



User Manual

For

Omni Cloud Solution

Developed by OMNI DYNAMICS



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Table of Contents

About Omni Dynamics 2

About Omni Cloud 3

Installation 5

Software Installation 8

Software Installation 16

Omni Cloud Solution Getting Started 18

Omni Cloud 21

Omni Cloud Client 24

Omni Dynamics Contacts 28





OMNI DYNAMICS



About Omni Dynamics

Omni Dynamics is an engineering services and products provider company that covering a wide range of engineering services, such as automation and control, integrating measurement facility, hardware and software design and development . Omni Dynamics is a National Instruments Alliance partner.

Omni Dynamics has a flexible project management and technical team ready to understand customer needs and promptly formalize technical proposal with the best fit for solution of the problem. We provide world-class engineering, management and specialized technical services to government and private sector clients.

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About Omni Cloud

A new trend in information technology has been raised recently, which is Cloud Computing. One type of this way is to save the data in abroad servers in order to save money and energy.



Such technology is used recently in condition monitoring, which plays an important role in the functioning of heavy rotating systems. The working of these systems needs to be monitored continuously and the readings are to taken into account. This mechanism became easy with the generation of the microprocessors. The readings can be acquired and stored them into the servers. With the advent of increasing internet facility's the data acquiring, controlling and sharing has become an easy task through various protocols. Using this technique the systems readings are noticed by the operator, even though he is not close to machine.

Omni Cloud is a service presented by Omni Dynamics, which aims to give engineers new horizons in the measurements field. The operator can display, save, analyze and control his measurements remotely and can show his faraway colleagues simultaneously the data measured. Furthermore the data measured is uploaded on Omni Dynamics' servers.

Omni Cloud solution is consists of Omni Cloud Software, Data Acquisition, Omni Cloud Server and omni cloud client software. All subsystems are integrated together effectively to transfer the online data to the remote users. Our main Objective is to integrate solution to acquire data about the health condition of machines through measuring the vibration, temperatures, pressures,...etc. upon them and can be monitored through software.

The Integrated solution has features as follow:

1 – DAQ System acquire the data from the sensors measuring (temperature, vibration, pressure, sound ...etc)

3 - Uploading the data acquired using Omni Cloud software to Omni Cloud(server).

4 - Uploaded files will be received and displayed through another software (Omni Cloud Client) can access the cloud server and download it, the software is featured to view and export the data in graphs and charts for further analysis.



In briefing the Solution Consists of:

- 1- DAQ System
- 2- Omni Cloud Software.
- 3- Omni Cloud Client Software.
- 4- active Omni Cloud service Account



***fast internet Connection is a must in such solution, the efficiency of the solution depends directly on the efficiency of the internet connection**



Installation

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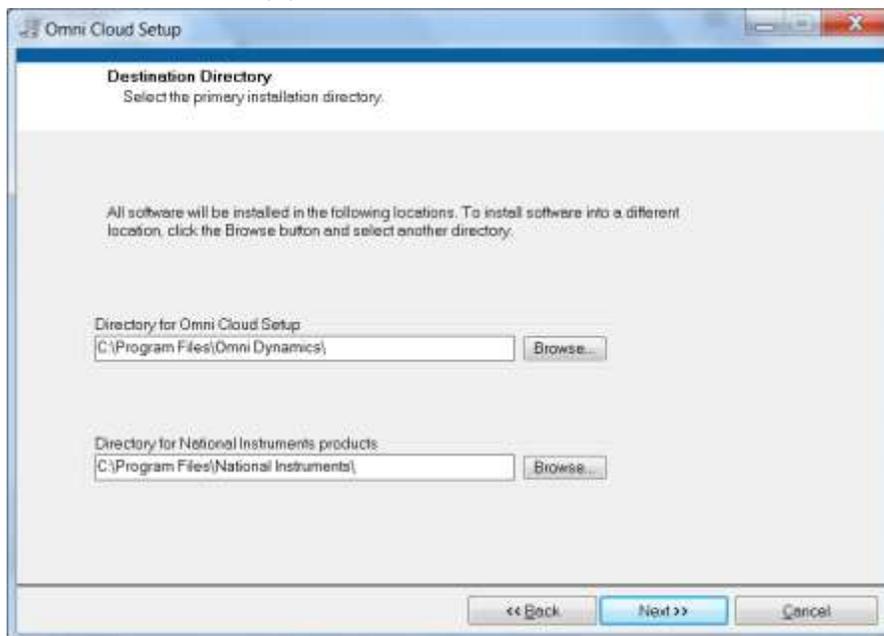


Software Installation: Installing the Omni Cloud Software

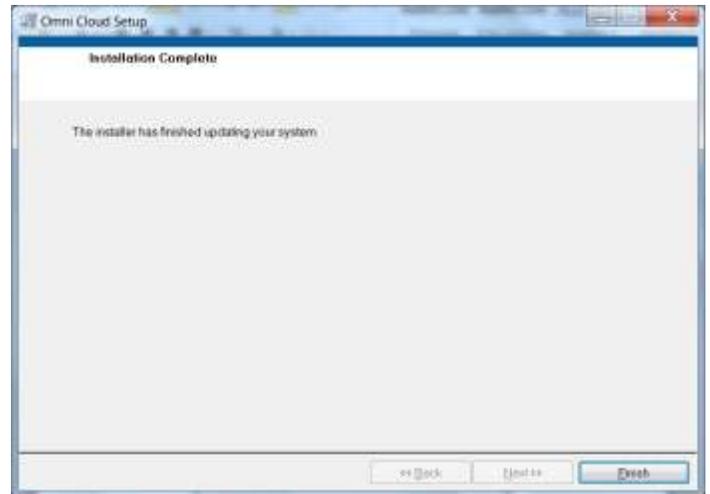
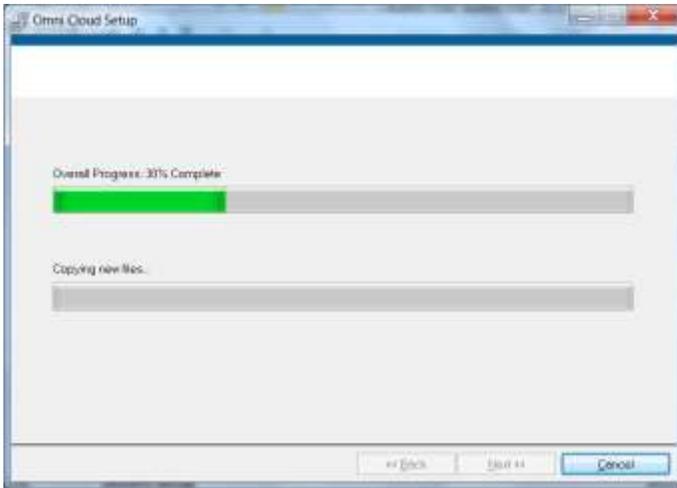
- 1- To begin Omni Logger Software installation open the folder ... \Omni Cloud Installer
- 2- Double-click the Setup.exe (application) to launch the Omni Cloud Installer.

| Name | Date modified | Type | Size |
|--|-------------------|-----------------------|----------|
|  bin | 6/8/2015 3:17 PM | File folder | |
|  license | 6/8/2015 3:17 PM | File folder | |
|  supportfiles | 6/8/2015 3:17 PM | File folder | |
|  nidist.id | 6/8/2015 3:17 PM | ID File | 1 KB |
|  setup | 1/29/2015 9:05 AM | Application | 1,360 KB |
|  setup | 6/8/2015 3:17 PM | Configuration sett... | 14 KB |

- 3- Choose the directory you need to install Omni Cloud, and then click next.



- 4- Click **Next**, wait till the installation progress complete, and finally click Finish.

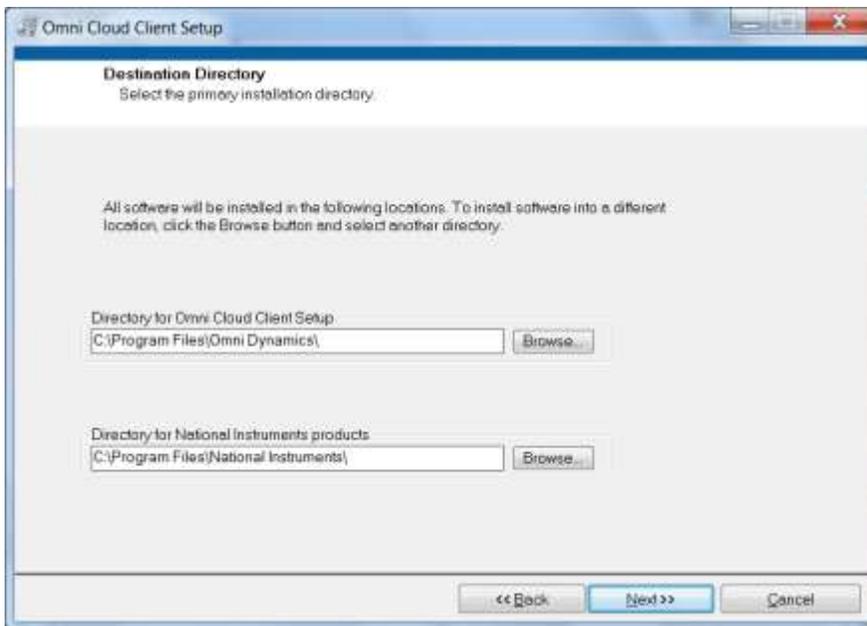


Software Installation: Installing the Omni Cloud Client Software

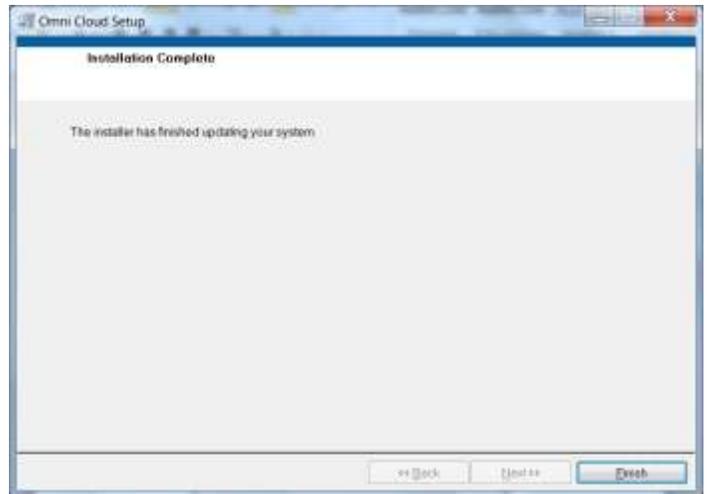
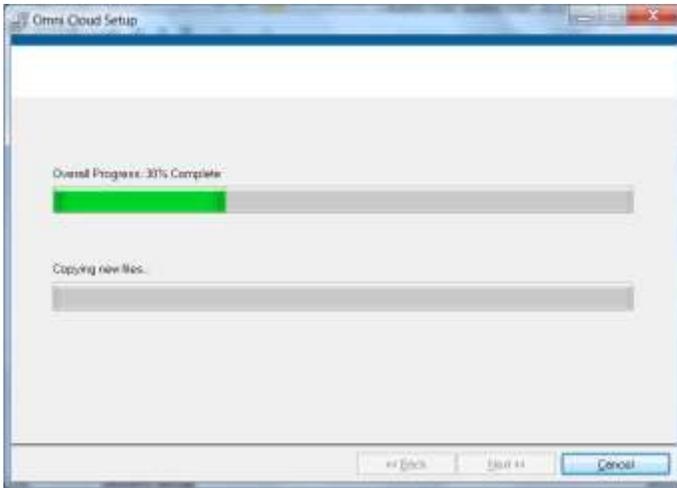
- 1- To begin Omni Cloud Client Software installation open the folder ... \ Omni Cloud Client Installer
- 2- Double-click the Setup.exe (application) to launch the Omni Cloud Client Installer.

| Name | Date modified | Type | Size |
|--------------|-------------------|-----------------------|----------|
| bin | 6/8/2015 3:17 PM | File folder | |
| license | 6/8/2015 3:17 PM | File folder | |
| supportfiles | 6/8/2015 3:17 PM | File folder | |
| nidist.id | 6/8/2015 3:17 PM | ID File | 1 KB |
| setup | 1/29/2015 9:05 AM | Application | 1,360 KB |
| setup | 6/8/2015 3:17 PM | Configuration sett... | 14 KB |

- 3- Choose the directory you need to install the Omni Cloud Client, and then click next.



- 4- Click **Next**, wait till the installation progress complete, and finally click **Finish**.





Getting Started

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As mentioned in the introduction, the solution is consists of 2 software:

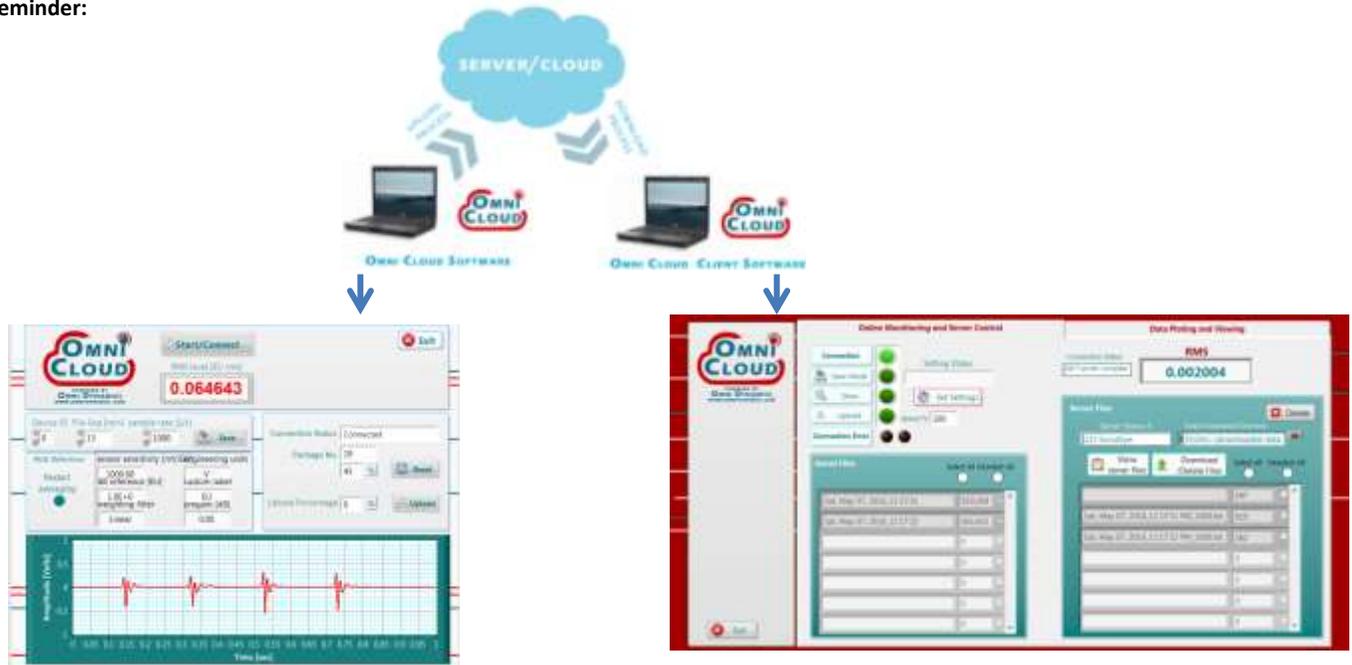
1. Omni Cloud
2. Omni Cloud Client

- Once the hardware is connected and the 2 software are opened. You can monitor the RMS of the data online every second.
- The solution is developed to save all data of the sensor in custom sample rate. User can start saving from Omni Cloud or Omni Cloud Client.
- After saving user can upload the saved files on the (server /cloud) from Omni Cloud Client.
- Then through Omni Cloud Client, user can download the files from the server.
- You can open each file and display it through the data plotting and viewing tab for reporting and documentation.

Before Starting User have to know the following notes:-

- 1- The solution is designed to operate for just only one user on Omni Cloud Software connected to one channel of data. Also, this version of software is featured for just one monitoring operator on Omni Cloud Client. The software won't operate at any other condition.
- 2- A main parameter of the effectiveness of the program is the internet connection. User must insure a fast and reliable internet connection.
- 3- The solution is working through stand alone DAQ system, DAQ system with host computer or computer with sound card. Hardware must be defined on the operating system. Without a defined hardware there won't be acquisition for data and the solution won't operate.

Reminder:



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Omni Cloud Software

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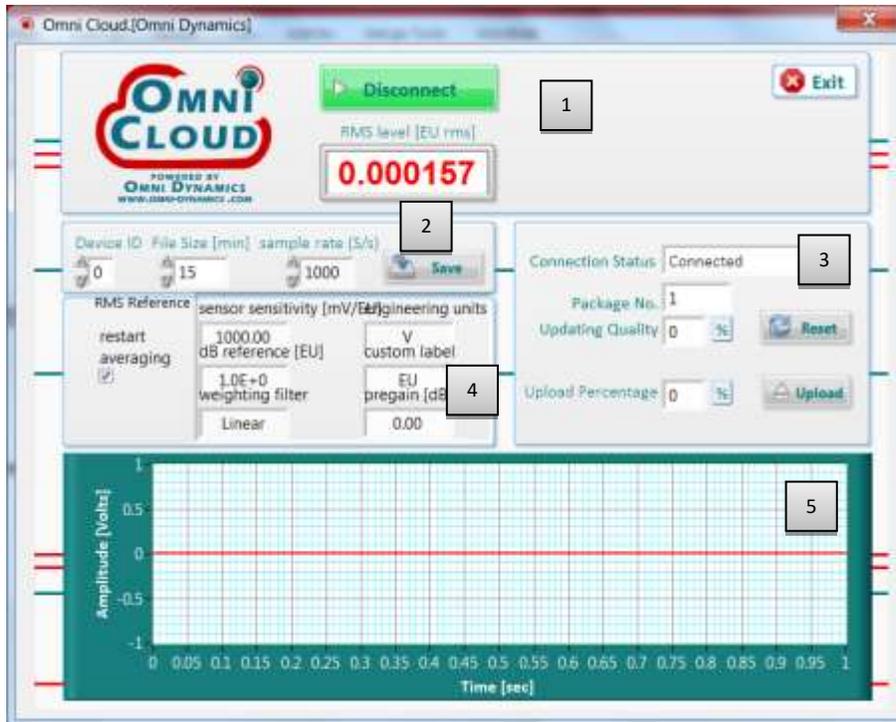


About the program

Omni Cloud software responsible for reading, saving the data and upload it to Omni Cloud/Server. Through this program user can know the connection status to the hardware and to the server.

Omni Cloud - Getting Started

After connecting the hardware, open the Omni Cloud software on the host laptop. The software interface is simple and categorized into partitions.



Partition 1: it is mainly dedicated to start/disconnect the communication between the software and hardware, once the communication started the data is acquired from the sensor and the RMS of the data will be displayed every second in RMS level Indicator. This partition is also responsible to connect the Omni Cloud software to the server and update the real time RMS reading continuously. Eventually you can exit the program from the exit button.



Partition 2: [Saving Settings partition]

- It is dedicated to change the settings of saving the files.
- The program is designed to save all data of the sensor in a certain sample rate.
- Set the desired sample rate and the time for each file. Where the saved data will be divided to partitions.



- Press save button to begin [Saving Mode], after pressing the button will change to green color which indicates the beginning of saving, it will remain as it is till you press again to stop saving.



- **for example:**

User set saving settings to make the file duration is one minute
Then, user started saving for 3 minutes.
The result will be 3 saved files.



- After saving, Saved files are located in the host computer and ready to be uploaded.
- File name consists of date/time when the saving start for each file separately and also contains the sampling rate by Hz
- E.g. [Day], [Month],[day], [year]_[hour]'[minutes]'[seconds] [AM/PM]_[sample rate].txt

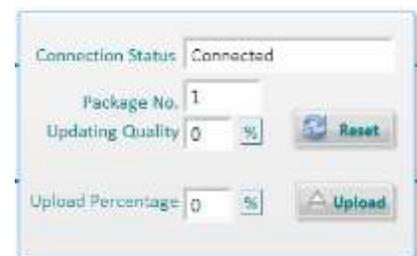
Partition 3: [connection and uploading partition]

- **Connection status:** it states the connection status between Omni Cloud Software and server.
- **Package No.:** the no. of data packages is being sent to the server.

It is important indicator for the user that the data is flowing regularly to the server. If the package no. stand still for a while that means that there is a weak connection or connection error between the server and the host.

In such situation, it's recommended to check the internet connection and then press **Reset** button and wait to resume the connection **or** exit the program and open it again.

- **Updating Quality:** an indicator for the connectivity efficiency between the host computer and the client computer.



- **Upload:** upload indicator indicates if user on Omni Cloud Client is started uploading files and it will turn into green.
- **Upload percentage:** indicator shows the percentage of the files uploaded to the server.



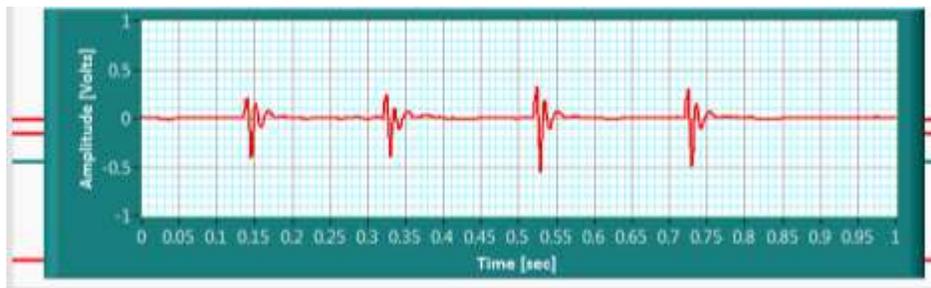
Partition 4: [RMS Reference]

This partition is used to set settings to RMS level.

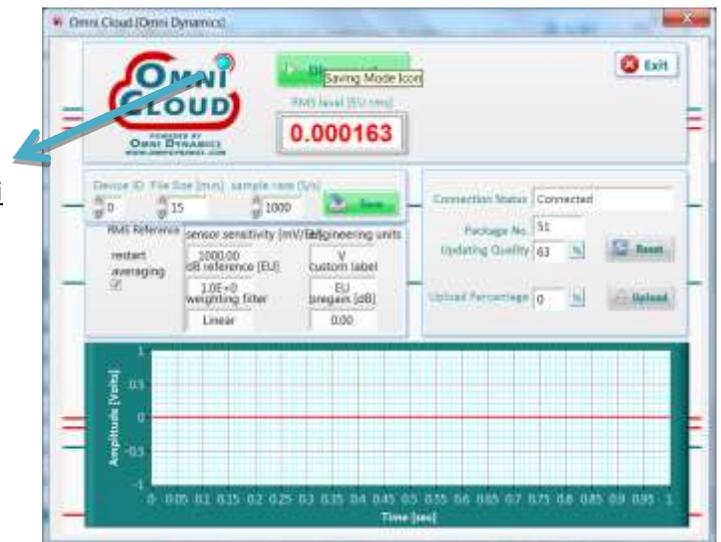
| | | |
|-------------------------------------|---|--------------|
| RMS Reference | sensor sensitivity [mV/Engineering units] | V |
| restart | 1000.00 | custom label |
| averaging | dB reference [EU] | EU |
| <input checked="" type="checkbox"/> | 1.0E+0 | pregain [dB] |
| | weighting filter | 0.00 |
| | Linear | |

Partition 5: data chart

Chart graph display the data acquired each second



- **In case of any setting changed from Omni cloud client software user a blue led indicator will appear at the Omni Cloud Logo [Remote control indicator]**





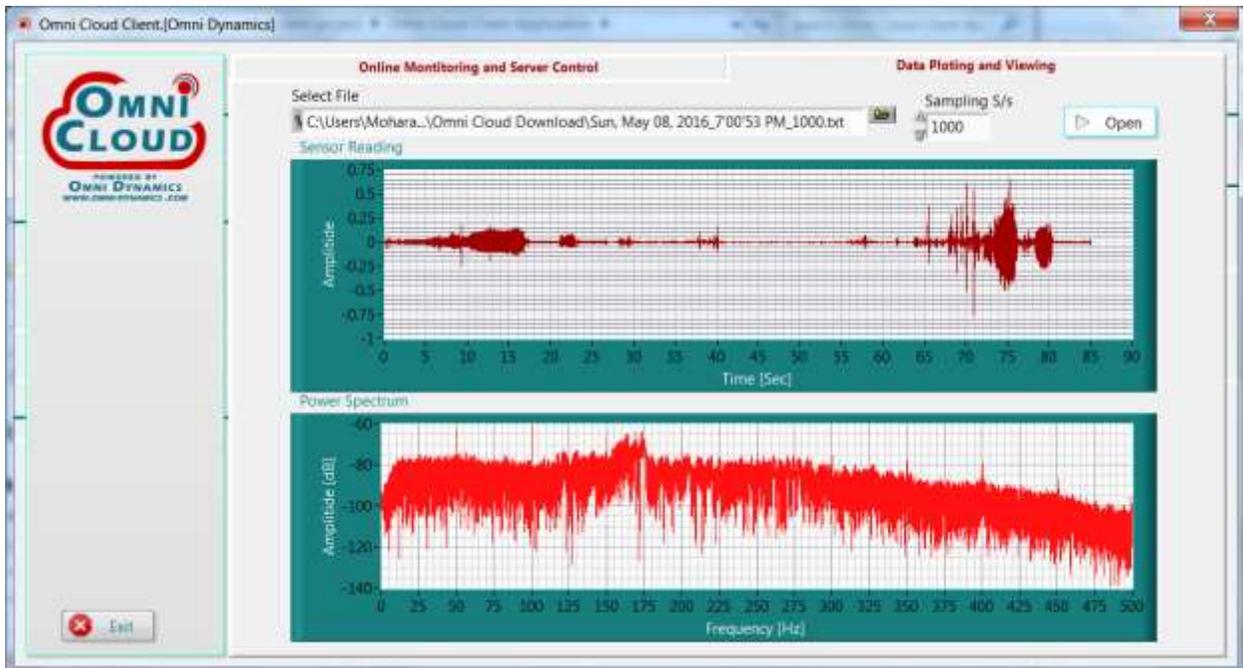
Omni Cloud Client Software

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About the program

The Omni Cloud Client Software is responsible on receiving the data from the host through the server, control the server actions and display the data files downloaded from the server.



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Omni Cloud Client - Getting Started

After the installation of Omni Cloud Client in the receiver computer:

- check the internet connection
- then check that Omni Cloud Software is opened
- then open the Omni Cloud Client software

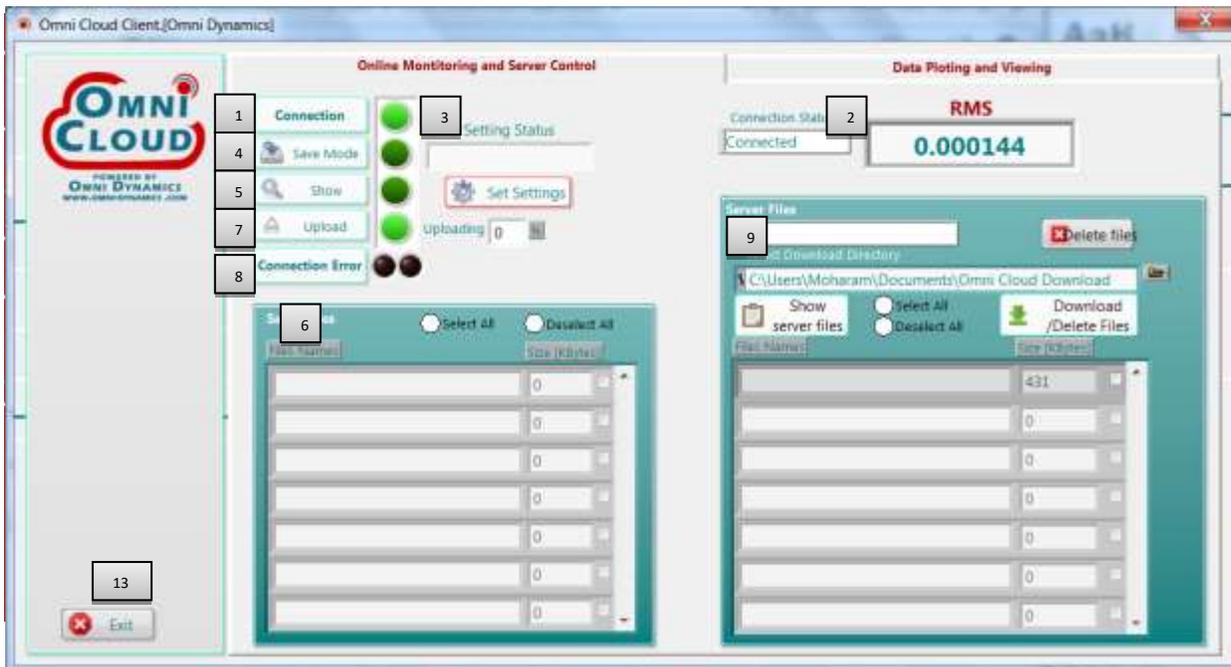
The software interface is simple and categorized into main 2 Tabs:

- 1- **Online Monitoring and Server Control Tab**
- 2- **Data Plotting and Viewing Tab**

1- Online Monitoring and Server Control Tab

The function of this tab is to:

- monitor the RMS Level online
- Control the saving of data
- show the saved files at the host
- Upload the saved files from the host to server.
- Show the uploaded files on the server
- Download the uploaded files on the server.



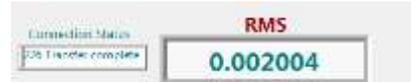
1- **Connection:**

Once the program is opened, it will be autonomously connected to server and Omni Cloud program. The green will illuminate at connection.



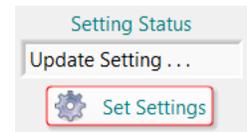
2- **RMS Level:**

Once the program is connected to the Omni Cloud, it will display the RMS Level of the data read by the sensor. Changing the value of the RMS is the indicator of the Omni cloud software in connecting to the server and updating data without errors. If the RMS remains constant for long time, this is due to delay in connection in Omni Cloud software or the software is not opened.



3- **Set Settings:**

To set commands [save - show - upload] to the Omni Cloud by Omni Cloud Client software. User has to press **Set Settings** button. Updating the settings may take time, so user can follow the setting status through the indicator above.

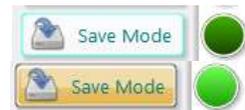


4- **Save Mode:**

Press **Save Mode** button, then **Set Settings** button to start saving data in the host.

The green led will illuminate indicating that the save mode has been started in the Omni Cloud software.

To stop saving press again on **Save Mode** button, then press **Set Settings** button.



5- **Show :**

Press **Show** button, then **Set Settings** button to show the saved files on the host computer.

When you update the settings the saved files will appear in the **Saved Files box**.

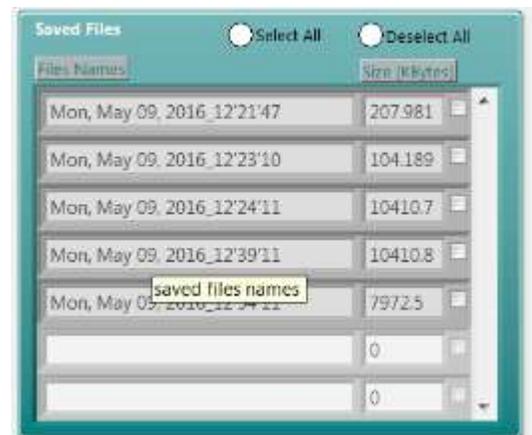


6- **Saved Files Box:**

The files appear in the box with its size in Kbytes.

User can select the files needed to be uploaded from the selection box.

All files can be selected through **Select All** button.



7- Upload:

- Press **Upload** button, then **Set Settings** button to upload the selected files to the server.



- All uploaded files will be deleted from the host computer.

- The green led will illuminate and the button will turn into gold in uploading mode.

When the files are uploading there will be a delay in then real time RMS reading and it will not be accurate **and there is no effect at all on the saving data procedure**

The indicator beside the **upload** button shows the files uploaded percentage.

8- Connection Error:

Two led indicators appear if an error occurred, errors may be one of the following



- **The two led are illuminated:** indicates no or weak internet connection

- **The Right led are illuminated:** indicates temporary connection error with the server and it will turn off when the connection returns.

9- Server Files box

-The uploaded files on server are shown by pressing on **show server files** button.

- User can select the files needed through the selection box and download it through pressing **Download/Delete Files** button.

- User can Change the download directory from **Select Download Directory** bar.

- **Note that:** after downloading the files from the server, it will be autonomously deleted from the server.

-user can delete the files from the server using **Delete files** button.



2- Data Plotting and Viewing Tab

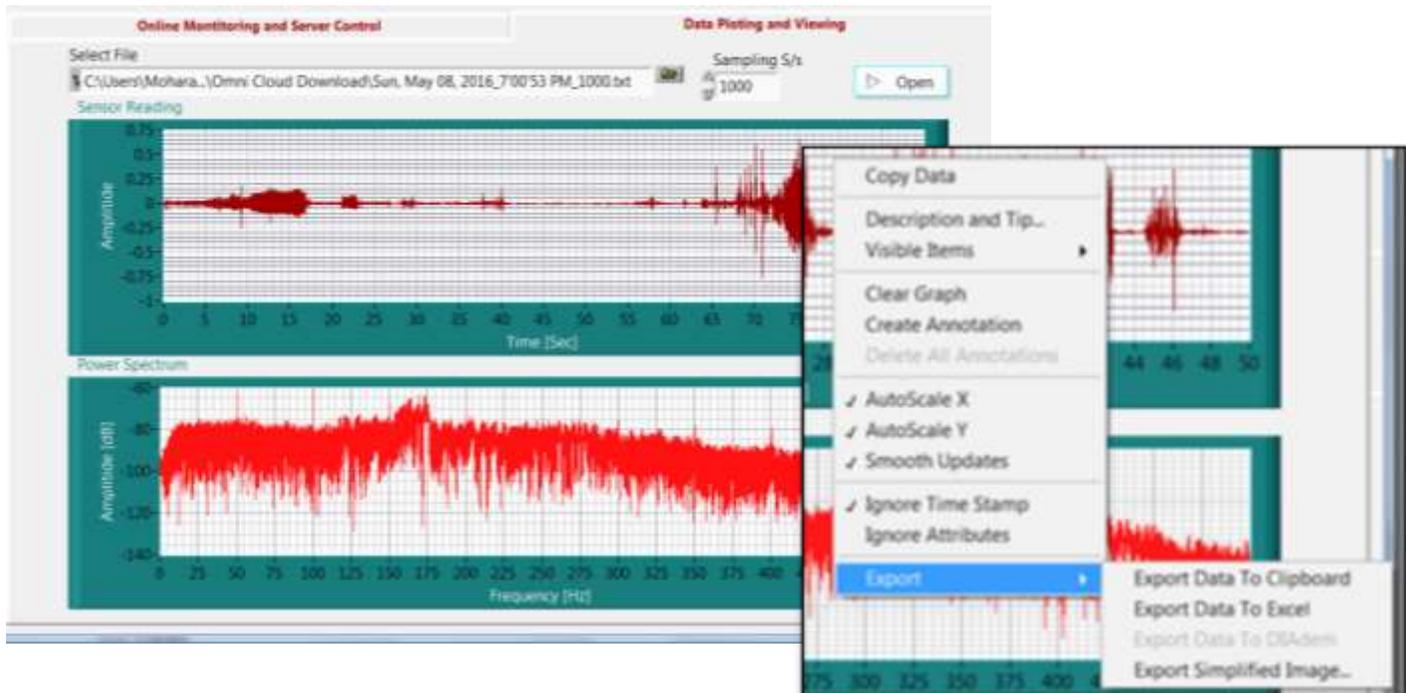
After downloading the server files, user can view and plot the files through the Data plotting and viewing tab.

- select the file you need to open from **Select File** bar.
- Select the **Sampling rate** of the saved file, it will be written in the file name.
- Press **Open** button

The data will be shown in both time and frequency domains.

Data is transferred to frequency domain using FFT (fast fourier transform).

- to Export the Graphs, **Right-Click** on the needed graph, then choose the Export Data type as shown in the figure.





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