Distributed Tactical
Communications System (DTCS)

Radio Only Alpha (ROA)

Position Location Information (PLI)
Collector Training

SW034A

Instruction Overview

In this module we will cover:

- DTCS ROA Collector Basics

- ROA PLI Collector Set-up with Voice Capabilities

- ROA PLI Collector Translator Software Set-up

- C2PC / DTCS Operations for COC/TOC

DTCS ROA Collector Basics

In order for the ROA unit to function as a PLI Collector, the following key components are required:

- A DTCS ROA unit and all components to include Iridium antenna and cable.

- A COC/TOC speaker box with accompanying AC 24V power supply and cables for monitoring voice nets.

- A handset or headset.

- A computer or laptop with C2PC and DTCS Translator software installed.

- Additional cables as required.

ROA
PLI Collector
Set-up

COC/TOC Speaker Box
Front

1. **Speaker**

2. **Speaker Volume Knob**

3. **Speaker On/Off switch**

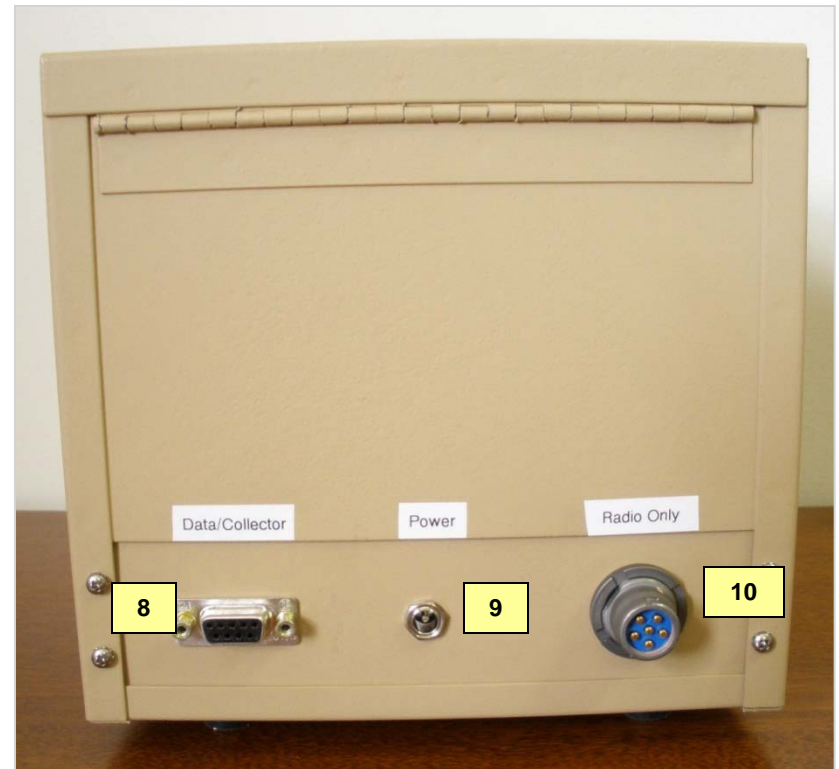# COC/TOC Speaker Box
Bottom Front

4. **Handset/ Headset Speaker volume knob**

5. **Handset/ Headset 6-pin connector**

6. **On/Off LED light**

7. **Speaker box power On/Off switch**

COC/TOC Speaker Box
Rear

8. **DB-9 Data/ Collector connection**

9. **AC 24V Power Supply connection**

10. **Radio 6-pin connection**

Directions for ROA PLI collector set-up with COC/TOC speaker box

1. With the computer powered on, connect the DB-9 data cable to the PLI/C2PC computer and the rear of speaker box.

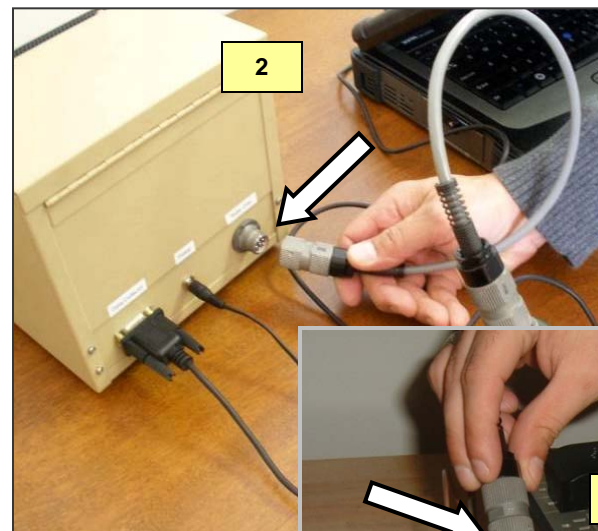*Cont…… Directions for ROA PLI collector set-up
with COC/TOC speaker box*

2. Connect the accompanying AC 24V power supply to the COC/TOC speaker box.
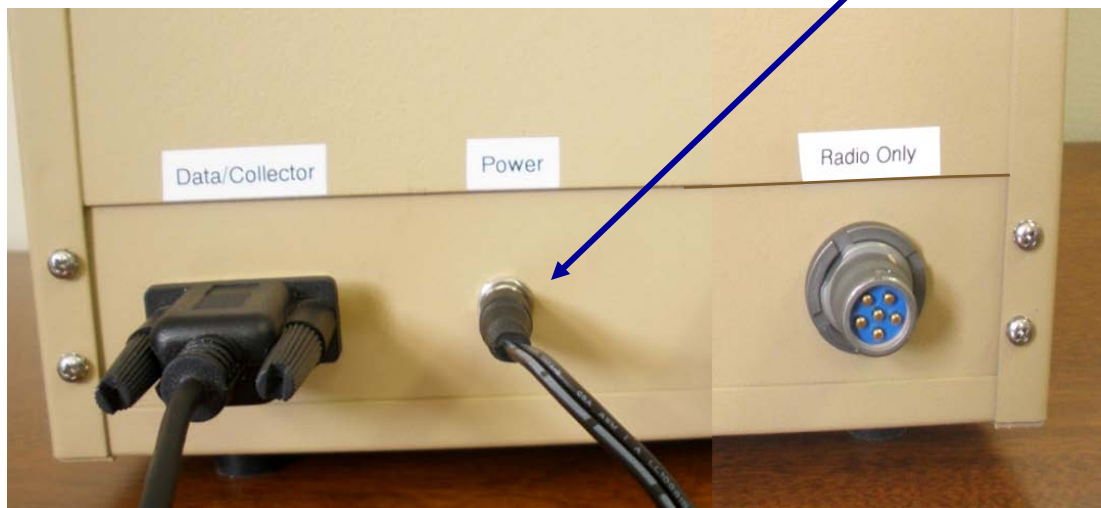
Cont…… Directions for ROA PLI collector set-up with COC/TOC speaker box

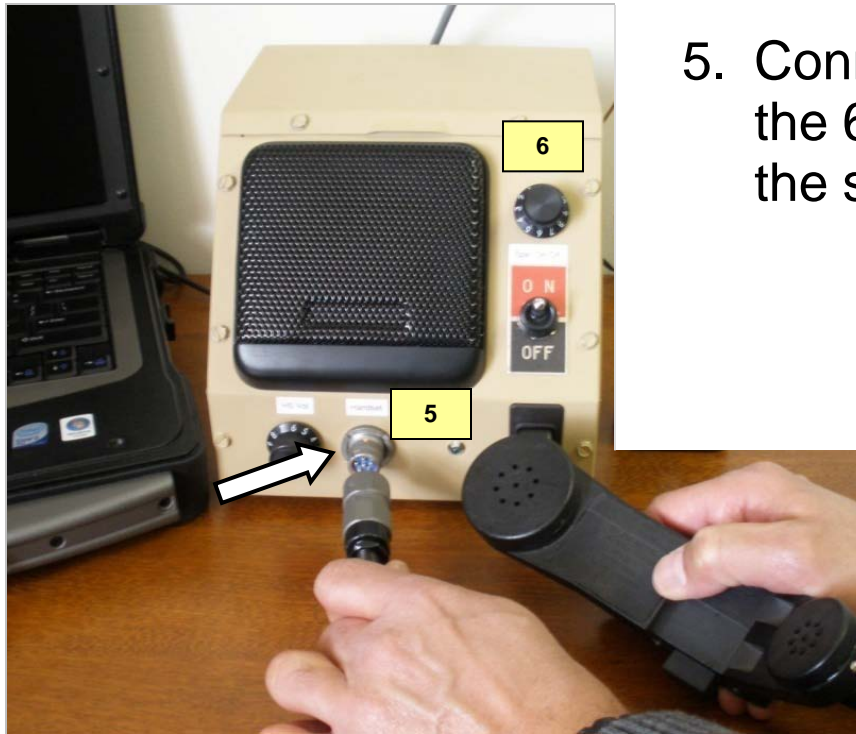3. Connect the 6-pin cable to the ROA then to the rear of the COC/TOC speaker box
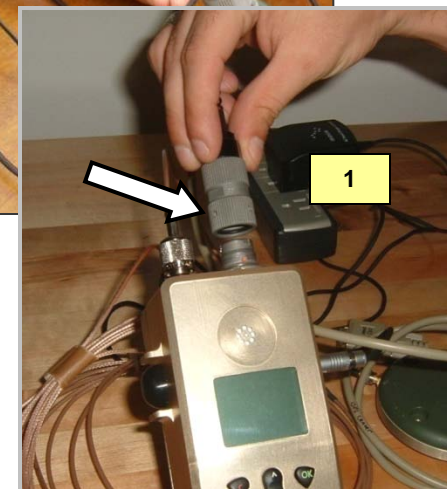
Cont…… Directions for ROA PLI collector set-up with COC/TOC speaker box

4. Connect the antenna to the TNC connector on the ROA.

*Cont…… Directions for ROA PLI collector set-up
with COC/TOC speaker box*

5. Connect the handset/headset to the 6-pin connector on the front of the speaker box.

6. Once the COC/TOC speaker box is turned on, adjust the Speaker Volume Knob to the desired volume level.

Cont…… Directions for ROA PLI collector set-up
with COC/TOC speaker box

Complete ROA PLI Collector
with Voice Capabilities

ROA PLI Translator Software Set-up

1. Turn on the collector laptop.

2. Ensure the antenna cable and the audio cable are properly connected.

Ensuring Correct COM Port

When the RO and the C2PC Laptop are connected, you must ensure that the DB-9/USB data cable connection is set to the proper COM port. If not, the radio and the computer will not be able to communicate with one another.

If you are not sure what COM port the radio is on, you can find out by utilizing the Windows "Device Manager" located in the "My Computer" properties application, and expanding the COM port icon. (see example slides 16-19)

Cont…… Ensuring Correct COM Port

1. Power-on the radio and the C2PC Laptop.

2. From the C2PC Laptop, right click on the My Computer icon.

3. Click on **Properties**.

Cont…… Ensuring Correct COM Port
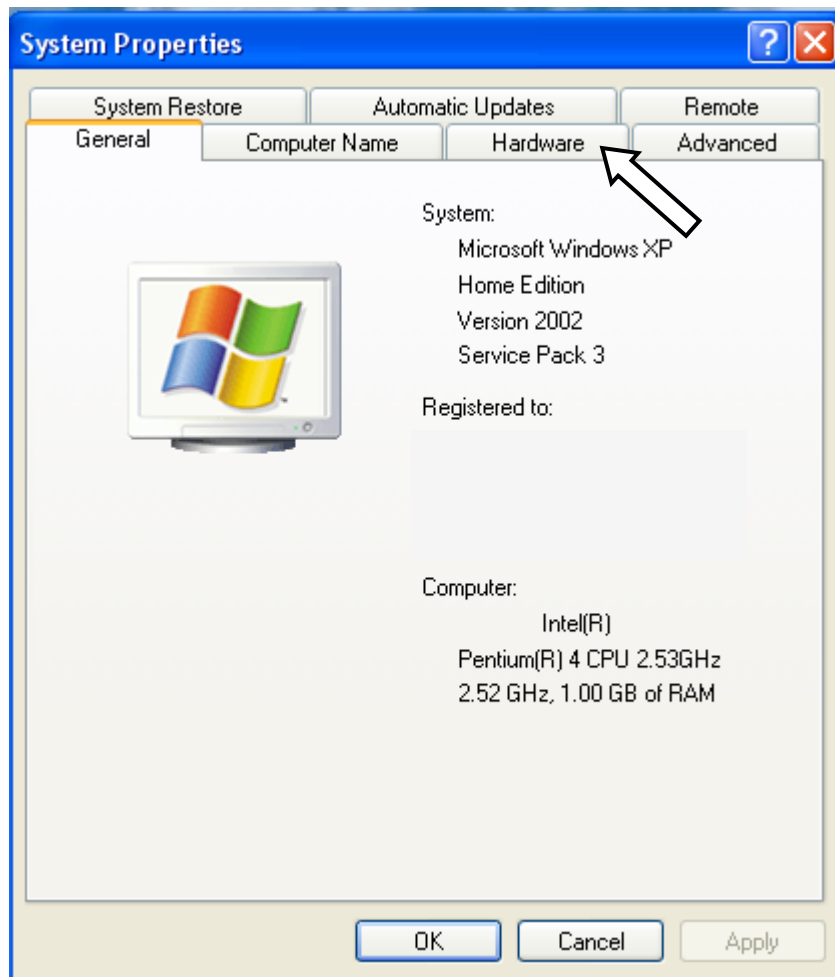
4. Click on the "Hardware" Tab.

Cont…… Ensuring Correct COM Port
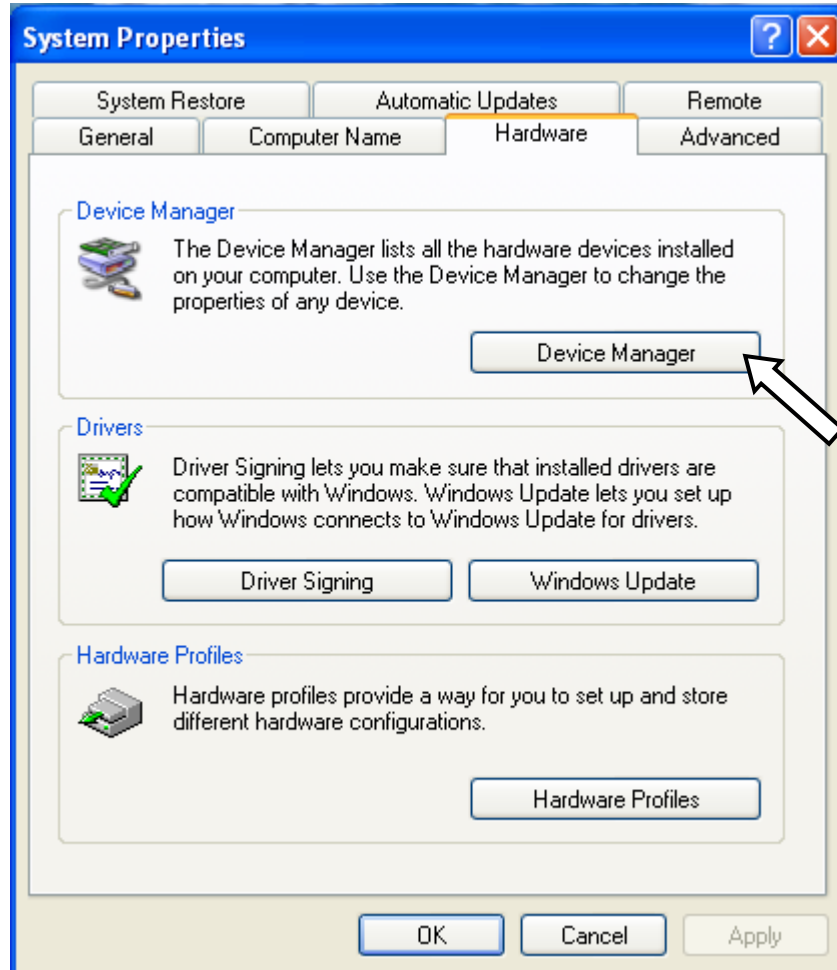
5. Click on the "Device Manager" button.

Cont…… Ensuring Correct COM Port

6. Expand the Ports (COM & LPT) icon. Note COM port 6 (COM6) is highlighted.

7. Close Device Manager Window and return to the desktop.

ROA
PLI Translator Software Set-up

Enable DPL

- You <u>must enable DPL</u> on the ROA handset utilizing the HyperTerminal and typing the AT+P command in the run box.

- While in the HyperTerminal you will need to select the correct COM port.

- Once again, if you are not sure what COM port the radio is on, you can find out by utilizing the Windows "Device Manager" located in the "My Computer" properties application (See slides 16-19).

> The following slides (22-27) will provide the steps necessary in enabling DPL.

❶ Double click the HyperTerminal icon.

Ensure Radio is <u>Not</u> turned on!

❷ Enter a name for your new HyperTerminal connection.
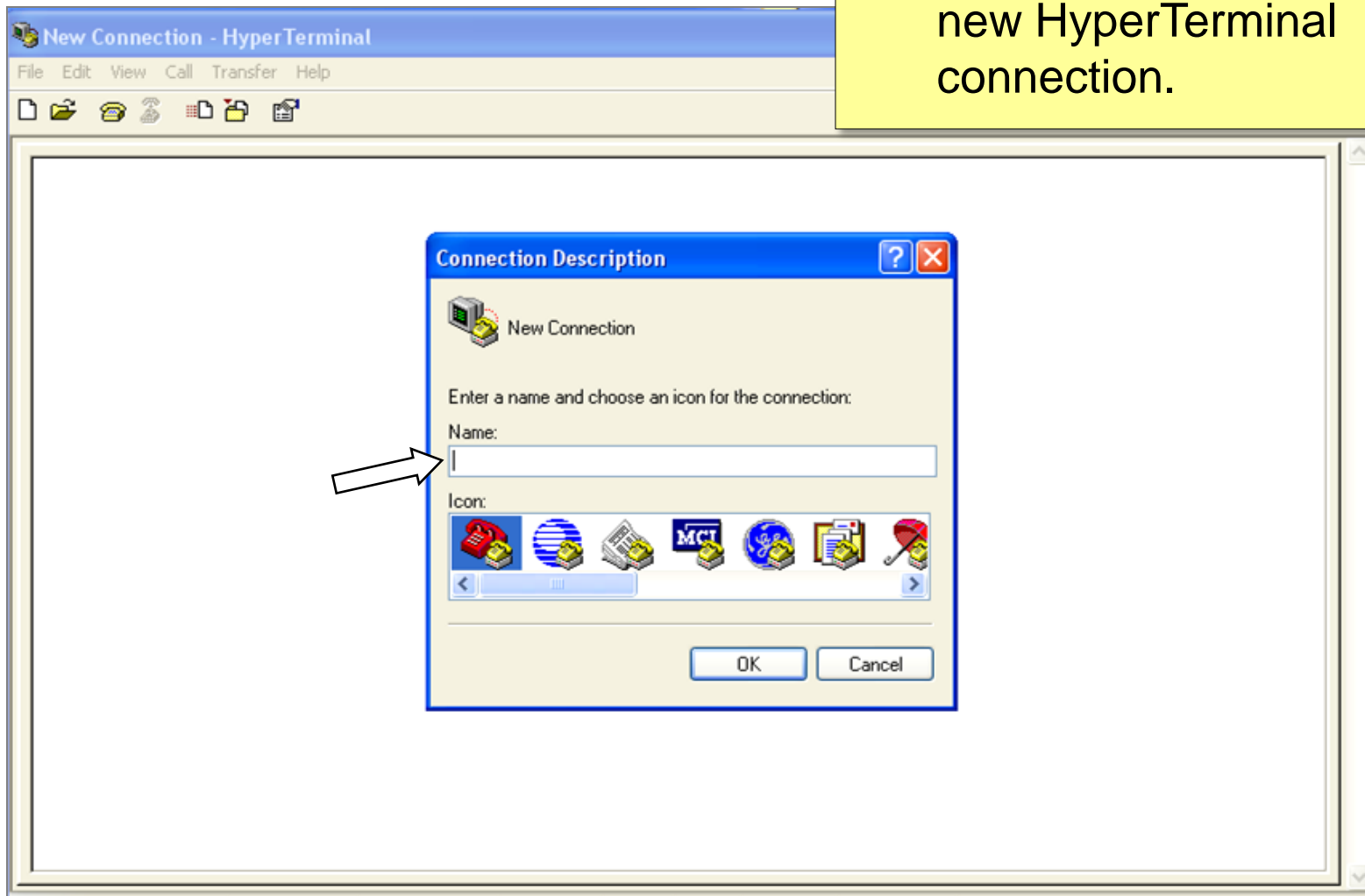
New Connection - HyperTerminal

File   Edit   View   Call   Transfer   Help

Connection Description

New Connection

Enter a name and choose an icon for the connection:

Name:

Icon:

OK   Cancel

❸ Click on the pull down menu to select the appropriate COM port that your radio is connected to.

❹ Turn on the collector radio. <u>Do not enter the default pin for the radio</u>. The radio firmware will enter the user pin automatically. Simply turn the radio on.
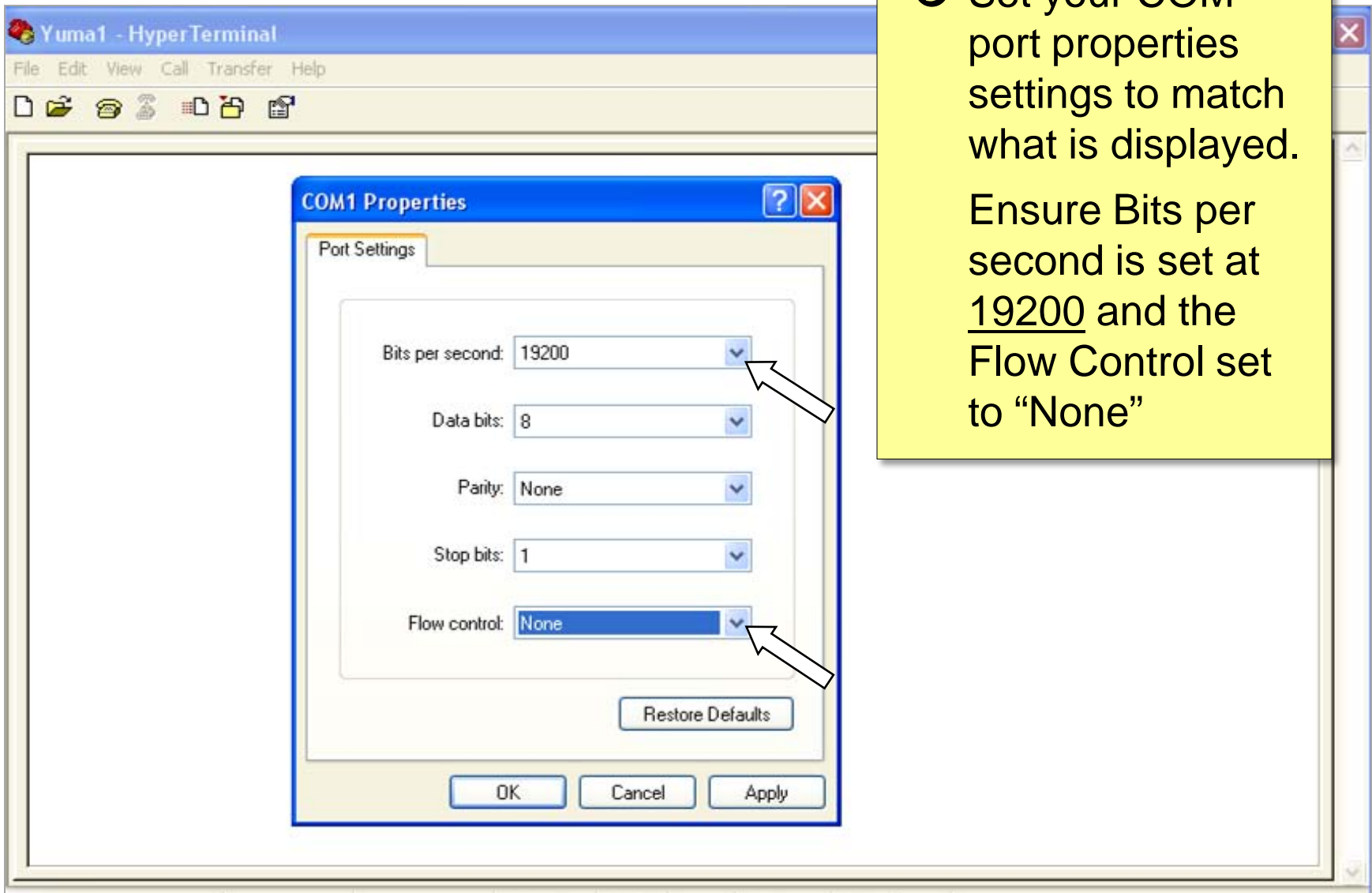
❺ Set your COM port properties settings to match what is displayed.

Ensure Bits per second is set at 19200 and the Flow Control set to "None"

RO - HyperTerminal

File   Edit   View   Call   Transfer   Help

at+p

❻ Type **at+p**
Then press enter to
enable DPL on the ROA
handset.

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RO - HyperTerminal

File   Edit   View   Call   Transfer   Help

♠ *#?=&%$!
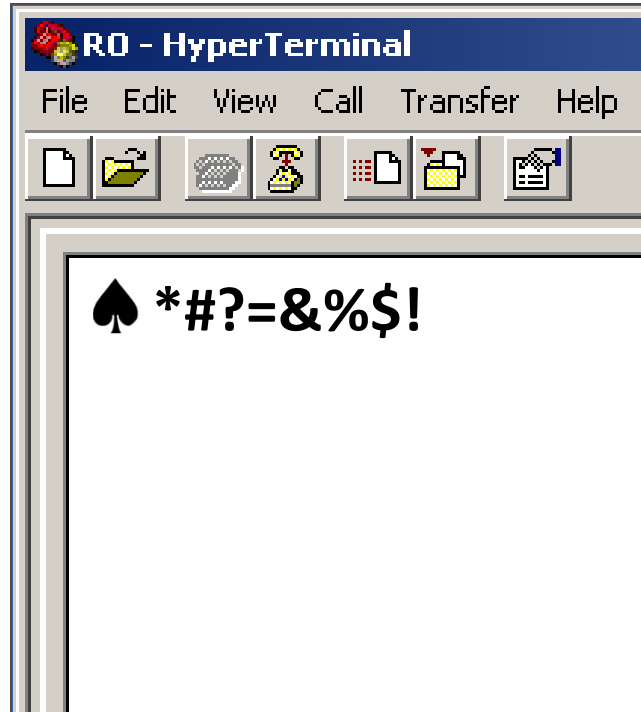
Immediately after pressing the enter key, a string of special characters will be displayed. <u>Note</u>, special characters may not be the same as pictured on this slide.

❼ Close out of the HyperTerminal.

Upon closing the HyperTerminal, Windows will prompt you twice with a:

1. Warning that you are disconnecting. **Click Yes**.

2. Question asking if you want to save. **Click No**.

Congrats! You are done enabling the DPL function.

On next to the Data Manager.

Data Manager (DM)

1. On the C2PC laptop, double click on the Data manger folder

UNCLASSIFIED

Open Data Manager (DM) Config File

2. Open the DMConfig Text file

Cont…… Open DMConfig File

Data Manager 17.4

File Edit View Favorites Tools Help

DMConfig - Notepad

File Edit Format View Help

```
RXConnectionType=COMPort
TXConnectionType=COMPort
RXConnectionID=\\.\COM6
TXConnectionID=\\.\COM6
MaxPTTRetries=3

# NOTE: GPSRefreshRate is in seconds
GPSRefreshRate=60

SendOwnGPSAsTrack=true

PowerInfoConnectionType=Null
PowerInfoConnectionID=

AdvancedMenuPasswordRequired=false
AdvancedMenuPassword=13579
```

3. Ensure the bottom 2 lines of text is displaying the correct COM port.

If the COM port that the radio is on is not displayed or is incorrect, follow the instructions on the next slide to edit the text in the DMConfig file.

Cont…… Open DMConfig File
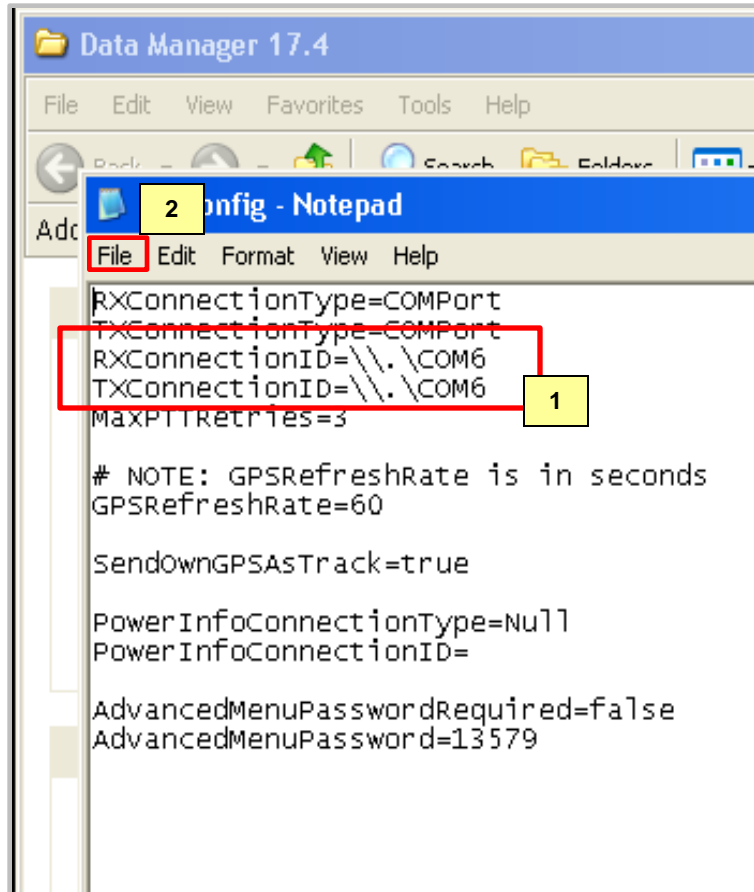
4. Steps to edit incorrect display of COM ports:

   ❶ Position your mouse cursor where you can delete the incorrect COM port number and type in the correct number for both lines. "no spaces".

   ❷ Click on "File" from the standard tool bar, and select "Save" from the menu.

   ❸ Close the DMConfig file.

Enabling the Data Manager (DM) Application Tool

1. From the DM folder, double click on the DM Tool icon

Cont…… Enabling the DM Tool

2. DM Tool is displayed.

3. Green radio icon represents the radio on and connected.

4. Once your primary/secondary nets are displayed. You are ready to open C2PC.

5. Click on the minimize button to minimize the DM window. <u>Do Not </u>click on the close button.

Cont…… Enable PLI

7. Immediately upon clicking the "Enable PLIC" button on the DM, the ROA collector radio will display the following:

   1. User Pin Prompt (radio software automatically enters pin)

   2. "GROUP XXX NI Ready".

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Disabling PLI

6. If you need to shut down the collector, or to refresh the nets after a change, click on the close button.
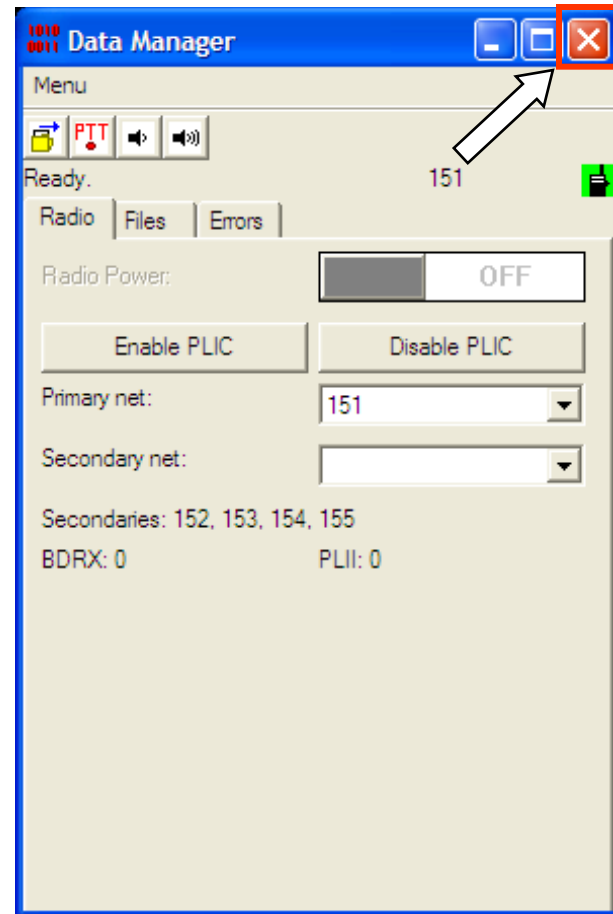
ROA C2PC
Operations for COC/TOC

1. Double click on C2PC client Icon on the desktop.

C2PC Client

2. Under Role Name, DEFAULT should be highlighted. Click OK.

3. After clicking OK the following screen will appear.

Map Features

C2PC - WGS 1984: Global Definition - [Map1 - Vector]

File Map Favorites Declutter Tools Comms Wind   Help

1 : 148,328,276
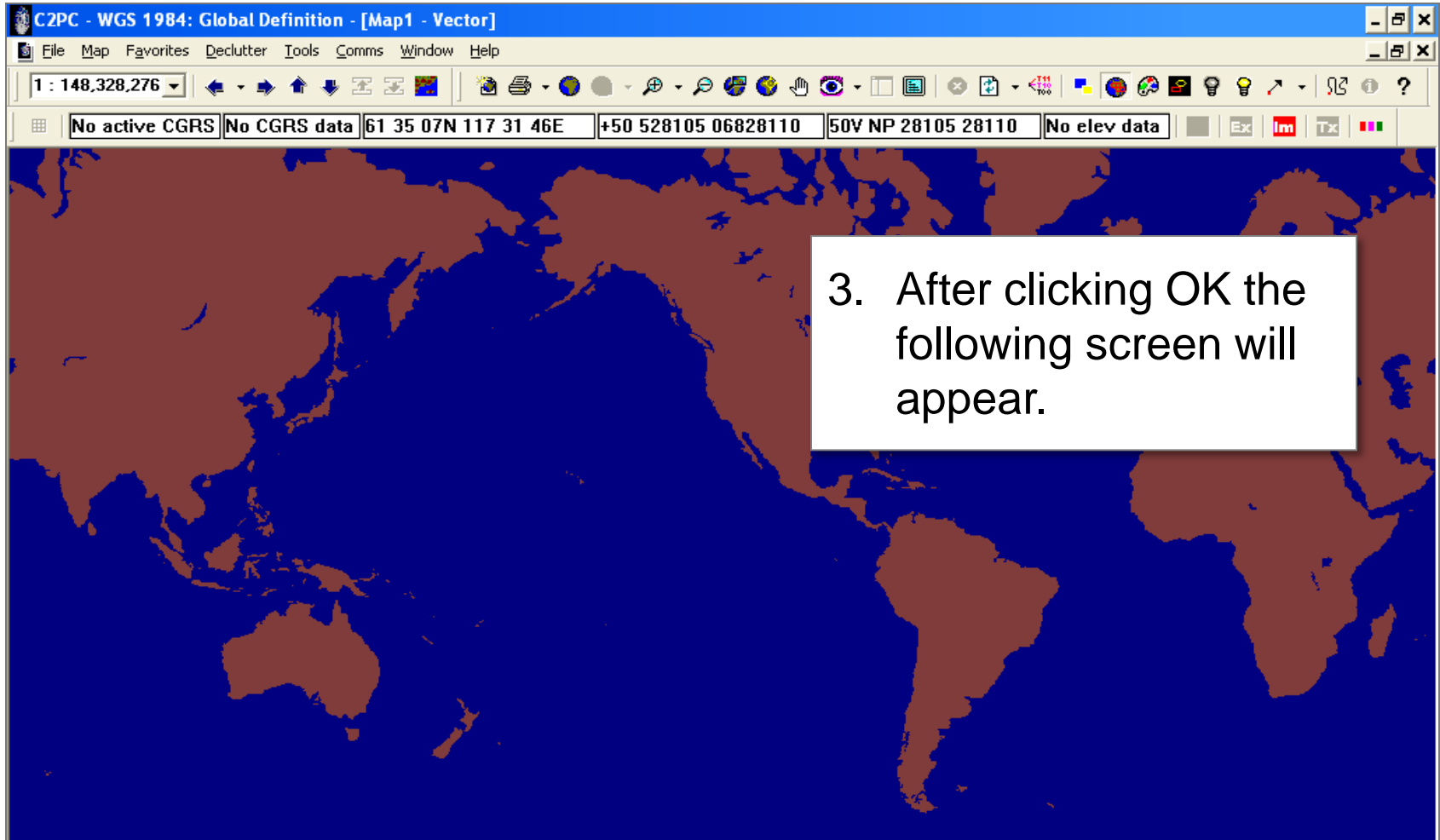
1.   **<u>New Map-</u>** Opens up a new map. Old map reduces but stays open.

2.   **<u>World Icon-</u>** Zooms out to world view.

3.   **<u>Zoom in-</u>** Magnifies map view

4.   **<u>Zoom out-</u>** Reduces map view

5.   **<u>Zoom Box-</u>** Selects specific box to zoom in on

6.   **<u>Re-center-</u>** centers map on selected location or trackplot

Cont…… Map Features
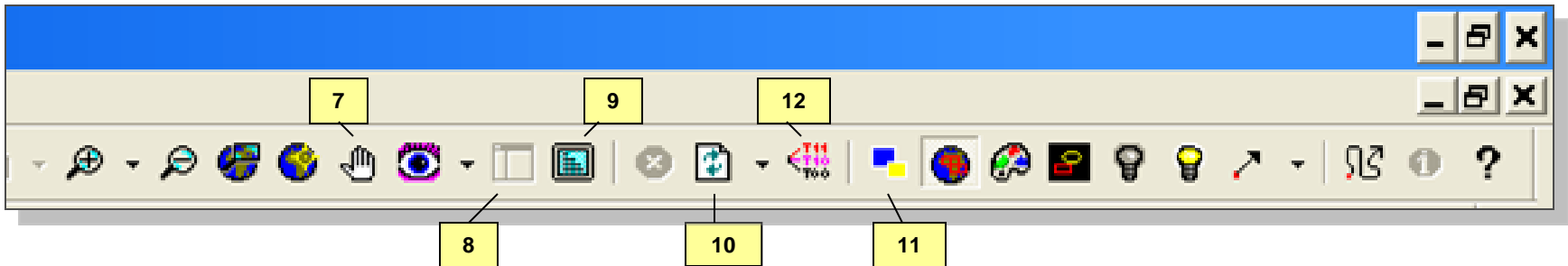
7. **Map Pan Tool-** manually slide map

8. **Toggle injector pane-** Opens/ closes left side bar

9. **Toggle Full Screen-** Full screen map

10. **Refresh Map-** Updates map

11. **Auto Declutter-** Separates trackplots when there are many in one area and draws lines to each

12. **Manual Declutter-** Manually slide trackplots

Cont…… Map Features
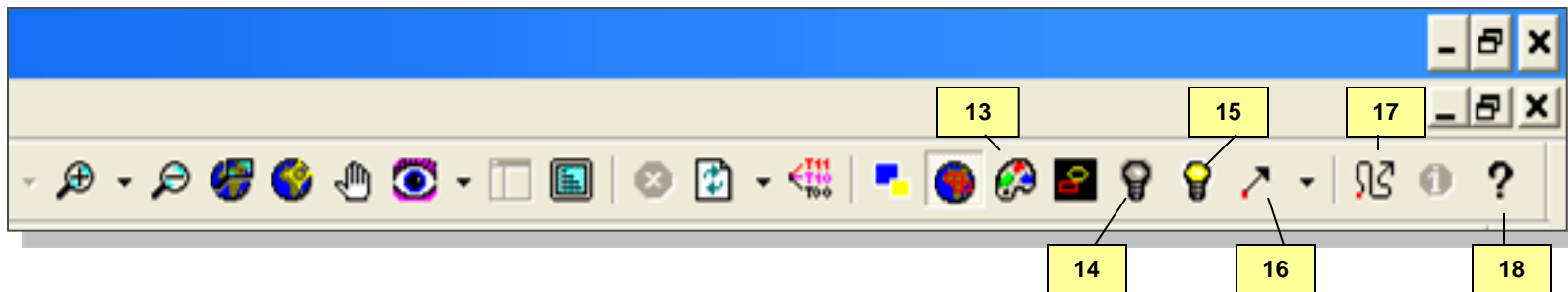
13. **Map Colors-** Adjust map colors

14. **Contrast-** Self explanatory.

15. **Brightness-** Self explanatory.

16. **Range bearing-** Distance "as the crow flies", or point to point.

17. **Fluid range bearing-** Can follow roads, mountains, etc

18. **Help-** Self explanatory.

How to Load a Map

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Cont...... Loading Maps

C2PC - WGS 1984: Global Definition - [Map1 - Vector]

File Map Favorites Declutter Tools Comms Window Help

1 : 148,328,276

No active CGRS No CGRS data 13 38 03N 157 45 53W +04 633618 01507609

Center Here
Zoom Box

Other maps ▶

Center / Width
Last Map
Favorites ▶
✓ Quick Draw
✓ Show Tooltip
Range
Range Bearing

2

Map Data

Properties
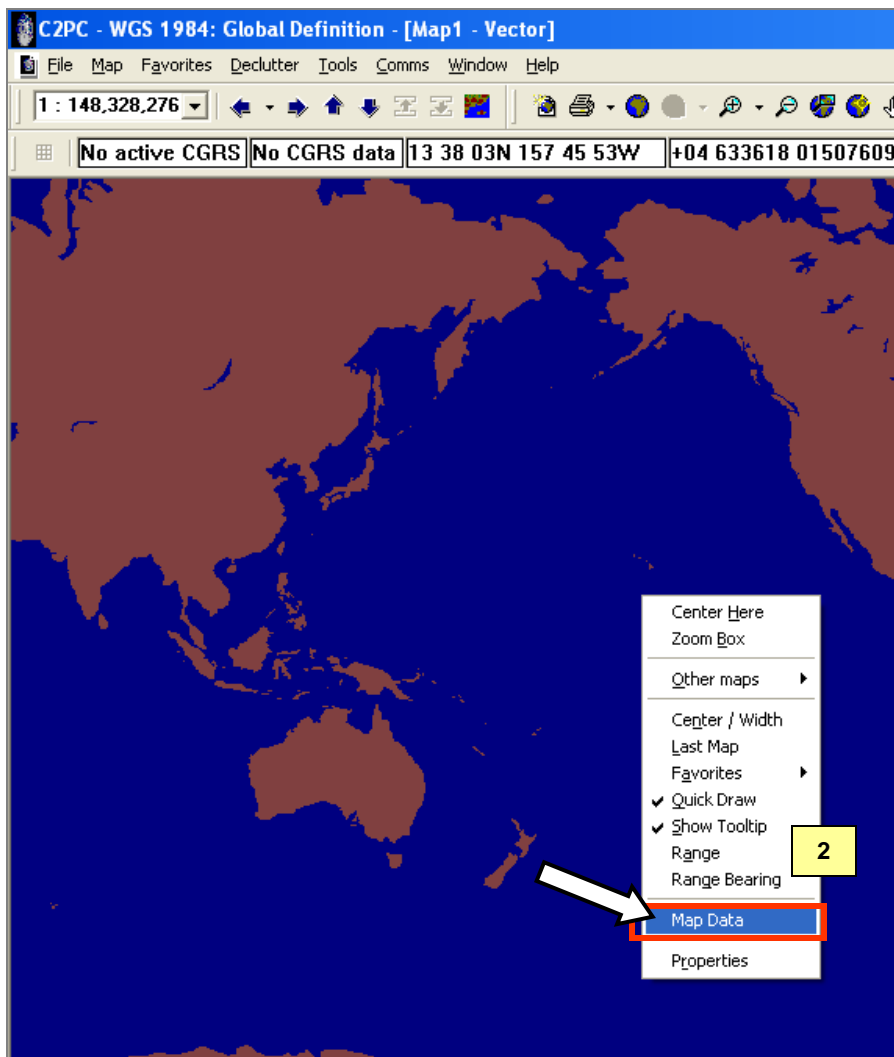
1. To load map(s), right mouse click anywhere on the map area.

2. Select Map Data from the menu.

   Note, if there is a map already displayed that you do not wish to use, click on "File" from the standard tool bar and select "New Map".

Cont…… Loading Maps
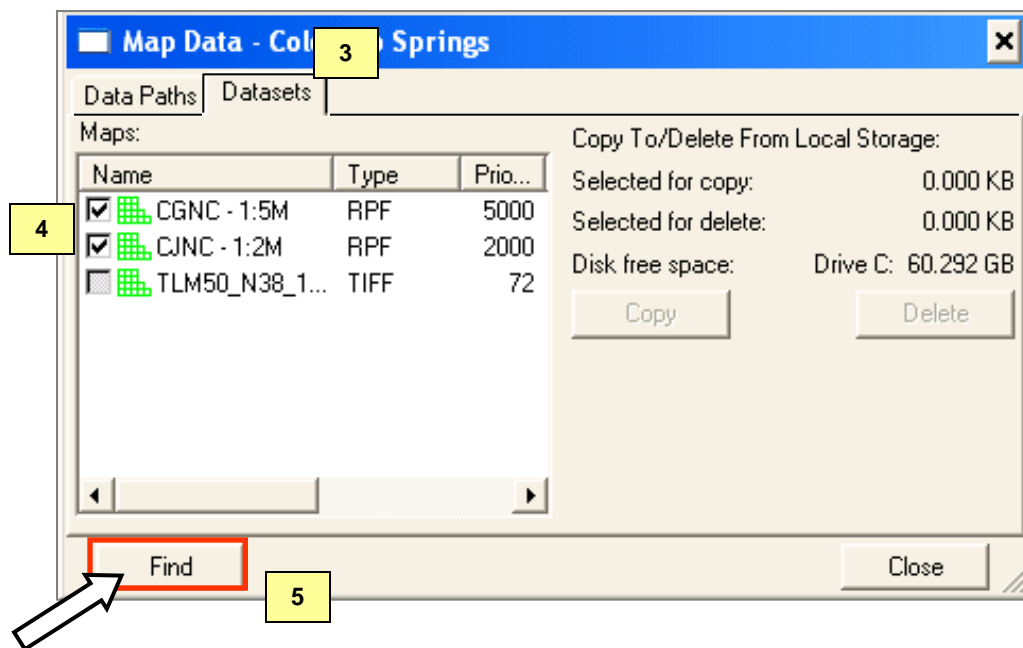
3. Select the Datasets tab from the Map Data window.

4. Scroll down the list of maps currently loaded into C2PC. Place a check by the map(s) you want to select.

5. If you wish to load a new map(s) from a disk or drive, click on the "Find" button on the bottom left-hand corner of the Map Data window.

Cont…… Loading Maps
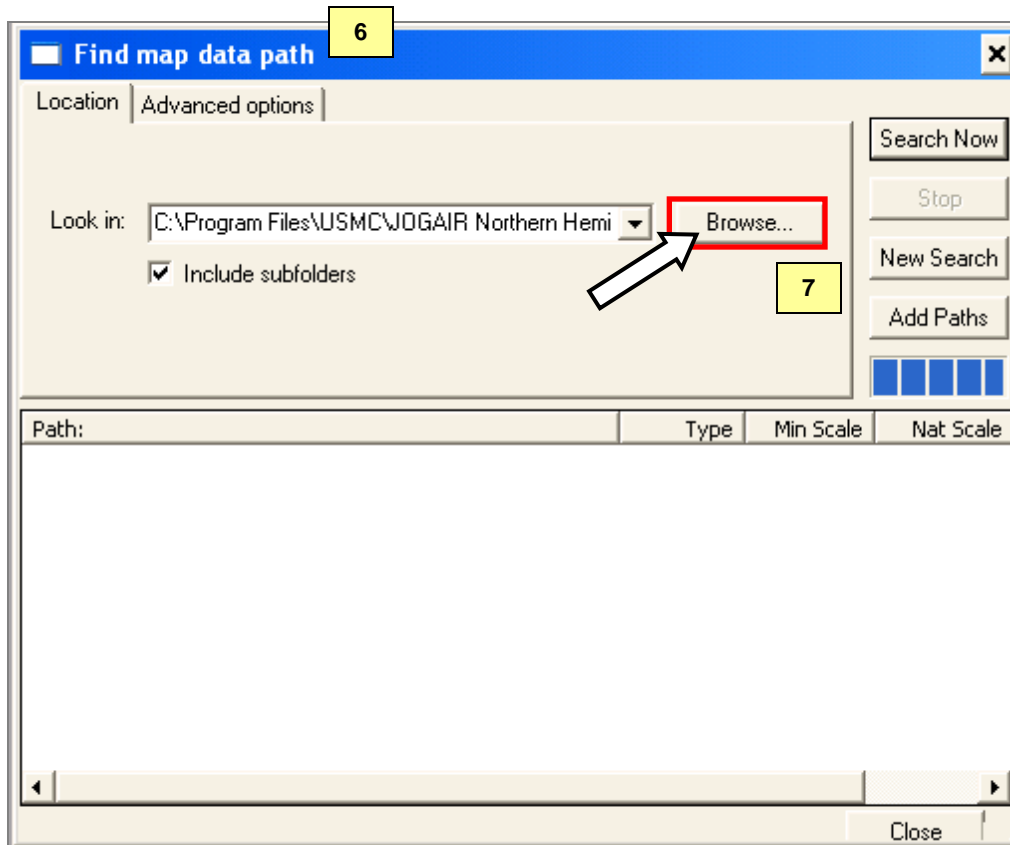
6. The "Find map data path" window will appear.

7. Click on the "Browse…" button to select a folder/map located in the directory.

   C2PC recognizes the following map types:

   - Topographic Line Map (TLM)
   - TIFF and GEO TIFF
   - JOG AIR
   - RASTER
   - Digital Terrain Elevation Data (DTED)

Cont…… Loading Maps
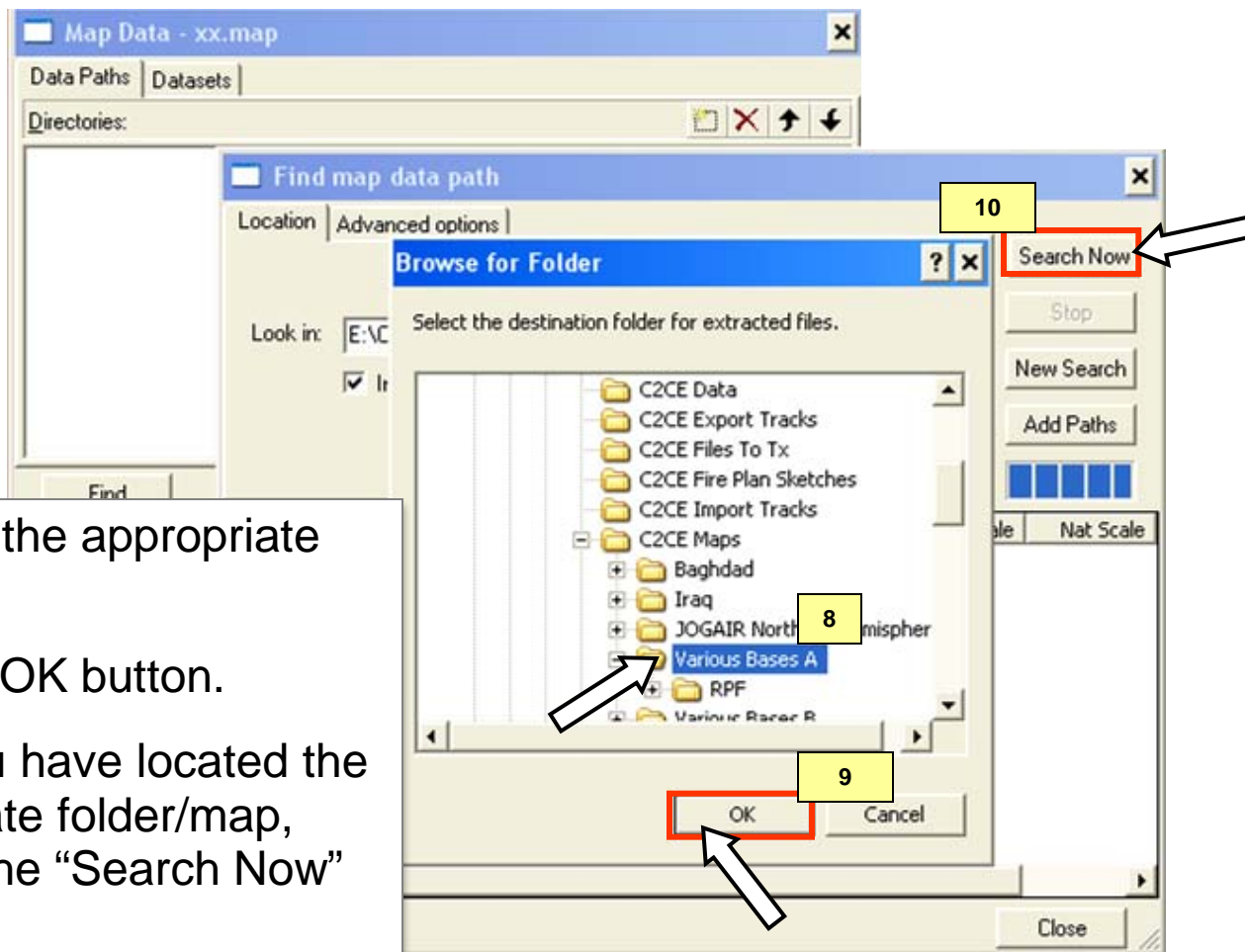
8. Highlight the appropriate map.

9. Click the OK button.

10. Once you have located the appropriate folder/map, click on the "Search Now" button.

Cont…… Loading Maps

Map Data - xx.map

Data Paths | Datasets

Directories:

Find

Find map data path

Location | Advanced options

Look in: E:\C2CE\C2CE Maps\Various Bases A ▼ Browse...

☑ Include subfolders

Search Now

Stop

New Searc

12

Add Paths

11

Path:	Type	Min Scale	Nat Scale
E:\C2CE\C2CE Maps\Various Bases A	RPF	1:0	1:0

Close

11. Highlight the Map located in the Path selection box.

12. Then click the Add Paths button.

Cont…… Loading Maps

Map Data - xx.map

Data Paths | Datasets

13

Directories:

E:\C2CE\C2CE Maps\Various Bases A

Find

Find map data path

Location | Advanced options

Look in: E:\C2CE\C2CE Maps\Various Bases A

☑ Include subfolders

Path:

E:\C2CE\C2CE Maps\Various Bases A

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Close

13. Note the map/file is now displayed in the MapData window, under "Data Paths" tab, in the Directories: list box.

14. Click on the Close button located on the lower right corner of the Find map data path window.
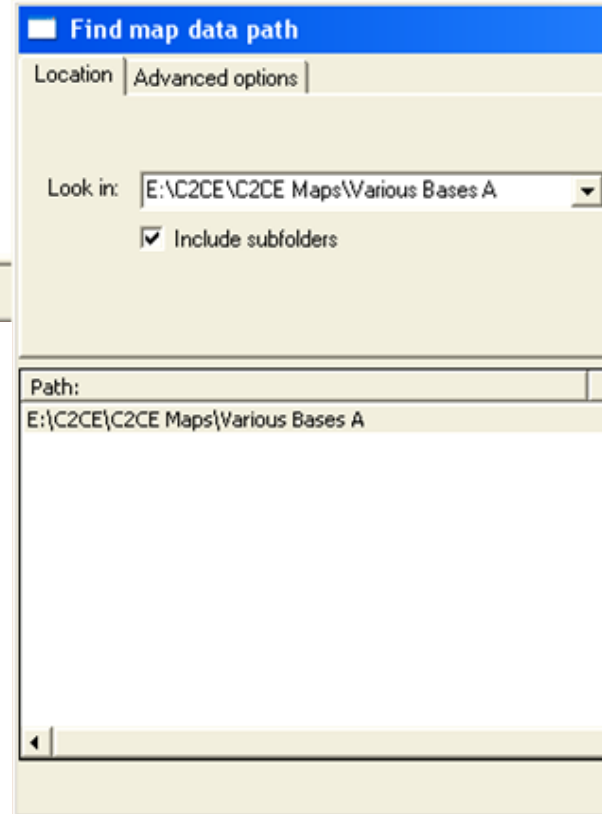
Cont…… Loading Maps

15. Under Datasets tab, click inside the check boxes, next to all the new maps that have been uploaded.

16. Click the close button to return to the map.

Map Data - Colorado Springs

Data Paths | Datasets

Maps:

Name	Type	Prio...
☑ CGNC - 1:5M	RPF	5000
☑ CJNC - 1:2M	RPF	2000
☐ TLM50_N38_1...	TIFF	72

Copy To/Delete From Local Storage:

Selected for copy: 0.000 KB
Selected for delete: 0.000 KB
Disk free space: Drive C: 60.292 GB

Copy | Delete

Find | Close

Cont…… Loading Maps

C2PC - WGS 1984: Global Definition - [Map1 - Vector]

File Map Favorites Declutter Tools Comms Window Help

1 : 148,328,276

No active CGRS   No CGRS data   35 00 21N 013 45 53W   +28 12718 03874375   28S FD 12718 74375   No elev data

17

17. Zoom into a general area of the map that you wish to be displayed by clicking the "Zoom Box" icon.

18. Use your mouse to drag and outline the area.

18

Cont…… Loading Maps

19. Repeat step using your mouse cursor to zoom into the desired map. Maps will be represented by the red grid lines.

Cont…… Loading Maps

C2PC - WGS 1984: Global Definition - [Map1 - Vector]

File   Edit   View   Insert   Formations   Map   Favorites   Declutter   Tools   Comms   Window   Help

1 : 148,328,276
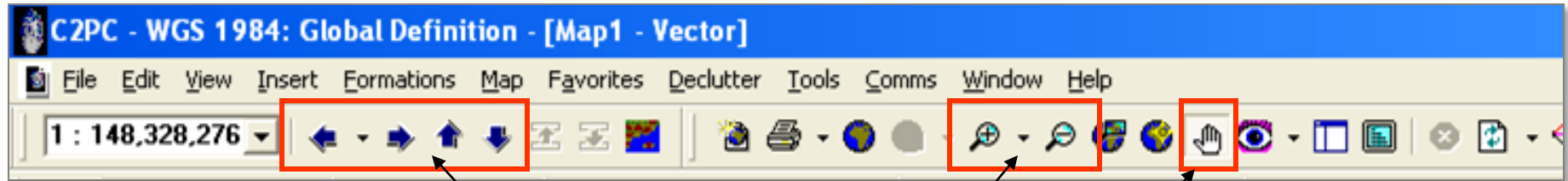
You may utilize any of the available tools to either move, zoom in/out, or pan to view the map area you would like to work with.

Cont…… Loading Maps

20. Click on the "Other Map" icon to view list of maps that were uploaded.

21. Click on a map you wish to be displayed. Example, CMM – 1;50000

22. Working map is displayed.

Cont…… Loading Maps

23. Example selecting a different map CMM – 1;25K.

24. Working map displayed.

How to Activate VMF Tool

Activating the Variable Message Format (VMF) Tool

1. From the Tools menu, scroll down and click on VMF

Cont…… Activating the VMF Tool

2. VMF tool is now activated.

Cont…… Activating the VMF Tool

3. Expand the VMF Reports folder

   Note: VMF tool needs to be activated in order to view new /old PLI reports.

Cont…… Activating the VMF Tool
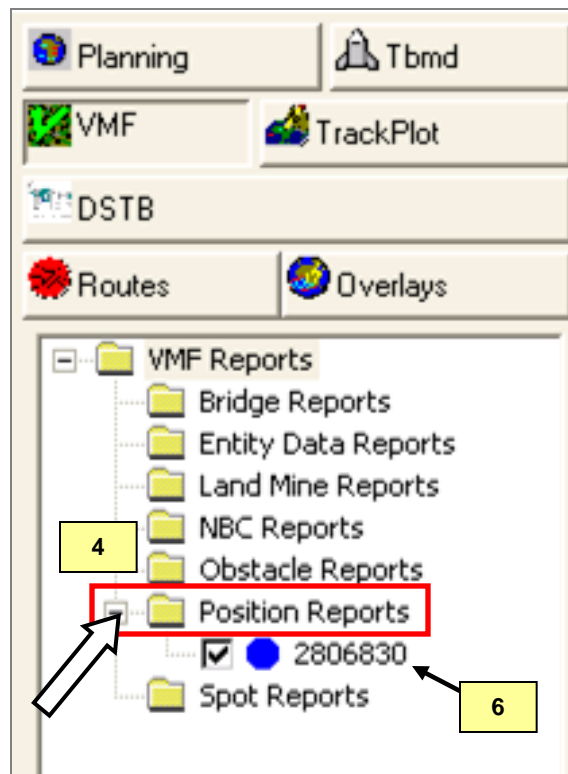
4. Expand the "Position Reports" subfolder.

5. Delete older reports that may be displayed. All PLI reports will be displayed by their International Mobile Equipment Identity (IMEI) number.

6. As new PLI reports are received, the Position Reports subfolder is where they will appear.

How to Activate Track Plot Tool

This is a presentation slide showing a C2PC software interface.

Cont…… How to Activate Track Plot Tool

1. From the Tools menu, scroll down and click on TrackPlot.

Cont…… How to Activate Track Plot Tool

2. TrackPlot tool is now activated.

Cont…… How to Activate Track Plot Tool
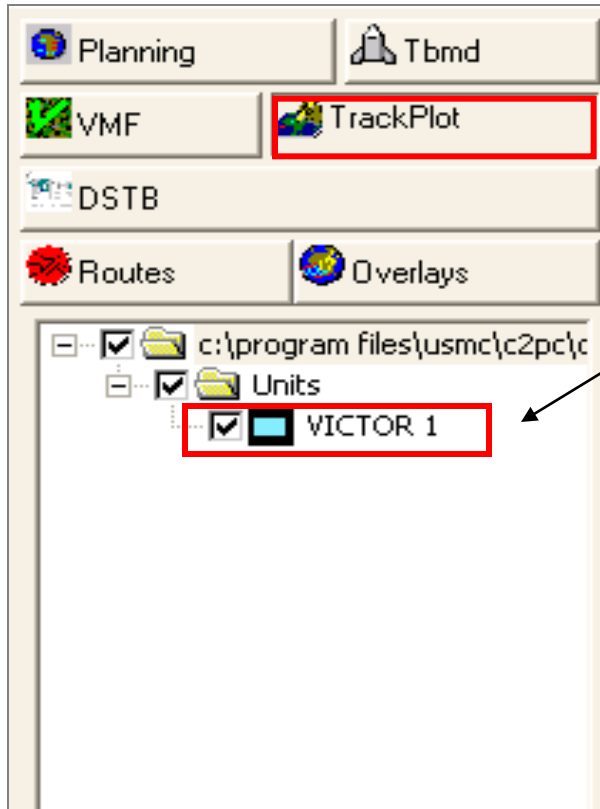
3. You may re-name a track at anytime by right mouse clicking on the track and selecting properties.

4. Older tracks displayed under the Units folder <u>should</u> be deleted when you first start C2PC.

5. Tracks that are located in either VMF and TrackPlot can be right mouse clicked and "Center On" from the right click windows menu, or the Recenter icon located in the C2PC tool bar. This will allow you to quickly locate a particular track on the map.

How to Create a Track

Cont…… How to Create a Track
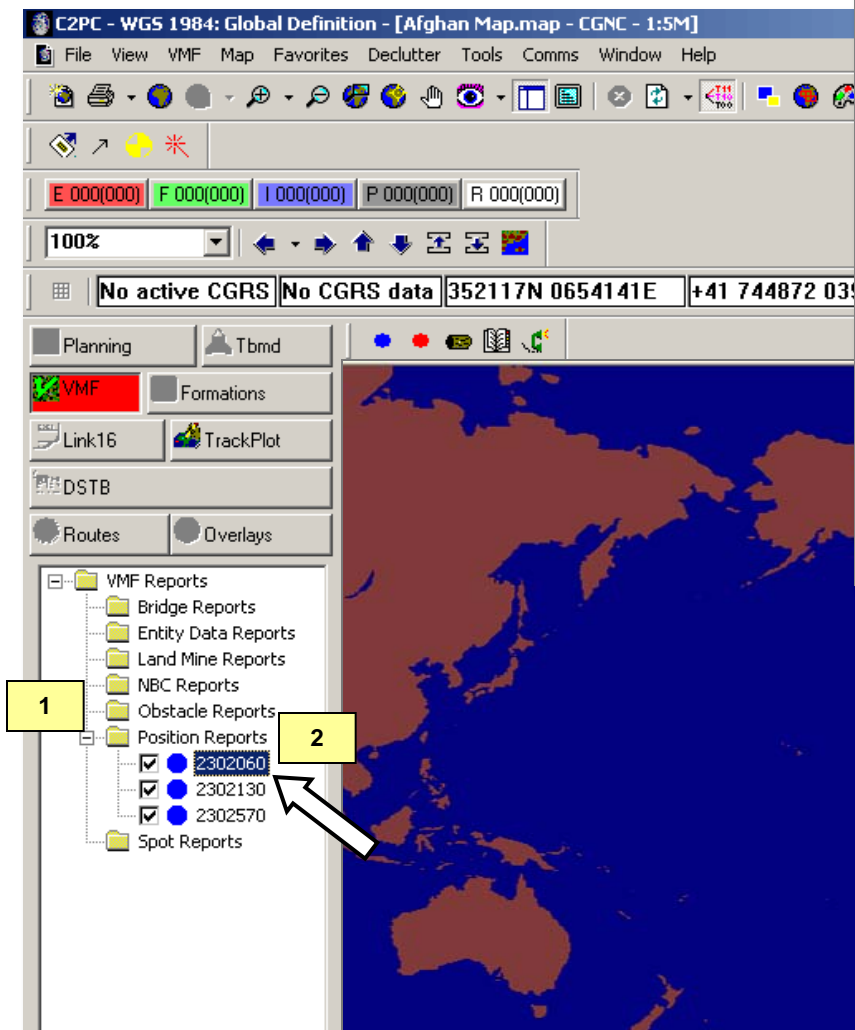
1. In the VMF tool directory, expand the "Position Report" folder.

2. Right click on a International Mobile Equipment Identity (IMEI) number located under the folder, or the actual blue force PLI report icon displayed on the map.

3. Select "Create Track"

For Official Use Only

4. The "Track Type?" window will be displayed.

5. Click on the "Select Track" pull down for the type of track you want to display on the map. For training purposes, select Unit.

6. Click "OK".

Cont…… How to Create a Track

The "Add Unit Track" window will be displayed.

By default the Attributes tab will be displayed first.

7. In the "Name" text box, insert a name for the track you wish to monitor, and other attributes for ease of identification.

Cont…… How to Create a Track

8. Click on the "Mil Symbol" tab

9. Click on the "Affiliation" pull down to select track affiliation with your unit. Example , Friend, Hostile, Neutral, etc.

10. Select the "Size" of unit.

11. Select "Function ID" Example, Infantry, Aviation, Combat Support, etc.

Cont…… How to Create a Track

12. You may click on the "Last Report" tab to view PLI report information, DTG and current grid location.

13. Click "OK.

Note the IMEI that was listed in the VMF position reports folder is not displayed.

14. Your newly created track is now displayed on the map.

15. Click on TrackPlot tool button to view your newly created track.

16. Expand the track plot folder .

15

16
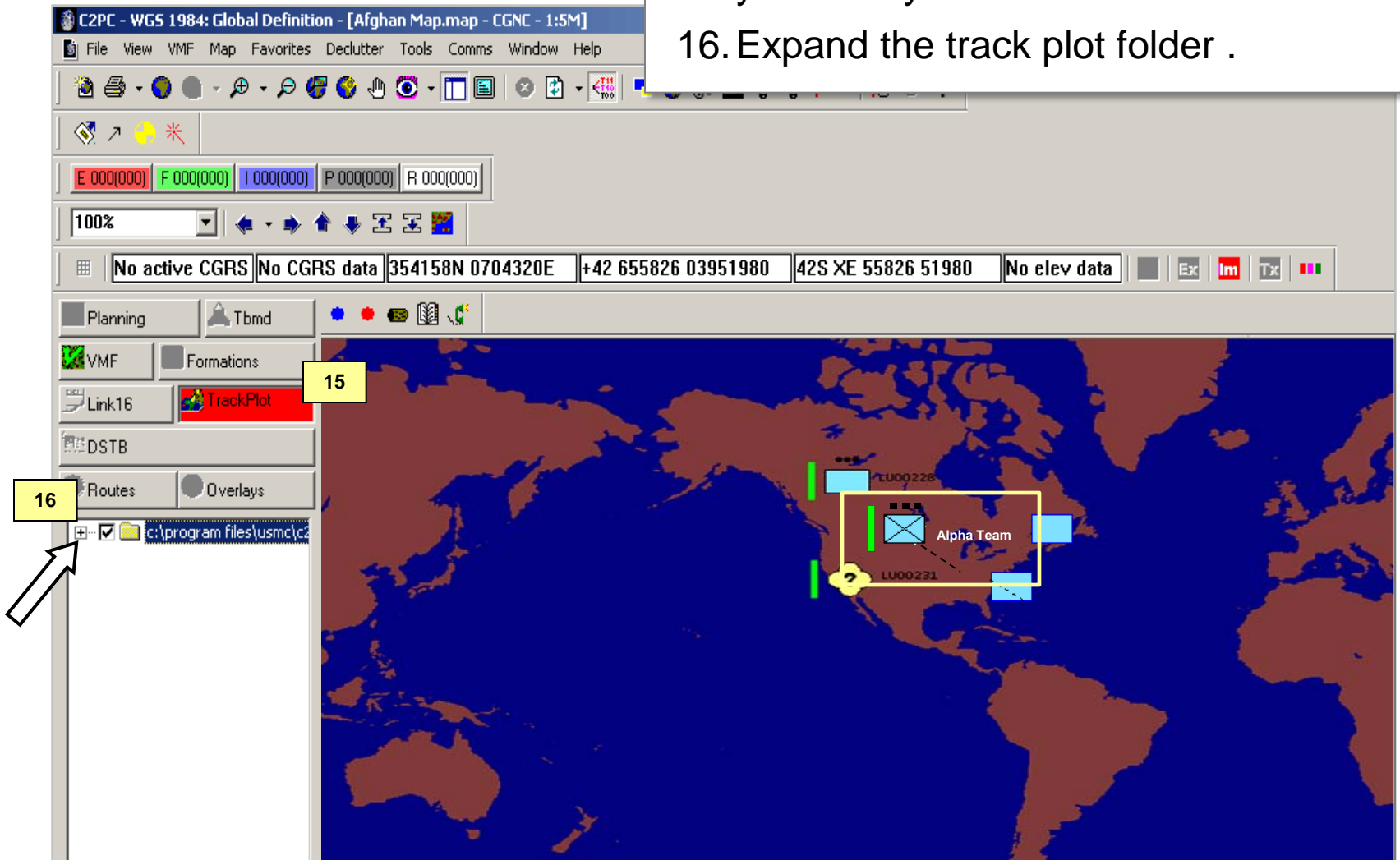
17. Expand the Units folder to view your new track.

Note, you can right mouse click the track and click properties to change track attributes at any given time.

Map Extras

Map Extras

C2PC allows the end user to configure how they may want C2PC to display PLI reporting information. For example, position, distance, speed, DTG, and altitude.

You may change the settings from metric to standard, kilometers to miles, meters to feet.

1. Select "Tools" from the menu.

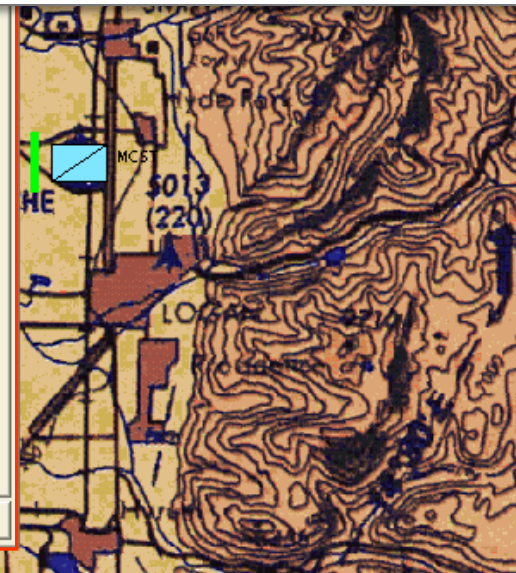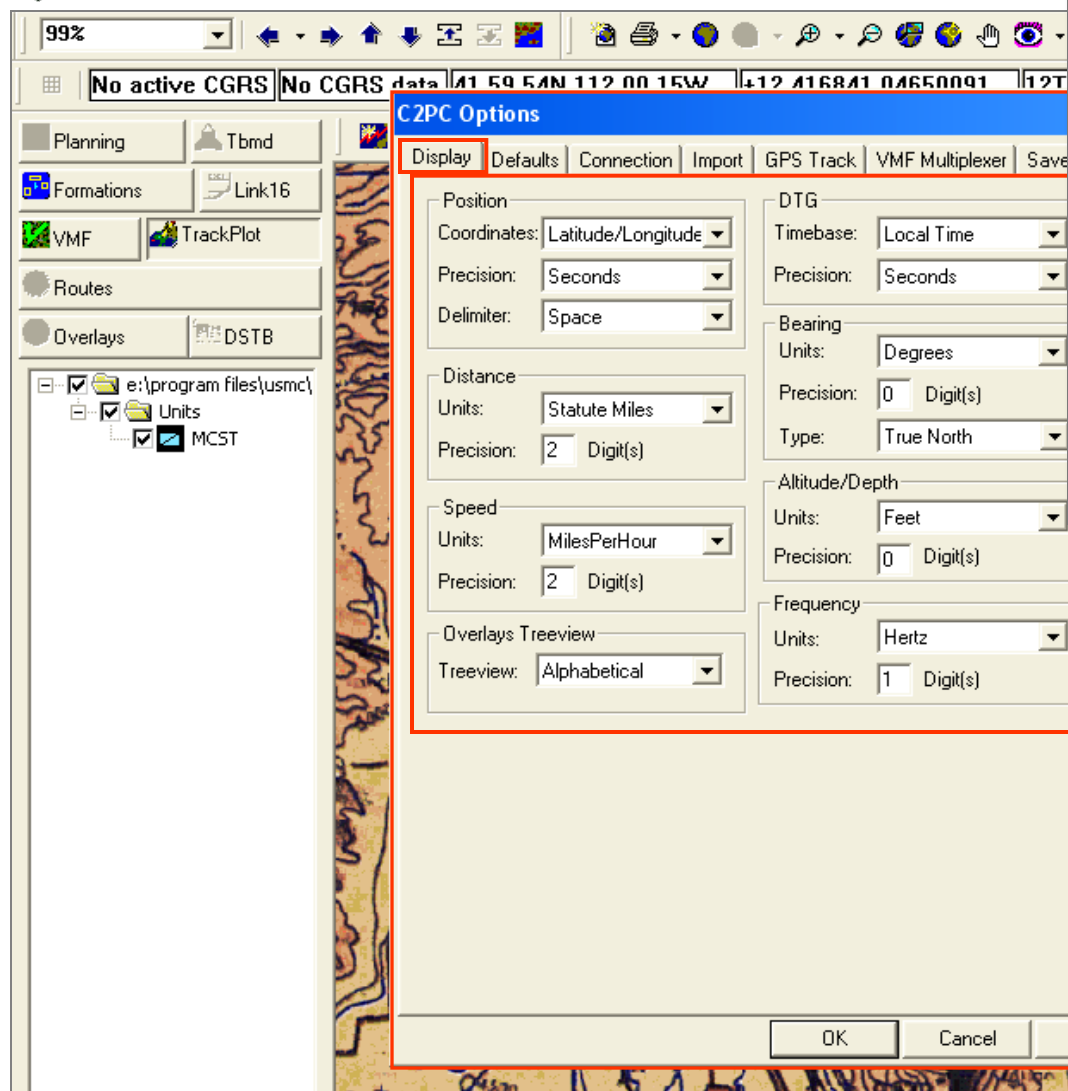2. On the bottom of the drop down menu is "options".

Cont…… Map Extras

The "Display" tab will be shown by default.

Adjust display options by clicking the series of pull-downs.

Click Apply, then OK to accept the changes..

Questions?

In this module we have covered:

- DTCS ROA Collector Basics

- ROA PLI Collector Set-up with Voice Capabilities

- ROA PLI Collector Translator Software Set-up

- C2PC / DTCS Operations for COC/TOC

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