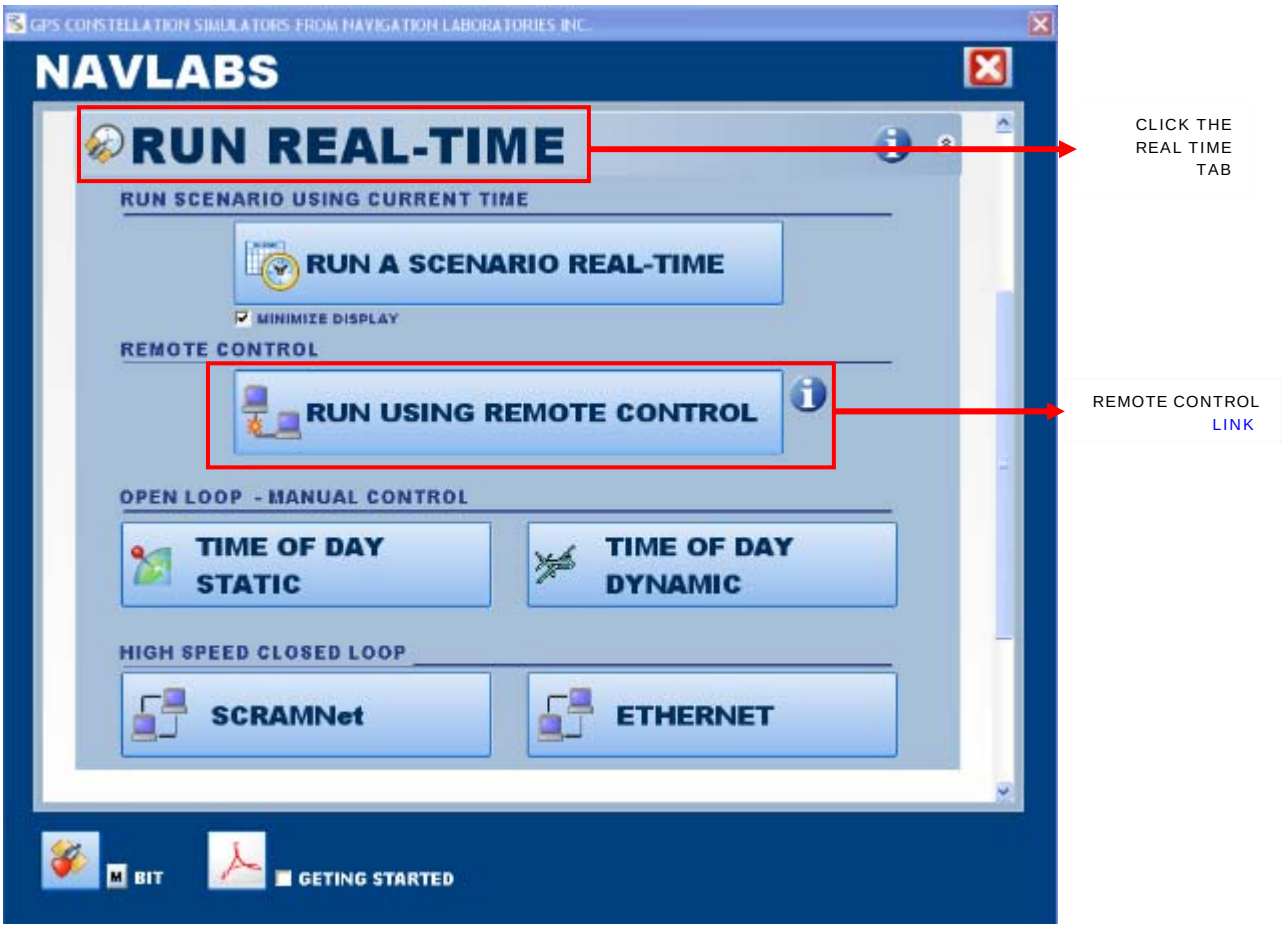
USING THE NAVLABS
REMOTE CONTROL DRIVER

TABLE OF CONTENTS:

USING THE REMOTE CONTROL DRIVER

EASY TO START/ /MONITOR SIMULATIONS ON MULTIPLE SIMULATORS FROM ONE COMPUTER

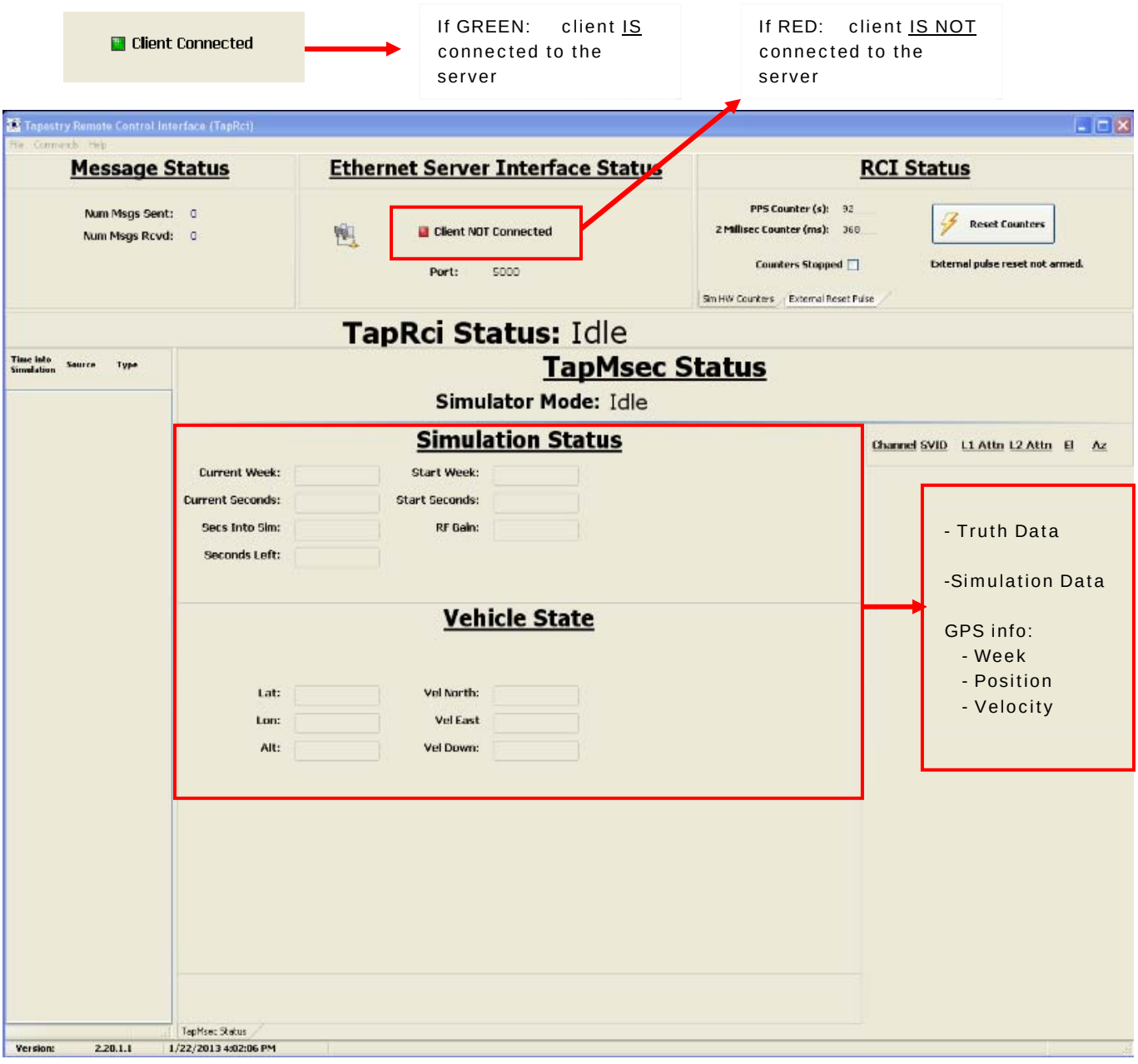
The Remote Control Feature enables the user to operate a simulation from another computer. This provides an easy to use platform so that the user can start, stop, and monitor a GPS simulation from any computer via Ethernet, GPIB, or serial port.



When running the Remote Control feature the simulator referenced as the **client** and wherever the simulation is being run from, is referenced as the **server**.

After you have started Tapestry and clicked on the “RUN USING REMOTE CONTROL” tab, the simulator will start up its TapRCI (Tapestry remote control interface) program, shown below.
Once the Client is connected (green marker showing), the simulator is in “standby” mode, ready for the server to start a simulation.

THE CLIENT WILL NOT CONNECT UNTIL THE SERVER PROGRAM (RCI DRIVER) HAS CONNECTED TO THE CLIENT FROM ANOTHER COMPUTER VIA ETHERBET/GPIB/SERIAL PORT.



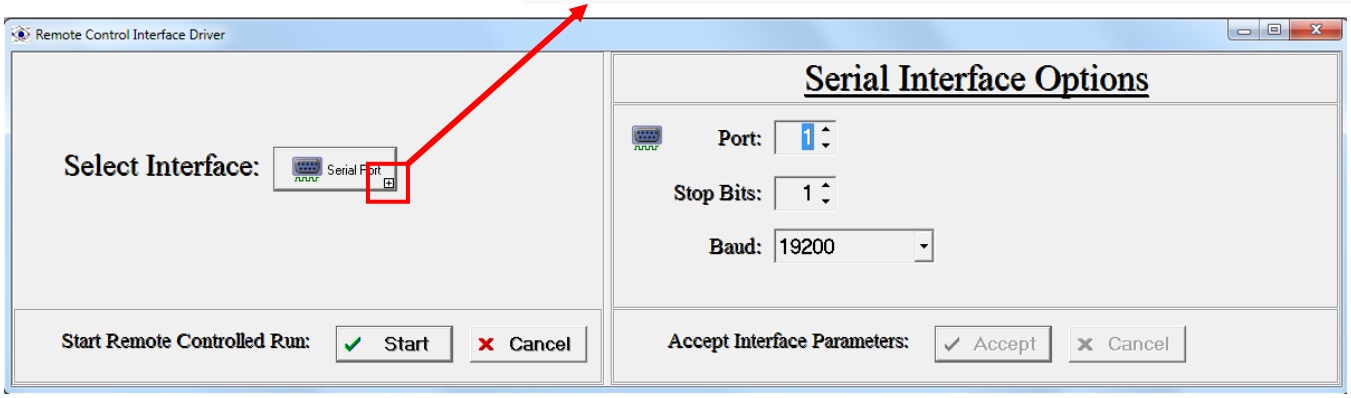
SETTING UP RCI (Remote Control Driver) DRIVER ON HOST COMPUTER:
On the simulator desktop is a program executable called RCIDriver.exe
Put this executable onto any computer that you would like to run a simulator from.
Once you have successfully installed RCIDriver.exe onto your host computer double click the programs icon.

Tap RCI executable icon

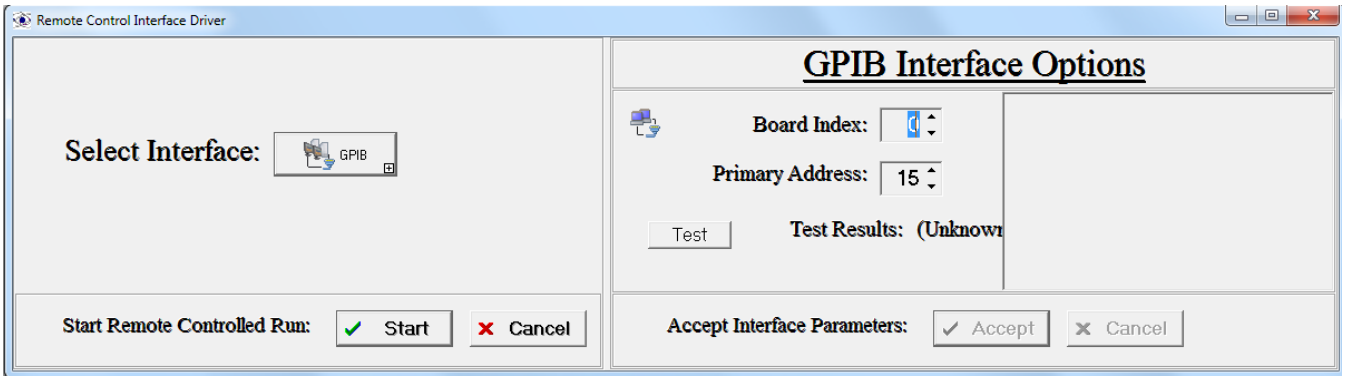
There are 3 ways to connect the server and client to successfully run the Remote Control Feature:

1: Serial Port:

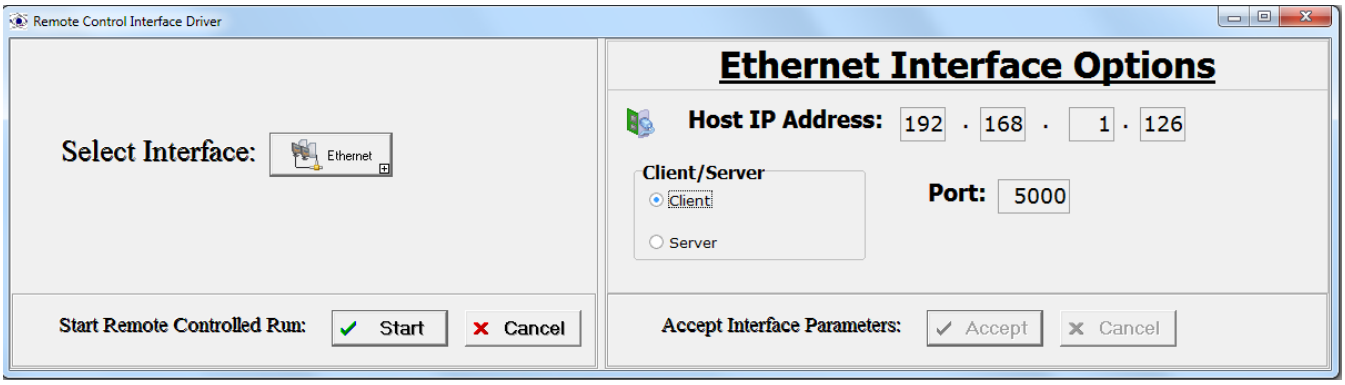
Click (+) sign in bottom right corner to change connection method



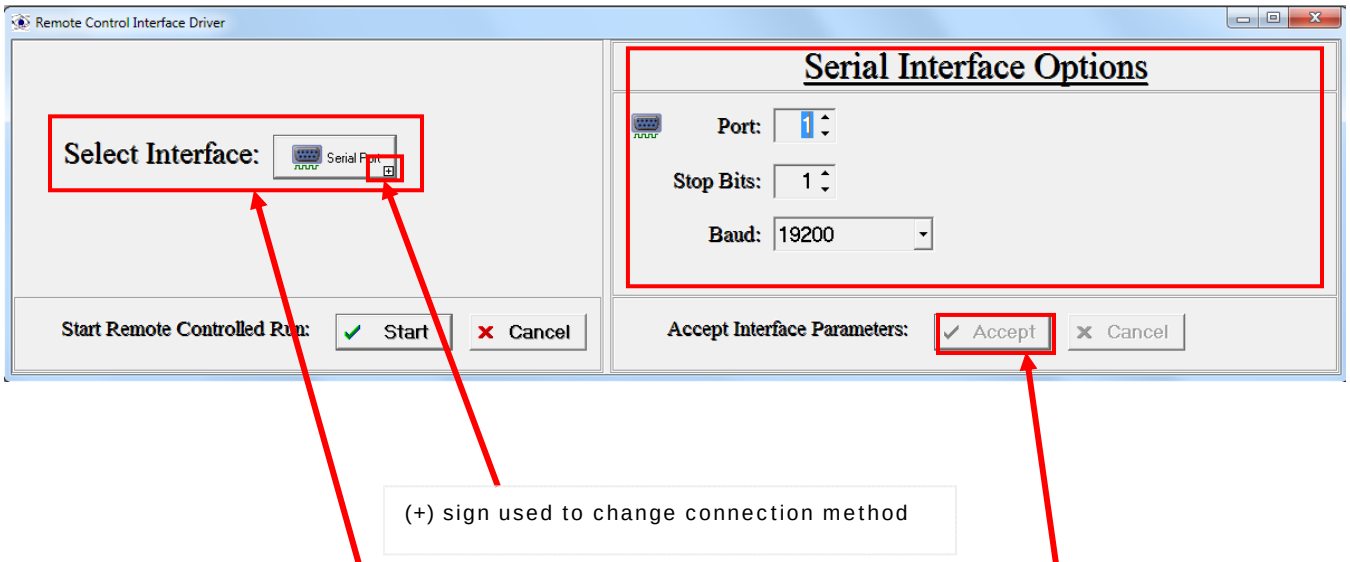
2: GPIB:



3: ETHERNET:



Using the Remote Control DRIVER via Serial Port



STEP 1: Under **Select Interface** make sure **Serial Port** is selected, you can scan through other connection options by clicking on the (+) sign in the bottom right corner.

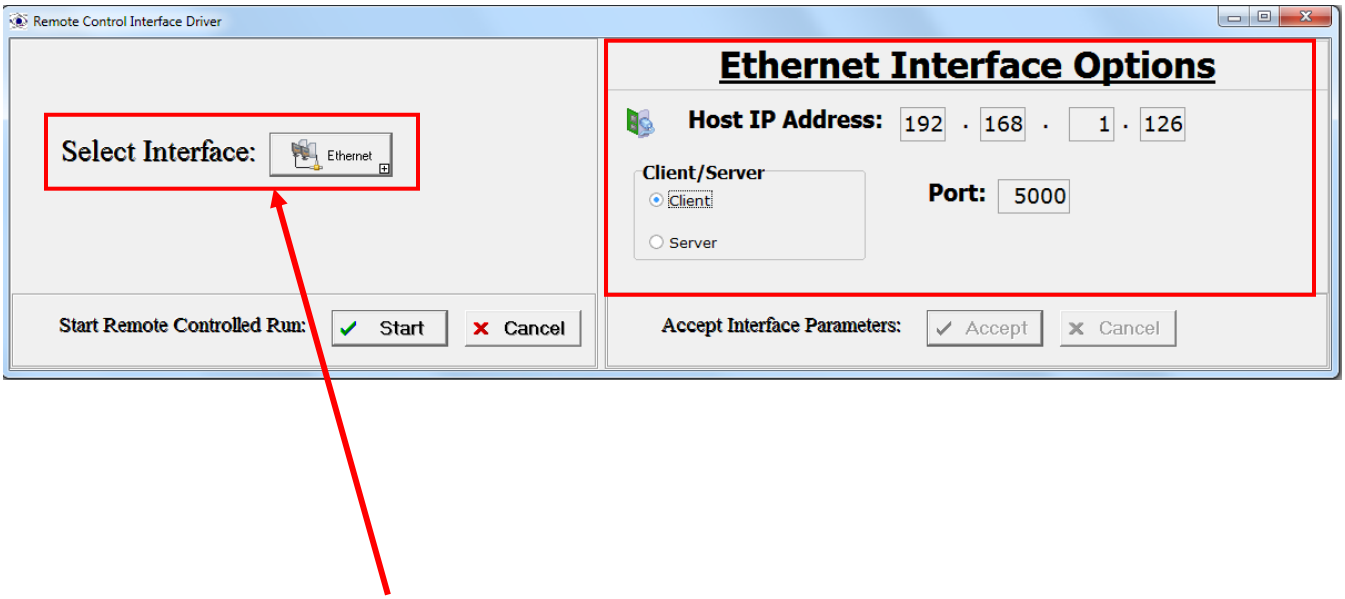
STEP 2: Fill out the **SERIAL INTERFACE OPTIONS**, highlighted in red above.

- Port
- Stop Bits
- Baud Rate

Once you have filled out the right side of the menu click the **ACCEPT** button to load the interface parameters into the driver.

STEP 3: After you have clicked on **ACCEPT** you can now click on the **START** button to begin running the Remote Control Interface.

Using the Remote Control DRIVER via ETHERNET



STEP 1: Under **Select Interface** make sure **ETHERNET** is selected, you can scan through other connection options by clicking on the (+) sign in the bottom right corner.

STEP 2: Fill out the **ETHERNET INTERFACE OPTIONS**, highlighted in red above.

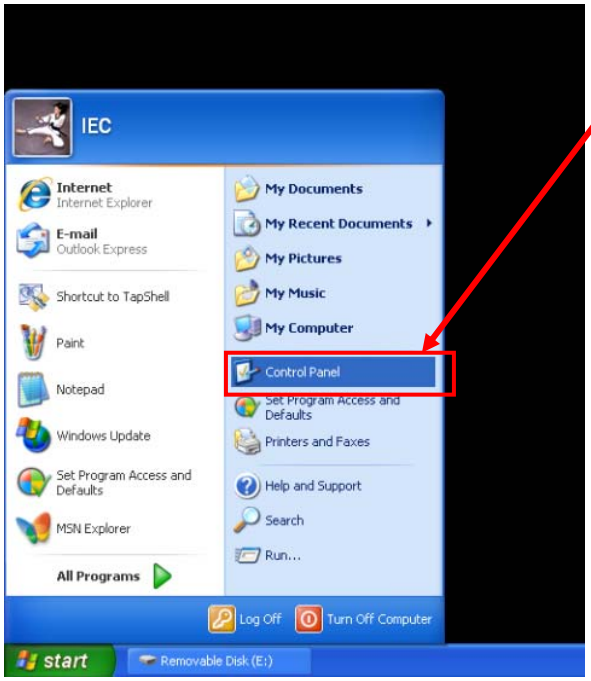
- Under **CLIENT/SERVER** select **CLIENT**
- Port #
- **SERVER**(simulator) IP ADDRESS [shown on Page #6]

Once you have filled out the right side of the menu click the **ACCEPT** button to load the interface parameters into the driver.

STEP 3: After you have clicked on **ACCEPT** you can now click on the **START** button to begin running the Remote Control Interface.

If you are using the Ethernet option to run the Remote Control Interface you will need to locate the Server/simulators IP address.

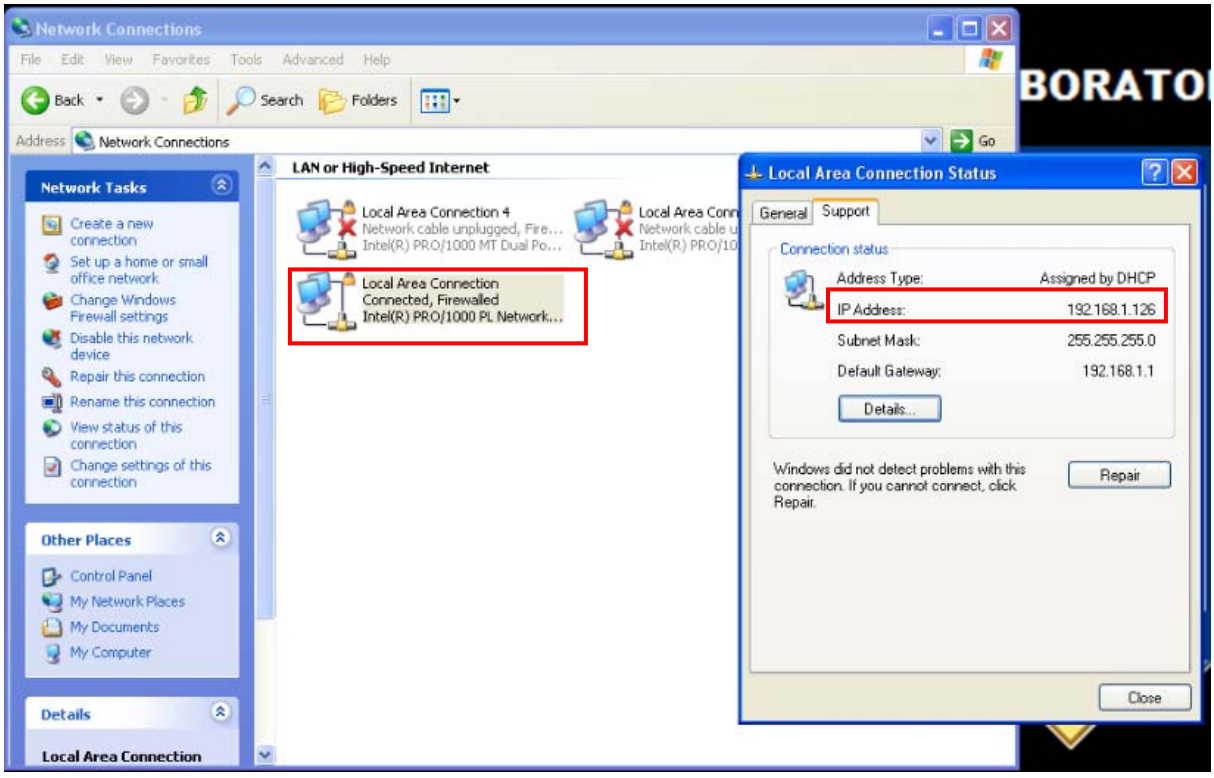
STEP 1: Click the start menu, and select the **control panel**



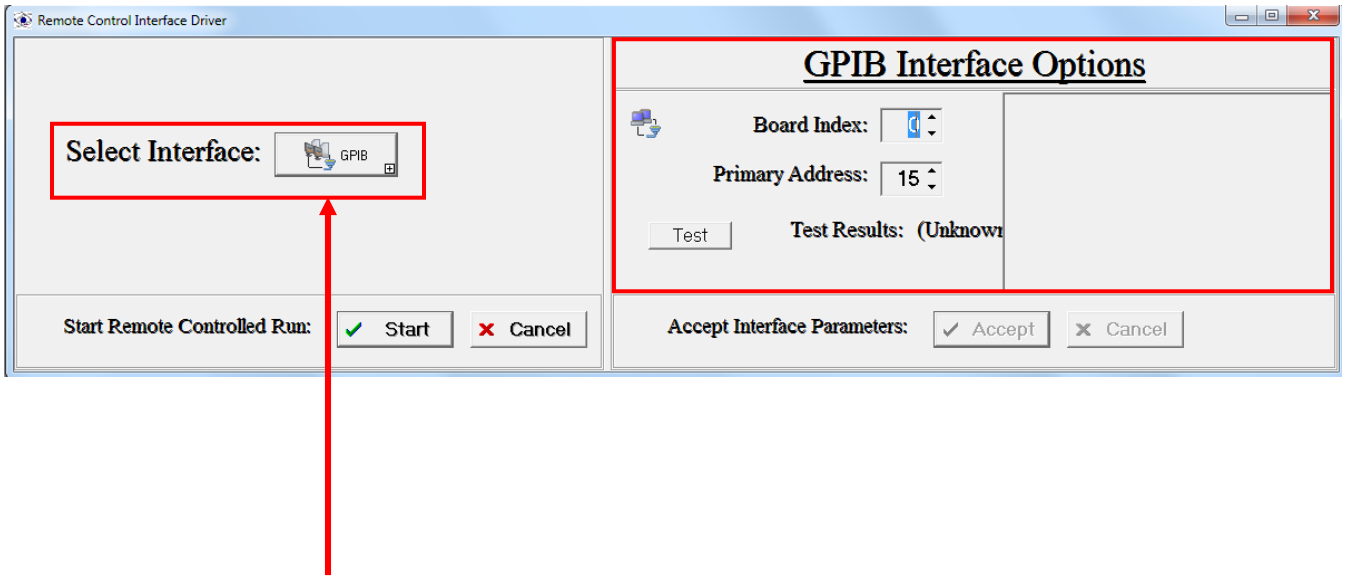
STEP 2: Once the Control Panel is open click on the NETWORK CONNECTION TAB

STEP 3: After you click on the NETWORK CONNECTION TAB all the possible Ethernet connections on your simulator will be shown, **double click the network that is online.**

STEP 4: After you click on the network the LOCAL AREA CONNECTION STATUS menu will open up, click on the SUPPORT TAB and you will see your **IP address** under the connection status.



Using the Remote Control DRIVER via ETHERNET



STEP 1: Under **Select Interface** make sure **GPIB** is selected, you can scan through other connection options by clicking on the (+) sign in the bottom right corner.

STEP 2: Fill out the **GPIB INTERFACE OPTIONS**, highlighted in red above.

- Fill out both the **BOARD INDEX** and the **PRIMARY ADDRESS**
- Click the **TEST** button to see if the **GENERAL PURPOSE INTERFACE BUS** is found
- If Test is successful you can than **ACCEPT** the interface parameters to load the interface parameters into the Remote Driver.

STEP 3: After you have clicked on **ACCEPT** you can now click on the **START** button to begin running the Remote Control Interface.

IMPORTANT: The order that you set everything up is important to make sure Remote Control Driver opens up and runs properly. Below is a review step by step going over what has already been talked about to insure this is done properly.

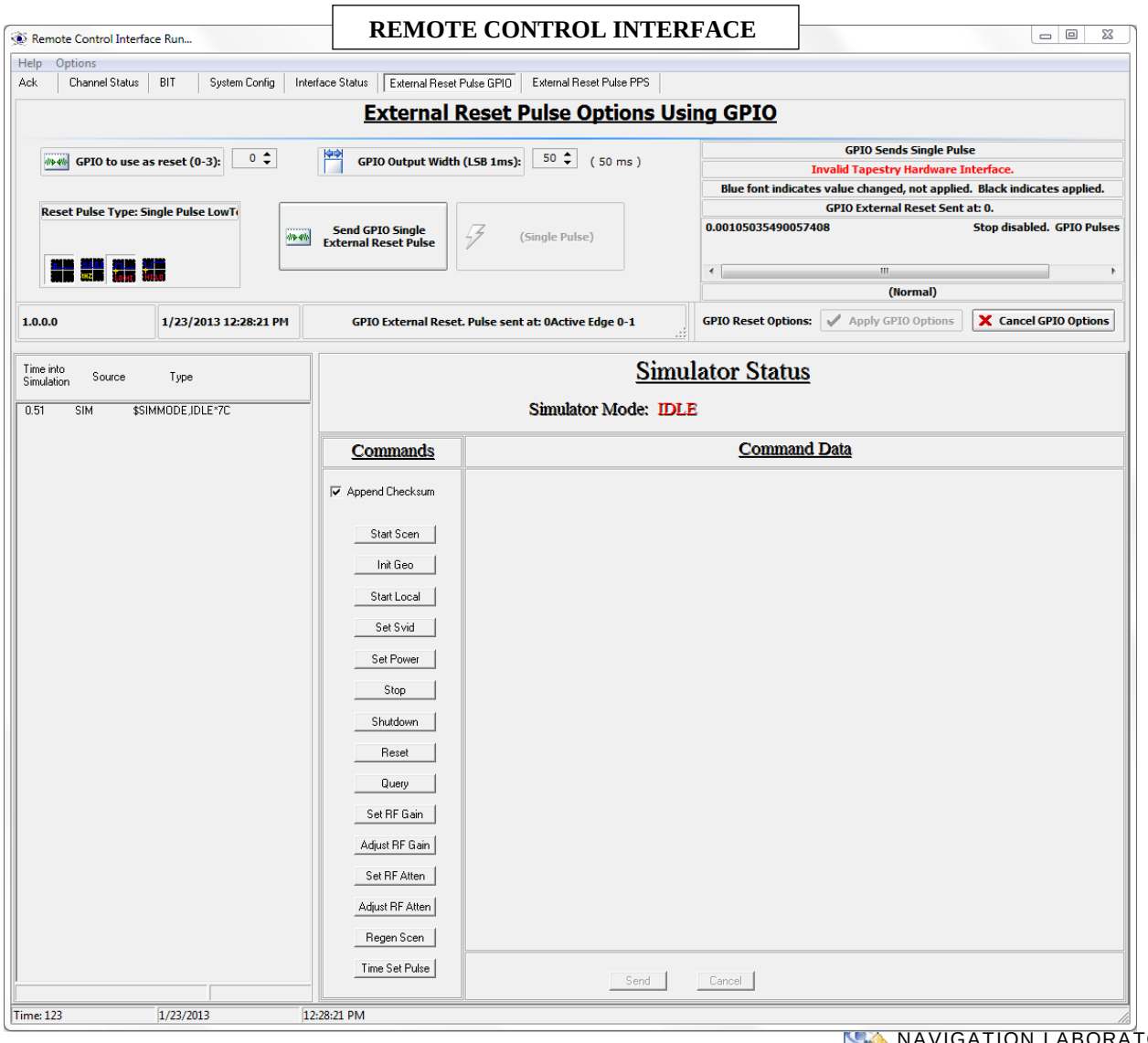
STEP 1: On the SERVER (simulator) click the RUN REMOTE CONTROL tab under real time and let it wait until the CLIENT connects.

STEP 2: On the CLIENT (any computer you want to run/monitor a simulator from) click on the RCI driver on the computer desktop.

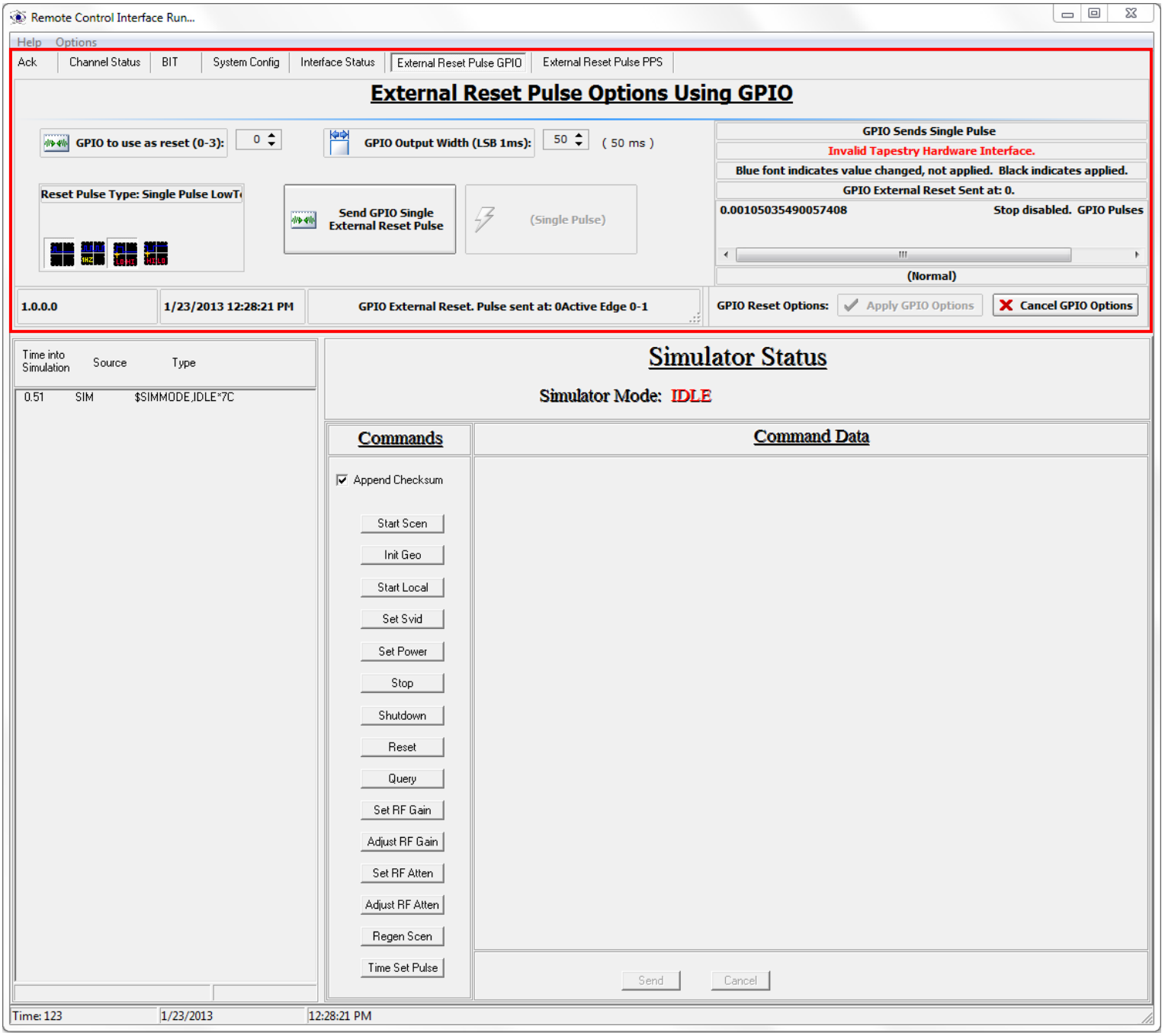
STEP 3: Once the RCI driver menu opens, select your desired connection method, and fill out the appropriate Interface Options.

STEP 4: Accept the Interface Parameters and click the START remote control button.

Once you click the START button, the RCI Program will open (if it does not open, it is most likely because the simulator (Server) does not have TAP RCI open) and you will be connected to the simulator from your computer. The RCI program will not open unless there is a connection to the simulator.

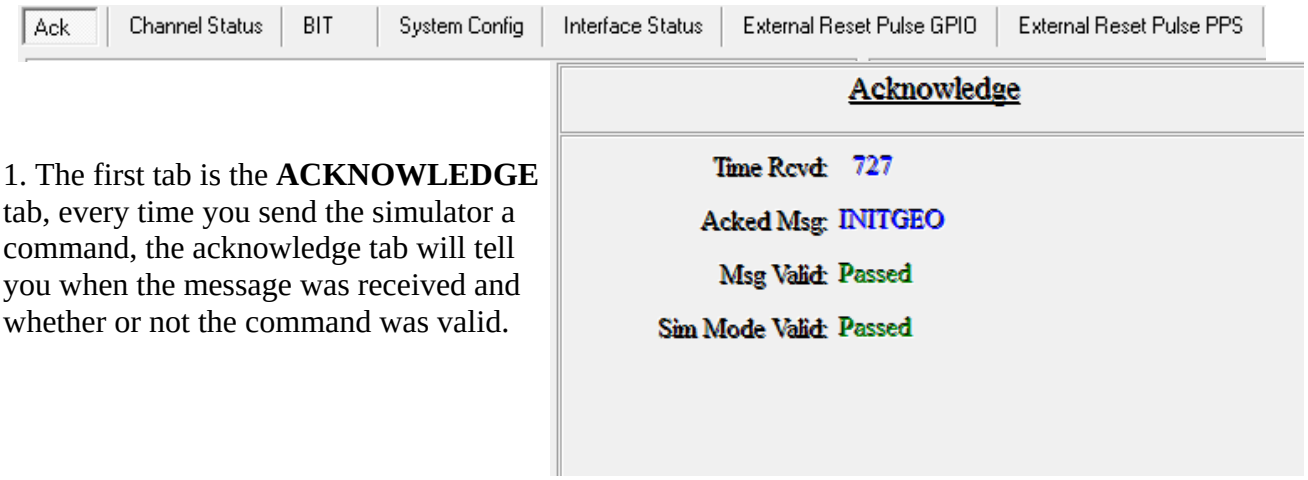


Now that there is a connection between the simulator and your computer, we are ready start a simulation. The next few pages are a review of the most commonly used options and functions of the REMOTE CONTROL DRIVER .



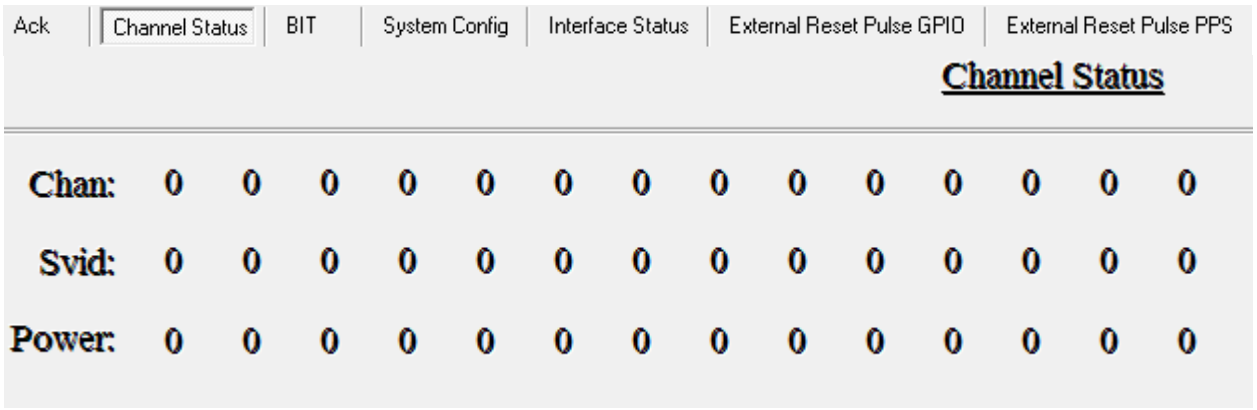
Before we get into the commands, first we will go over the highlighted Red Box shown above, which will be continued on the next page (Page 10).

At the Top of the RCI Program you will see a series of 7 tabs, which are used to check the health of the simulator/ channel status as well as augment or resetting the 1PPS if you are using a GPIO.

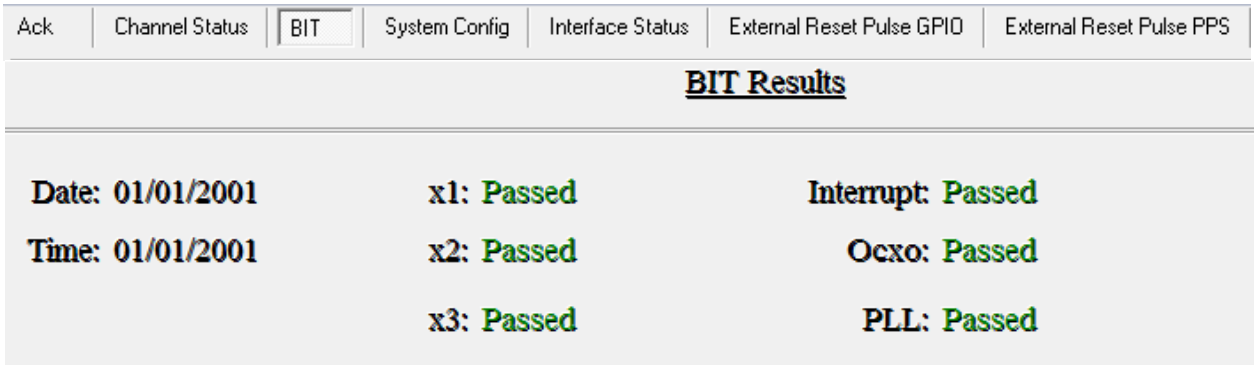


1. The first tab is the **ACKNOWLEDGE** tab, every time you send the simulator a command, the acknowledge tab will tell you when the message was received and whether or not the command was valid.

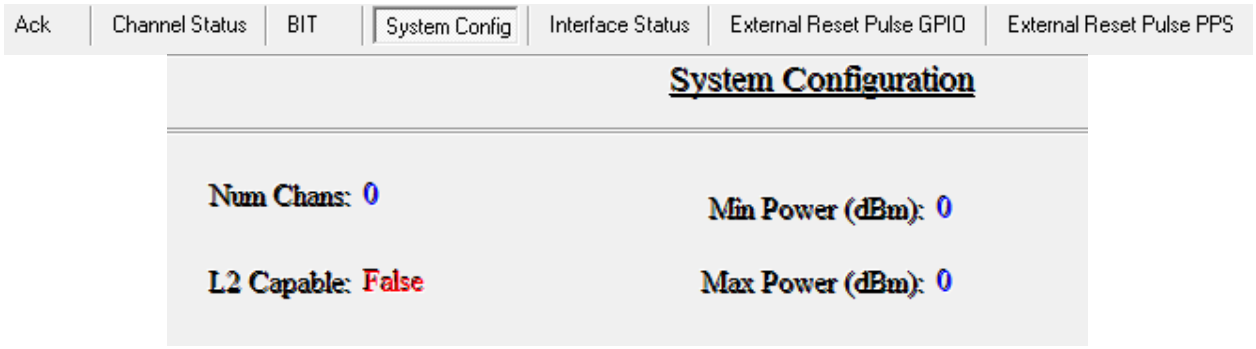
2. The second Tab is called the **CHANNEL STATUS** tab where you can monitor each channel and its power during the simulation.



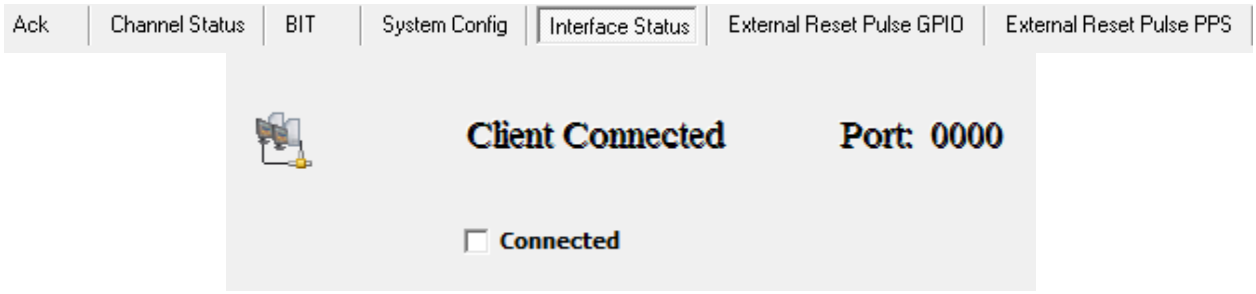
3. The third Tab is called the **BIT (Built in Test)** tab where you can check the health of the simulator hardware.



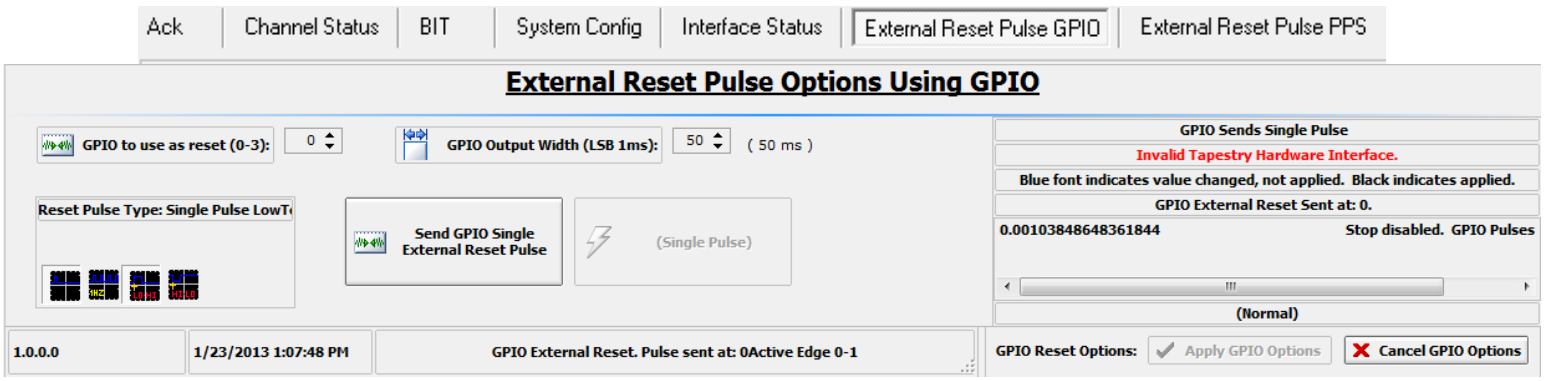
4. The fourth Tab is called **SYSTEM CONFIG** tab, where you can see the capability of your simulator, such as the number of channels, min/max gain, or if it is L2 capable.



5. The fifth Tab is called **INTERFACE STATUS** tab, where you can connect the simulator to a Port



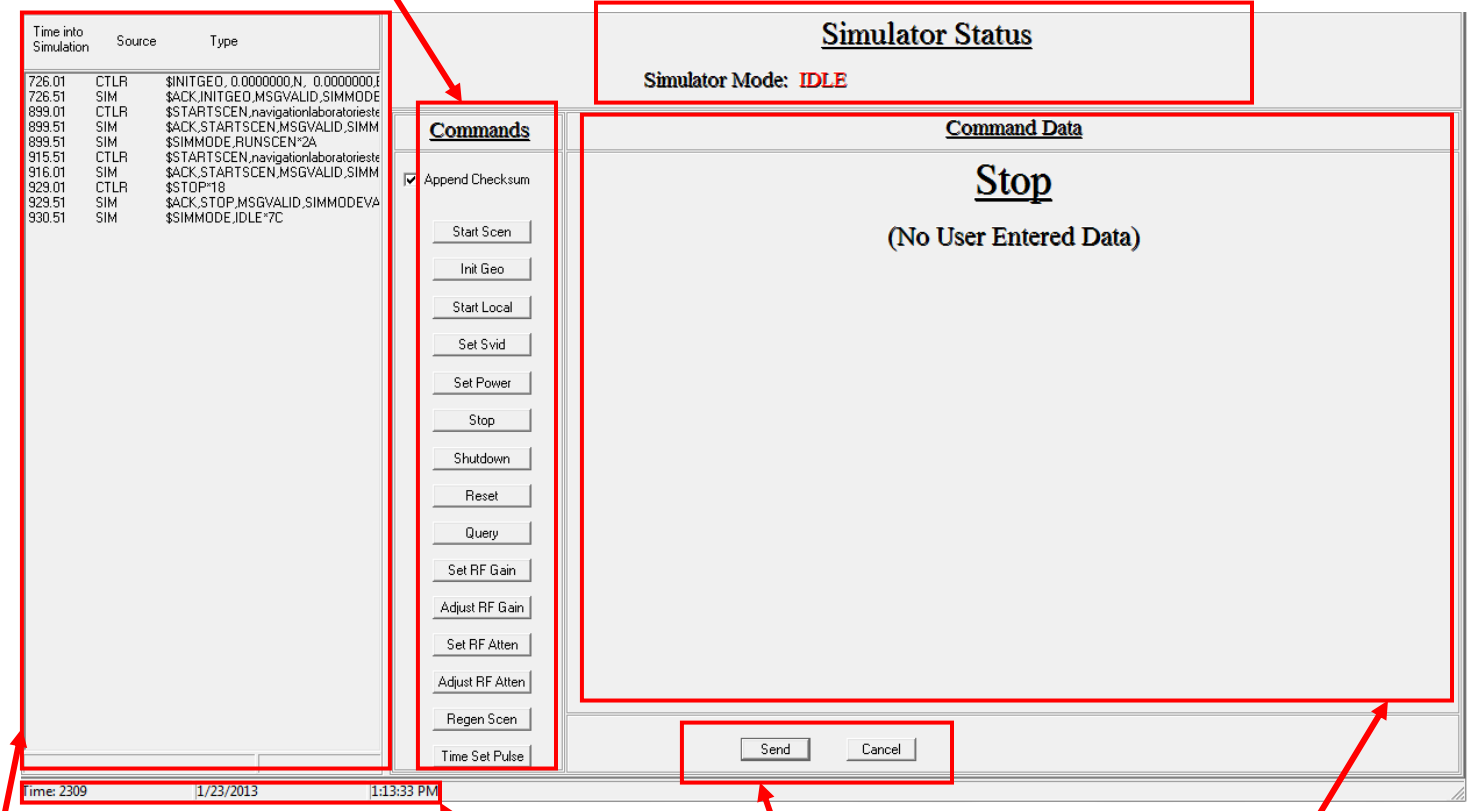
6. The next 2 tabs are designed to augment/reset the 1PPS using a GPIO board. As you can see below there is quite a bit of capability through using the GPIO board as you can switch the polarity of the 1PPS. You can also adjust the width and reset the GPIO as well.



Now that the Tabs at the top of the RCI program have been discussed, lets now go over some of the basic commands you can send your simulator from your computer. Shown below is the bottom half of the RCI program. In this section of the program you can do 2 things, monitor and view query data, and send the simulator commands.

Command list: different commands you can send the simulator

Simulator Status
If no run is being performed simulator will sit in idle until it is told what to do.

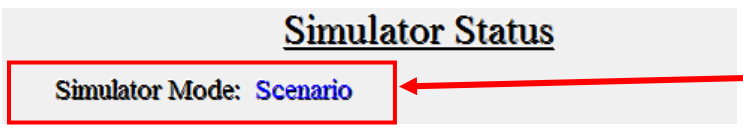


Query: view GPS tracking info at any user selected time into simulation.

AFTER EVERY COMMAND YOU MUST CLICK THE SEND BUTTON

Time and Date, as well as seconds into simulation

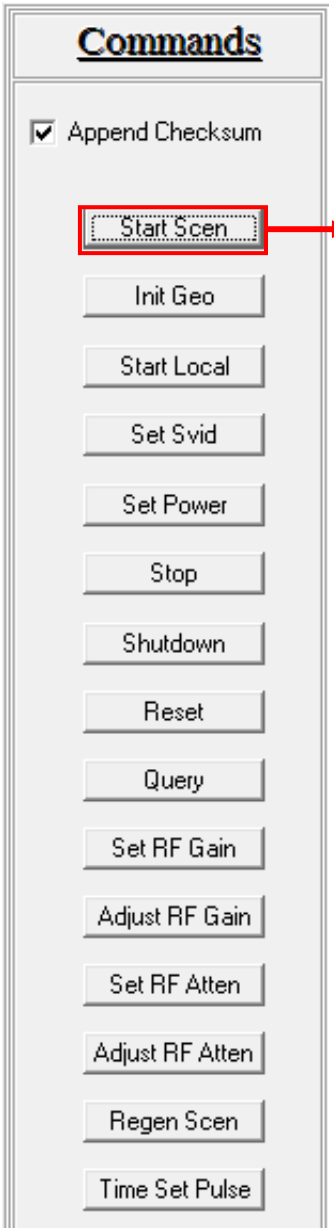
Command Data Box: once you select a command, relevant parameters are filled out in this area.



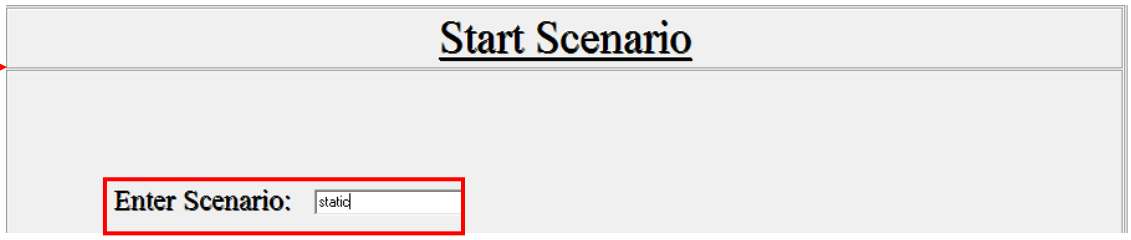
Simulator Status: once a run starts on the simulator the simulator mode will read SCENARIO

COMMANDS: Now that we are connected to our simulator through the Remote Control Interface it is time to run a scenario from our computer.

Many commands can be sent to the simulator from your host computer. Below is the command list, where you can Query data, initialize your receiver position, change the gain/attenuation, and even shut down your simulator.



- The first Tab is the most used command in the list, **START SCENARIO**, once you click the start scenario tab the command data area will look like this below. Type the scenario you would like to run into the **ENTER SCENARIO** box. Then click **SEND**

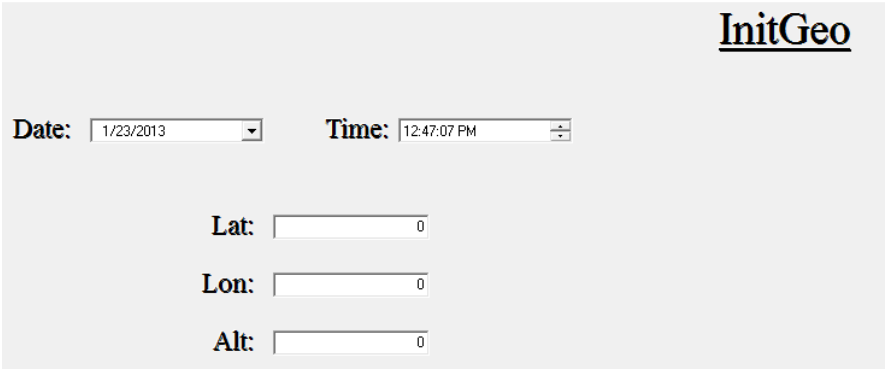


- You can confirm sent commands by looking at either the Query Box (page #12) which will display a 1 line message, or you can make sure the command was sent and verified in the Acknowledgment tab(Page #10 tab#1). Once you have successfully started a scenario, you can than send other commands and query whatever data you need.

    - **NOTE: if you Enter a scenario that DOES NOT exist on your simulator the command will fail in the acknowledgment tab, and you will have to send a STOP command before sending a new scenario.**

We now will cover the other 14 command tabs in the Command window

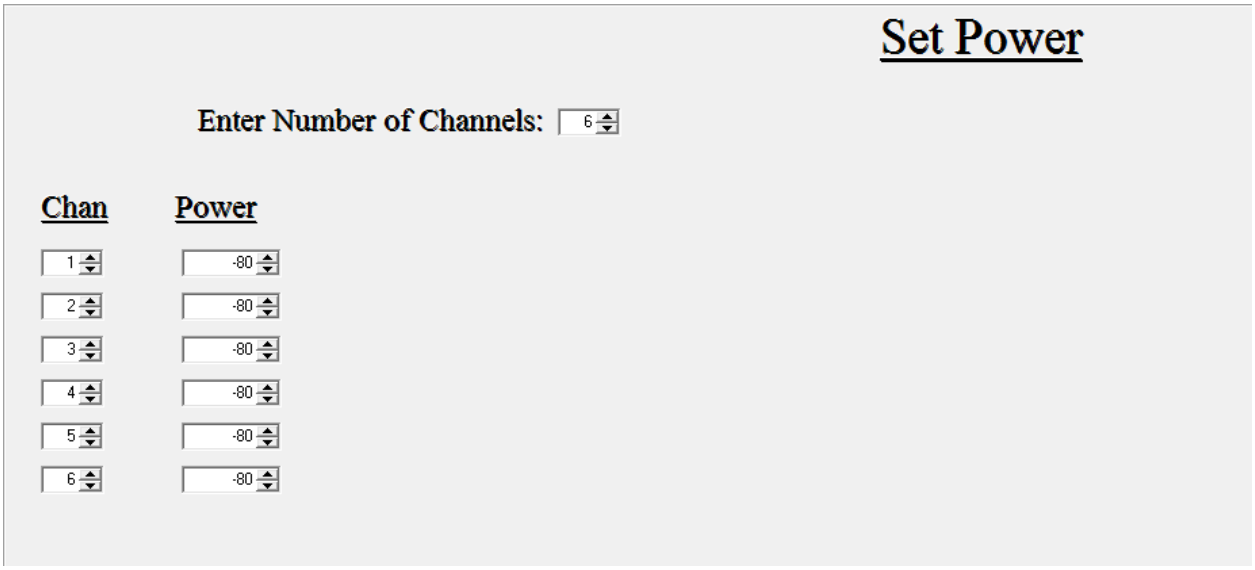
1. **INIT GEO:** used to initialize the receiver's position. Enter appropriate parameters and then click **SEND**.



2. **START LOCAL:** N/A

3. **SET SVID:** Through this command you can assign a satellite of your choice to any channel. For example, if you have a 12 channel simulator you can force all 12 channels to look for only the satellites you want them too. Enter appropriate parameters and then click **SEND**.

4. **SET POWER:** This command is used if you want to set a specific power to a specific channel. You can set as many channels as you want. Enter appropriate parameters and then click **SEND**.



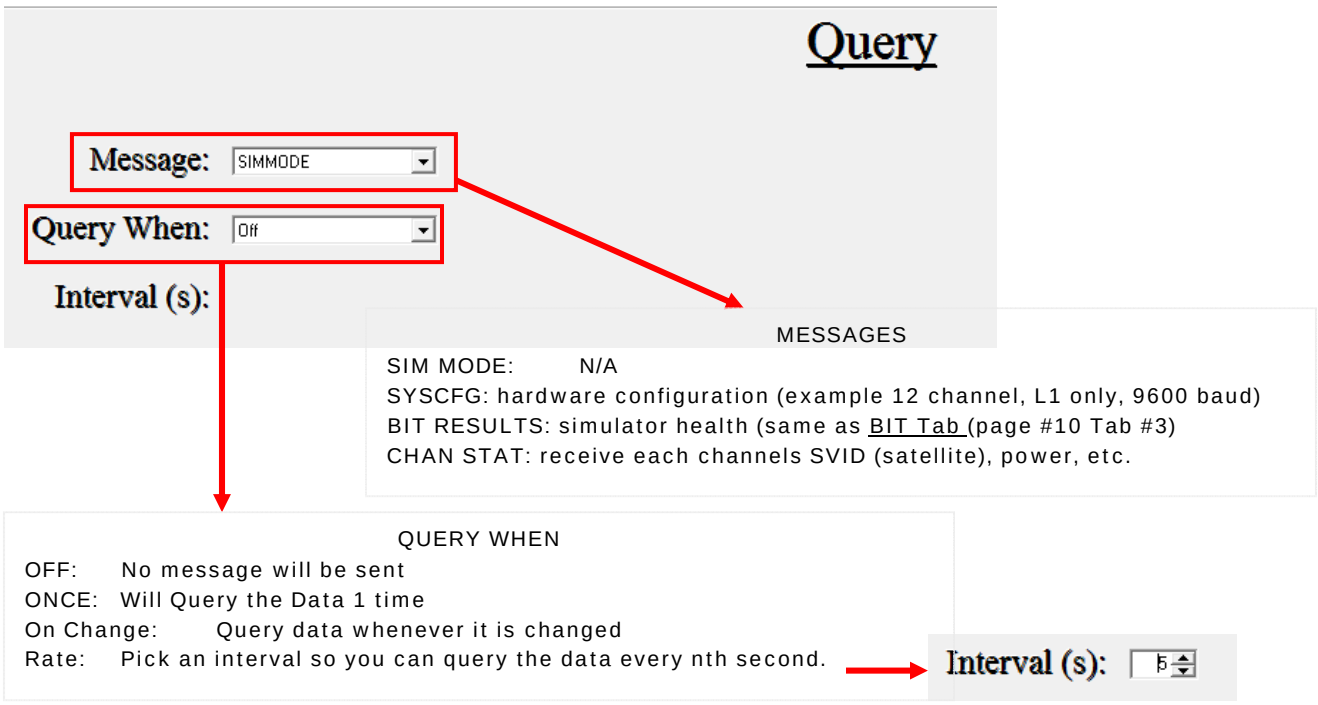
Power units are measured in absolute power, not relative power.
Where 119 absolute = approx. 45db.

5. **STOP:** used to STOP a running simulation. After you click the **STOP** command tab make sure to than click **SEND**.

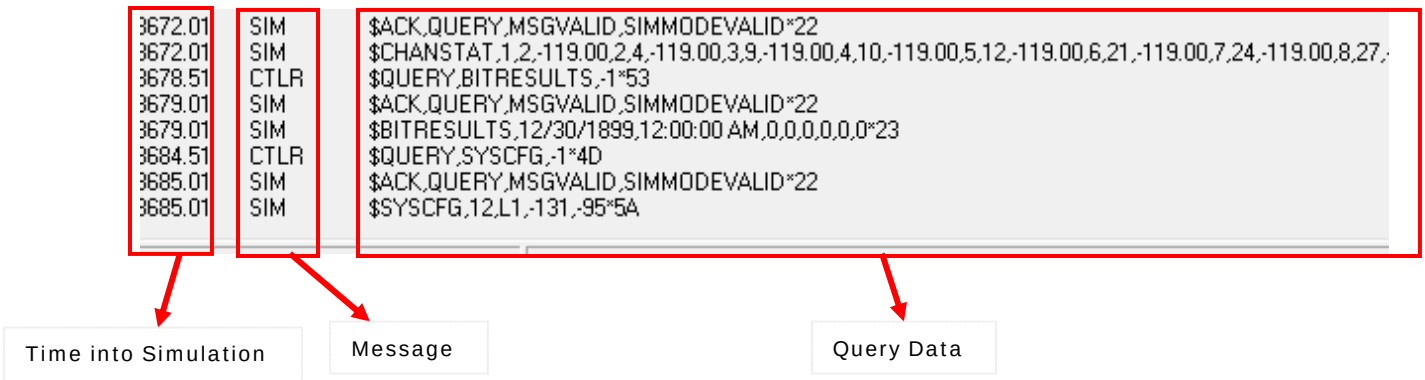
6. **SHUTDOWN:** used to Shut down the simulator (Turns the computer off). After you click the **SHUTDOWN** command tab make sure to than click **SEND**.

7. **RESET:** N/A

8. **QUERY:** This is another important command, because this is how you can poll information from your simulator. You can do 2 things through this command, select the message you want to query, and select when you want to receive the data.



After you fill out the appropriate parameters, click the **SEND** button. The Query will show up in the Query Area (page# 12).
An example of a Query (CHAN STAT) on a 10 second interval is shown below.



9. **SET RF GAIN:** Set the gain on all satellites. (example if you set gain=10 all satellites will have a gain of 10) Once appropriate Gain is set, click **SEND.**

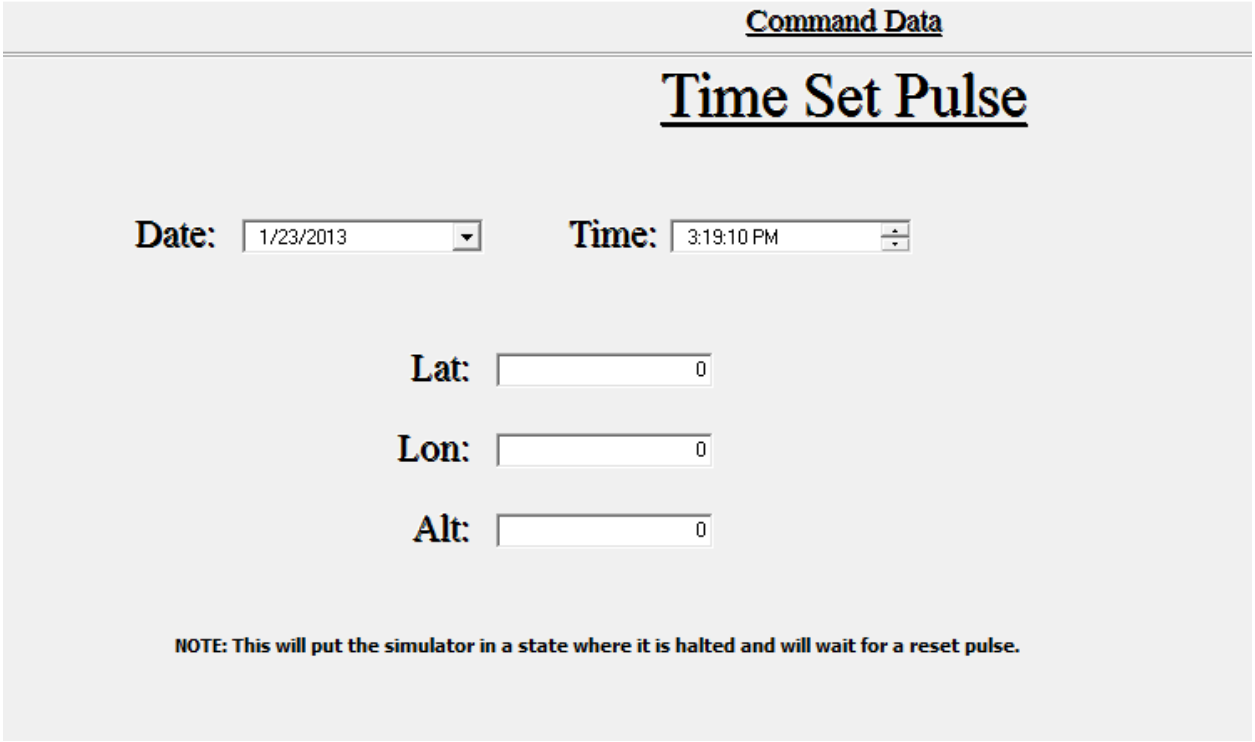
10. **Adjust RF Gain:** if you only want to change the gain, not set it, use this command instead. Enter the amount you want to adjust the GAIN to all satellites and click **SEND.**

11. **SET RF ATTEN:** Set the attenuation on all satellites. Once appropriate Attenuation is set, click **SEND.**

12. **ADJUST RF ATTEN:** if you only want to change the attenuation, not set it, use this command instead. Enter the amount you want to adjust the ATTENUATION to all satellites and click **SEND.**

13. **REGEN SCENARIO:** N/A

14. **TIME SET PULSE:** sets simulator into halted state until reset pulse is sent. Fill out all relevant parameters and then click **SEND.**



You are now ready to enjoy REMOTE CONTROL INTERFACE to run and monitor your simulator at the leisure of any computer you choose.

If you have any further questions please do not hesitate to call, (949)766-0444. If you have any additional comments or suggestions please let us know as we can modify the program to suit your needs.

Thanks For Choosing Navigation Laboratories