METAR Map's Guide for Andy

v2.0

1. Wi-Fi Connection

1.1. The little computer is called a "Raspberry Pi" (model 4B) running on a Linux desktop. Once powered on and booted up (which takes up to a minute), it automatically connects to your Wi-Fi with the network name and password already stored in the Raspberry Pi.

1.2. Upon start, Raspberry Pi is already running a VNC Server awaiting a wireless connection. One needs to know the IP address of the Raspberry Pi, to be explained below.

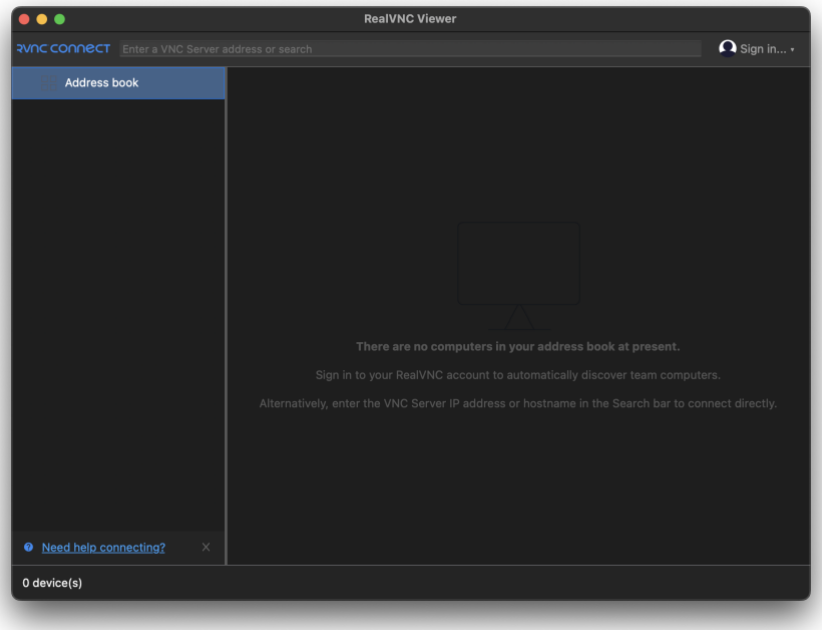
1.3. To control the METAR Map and the Raspberry Pi, use the Real VNC Viewer APP. Starting with the preferred way:

1.3.1. Install the RealVNC Viewer APP on your personal computer, iPad, or iPhone. The website is:

https://www.realvnc.com/en/connect/download/combined/

For iPhone or iPad, the APP can also be found in the Apple APP Store.

1.3.2. Open RealVNC Viewer or VNC Viewer.

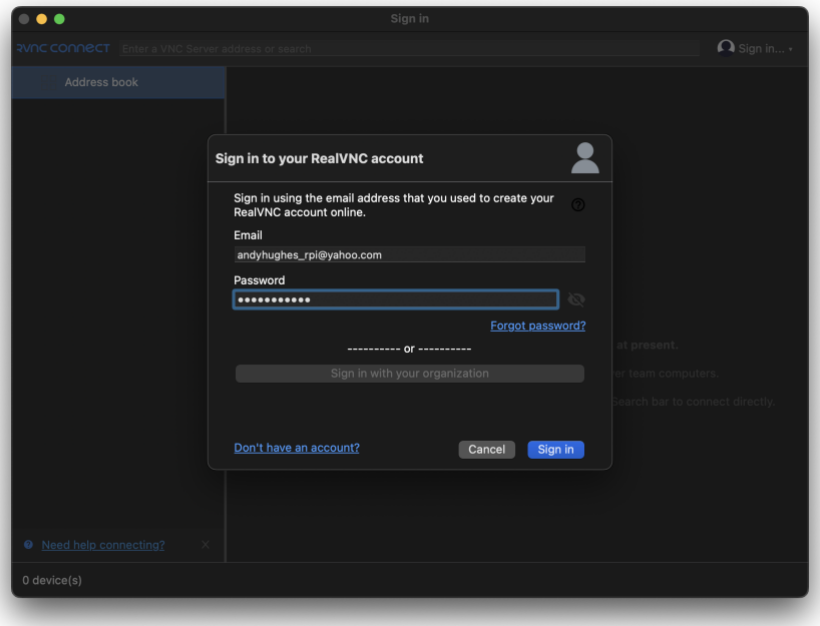


1.3.3. Sign in with a (free lite) account I have registered for you:

andyhughes_rpi@yahoo.com

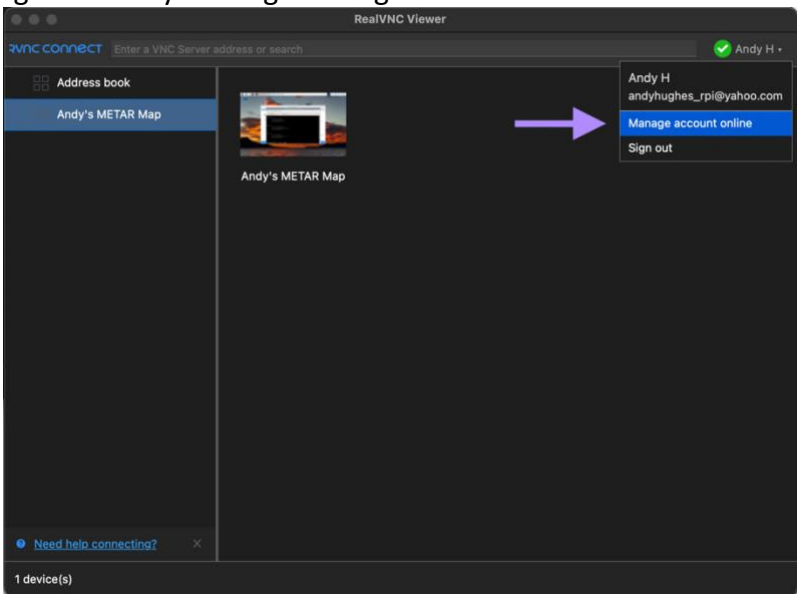
and password

123@qwe@ASD



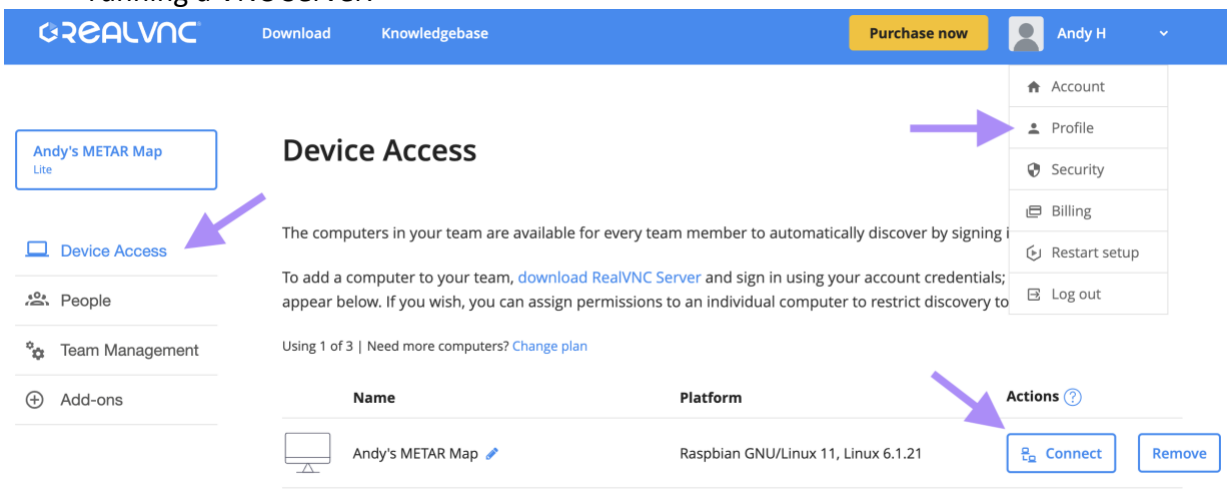
The yahoo.com email was registered with the same password. Feel free to change it. This email is yours.

1.3.4. You may change the login password of your Real VNC account and the phone number used for registration by clicking “Manage account online.”



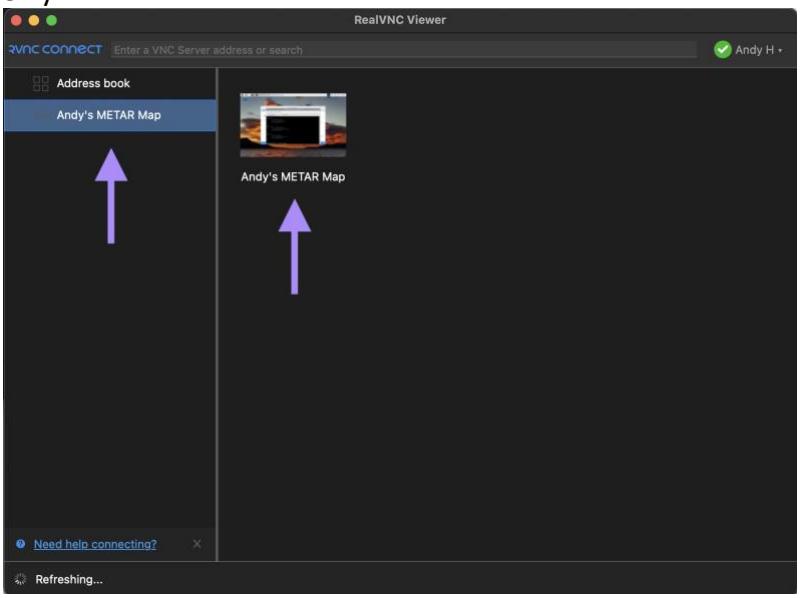
Let me know in case I need to receive a one-time verification code in a text message. Hopefully, this never happens.

1.3.5. (You may skip this step to 1.3.8) If you click “Manage account online,” you may navigate to the following webpage, where you can change your profile and access your devices running a VNC Server.



1.3.6. (You may skip this step to 1.3.8) By the way, this webpage offers an alternative way to connect to your EMTAR Map’s Raspberry Pi from your personal computer. Simply click “Connect” from the above webpage interface, and your internet browser may prompt you to open your VNC Viewer if you have installed the application. Otherwise, it may remind you to install the application. *Note: This may not work on iPhone or iPad (you can try if curious enough), but it is not necessary.*

1.3.7. Inside RealVNC Viewer, Click “Andy’s METAR Map” to wirelessly enter the desktop of the Raspberry Pi:



A couple of dialog windows may appear when you try to enter your Raspberry Pi for the first time. When prompted, enter the username:

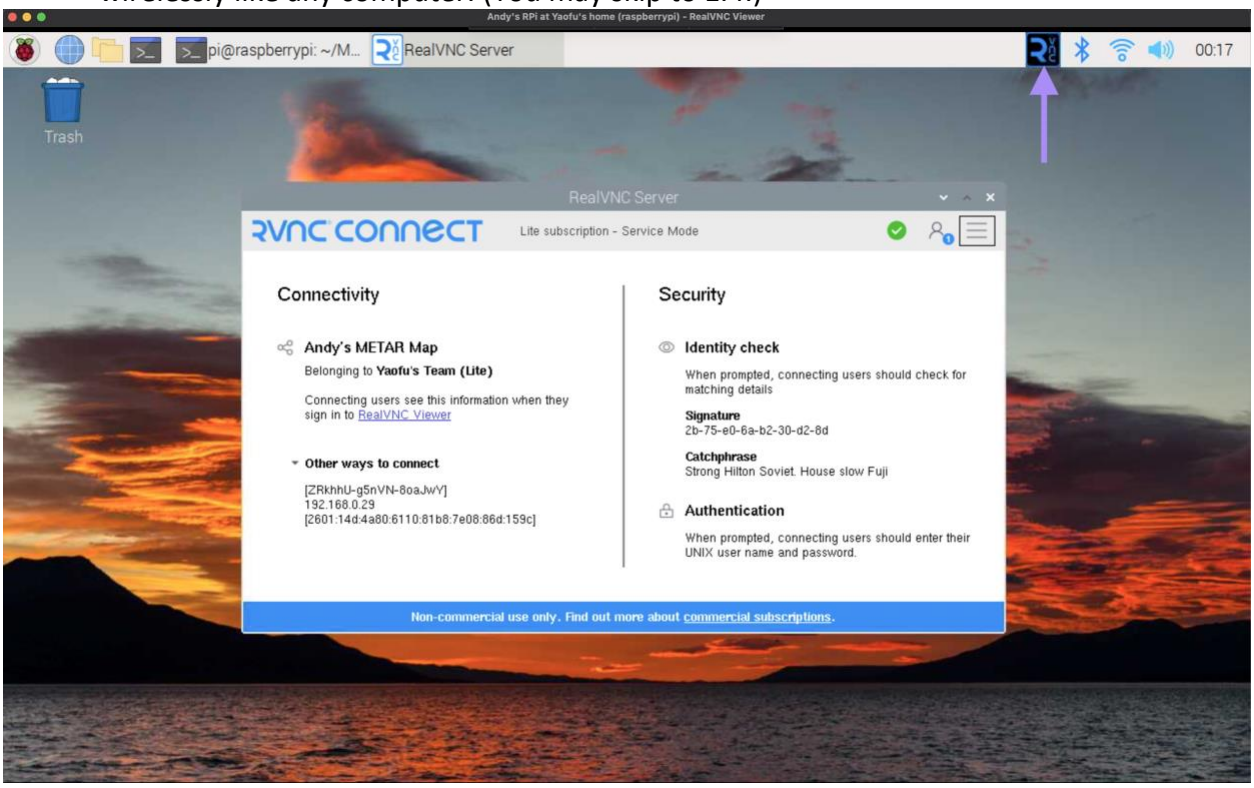
pi

and password:

admin

What we have done so far is to connect to your Raspberry Pi wirelessly without knowing its IP address explicitly. Simply put, upon Wi-Fi and internet connection, the RealVNC Server on your Raspberry Pi updates your Raspberry Pi's IP address to your RealVNC account, and the IP address gets accessed when you log in from your RealVNC Viewer.

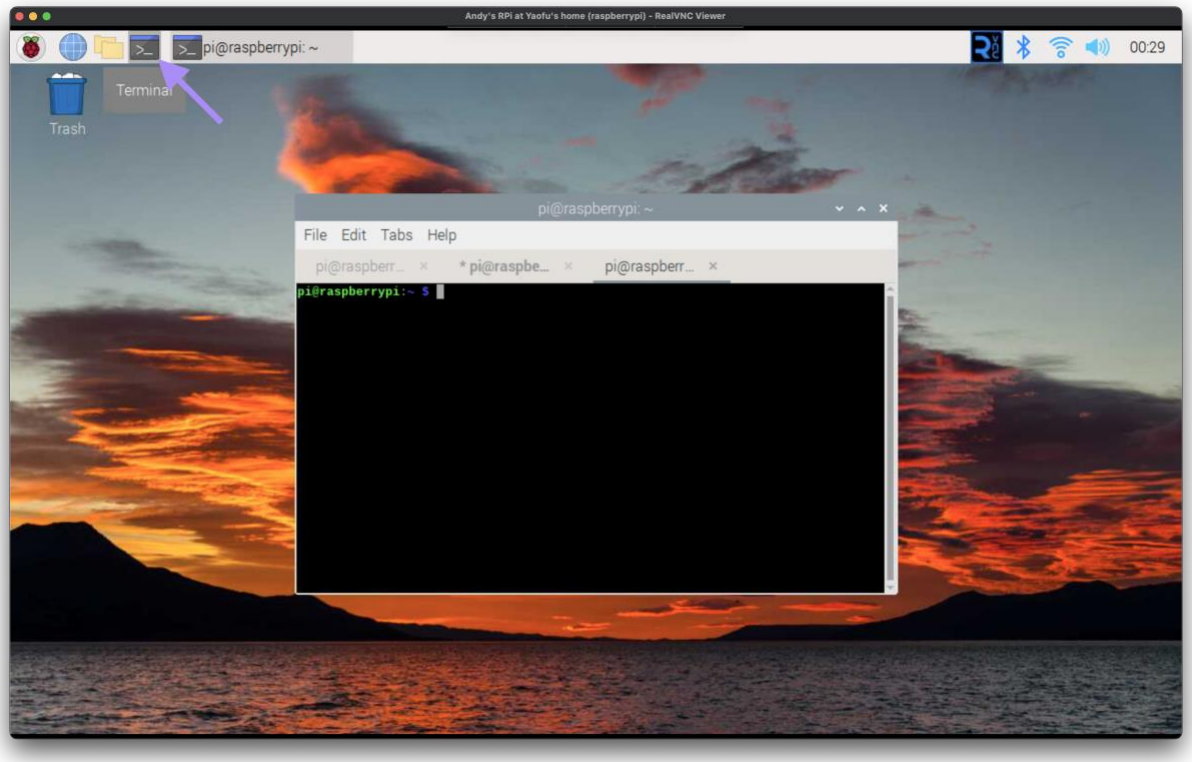
1.3.8. Once you see your Raspberry Pi desktop, you can interact with your Raspberry Pi wirelessly like any computer. (You may skip to 1.4.)



If you click on the RealVNC Server icon at the top right corner of the desktop, you can indeed find "Andy's METAR Map" broadcasting its IP address ~~192.168.0.29~~. This address is not a constant and may vary over time.

2. Control METAR Map

2.1. To control your METAR Map, open a Terminal:



2.2. Type the command

`ls`

and press ENTER. The terminal will list the content in your home directory. We should expect to see `METARMap` among the displayed.

2.3. Type the command

`cd METARMap`

and press ENTER. We are now inside the `METARMap` folder. You can always use the `ls` command to show the content of the current folder.

2.4. To turn on the LEDs, type the command

`sudo ./on.sh`

and press ENTER. The LEDs may not turn on immediately as it will take a few minutes to download the latest sun times information. Once that is done, the LEDs should work as before. Hopefully, during dust and dawn, the LEDs will automatically dim and brighten according to the local time they represent! The latest sun times information will be updated automatically once a day behind the scene, and upon turning off the LEDs, so you do not need to wait a few minutes very often.

2.5. To turn off the LEDs, type the command

`sudo ./off.sh`

and press ENTER. The latest sun times information will be updated automatically.

Note: When using

```
sudo ./on.sh
```

and

```
sudo ./off.sh
```

, you have to be already inside the `METARMap/` **directory. When you open a fresh Terminal, by default, you are in your home directory. Before turning on and off the LEDs, simply Type the command**

```
cd METARMap
```

and press ENTER to enter the `METARMap/` **directory. Then, you can use**

```
sudo ./on.sh
```

and

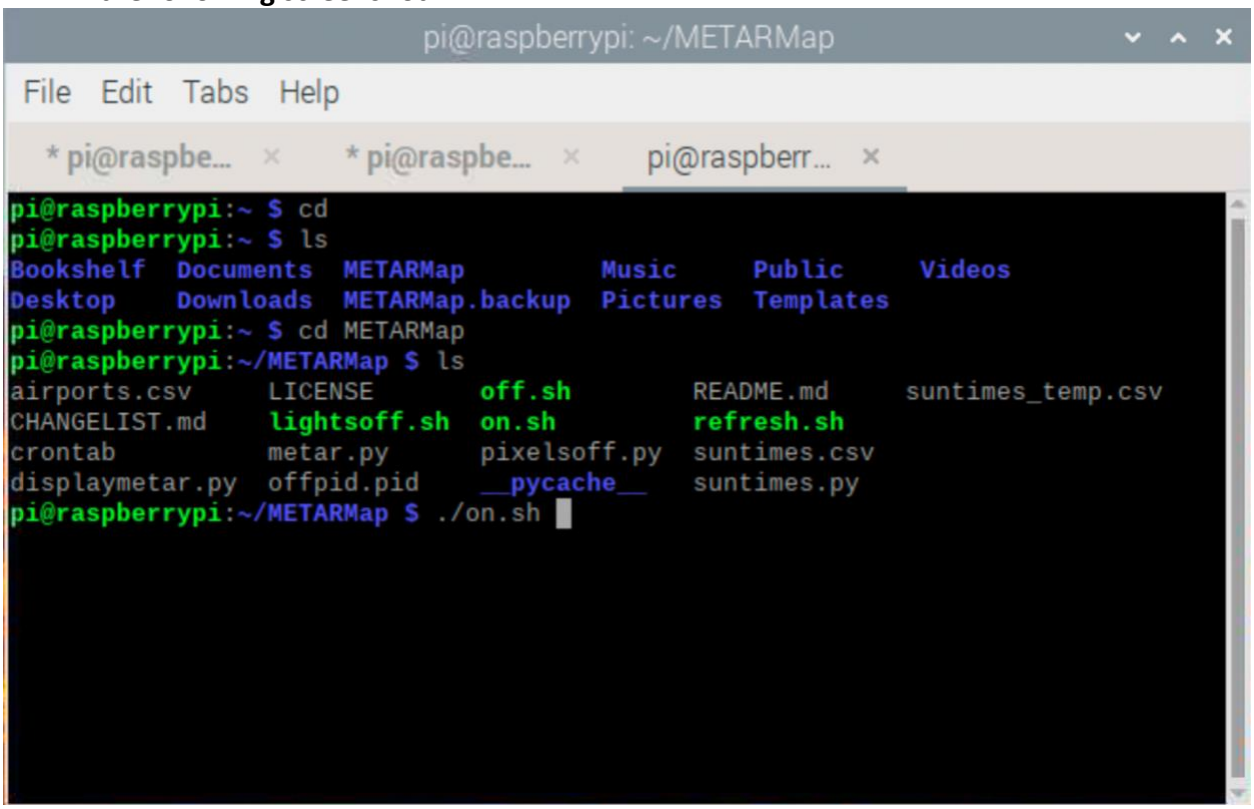
```
sudo ./off.sh
```

.

If you are not sure where you are in the Terminal, entering

```
cd
```

will bring you to your home directory. The commands introduced can be reviewed in the following screenshot:



Notice that ~ denotes your home directory.

3. Update METAR Map

3.1. I have maintained a copy of your codes on my GitHub. You can always let me know your complaints and changes you wish to make, such as (wind) conditions for the LEDs to blink and brightness adjustments.

3.2. Once I have fixed a bug or updated the codes according to your demands, you may sync your codes with my GitHub.

3.3. Enter the command

```
sudo apt-get update
```

followed by

```
sudo apt-get upgrade
```

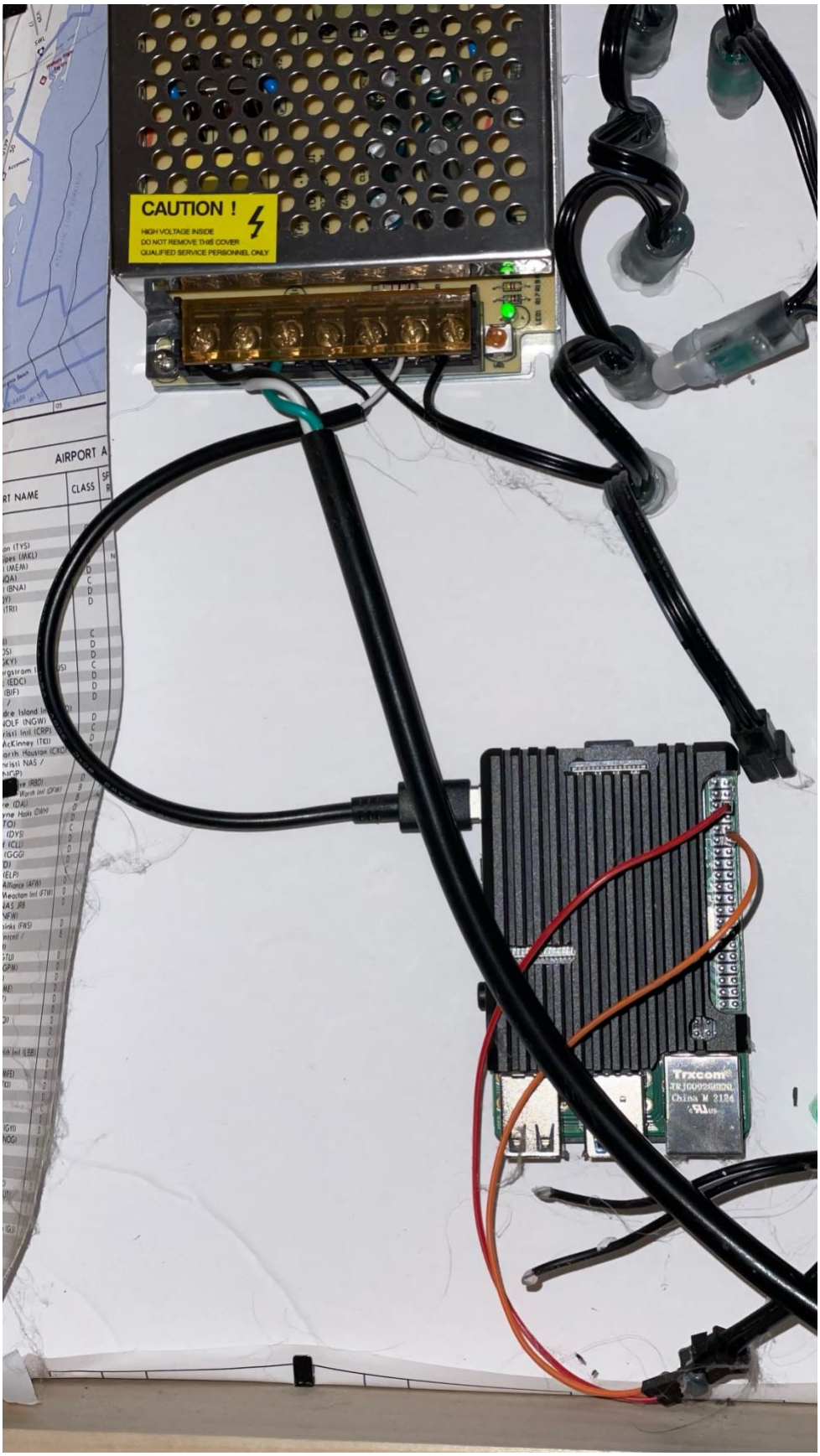
This step is not always necessary, but it updates packages on your Raspberry Pi, which will take a few minutes.

3.4. Enter the following commands:

```
cd                                  <--- In case you are lost
cd METARMap                         <--- Enter the METARMap/ directory
git checkout Andy_H_branch          <--- Make sure you sync the codes specific to you
git pull                            <--- Sync codes against the latest version on GitHub
chmod +x on.sh                      <--- Give on.sh permission to execute
chmod +x off.sh                     <--- Give off.sh permission to execute
```

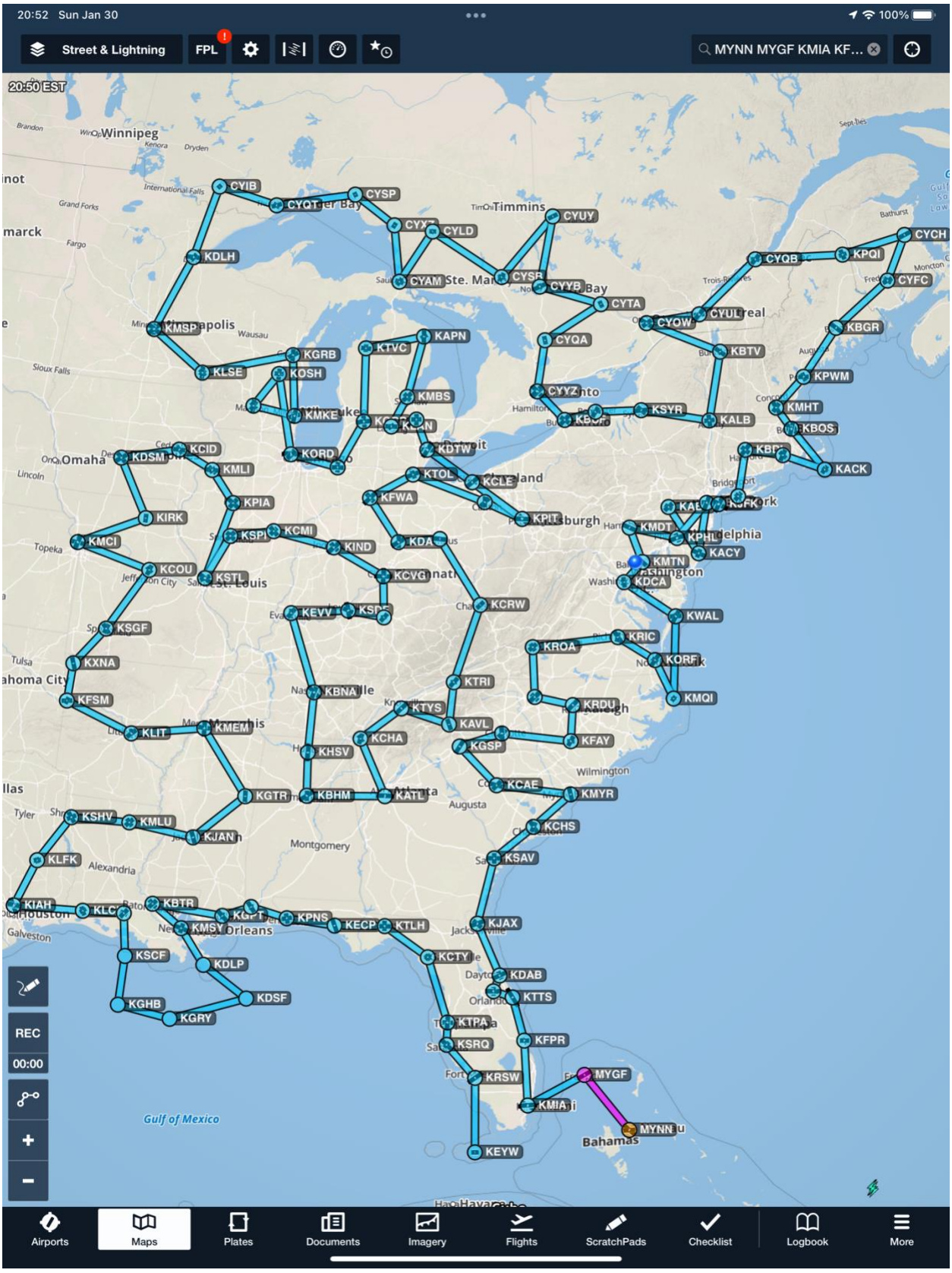
Appendix

Wire Connections:


CAUTION !
HIGH VOLTAGE INSIDE
DO NOT REMOVE THIS COVER
QUALIFIED SERVICE PERSONNEL ONLY
Trxcom
China M 2124

LED Wiring Sequence

The wiring of the LEDs is shown in the screenshot and a numbered list of the airports is shown below. The same numbers can be seen next to the LEDs on the foamboard of the map. Again, please do not hesitate to contact me if you need any assistance.


20:52 Sun Jan 30
100%
Street & Lightning
FPL
MYNN MYGF KMIA KF...
20:50 EST
Winnipeg
Timmins
Omaha
Lincoln
Topeka
Tulsa
Montgomery
Alexandria
Galveston
Gulf of Mexico
Bahamas
CYIB
CYQT
CYSP
CYLD
CYUY
CYCH
CYQB
KPQI
CYFC
KDLH
CYAM
CYSR
CYYB
CYTA
CYOW
CYUL
KBGR
KMSP
KAPN
KTVC
CYQA
KBTV
KGRB
KLSE
KOSH
KPWM
CYYZ
KSYR
KALB
KMHT
KMBS
KMKE
KBOS
KORD
KDTW
KACK
KCID
KDSM
KMLI
KTOL
KCLE
KPIA
KFWA
KPIT
KIRK
KMDT
KPHL
KACY
KMCI
KSPI
KCMI
KIND
KDA
KMTN
KDCA
KCOU
KSTL
KCVG
KCRW
KWAL
KEVV
KSDF
KSGF
KROA
KRIC
KXNA
KORF
KTRI
KMQI
KFSM
KBNA
KTYS
KRDU
KAVL
KLIT
KMEM
KHSV
KCHA
KFAY
KGSP
KCAE
KMYR
KGTR
KBHM
KATL
KSHV
KMLU
KCHS
KJAN
KSAV
KLFK
KIAH
KLCH
KBTR
KPNS
KECP
KTLH
KJAX
KMSY
KCTY
KSCF
KDLP
KDAB
KTTS
KGHB
KDSF
KGRY
KTPA
KFPR
KSRQ
KRSW
MYGF
KMIA
MYNN
KEYW
REC
00:00
Airports
Maps
Plates
Documents
Imagery
Flights
ScratchPads
Checklist
Logbook
More

1	MYNN
2	MYGF
3	KMIA
4	KFPR
5	KTTS
6	KSFB
7	KDAB
8	KJAX
9	KSAV
10	KCHS
11	KMYR
12	KCAE
13	KGSP
14	KCLT
15	KFAY
16	KRDU
17	KGSO
18	KROA
19	KRIC
20	KORF
21	KMQI
22	KWAL
23	KDCA
24	KMTN
25	KMDT
26	KPHL
27	KEWR
28	KACY
29	KABE
30	KJFK
31	KISP
32	KBDL
33	KPVD
34	KACK
35	KBOS
36	KMHT
37	KPWM
38	KBGR
39	CYFC
40	CYCH
41	KPQI
42	CYQB
43	CYUL
44	CYOW

45	KBTV
46	KALB
47	KSYR
48	KROC
49	KBUF
50	CYYZ
51	CYQA
52	CYTA
53	CYYB
54	CYUY
55	CYSB
56	CYLD
57	CYAM
58	CYXZ
59	CYSP
60	CYQT
61	CYIB
62	KDLH
63	KMSP
64	KLSE
65	KGRB
66	KMKE
67	KMSN
68	KOSH
69	KORD
70	KSBN
71	KGRR
72	KTVC
73	KAPN
74	KMBS
75	KLAN
76	KFNT
77	KDTW
78	KCLE
79	KPIT
80	KCAK
81	KTOL
82	KFWA
83	KDAY
84	KCMH
85	KCRW
86	KTRI
87	KAVL
88	KTYS

89	KCHA
90	KATL
91	KBHM
92	KHSV
93	KBNA
94	KEVV
95	KSDF
96	KLEX
97	KCVG
98	KIND
99	KCMI
100	KSPI
101	KSTL
102	KPIA
103	KMLI
104	KCID
105	KDSM
106	KIRK
107	KMCI
108	KCOU
109	KSGF
110	KXNA
111	KFSM
112	KLIT
113	KMEM
114	KGTR
115	KJAN
116	KMLU
117	KSHV
118	KLFK
119	KIAH
120	KLCH
121	KLFT
122	KSCF
123	KGHB
124	KGRY
125	KDLP
126	KDSF
127	KMSY
128	KBTR
129	KGPT
130	KMOB
131	KPNS
132	KECP

133	KTLH
134	KCTY
135	KTPA
136	KSRQ
137	KRSW
138	KEYW
139	NULL
140	NULL
141	NULL
142	NULL
143	NULL
144	NULL
145	NULL
146	NULL
147	NULL
148	NULL
149	NULL
150	NULL