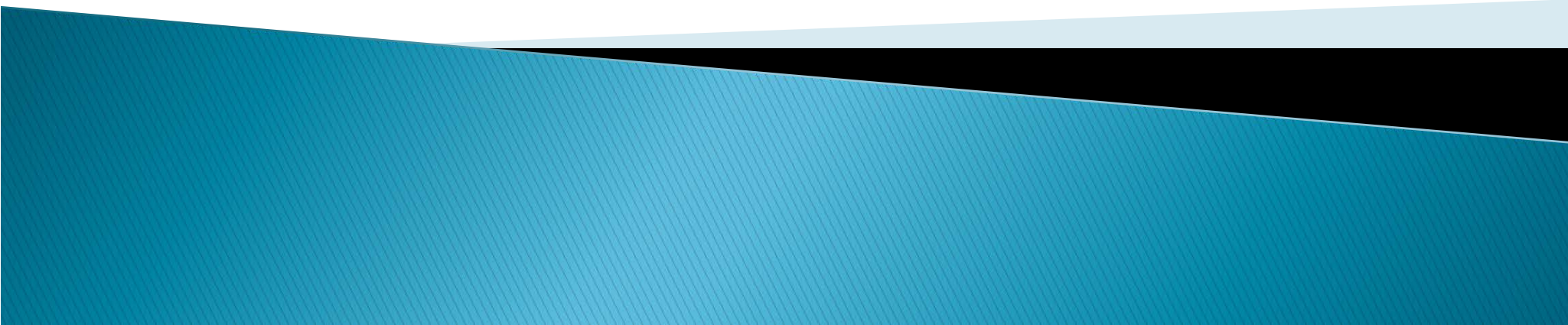


Connecting to the CRTN

NTRIP Connection / IPs & Ports / RTCM Versions

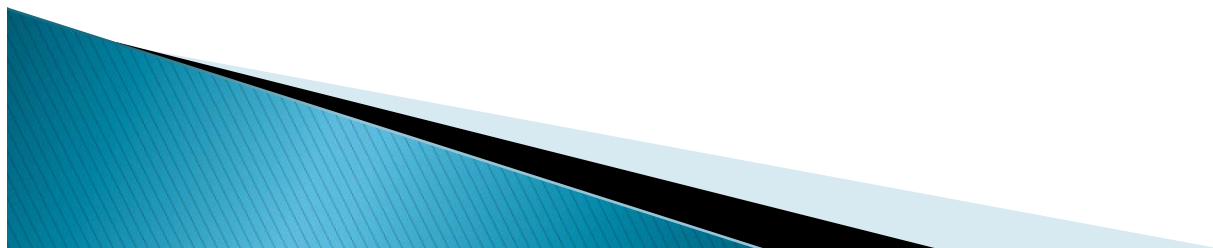
Richard Maher, PLS
CSRC EC Secretary

rmaher@kdmmeridian.com



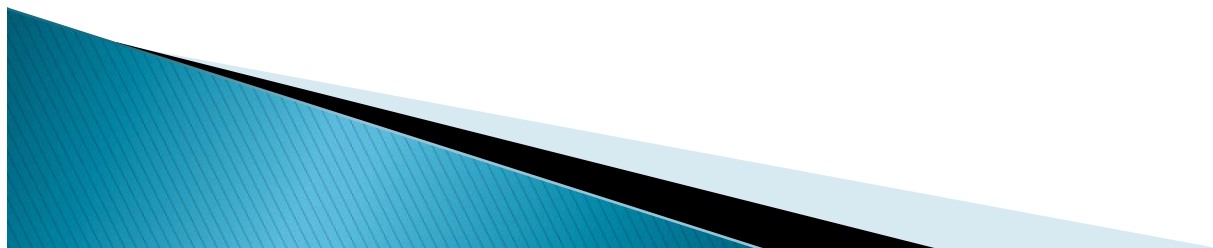
What we will cover.

- ▶ Why
- ▶ What
- ▶ The Connection
- ▶ Getting Started (The Internet)
- ▶ Configuration Settings
- ▶ Information & Status of Network
- ▶ Samples / Questions



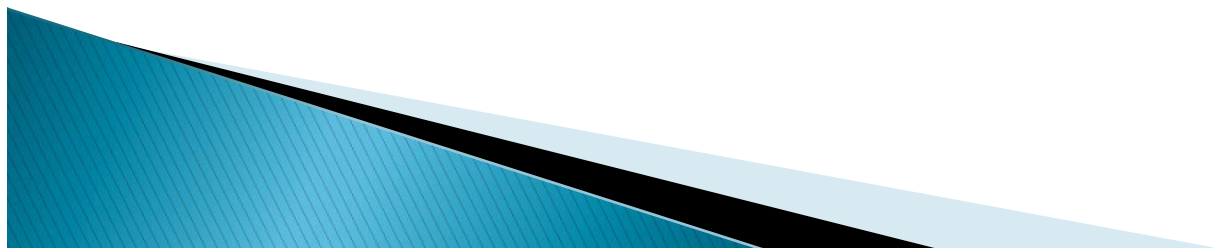
Why?

- ▶ Makes you money (Pays for self)
- ▶ Eliminate need for physical base/radio.
- ▶ No setup. Radio Conflicts.
- ▶ No risk of theft or cost of guard.
- ▶ Known coordinate point.



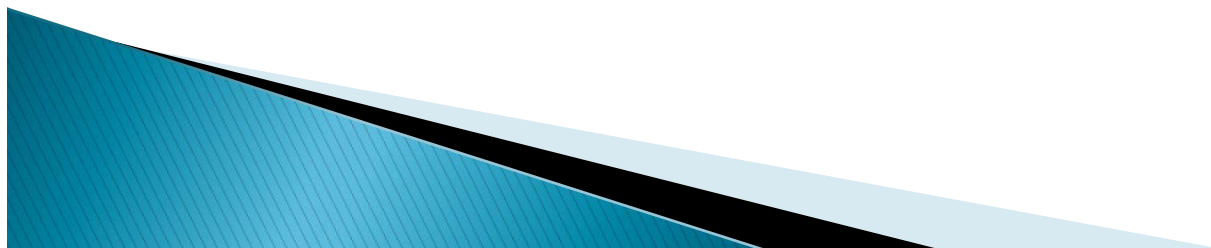
What are we doing?

- ▶ CRTN –is– RTK (Single Base Solution)
- ▶ Basic RTK Principles
- ▶ Positioning Performance 95% (Trimble R8)
 - 15km 1 Reading Horiz: 0.12' +/-
 - 15km 2 Readings Horiz: 0.09' +/-
 - 15km 3 Readings Horiz: 0.07' +/-
 - 15km 4 Readings Horiz: 0.06' +/-



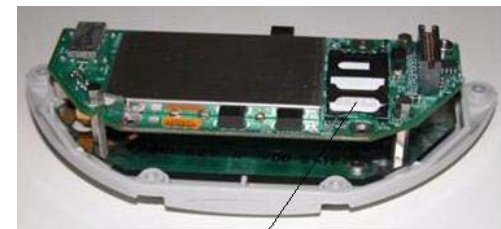
The Connection

- ▶ NTRIP: (Networked Transport of RTCM via Internet Protocol)
- ▶ Infrastructure: Server / Caster / Client
- ▶ Data: RTCM stream (Radio Technical Commission for Maritime Services)
- ▶ Coordinates



Getting Started (The Internet)

- ▶ Data Collector vs. Receiver
- ▶ Getting hooked up:
 - Serial Modem
 - Bluetooth DUN
 - Tethering by Bluetooth/WiFi (Cell Phone)
 - WiFi Device
 - Built in Cell (usually SIM)



Enter SIM Card Here

Configuration Settings

▶ NTRIP Access:

- CCS83 Zone 1-2: IP=132.239.152.175, Port=2104;
CCS83 Zone 3-4: IP=132.239.152.175, Port=2103
CCS83 Zone 5: IP=132.239.154.80 Port=2104;
CCS83 Zone 6: IP=132.239.154.80, Port=2103

RTCM v3.0

▶ Broadcast Coordinates:

<http://sopac-csrc.ucsd.edu/index.php/crtn-stationlist/>

CRTN NTRIP Account Requests:

- ▶ https://www.surveymonkey.com/s/CRTN_Registration

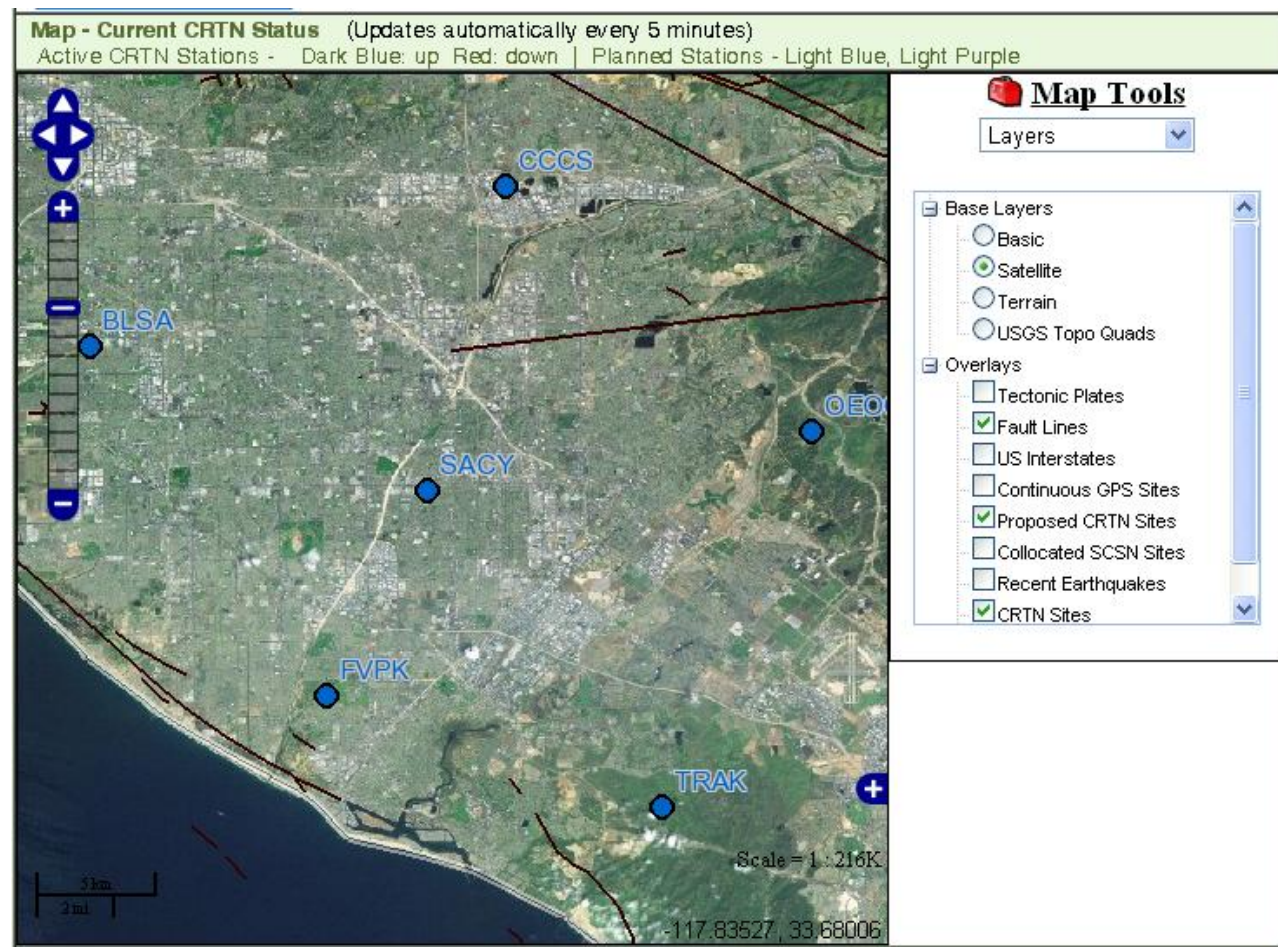
- ▶ Website: sopac-csrc.ucsd.edu

- ▶ Forums: CRTN



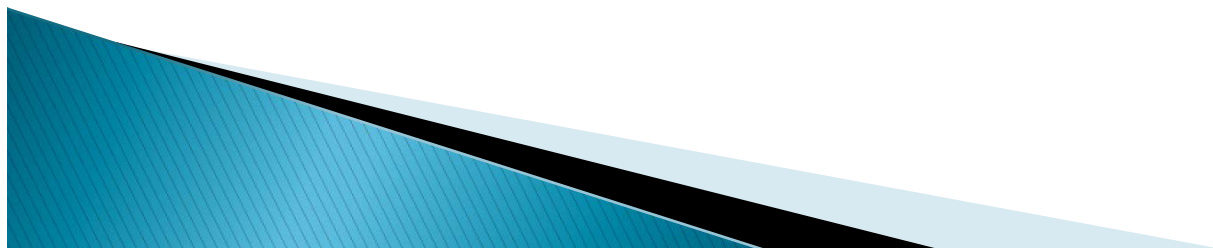
Status

▶ CRTN Current Status Map:



Samples / Questions

- ▶ Connection Configuration Database
- ▶ Samples
 - GeoXH
 - TSC2 (Access) R8
- ▶ Questions?

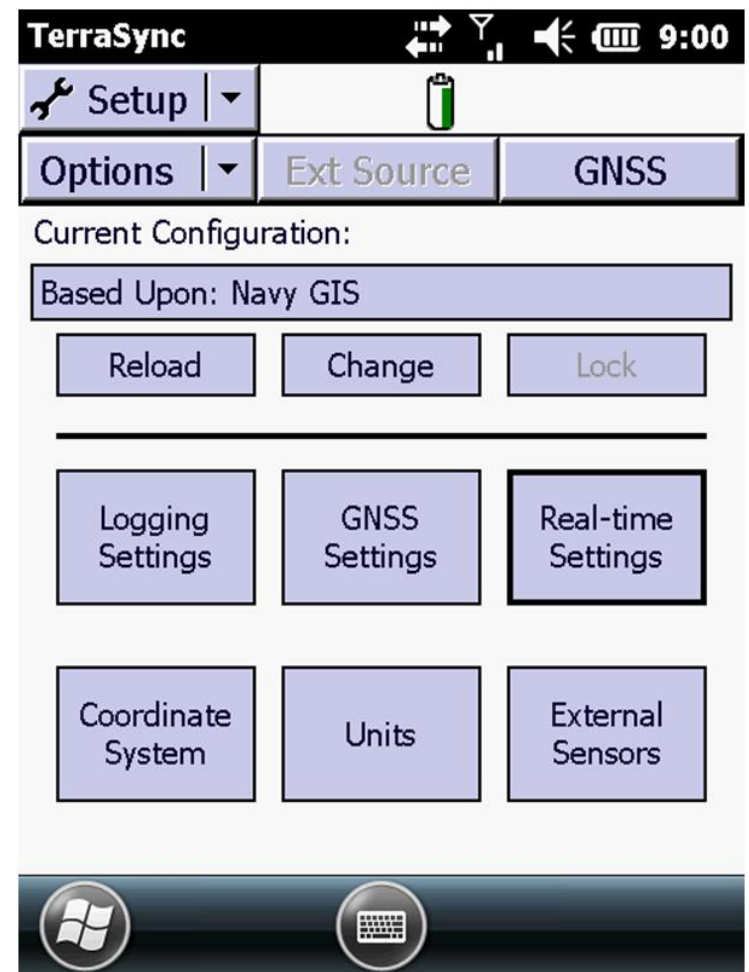
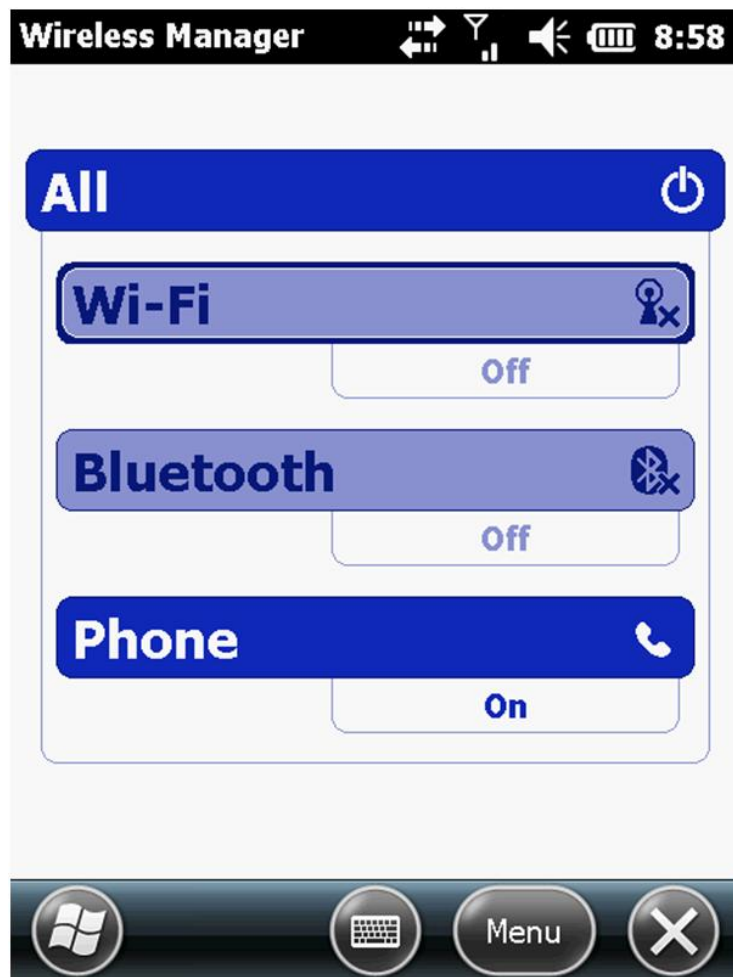


Mapping Unit (GeoXH 6000)

- ▶ 10cm and 1cm versions
- ▶ GIS Mapping
- ▶ SIM Chip Cell Phone Internal



GEOXH 6000



GEOXH 6000



GEOXH 6000

TerraSync 9:01

Setup

External Source Settings

Correction Datum:
NAD 1983 (Conus)

Type: Single Base

Connection Method:
Internet

Address:
132.239.152.74

Port: 2103

Done Cancel

TerraSync 9:01

Setup

External Source Settings

Source: WHYT_RTCM3

User name:
KDMCrew1

Password:

Connection Control: Auto

Real-time Protocol: Auto

Station ID: Any

Done Cancel

Survey Unit (TSC2 Access/R8)

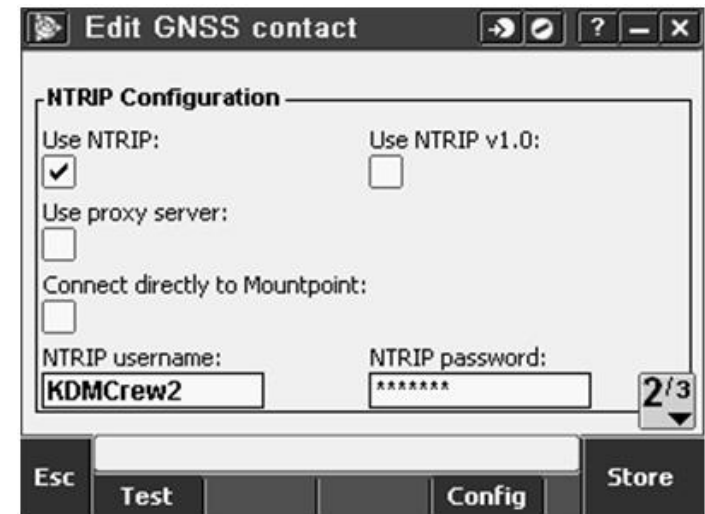
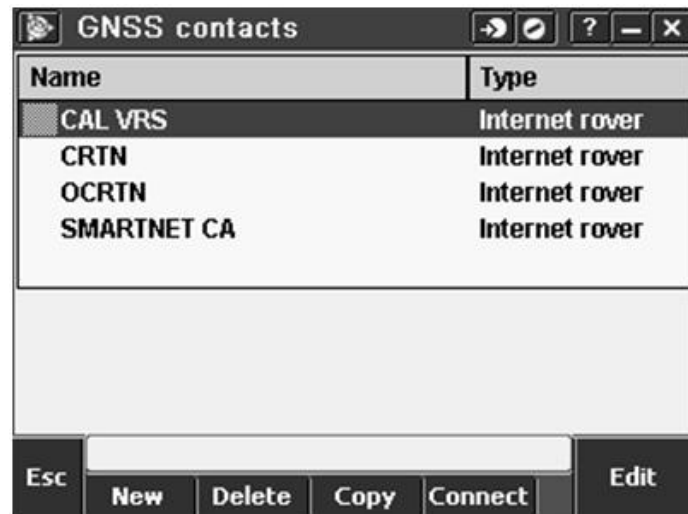
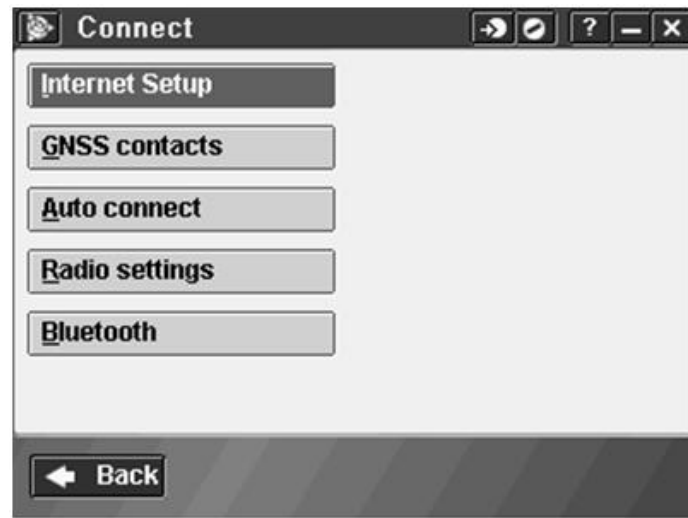
- ▶ Survey Grade Receiver
- ▶ WiFi Data Collector
- ▶ WiFi Cell Device



TSC2 Access WiFi



TSC2 Access WiFi



TSC2 Access WiFi

Edit GNSS contact

IP Address: IP Port:

Send user identity info: ☐

3/3

Esc Test Config Store

Bluetooth

Connect to GNSS rover: Connect to GNSS base:

Connect to conventional instrument:

Connect to laser: Send ASCII data to:

Connect to echo sounder: Automatically enable Bluetooth: ☒

Esc Config Accept

Survey Styles

Name	Size	Modified	Location
CAL VRS	2kb	7/23/2012	\Trimble
CRTN	2kb	7/23/2012	\Trimble
FastStatic	2kb	8/10/2012	\Trimble
I-CAL VRS	2kb	7/23/2012	\Trimble
I-CRTN	2kb	7/23/2012	\Trimble
I-OCRTN	2kb	7/23/2012	\Trimble
I-SMARTNET	2kb	7/23/2012	\Trimble
OCRTN	2kb	9/14/2012	\Trimble
PRK	2kb	7/23/2012	\Trimble

Esc New Copy Delete Options Edit

CRTN

Rover options

Rover radio

Base options

Base radio

Topo point

Observed control point

Rapid point

Continuous points

Stakeout

Site calibration

Duplicate point tolerance

Laser rangefinder

Esc Store Edit

TSC2 Access WiFi

Rover options [Navigation icons] [?] [X]

Survey type:
RTK

Broadcast format:
RTCM RTK

Elevation mask:
10°

PDOP mask:
6.0

Map
Menu
Favorites
Switch to

1/3

Esc Accept

Rover options [Navigation icons] [?] [X]

Tracking

Use L2e: **Yes**

GPS L2C: ☐

GLONASS: ☒

Map
Menu
Favorites
Switch to

3/3

Esc Accept

Rover options [Navigation icons] [?] [X]

Antenna

Type:
R8 GNSS/SPS88x

Measured to:
Bottom of antenna mount

Antenna height: **2.000m** Part number: **60158-00**

Serial number:
?

Map
Menu
Favorites
Switch to

2/3

Esc Accept

Rover radio [Navigation icons] [?] [X]

Type:
Internet connection

Route through controller:
Yes

GNSS Contact:
CRTN

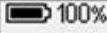
Prompt for GNSS contact:
☐

Map
Menu
Favorites
Switch to

Esc Accept

TSC2 Access WiFi

Observed control point

Auto store point: ☒ Quality control: **QC 1 & QC 2** 

RTK

Number of measurements: **60**

Precision

Auto tolerance: ☒ **1/2**

Map Menu Favorites Switch to

Esc Accept

New job: CRTN-PRES

Job name: **CRTN-PRES.**

Template: **ZONE 6 (OC. RIV. SAN D. IMP)**

Properties

Coord. sys.: **California Zone 6 0406 (US Sta**

Units (Dist.): **US survey feet**

Linked files: **None**

Active map: **None**

Feature library: **None** **1/2**

Esc Accept

Observed control point

Postprocess

Time for 4 SVs: **10m0s** Time for 5 SVs: **8m0s**

Time for 6+ SVs: **5m0s**

Map Menu Favorites Switch to **2/2**

Esc Accept

New job

Cogo settings: **Ground**

Descriptions: **Off**

Media file: **Previous point**

Reference: **?**

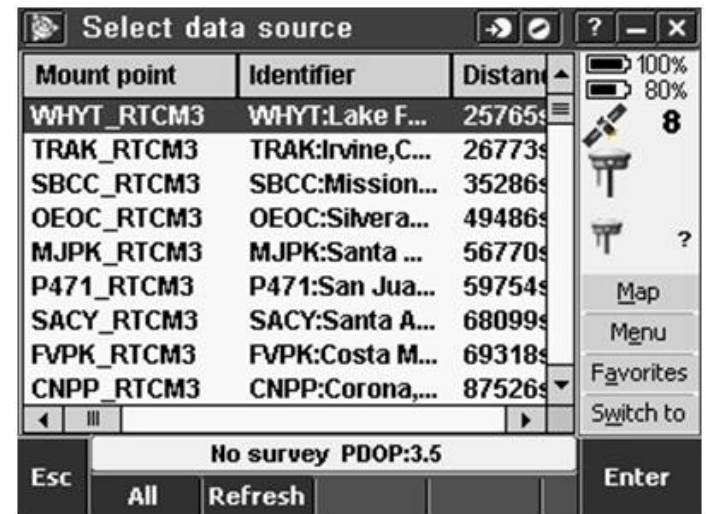
Description: **?**

Operator: **?**

Notes: **?** **2/2**

Esc Accept

TSC2 Access WiFi



Samples / Questions

- ▶ Connection Configuration Database
- ▶ Samples
 - GeoXH
 - TSC2 (Access) R8
- ▶ Questions?

