dll FTD2XX.dll to communicate.

Using the following procedure, the Top16 can be setup as a virtual comport and controlled using text commands.

When setup as a virtual comport the following settings are used:

Baudrate: 115200 Parity: None Stopbits: 1 Databits: 8

#### 1.

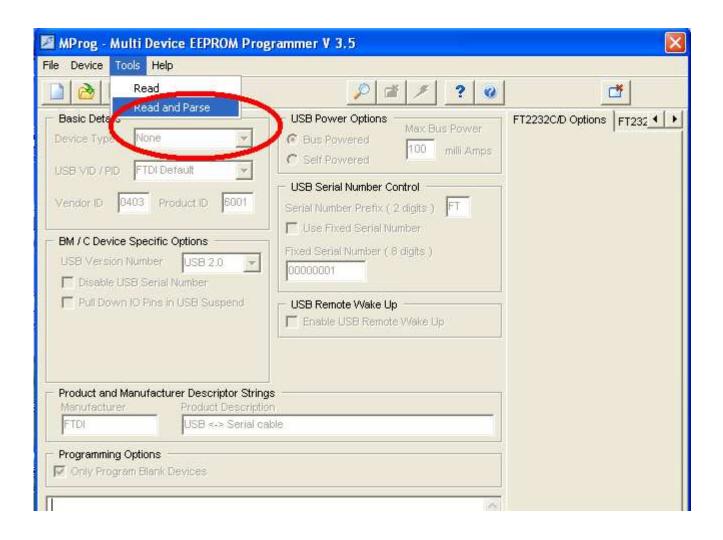
The Top16 will load a virtual com port, or not, depending on a flag set in its eeprom. To load a virtual com port, a setting must be changed using a utility called MPROG. Download MPROG from:

http://www.ftdichip.com/Resources/Utilities.htm#MProg

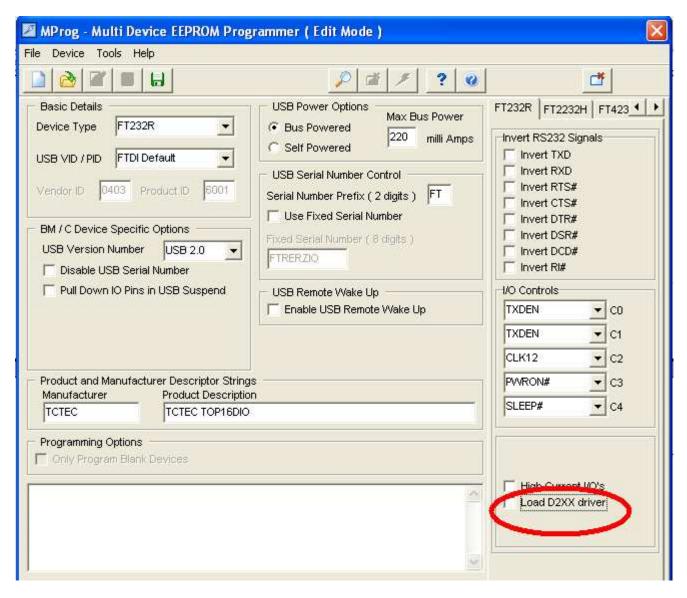
Run the MPROG utility..



With ONLY one Top16 plugged in, (and other devices such as Top16 and Super4 not plugged in) select Tools->Read and Parse to detect the connected top16:



The settings of the Top16 will be loaded and displayed, UN-Check 'Load D2XX driver' check box:



To download this new setting to the top16, the setting must first be saved to a local file.. Chose file->save as and save the file anywhere under a temporary name eg "data":

MProg - Multi Device EEPROM Prog	rammer ( Edit Mode )	
File Device Tools Help		
New       Ctrl+N	USB Power Options Bus Powered Self Powered USB Serial Number Control Serial Number Prefix ( 2 digits ) USE Fixed Serial Number Fixed Serial Number ( 8 digits ) FTRERZIO	FT232R FT22
Pull Down IO Pins in USB Suspend  Product and Manufacturer Descriptor Strings Manufacturer Product Description TCTEC TCTEC TCTEC TCTEC		I/O Controls TXDEN TXDEN CLK12 PWRON# SLEEP#

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# 5.

Download the new settings to the top16 by pressing the Program button (lightning bolt):

MProg - Multi Device EEPROM Prog	rammer ( Program Mode )	
File Device Tools Help	•	
	P 🖆 🌶 ? 📀	]
Basic Details	USB Power Options Max Bus Power	FT232R
Device Type FT232R	Bus Powered	Law and P
USB VID / PID FTDI Default	C Self Powered 220 milli Amps	Invert f
	USB Serial Number Control	Inv
Vendor ID 0403 Product ID 6001	Serial Number Prefix (2 digits)	
	Use Fixed Serial Number	
BM / C Device Specific Options	Fixed Serial Number ( 8 digits )	Inv
USB Version Number USB 2.0 💌	FTRERZIO	🗌 🗌 Inv
🔲 Disable USB Serial Number	I TT Shart Shart W	🗌 🗌 Inv
🔲 Pull Down IO Pins in USB Suspend	USB Remote Wake Up	H/O Cor
	🔲 Enable USB Remote Wake Up	TXDEN
		TXDE

## 6.

After a few seconds, a message in the bottom panel will show: Programmed Serial Number : FTR..... (the number will be unique to your device.

This means programming has completed. Shut down MPROG and unplug the top16 from the USB port.

Plug the top16 back into a USB port, it will now appear as a virtual com port. You can test using a terminal application. Ensure that the correct port settings are used:

Note: if using Hyperterminal, turn off hardware flow control and ensure ascii setup is set to display typed characters locally.

DM3 Properties Port Settings	?
Bits per second:	115200
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	Hardware
	Restore Defaults
	IK Cancel Apply

### COMMANDS

The following human readable text commands are used to communicate with the Top16. Note [CR] means Carriage return (the enter key).

# ?[CR]

Will return the firmware version (four numbers YYMMDD)

# #HHMM[CR]

- HH hex number 00 to FF to set the 8 bits of output
- MM mask (00 to FF) which outputs to affect and which to ignore (1 = output will be affected, 0 = output will be unaffected)

Returns: >IIOO[CR]

- II is a hex representation of the 8 input bits
- OO is the hex representation of the state of the 8 output bits.

# #Nn[CR]

Analog input command.

- N (Z to T) the gain to apply before reading the analog input. The gain settings are as follows: Z = 1, Y = 2, X = 4, W = 8, V = 16, U = 32, T = 64
- n (1 to 8) the input to read.

Returns: >XXXX[CR]

XXXX - The hex representation of the raw analog reading (12 bit unsigned)

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# #PnXX[CR]

PWM output command

- n The output to set (1 to 8)
- XX The pwm setting (00 to FF)

Returns:

>OK[CR]

Important Note:

When setup as a virtual comport, the top16 will not work with Top16 Manager application or provided dlls, top16.dll, or DotNet libraries.

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