Green Eyes
Environmental Observing Systems

# EcoLAB ComScript Manual

**Version 1.0**

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Manufactured by

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# 1. Install the EcoLAB ComScript

The installation of EcoLAB ComScript on your PC is easy. First, you need to go to the http://gescience.com/comscript/ to download the ComScript software package. The link is located at the bottom right of the webpage. Click the “free 30 day trail”, submit the contact form to go to the download page. Download the right version of ComScript and the specific EcoLAB_ComScript profile folder.

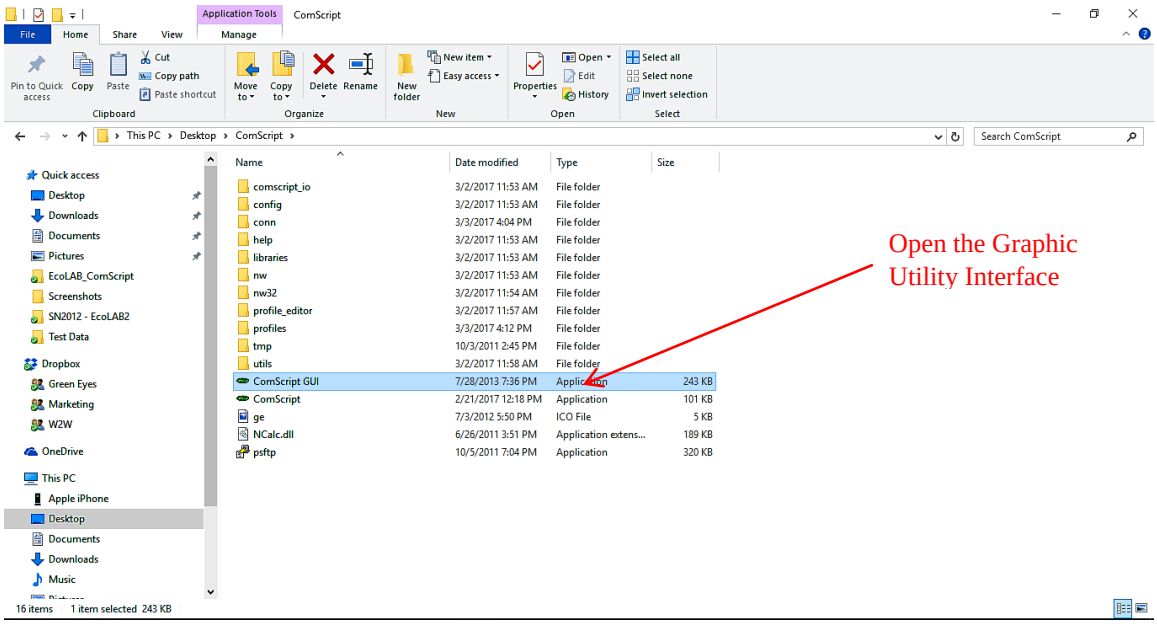
Before you get start, it is recommended that you follow the instruction from the ComScript Quick Start Guide to learn how to run ComScript.

Extract the ComScript zip folder you just download and put it in any location you would like on your PC. Then, extract the EcoLAB_ComScript into the “profiles” folder in your “ComScript” folder.

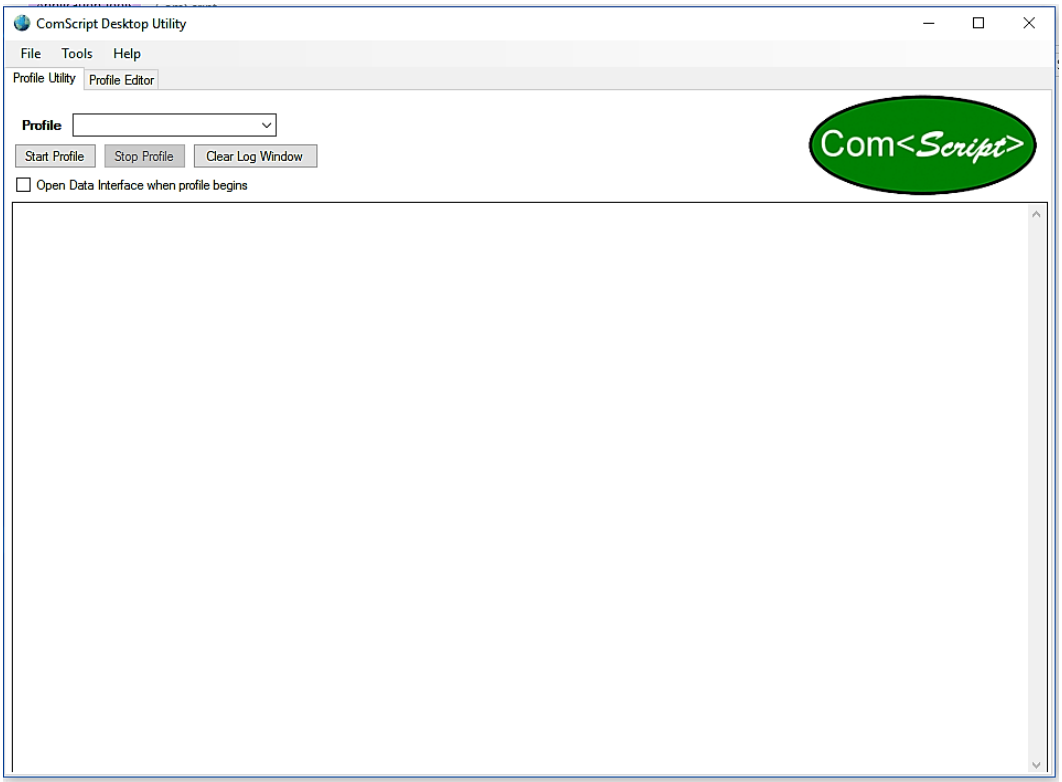
Note: the EcoLAB ComScript is designed to be capable of automatedly making plots of your data through the software “gnuplot” (which is available to download online for free). Yet, if you realize this function, you will need to put the ComScript and the gnuplot folder both directly under the C drive of your computer.

# 2. Start the EcoLAB ComScript program

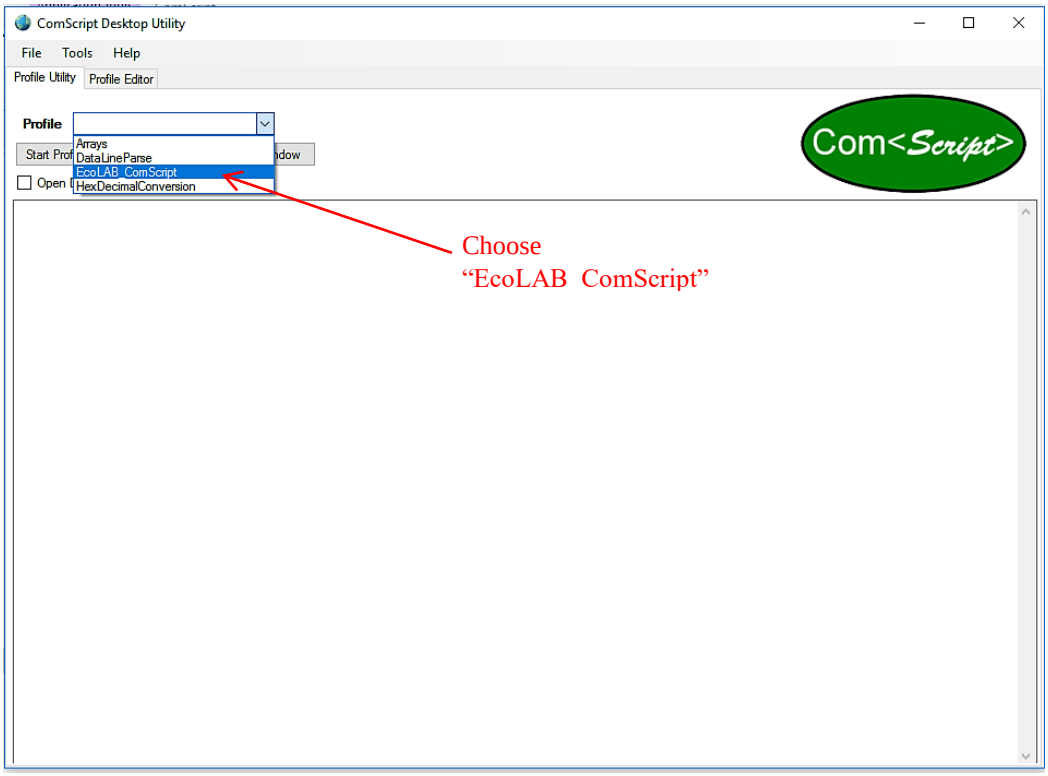
First, open the ComScript Graphic Utility Interface (ComScript GUI.exe) in the ComScript folder.



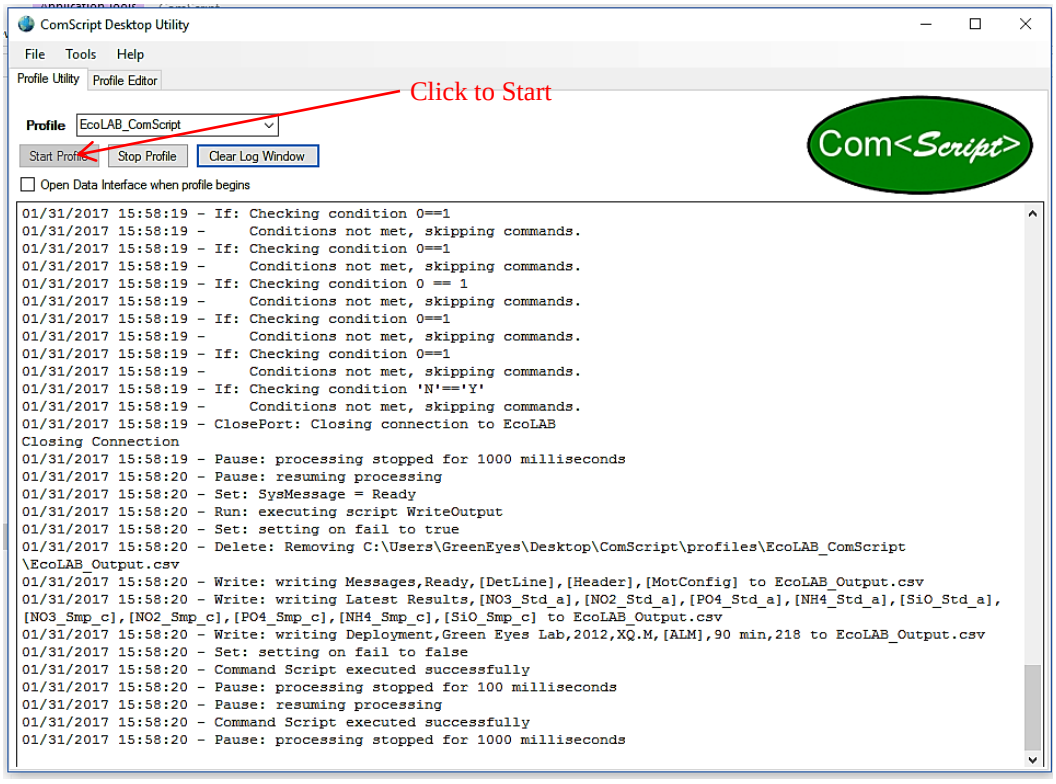

The following window will open



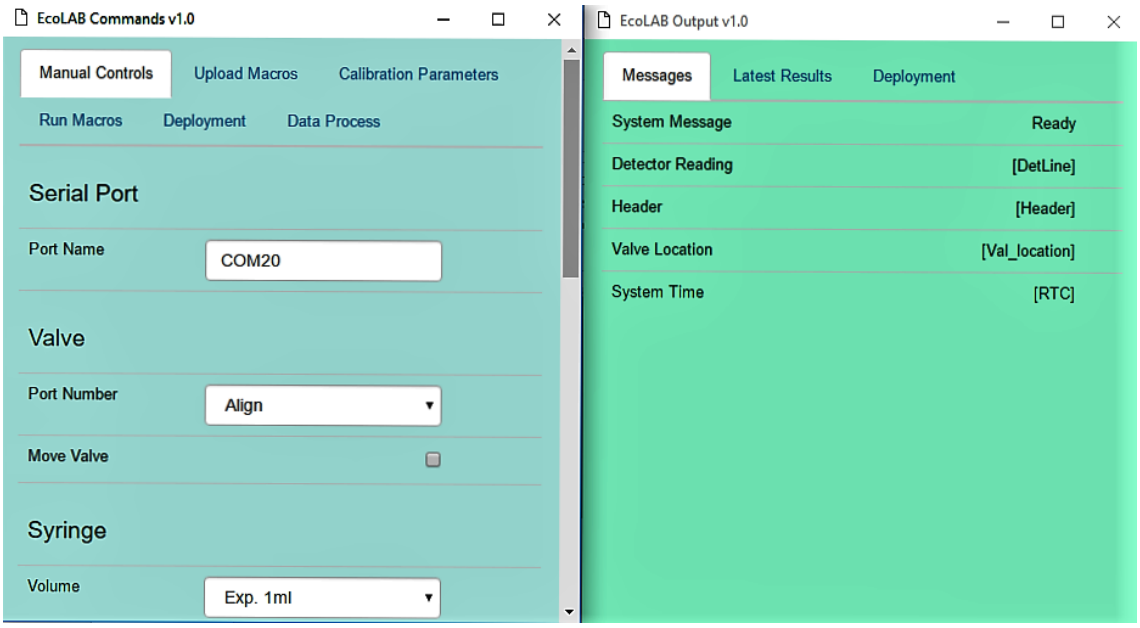

In the “Profile” select box, select EcoLAB_ComScript.



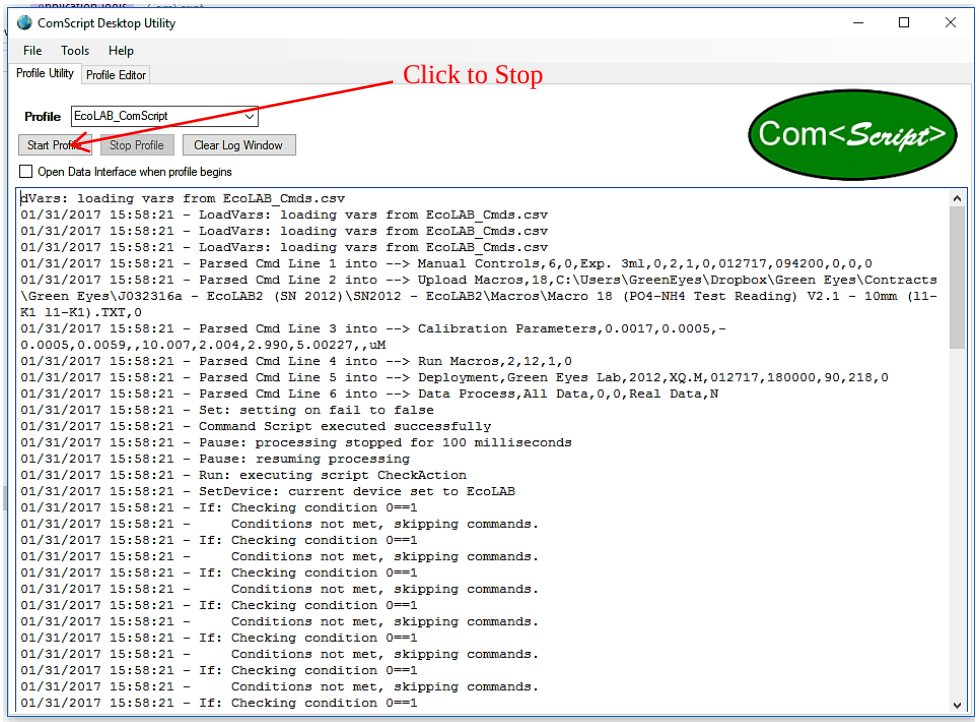

Click the "Start Profile" button to launch the program.



Two interface windows will open. Click and hold the mouse on the upper boarders of the windows to move them to desired locations. The window on the left in the image below (Command Window) is used to send commands, save configurations and other functions (see Section 2 ) and the window on the right (Output Window) displays messages, results, and deployment configurations from the EcoLAB (see Section 3) .




To stop the program, click the Stop Profile button in the main utility window.



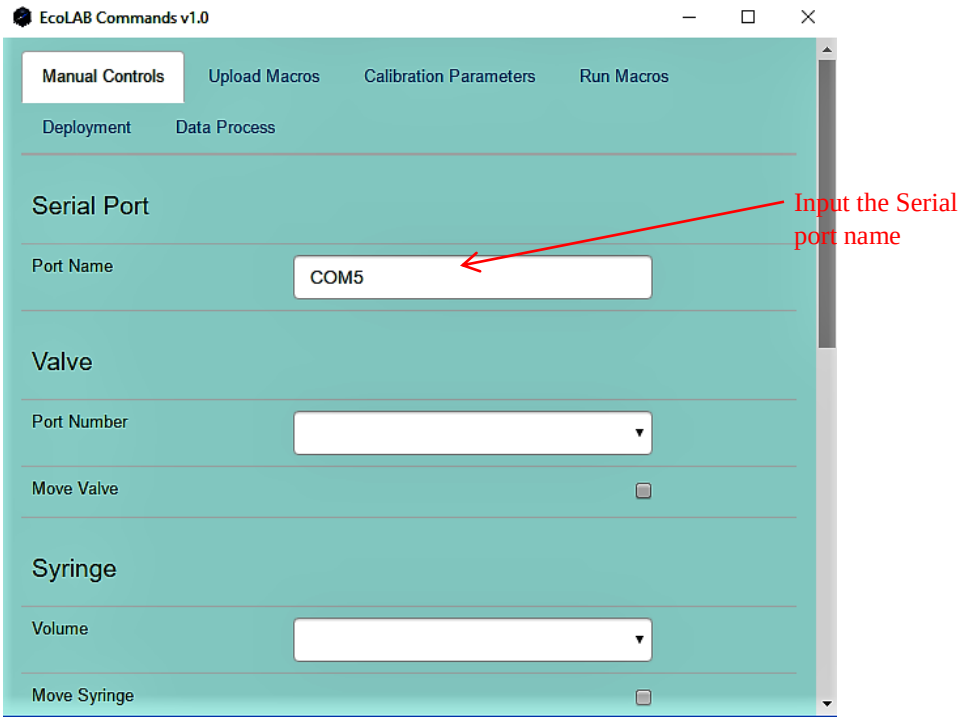
# 3. Introduction of the Command window

The Command Window is composed of individual tabs to run **Manual Controls**, to **Upload Macros**, to set **Calibration Parameters**, to **Run Macros**, to set **Deployment Parameters** and to **Process Data**.

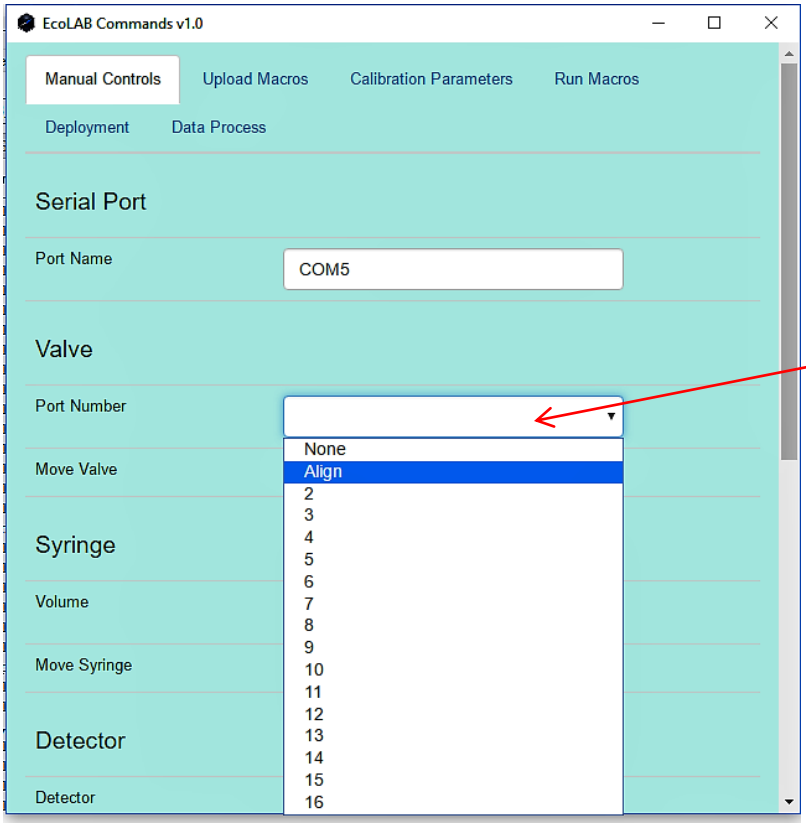
### 3.1 The Manual Control Tab

provides low level controls for the EcoLAB valve, syringe and detector which is useful when setting the instrument up for deployment of for diagnostic tests.

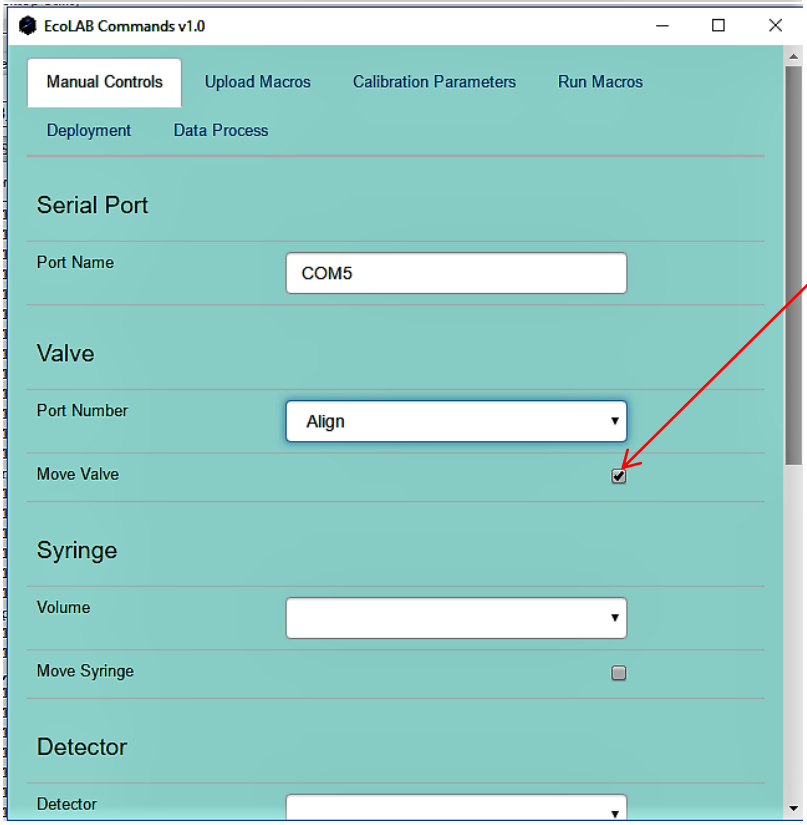
- Serial Port: Enter the COM port the PC will use for communication with the EcoLAB. The format must be 'COM' followed by the number of the port (e.g. Com5) as seen below. For guidance identifying the COM port number, see Section 5.




- Valve: Select the valve port number you would like to move to or Align to move to port one (inlet). It is important to align the valve before other operations if the instrument has not been in recent operation. And then check the "Move Valve" checkbox to confirm the valve moving command.

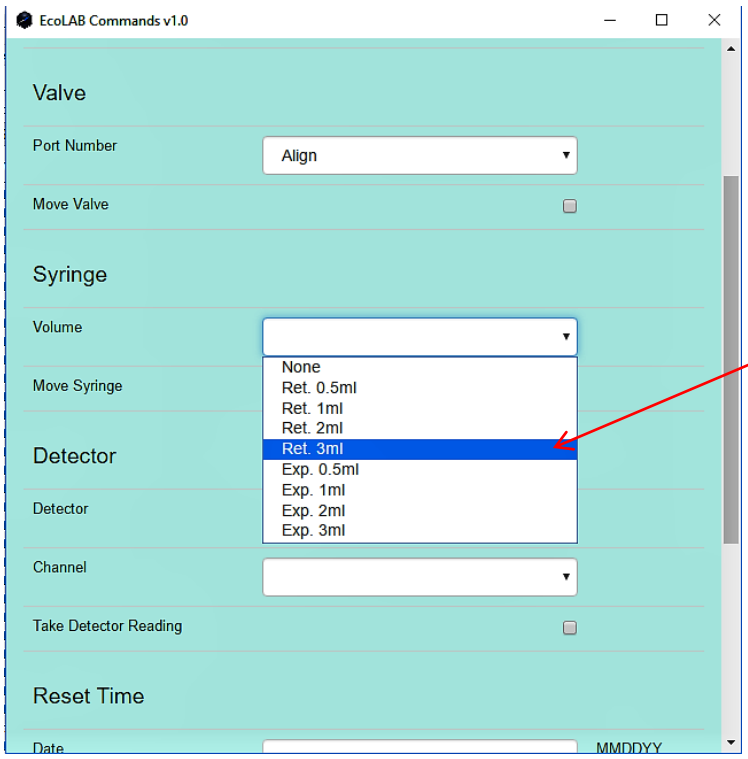



Select the Valve Port or Align

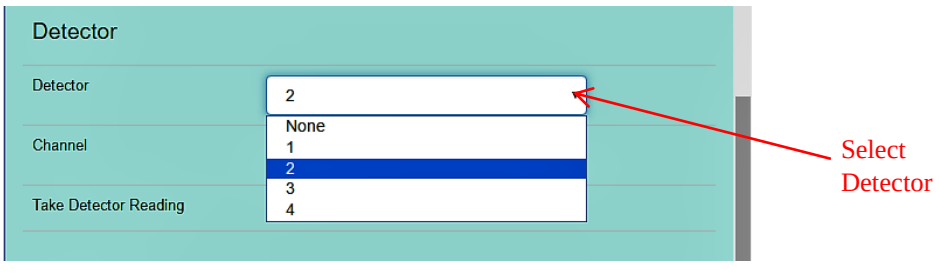


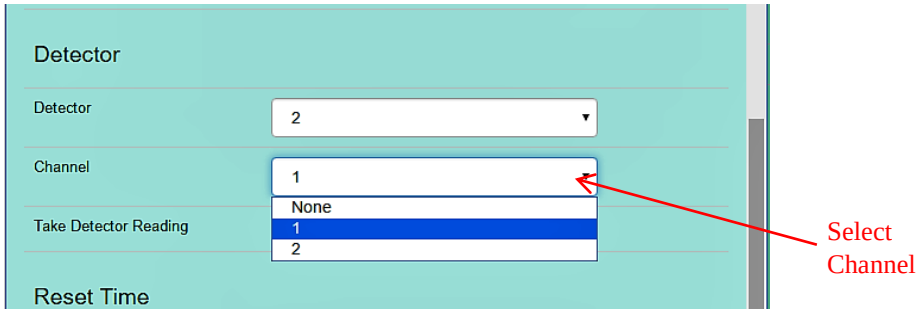

Check the box to confirm moving the valve

- Syringe: Select the action of the syringe to do by the volume. “Ret”(Retraction) means pulling liquid in, and “Ext”(Extraction) means pushing liquid out. The full volume of the syringe is about 4ml.

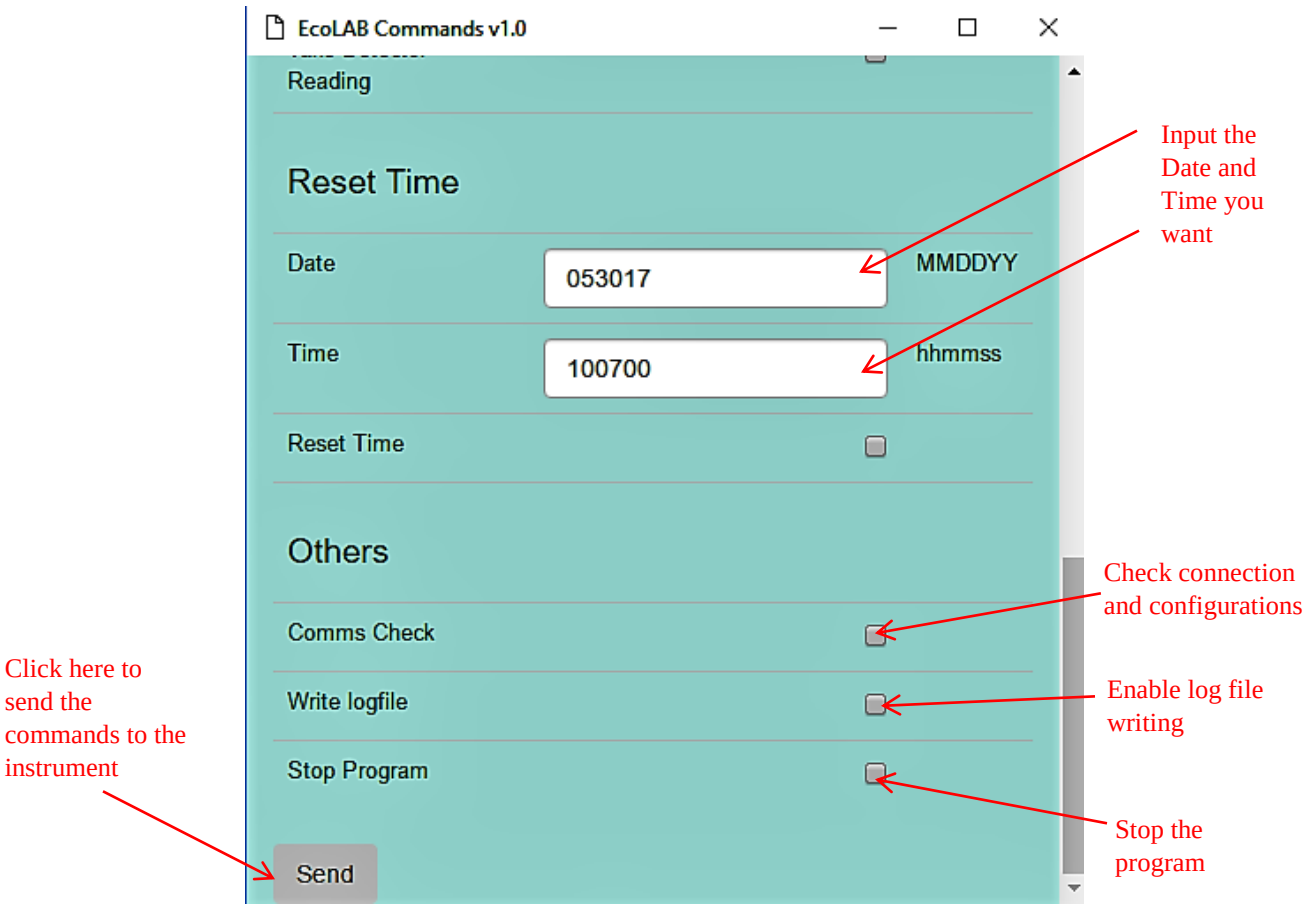



- Detector: Take a detector reading for diagnosing purpose. Will need to select the right detector and channel. If you need to do this, please consult to Green Eyes to learn which detector and channel to select.



- Reset Time: Set the time to anything you may want, local time or UTC. The format of the time input should be “MMDDYY” (month, day, year, all in 2 digitals) and “hhmmss” (hour, minute, second, also in 2 digitals).




- Others: This part contains three functions:
  The “Comms Check”, used to check the connection between the computer and instrument. If the instrument is disconnected, or running a macro, the Comms Check would fail and the ComScript will shut down. If succeed, it will writes out the current status of the instrument on the Output Window (See section 3);

  The “Write logfile”, used to enable the log file writing of the system. A file names “log.txt” will be automatically created in the profile folder, which is a record of every motion the system runs. Log file is usually used for diagnosis propose.

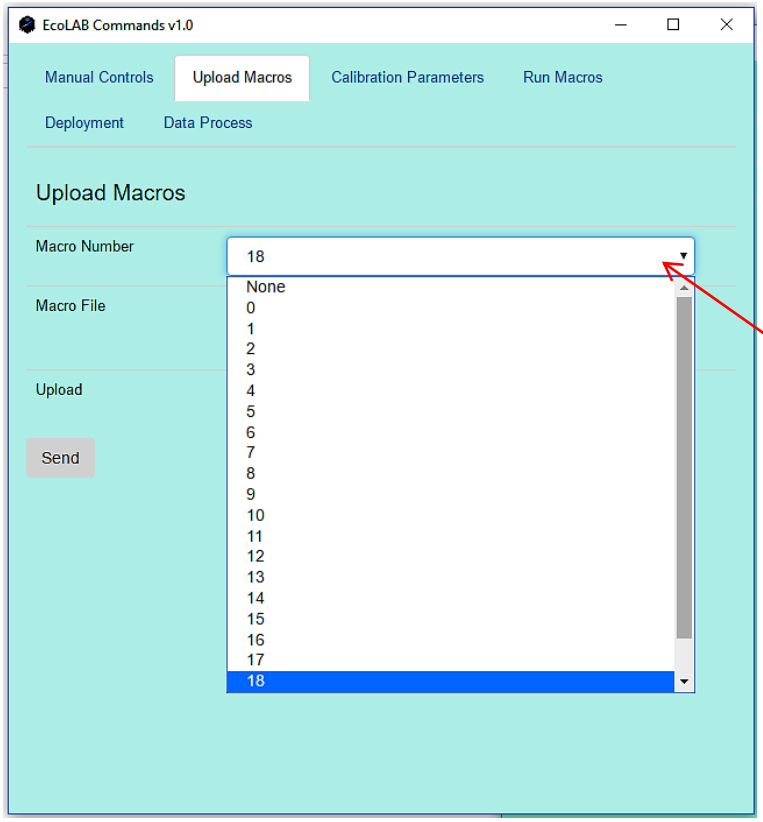
  The “Stop Program” is to shut down the program. Remember to close the windows after the program stops.

After you select all the actions you want on this page, click the “Send” button at the left down corner to send out the commands. This works the same at each page of the command window. It is possible to send multiple commands one time, but not recommended.

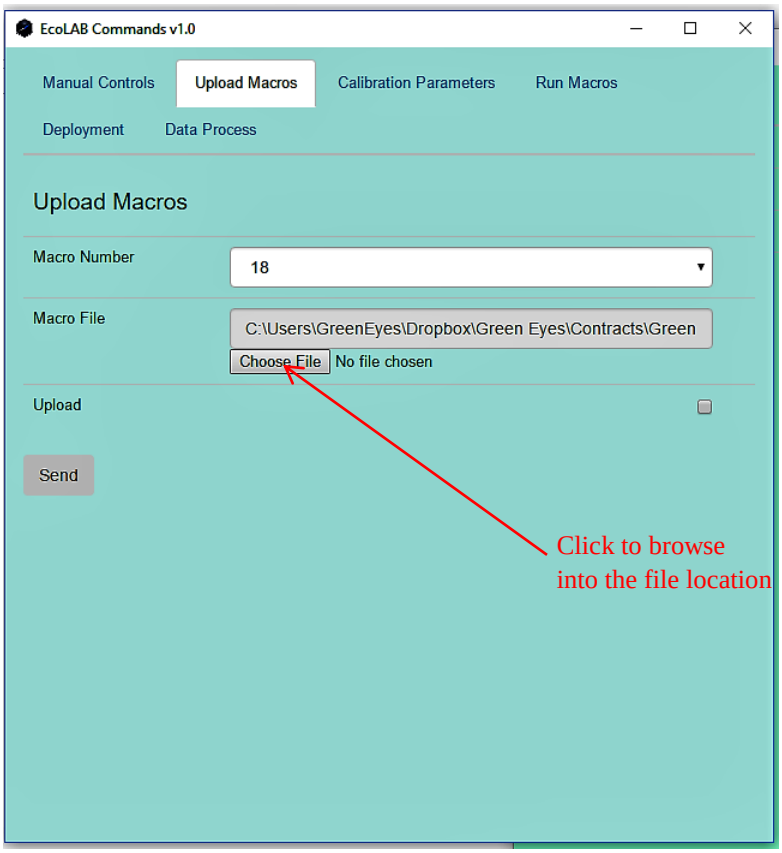
### 3.2 The Unload Macro Tab

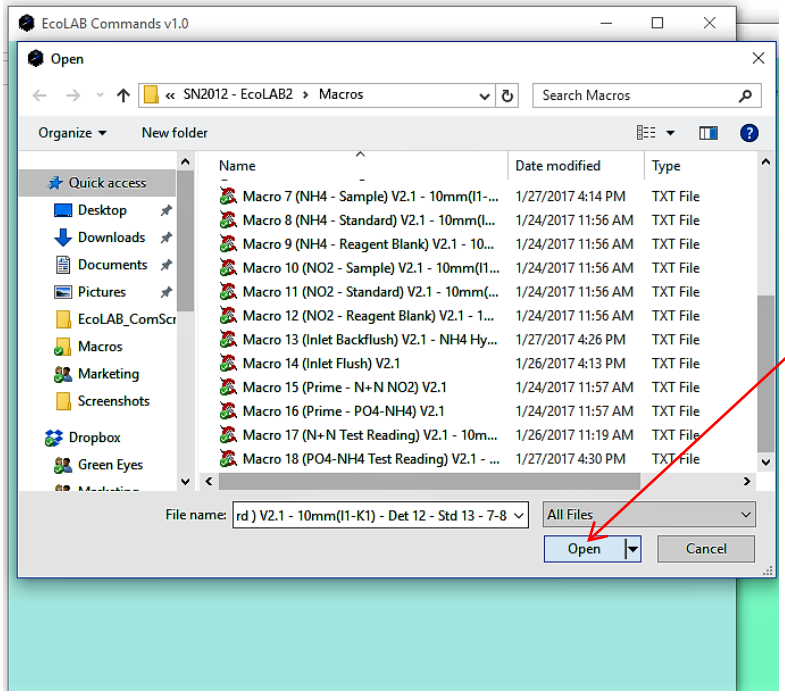
let you to unload macros into the instrument.

- Macro Number: Select the macro's number. Usually, the Green Eyes macro package contains 18 macros, each stands for an independent analysis. M0 is the full analysis cycle for deployment, customized to users' needs. Please consult Green Eyes if you need help with revising your M0.




- Macro File: Find the macro file to upload. Click the "Choose File" button and a browsing window will open, and then browse to the macro folder, choose the macro file and click "Open". Check the "Unload" check box and then "Send", and this macro will be written into the instrument.

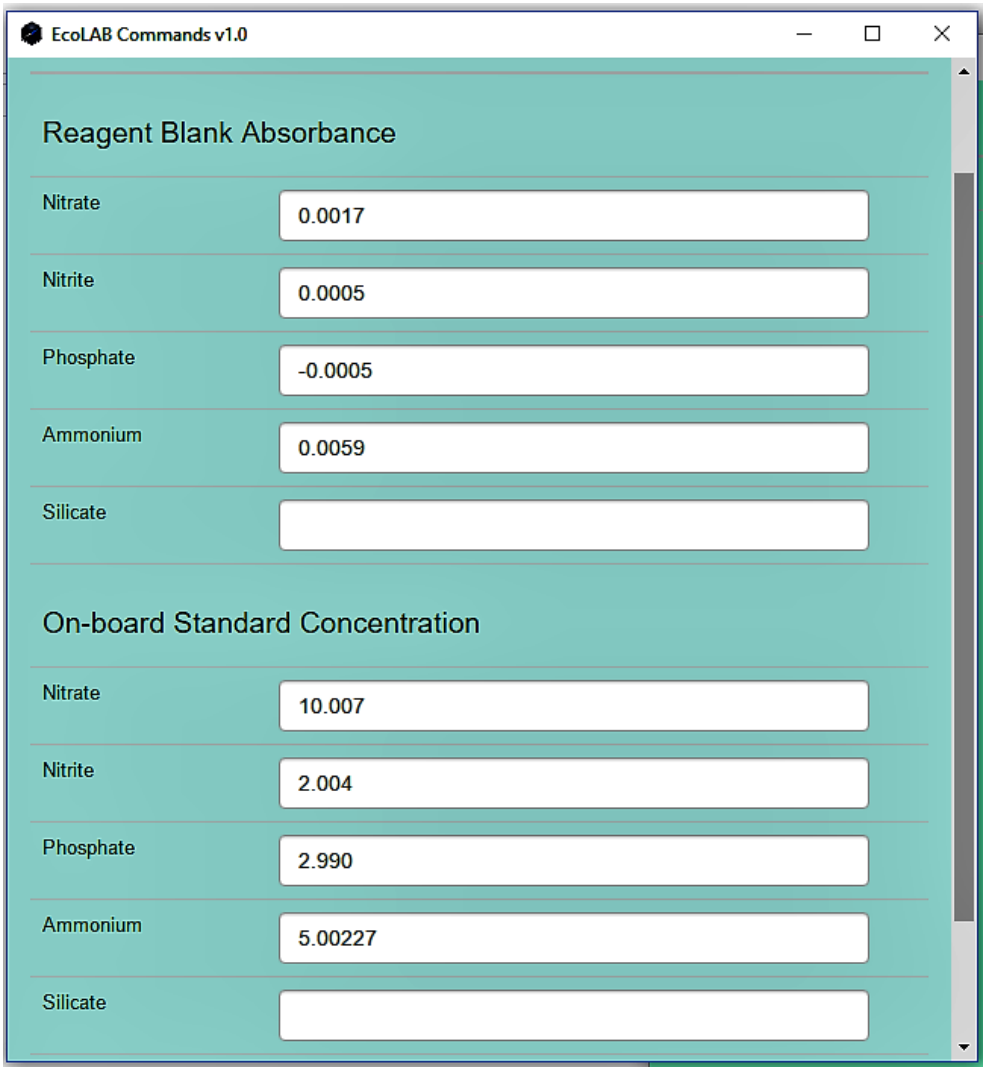

EcoLAB Commands v1.0
Manual Controls
Upload Macros
Calibration Parameters
Run Macros
Deployment
Data Process
Upload Macros
Macro Number
18
Macro File
C:\Users\GreenEyes\Dropbox\Green Eyes\Contracts\Green
Choose File
No file chosen
Upload
Send
Click to browse into the file location


EcoLAB Commands v1.0
Open
« SN2012 - EcoLAB2 › Macros
Search Macros
Organize
New folder
Quick access
Desktop
Downloads
Documents
Pictures
EcoLAB_ComScr
Macros
Marketing
Screenshots
Dropbox
Green Eyes
Name
Date modified
Type
Macro 7 (NH4 - Sample) V2.1 - 10mm(I1-... 1/27/2017 4:14 PM TXT File
Macro 8 (NH4 - Standard) V2.1 - 10mm(I... 1/24/2017 11:56 AM TXT File
Macro 9 (NH4 - Reagent Blank) V2.1 - 10... 1/24/2017 11:56 AM TXT File
Macro 10 (NO2 - Sample) V2.1 - 10mm(I1... 1/24/2017 11:56 AM TXT File
Macro 11 (NO2 - Standard) V2.1 - 10mm(... 1/24/2017 11:56 AM TXT File
Macro 12 (NO2 - Reagent Blank) V2.1 - 1... 1/24/2017 11:56 AM TXT File
Macro 13 (Inlet Backflush) V2.1 - NH4 Hy... 1/27/2017 4:26 PM TXT File
Macro 14 (Inlet Flush) V2.1 1/26/2017 4:13 PM TXT File
Macro 15 (Prime - N+N NO2) V2.1 1/24/2017 11:57 AM TXT File
Macro 16 (Prime - PO4-NH4) V2.1 1/24/2017 11:57 AM TXT File
Macro 17 (N+N Test Reading) V2.1 - 10m... 1/26/2017 11:19 AM TXT File
Macro 18 (PO4-NH4 Test Reading) V2.1 - ... 1/27/2017 4:30 PM TXT File
File name: rd ) V2.1 - 10mm(I1-K1) - Det 12 - Std 13 - 7-8
All Files
Open
Cancel
Click Open after select the macro file

### 3.3 Calibration Parameters Tab

asks you to input some analyzing parameters that are needed for Data Processing, especially for the concentration data. Please ensure filling these parameters before running Data Process command.

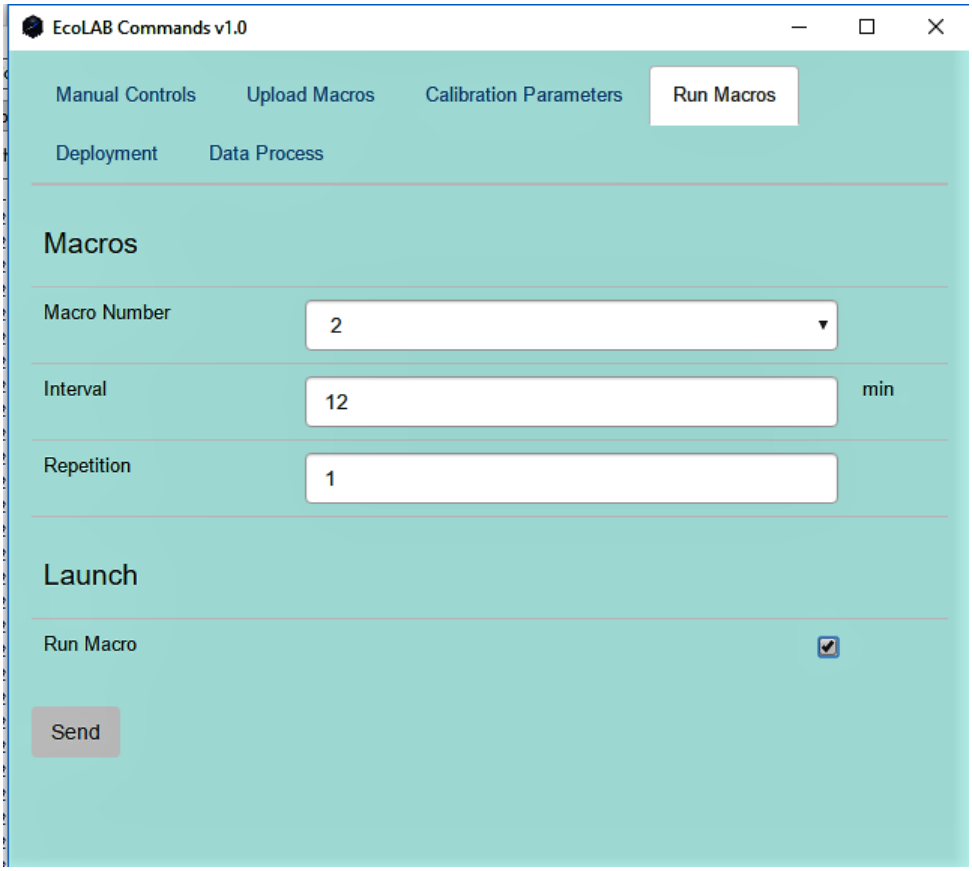
- Reagent Blank Absorbance: Which should be got from the pre-deployment test.
- On-board Standard Concentration: Which should be got from reagents preparation.



### 3.4 Run Macros Tab

allows you to run one or just a few macros inside of the whole analyzing cycle.

- Macro Number: Which macro to run.
- Repetition: How many times to run.
- Interval: The interval between each running.



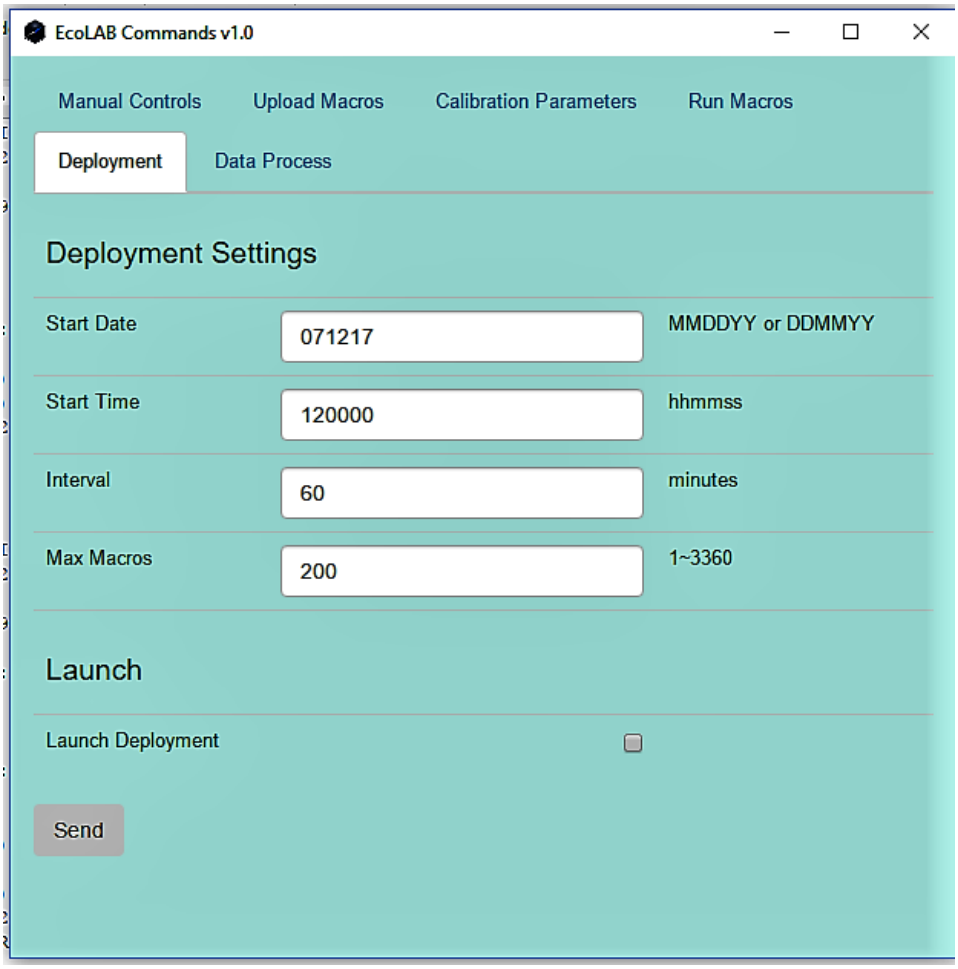

### 3.5 Deployment Tab

let you to set the EcoLAB into deployment mode.

- Deployment Settings: Set the deployment configuration, includes “Start Date” and “Start Time”, “Interval” and “Max Macros” to run (*Attention: Max Macros doesn’t mean max sample numbers*).

EcoLAB will be put into logging mode after the “Launch Deployment” command is sent. After that, if the deployment hasn’t start yet, running any other macro or sending other commands will let the instrument exit the logging mode. If so, you will need set the deployment again.

**Note: If user want to let the instrument exit deployment logging mode: stop the program while it's "sleeping", then restart it and do a Comms Check.**



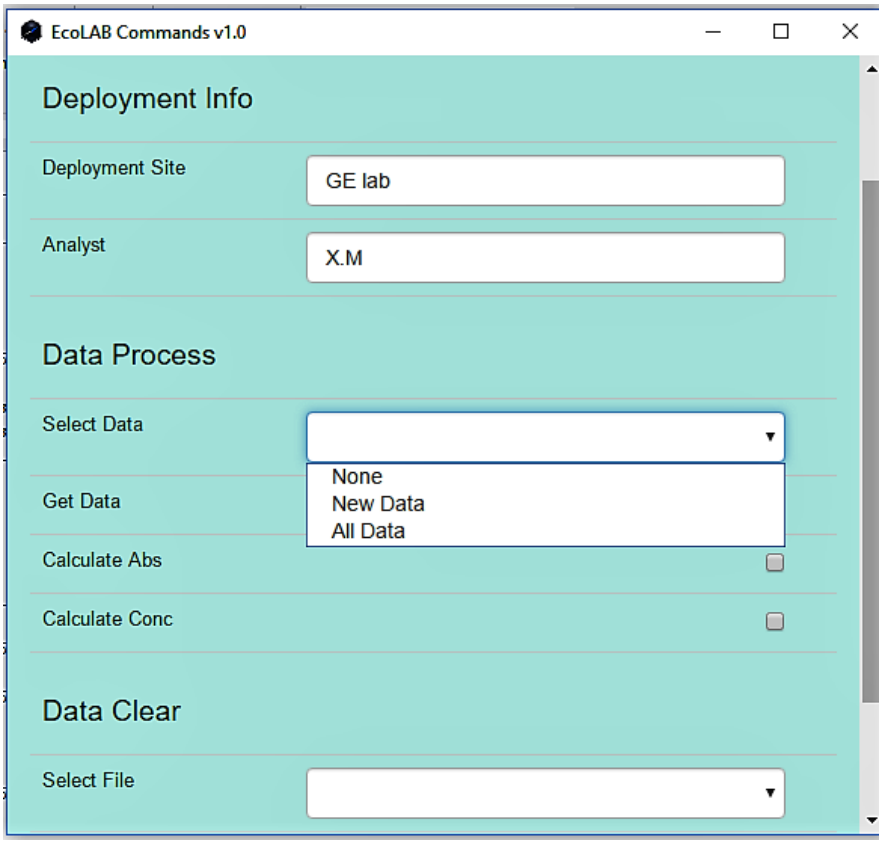

### 3.6 Data Process

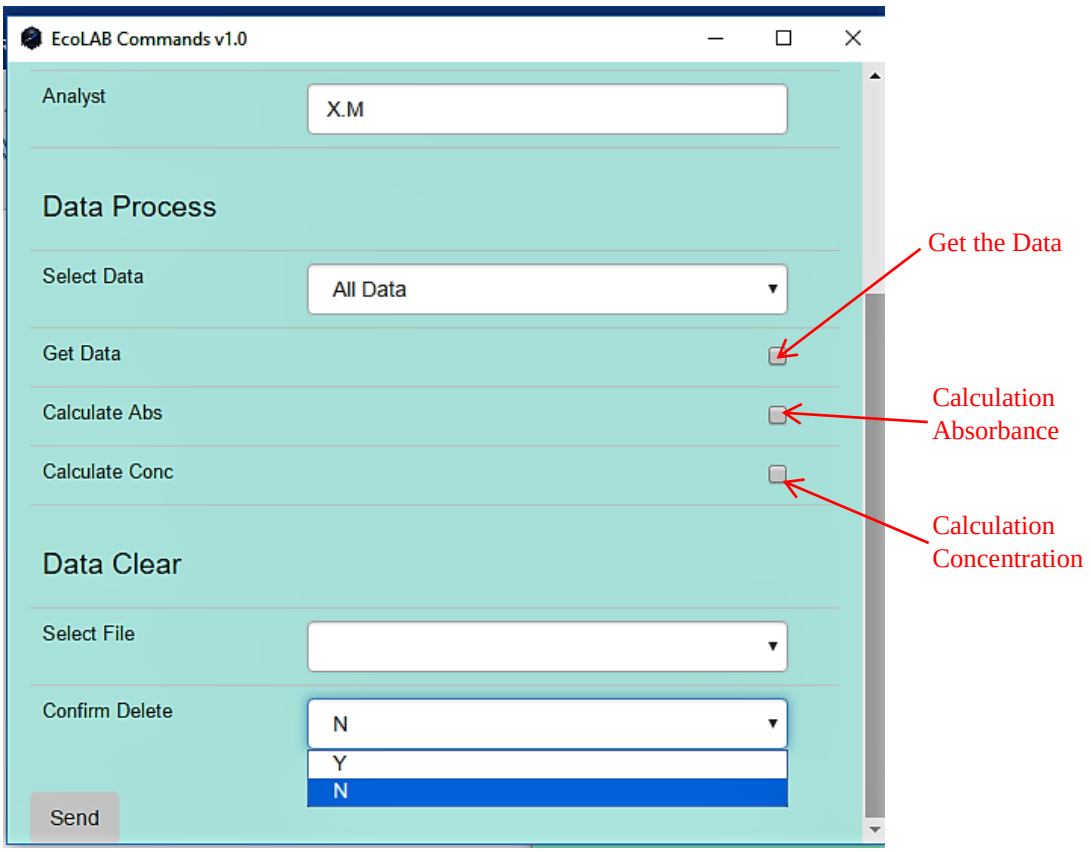
allows you to download the data from the instrument and calculate them, and, clear the data.

- Deployment Info: Some basic information about this deployment, including the "Deployment Site" and the name of the "Analyst". This information will be written in the processed data file.
- Select Data: Choose which data file to process. "All Data" is all the data that's stored in the EcoLAB, "New Data" is the new data since the last time you view it.
- Get Data: Download the data from the EcoLAB;
- Cal Abs: Calculate the absorbance of the data;
- Cal Con: Calculate the concentration of the data.

The right sequence to process should be get the data–calculate the absorbance –calculate the concentration. "Cal Conc" cannot be done without "Cal Abs". "Get Data" can be done separately with calculations.

If you have the GNUplot installed in the computer, the program will also make plots of the processed data. All the results (original data file, processed data file and plots) will be saved in the EcoLAB_ComScript folder (see Section 4).






- Data Clear: delete the data files in the EcoLAB.
- Select File: the file you want to delete; Files include “Raw data” and “Real data”.
- Confirm Delete: Select “Y” to confirm deletion. It will automatically be reset to “N” every time to avoid maloperation.

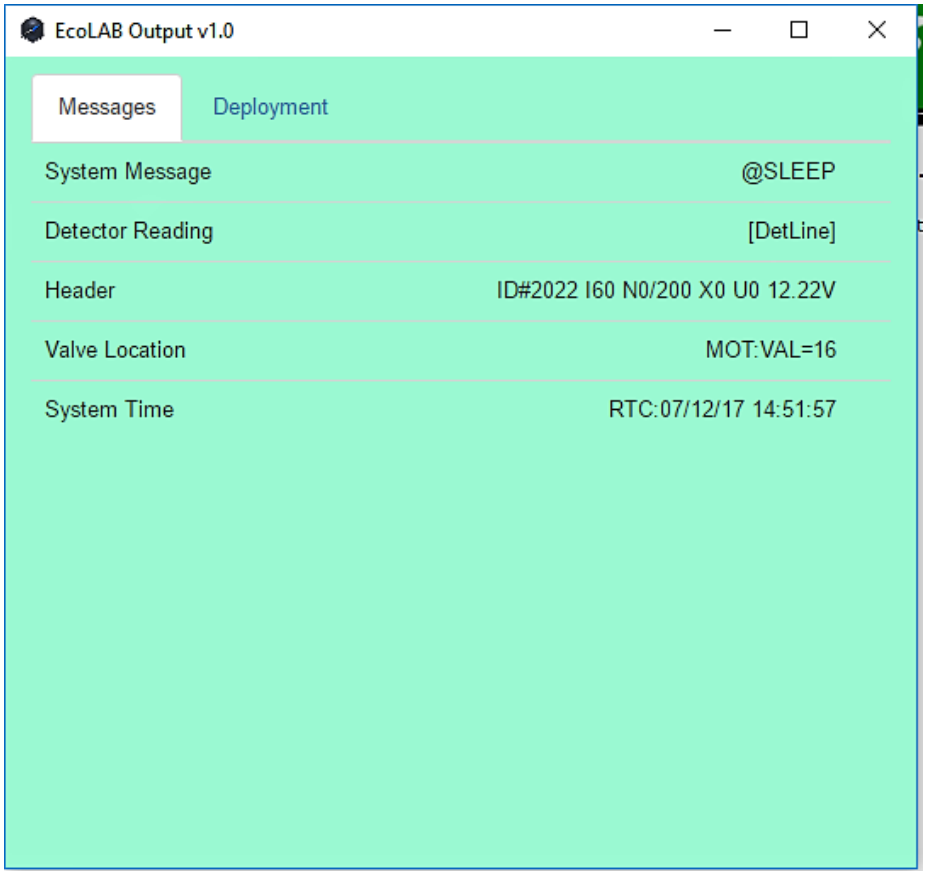
# 4. Introduction of the Output Window

The Output Window lets you to keep track of the operation status, configuration and latest results of the EcoLAB. It's composed of three individual tabs, which is the **Messages** and **Deployment**.

## 4.1 Messages Tab

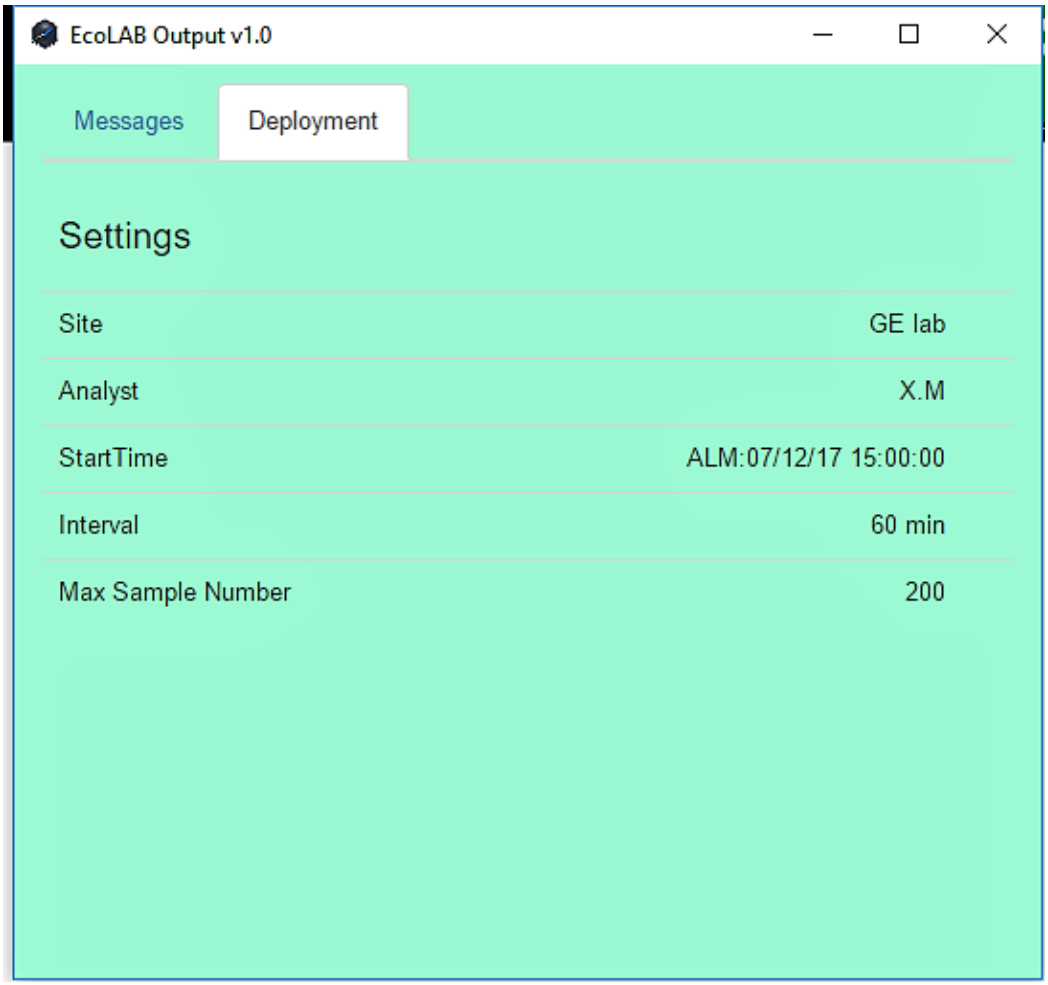
outputs the following information:

- System Message: Tells you what action the instrument is running, and the command success or failure report;
- Detector Reading: Writes out the result of detector reading;
- Header: Basic setting information of this instrument, which results from the Comms Check commands;
- Valve Location: Tells you which port the valve is current at.
- System Time: Writes out the time on the instrument.



### 4.2 Deployment Tab

writes out all the information of the Deployment once it’s set.

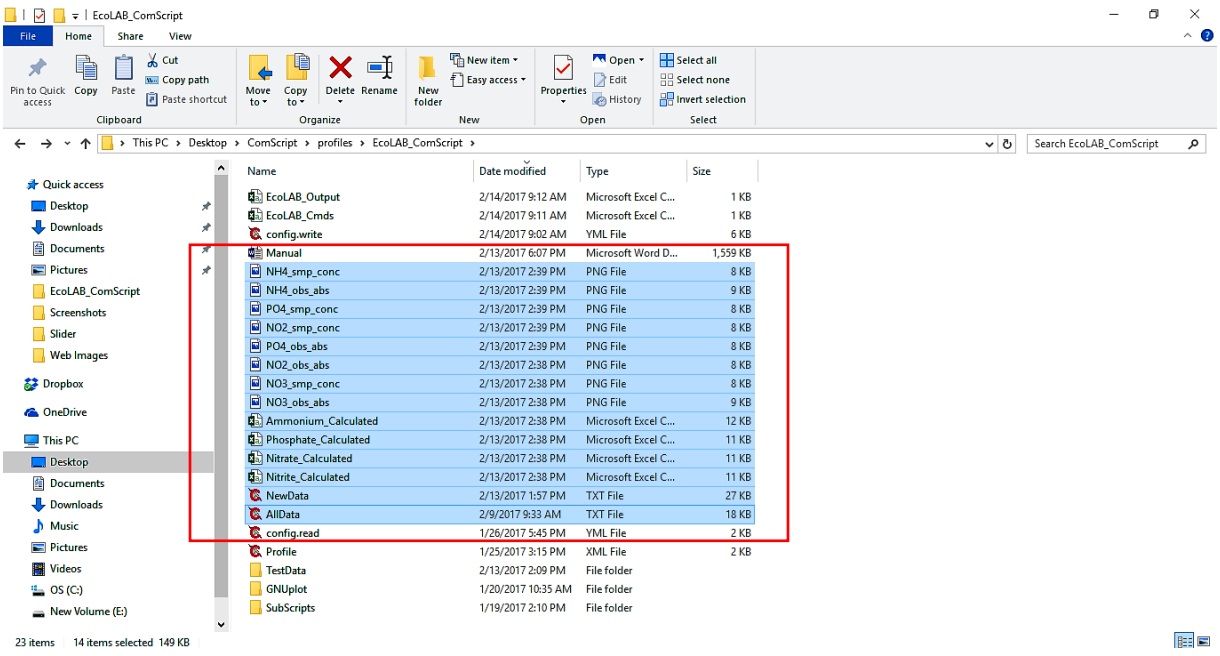


# 5. Viewing the results

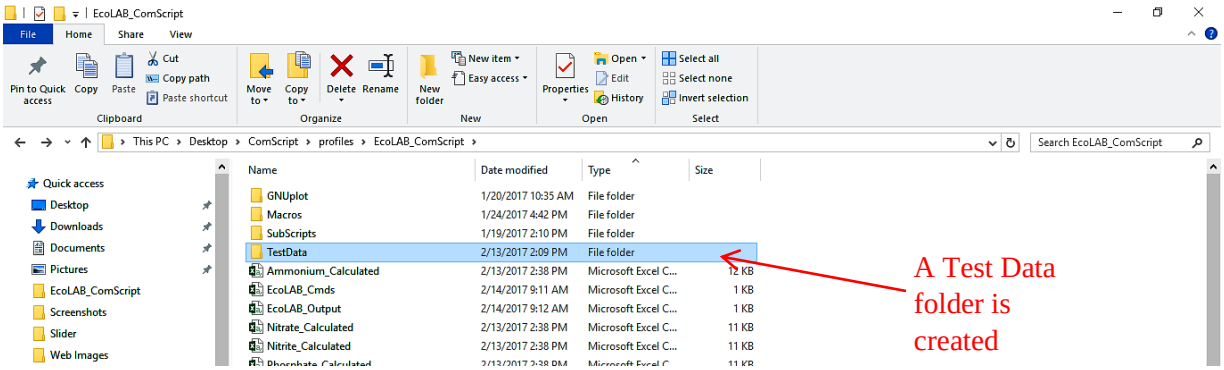
## 5.1 Processed Data

After the ComScript has done processing the data, all the results would be saved in the EcoLAB_ComScript folder. Each nutrient will have an independent data file saved in CSV format.

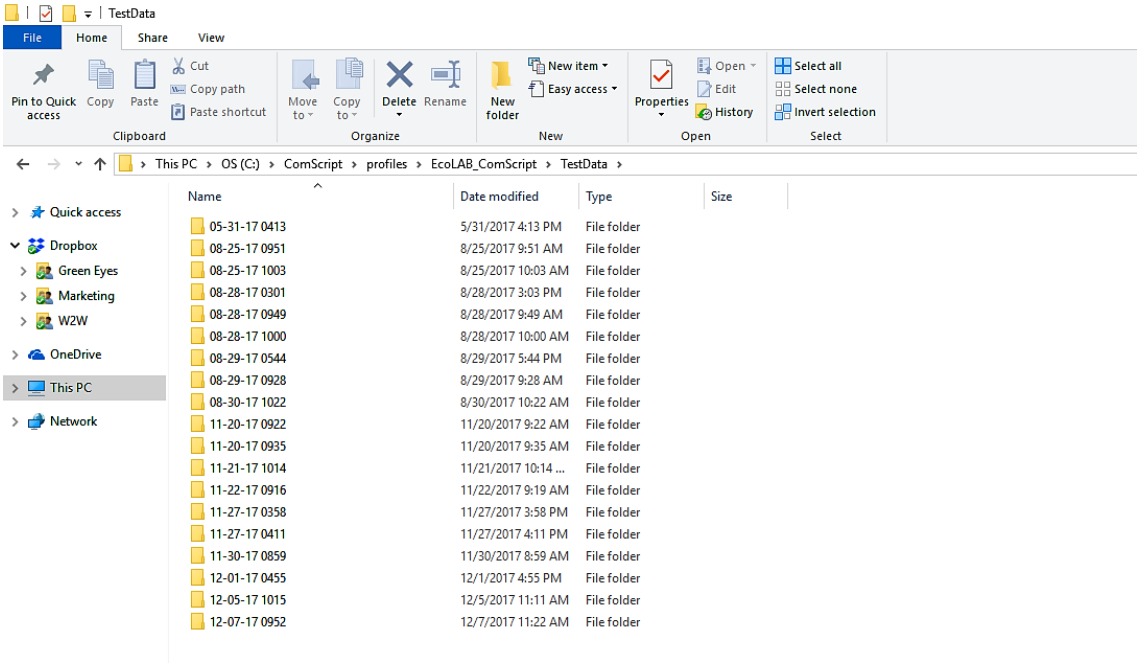
If GNUplot is installed on their computer, there will also be plots of OBS absorbance and Sample concentration of each nutrient. The AllData and NewData will also be saved here in Text files.

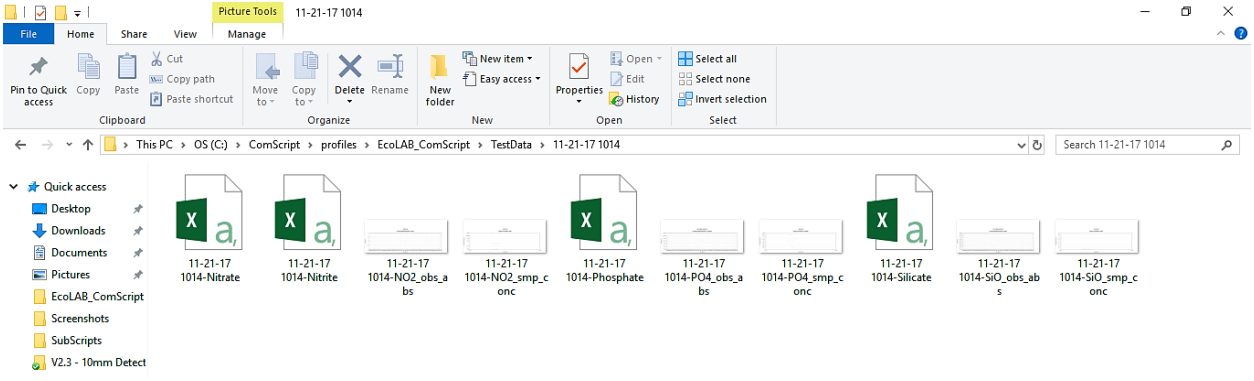



Also, there will be a “TestData” folder.



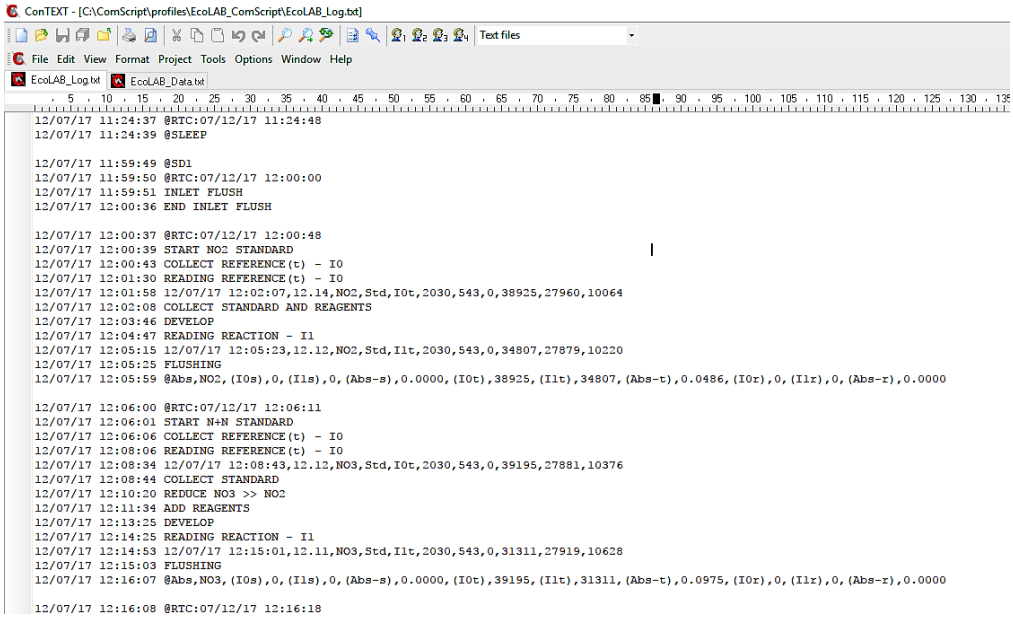

Here there will be sub-folder created every time after EcoLAB running Data Process action, named after the time you process the data, in the format ‘MM-DD-YY hhmm’, and all the calculated data files and plots will be copied into that folder. Only one copy of the records will be saved in one day, which is the latest trial.


TestData
File
Home
Share
View
Pin to Quick access
Copy
Paste
Cut
Copy path
Paste shortcut
Clipboard
Move to
Copy to
Delete
Rename
Organize
New folder
New item
Easy access
New
Properties
Open
Edit
History
Open
Select all
Select none
Invert selection
Select
This PC › OS (C:) › ComScript › profiles › EcoLAB_ComScript › TestData ›
Quick access
Dropbox
Green Eyes
Marketing
W2W
OneDrive
This PC
Network
Name
Date modified
Type
Size
05-31-17 0413 5/31/2017 4:13 PM File folder
08-25-17 0951 8/25/2017 9:51 AM File folder
08-25-17 1003 8/25/2017 10:03 AM File folder
08-28-17 0301 8/28/2017 3:03 PM File folder
08-28-17 0949 8/28/2017 9:49 AM File folder
08-28-17 1000 8/28/2017 10:00 AM File folder
08-29-17 0544 8/29/2017 5:44 PM File folder
08-29-17 0928 8/29/2017 9:28 AM File folder
08-30-17 1022 8/30/2017 10:22 AM File folder
11-20-17 0922 11/20/2017 9:22 AM File folder
11-20-17 0935 11/20/2017 9:35 AM File folder
11-21-17 1014 11/21/2017 10:14 ... File folder
11-22-17 0916 11/22/2017 9:19 AM File folder
11-27-17 0358 11/27/2017 3:58 PM File folder
11-27-17 0411 11/27/2017 4:11 PM File folder
11-30-17 0859 11/30/2017 8:59 AM File folder
12-01-17 0455 12/1/2017 4:55 PM File folder
12-05-17 1015 12/5/2017 11:11 AM File folder
12-07-17 0952 12/7/2017 11:22 AM File folder


Picture Tools
11-21-17 1014
File
Home
Share
View
Manage
Pin to Quick access
Copy
Paste
Cut
Copy path
Paste shortcut
Clipboard
Move to
Copy to
Delete
Rename
Organize
New folder
New item
Easy access
New
Properties
Open
Edit
History
Open
Select all
Select none
Invert selection
Select
This PC › OS (C:) › ComScript › profiles › EcoLAB_ComScript › TestData › 11-21-17 1014
Search 11-21-17 1014
Quick access
Desktop
Downloads
Documents
Pictures
EcoLAB_ComScript
Screenshots
SubScripts
V2.3 - 10mm Detect
11-21-17 1014-Nitrate
11-21-17 1014-Nitrite
11-21-17 1014-NO2_obs_abs
11-21-17 1014-NO2_smp_conc
11-21-17 1014-Phosphate
11-21-17 1014-PO4_obs_abs
11-21-17 1014-PO4_smp_conc
11-21-17 1014-Silicate
11-21-17 1014-SiO_obs_abs
11-21-17 1014-SiO_smp_conc

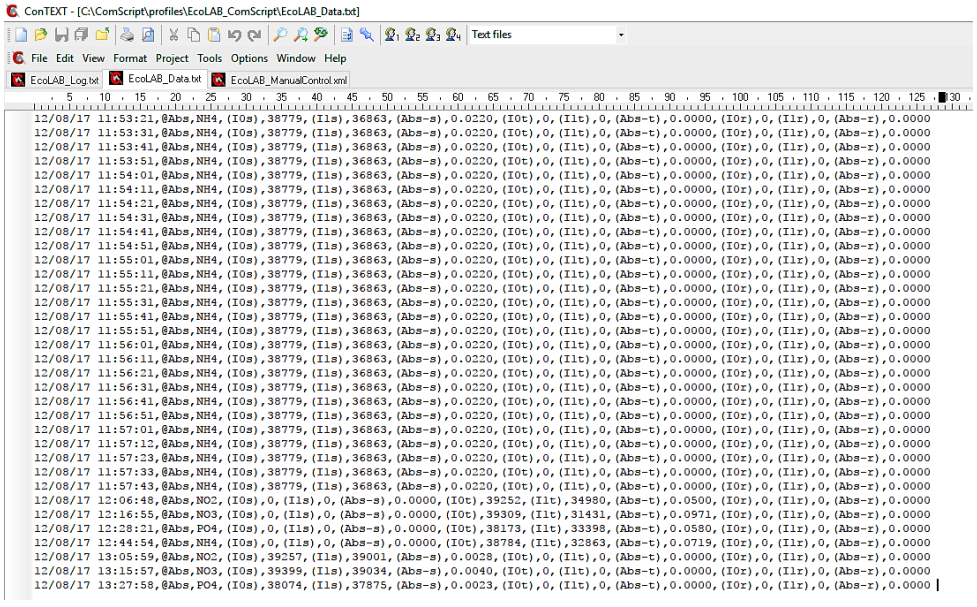
## 5.2 Real time Operation log

There will a file named “EcoLAB_log.txt” created in the folder, which records every output from the instrument while running macros or logging. Users can refer to this file to learn the macro running history of this instrument easily.




## 5.3 Real time data log

There will a file named “EcoLAB_data.txt” created in the folder, which records every result data line from running any nutrient measurement analysis. Users can refer to this file to learn the analytical results history easily.

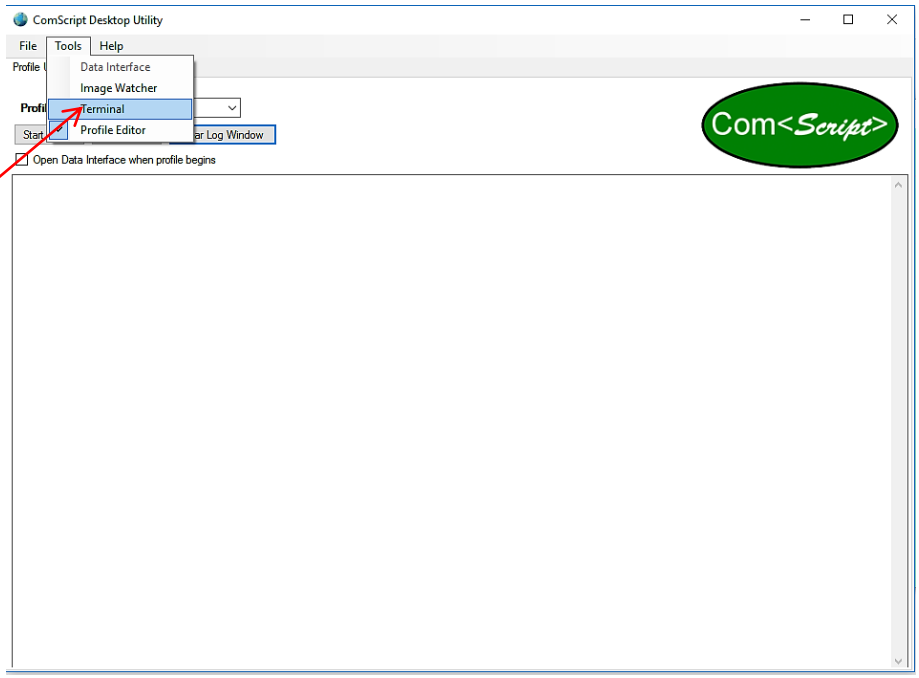


# 6. Identify the Serial Port number

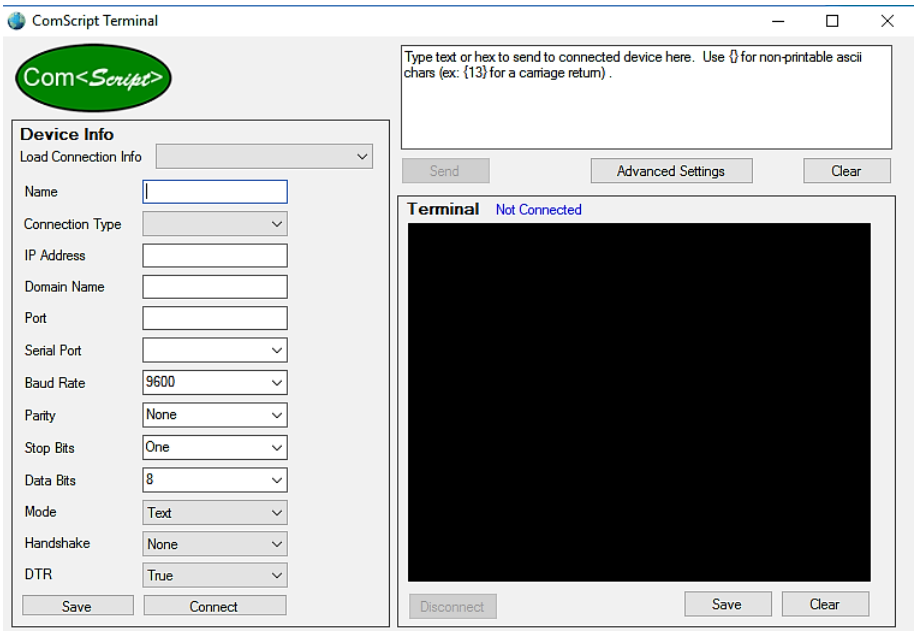
This part of the manual is to teach the users to find the right COM port they're using to communicate with the instrument.

First thing first, plug in the USB serial driver to the PC. Then, find the "Tool" tab on the ComScript Utility Interface, click on the selection "Terminal".

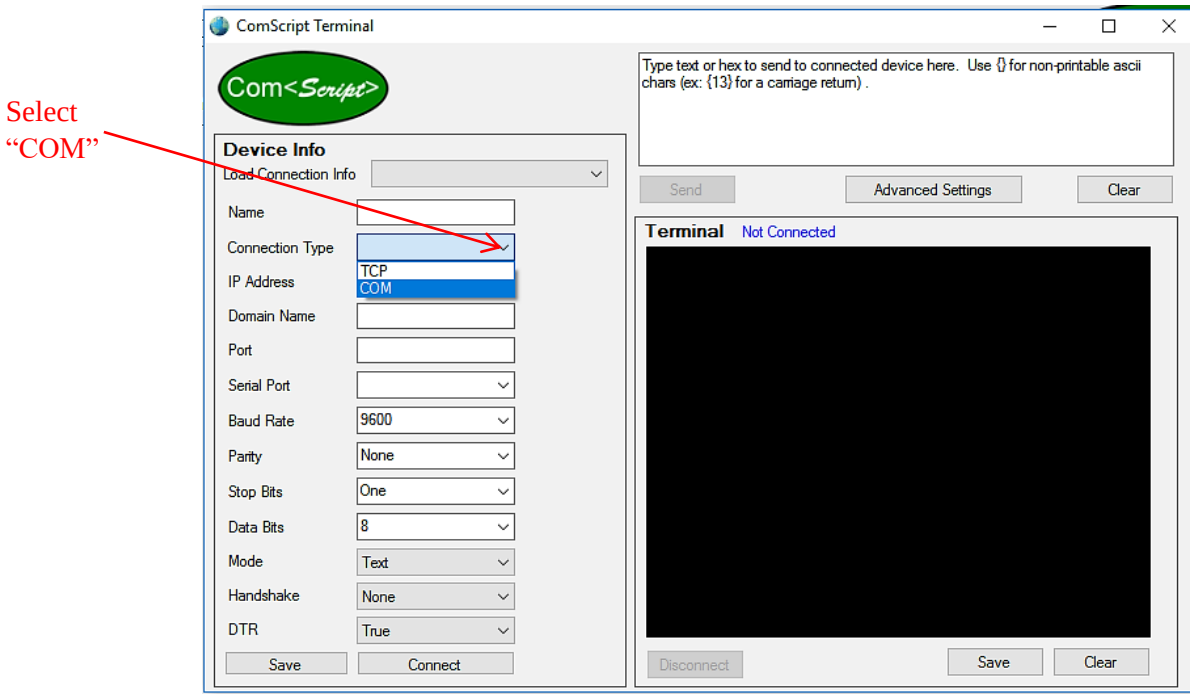
Open the terminal window



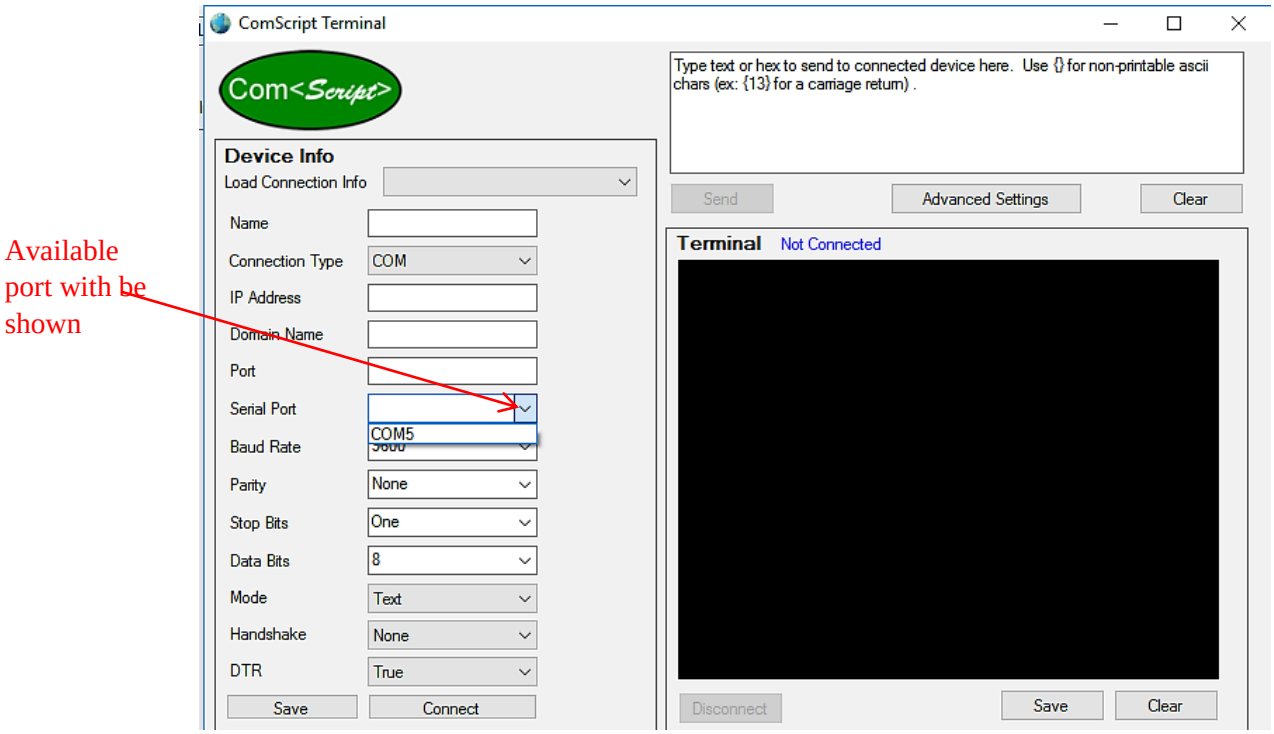

The ComScript Terminal window will then opens.



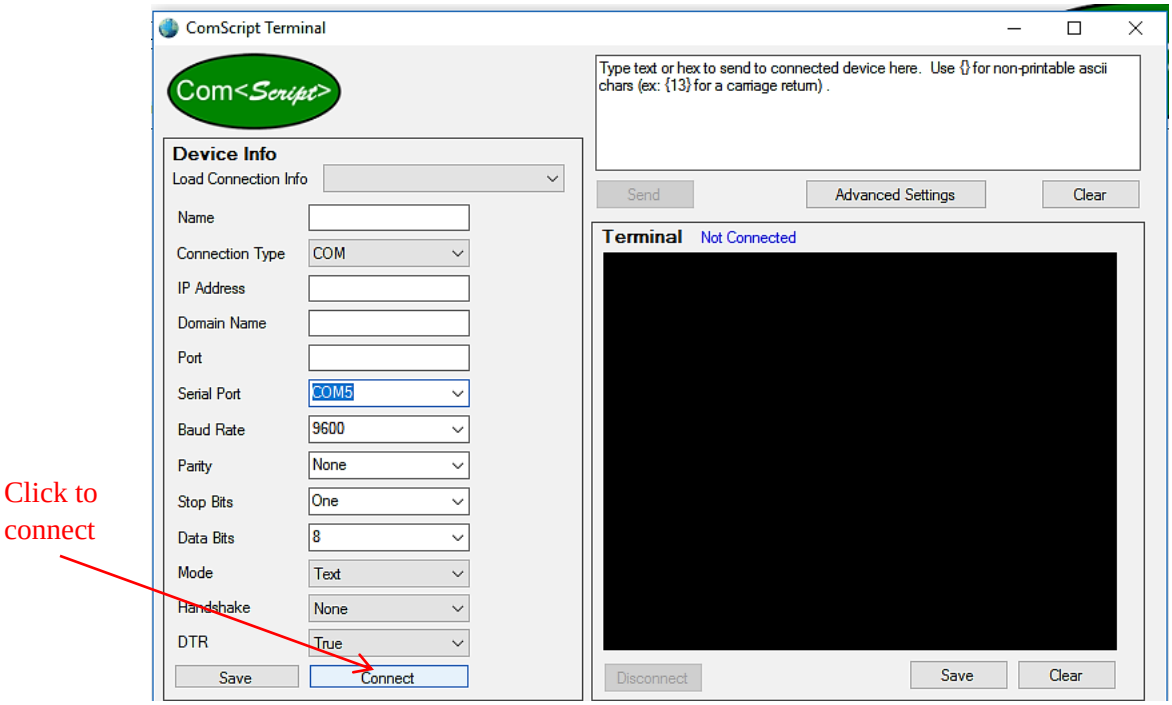
At the left column, Device Info, find the “Connection Type”, and select “COM”.



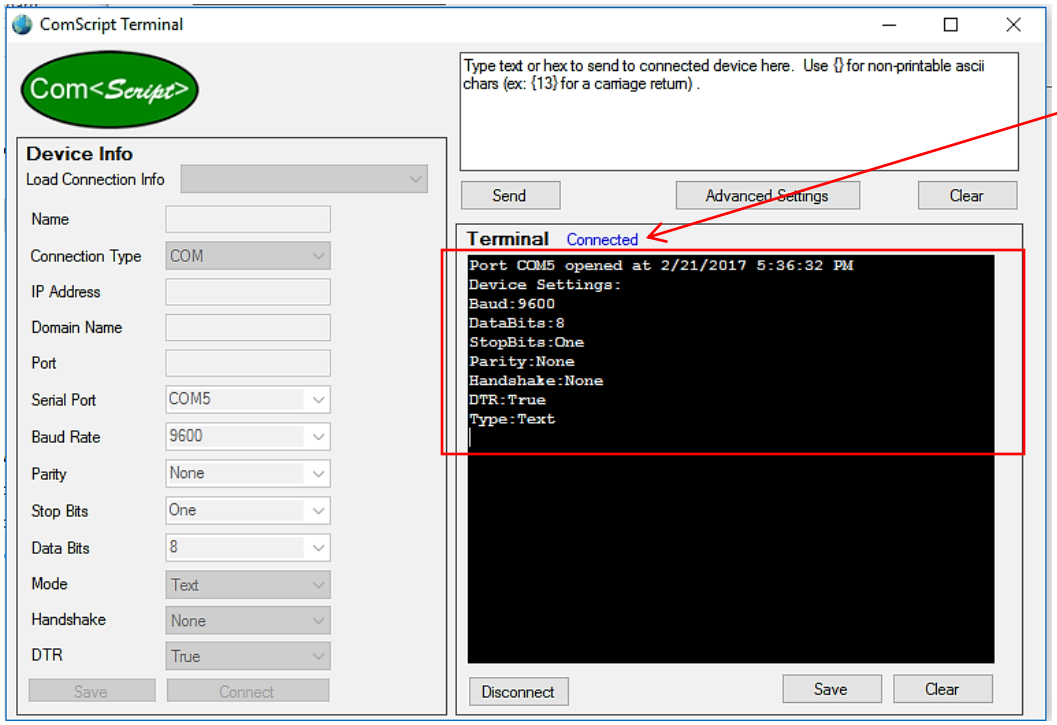

Then go to the “Serial Port”. Check on the dropdown tab and it will automatically shows the available serial port. For example, in this case, it’s “COM5”.



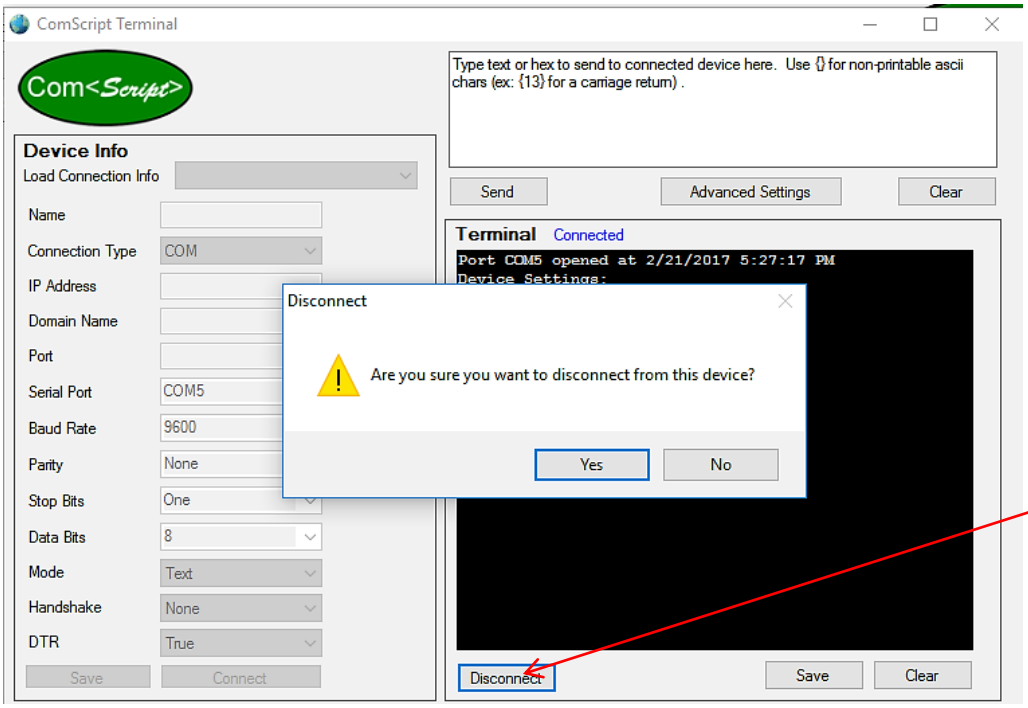
To make sure this is the right serial port you're looking for, find the "Connect" tab at the bottom of this column and click.

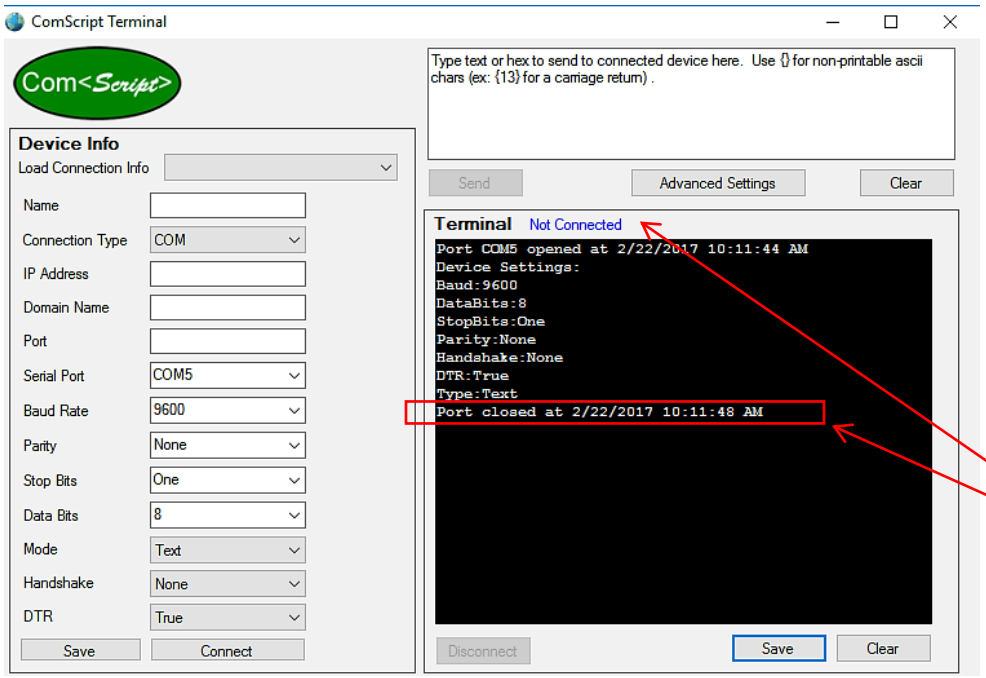



Look at the Terminal screen at the right, if the blue letters at the top turn to "Connected", and on the screen, there are information output as in the picture below, it means the instrument is connected to your computer.



Then, close the connection, by clicking the “Disconnect” button at the left bottom of the Terminal screen, and select “Yes” in the dialog window.




Now you can close this window and go back to the ComScript operation.