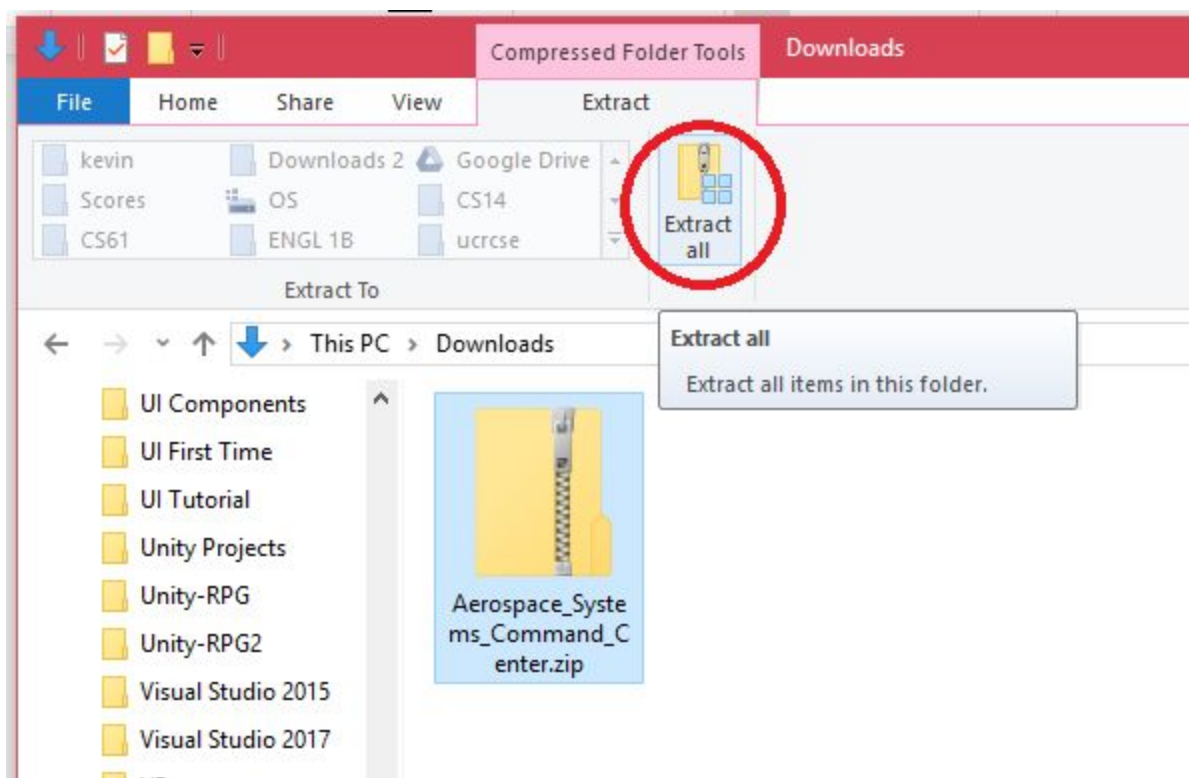


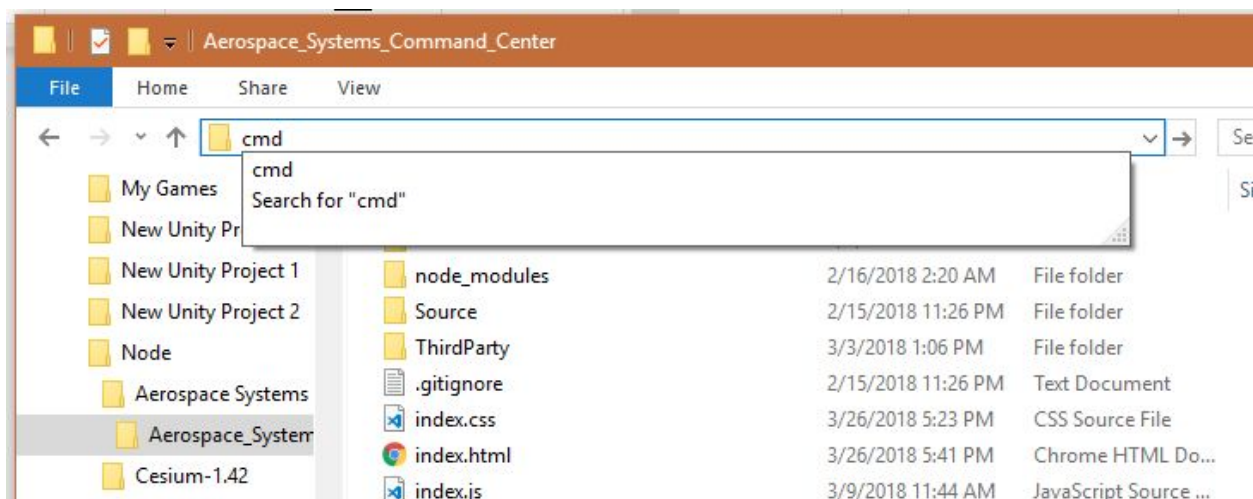
User Manual for Rocket Interface Software

Installation

1. Install [Node.js](#)
2. Download [Aerospace Systems Command Center.zip](#) and extract the files

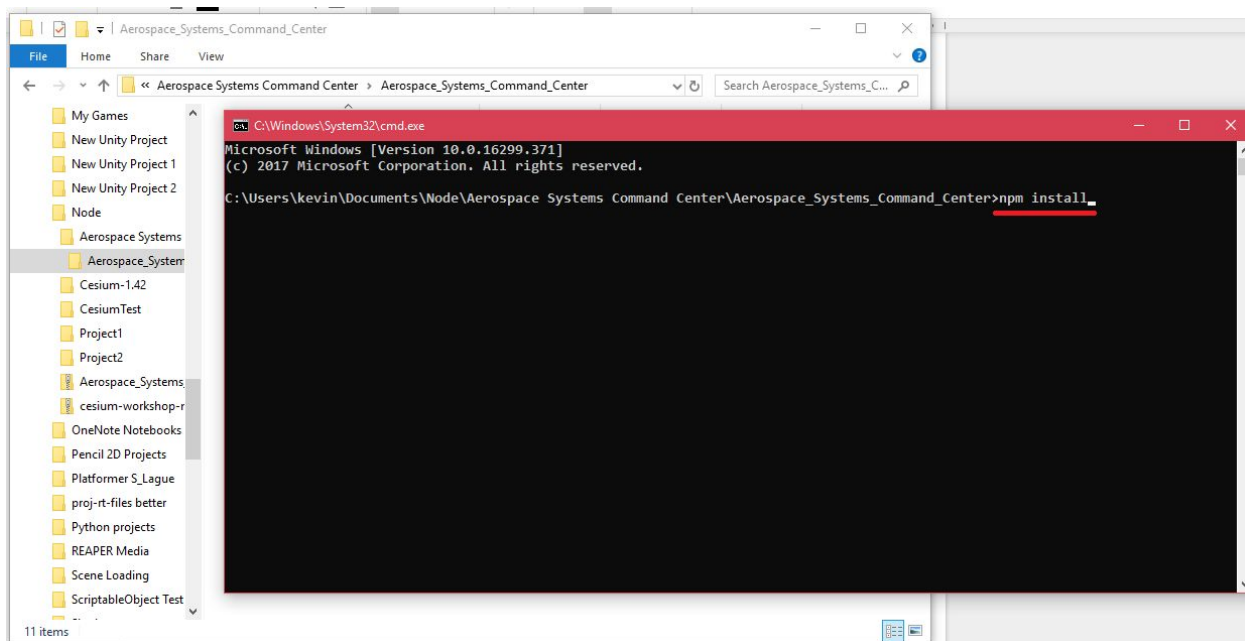


3. Open the extracted folder **Aerospace_Systems_Command_Center** and then open the terminal.
 - Windows: You can open the Command Prompt by clicking on the address bar of the file explorer and typing in **cmd**. Hit 'enter'.



- Linux: Right-click in a blank part of the file browser, and click 'Open terminal here'

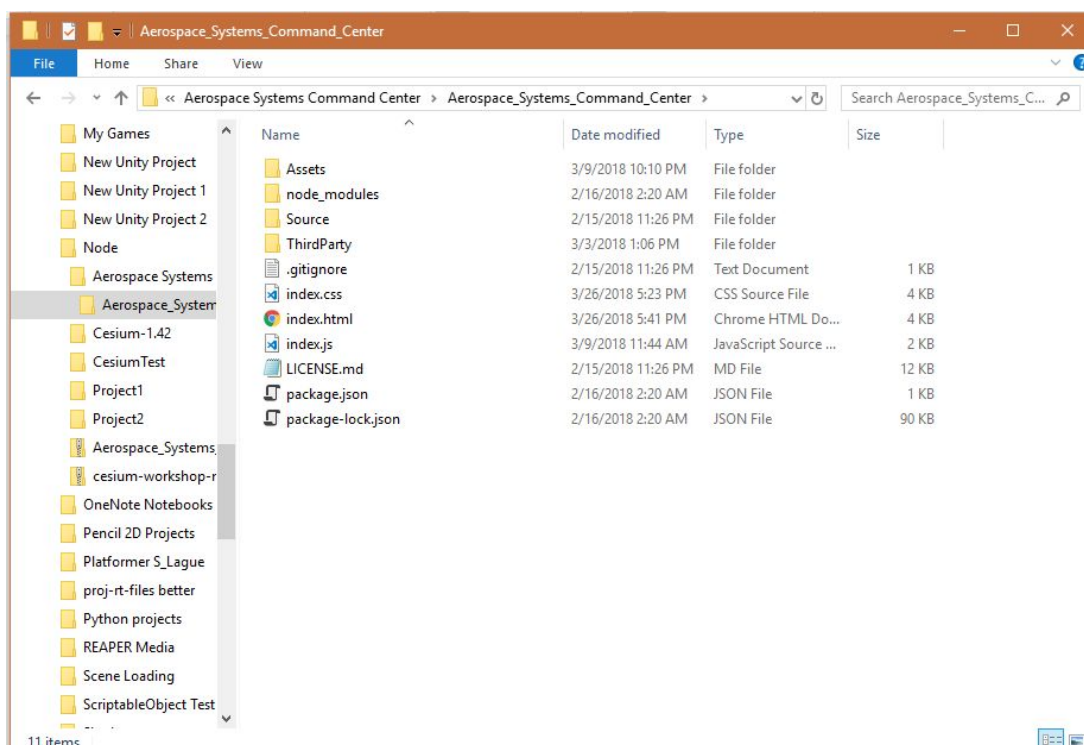
4. In the terminal, type **npm install** to install the necessary packages. This may take a few minutes.



5. If all goes well, you have successfully installed the Rocket Interface Software. Follow the steps below to open the software.

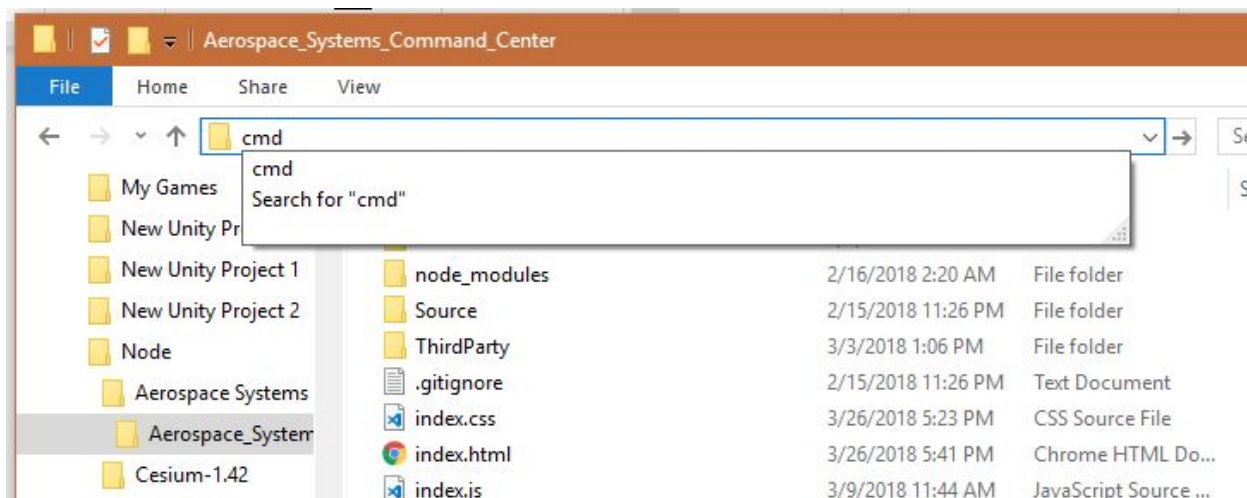
Booting up the software

1. Navigate to the **Aerospace_Systems_Command_Center** folder.

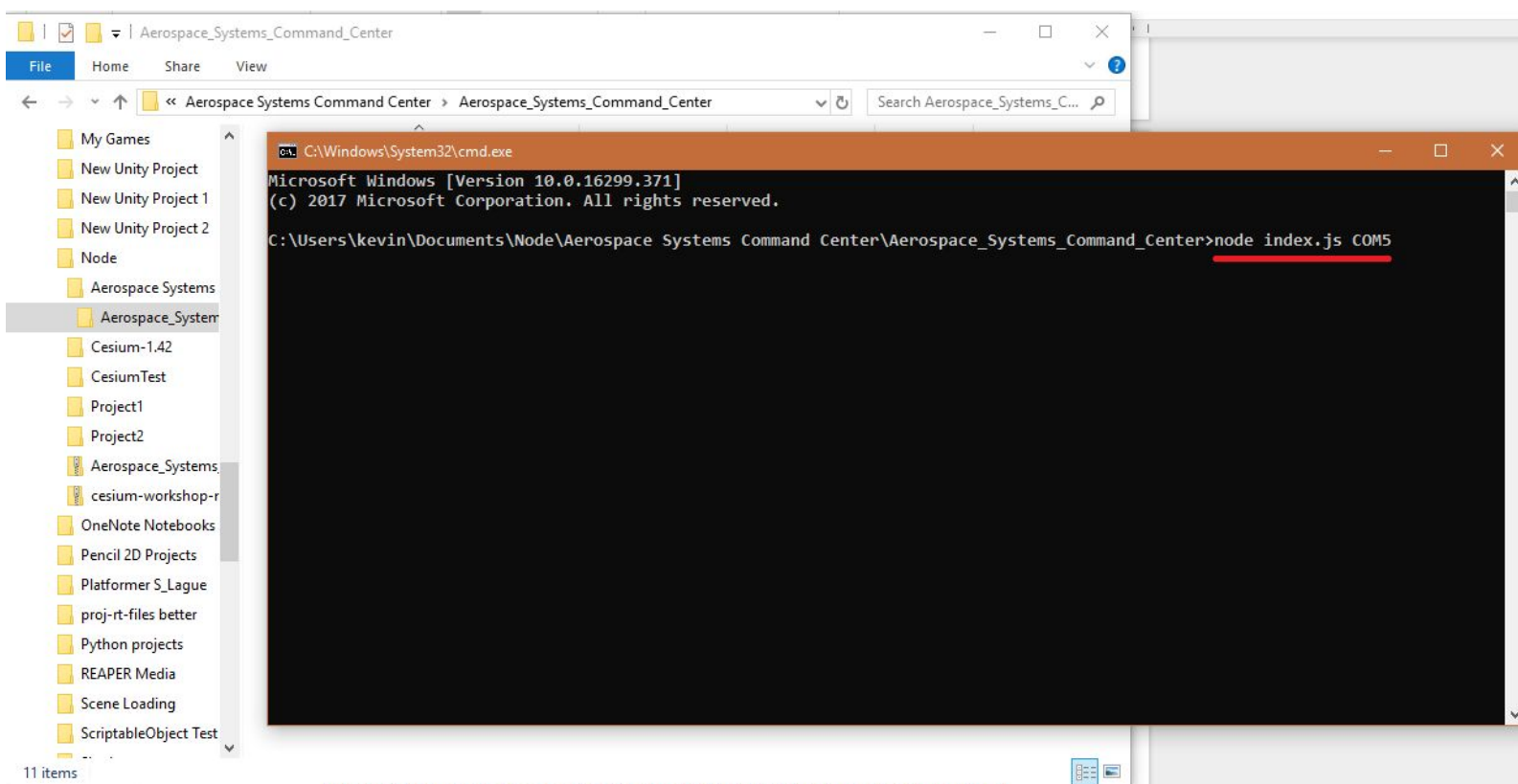


2. Open the terminal.

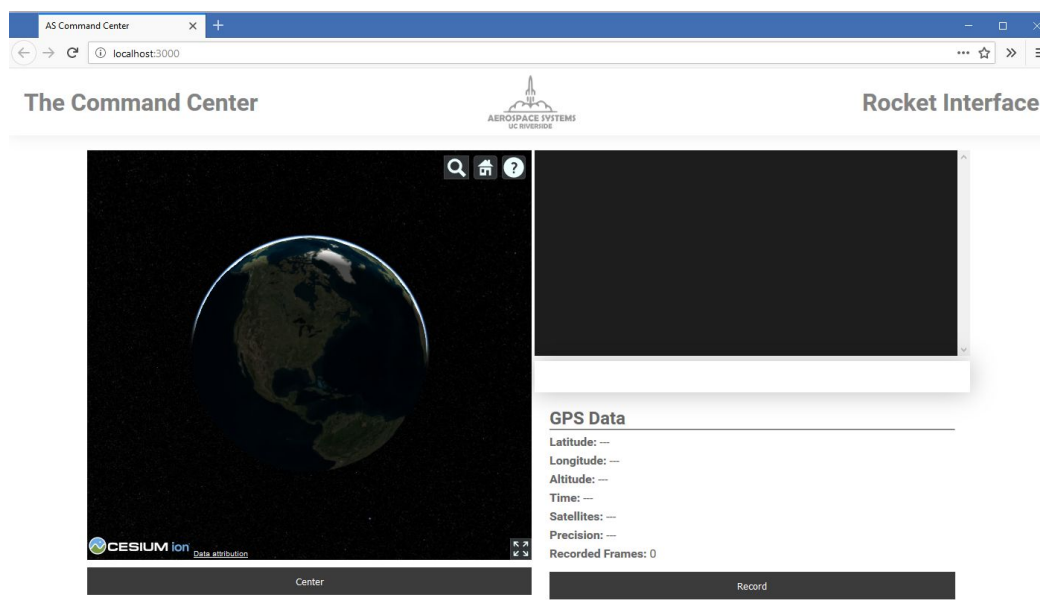
- Windows: Click on the address bar, and type in **cmd**. Hit 'enter'.



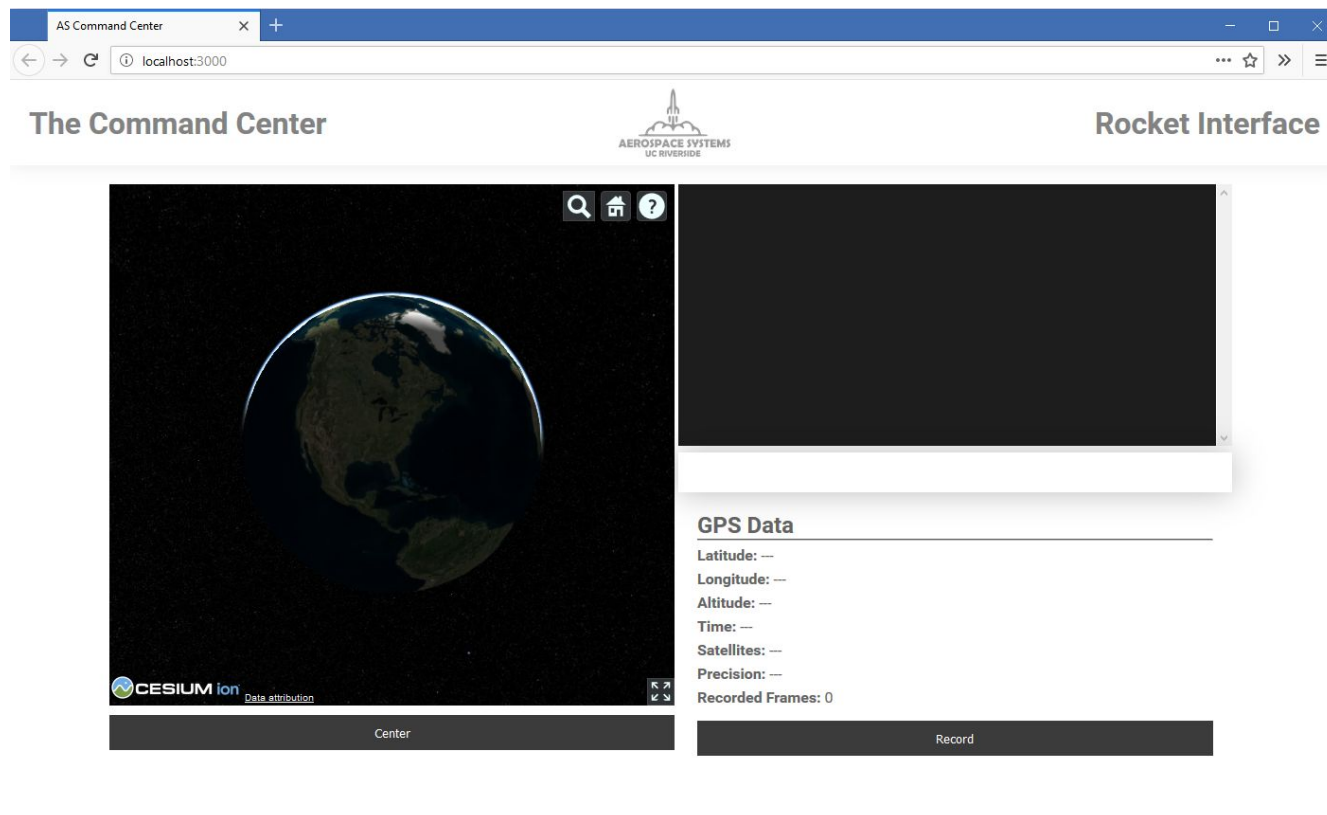
- Linux: Right-click in a blank part of the file browser, and click 'Open terminal here'
3. In the terminal, type **node index.js {usb port}** where "{usb port}" is the name of the usb port connected to the XBee USB Explorer. On Windows, it is usually COM3, COM4, or COM5. If you have trouble finding the name of your usb port, look here: <https://www.mathworks.com/help/supportpkg/arduinoio/ug/find-arduino-port-on-windows-mac-and-linux.html>



4. The application should automatically open in Firefox. If not, open Firefox manually and go to this address: **localhost:3000**



Usage



1. The interface is divided into three main parts: the **3D map**, the **command line**, and the **GPS data panel**.
 - **3D map** - displays the position of the rocket on a 3D globe
 - **Command line** - used to relay commands to the rocket and receive information from the rocket
 - **GPS data panel** - displays realtime GPS coordinates of the rocket and manages the recording of telemetry
2. The **3D map** works much like Google Earth.
 - Left-click and drag to pan around.
 - Right-click and drag zoom in and out. Alternatively, you can use the scroll wheel to zoom.
 - Middle-click and drag to orbit around the center of focus.
 - Click the home button in the top-right corner of the map to reset the camera
 - Click the dark gray button at the bottom that says “Center” to center the camera on the rocket
3. The **Command line** is used to send commands to the rocket. Here are all the commands you can try:

- **CMD hello** - Communication test with the rocket. If you do not see an INFO message from the rocket, then that means the rocket could possibly be powered off, out of range, or out of line-of-sight
 - **CMD ping** - Another communication test. The rocket should respond with "INFO pong"
 - **CMD light on** - Turns on the LED on the rocket
 - **CMD light off** - Turns off the LED on the rocket
 - **CMD light toggle** - Turns the LED on if it is off. Turns the LED off if it is on.
 - **CMD light status** - Tells you if the LED on the rocket is on or off.
4. The **GPS data panel** shows current GPS information and controls for recording GPS data
- **Latitude and Longitude** - the latitude and longitude of the rocket in degrees
 - **Altitude** - the height above sea level in meters
 - **Time** - the timestamp of the last received GPS message
 - **Satellites** - the number of satellites tracking the rocket
 - **Precision** - the amount of imprecision in the positional data
5. The **Recording button** lets you record all the incoming GPS coordinates. Click the button once to start recording, and then once again to stop recording. When you stop recording, the program will ask to save two files:
- **.CSV file** - This is a simple Excel spreadsheet that shows the longitude, latitude, and altitude in separate columns
 - **.KDI file** - This is a Google Earth file that lets you view the 3D path of the flight