Joint Mission Planning System and Low Level Navigation

Maj Flood, HT-28, Apr 2021

Navigation

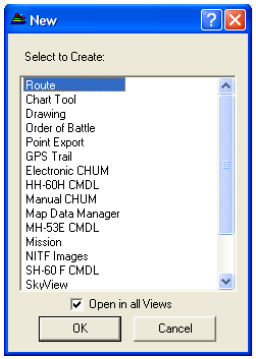
- PMA JMPS Class 100
- PMA JMPS Class 102
- PMA JMPS Class 103
- PMA JMPS Class 108
- Route Creation
- SLAP
- Printing Charts

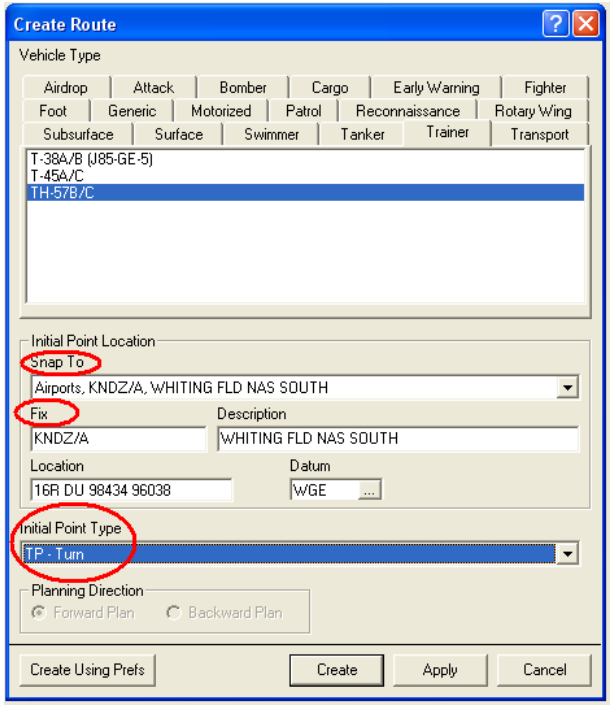
JMPS Program

- Open JMPS desktop shortcut
  - May open to previous flight plan
    - To Close: Click “File” then “Close”
- Check DAFIF currency
  - Select “Tools” Menu
  - “Data Administration”
  - System Health”
  - Up-Date DAFIF under “DAFIF Selection”

Creating a New Route

- Select “File” then “New” then “Route”
- Select “Trainer” tab and “TH-57B/C”
- Snap To: None
  - Will automatically fill with location provided in “Fix”
- Initial Point Type: TP (Turn)
- Fix: KNDZ (Or airport of origin)
- Create





Training Squadron Routes

- For your Low Level, Formation and NVG navigation flights, you will need to plan your **Route WITH Course Rules.**
  - **Include a copy of this route in your SmartPack**

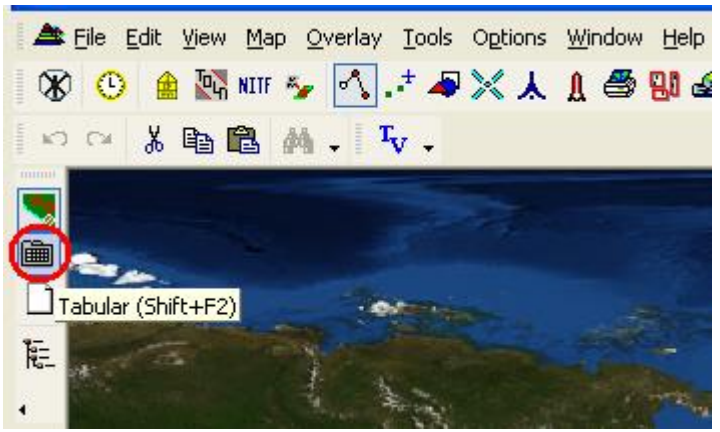
- This is all that is required. Other routes(Route without Course Rules, BINGO Route) do not need to be in SmartPack

Creating a New Route (cont'd)

- Select Tabular display
  - Left column, second icon

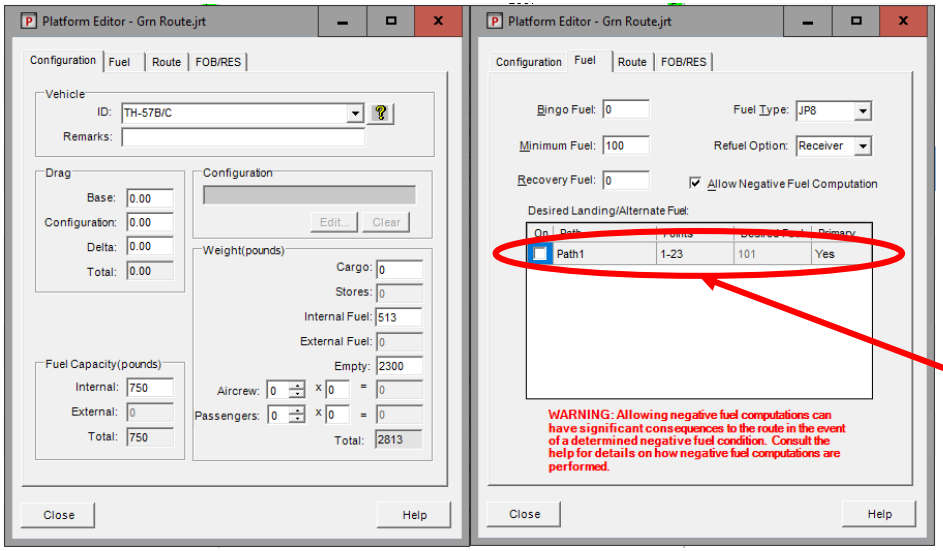
    or

  - Shift + F2



Creating a New Route (cont'd)

Platform Editor



- Click on "Platform Editor"
  - "Weight- Empty" = 2300
- Fuel Tab
  - "Allow Negative Fuel Computation" = check Configuration tab
  - Select which path in the "Desired Landing/Alternate Path".*

*May not be available until after you have added more than 1 point to your route.

Leg Editor

- Permits changing any parameter on segments of the profile
- Individual values may be changed by highlighting a cell on the tabular display and entering data
- General
  - Departure Field- enter ICAO ID
    - Lat. / Long. Is provided in D/M/S format
  - **Bank Angle- Blank = Zero. Do this for all points!**

Turn P	Type	Fix/Point	Latitude	Elev	MV	Altitude	Temp	MH	Leg Time	Leg Dist	Leg Fuel	Remark1	Remark2
Comm	DTD	Desc	Longitude	MGRS	Aspd	Bank	Wind	MC	Clock Tim	Total Dist	Rem Fuel	MSA	FF
1		**KNDZ/A**	N 30 41.9143	177 FT	3.1W	177M Alt	+15C						
		WHITIN...	W 087 00.8645	16R DU...					00:00:00		513		
2		.BAKER	**N 30 41.5100**	171 FT	3.2W	900M Alt	+13C	263	00+01+20	2.2 NM	6		
			W 087 03.3900	**16R DU...**	100T			263	00:01:20	2.2 NM	507	200M	280

Entering Points with the Tabular Editor

(lat./long. Coordinates)

- Left Click of Arrow Down to enter next point
- Highlight & enter next fix

- Coordinates for Course Rules are on A-5 of RWOP
- Coordinates for Low Level routes are on page A-7 of RWOP

Turn P	Type	Fix/Point	Latitude	Elev	MV	Altitude	Temp	MH	Leg Time	Leg Dist	Leg Fuel	Remark1	Remark2
Comm	DTD	Desc	Longitude	MGRS	Aspd	Bank	Wind	MC	Clock Tim	Total Dist	Rem Fuel	MSA	FF
1		**KNDZ/A**	N 30 41.9143	177 FT	3.1W	177M	+15C						
		WHITIN...	W 087 00.8645	16R DU...					00:00:00		513		
2		.BAKER	**N 30 41.5100**	171 FT	3.2W	900M	+13C	263	00+01+20	2.2 NM	6		
			W 087 03.3900	**16R DU...**	100T			263	00:01:20	2.2 NM	507	200M	280

**JMPS will automatically change a Lat./Long coordinate to the D/M/S format

Entering Points with the Tabular Editor (IFR flight planning)

- Left Click of Arrow Down to next line
- Highlight and enter next fix of NAVAID ID
  - Three letter NAVAID ID — NSE
  - Three letter NAVAID ID and Radial/ DME — NSE090043
  - Enter airport 4-letter ICAO ID — KNSE
  - Five Character Named Fix — RLTDE
    - SIDs STARs and Terminal Procedures are not in JMPS

Entering Points with Graphical Editor

- Select Graphical Editor button
  - Top button, left hand side

    or
  - Shift = F2
- Scale the chart as desired using the wheel on the mouse
- To add points, ensure Turn Point tool is selected
- To move map, ensure the Select tool is selected

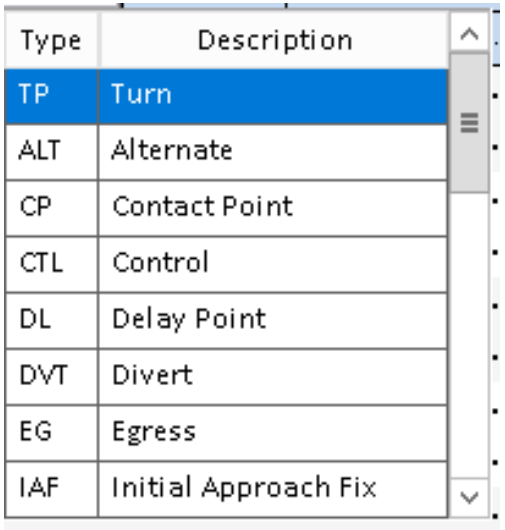
Graphical Editor

Turn Point Tool

Select Tool

Point Types

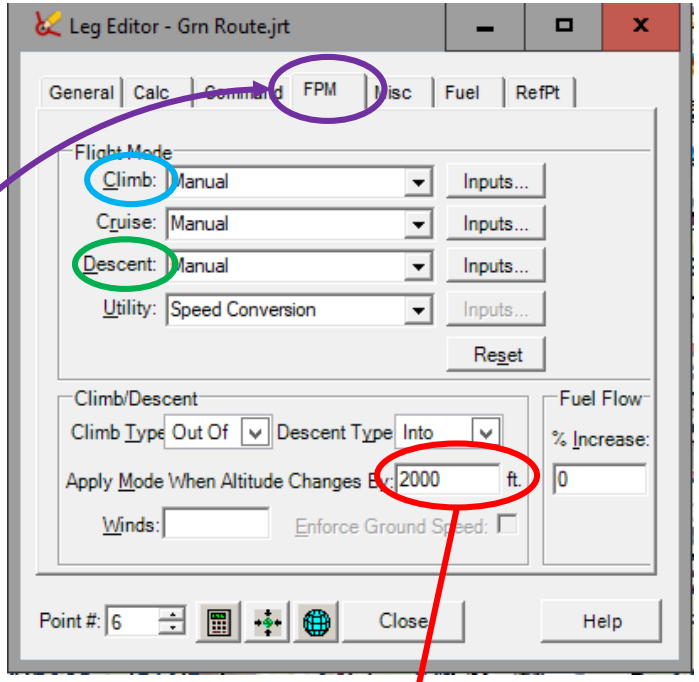
- Choose point Type from drop-down menu located on top leftmost box of each point
- Turn
  - Used for most points
- Orbit
  - Used for patter practice at OLFS
  - Time is adjustable
    - Typically 20 minutes



Type	Description
TP	Turn
ALT	Alternate
CP	Contact Point
CTL	Control
DL	Delay Point
DVT	Divert
EG	Egress
IAF	Initial Approach Fix

Airspeed Adjustment

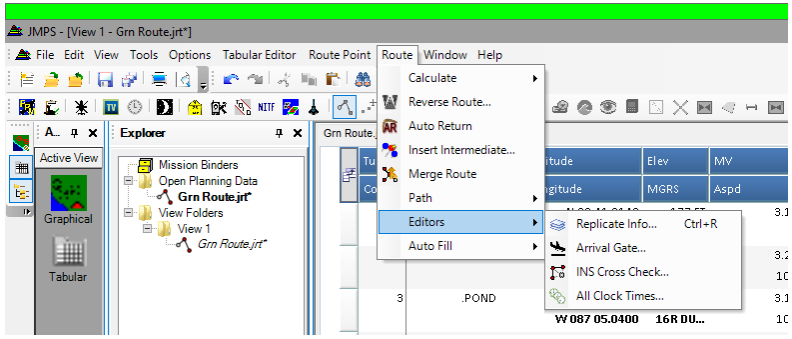
- Go to the Tabular Editor (Shift + F2)
- Highlight the second point on route
- Click on the “Route Point” dropdown menu at the top of the screen
- Select “Leg Editor”
- Select “FPM” Tab
  - **Climb** = Manual
  - Cruise = Manual
  - **Descent** = Manual
- Close

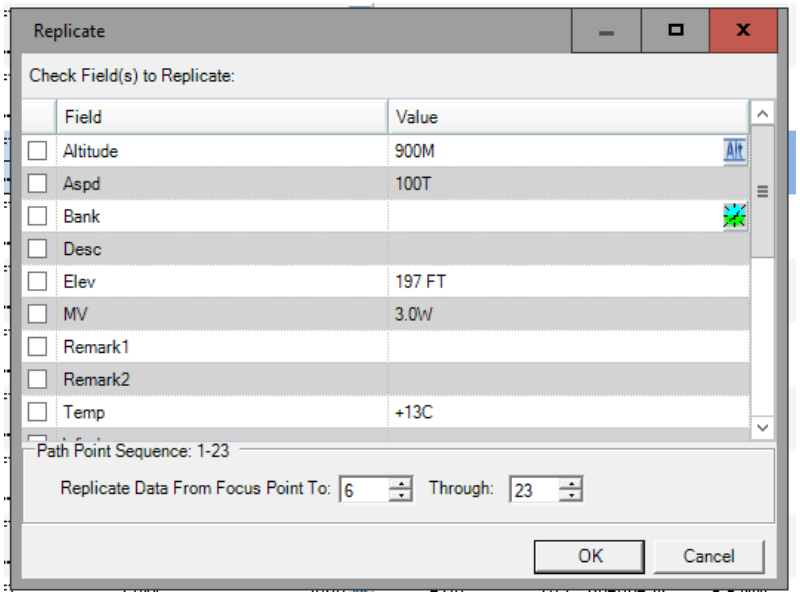


If the change in altitude between two points (i.e. CP 2 and CP3) exceeds this number, either the ‘**Climb**’ or ‘**Descent**’ modes will be enabled.

Airspeed Adjustment (cont'd)

- Keep the second point highlighted
- Click on the "Route" dropdown menu at the top of the screen
- Select "Replicate Info"
- De-Select any data checkboxes that you do not wish to replicate.
- Scroll down to "Flight Modes" and check the box
  - This will allow you to adjust airspeed of each leg
    - Course Rules = 100T
    - Low Level Routes = 90G
    - Formation Routes =100G
- Select all points and "OK"



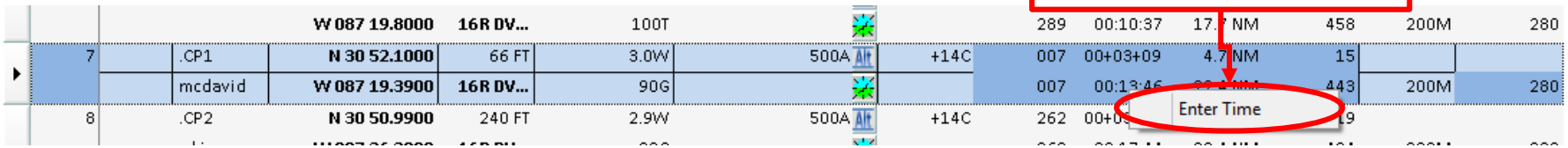


Setting Route Start Time

Right click on the lower time (‘Clock Time’)

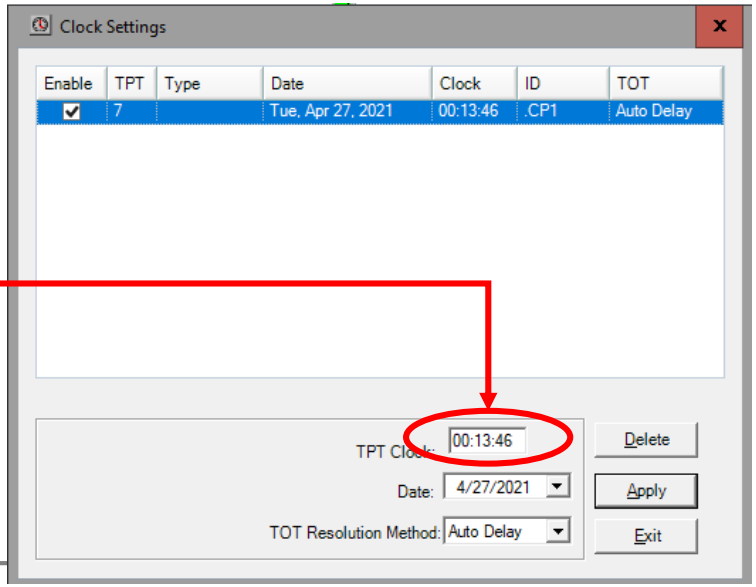
6	.SAWMILL	N 30 47.4000	56 FT	3.0W	900M	+13C	289	00+03+02	8.4 NM	24		
		W 087 19.8000	16R DV...	100T			289	00:10:37	17.7 NM	458	200M	280
7	.CP1	N 30 52.1000	66 FT	3.0W	500A	+14C	007	00+03+09	4.7 NM	15		
	mcdavid	W 087 19.3900	16R DV...	90G			007	00:13:46	22.4 NM	443	200M	280
8	.CP2	N 30 50.9900	240 FT	2.9W	500A	+14C	262	00+03+58	6.0 NM	19		

Click ‘Enter Time’



Enter time as ‘00:00:00’

Note: This is actually telling the system to set your arrival time at that point as midnight (local or Zulu, depending on JMPS preference settings).



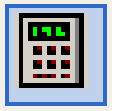
Setting Route Start Time

If adjusting this time after calculating,
you will have to recalculate your route after setting this time
(because JMPS and stuff).

Turn P	Type	Fix/Point	Latitude	Elev	MV	Altitude		Temp	MH	Leg Time	Leg Dist	Leg Fuel	Remark1	Remark2
Comm	DTD	Desc	Longitude	MGRS	Aspd	Bank		Wind	MC	Clock Tim	Total Dist	Rem Fuel	MSA	FF
1		**KNDZ/A**	N 30 41.9143	177 FT	3.2W		0A	+15C						
		WHITIN...	W 087 00.8645	16R DU...						00:00:00		507		
2		.BAKER	**N 30 41.5100**	171 FT	3.2W		900M	+13C	263	00+01+20	2.2 NM	6		
			W 087 03.3900	**16R DU...**	100T				263	00:01:20	2.2 NM	501	200M	280
3		.POND	**N 30 42.0600**	151 FT	3.1W		900M	+13C	294	00+00+55	1.5 NM	4		
			W 087 05.0400	**16R DU...**	100T				294	00:02:14	3.7 NM	497	200M	280
4		.BEND	**N 30 43.5600**	177 FT	3.1W		900M	+13C	303	00+01+50	3.0 NM	9		
			W 087 08.1200	**16R DU...**	100T				303	00:04:04	6.8 NM	488	200M	280
5		.TREE FIE...	**N 30 45.1600**	197 FT	3.1W		900M	+13C	312	00+01+31	2.5 NM	7		
			W 087 10.3900	**16R DV...**	100T				312	00:05:35	9.3 NM	481	200M	280
6		.SAWMILL	**N 30 47.4000**	56 FT	3.0W		900M	+13C	289	00+05+02	8.4 NM	24		
			W 087 19.8000	**16R DV...**	100T				289	00:10:37	17.7 NM	458	200M	280
7		.CP1	**N 30 52.1000**	66 FT	3.0W		500A	+14C						
		mcdavid	**W 087 19.3900**	**16R DV...**	90G					00:00...			200M	
8		.CP2	**N 30 50.9900**	240 FT	2.9W		500A	+14C						
		rd junc	**W 087 26.2000**	**16R DV...**	90G								200M	
9		.CP3	**N 30 53.1500**	259 FT	2.9W		500A	+13C						
		rr/rd junc	**W 087 30.3200**	**16R DV...**	90G								200M	
10		.CP4	**N 30 51.5300**	207 FT	2.8W		500A	+14C						
		pline/rd...	**W 087 34.7000**	**16R DV...**	90G								200M	
11		.CP5	**N 30 52.0200**	203 FT	2.7W		500A	+14C						

Fuel Calculations

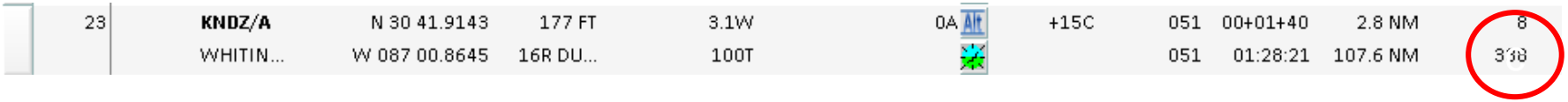
- Fuel is listed without the decimal point (e.g. 550=55.0 gallons)
- Default fuel is 750 (75.0 gallons)
- Once route is completed press the “Calculate” button to determine fuel burn



Calculate Button

Fuel Calculations (cont'd)

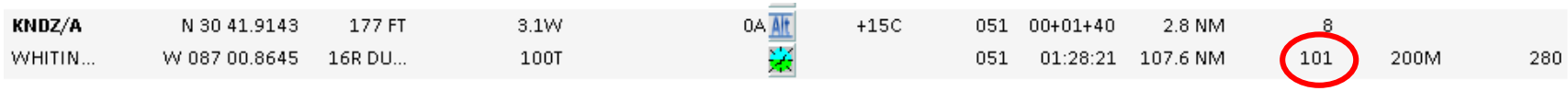
- Determining Mission Fuel
  - Method 1 - Manual
    - Determine fuel remaining at the completion of the route



    - Adjust "Internal Fuel" in "Platform Editor" to make fuel remaining at the end of the route = 101 (minimum fuel
      - 100 = 10.0 = NATOPS limit
    - Mission fuel will be the amount of "Internal Fuel" that yields minimum fuel
    - Round up to the nearest gallon
      - i.e. 451 = 45.1 = 46 gallons
  - Method 2 – Let JMPS do it…
    - Select the appropriate 'Path' (most likely Path 1) in the 'Desired Landing/Alternate Path' of the 'Internal Fuel' tab of the 'Platform Editor'
  - Re-Calculate

Fuel Calculations (cont'd)

- The last checkpoint should have '101' in the 'fuel' field.



- Note
  - An 'error' will pop up.
  - READ IT!!!!
  - It should be telling you that the starting fuel was adjusted to match the desired landing fuel.
  - If it is a different error, inform your instructor.
    - You may need to close JMPS out and restart the program if you are planning on your own.

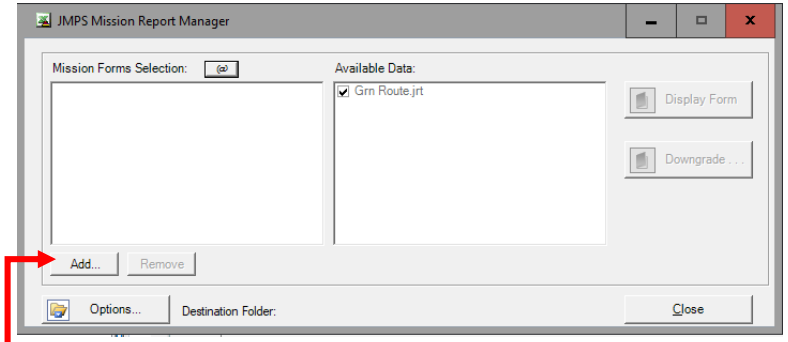
Fuel Calculations (cont'd)

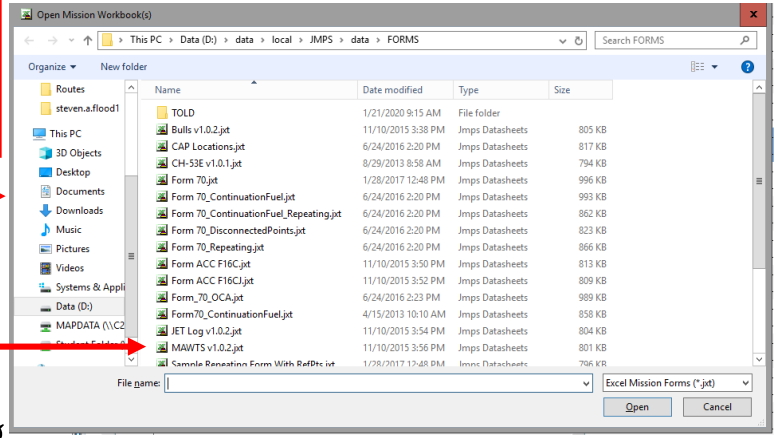
- BINGO fuel
  - May calculate with JOGAIR and approximate using
    - 30 lbs / hr
    - 115KIAS

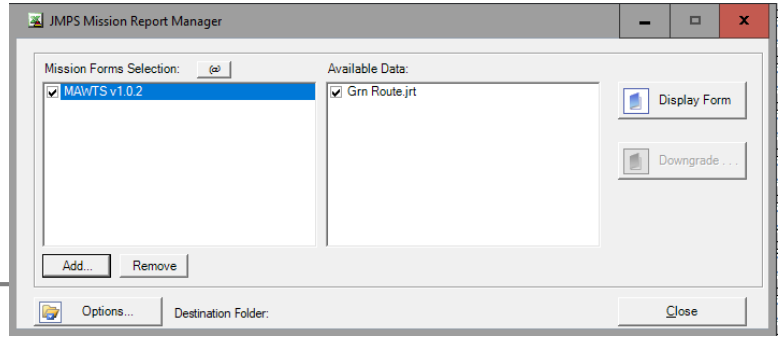
    or
  - Plan a new route with JMPS from the furthest point in the route back to NDZ via Course Rules
    - Use the procedures outline to adjust "Internal Fuel" to yield 101 at the end of the route
    - This number in "Internal Fuel" is BINGO fuel
    - 191 = 19.1 = 20 gallons

Printing Route Cards

- Click “File” then “Print”
- A box with different ‘Available Data’ will pop up.
- Ensure your route has the box checked next to it.
- Select the ‘form’ you desire by clicking ‘Add…’
  - A window will pop-up
- Select ‘MAWTS v1.0.2.jxt’
- Click “Open”
- Ensure the proper route is selected in the next window, JMPS will default to printing the first
- Select ‘Display Form’
- **Computer will now appear to be self-destructing. It is not.**
- **Please wait and be patient.**







Understanding the Route Cards

- Route Cards will open in Microsoft Excel once you press print in JMPS
- The Route cards in Excel will change to not include the dates once you print from Excel
- Print two copies
  - One for you
  - One for instructor

Understanding the Route Cards

- Route Time (e.x. CP1-CP10) =

  Time elapsed by CP1 – Time elapsed by CP10

Doghouses

CHECKPOINT NAME/NO. LAT LONG GRID	HDNG	DIST LEG REMN	TIME LEG REMN ELAPSED TIME	FUEL LEG REMN	REMARKS
KNDZ/A	263	2.2	00+01+19	-194	
N 30 41.9143		104.9	1+27+07	478	
W 087 00.8645					SQ 0100
16R DU 98620					CH 7, 1, 3, 4
.POINT BAKER	263	2.2	00+01+19	6	
N 30 41.5100		102.6	1+25+48	472	
W 087 03.3900					SQ 0100
16R DU 94588 95451					

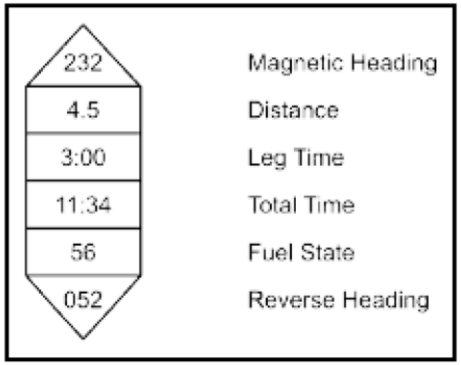


Figure 1-8 Doghouse

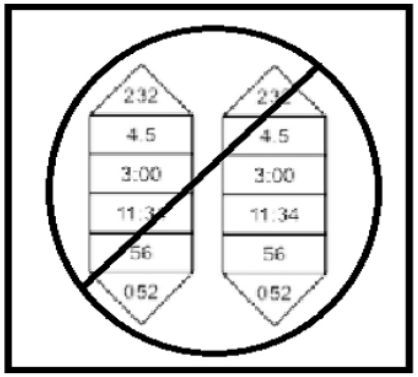
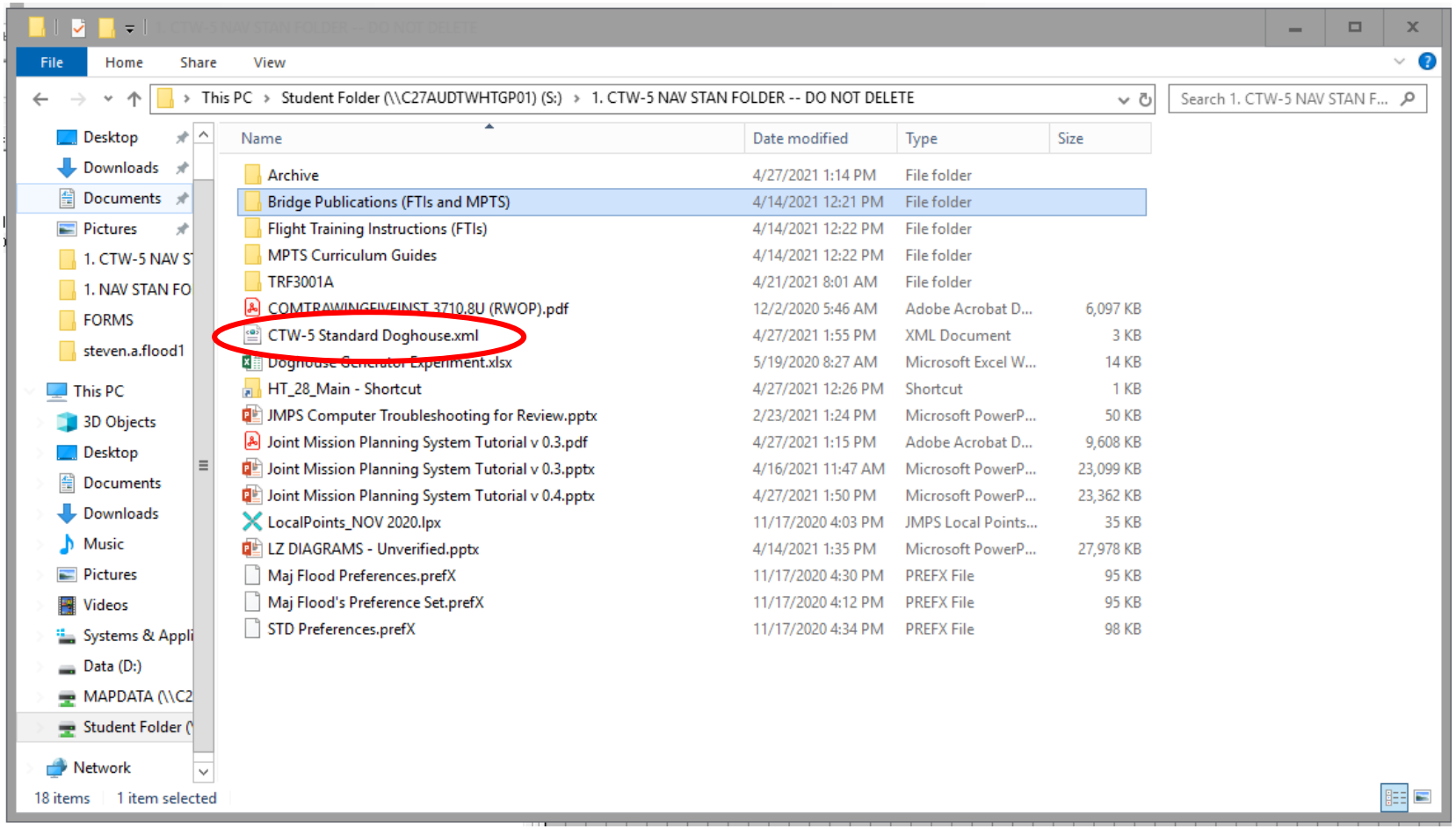


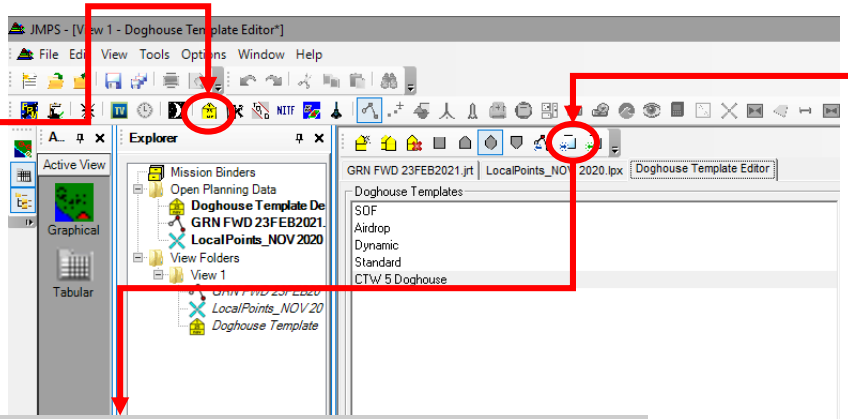
Figure 1-9 Double Doghouse

Doghouses (if CTW 5 template doesn't exist)

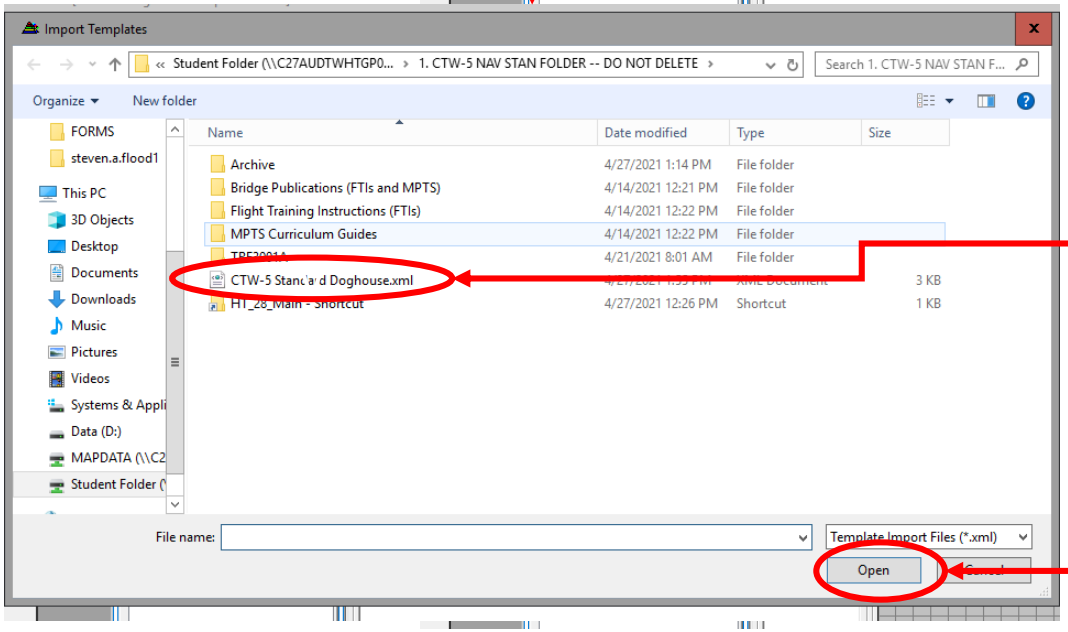


Doghouses

1.) Click ‘Doghouse Template Editor



2.) Click ‘Import Templates from File’



3.) Select ‘CTW-5 Standard Doghouse’

4.) Select Open

Doghouses

1.) Click ‘Route Properties’

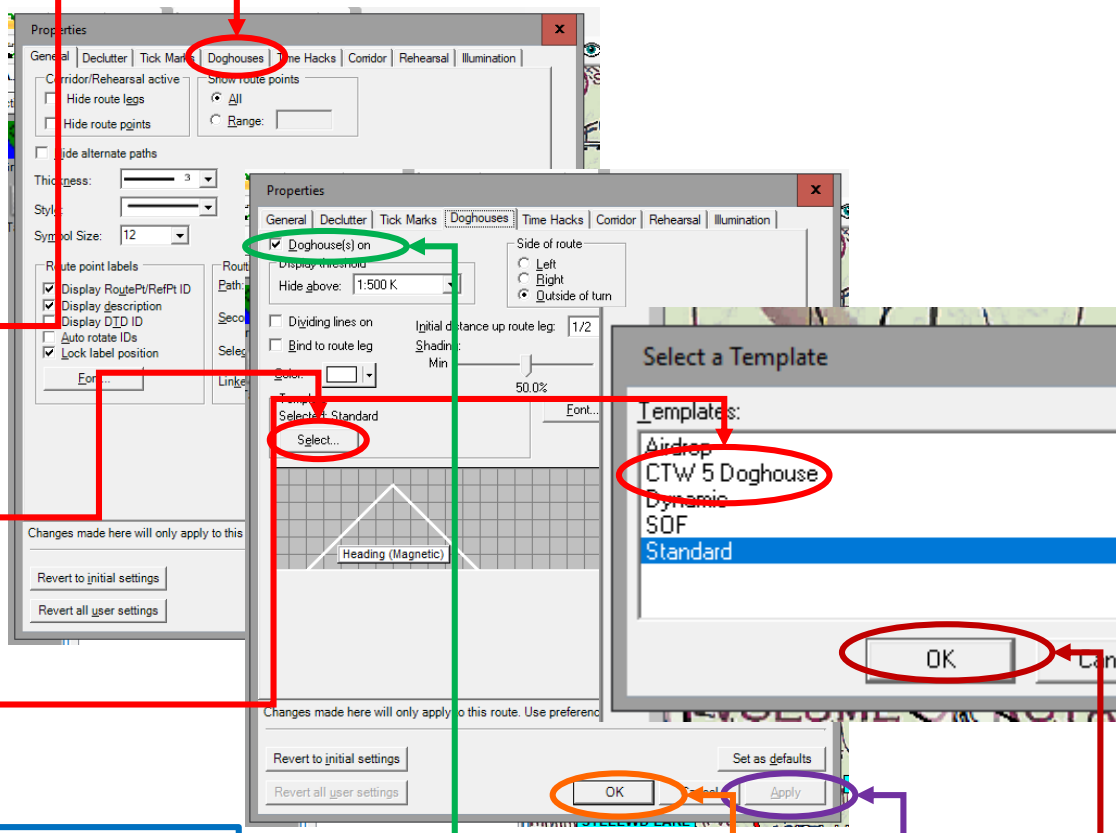
2.) Select the ‘Doghouses’ tab.

3.) Select the ‘Doghouses’ tab.

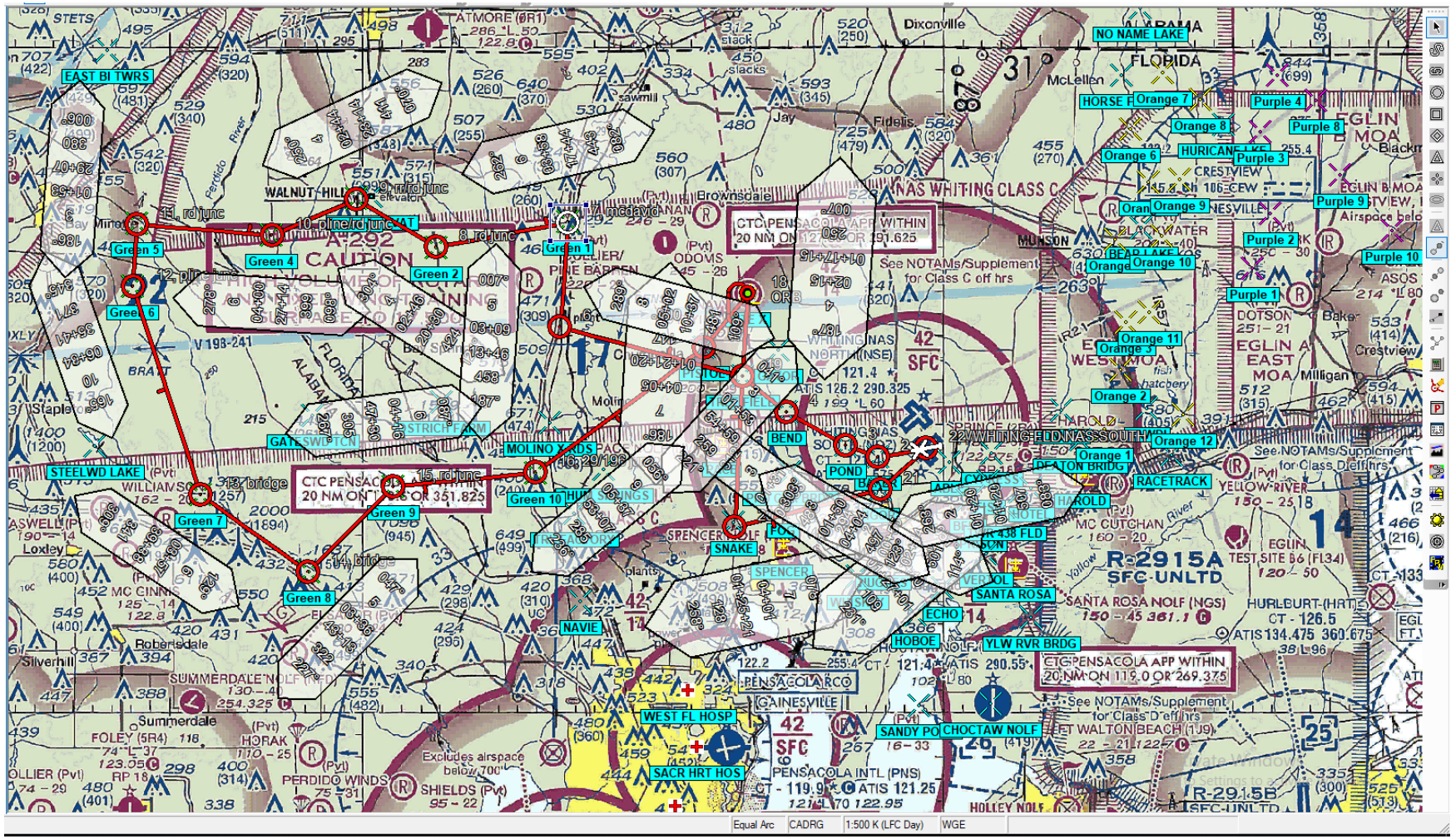
4.) Select ‘CTW 5 Doghouse’

5.) Click ‘OK’, then ‘Apply’, then ‘OK’ on the open windows.

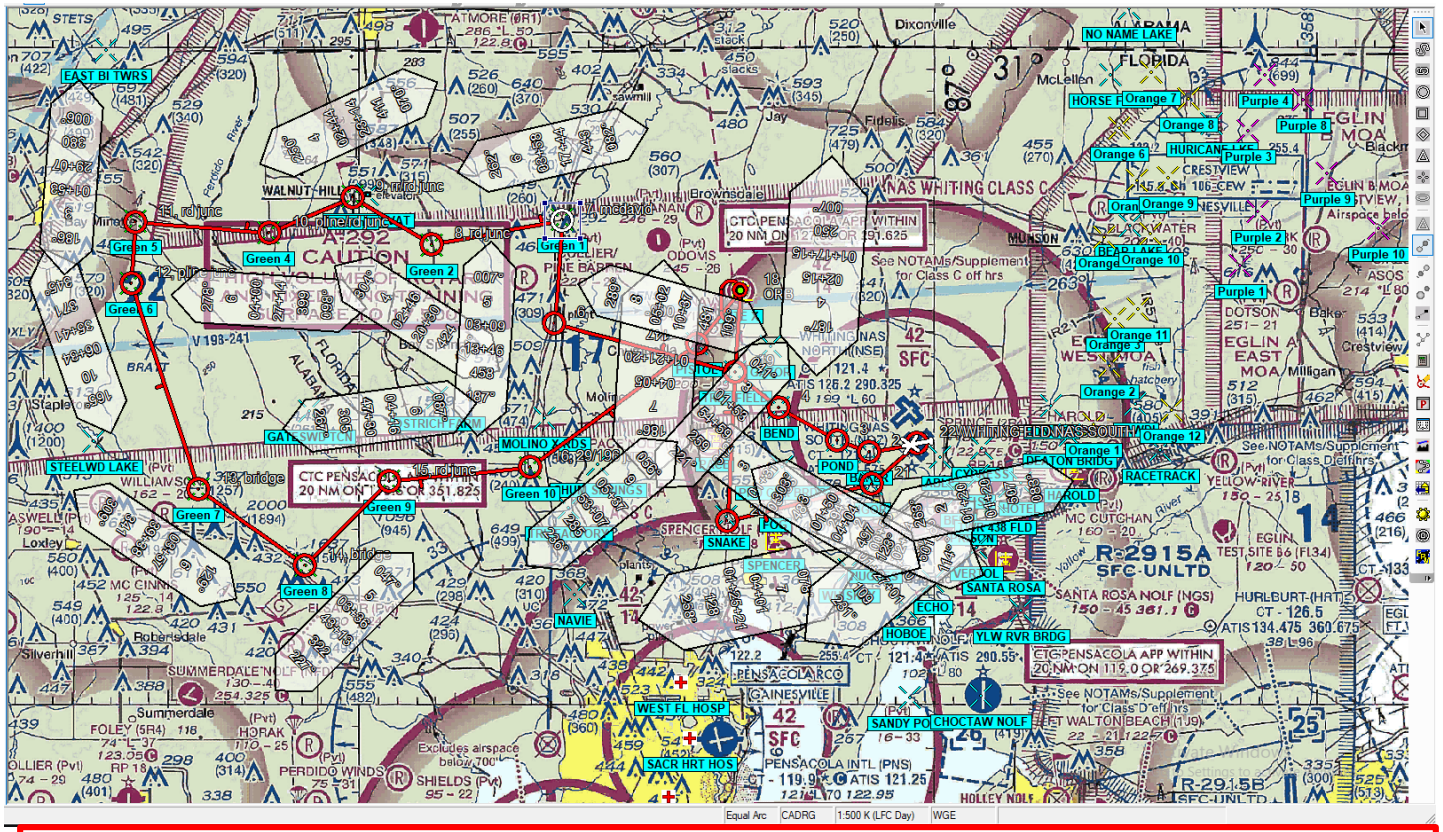
**Ensure the ‘Doghouse(s) on’ box is selected.



Doghouses


Green 1
Green 2
Green 4
Green 5
Green 6
Green 7
Green 8
Green 9
Green 10
Orange 1
Orange 2
Orange 3
Orange 6
Orange 7
Orange 8
Orange 9
Orange 10
Orange 11
Orange 12
Purple 1
Purple 2
Purple 3
Purple 4
Purple 8
Purple 9
Purple 10
NO NAME LAKE
EAST BI TWRS
WALNUT HILL
MOLINO
STEELWD LAKE
GATEWAY
BEND
POND
SNAKE
NAVIE
ECHO
HOBOE
SANTA ROSA
RACETRACK
YLW RVR BRDG
CHOCTAW NOLF
SANDY PO
WEST FL HOSP
SACR HRT HOS
CTC PENSACOLA APP WITHIN 20 NM ON 351.825
CTC PENSACOLA APP WITHIN 20 NM ON 119.0 OR 269.375
See NOTAMs/Supplement for Class C off hrs
See NOTAMs/Supplement for Class D eff hrs
R-2915A SFC-UNLTD
R-2915B SFC-UNLTD
NAS WHITING CLASS C
PENSACOLA INTL (PNS)
SANTA ROSA NOLF (NGS)
HURLBURT (HRT)
Equal Arc
CADRG
1:500 K (LFC Day)
WGE

Doghouses



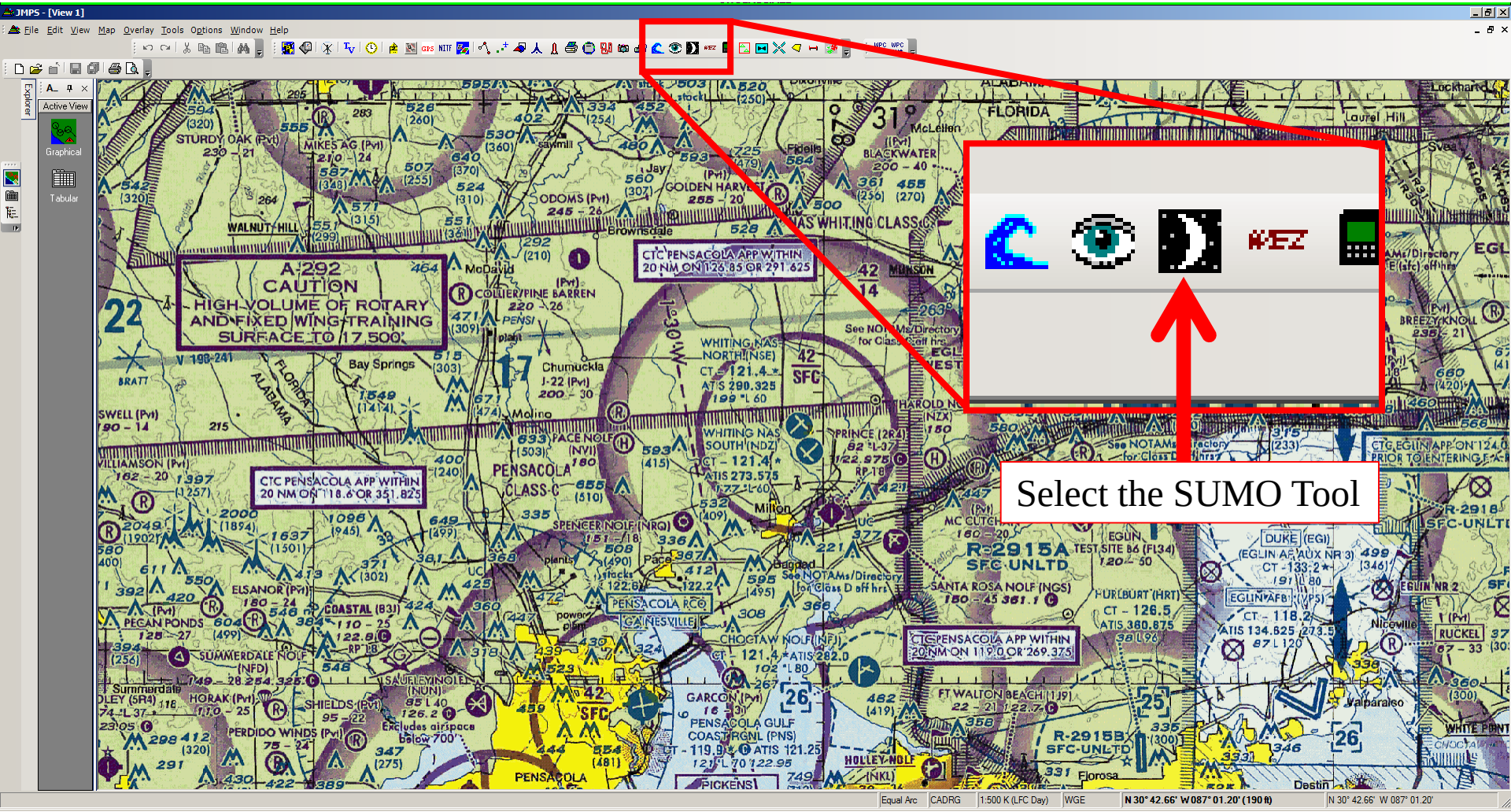
Right-click on the doghouse and select ‘Hide Doghouse’ to remove the doghouse from view.

If you accidentally remove the wrong one, Ctrl+Z works.

SLAP Data From JMPS

HT-18, Mar 2019

STEP 1

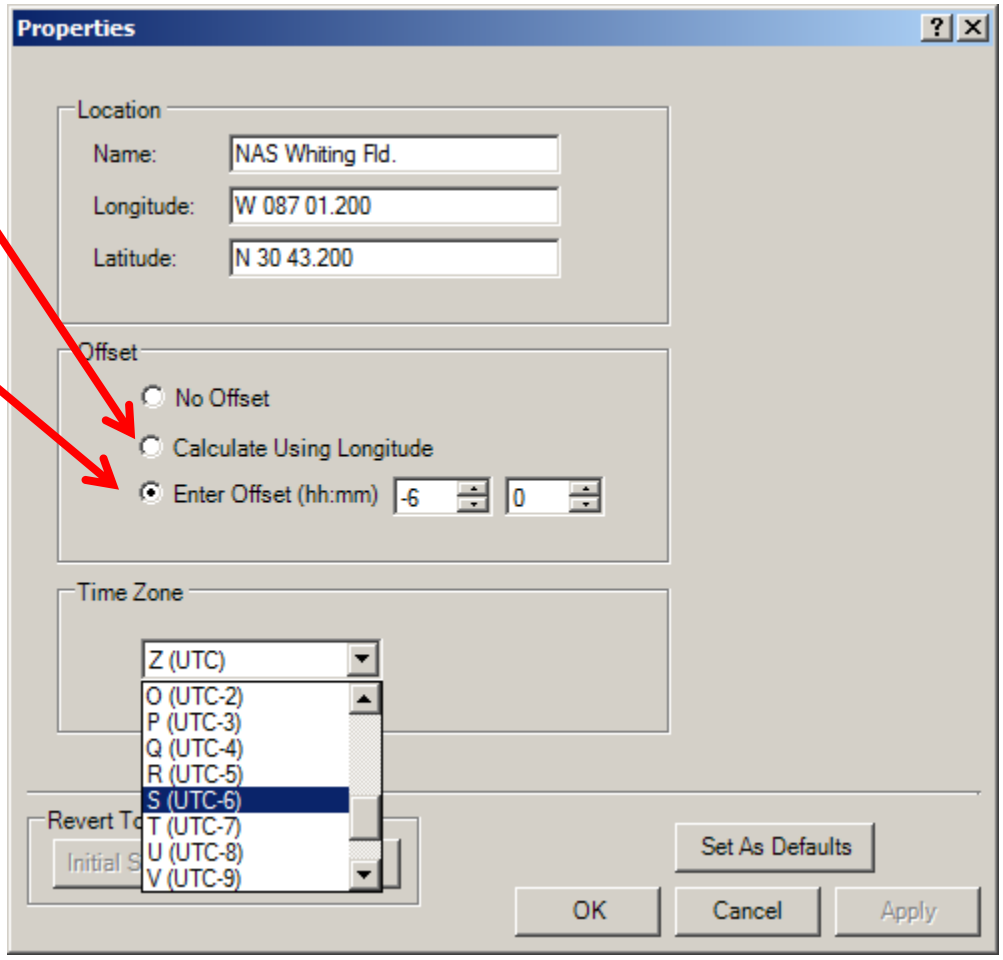

JMPS - [View 1]
File Edit View Map Overlay Tools Options Window Help
Active View
Graphical
Tabular
A292
CAUTION
HIGH VOLUME OF ROTARY
AND FIXED WING TRAINING
SURFACE TO 17,500'
CTC PENSACOLA APP WITHIN
20 NM ON 126.85 OR 291.625
CTC PENSACOLA APP WITHIN
20 NM ON 118.6 OR 351.825
CTC PENSACOLA APP WITHIN
20 NM ON 119.0 OR 269.375
Select the SUMO Tool

STEP 2

- Find NAS Whiting Fld SUMO Point (YELLOW CIRCLE)
- Right Click
- Select NAS Whiting Fld Properties

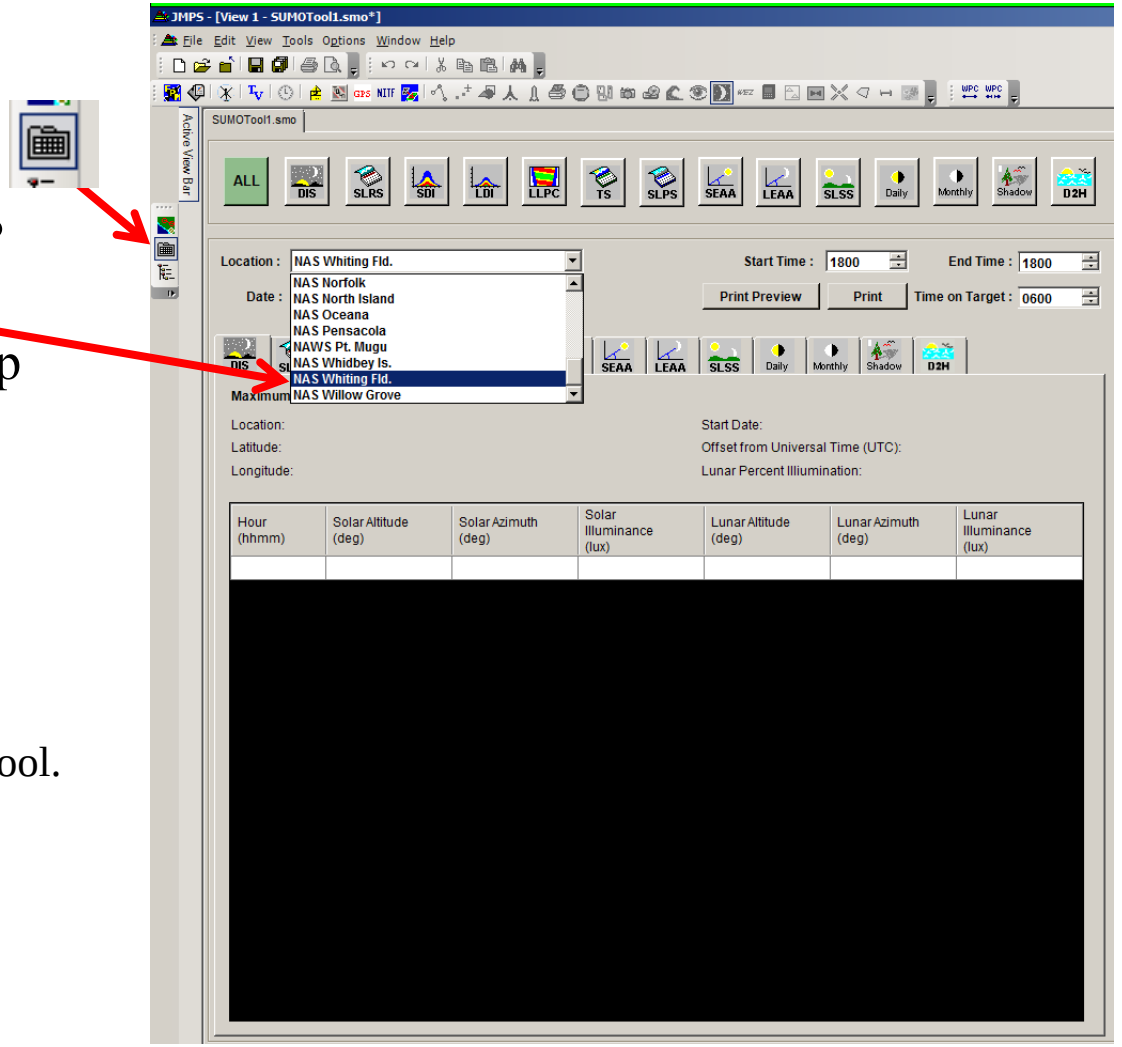
STEP 3

- Select ‘Calculate Using Longitude’
- Or…
- Select appropriate time zone
- Click “Apply”
- Click “OK”



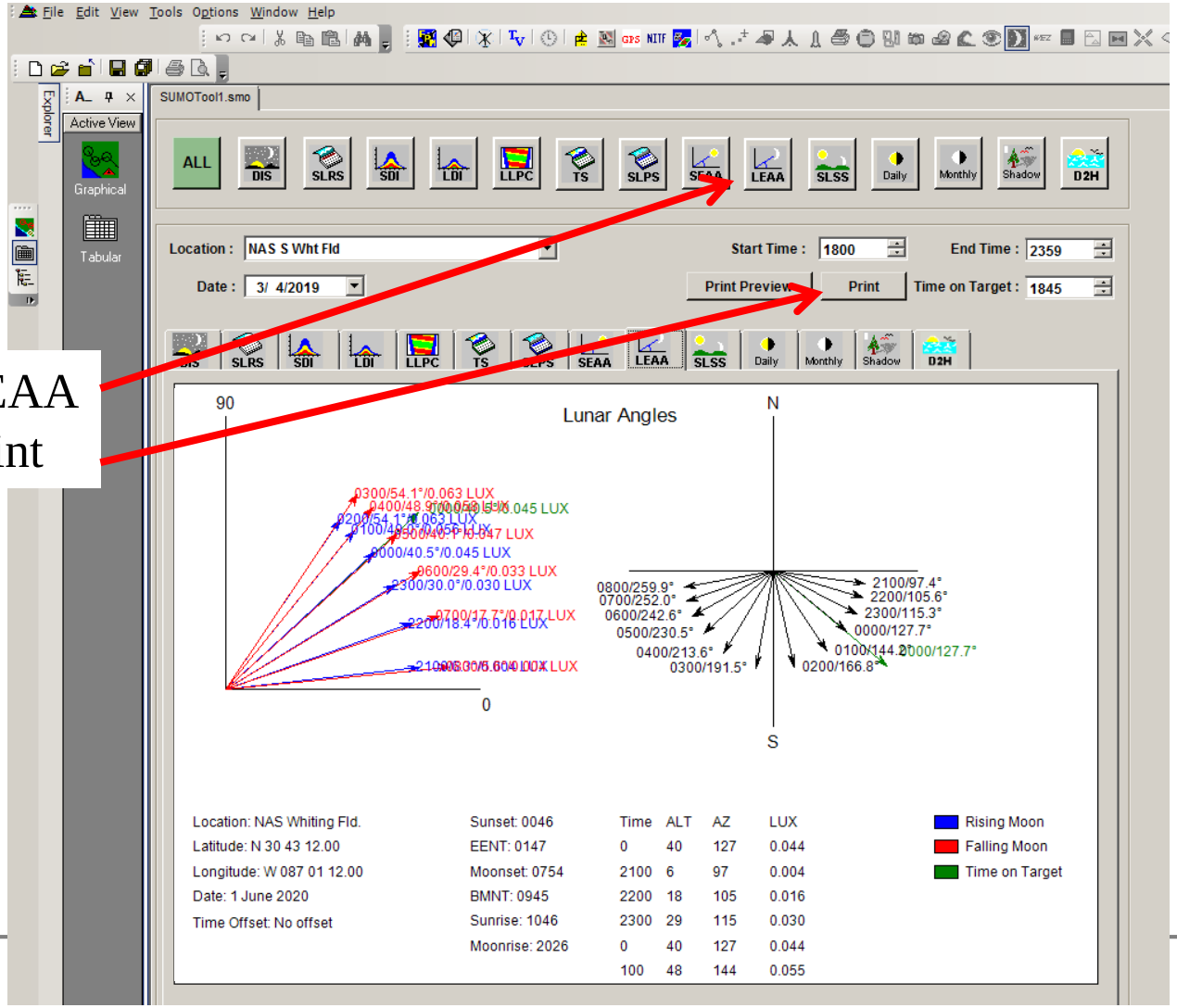
STEP 4

- Go to the Tabular Editor
- Select Location to “NAS Whiting Fld”
- Enter “Start Time,” “Stop Time,” and “Time on Target,” as desired
- The times from ‘Start’ to ‘End’ **WILL ROLL OVER** to the next day.
  - Verified using the SLRS tool.



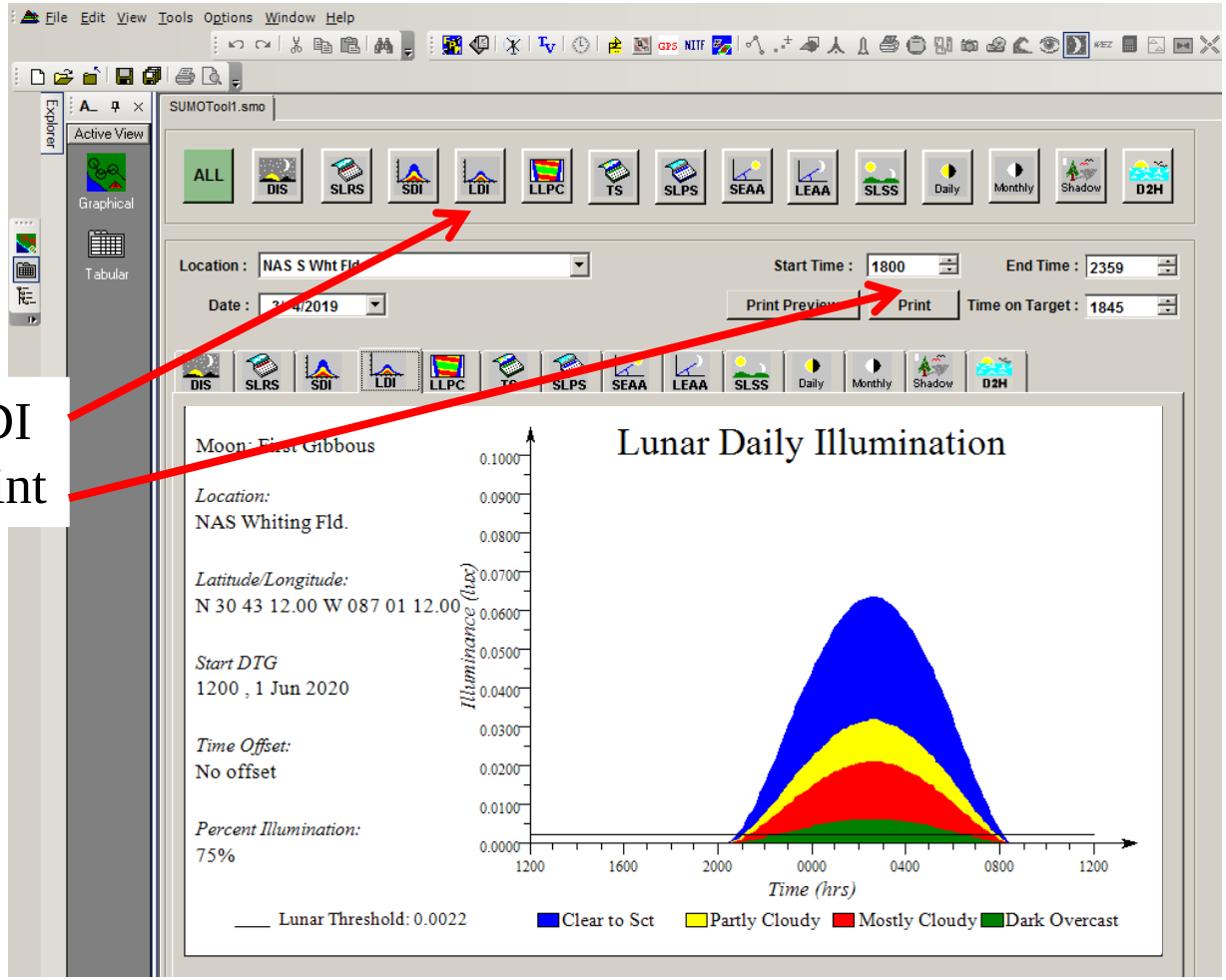
STEP 5

- Select LEAA
- Select Print



STEP 6

- Select LDI
- Select Print



NOTES

- A SUMO Point can be added by:
  1. Switching to the Graphical view
  2. Selecting the ‘Moon’ (yellow circle) on the top right
  3. Clicking on the desired location
  4. Right clicking on the newly dropped ‘Moon’
  5. Selecting ‘SUMO-Datapoint XX Properties…’
  6. Rename the data point to something that makes sense.
  7. Adjust parameters for when you want to pull the data for as previously discussed.

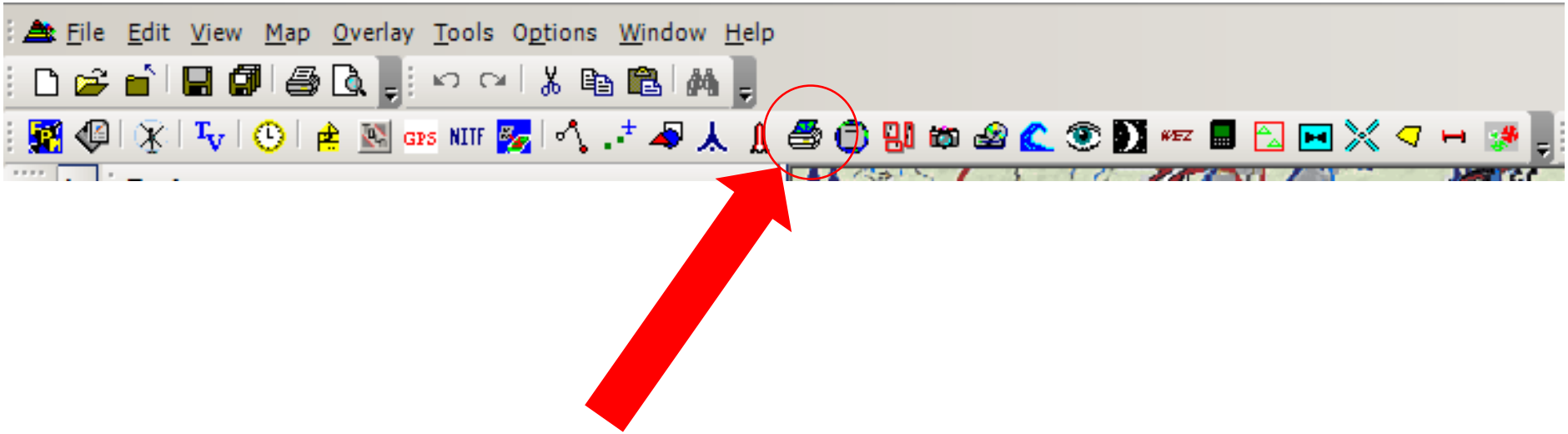
Printing Charts from JMPS

Maj Steven Flood, HT-28, Apr 2021

Why print charts from JMPS?

- Includes planning data already incorporated in route planning
  - Updated Charts
  - Manual CHUM
  - Already drawn airspaces
    - Airports
    - SUAS
    - Other
  - Easy drawing tools for trial and error manipulation of ‘No-Fly’ areas or other notes.

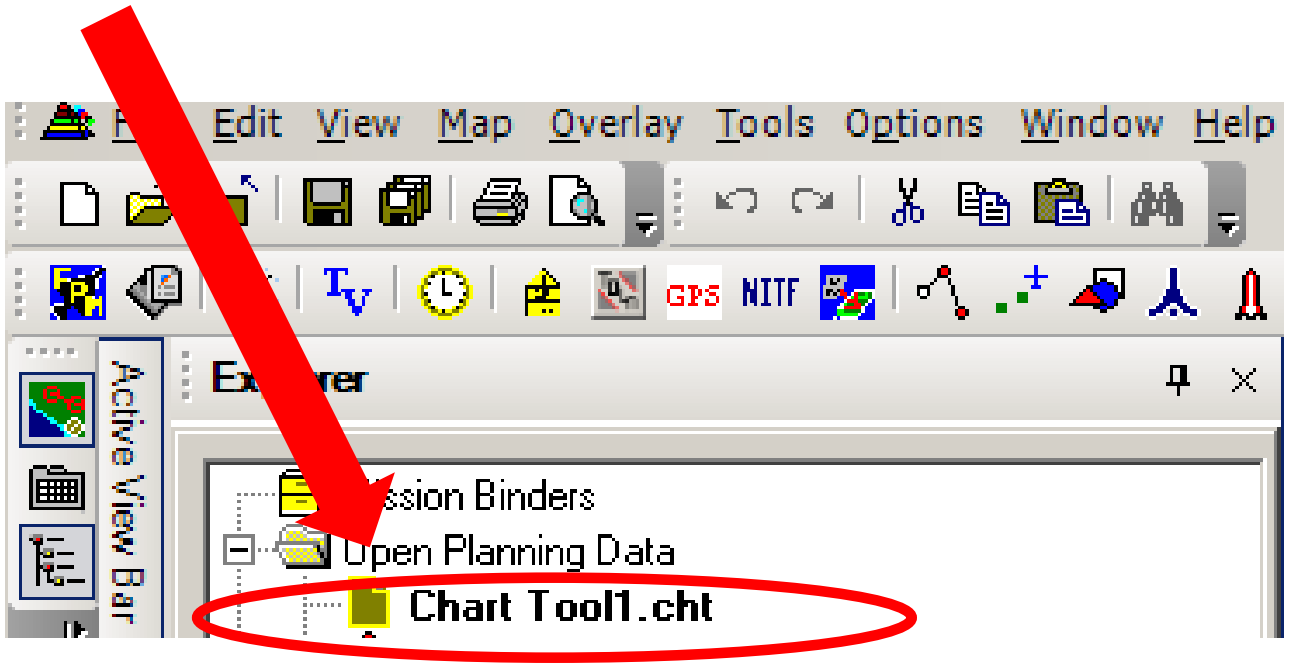
How to Generate



This is the Chart Tool button used for all Chart types that JMPS can generate.

How to Generate

This is what a new Chart Tool will look like.



How to Generate

This is what the toolbar will look like.

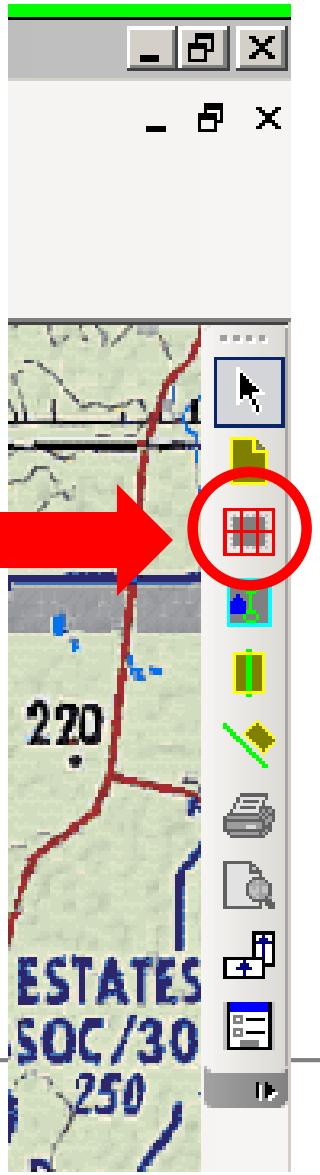
**It may not necessarily appear on the top right of the JMPS window. **

How to Generate

Single Page Chart Tool Selection

How to Generate

Area Chart Tool Selection



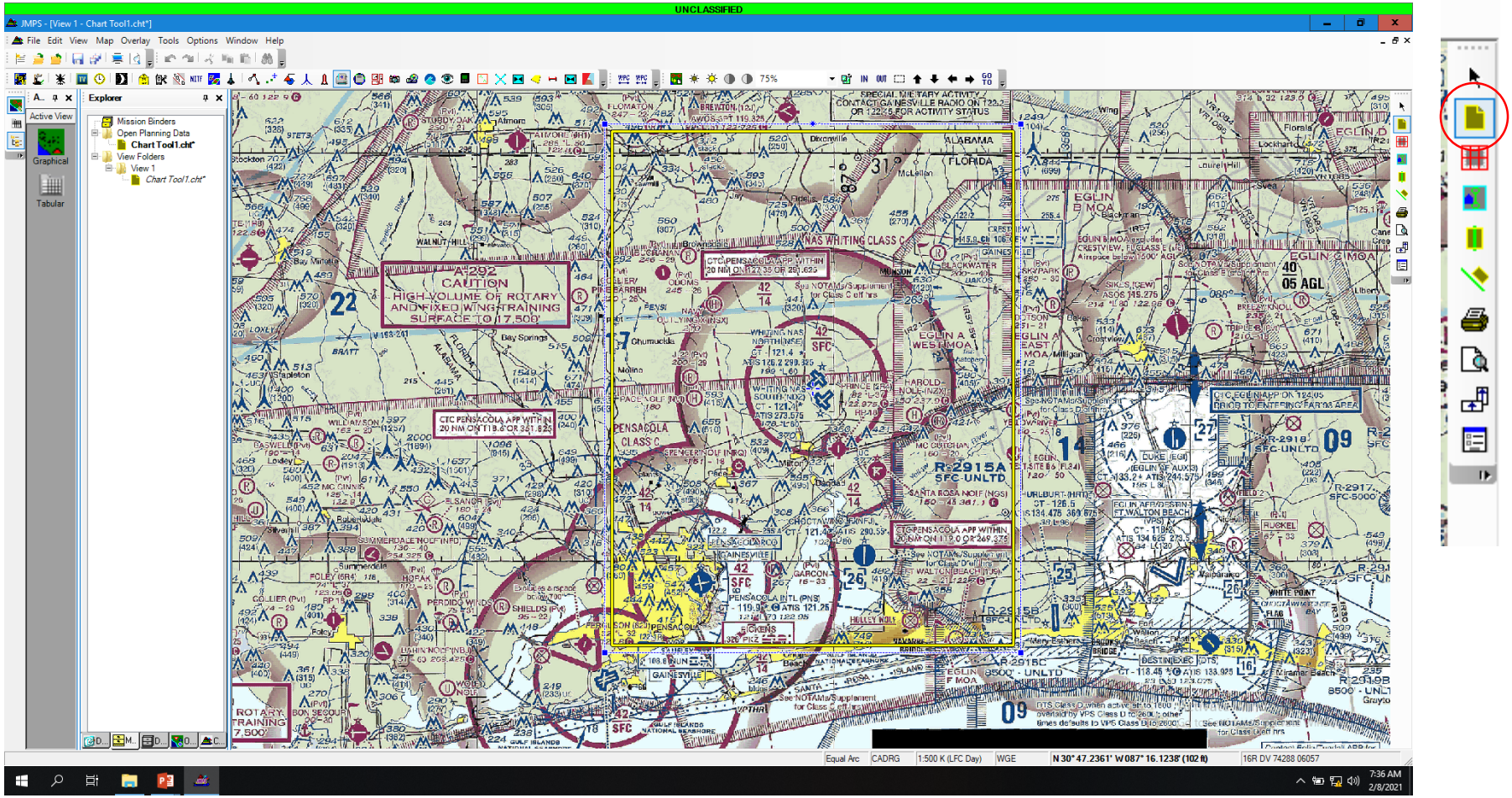
How to Generate

Strip Chart Tool Selection

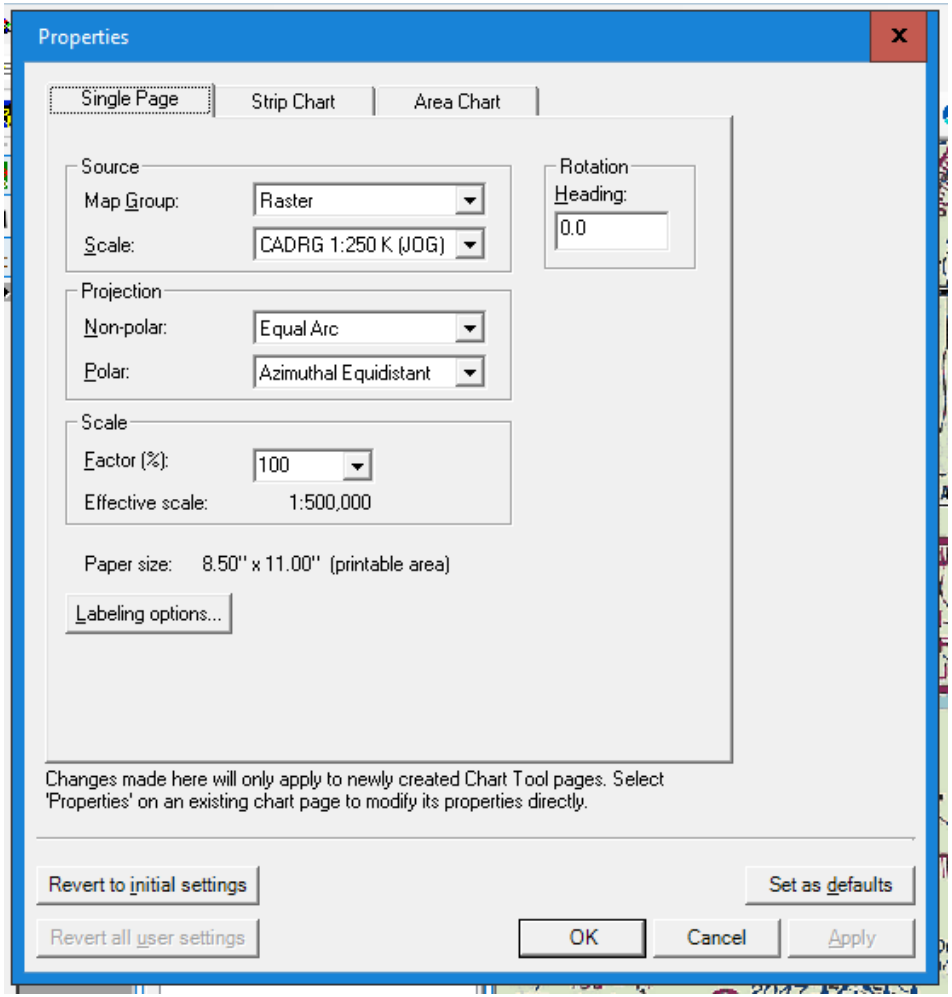
Single Page Charts

- Used to keep a chart on a ‘single page’ that is the SIZE OF YOUR CHOOSING.
- Overall view = Map Scale selection + Scale Factor selection
- Convenient printing
- Fewer products
- Details may be smaller

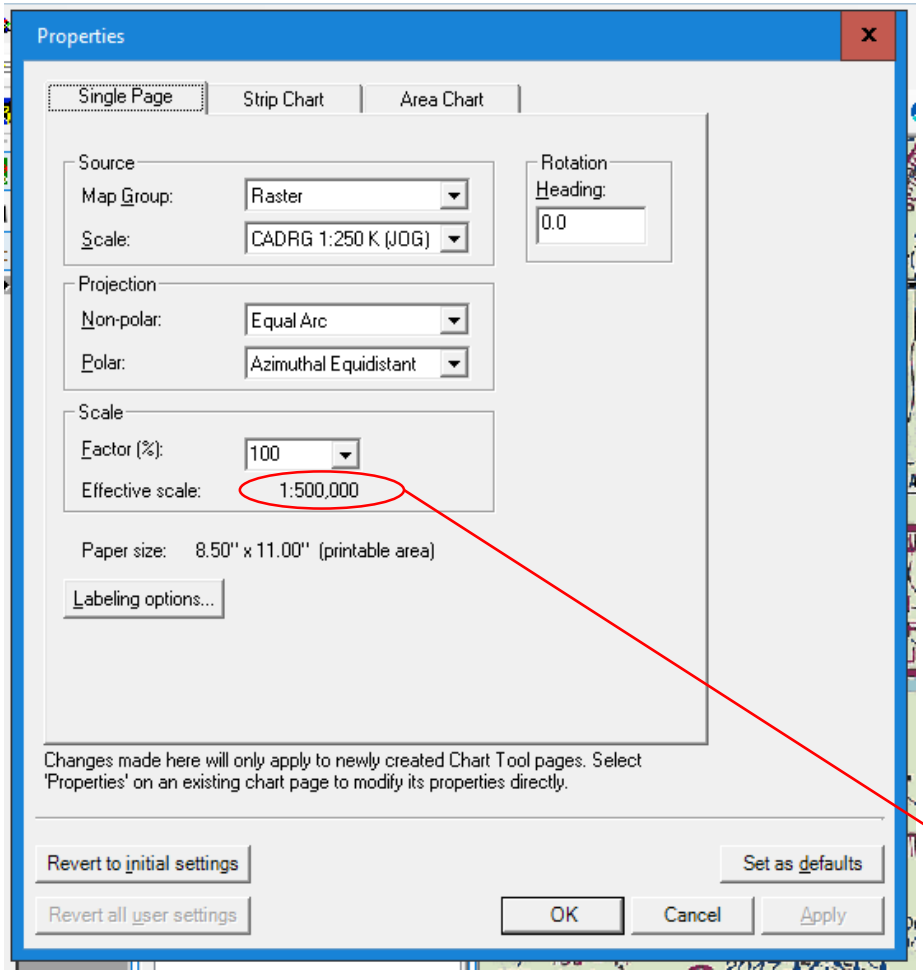
Single Page Charts



Single Page Charts

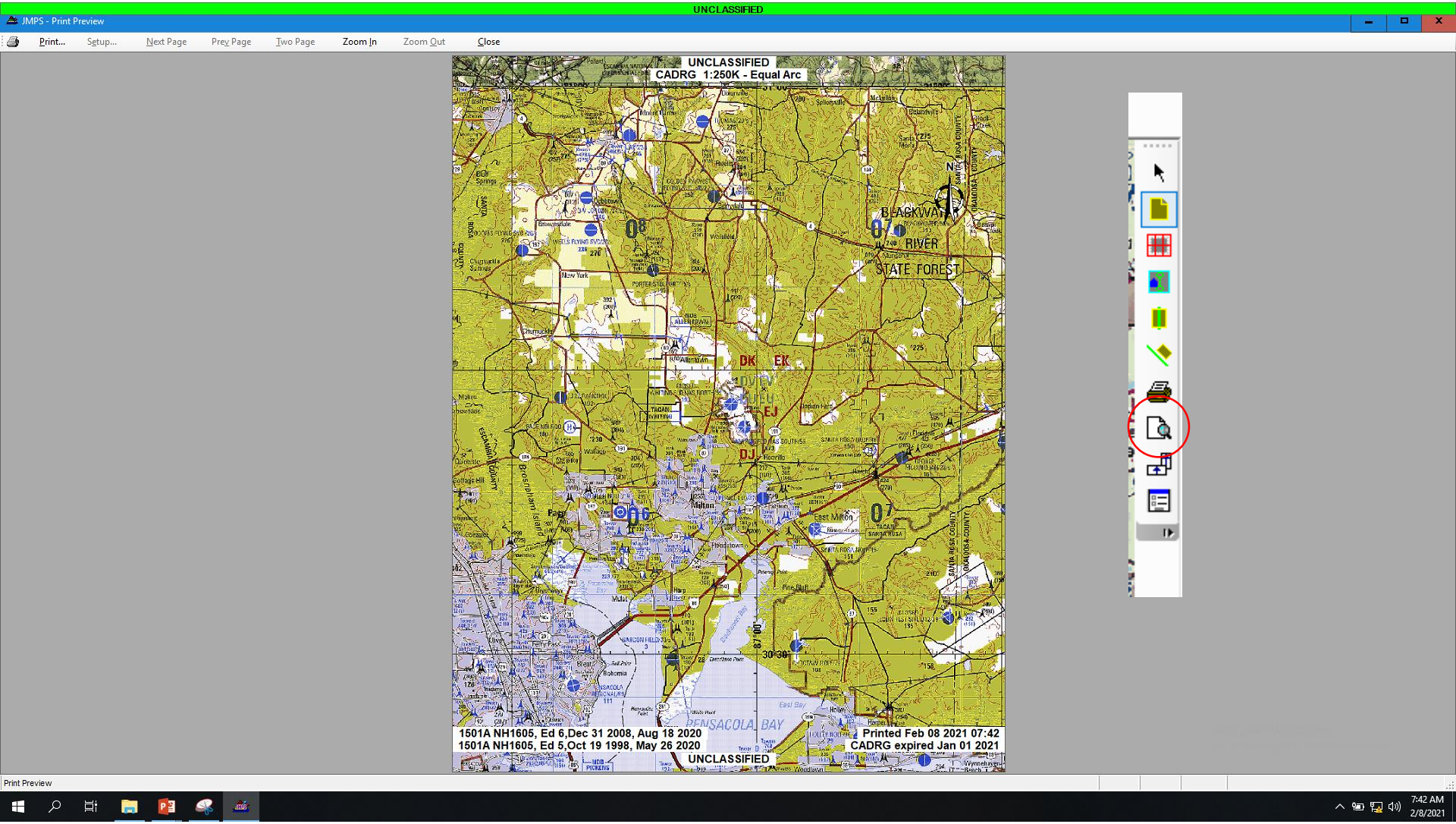


Single Page Charts



This is the scale expected on the actual paper once the product is printed out.
You can adjust ‘Factor (%)’ to make the scale of the paper product fit your desires (i.e. for your compasses/grid square stuff).

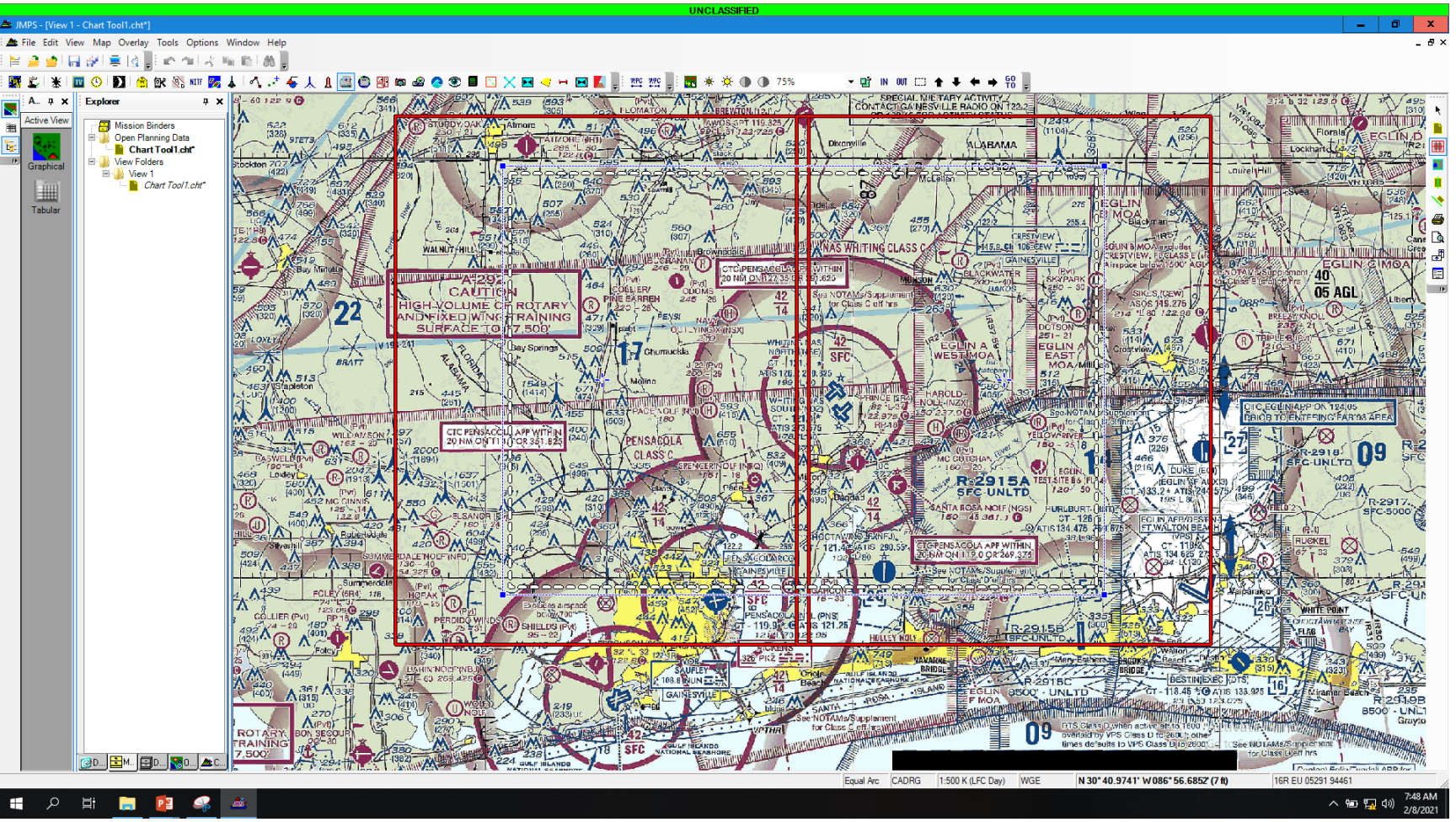
Single Page Charts



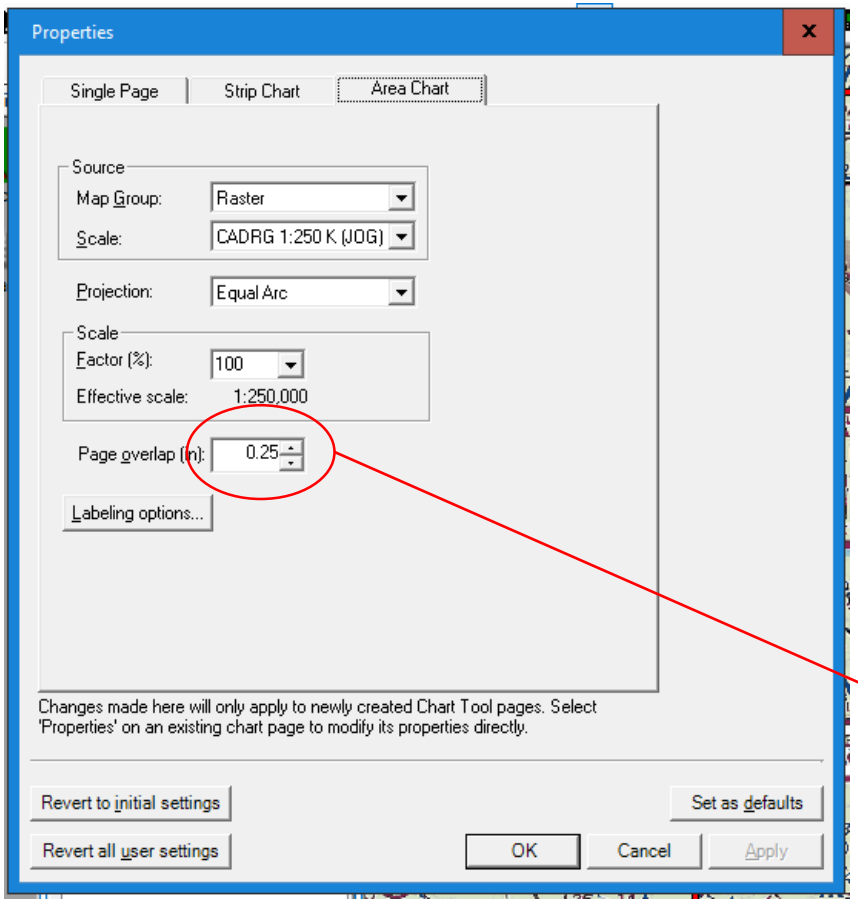
Area Charts

- Used to make prayer books
  - ‘Arts and Crafts’ to cut and paste the products together
- Oriented North up
- Multiple pages printed out to keep in order

Area Charts

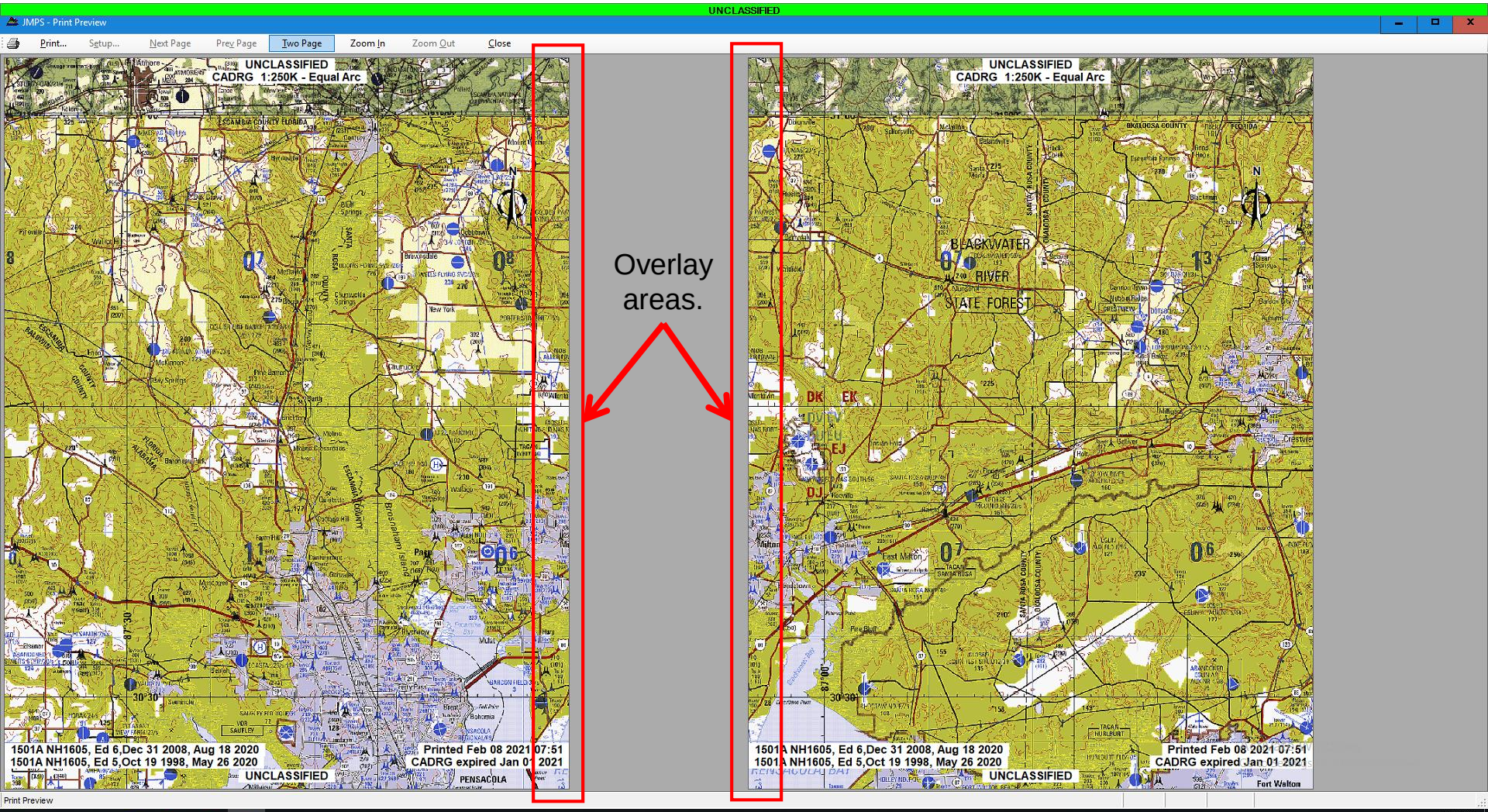

UNCLASSIFIED
JMPS - [View 1 - Chart Tool1.cht*]
File Edit View Map Overlay Tools Options Window Help
Explorer
Active View
Graphical
Tabular
Mission Binders
Open Planning Data
Chart Tool1.cht*
View Folders
View 1
Chart Tool1.cht*
CAUTION HIGH-VOLUME C ROTARY AND FIXED WING TRAINING SURFACE TO 7,500'
CTC PENSACOLA APP WITHIN 20 NM ON 121.65
CTC PENSACOLA APP WITHIN 20 NM ON 121.65
CTC PENSACOLA APP WITHIN 20 NM ON 119.0 OR 269.375
CTC EGLIN APP OR 124.05 PRIOR TO ENTERING FAR 93 AREA
R-2915A SFC-UNLTD
R-2915B SFC-UNLTD
R-2918 SFC-UNLTD
R-2917 SFC-5000
R-2915C 8500 - UNLTD
R-2915B 8500 - UNLTD
ROTARY TRAINING 7,500'
PENSACOLA CLASS C
NAS WHITING CLASS C
EGLIN A WEST MOA
EGLIN A EAST MOA
EGLIN B MOA
40 05 AGL
09
22
27
Equal Arc
CADRG
1:500 K (LFC Day)
WGE
N 30° 40.9741' W 086° 56.6852' (7 ft)
16R EU 05291 94461
7:48 AM
2/8/2021

Area Charts



This is used to keep you from ‘puzzling’ the charts together.

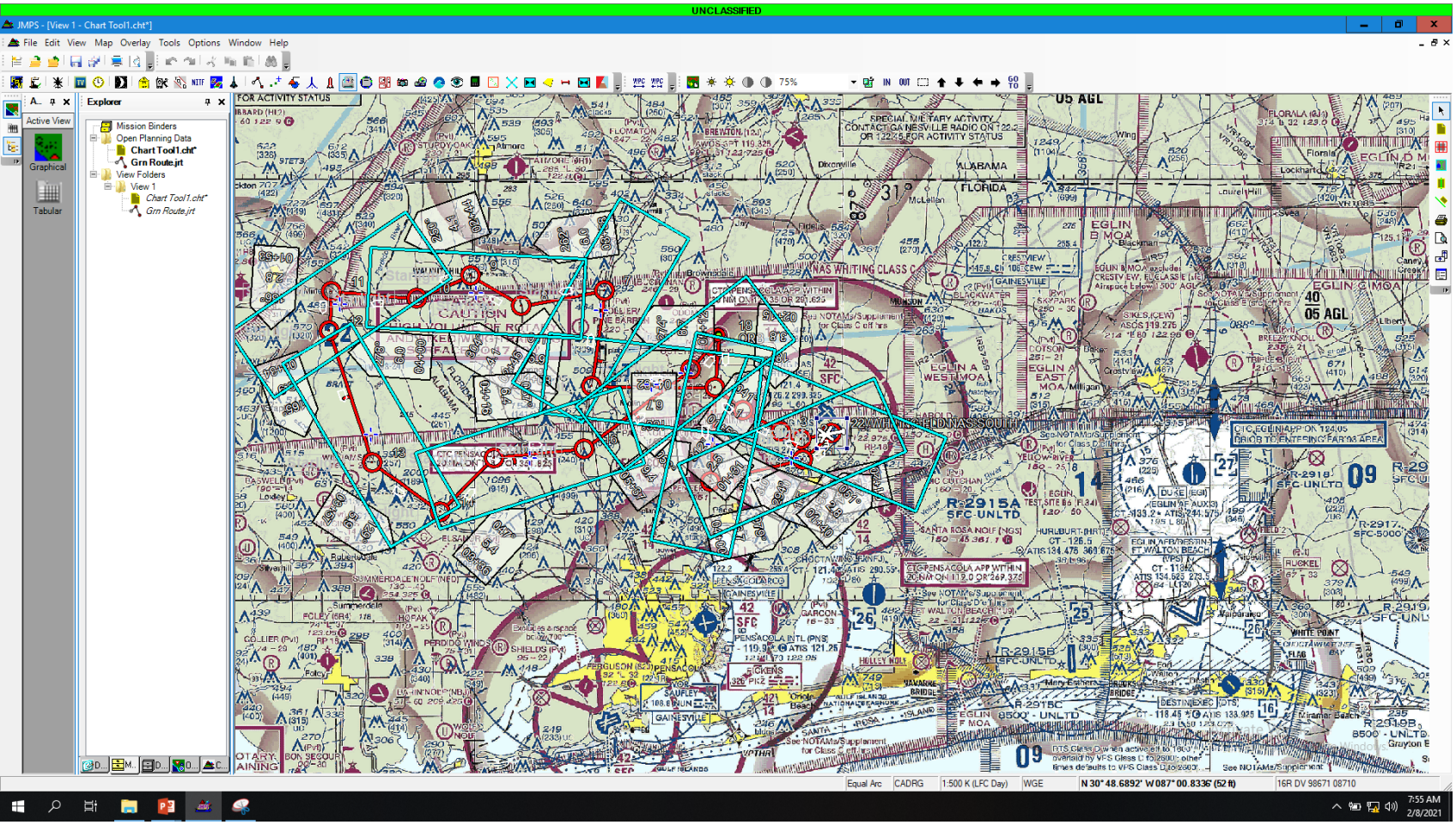
Area Charts


UNCLASSIFIED
JMPS - Print Preview
Print...
Setup...
Next Page
Prev Page
Two Page
Zoom In
Zoom Out
Close
UNCLASSIFIED
CADRG 1:250K - Equal Arc
Overlay areas.
1501A NH1605, Ed 6,Dec 31 2008, Aug 18 2020
1501A NH1605, Ed 5,Oct 19 1998, May 26 2020
Printed Feb 08 2021 07:51
CADRG expired Jan 01 2021
UNCLASSIFIED
BLACKWATER RIVER STATE FOREST
Print Preview
7:51 AM
2/8/2021

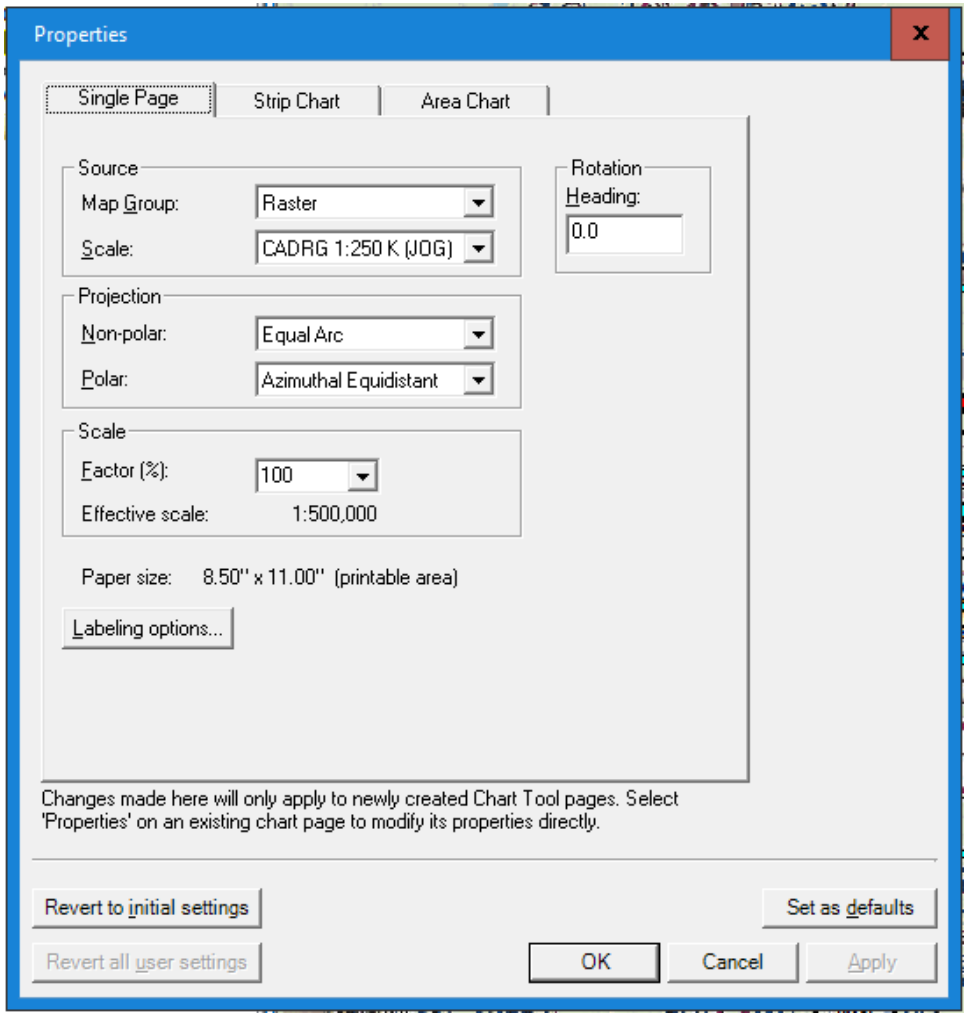
Strip Charts

- Linked to a specific route
  - Route must be open
- Oriented to the direction of travel of route legs OR the average of the route legs within that chart page.
- Can promote confusion if north seeking arrow is not included.
- Thus, **ALWAYS INCLUDE A NORTH SEEKING ARROW!!!!**

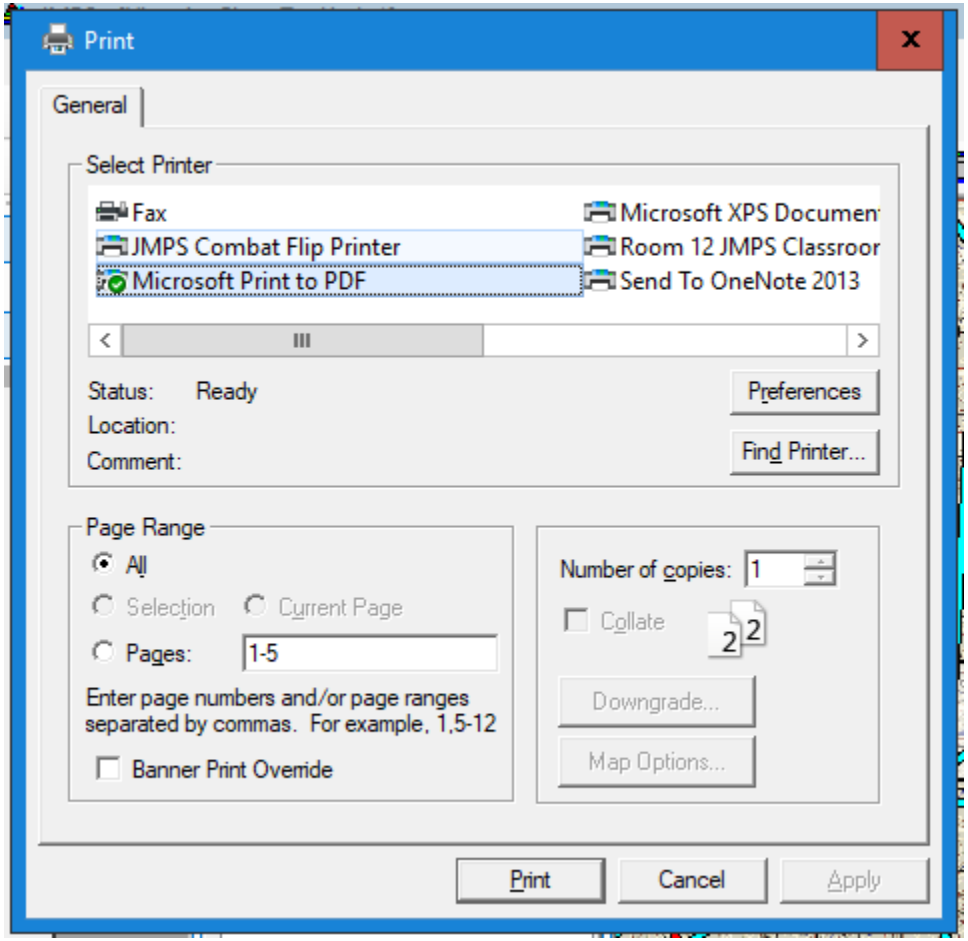
Strip Charts



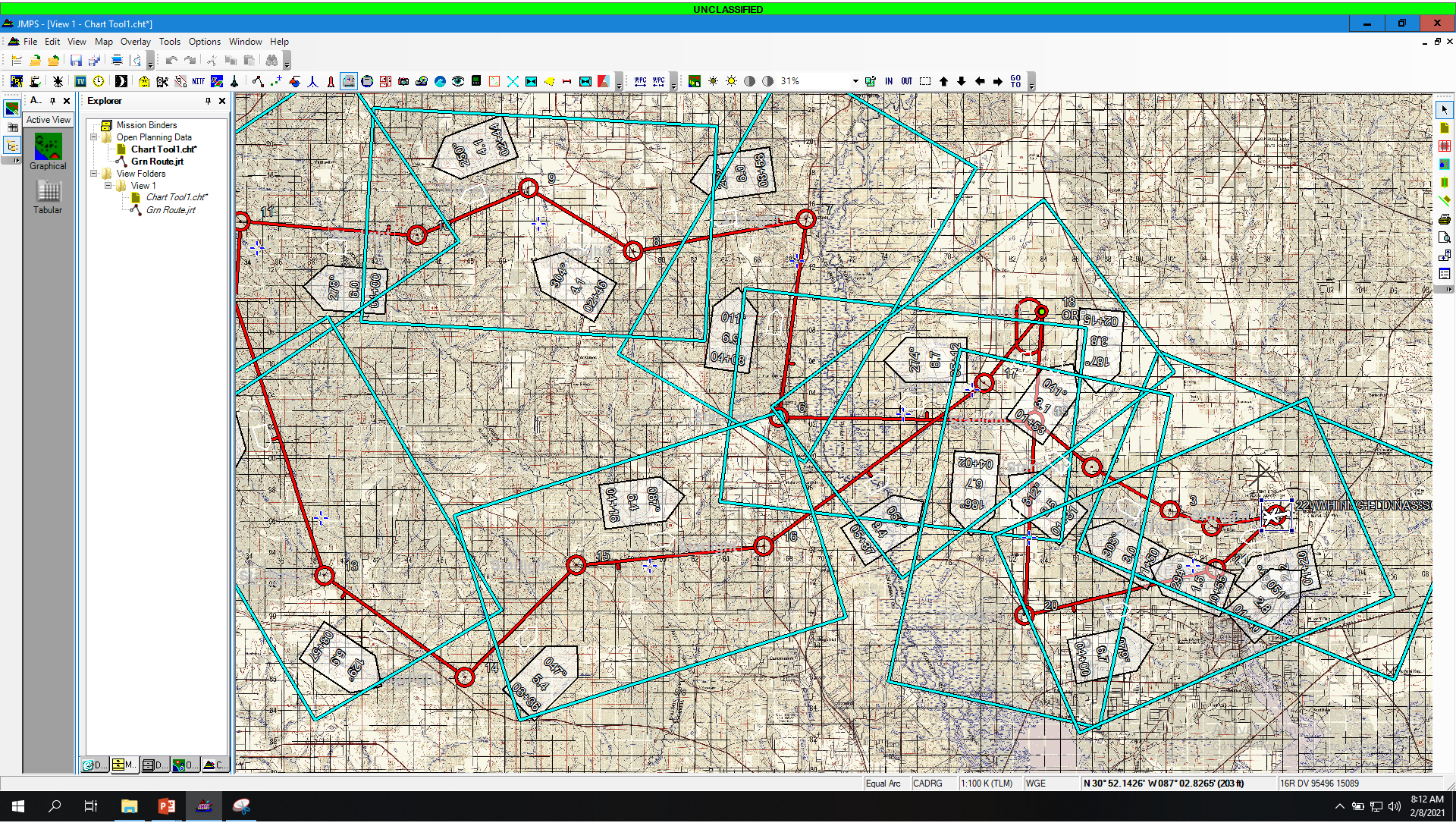
Strip Charts



Strip Charts



Strip Charts



Strip Charts