



# Nitrate & Phosphate Sensor Software Manual (DOT Suite)

Software Version: 1.0.3  
Document No: DOT-OM-0007-01

**Prepared by:**

Dartmouth Ocean Technologies Inc.

[www.DartmouthOcean.com](http://www.DartmouthOcean.com) | ✉ [Aftersales@DartmouthOcean.com](mailto:Aftersales@DartmouthOcean.com) | ☎ (902) 442-4010

# Revision History

<b>Rev.</b>	<b>Release Date</b>	<b>Prepared</b>	<b>Approved</b>	<b>Revision Description</b>
01	2023-10-13	EL	EL	Updated for Software Version 1.0.3

# Table of Contents

<b>1</b>	<b>Download &amp; Installation</b> .....	<b>4</b>
<b>2</b>	<b>Overview</b> .....	<b>6</b>
<b>3</b>	<b>Operation Guide</b> .....	<b>7</b>
<b>3.1</b>	<b>Status Tab</b> .....	<b>7</b>
<b>3.2</b>	<b>Configure Tab</b> .....	<b>8</b>
<b>3.3</b>	<b>Data Tab</b> .....	<b>10</b>
3.3.1	Types of Files.....	11
<b>3.4</b>	<b>Analysis Tab</b> .....	<b>12</b>
<b>3.5</b>	<b>Admin &amp; Contact</b> .....	<b>14</b>
<b>4</b>	<b>User Notes</b> .....	<b>15</b>

# List of Figures

- Figure 1: DOT Suite Installer folder..... 4
- Figure 2: Application Install security warning prompt. Click “Install” to proceed..... 5
- Figure 3: Windows protection – click “Run Anyway” to proceed..... 5
- Figure 4: DOT Suite overview..... 6
- Figure 5: DOT Suite – Status tab. .... 7
- Figure 6: DOT Suite – Configure tab..... 9
- Figure 7: DOT Suite – Data tab..... 10
- Figure 8: Load Chart Data dialog..... 12
- Figure 9: DOT Suite – Analysis tab. .... 13

## 1 Download & Installation

DOT Suite is an accessory application provided by Dartmouth Ocean Technologies Inc. (DOT) to assist in operation of the Nitrate & Phosphate Sensor. DOT Suite is provided with every purchase of a DOT Nitrate & Phosphate Sensor.

The following describes the installation process for DOT Suite on systems running Windows:

- Download DOT Suite Application Installer: “DOTSuite Installer – v1.0.3”
- Double click “DotSuite.application” to begin the installation process – Figure 1.
- A security warning will appear asking for confirmation to proceed with the installation. Click “Install” – Figure 2.
- A second security warning will appear before installation. Click “Run Anyway” to proceed – Figure 3.

After installation, DOT Suite can be opened by double clicking “DotSuite.application”.

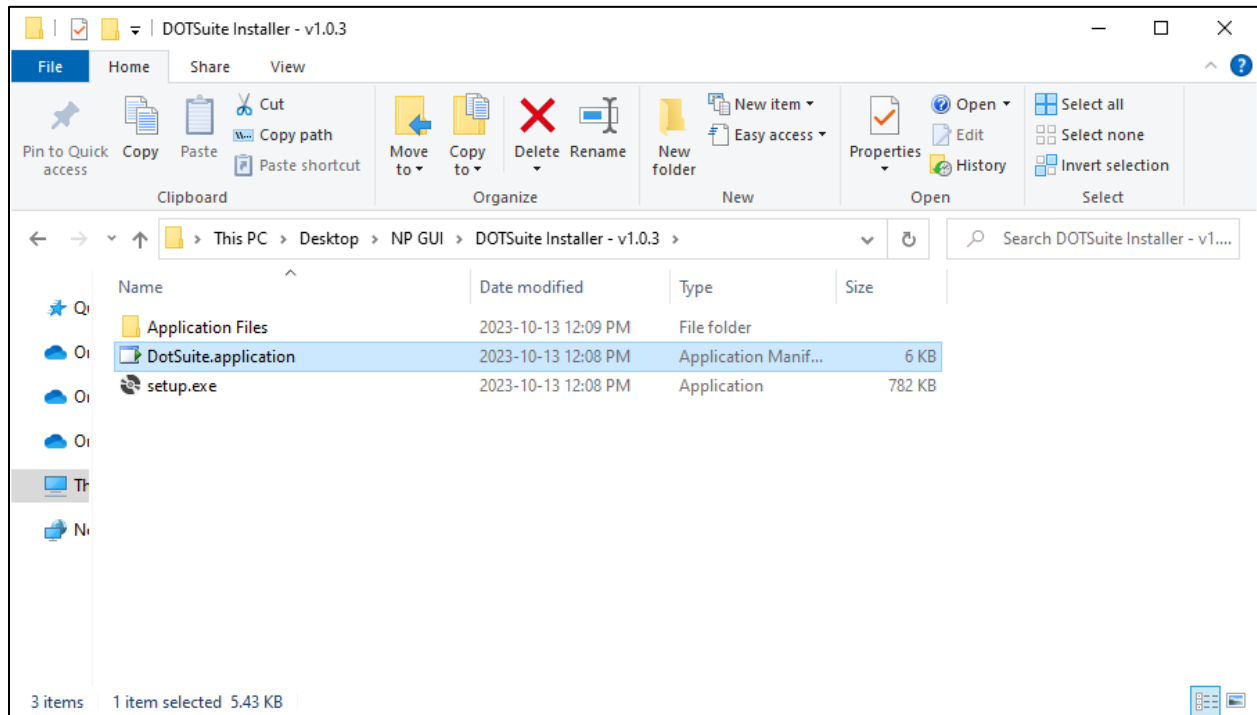


Figure 1: DOT Suite Installer folder.

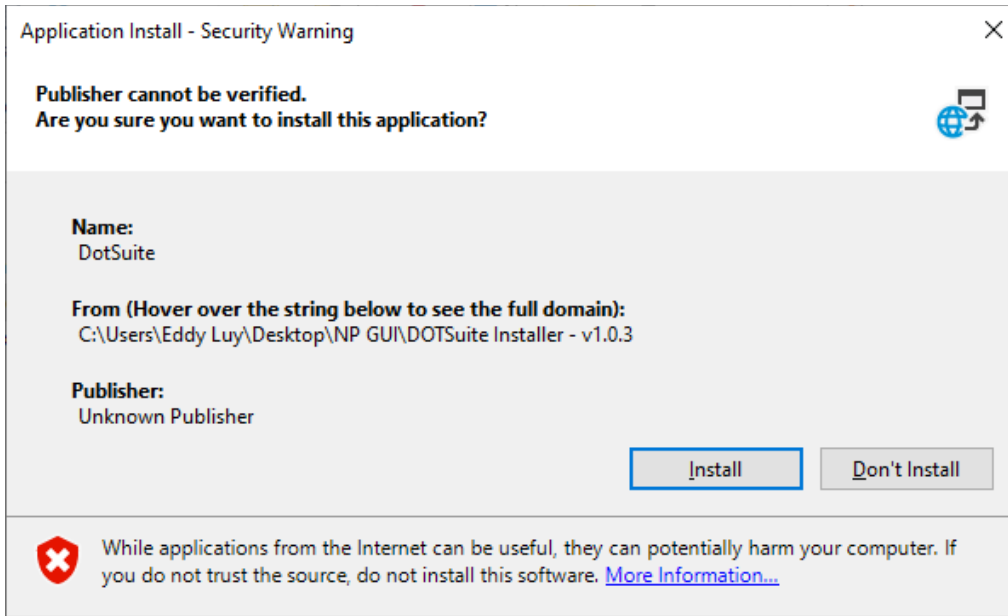


Figure 2: Application Install security warning prompt. Click “Install” to proceed.

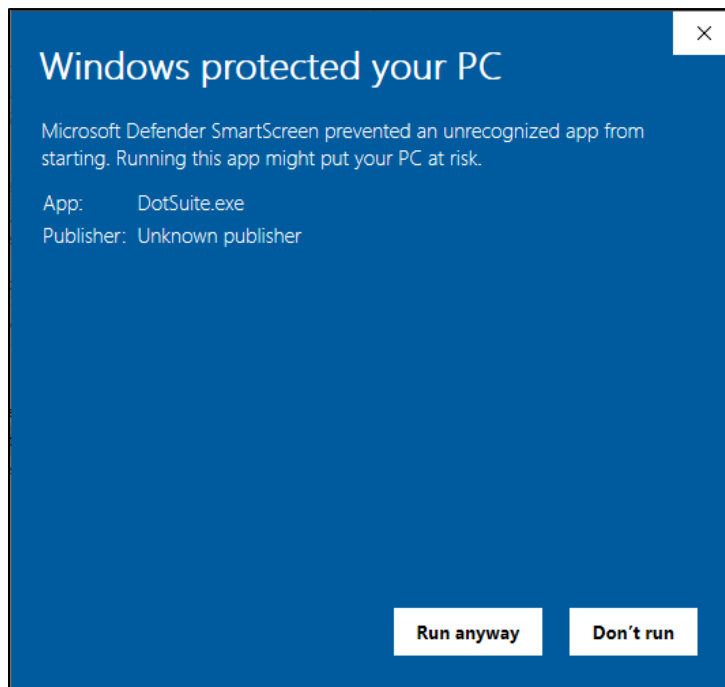


Figure 3: Windows protection – click “Run Anyway” to proceed.

## 2 Overview

The general layout of the application is shown in Figure 4. Four coloured rectangles are used to highlight the various features of the application.

- Blue region – This region indicates the name of the program and the current Software Version (v 1.0.3).
- Red region – (L) Identifies the currently connected instrument and lists Hardware Version, Firmware Version, and Serial Number. A **Stop Logging** button is located here, used to abort currently active scripts. (R) Indicates current Serial Connectivity and File Transfer Protocol (FTP) statuses.
- Green region – Selectable tabs are used to select between Status, Configure, Data, and Analysis panes.
- Magenta region – Contains raw communication strings between application and instrument.

Refer to the Nitrate & Phosphate Sensor Operation Manual for instructions on powering and communicating to your Nitrate & Phosphate Sensor, or for instructions on configuring Serial and FTP connections.

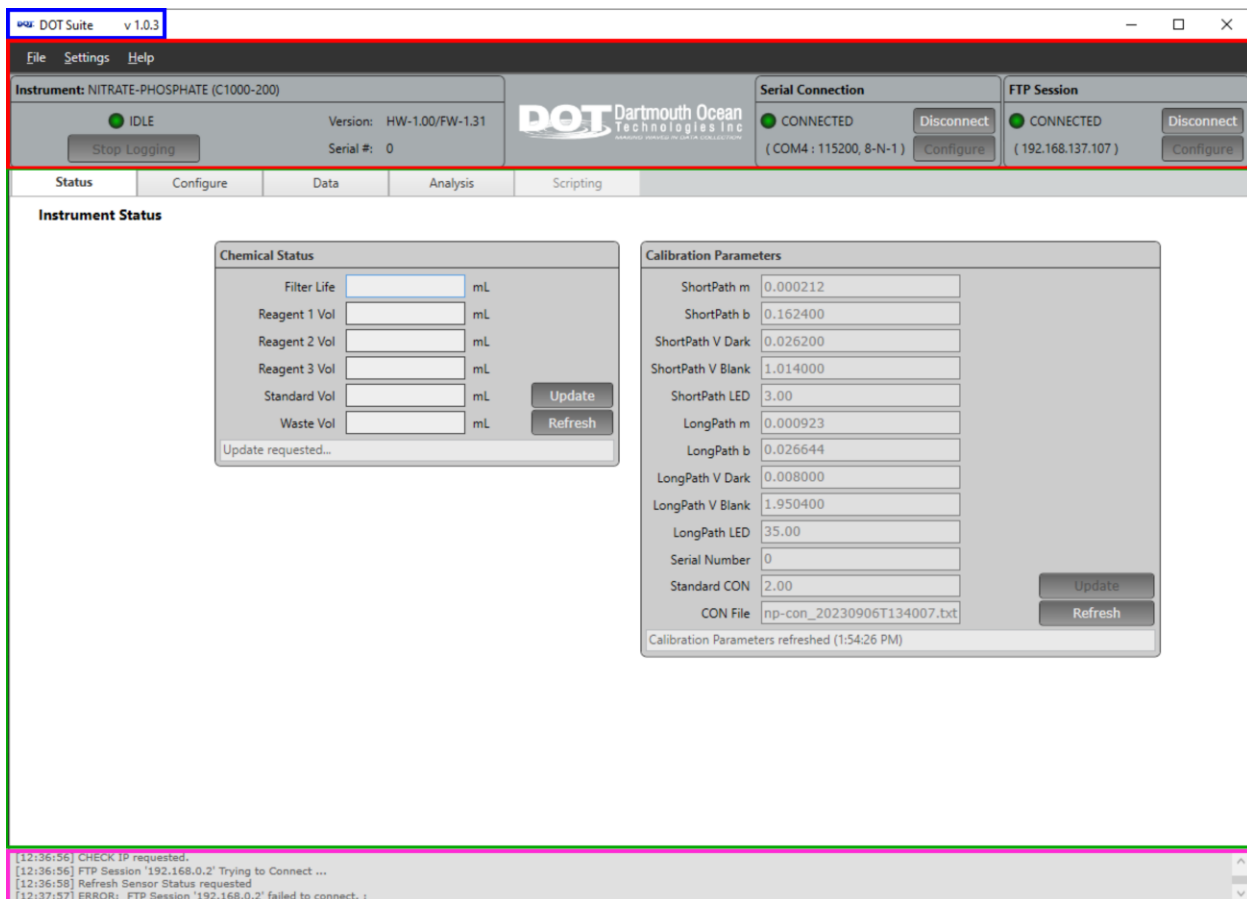


Figure 4: DOT Suite overview.

### 3 Operation Guide

#### 3.1 Status Tab

The Status tab is used to review the current status of your instrument. The left window displays the current fluid levels / remaining life of all consumables; however, this feature is not implemented for FW 1.32 instruments. The right window displays the currently set Calibration Parameters on your instrument.

In both windows, the “Refresh” button is used to refresh the application with current values from your instrument. Some values may be updated by the user: these are indicated by white editable boxes as shown in the Consumables Status window. Other fields require Admin privileges to edit: these are indicated by greyed (uneditable) boxes as shown in the Calibration Parameters window. Calibration Parameters are assigned by DOT prior to delivery; users should not need to update Calibration Parameters during regular use.

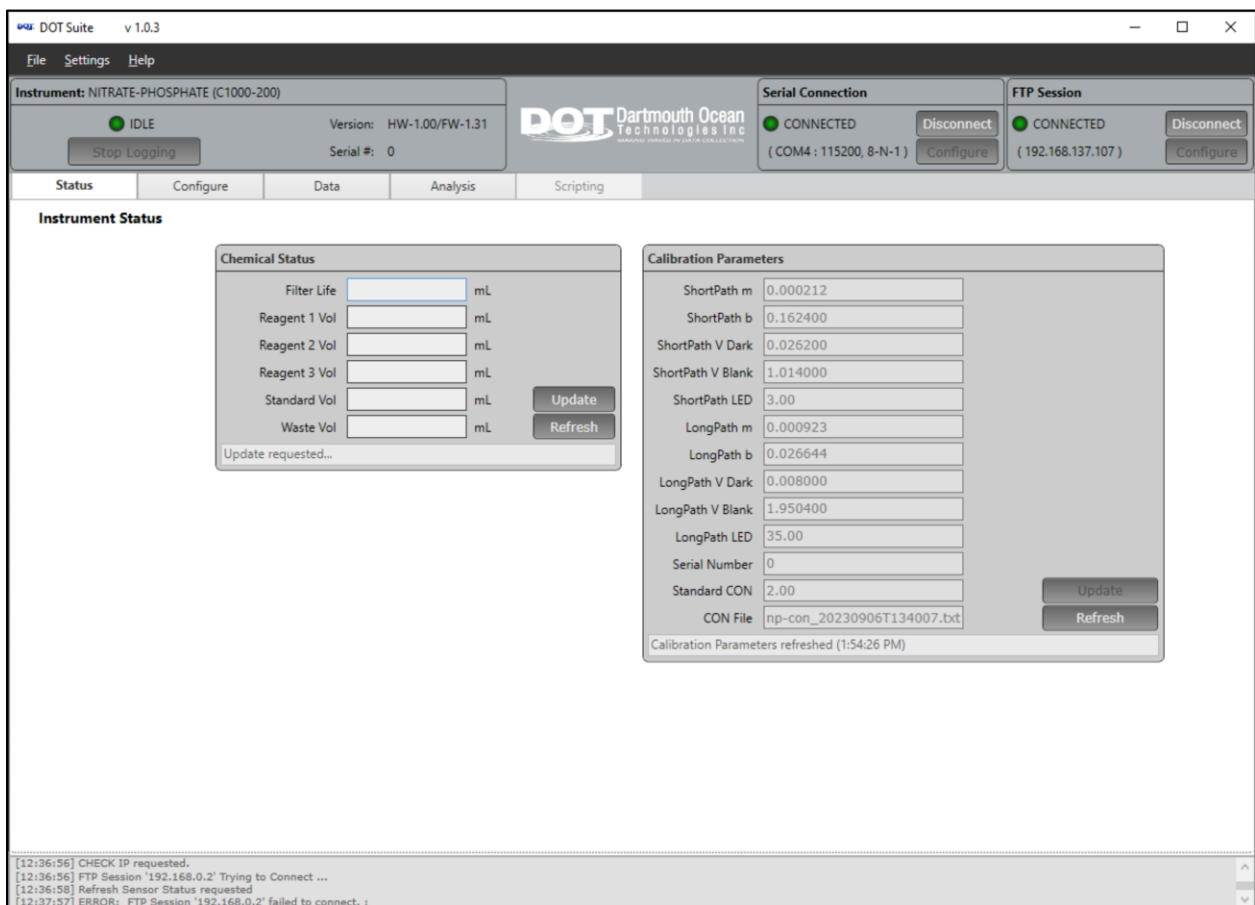


Figure 5: DOT Suite – Status tab.



### 3.2 Configure Tab

The Configure tab is shown in Figure 6 and is used to configure the following of your instrument:

- Manually run scripts
  - A dropdown menu can be used to select scripts that have been ran previously. Otherwise, type the name of a script into the white window and click “Run Script” to run.
- Program automation of your instrument (deployments)
  - Auto Run – Enable to automatically run scripts when sensor is powered up (requires reboot to activate).
  - Repeat script x time – used with Auto Run enabled. Specifies the number of times to repeat scripts.
  - Use sample period – Enable to add a delay between script repeats. This delay is specified in “Pause between samples <n> times” (two fields below).
  - Sync sample on hour – Used to schedule scripts to begin at the start of the hour.
  - Pause between samples <n> times – used with “Use sample period”. Specifies number of minutes to delay between repeated executions of scripts.
  - Script File Name – this field is used to specify the script that automatically runs with Auto Run enabled. This script should be set to acquire sample measurements.
  - Standard File Name – a second script can be programmed to run with Auto Run enabled. This field specifies the second script, which is usually used to acquire standard measurements (on-board nutrient standard).
  - Samples per Standard – used with Auto Run, Script File Name, and Standard File Name. Used to specify how frequently the second script should occur. This field can be set to 0 to disable use of a second script; this is useful when only sample measurements are desired.
  - Payload Mode – this mode can be enabled for vehicle integration, but is not recommended for general use.
  - Auto Analyze – enable to automatically calculate nutrient concentrations when sampling occurs. **This should always be enabled; otherwise, data must be post-processed.**
- Shutdown or Reboot your instrument
- Set or review instrument clock.
  - Click “Refresh” to sync the application to the current instrument date & time
  - Click “Sync” to update instrument date & time with those of your PC.
  - Click “Set” to update instrument date & time with that specified in the adjacent field.
- Check and/or set instrument IP Address (FTP connectivity).
  - Click “Check” to obtain the current IP Address of your instrument.
  - Click “Set” to attempt to assign a new IP Address to your instrument.
  - Refer to the Operation Manual for instructions on assigning a valid IP Address to your sensor.

\*Note: an active FTP connection is **not** required to run scripts; however, an FTP connection may be useful to identify which scripts are currently loaded onto your instrument. Only script files loaded onto your instrument can be ran.

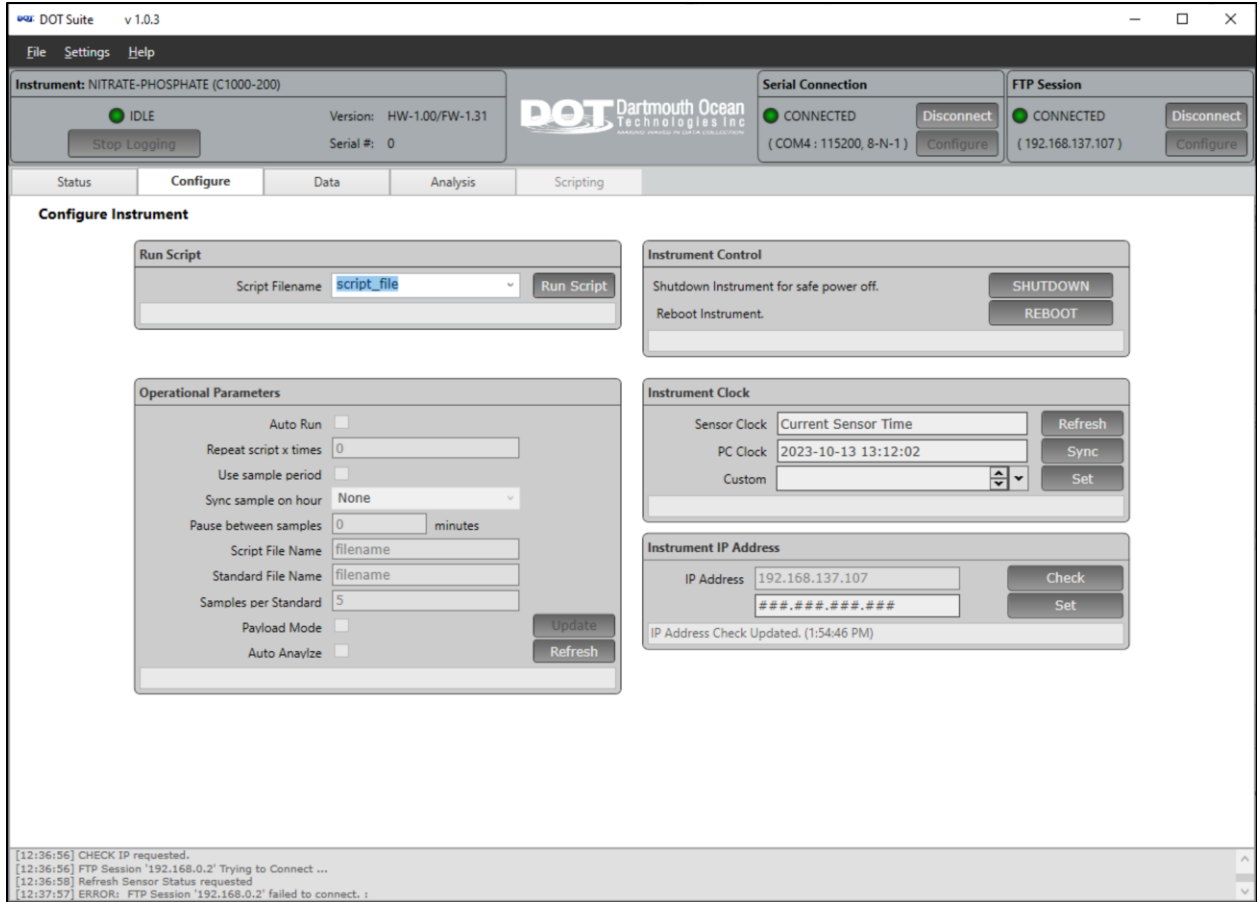


Figure 6: DOT Suite – Configure tab.

### 3.3 Data Tab

The Data tab requires an active FTP connection and is used to transfer files between PC and instrument. These files may include data, scripts, instrument logs, or config. files (Config. upload **not** recommended).

The left window can be used to navigate the various folders of your PC. A file path for files downloaded from your instrument can be selected. For example, if “Desktop” is selected, downloaded files will be saved to your desktop. Similarly, files on your PC can be uploaded to your instrument using the right arrow; however, this is not recommended.

The right window is used to navigate the directories of your Nitrate & Phosphate Sensor’s SD Card (internal memory). The root directory is shown in Figure 7 in the top right window. The files stored in the currently selected directory (folder) can be seen in the bottom right window. In Figure 7, the contents of the root directory are shown and script files are displayed.

Config. files should never be modified without first consulting DOT; email [Aftersales@DartmouthOcean.com](mailto:Aftersales@DartmouthOcean.com) to discuss altering config. files.

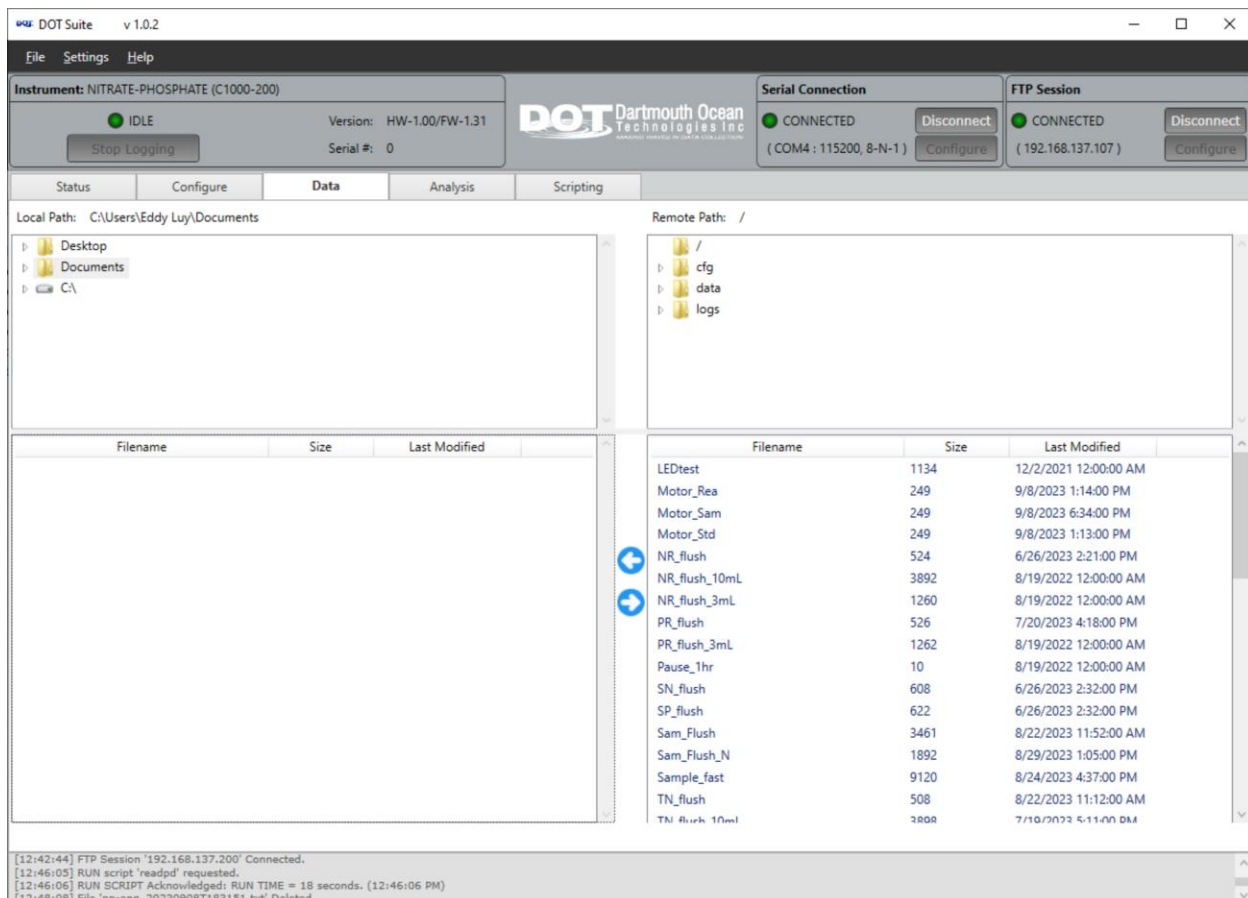


Figure 7: DOT Suite – Data tab.

### 3.3.1 Types of Files

The following types of files are used/generated by the Nitrate & Phosphate Sensor.

- (Root Directory) Script Files – these files are used to operate the sensor and acquire measurements.
- (Data Directory) np-data Files – these files contain photodiode data from sampling and are used to calculate nutrient concentrations.
- (Data Directory) np-eng Files – these files contain raw engineering data recorded during sampling. These include time, temperature, voltage, current, power, pitch, roll, and valve states.
- (Data Directory) np-con Files – these files contain processed results from sampling. Measured values of nutrient concentrations are stored here with date-time stamps.
- (Logs Directory) .log Files – these files contain detailed logs of sensor activity with a record of all raw sensor functions used during operation. Log files are separated by day.
- (Cfg Directory) Config Files – these include cal, script\_time, settings, and status. These files should not be modified by the user.

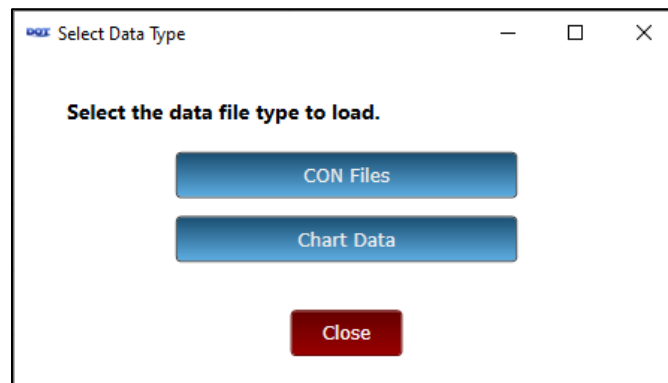
### 3.4 Analysis Tab

The analysis tab is used to plot data and generate reports. Data plotting requires processed “Con” files.

To plot data, click “Load Chart Data”. A dialog box will appear as shown in Figure 8 – click “CON Files”. A second prompt will appear to select Con files for plotting. One or several Con files can be selected; to select multiple files, ctrl-click files consecutively.

Data obtained from loaded con files are plotted in the Analysis tab – see Figure 9. Both Nitrate and Phosphate are graphed on the same plot using two data sets. A legend is shown to differentiate between the two nutrient species. Similarly, both Standard and Sample measurements may be graphed on the same plot. However, in Figure 9, only Sample measurements are displayed from the test data set.

Users may mouse over data points to highlight individual measurements. The bounds of the x or y axes can be modified by the user by right clicking the plot. Similarly, the Options button can be pressed to rename the axes, or to enable/disable graphing of Sample and/or Standard measurements. Finally, an auto-generated report on the plotted data can be reviewed and saved by clicking “Data Summary”.



**Figure 8: Load Chart Data dialog.**

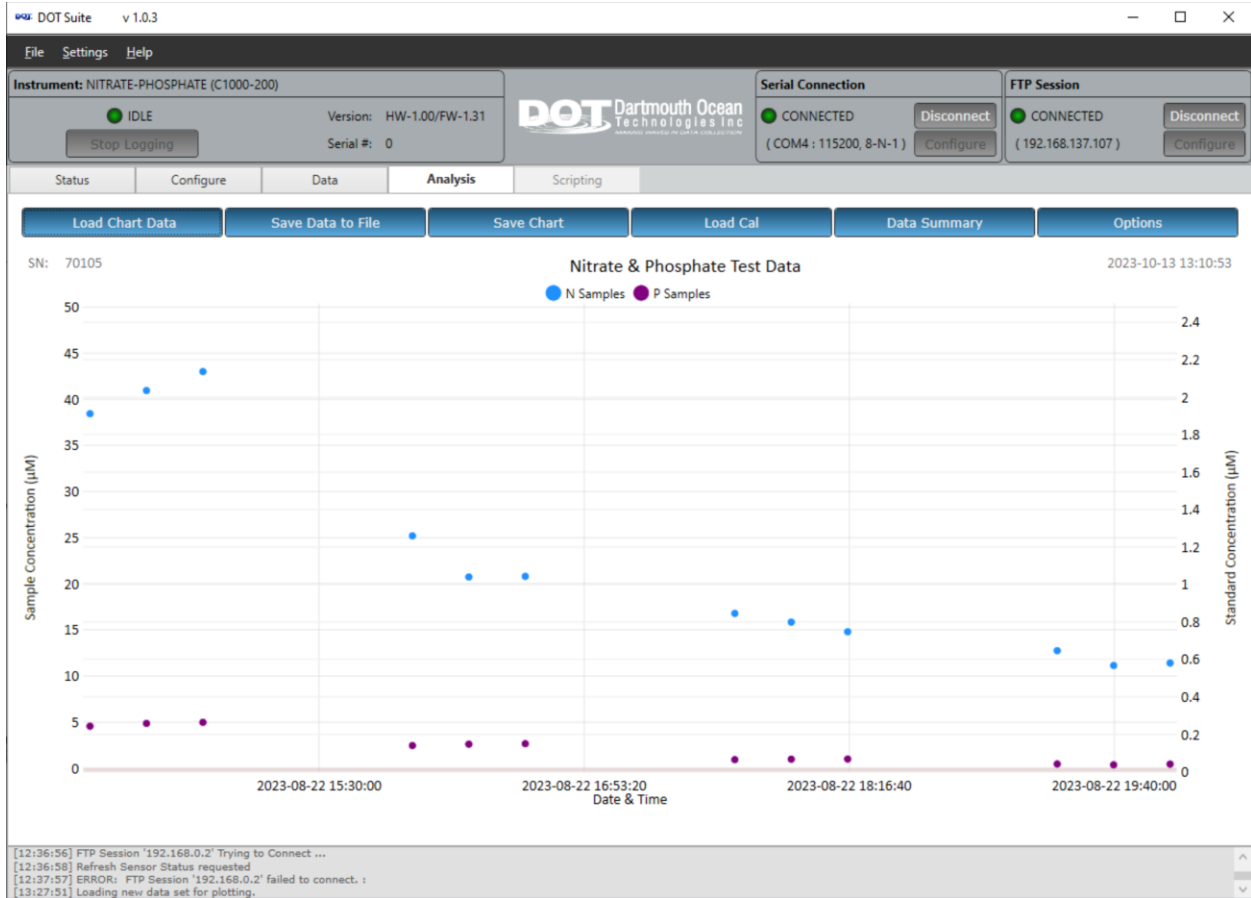


Figure 9: DOT Suite – Analysis tab.

### 3.5 Admin & Contact

Admin functionality requires a password obtained only from DOT; users who desire Admin privileges may contact DOT through emailing [Aftersales@DartmouthOcean.com](mailto:Aftersales@DartmouthOcean.com). For bug reporting or to suggest features for future DOT Suite revisions, please email [Aftersales@DartmouthOcean.com](mailto:Aftersales@DartmouthOcean.com).

## 4 User Notes