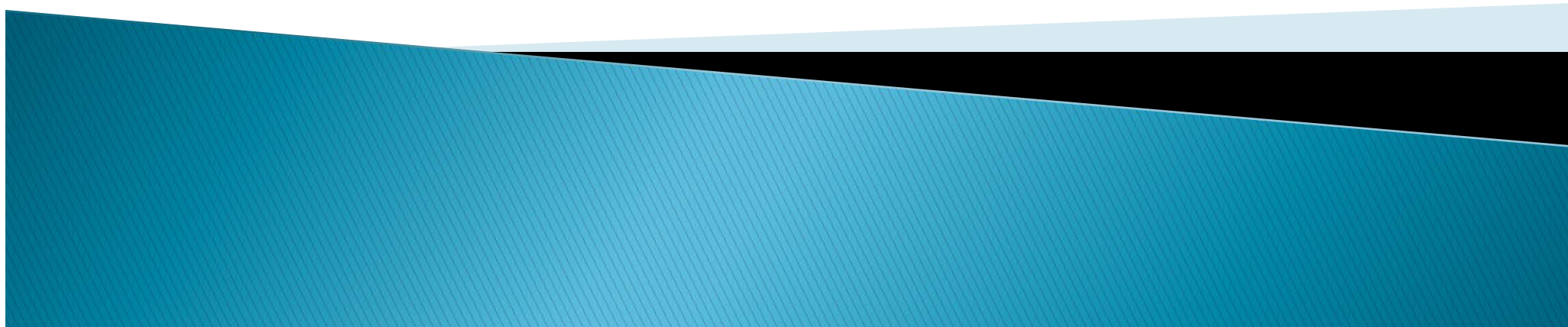


Connecting to the CRTN

NTRIP Connection / IPs & Ports / RTCM Versions

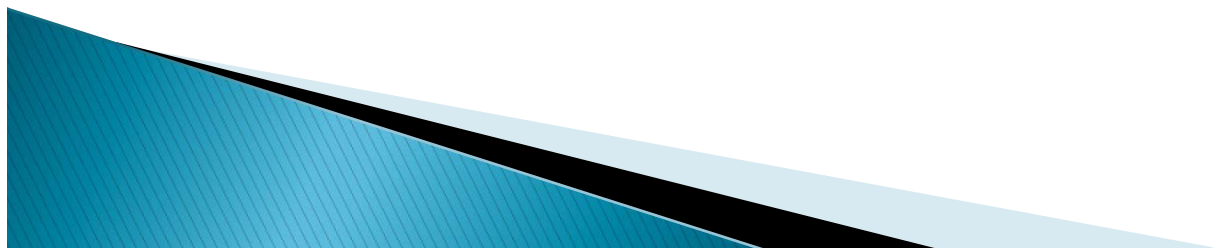
Richard Maher, PLS
CSRC EC Secretary

rmaher@kdmmeridian.com



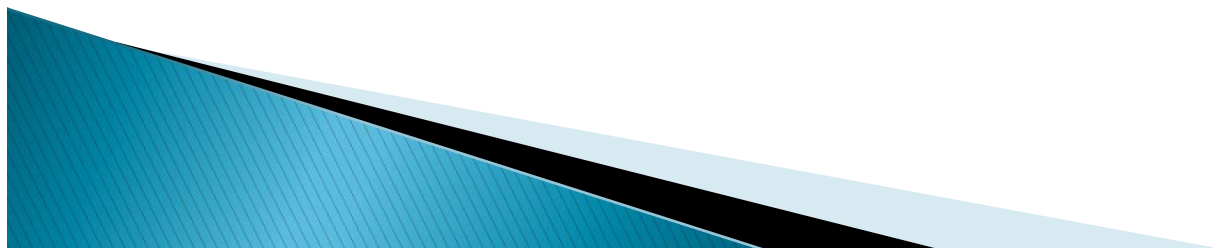
What we will cover.

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



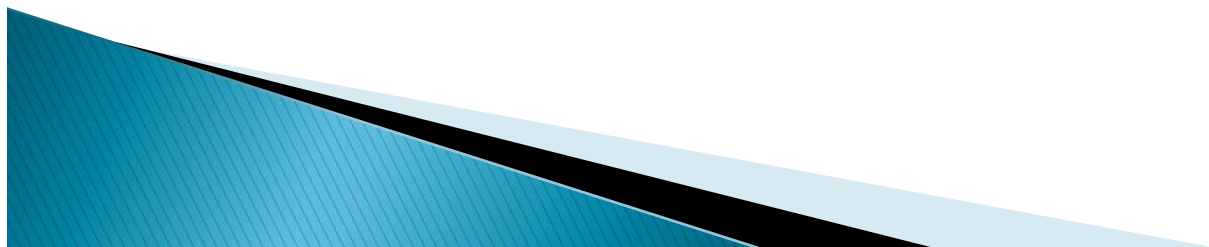
Why?

- ▶ 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.



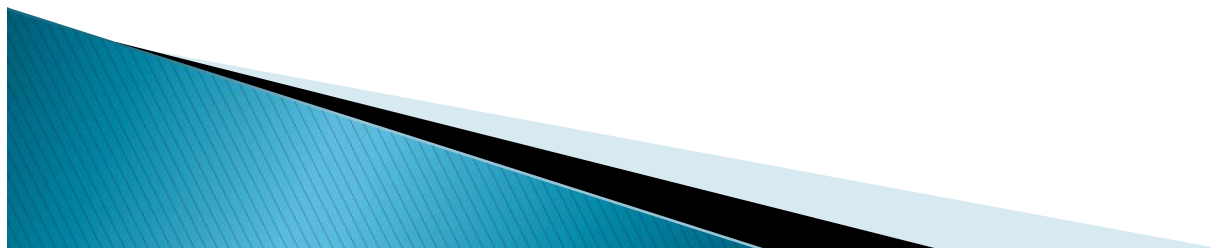
What are we doing?

- ▶ 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' +/-



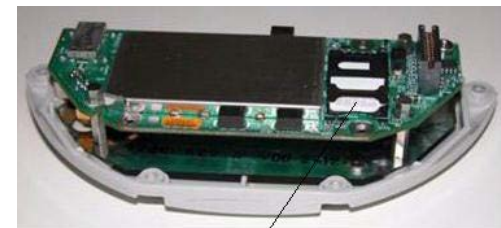
The Connection

- ▶ 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:

- Northern California

- IP: 132.239.152.175 (Updated August 5, 2017)
 - Port: 2103

- Southern California

- IP: 132.239.152.74
 - Port: 2103

- ▶ RTCM v3.0

- ▶ Broadcast Coordinates CSRC 2011.00 Epoch – NAD83 (NSRS2007)

- ▶ CRTN NTRIP Account Requests:

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

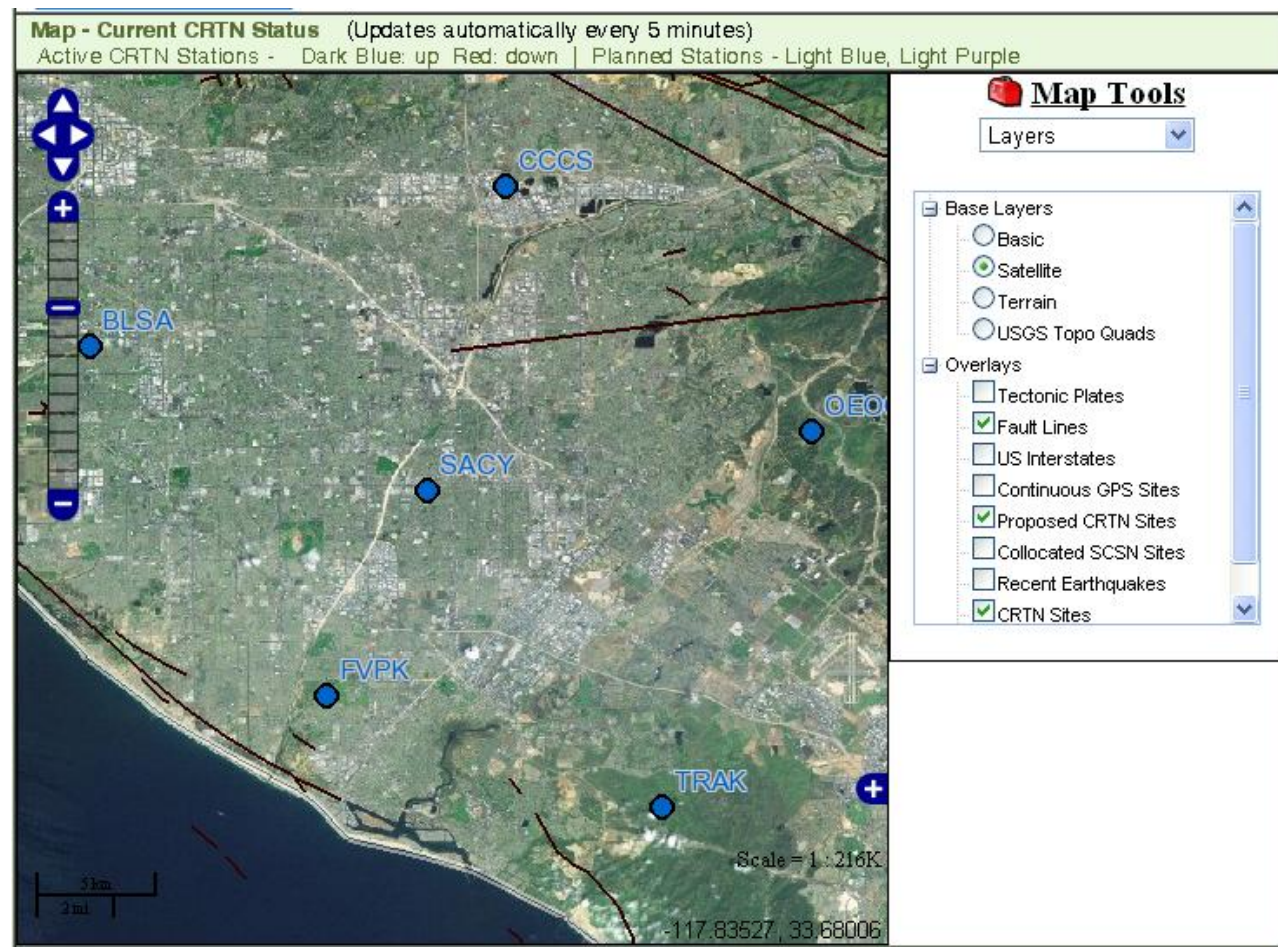
- ▶ Website: csrc.ucsd.edu

- ▶ Forums: CRTN



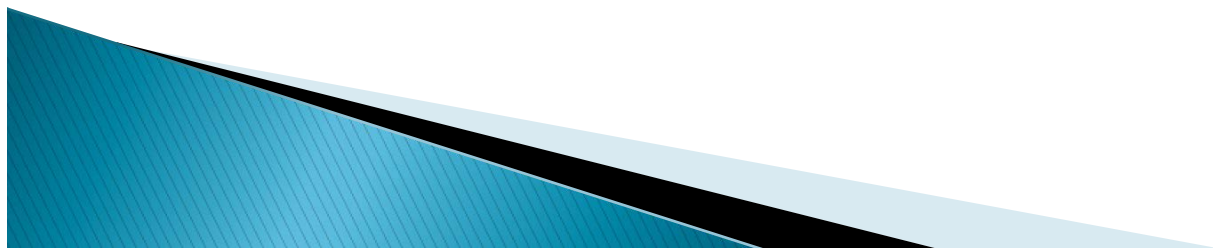
Status

▶ CRTN Current Status Map:



Samples / Questions

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

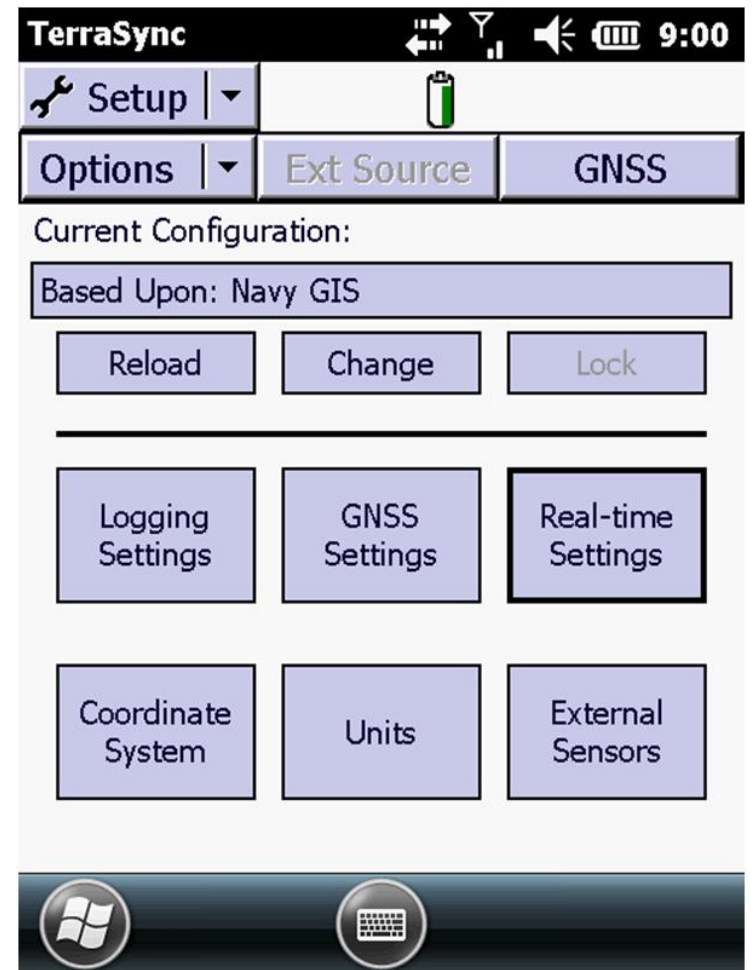
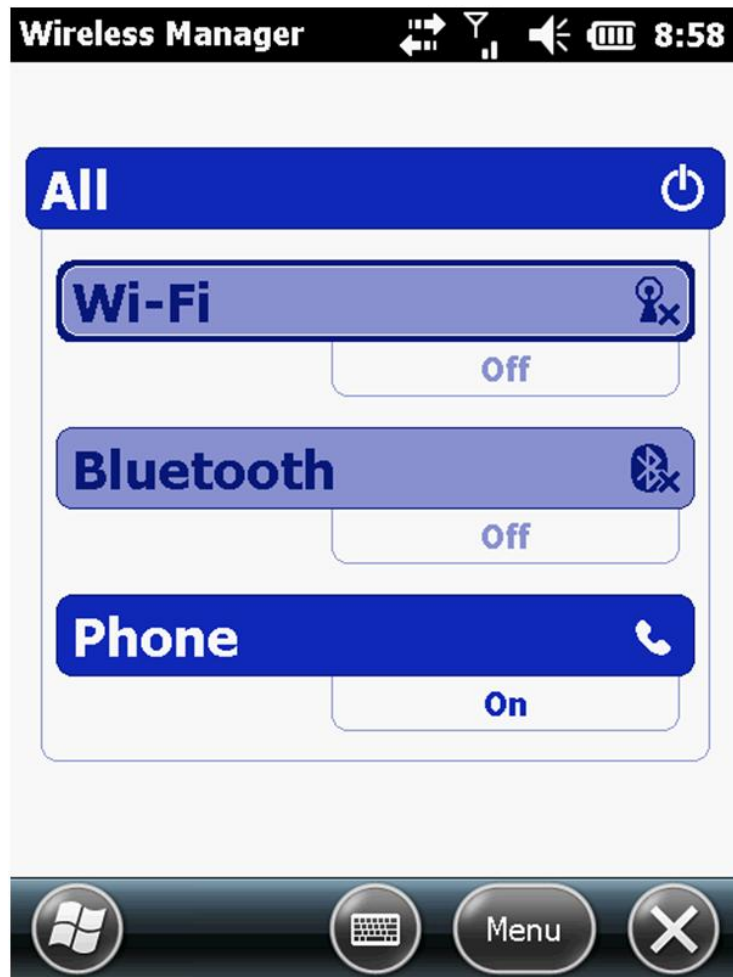


Mapping Unit (GeoXH 6000)

- ▶ 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)

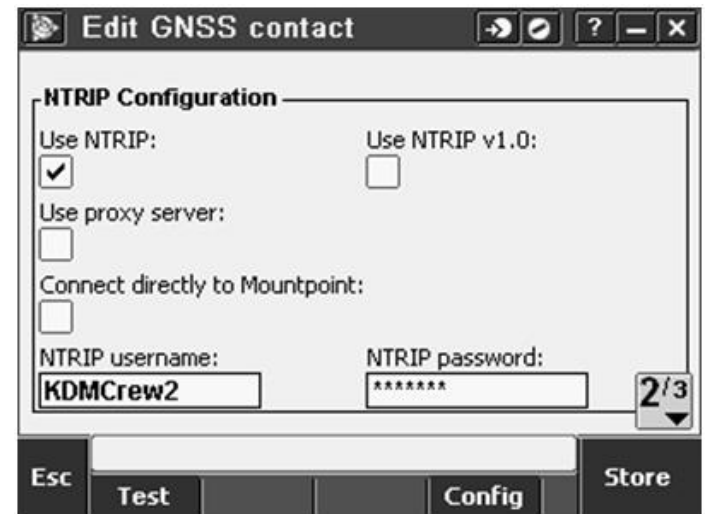
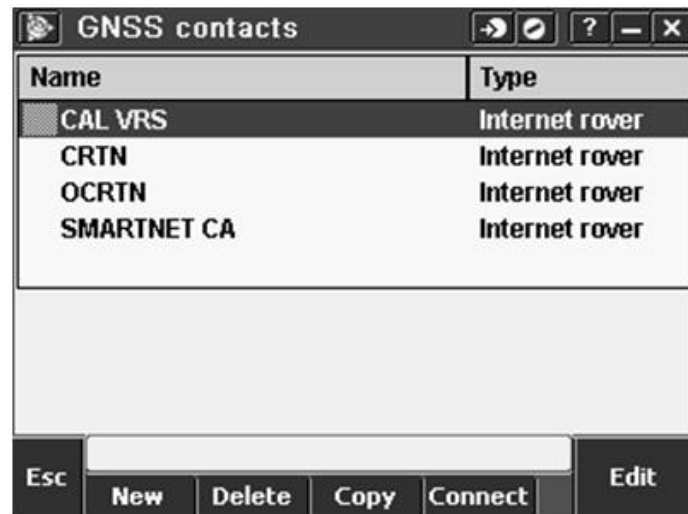
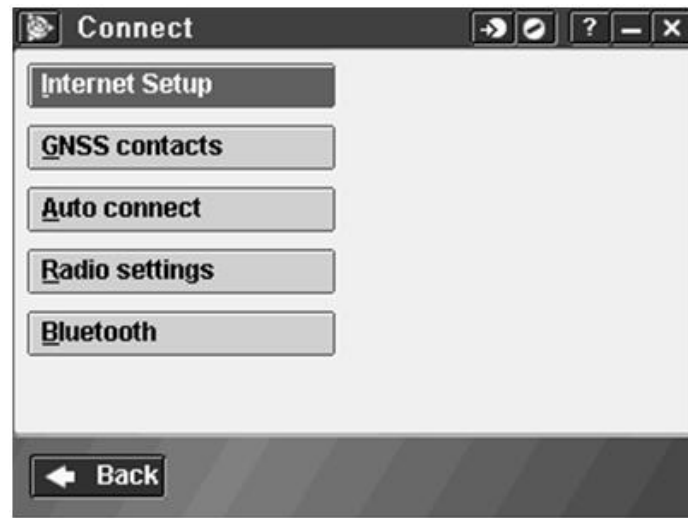
- ▶ Survey Grade Receiver
- ▶ WiFi Data Collector
- ▶ WiFi Cell Device



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

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] [Help] [Close]

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] [Help] [Close]

Tracking

Use L2e: **Yes**

GPS L2C: ☐

GLONASS: ☒

Map
Menu
Favorites
Switch to

3/3

Esc Accept

Rover options [Navigation icons] [Help] [Close]

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] [Help] [Close]

Type:
Internet connection

Route through controller:
Yes

GNSS Contact:
CRTN

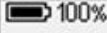
Prompt for GNSS contact:
☐

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. RV. 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: **?**

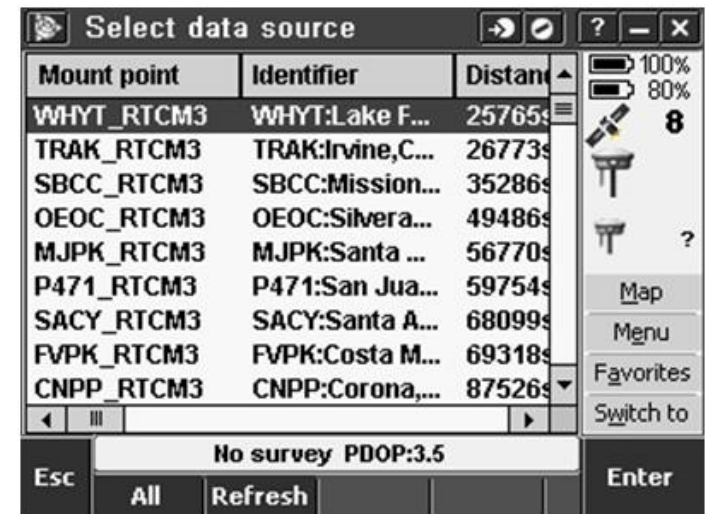
Description: **?**

Operator: **?**

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

Esc Accept

TSC2 Access WiFi



Samples / Questions

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

