

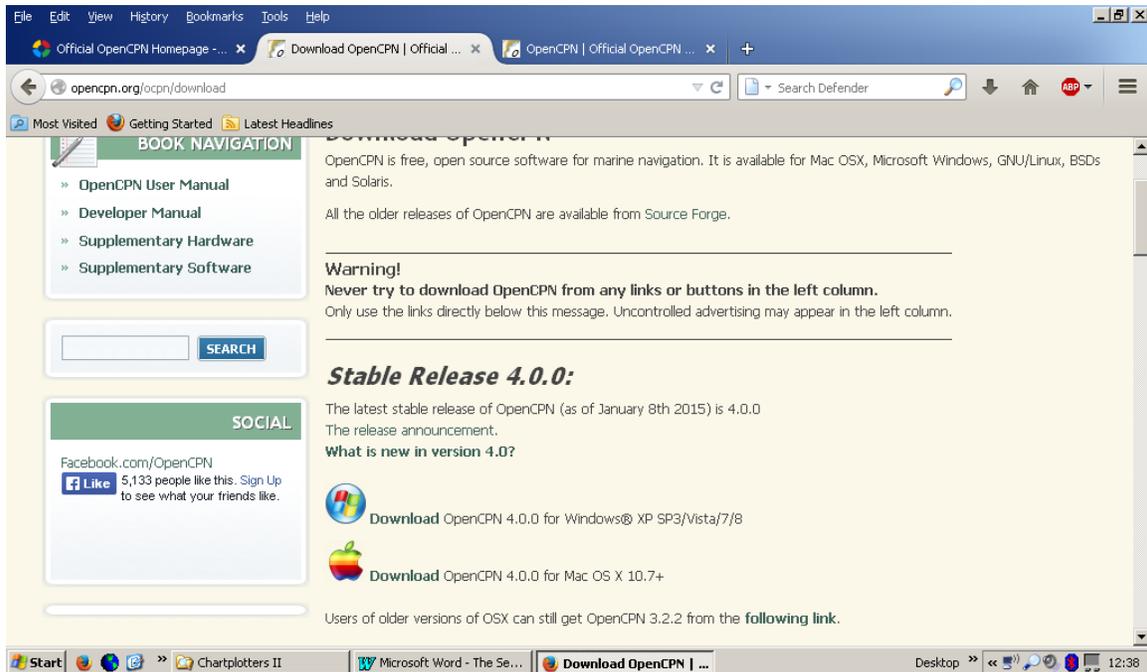
Chartplotters II

April 16, 2016.

Miscellaneous Notes and Screen Shots

## Obtaining and Installing OpenCPN

OpenCPN is available from the OpenCPN web site, which is [www.opencpn.org/ocpn/download](http://www.opencpn.org/ocpn/download). Scroll down the screen a bit and you'll find:



Click on “Download OpenCPN 4.0.0 for Windows® XP SP3/Vista/7/8”<sup>1</sup> and you will have a file entitled “opencpn\_4.0.0\_setup.exe” stored somewhere on your machine. (Usually in “My Documents|Downloads,” unless you’ve specified some other location.)

Now, using Windows Explorer, go to this file, right click on it, and click on “open.” This will start the OpenCPN installer. Answer the questions and the program will be installed. It should also put a “shortcut” icon on your desktop for starting the program.

**Note: Since the foregoing was written, OpenCPN has been upgraded to ver. 4.2.0. That is what you download. Changes reportedly relatively minor.**

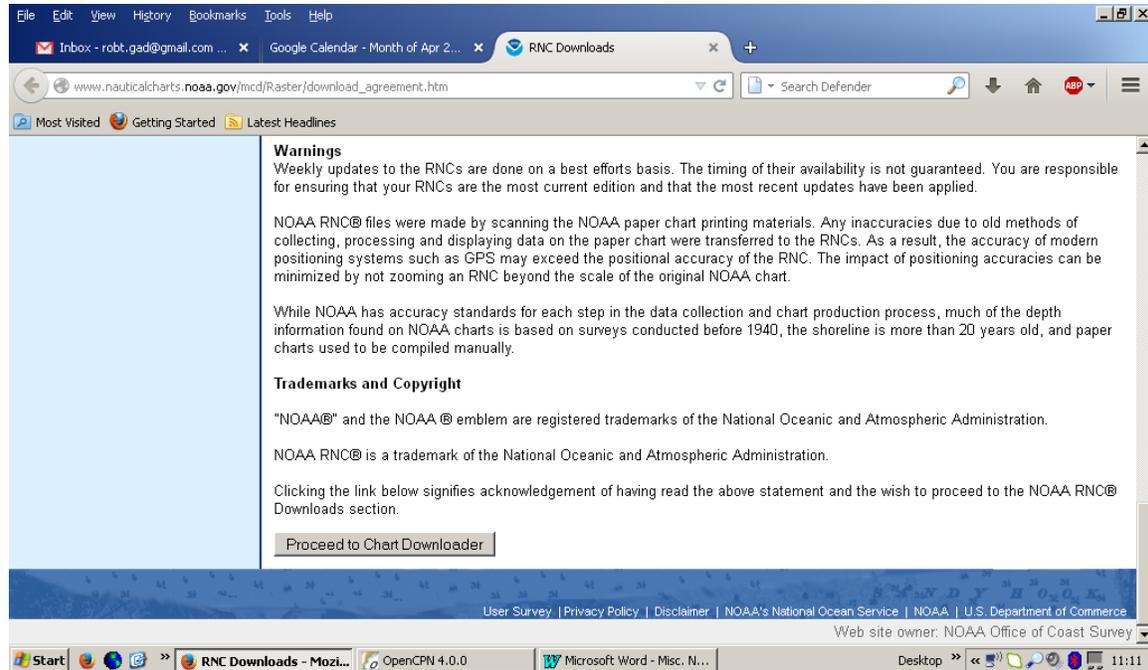
<sup>1</sup> Can OpenCPN run on Windows 10? I have no idea. Does it work on a Mac? Supposedly, but if you’re a Mac person, you’re on your own. I’m told that people have experienced issues running any charting software on Macs, as well as trying to achieve connections to a GPS, but that is hearsay.

# Obtaining and Installing NOAA Raster Charts

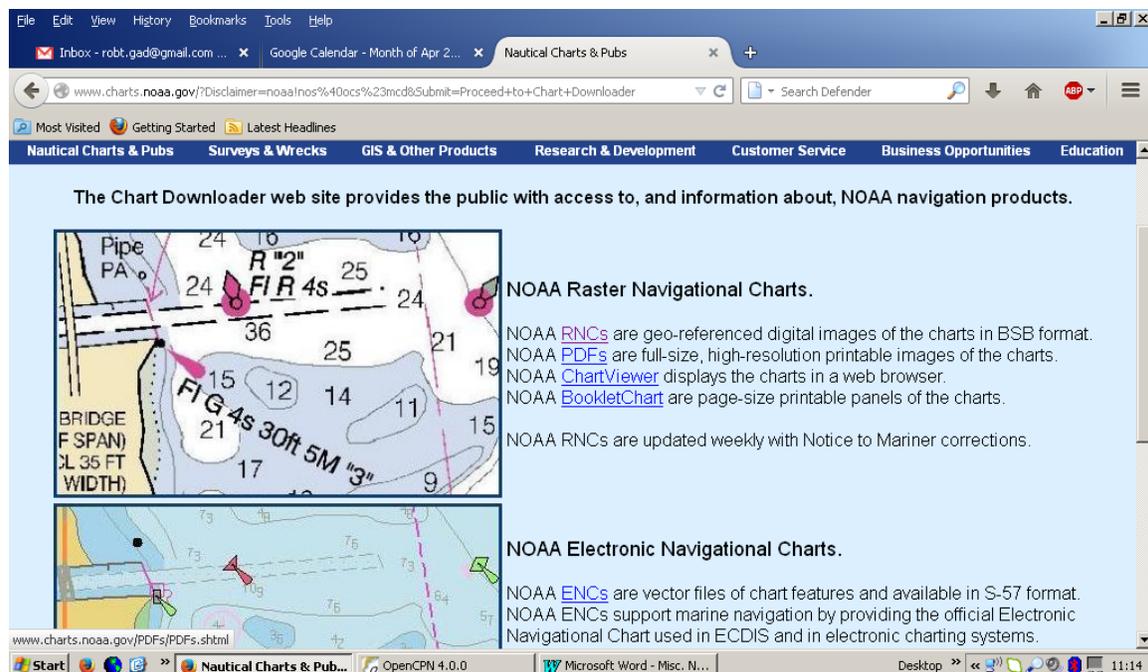
1) Go to the web site:

[http://www.nauticalcharts.noaa.gov/mcd/Raster/download\\_agreement.htm](http://www.nauticalcharts.noaa.gov/mcd/Raster/download_agreement.htm)

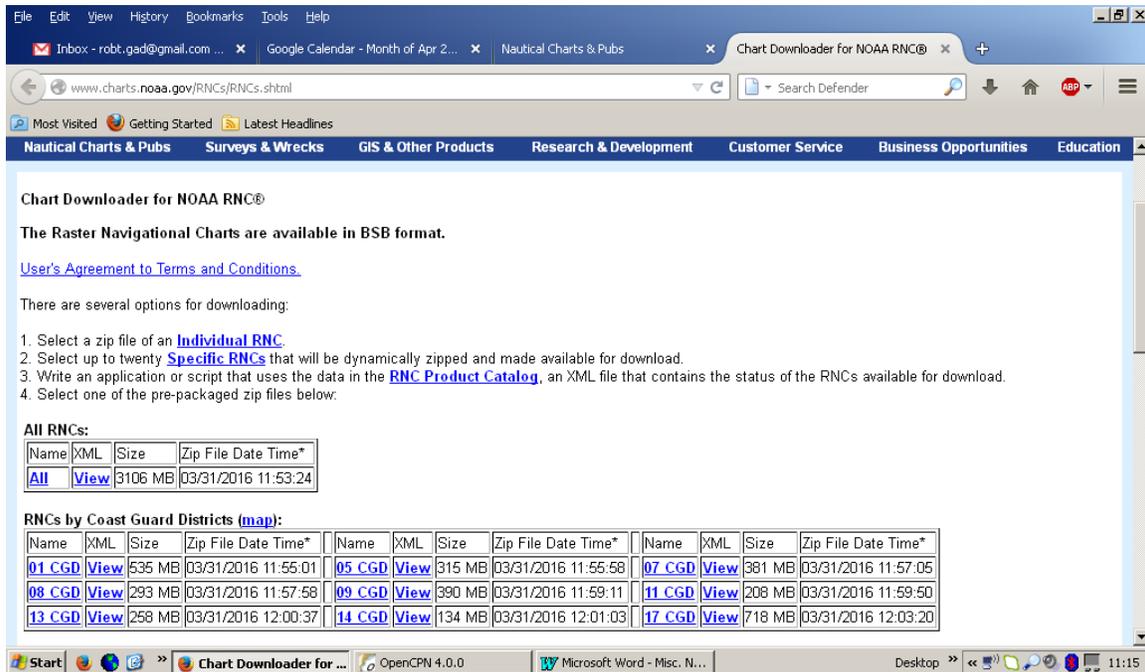
Click on “Proceed to the Chart Downloader.”



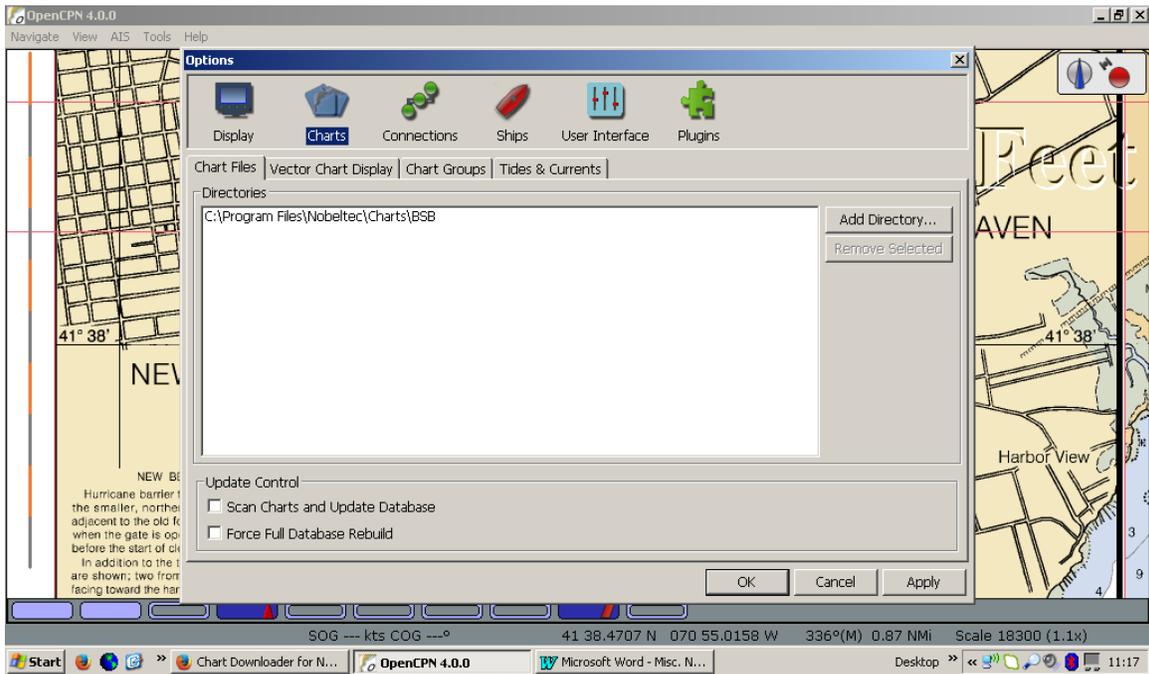
Click on “RNCs.”



This takes you to the page where you specify the chart or group of charts you want to download. Since downloading one chart at a time would take forever, click on “01 CGD,” which will download all of the NOAA charts for the area covered by Coast Guard First District (basically, from somewhere in New Jersey to the Canadian border).



- 2) The result will be a large “zip” file somewhere on your hard drive, probably in “My Documents | Downloads.”
- 3) Create a directory (“folder”) on your C-Drive root (“C:\”) called something like “BSB charts.” Copy the “zip” file to this directory.
- 4) Click on the zip file and Windows should open a form of WinZip extraction utility. Click on “Extract All” and find an option to extract the files to the same directory (“folder”) as the zip file.
- 5) This will give you a whole bunch of files ending in “.kap.” Each one of those files represents one chart.
- 6) Last step is to tell Open CPN where the charts are located.



## Connecting Your Laptop to a GPS Source

Source:

What electrical format does it use (RS232 or RS422)?

What physical connection does it use (flying leads, something else)?

RS232 uses three leads: Data In, Data Out, and Ground.

RS422 uses four leads: Data In +, Data In -, Data Out + and Data Out -.

RS-422 more common.

**TO CONNECT AN RS422 SOURCE TO A USB PORT ON LAPTOP**, need to acquire an adapter, such as

```
http://www.aliexpress.com/store/product/Industrial-USB-2-0-to-RS485-RS-485-RS422-RS-422-Converter-Adapter-FT232RL-Chip-Win7/403243_542958377.html
```

Connect Tx + and Tx - on GPS source to Rx+ and Rx- terminals on adapter (use Cat5 cable between the two if distance requires). (Note: terminology varies; sometimes wire GPS Tx+ and Tx- to adapter Tx+ and Tx- terminals if no data received the other way.) (Note: no connection needed for data going from laptop to GPS.)

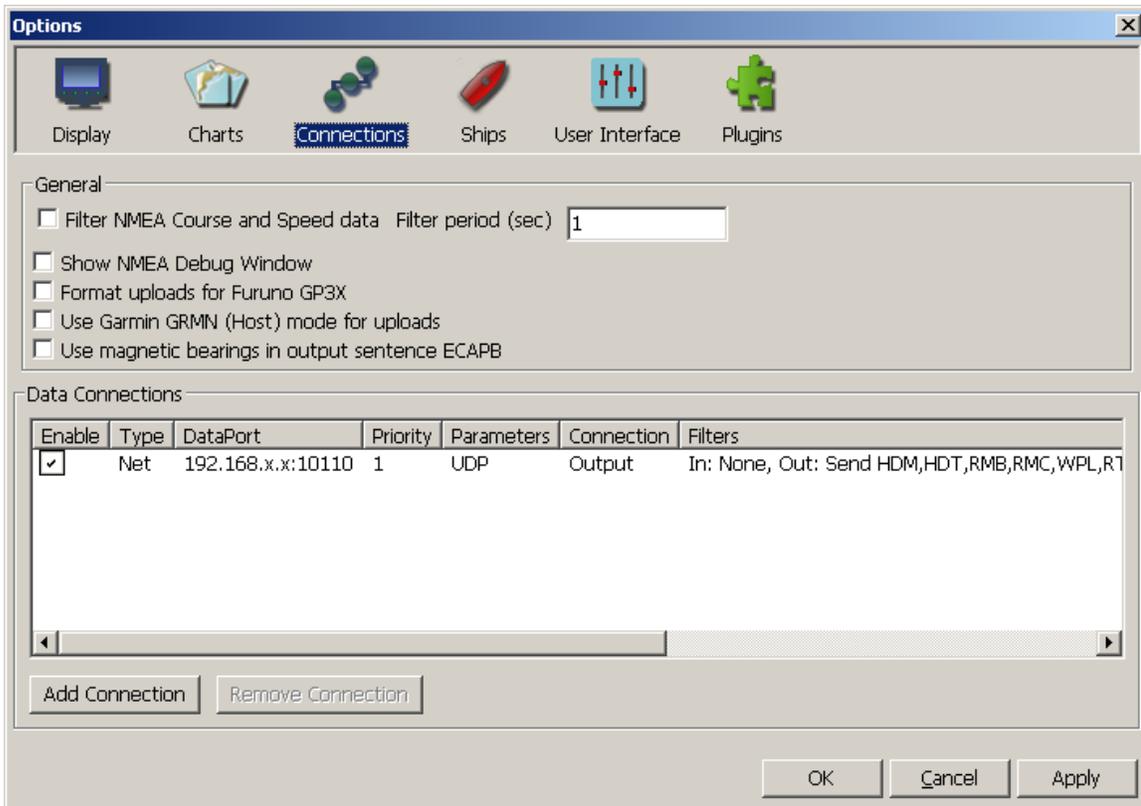
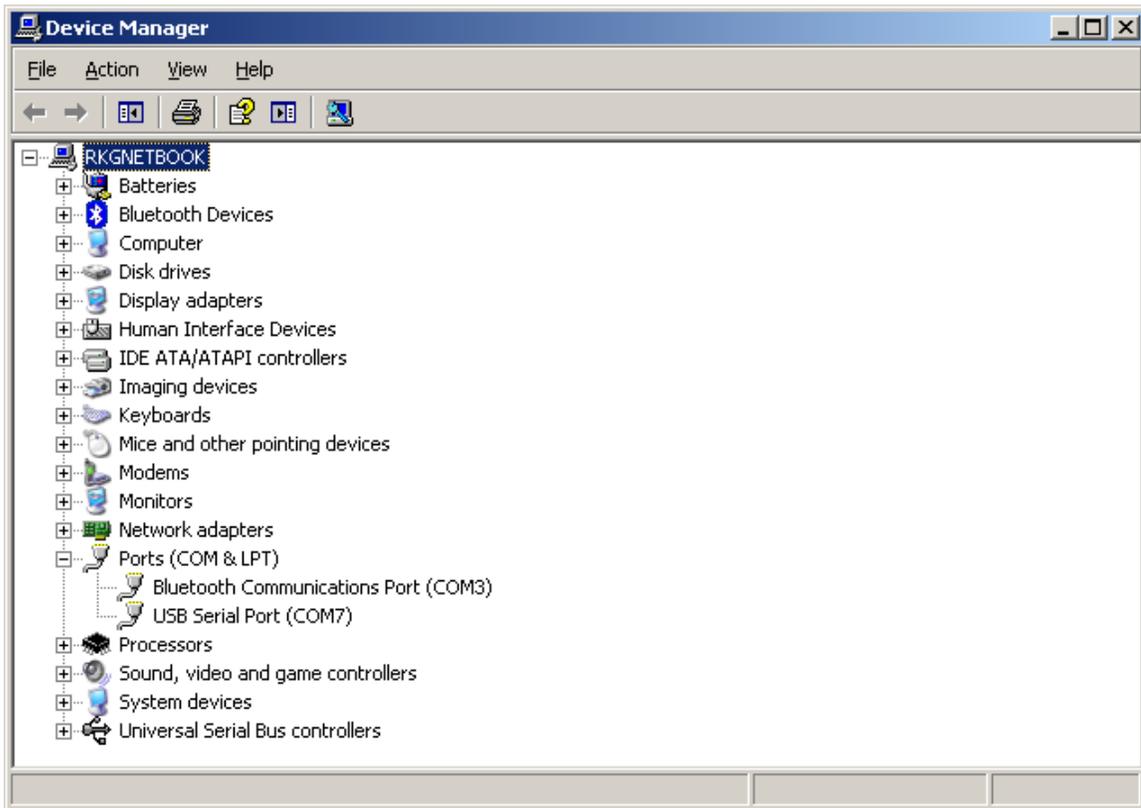
**TO CONNECT AN RS232 SOURCE TO A USB PORT ON LAPTOP**, need to acquire an adapter, such as

```
http://www.usconverters.com/usb-serial-adapter-xs882
```

Connect cable (Cat5) to Data Out and Ground wires on GPS. Connect other end to DB9 connector (female) as follows: GPS Data Out to Pin 2 on the DB9 and Ground to Pin 5. Plug DB9 into the adapter.

**IN EITHER CASE**, find out what “Com Port” the adapter is assigned by Windows. (Usually Start | Settings | Control Panel | System | Hardware | Device Manager | Ports.)

In OpenCPN, Options | Connections | Add Connection. Select “Serial” and from dropdown list, the port to which your adapter is attached. Select speed based on your GPS source device manual (usually 4800 baud for GPS or 115200 for AIS source, but check your manual and experiment if needed). Use the “Show NMEA Debut Window” to verify that data is flowing from GPS to laptop.



**Options**

Display
 Charts
 Connections
 Ships
 User Interface
 Plugins

Properties

Serial
  Network

DataPort:  Baudrate:

Protocol:  Priority:

Control checksum
  Use Garmin (GRMN) mode for input

Receive Input on this Port
  Output on this port ( as Autopilot or NMEA Repeater)

APB bearing precision:

Input filtering

Accept only sentences
  Ignore sentences

...

Output filtering

Transmit sentences
  Drop sentences

**Options**

Display
 Charts
 Connections
 Ships
 User Interface
 Plugins

General

Filter NMEA Course and Speed data Filter period (sec)

Show NMEA Debug Window

Format uploads for Furuno GP3X

Use Garmin GRMN (Host) mode for uploads

Use magnetic bearings in output sentence ECAPB

Data Connections

Enable	Type	DataPort	Priority	Parameters	Connection	Filters
<input checked="" type="checkbox"/>	Net	192.168.x.x:10110	1	UDP	Output	In: None, Out: Send HDM,HDT,RMB,RMC,WPL
<input checked="" type="checkbox"/>	Serial	COM7	1	4800	Input	In: None, Out: None

## Recommended OpenCPN Option Settings

### Display: General

- Navigation Mode: North Up
- Chart Display: Enable Chart Quilting
- Controls: Zoom to Cursor
- Display Features: Show Chart Outlines and Show Depth Units

### Display: Units

- Distance: Nautical Miles
- Speed: Knots
- Lat/Lon: Degrees, Decimal Minutes
- Bearings: Show Magnetic using  $-15.0$

For a description of these settings (as well as other choices, consult the OpenCPN 4.0.0 User Manual. At the moment, this manual is only available in html format from the OpenCPN website; previously, the manual was available in pdf format, so that it could be loaded onto your laptop and did not depend upon an internet connection for access. Hopefully, OpenCPN will revert to the pdf manual format in the near future.

## AIS

Typical Unit (Recommended): ICOM MA-500TR.

Consists of: MKD (includes transponder; mounts below); GPS head; cables.

Needs separate VHF antenna, mounted as high as feasible.

Note: People will recommend “splitter” so VHF and AIS share antenna. I highly recommend **against** this; both will suffer. Locating, installing, and wiring coax to separate AIS antenna is a pain in the transom, but highly worth it.



MKD Display: gives you all the info you need, but not as intuitive as showing AIS data on the chart.