# NOTICE

**One of the firmware updates in this document involves connecting and updating the front panel of the CS800. While it is not an overly complicated process, caution is required since the main radio update will not work without the front panel update, and missteps during the front panel update can render it inoperable. We have attempted to provide clear, careful instructions for users. Please read through the entire procedure and if you are uncertain of any of these steps, call us prior to beginning the update process. We are available for assistance Monday through Friday, 8:30 – 4:30 Pacific Time.**

## NOTICE – UPDATE AUGUST 13, 2015

**\*\*\* There have been reports of the front panel USB cable failing even when connected via a low amperage port. Before starting this procedure, connect the cable to your computer and let it sit unattached for 10 minutes. If it gets hot near the USB connector, <u>do not proceed</u> – call Connect Systems for a replacement cable. If it does not heat up, the cable should perform as expected. \*\*\***

DMR Series

CS800 Firmware Upgrade Guidelines (S1.01.04 Main and R1.00.02 Front Panel

Preface:

The CS800 has two MCUs, one in the main radio body and the other in the front panel, and for this version of firmware both will need to be updated. Since the front panel makes use of a Prolific USB to Serial connection and driver, it is important to verify that this connection can be made prior to updating the radio. Please read through these instructions and familiarize yourself with the required procedure, programs, and binary files to be uploaded.

## Downloading the Programs to Perform the Update

Download the ZIP file.   If you sucessufly downloaded the zip file, you should have the following programs:

| Name | Type | Compressed size | Passw |
|------|------|-----------------|-------|
| CS800_Bootloader_R2.02S | BIN File | 24 KB | No |
| CS800_FrontPanel_R1.00.02 | BIN File | 15 KB | No |
| CS800_Host_S1.01.04_080315 | BIN File | 465 KB | No |
| CS800FirmwareUpgradeGuidelines... | Adobe Acrobat Document | 344 KB | No |
| FlashBurn 2.00_CSI | Application | 1,868 KB | No |
| FlashBurn1.10_CSI | Application | 1,872 KB | No |
| MobileFrontPanelUpgradeTool R1.0 | Application | 1,643 KB | No |
| PL2303_Prolific_DriverInstaller_v1.8.0 | Application | 2,317 KB | No |

If you sucessfully unzipped the the file you should have the following:

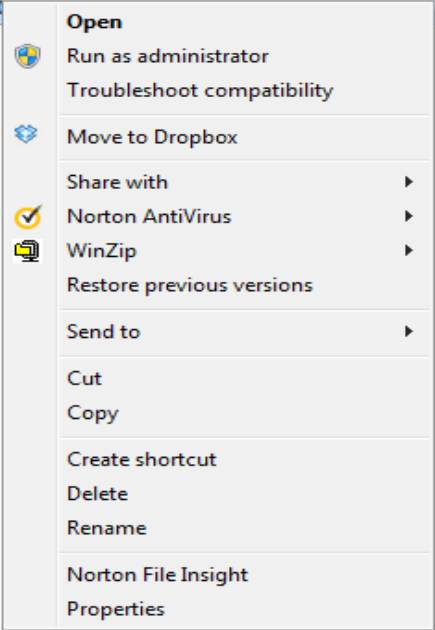| Name | Date modified | Type | Size |
|---|---|---|---|
| CS800_Bootloader_R2.02S | 8/4/2015 7:30 PM | BIN File | 25 KB |
| CS800_FrontPanel_R1.00.02 | 8/4/2015 7:30 PM | BIN File | 30 KB |
| CS800_Host_S1.01.04_080315 | 8/4/2015 7:29 PM | BIN File | 480 KB |
| CS800_Update_Package_080415 | 8/4/2015 7:18 PM | WinZip File | 8,547 KB |
| CS800FirmwareUpgradeGuidelines_080415 | 8/4/2015 7:29 PM | Adobe Acrobat D... | 359 KB |
| flashburn 2.00_csi | 8/4/2015 7:31 PM | Application | 4,632 KB |
| FlashBurn1.10_CSI | 8/4/2015 7:29 PM | Application | 4,638 KB |
| PL2303_Prolific_DriverInstaller_v1.8.0 | 8/4/2015 7:29 PM | Application | 3,098 KB |

## Prolific USB Driver Installation and Verification

1) NOTE: Some of the early batches of front panel programming cables for the CS800 can be damaged by the high current of some motherboard or backplane USB ports, so to be cautious please use the front USB port of a desktop or the USB port of a laptop.

2) Make sure the programming cable is not plugged into the computer at this time

3) Please install the USB driver by running 'PL2303_Prolific_DriverInstaller_v1.8.0.exe'. To do this find the program, highlight it with the left buttom on the mouse, and then click the left button on the mouse. You should see the following:

| Name | Date modified | Type | Size |
|---|---|---|---|
| CS800_Bootloader_R2.02S | 8/4/2015 7:30 PM | BIN File | 25 KB |
| CS800_FrontPanel_R1.00.02 | 8/4/2015 7:30 PM | BIN File | 30 KB |
| CS800_Host_S1.01.04_080315 | 8/4/2015 7:29 PM | BIN File | 480 KB |
| CS800_Update_Package_080415 | 8/4/2015 7:18 PM | WinZip File | 8,547 KB |
| CS800FirmwareUpgradeGuidelines_080415 | 8/4/2015 7:29 PM | Adobe Acrobat D... | 359 KB |
| flashburn 2.00_csi | 8/4/2015 7:31 PM | Application | 4,632 KB |
| FlashBurn1.10_CSI | 8/4/2015 7:29 PM | Application | 4,638 KB |
| PL2303_Prolific_DriverInstaller_v1.8.0 | | | 3,098 KB |

Open
Run as administrator
Troubleshoot compatibility

Move to Dropbox

Share with                      ▶
Norton AntiVirus          ▶
WinZip                         ▶
Restore previous versions

Send to                         ▶

Cut
Copy

Create shortcut
Delete
Rename

Norton File Insight
Properties

4) Click on "Run as administrator.

5) If prompted by the software, allow it to uninstall previous versions of Prolific drivers to insure that the cable will properly connect.
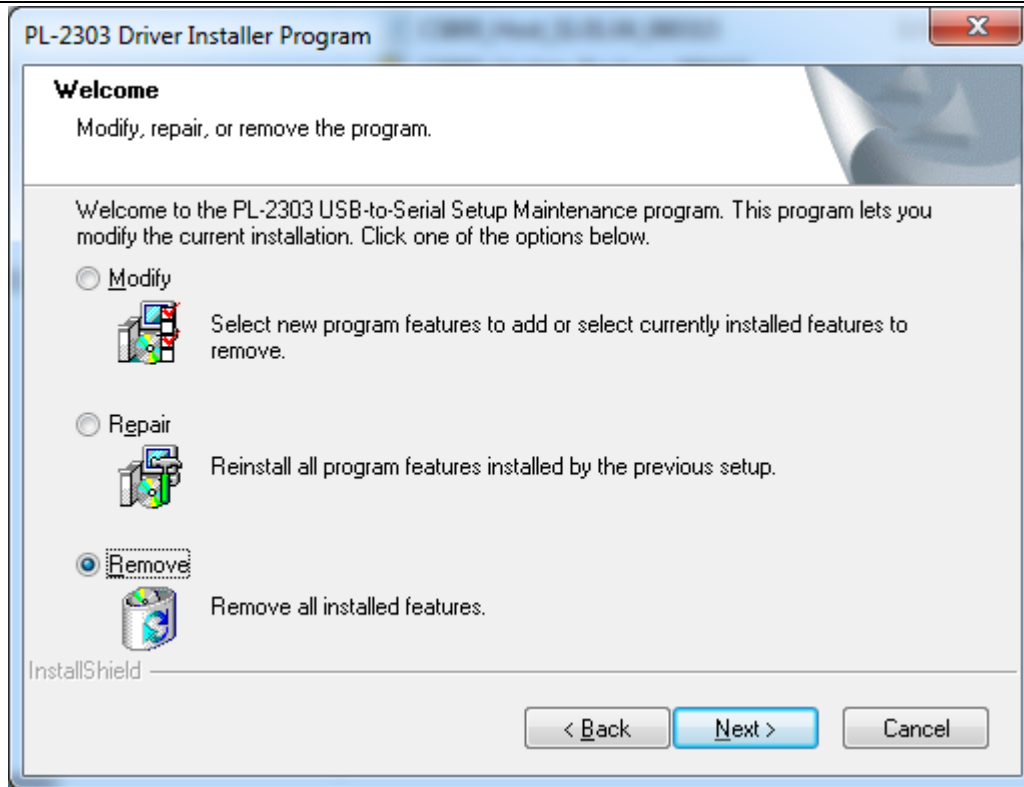
Press Nexr and if you follow the instructions it should remove the old driver and install a new driver.

6) Please insert your RJ45 programming cable on the front USB connector of your desk computer or any USB connector of your laptop for one or two minutes (to verify that the USB to UART conversion IC runs correctly).

7) Click your computer's 'Start' button, find 'Computer' and right click.
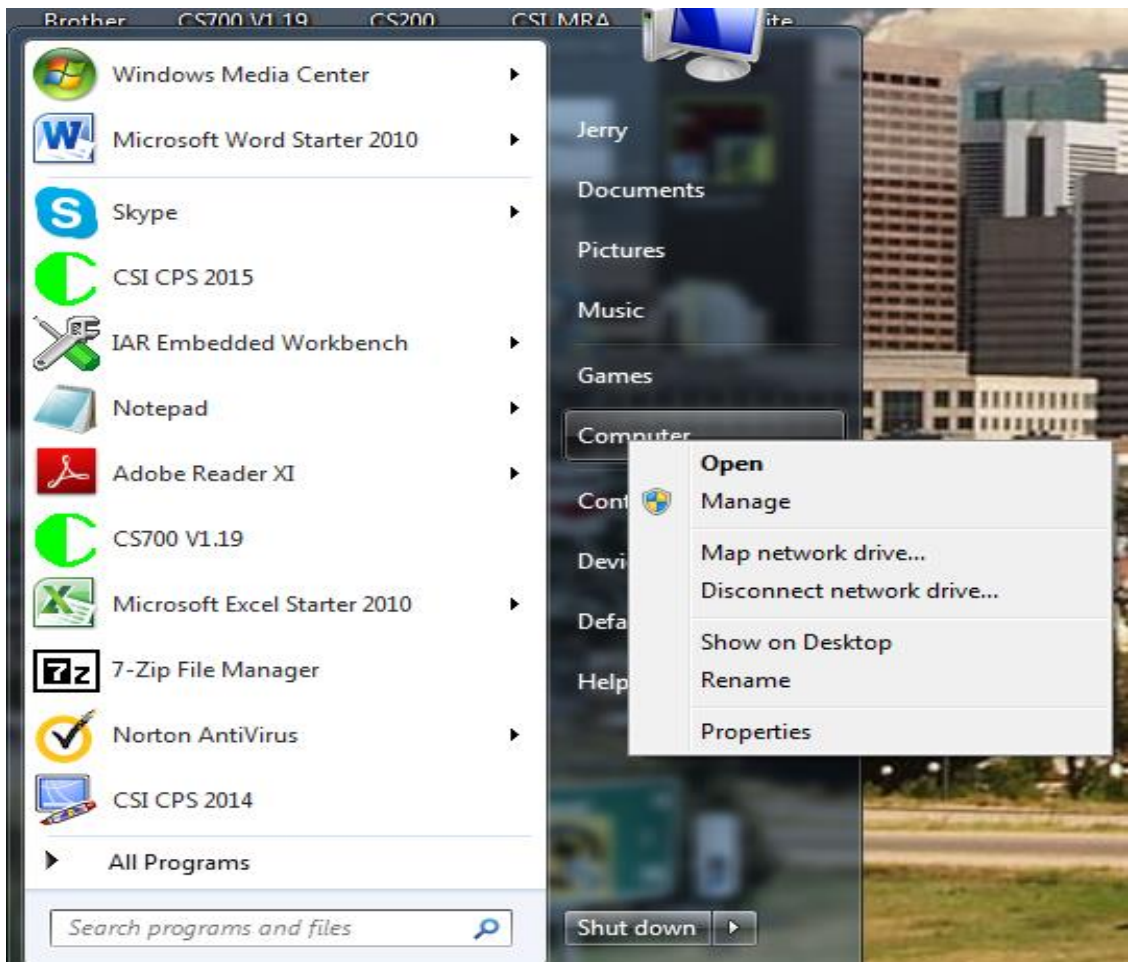
8) Double Click Manage with the left button and you now get the following:
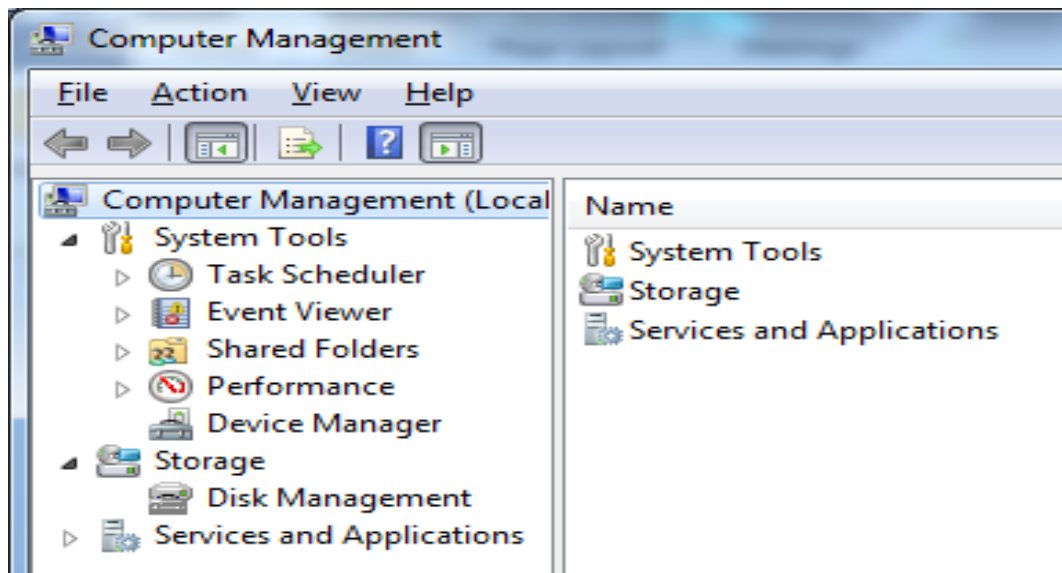


9) Double Click 'Device Manager', and you get:
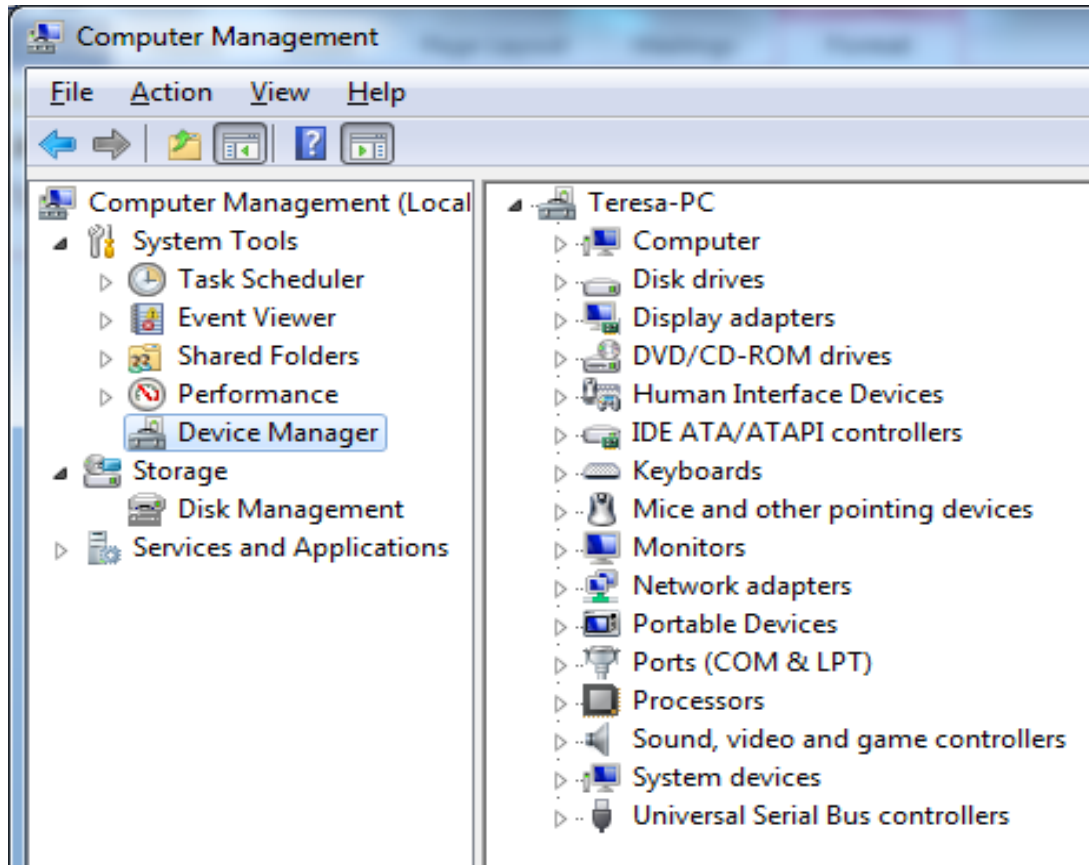
10) expand the 'Ports (COM & LPT)' menu, and find 'Prolific-USB-to-Serial Comm Port (COM#)'. Make a note of the COM port # as it will be needed later in the upgrade program.
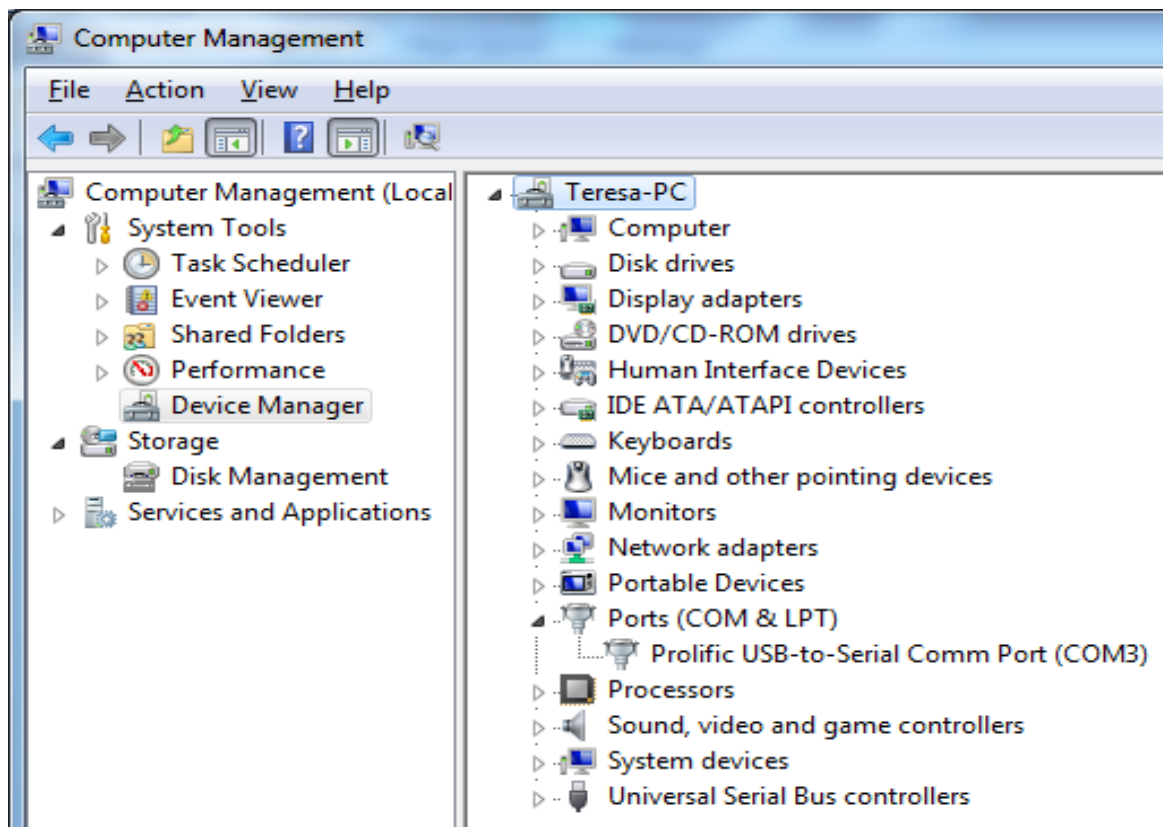


Note in this computer it says COM3

11) Right click 'Prolific-USB-to-Serial Comm Port (COM#)' and select 'Properties'.
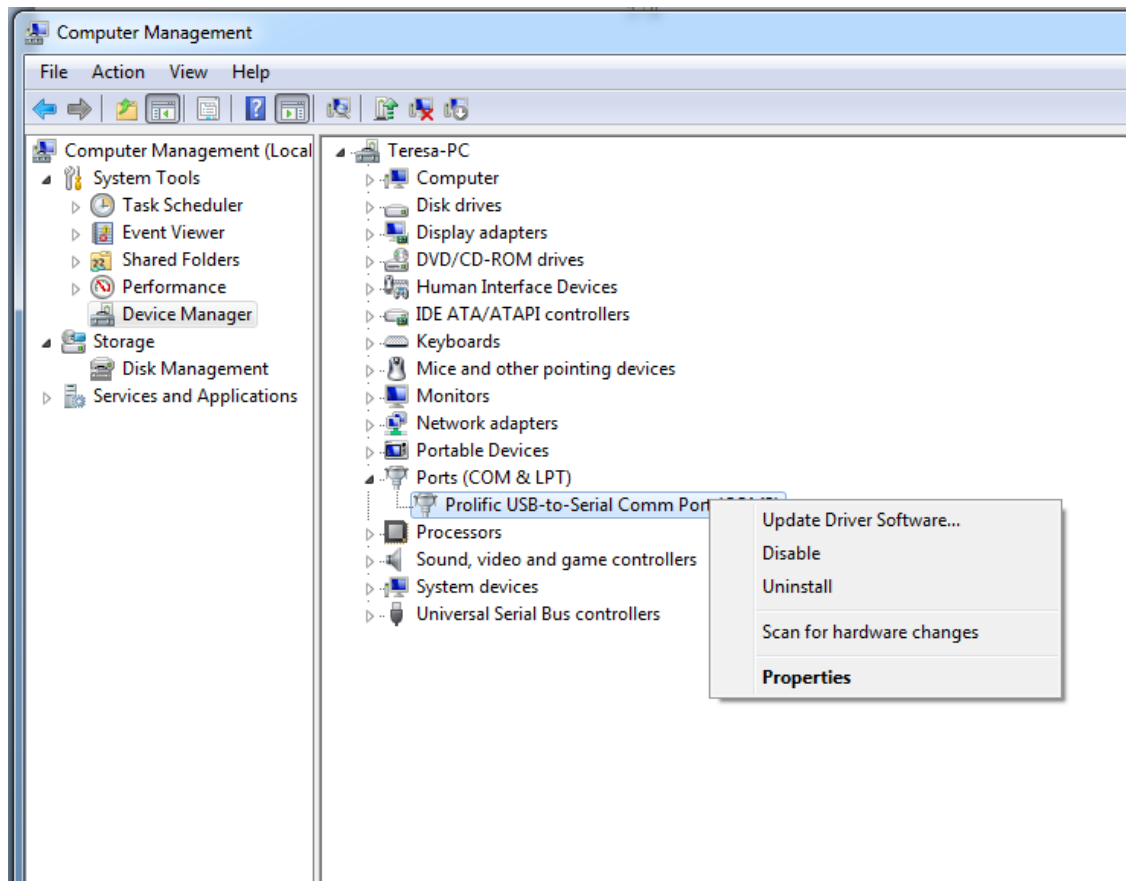


12) Select the 'Port Settings' tab and change the 'Bits per second' value to 19200. Click the 'Driver' tab and verify that the version is 3.6.78.350. Click the OK button and close Device Manager.

**Prolific USB-to-Serial Comm Port (COM3) Properties**

General | Port Settings | Driver | Details

Bits per second: 19200

Data bits: 8

Parity: None

Stop bits: 1

Flow control: None

Advanced... | Restore Defaults

OK | Cancel

---

**Prolific USB-to-Serial Comm Port (COM3) Properties**

General | Port Settings | Driver | Details
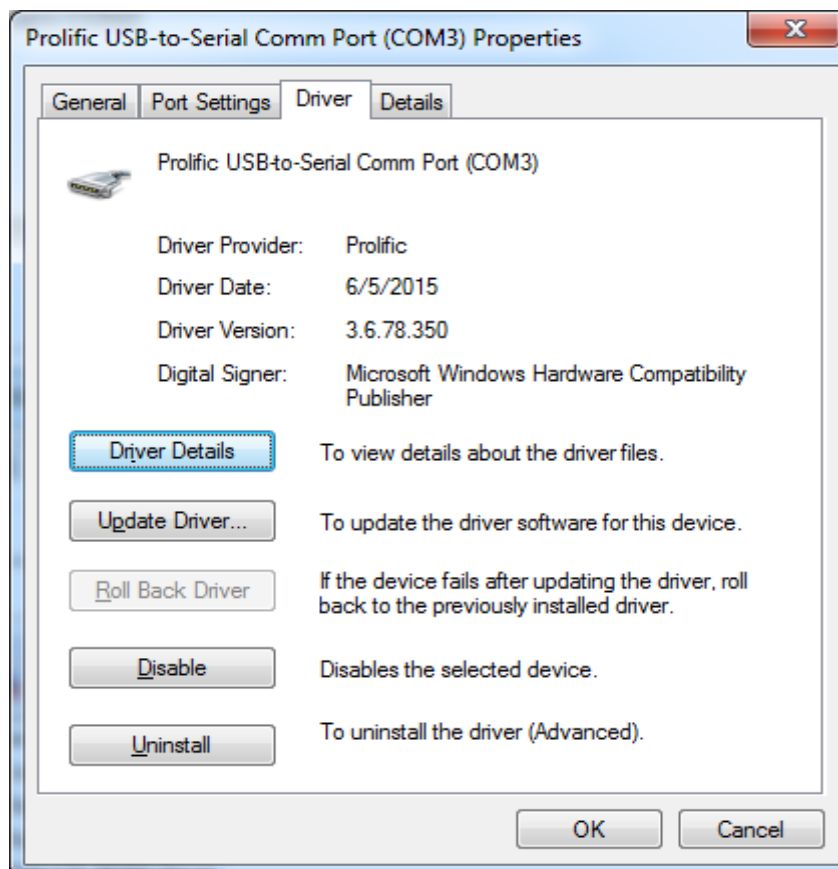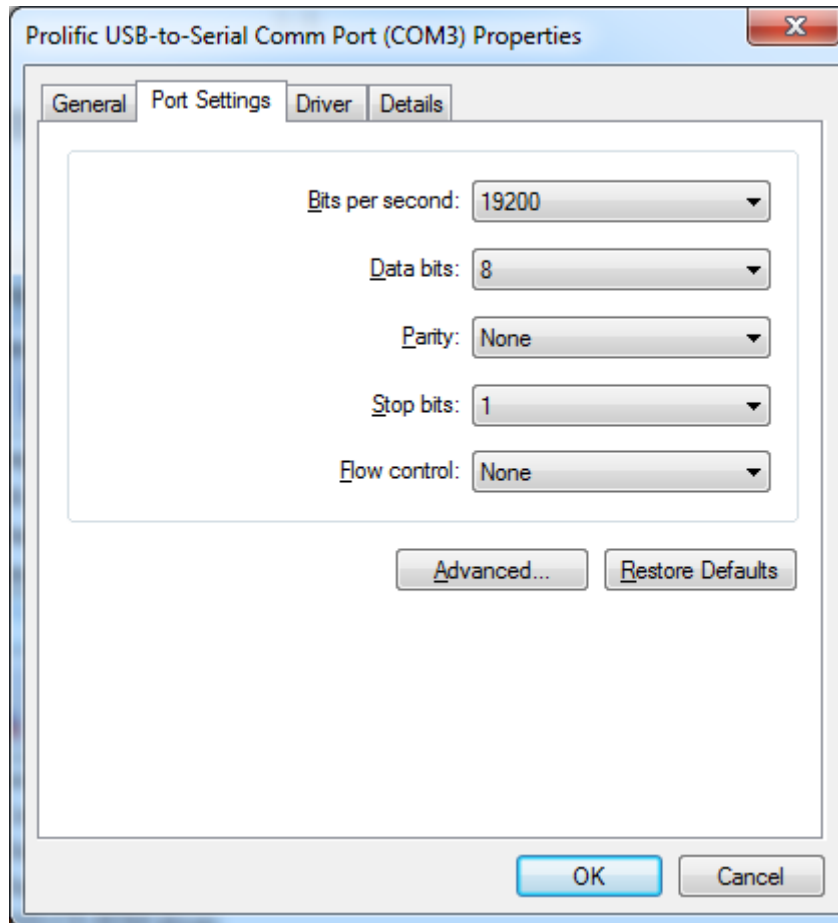
Prolific USB-to-Serial Comm Port (COM3)

Driver Provider: Prolific

Driver Date: 6/5/2015

Driver Version: 3.6.78.350

Digital Signer: Microsoft Windows Hardware Compatibility Publisher

Driver Details — To view details about the driver files.

Update Driver... — To update the driver software for this device.

Roll Back Driver — If the device fails after updating the driver, roll back to the previously installed driver.

Disable — Disables the selected device.

Uninstall — To uninstall the driver (Advanced).

OK | Cancel

13) If the driver version does not match the number above, click the 'Update Driver' button, the 'Browse my Computer' selection, and 'Let me pick from a list …' selection.
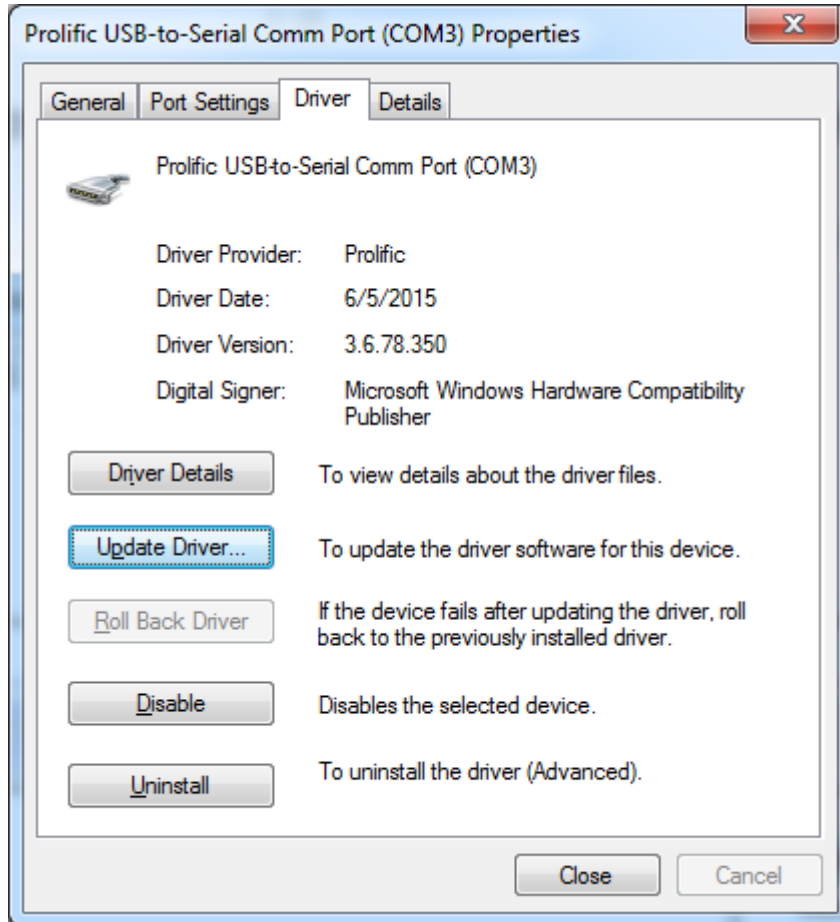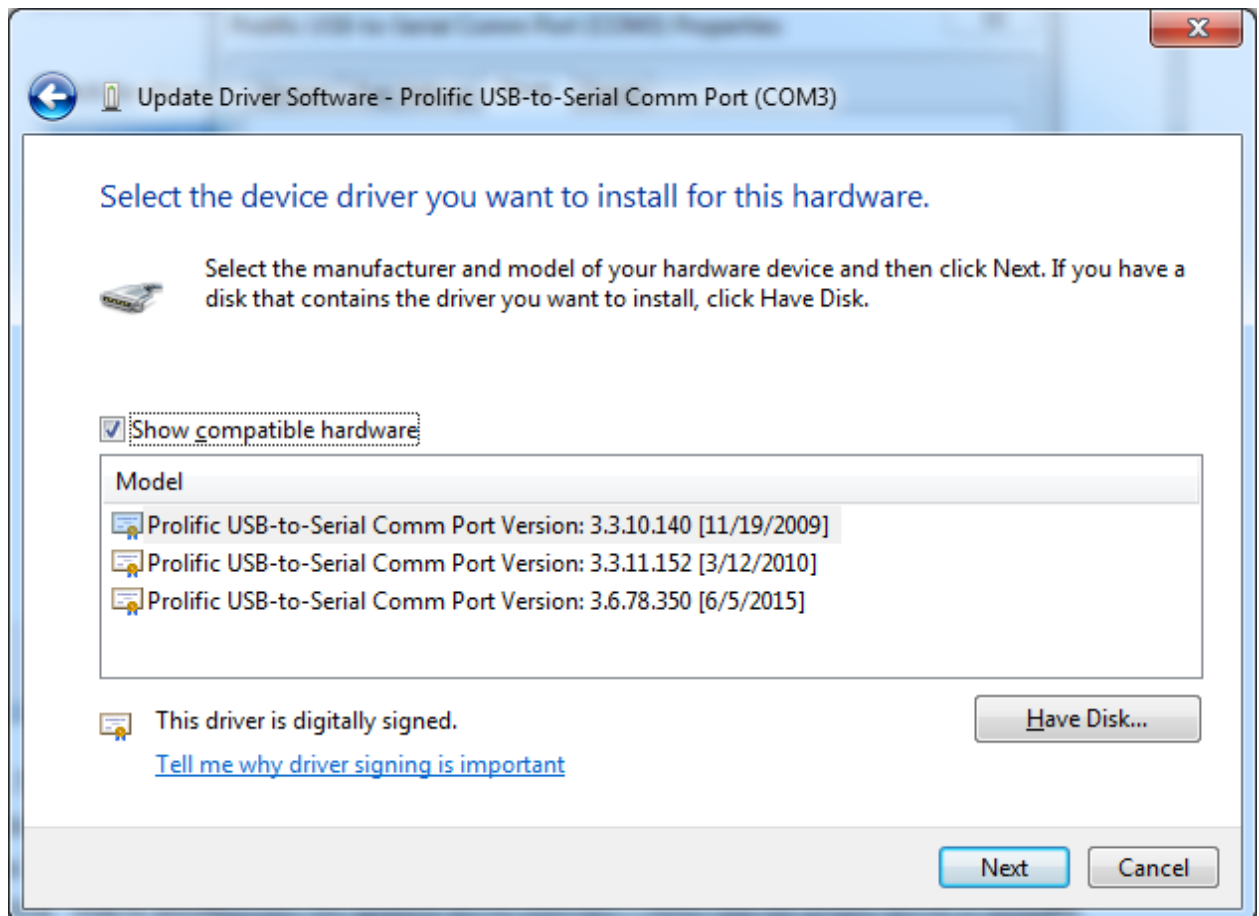
If 3.6.78.350 is available in the displayed list, highlight it and select 'Next'. Clicking next will install

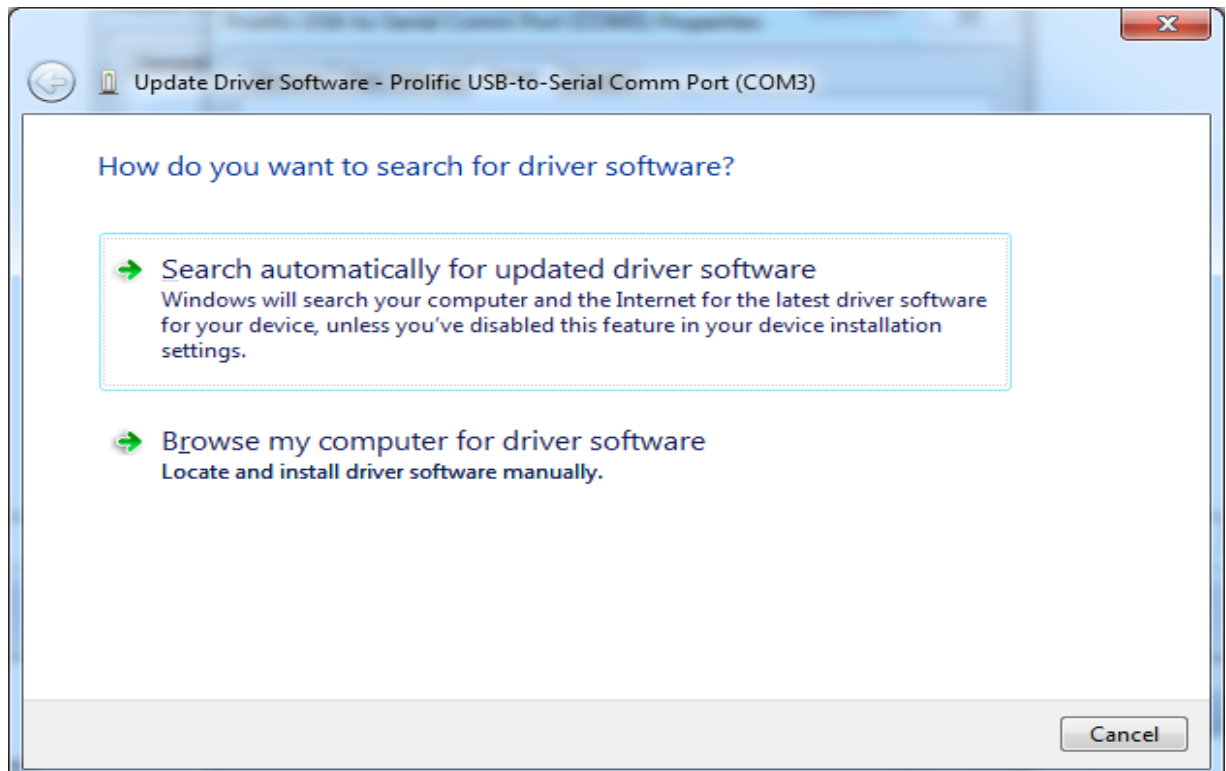the driver.    If it is not available in the list, click 'Cancel' to return to the Device Manager screen, right click on 'Prolific-USB-to-Serial Comm Port (COM#)' and select 'Properties' again, click the 'Driver' tab, 'Updat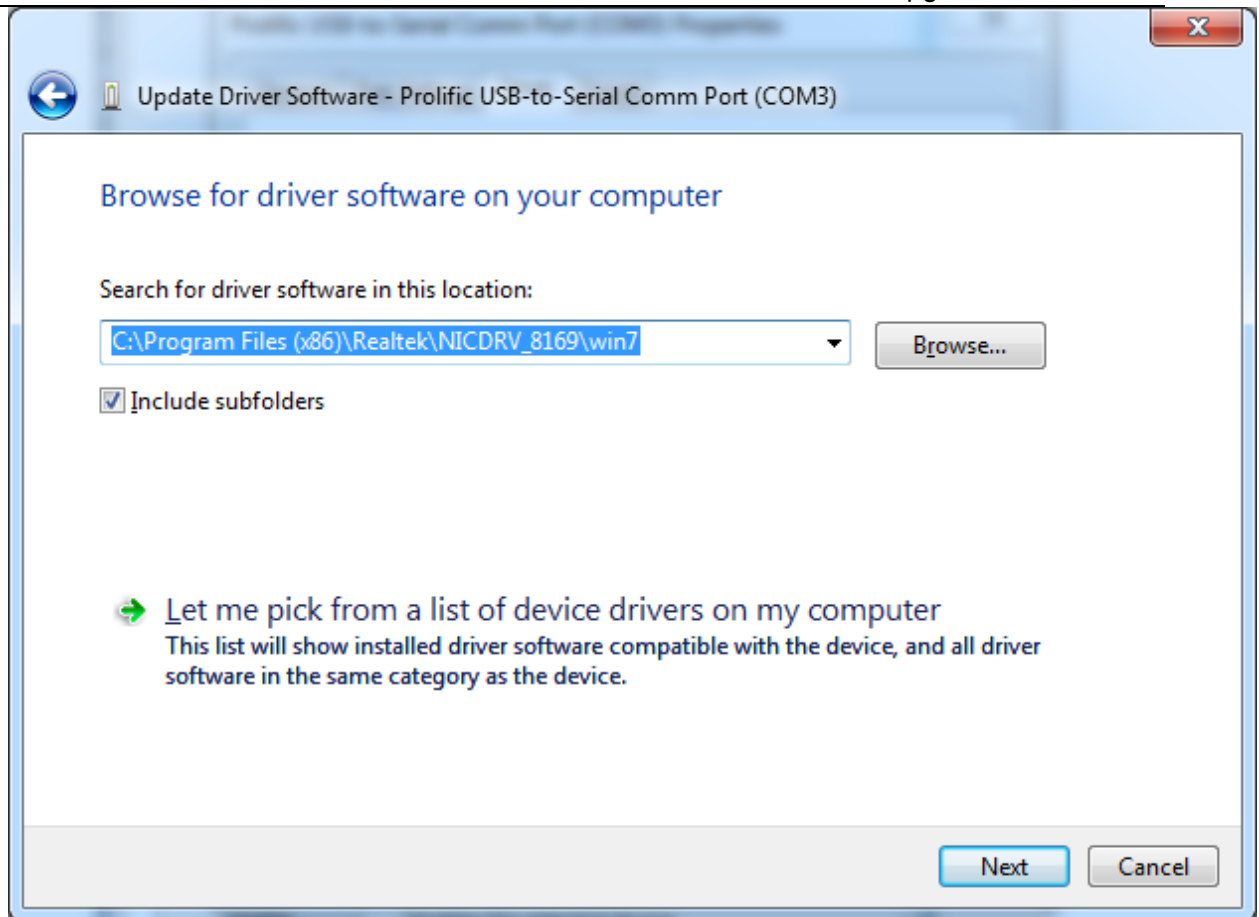e Driver', and this time click 'Search automatically for updated driver software'. Verify that the proper driver is installed, confirm the COM port # and bits per second value, and exit Device Manager. You can leave the front panel update cable plugged into the USB port for the update process, or remove it if there is only one port available.

14) If the correct driver cannot be obtained, you should not proceed with the updates as there will be control problems if the Main MCU is updated but the Front Panel MCU is not. Please call Connect Systems for support to assist you with updating your CS800.

## For the CS800 Main MCU

To begin, there is an important update to the bootloader software to provide differentiation between CS radios to avoid the inadvertent loading of CS750 firmware into a CS800. Please start by upgrading the bootloader to R2.02S using the FlashBurn1.10_CSI program. Once that is complete, you will use FlashBurn2.00_CSI for the firmware and all future updates.

1) Connect your Mobile and PC with the DB15 programming cable. Run 'Flashburn1.10_CSI.exe', and then press the 'P1 and Power Key' to power on the CS800. The LED should flash red and green and the software should indicate that the device is connected. Load 'CS800_Bootloader_R2.02S.bin', and then click the Flash button to start the update.
After completion, please power off the radio and then power on. When there are characters shown on the front LCD, please power off the radio again. This process will backup the bootloader to its proper memory address.
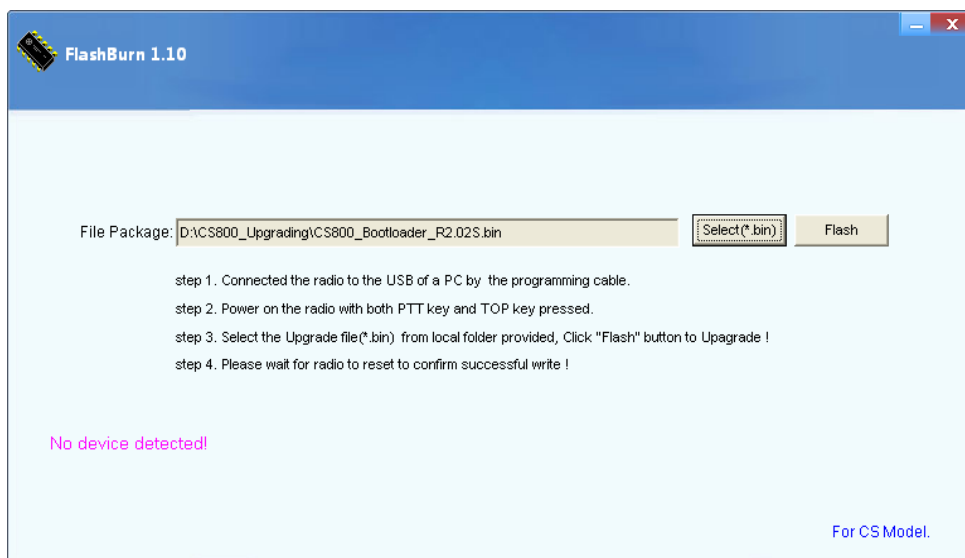
2) Run 'Flashburn2.00_CSI.exe' and then press the 'P1 and Power Key' to power on the CS800 again. Load 'CS800_Host_S1.01.04_080315.bin', and then click the Flash button. After completion, please power off the radio and disconnect the DB15 cable. This completes the update to the main MCU.



# For the CS800 Front Panel MCU

1) Please insert your RJ45 programming cable on the front USB connector of your desk computer or any USB connector of your laptop for one or two minutes (to verify that the USB to UART conversion IC runs correctly).

2) Press and hold P7 (do not spin) and then press 'Power', the RED LED will be lit and the front MCU will enter 'Program Mode'



3) Run 'MobileFrontPanelUpgradeTool R1.0.exe' and set the correct serial port and baud rate (based on the information you obtained in step 5 of the driver installation procedure. Click the '…' button in the 'MCU Rewrite' field and load 'CS800_FrontPanel_R1.00.02.bin'. Click the 'Flash' button in the same field to run the update. Please keep the radio and cable on a firm, stable surface to avoid inadvertent disconnections during the update.
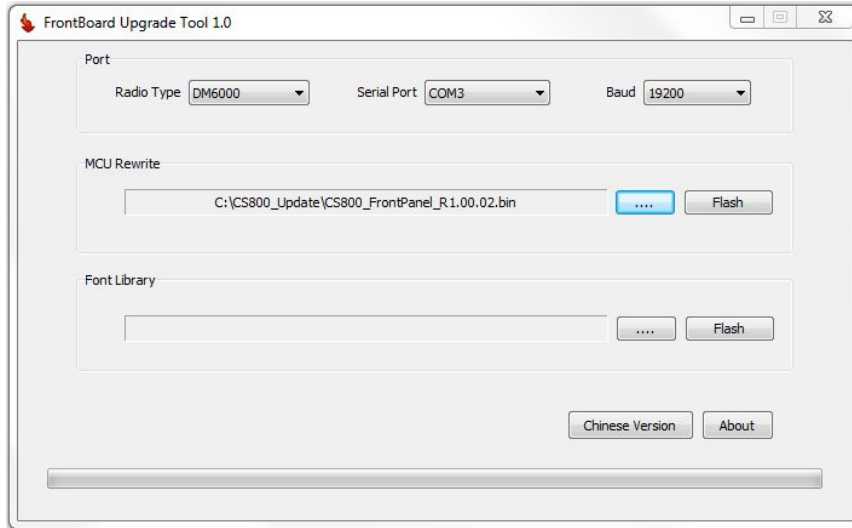
4) After the 'Upgrade Success' prompt from the PC, you can press the POWER key to power off the radio, disconnect the cables, and then power on it to check. Please note you need to upgrade the mobile MCU before you can operate the front panel keys, as there has been a change to the protocol of the key-values.