I.   Introduction

This is a user guide for installing the PCU-1000 controller graphical user interface (GUI) and the required driver for the application. It also contains operating instructions for the GUI, antenna file, and firmware download, and for clearing COM ports.

II.   GUI and driver installation

1.   JMA tech support

   • Toll Free: +1-888-201-6073
   • techsupport@jmawireless.com

2.   For system requirements, see *Table 1*, below.

| Software specifications	
Windows operating system supported:	Windows XP thru Windows 10
USB-485 window-based VCP driver:	FDTI Window x64 2.08.28 WHQL certified
	http://www.ftdichip.com/Drivers/VCP.htm

Table 1 – Software specifications

3.   Uninstall any previous version of the **JMA_AISG_RET** controller.
4.   Install the GUI first, then the driver. To install the GUI, run the setup file. *Figure 1* is just an example; the rev could be different.
5.   Follow the setup wizard and click **Next**, then **Install**. Allow the installation, and click **Finish** to complete the installation.

Fig. 1 – Welcome screen for installation
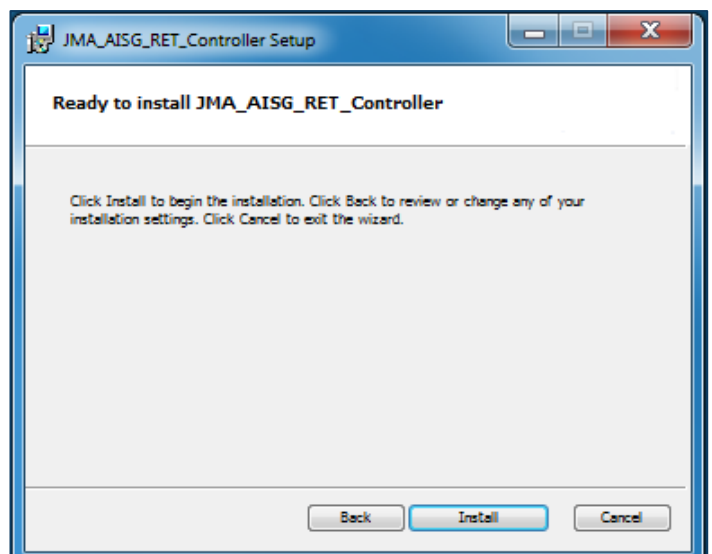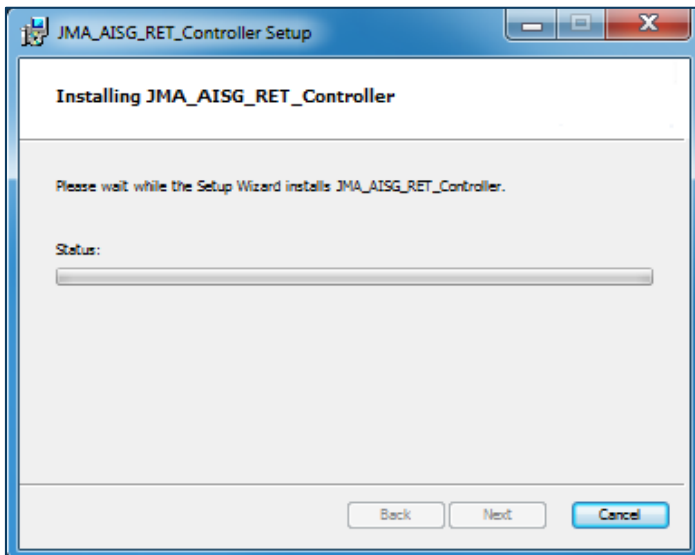

Fig. 2 – Beginning the installation

Fig. 3 – Installing the JMA software

Fig. 4 – The installation completed

6. The remote electrical tilt (RET) controller GUI icon will be automatically installed on your desktop. **Do not launch the RET controller GUI yet**.

7. Install the driver for the GUI.
    • If the driver was already installed from a previous version of the GUI, no need to install the driver again.
8. Run the CDM exe file per below.
    • Right-click on the driver file name and select **Run as Admin** if you have admin rights.
    • Extract, if the wizard indicates. You may need to repeat before the wizard starts.
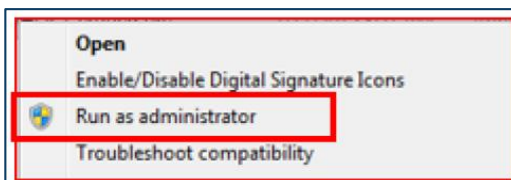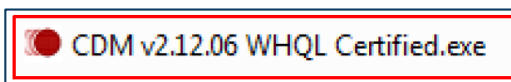
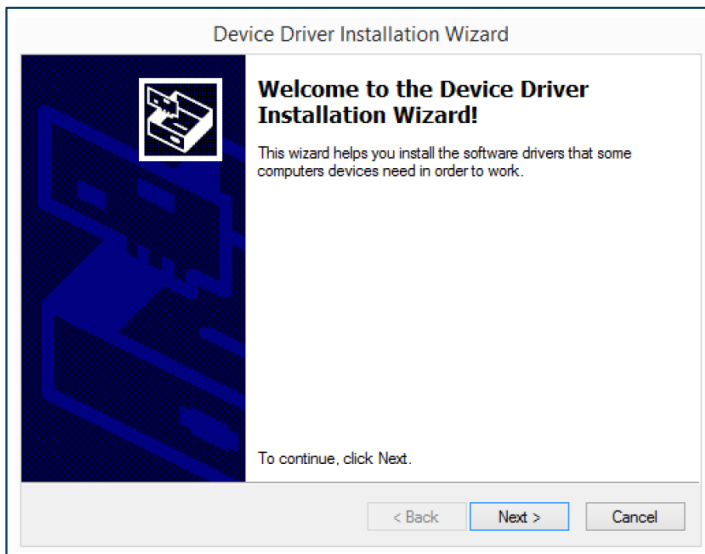9. Follow the installation wizard shown in *Figures 5* and *6*. Click **Next** for each window.

Fig. 5 – Device driver installation wizard

Fig. 6 – Device driver installation wizard completed

10. If any problems occur, please go to http://www.ftdichip.com/Drivers/VCP.htm to select the proper driver file for your operating system.

11. Restart your PC.

III. GUI display and functions

1. First, connect power to the PCU-1000. Then connect the USB cable from the PCU controller to the computer's USB port.
    - If the USB device (PCU-1000 controller) is being plugged in for the first time, the computer may need time to install the driver to recognize the USB cable. Allow time for this to process.
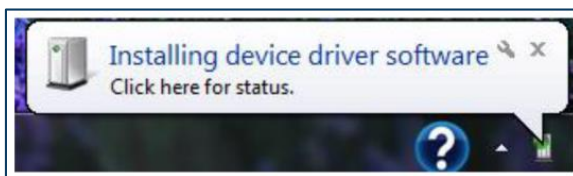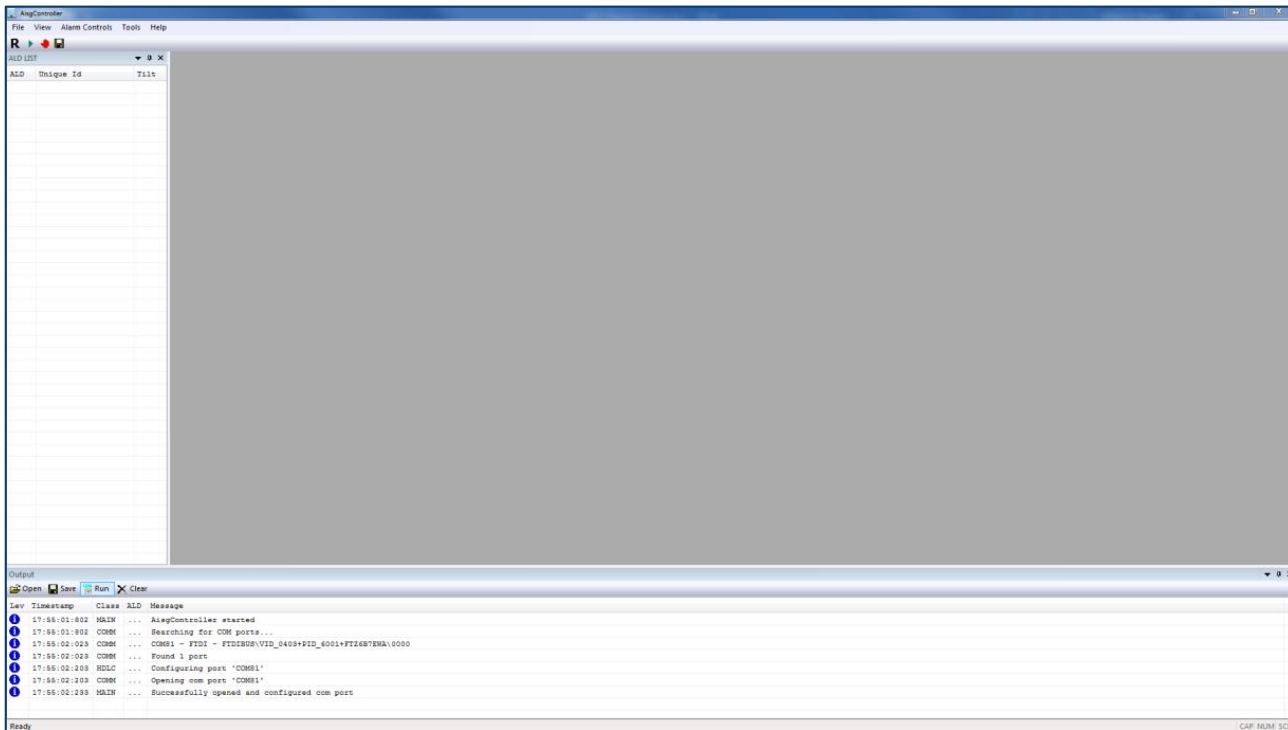

    - **If all COM ports are used, go to "Clearing COM ports," Section VII, page 14, of this user guide.**

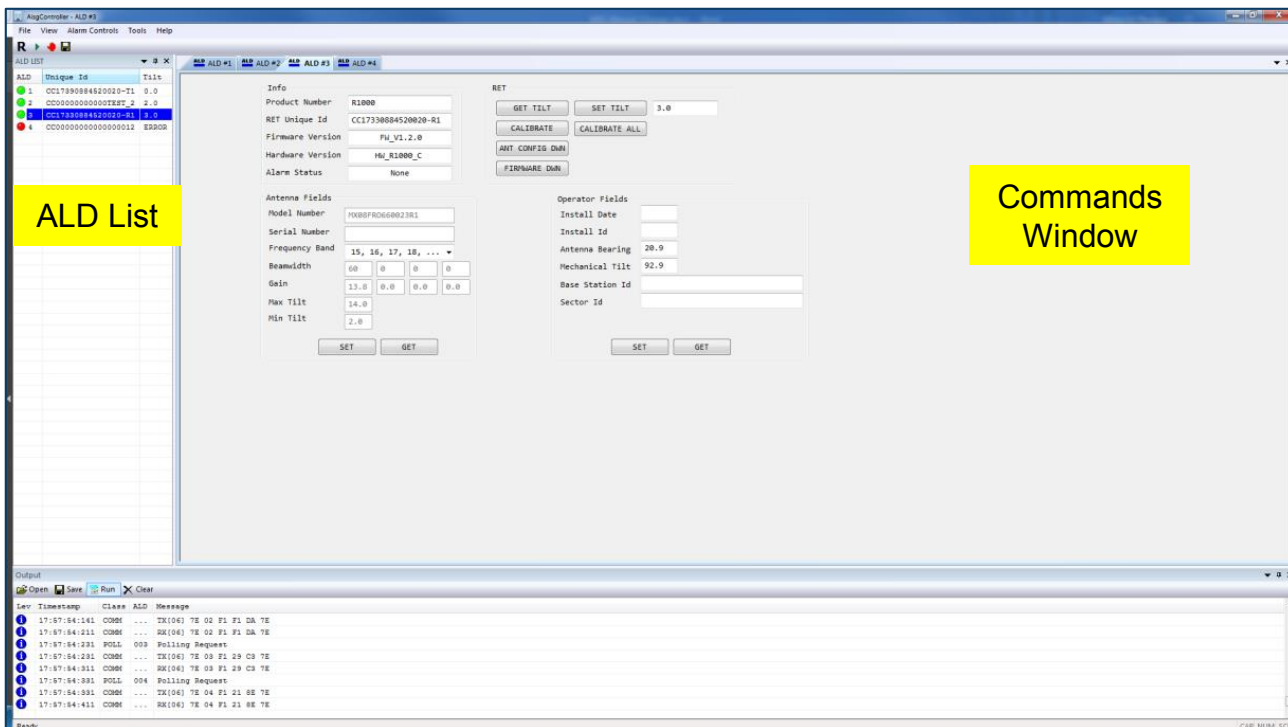2. Launch the GUI from the shortcut on your desktop.

3. When launching the GUI, the screen or window display will first look like *Figure 7*.
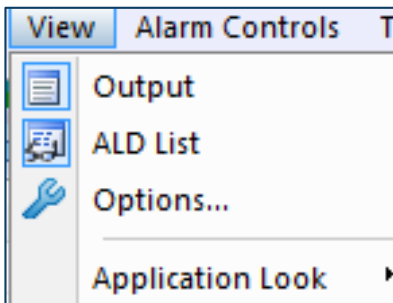

Fig. 7- Blank Commands and ALD List before antenna information

4. When you scan, the window will begin to populate, as represented in *Figure 8*.

Fig. 8 – Commands Window and ALD List with antenna information

5.   If you accidentally close the ALD List or Output windows, or change it to where it no longer displays like *Figure 8*, go to **View** and select **ALD List** or **Output**. See *Figure 9*.

Fig. 9 – Options selections

6.   Below are the various command buttons for RET operations.

   a.   Bus reset button to clear the device list for a new scan.

   b.   Scan button to scan for ALDs.

   c.   Stop scan.

d.   For device selection, use the ALD list or the ALD tabs.

ALDs under the ALD list could have four different states that are indicated by colored circles in the column labeled **ALD**.

🔴   Red indicator means ALD is in ALARMED status.

🟢   Green indicator means ALD has no ALARMS.

🟡   Yellow indicator means ALD is CALIBRATING.

⚪   Gray indicator means ALD is disconnected.

Tools	Help
Reconnect Device	
L7 Software Reset	
Get All	
Clear All	
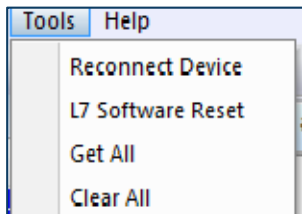
e. Go to the "Tools" menu and click **Get All** to get all the data, or **Clear All** to clear the RET data.

f. If ALD has lost connection, clicking **Reconnect Device** will reconnect that ALD.

AisgController

⚠ Reconnected ALD#1 Successfully

OK
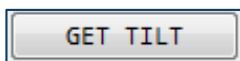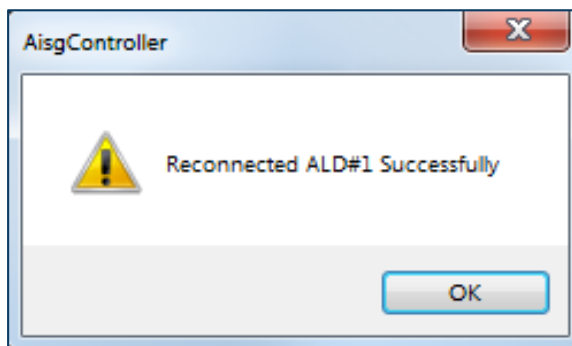
GET TILT

SET TILT

g. **Set Tilt** sets the tilt within the min/max range. **Get Tilt** will tell the position of the tilt. Set button will change to "moving" when a set tilt is in progress.
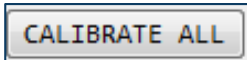
h. For operator data such as Antenna Serial Number, Base Station, and Sector Id, etc., see *Figure 10*.
Note: For NWAV antenna models (internal R1000 RET system), the antenna serial number is automatically populated, and not editable.

Antenna Fields

Model Number	MX08FRO660023B2			
Serial Number				
Frequency Band	15, 16, 17, 18, ... ▾			
Beamwidth	60	0	0	0
Gain	19.0	0.0	0.0	0.0
Max Tilt	9.0			
Min Tilt	0.0			

SET   GET

Operator Fields

Install Date	
Install Id	
Antenna Bearing	0.0
Mechanical Tilt	0.0
Base Station Id	
Sector Id	

SET   GET
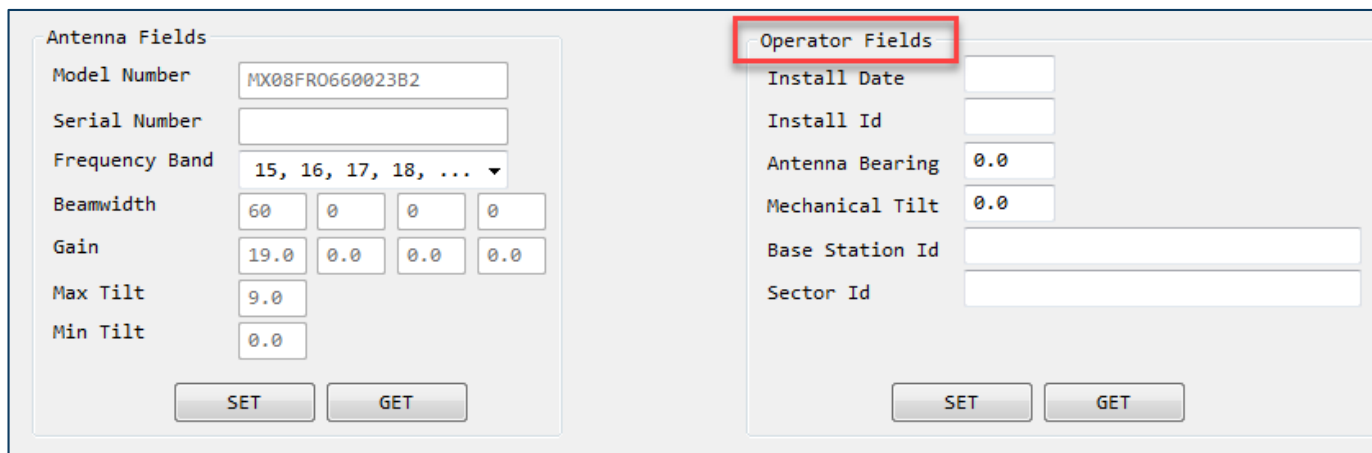
Fig. 10 - The antenna and operator field window.

CALIBRATE ALL

i. This button will calibrate all ALDs beginning with ALD#1.

j. This icon is for saving the report in .txt or .csv formats for the devices from the ALD list. See *Figures 11* and *12*.
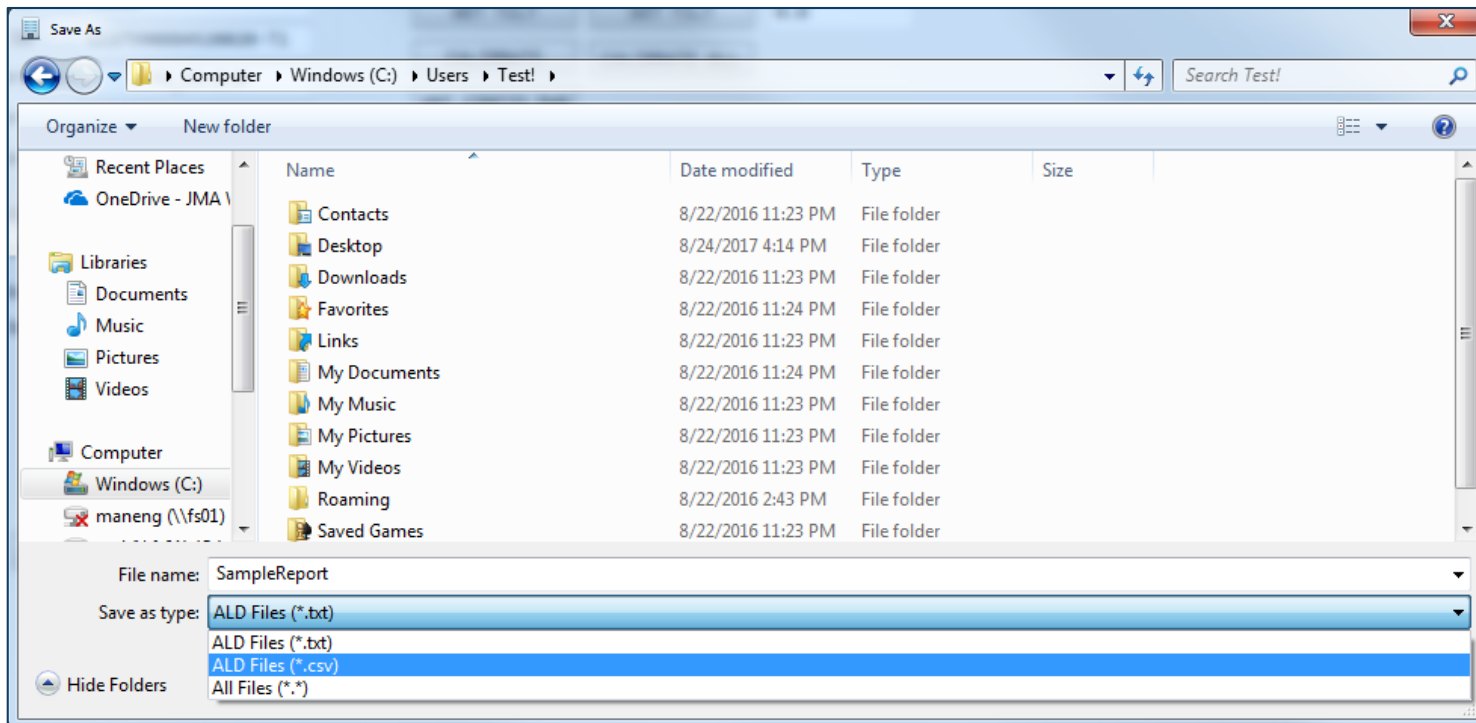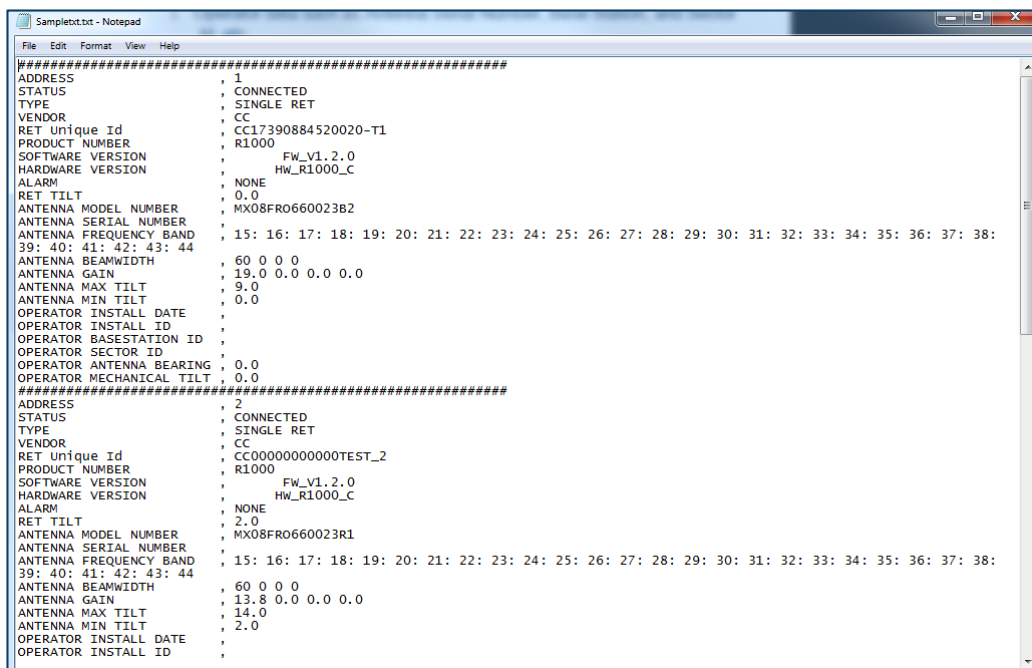

Fig. 11 – Save as .txt or .csv

Fig. 12 – Sample RET report

IV. RET system & GUI operation

1. Follow the connection diagram in *Figure 13* which shows the various R1000 system diagram connections to the PCU-1000 controller and PC.
   - Homerun AISG cable to RET
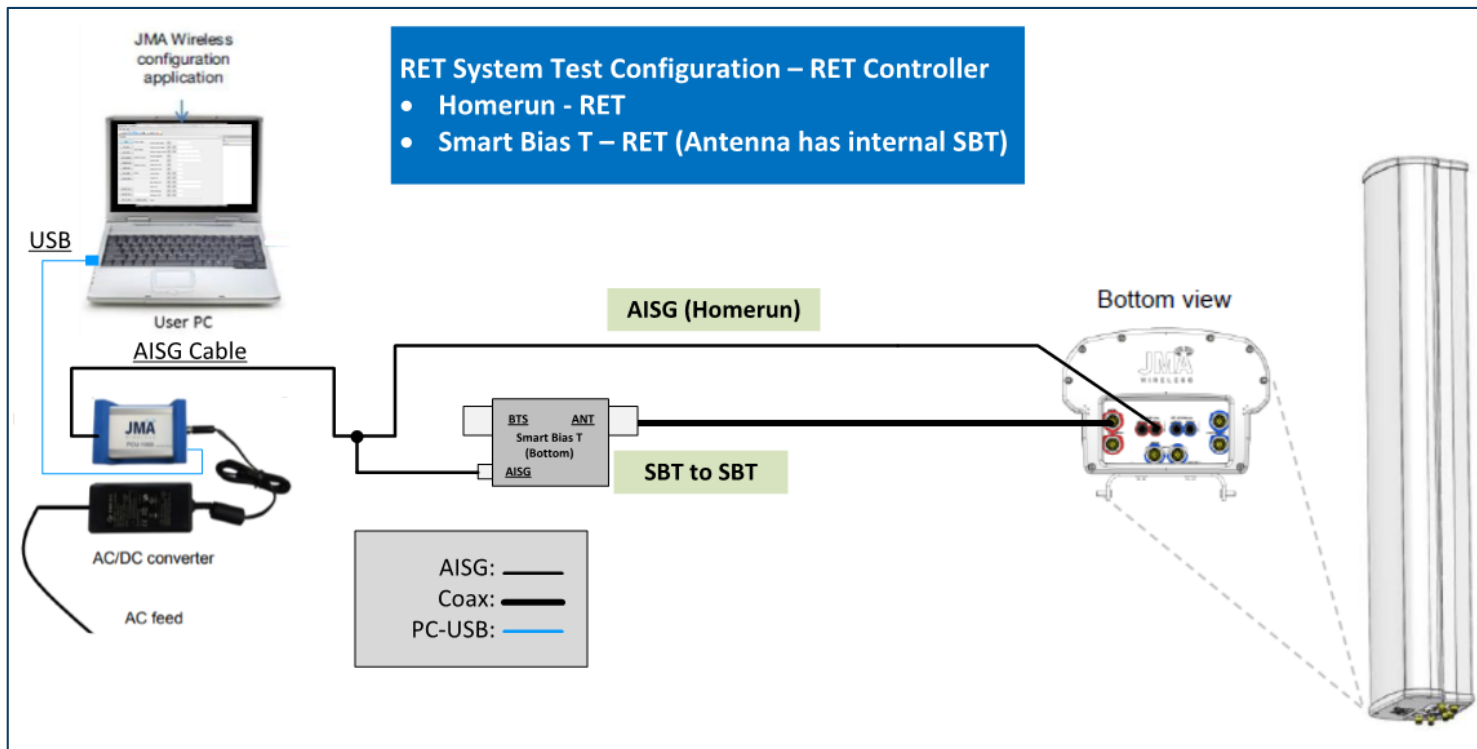   - Smart Bias T to RET

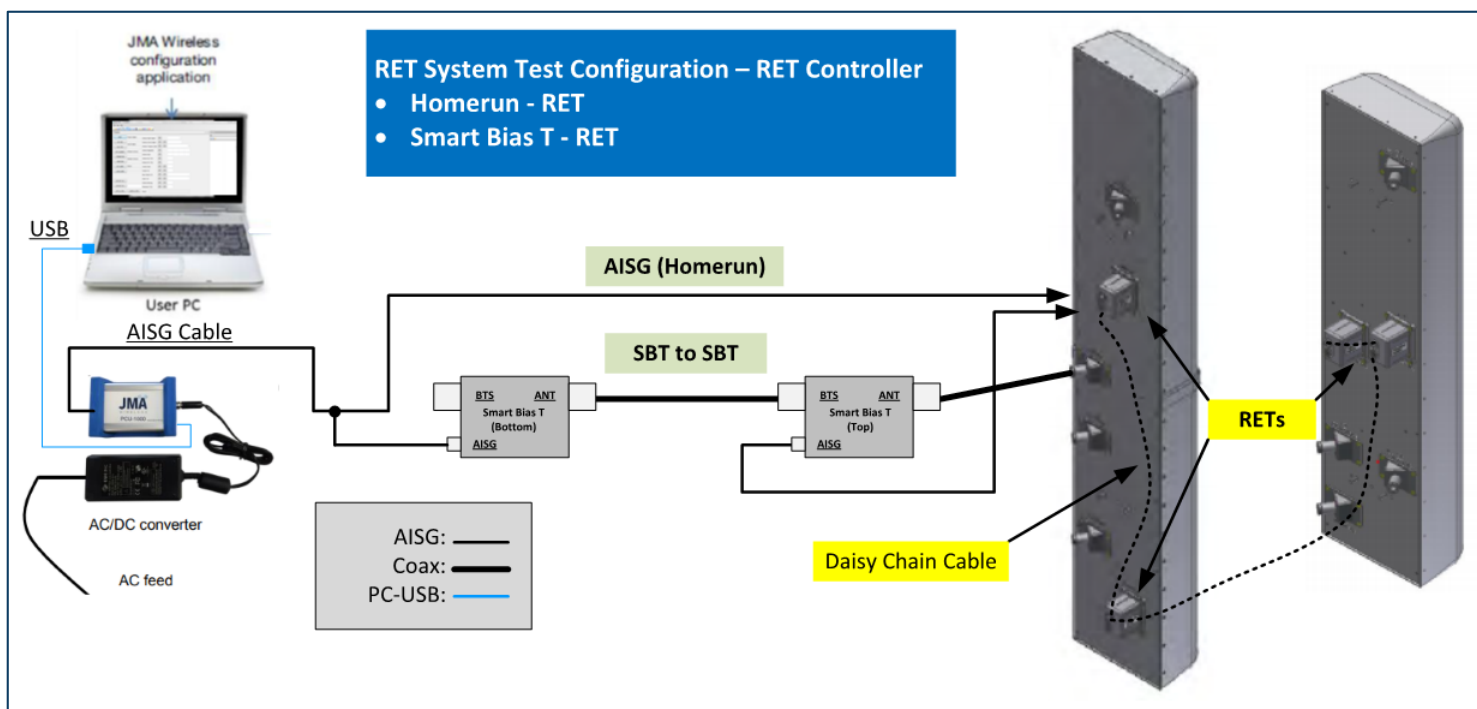*Fig. 13 – Connection diagram for RET-1000 system (NWAV antennas)*

2. Note the RET firmware version and serial number in *Figure 14.*

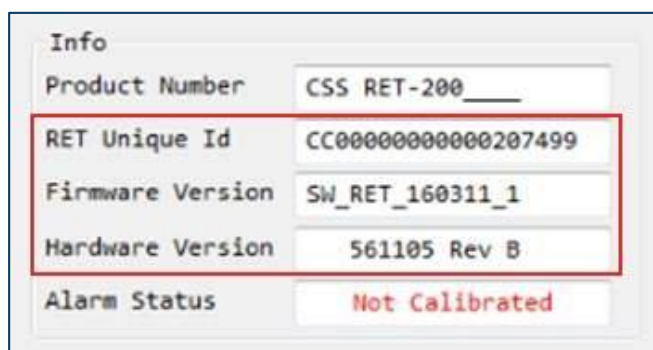*Fig. 14 – RET-1000 firmware version and serial number*

3. Follow the connection diagram in *Figure 15* which shows the various RET-200 system diagram connections to the PCU-1000 controller and PC.
   - Homerun AISG cable to RET
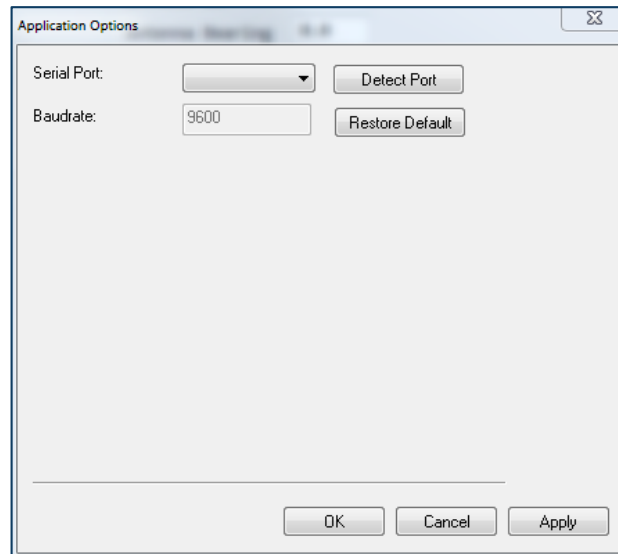   - Smart Bias T to Smart Bias T to RET

Fig. 15– Connection diagram for RET-200 system

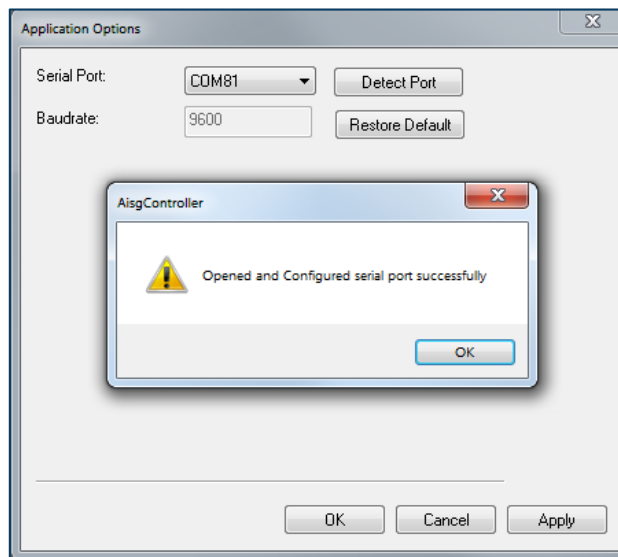4. Note the RET firmware version and serial number in *Figure 16*.

Fig. 16 – RET-200 firmware version and serial number

5. If you need to verify the COM assignment, go to **View** and select [🔧]. Next, click on the COM# to the right of "Serial Port." See *Figure 17*.
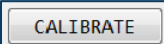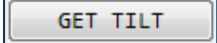

Fig. 17 – Application options

• Do NOT click on [Detect Port]. This works when ONLY one RET is connected.

Fig. 18 – Successful PCU-1000 detection

6. Always perform a bus reset prior to starting a scan by clicking the **R** icon.

7. Click the "Scan" button ▶ to scan for RETs (ALDs).

8. After the scan is completed, the list of devices will show in the **ALD List** view.

9. Select the ALD you want to control using the **ALD List** or by clicking on the **ALD# tab**, and the corresponding ALD information will load in the Command window.
   - GET ALL will also read from the device and load ALD fields.
   - Verify that the antenna model is correct; if not, refer to "ACF download," Section V, page 13, for instructions to load the correct antenna file.

10. Calibrate the RET by clicking CALIBRATE

11. Set/get the tilt within the min/max range: SET TILT GET TILT

12. Verify that the results show "Success" and verify that there are no alarms in "Alarm Status" under info group. See *Table 2* on the next page for alarm lists.

13. Configure the operator data such as Antenna Serial#, Base Station Id, and Sector Id, etc. Click **Set** for configuring.

14. This icon is for saving the report in .txt or .csv formats for the devices from the ALD list. See *Figure 19*.
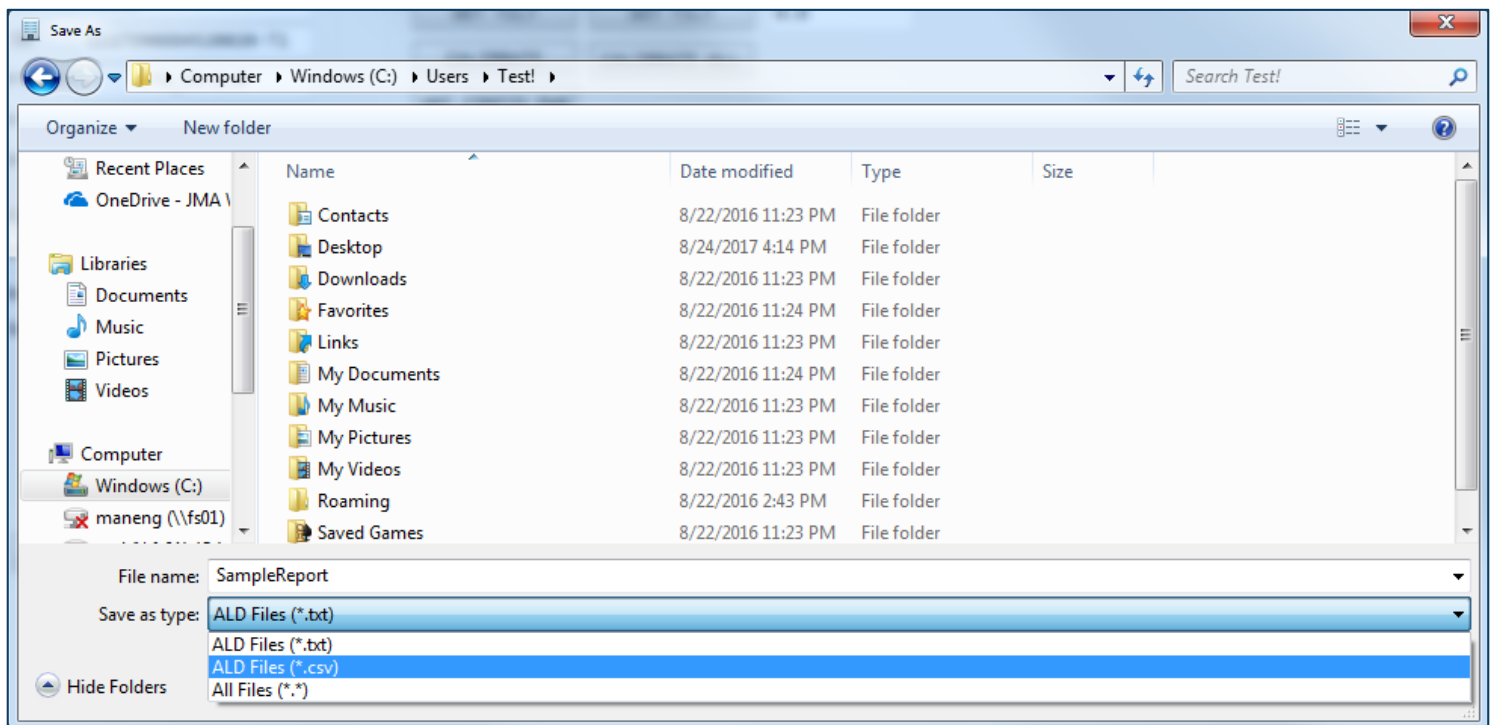

Fig. 19 – Save as .txt or .csv

15. Alarms are listed below in *Table 2* with recommended actions.

Basic alarm	Reason	Corrective action
Not calibrated	Antenna is in an un-calibrated state. This can be caused by ACF download, power cycle during motor movement, or an invalid tilt was set.	Run the Calibration sequence.
Busy	The RET is busy processing another command.	Allow the active command to complete.
Motor/actuator jam	The RET was unable to move properly during a Calibration or Set Tilt command.	1. Ensure the proper antenna configuration file is loaded in the RET. 2. Run the Calibration sequence. 3. If the problem persists, contact technical support.
Out of range	An invalid tilt value was set.	1. Run Calibration sequence. 2. Set the tilt to a valid number within the range shown for max/min tilt.
Read only	User trying to write data to a read-only field.	No corrective action. Fields cannot be changed by user.

Table 2 – Alarm list and corrective actions

V. Antenna configuration file (ACF) download

1. RET configuration files can be obtained from our website or by contacting JMA tech support.

    • Toll Free: +1-888-201-6073
    • techsupport@jmawireless.com
    • www.jmawireless.com

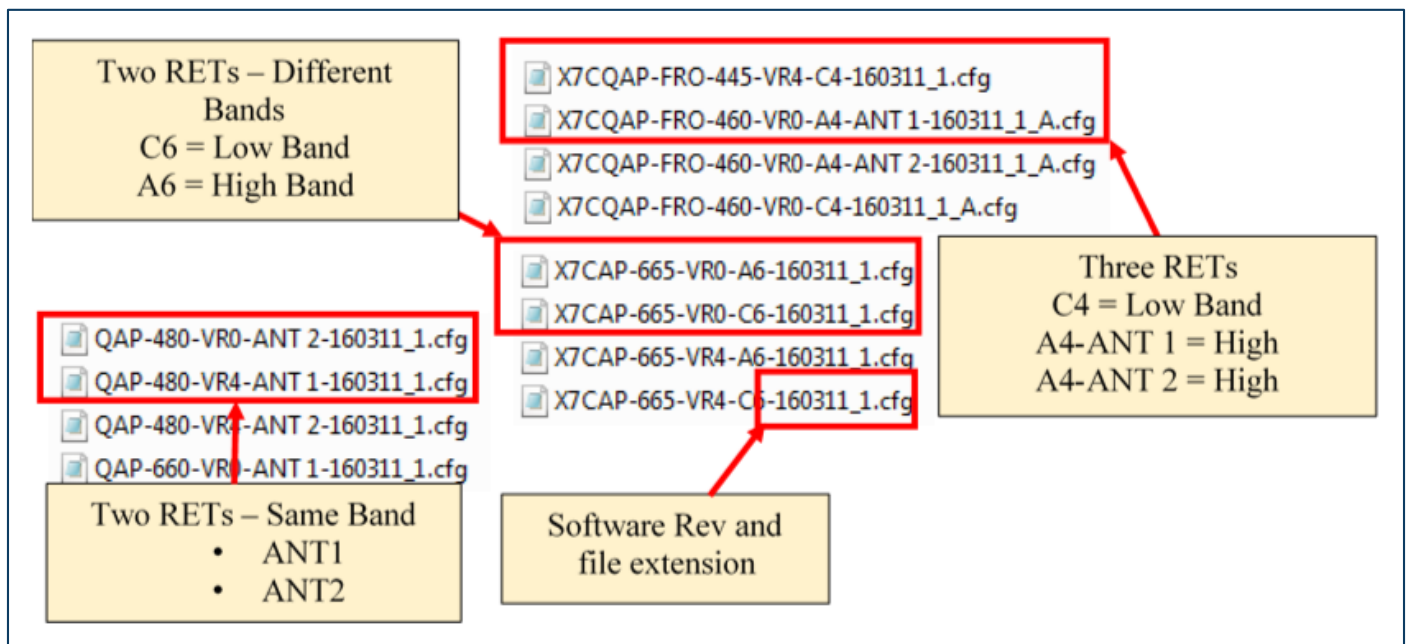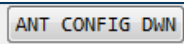2. ACF selection is based on antenna model, frequency band, and RET firmware rev. See *Figure 20* for an example.


Fig. 20 – ACF selection guide

• Antenna models with one RET will only have one file.
• If antenna models have two or three RETs:
  ▪ For different bands, one for low and one for high band:
    ➢ A is High Band file (Remember A for AWS)
    ➢ C is Low Band file (Remember C for Cell)
  ▪ For two of the same bands:
    ➢ -1 is for Ant 1
    ➢ -2 is for Ant 2

3. Click on [ANT CONFIG DWN] – ACF load button.
4. Browse for the antenna configuration file.
    • Software **Versions 140727_A** or **140727_B** are in .txt format and are NOT compatible with motors having **Version V160311_1**.

[QAP-480-VR0-ANT 1-140727-A.txt]   [QAP-480-VR0-ANT 1-140727-B.txt]

- Software **Version V160311_1** is in .cfg format and is NOT compatible with motors having **Versions 140727_A** or **140727_B**.

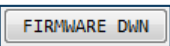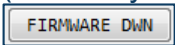X7CAP-665-VR0-A6-160311_1.cfg
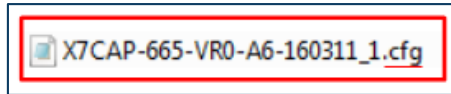
5. Verify the firmware version of the motor, as shown in the GUI, to select the correct CONFIG file. Examples below.

Firmware Version: SW_RET_160311_1

Firmware Version: CSS_140727_B

Firmware Version: CSS_RET_140727_A
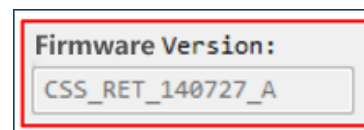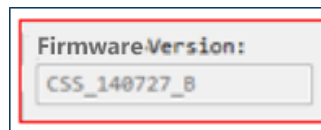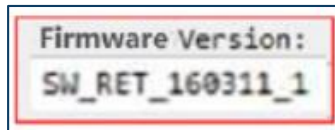
6. In the folder, select the antenna file per the selection guide in Section V: step 2, referring to *Figure 20* as necessary.
7. Double click on the antenna file or click **Open** to load to the RET.
8. The "Antenna Model Number" will update to the new file.
9. Calibrate the RET.
10. Set Tilt. Done.

VI. RET firmware download

1. Click on FIRMWARE DWN
2. Browse for the new firmware file.
3. Double click on the firmware file or click **Open** to load to the RET.
4. DOWNLOAD will change to "Downloading."
5. This will take approximately 5-6 minutes to load (32000 bytes).
6. When completed, the button will change back to FIRMWARE DWN
7. Done.

VII. Clearing COM ports

1. For additional support, go to this link:
   - The link below has the same instructions, so you can use it to copy the commands and paste them in Command Prompt. You won't be able to copy the commands from this user guide since it is in PDF.
   - http://answers.microsoft.com/en-us/windows/forum/windows_xp-hardware/how-do-i-clear-com-ports-that-are-appearing-as-in/0c3a3e6c-5623-4d93-ba89-124399d90448

2.   Right-click **Command Prompt** in Accessories and choose **Run as Administrator**. See *Figures 21* and *22*.
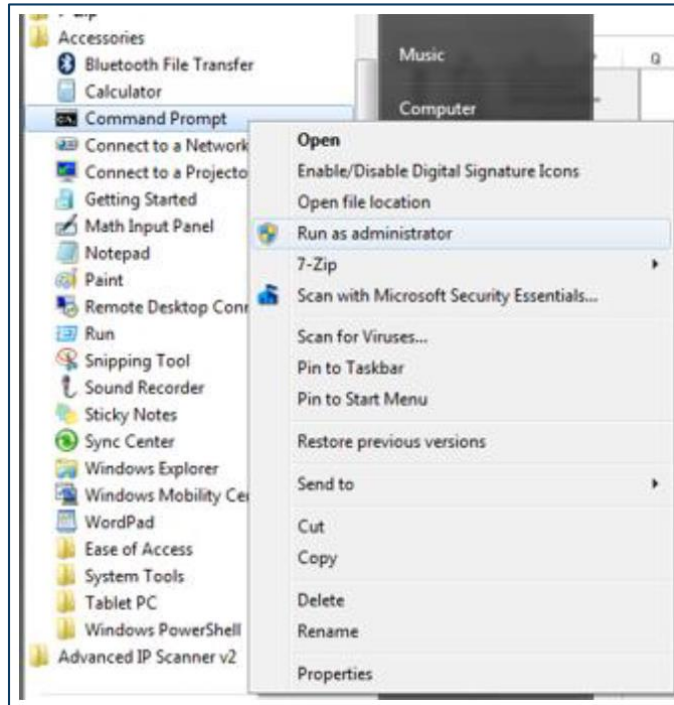

Fig. 21 – Accessories – command prompt selection
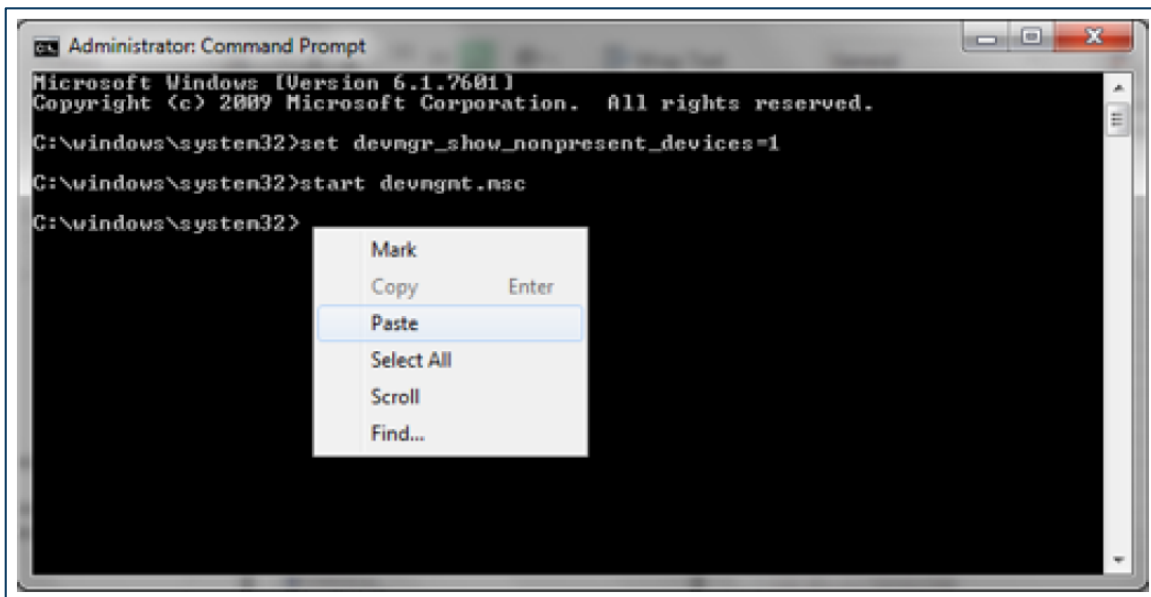
Fig. 22 – Command prompt

- Copy the commands below without the quotes and paste (right click) in the Command Prompt. This will prevent misspelling.
- Enter "set devmgr_show_nonpresent_devices=1″ without the quotes.
- Enter "start devmgmt.msc" without the quotes.

3. In the box that opens, select **Show hidden devices** in the **View** menu. See *Figure 23*.
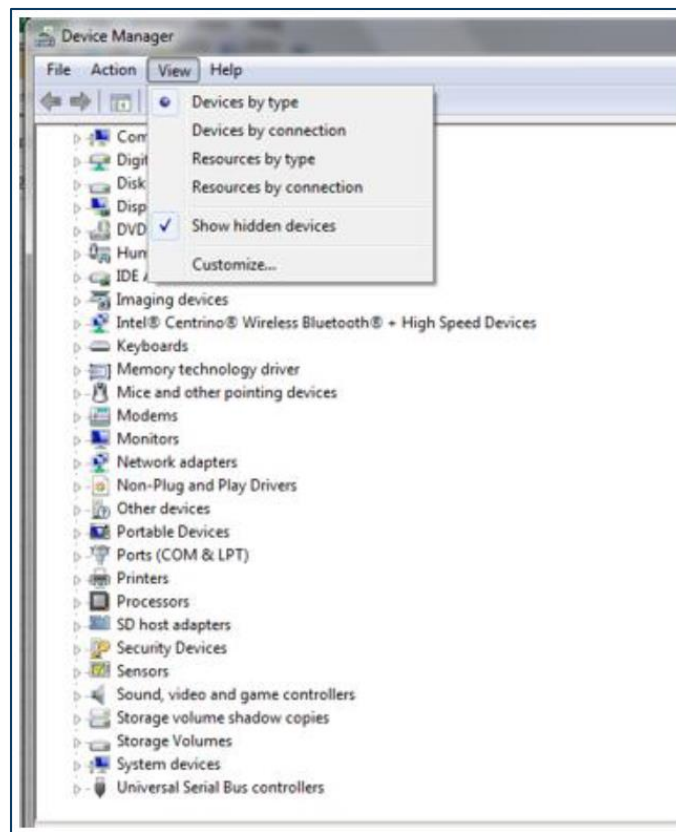
Fig. 23 – Device manager view selection

4. If you expand the section on COM ports, all the COM ports that have ever been created will be displayed, the non-present ones being in gray. You can uninstall anything that you don't want (right click, select **Uninstall**). See *Figure 24*.
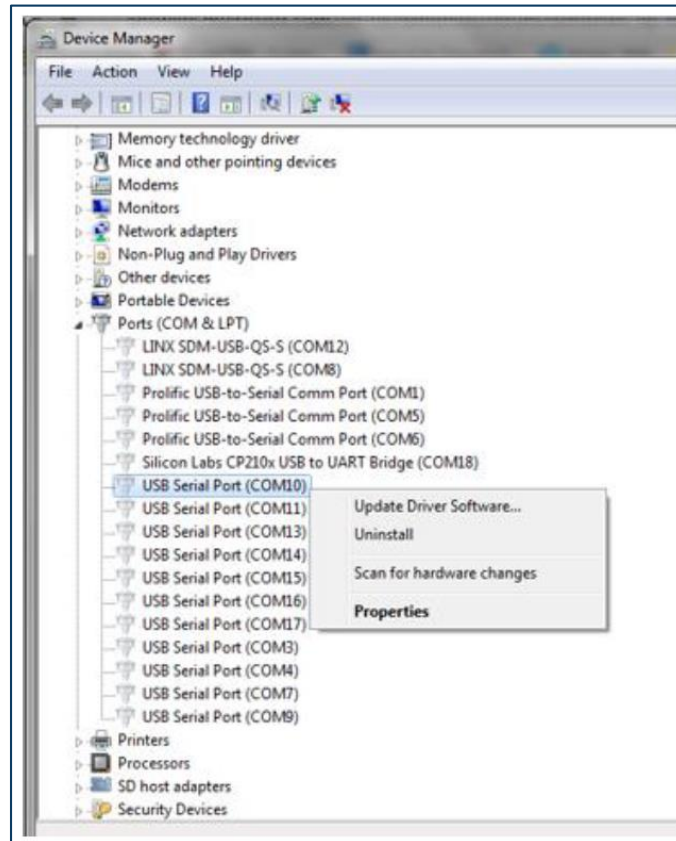
Fig. 24 – COM port uninstall