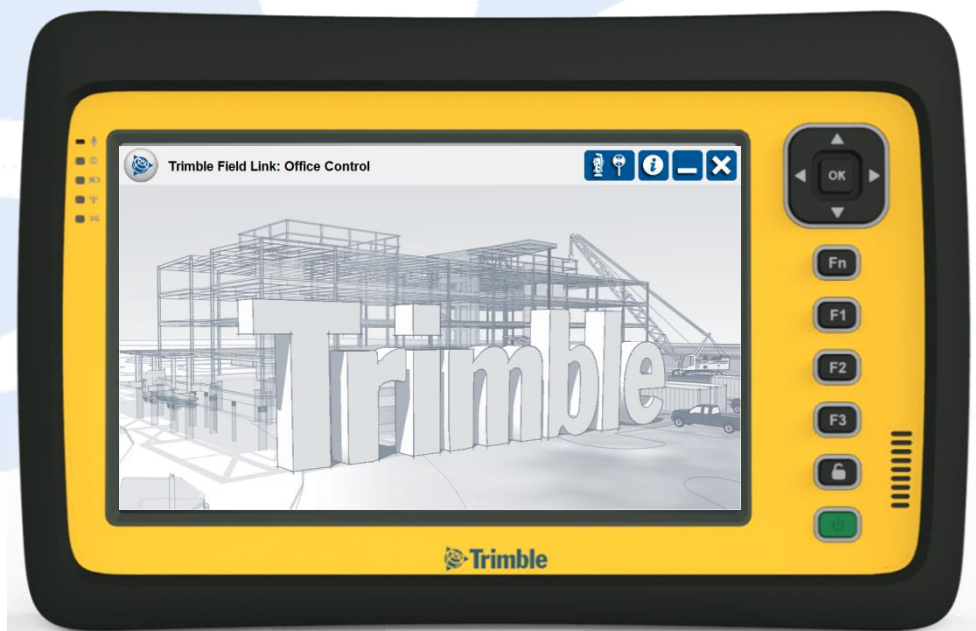


TRAINING MANUAL

Trimble® Field Link Tablet®



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Release Notice

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Monday, August 18, 2014. IW

Legend

The following symbols are used in this training.



Important

Indicates an important concept, step, or caution.



Tip

A shortcut or time-saving tip.



Note

Additional information or situation users may encounter.

Table of Contents

Legend	0
1. Trimble Tablet Overview	4
Training Objectives	4
1.1 Front Features, Buttons and Indicators	4
1.2 Back Features, Buttons and Indicators	5
1.3 Bottom Ports and Plugs.....	6
1.4 Specifications	6
1.5 Capacitive Touch Screen Controls.....	7
1.6 Building Construction Installation Manager (BCIM)	7
1.7 File and Folder Transfer	8
1.8 Accessories	9
1.9 Additional Uses	9
Summary	10
Review Questions	10
2. Trimble Field Link Home Screen	12
Training Objectives	12
2.1 Trimble Field Link Button	12
2.2 Instrument Connection and Settings.....	13
2.2.1 Connection.....	13
2.2.2 Level & Temp	15
2.2.3 Target	16
2.2.4 Reference Elevation.....	19
2.2.5 Measure.....	20
2.2.6 Calibration	23
2.3 Information button	23
2.4 Minimize, Home and Close buttons	24
2.5 Project Name.....	24
Summary	24
Review Questions	25
3. Settings menu	27
Training Objectives	27
3.1 Units & Format	27
3.2 Setup & Lay Out	28
3.3 Contact.....	29
Summary	30
Review Questions	30
4. Jobs menu	32
Training Objectives	32
4.1 Manage.....	32
4.2 Import Model.....	33

4.3 Import Points	35
4.4 Export Model	36
4.5 Export Points	38
4.6 Export Measurements	38
Summary	39
Review Questions	39
5. Create Data menu.....	41
Training Objectives	41
5.1 Create From Model	41
5.2 Offset Points - Multiple.....	45
5.3 Offset Points - Single	46
5.4 Point Manager	47
5.5 Layer Manager.....	50
5.6 Surface Manager (Optional Module).....	52
Summary	55
Review Questions	55
6. Lay Out Menu	57
Training Objectives	57
6.1 Set Up Instrument - Anywhere	57
6.2 Set Up Instrument – Known Location.....	61
6.3 Lay Out Points	62
6.4 Trimble Vision (RTS 773 and 873)	67
6.5 Lay Out Linework	68
6.6 Lay Out Surface (Optional Module)	71
Choose Point to Layout on Low Contour.....	73
Choose Point to Layout on High Contour.....	74
Summary	74
Review Questions	74
7. Collect Data menu	77
Training Objectives	77
7.1 Set Up Instrument – No Data	77
7.2 Collect Points.....	78
7.3 Collect Linework.....	80
7.4 Collect Surface (Optional Module)	81
7.4 Collect Floor Plan	84
Summary	85
Review Questions	86
8. Model Viewer menu	88
Training Objectives	88
8.1 Model Viewer.....	88
Summary	89
Review Questions	90

9. Tools Menu 91
Training Objectives 91
9.1 Compute Distance 91
9.2 Compute Angle 92
9.3 Compute Area & Volume 93
9.4 Unit Conversion - Length 94
9.5 Unit Conversion - Area 95
9.6 Unit Conversion - Volume 96
Summary 96
Review Questions 96

10. Reports menu 98
Training Objectives 98
10.1 Daily Layout Summary 98
10.2 Layout Deviations 99
10.3 Field Report 100
10.4 Surface Report (Optional Module) 101
Summary 103
Review Questions 103

1. Trimble Tablet Overview

Training Objectives

Upon completion of the Trimble Tablet Overview, you will be able to:

- ✓ Understand the various **Features, Buttons, Indicators** and **Specifications** of the Trimble Field Link Tablet.
- ✓ Use the **Capacitive Touch** functions to operate the Tablet.
- ✓ Install **Building Construction Installation Manager (BCIM)** from the Trimble website to manage the installation of **Trimble Field Link for Structures**, software updates, firmware and other Trimble software.
- ✓ Transfer files to and from the Trimble Field Link.
- ✓ Know some of the common accessories and additional uses for the **Trimble Field Link Tablet**.

1.1 Front Features, Buttons and Indicators



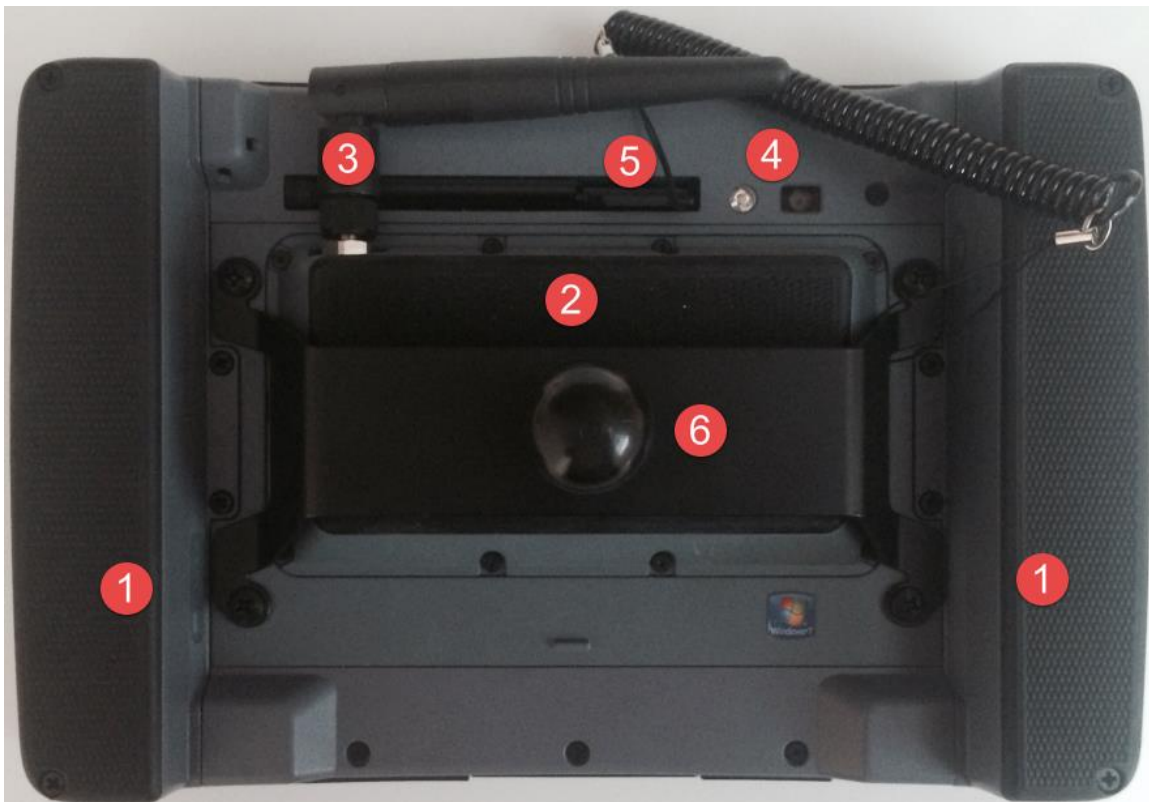
1. Green Power button.
2. 7" sunlight readable, capacitive touch display with Gorilla Glass (With Suggested Screen Protector).
3. LED Indicators- Microphone, On/Off, Charging Status, WIFI Connection.
4. 4-way direction control and OK (Enter) button.
5. Function buttons. The F1 button can also be used to access the Help menu within many programs.
 - a. Press Fn button once, then press:

1. Arrow buttons up/down or left/right to increase or decrease the screen back light.
2. F1 = Virtual Keyboard.
3. F2 = Internet Explorer
4. F3 = Switch Between Automatic or Manual screen back light.
- b. Press Fn button twice, then press:
 1. Arrow buttons up/down or left/right to increase or decrease the volume settings.
 2. F1 = Turn WIFI Off/On.
 3. F2 = Turn Blue Tooth Off/On
 4. F3 = Turn 3G Wireless Off/On.
- c. Press Fn button three times, then press:
 1. Arrow buttons up/down or left/right to move the cursor
 2. F1 = Turn On the Tablet camera
 3. F2 = Turn On the Trimble GPS Information
 4. F3 = Open
6. Lock (Ctrl-Alt-Delete) button
7. Speaker

**Tip**

Use the Windows Mobility Center under All Programs/Accessories, to access the Fn functions above including screen back lighting, volume, battery settings, WIFI Off/On, and display options.

1.2 Back Features, Buttons and Indicators



1. Extended batteries with power indicators

- a. Press the button on the inside face of each battery to show the individual battery level with 1 – 4 green LED lights.
 - b. If additional batteries for the Tablet are purchased, you can use the screw mounts to swap batteries one at a time while still in operation.
2. Integrated 2.4 GHz radio for Trimble Robotic Total Station connection.
 3. Replaceable antennae for the 2.4 GHz radio.
 4. Camera with flash.
 5. Stylus holder and cord.
 6. Range pole bracket and mount.

1.3 Bottom Ports and Plugs



1. HDMI connection for a projector, TV, or additional monitor.
2. Headphone/microphone or external speaker jack.
3. USB ports for data transfer, external mouse, keyboard or monitor.
4. Charger port.
5. Range pole bracket and mount.







1.4 Specifications

Operating System	Windows 7 Professional (32-bit)
Processor	Dual Core 1.6 GHz Intel Atom N2600 Cedar Trail Processor
RAM	4 GB
Storage	128 GB Solid State Drive
Display	Enhanced sunlight readability, Gorilla Glass, capacitive touch screen
Wireless	Bluetooth, Wi-Fi Alliance certified 802.11 b/g/n
Connectivity	3.5mm headphone/microphone jack, (2) USB hosts, HDMI, docking station, GPS antenna, power
Camera	Autofocus 5 MP camera with flash (photo & video)
Location	2-4m GPS/WAAS/SBAS, accelerometer, electronic compass

Battery	10 hours
Environmental	IP65, Mil Std 106G

1.5 Capacitive Touch Screen Controls

Once the Trimble Tablet has been turned on, the touch screen can be operated with your fingers or a stylus. Stylus operation will not allow for two finger operation unless the **Single Touch Control** function box is checked under the **Settings, Setup & Lay Out** menu within **Trimble Field Link for Structures**.

Zoom Extents		Double Tap	Use in TFL Model View Screens to Zoom Entire Project
Zoom		Pinch	Pinch In to Zoom Out Pinch Out to Zoom In
Pan		Drag (2 Fingers)	Use in TLF Model View to Move Across the Project
Orbit		Drag (1 Finger)	Use to Rotate Around Project in Any Direction
Rotate		Pivot (2 Fingers)	Use to Turn Project in Any Direction
Select or Right Click		Hold Down	Use to Select Items in TFL or as Right Mouse Click in Tablet Functions

1.6 Building Construction Installation Manager (BCIM)

Building Construction Installation Manager allows the user to install and/or update Trimble Field Link for Structures and other software for your tablet.

1. If BCIM is not installed on your Trimble Field Link Tablet, make sure you are connected to WIFI and go to **www.trimble.com/BCIM**.
2. Press "**Download BCIM**" and follow the instructions on the web page.
3. IF **BCIM** is already installed, press the **Windows** icon in lower left corner.
4. Press **All Programs** and scroll up to the top of the alphabetical list.
5. Press **Building Construction Installation Manager**.
6. Press **Yes** to allow BCIM to make changes to the hard drive.

Once Building Construction Installation Manager loads with the latest information available for versions and updates, the **Select Version** button will be available.

There will also be additional check boxes with descriptions of software available for download. BCIM will automatically default to the latest version of Trimble Field Link for Structures.

1. Press the **Select Version** button to load previous versions of Trimble Field Link, or check to make sure the latest update has been selected.
2. Check the first box to install Latest Version of **Trimble Field Link for Structures**
3. Check the box to install **Trimble Field Link Job File Converter**. This program will convert .cnx files to .tfl files.
4. Check the boxes next to the **CAD and BIM** to install **Tekla BIMSight**, **SketchUp Pro** or **SketchUp Make** software on the Tablet.
5. Check the boxes next to **Additional Applications** to install the latest versions of firmware for the Robotic Total Stations (RTS).
6. Install optional modules such as **Surfaces** or Floor Plan
7. Press the **Release Notes** button to review updates before installation.
8. Press the **Register** button and fill out the information page to sign up for notification of updates.
9. Press the **Install** button and follow all prompts.

Important



If you **Register** your product in BCIM and are under a current warranty or maintenance agreement, you will get automatic notifications of Trimble Field Link software updates.

Tip



Make sure to set your Windows updates settings for manual installation. Automatic installation may cause long periods of time where you cannot demonstrate or use the Trimble Tablet.

1.7 File and Folder Transfer

This section will cover the Trimble Field Link folder locations and structure for job management. We will also cover the many ways to get files to and from the Trimble Field Link Tablet.

1. Press the **Windows Explorer** button to access the computer drives and folders.
2. Under the Libraries folder, press the **Documents** tab.
3. Press the **Trimble Field Link** folder.
4. Within the **Trimble Field Link** folder, the **Jobs** folder will be automatically created. This will be the location to store job files or create new job folders to help separate projects. Trimble Field Link will automatically create **Exports**, **Images**, and **Reports** folders when you create one of these items within the Trimble Field Link for Structures software.
5. To create a shortcut on the desktop, press once and highlight the **Trimble Field Link** folder, hold down on the folder or right click using a mouse to bring up the menu of folder options, then press the **Send to** and press **Desktop (create shortcut)**.

6. To transfer files, the Trimble Field Link Tablet has many options including USB memory sticks, Bluetooth connection to another computer, or utilize the WIFI connection for emails, FTP type transfer sites, or synchronized folders such as Trimble Connected Community. To copy a file or folder, press once and highlight the file or folder, hold down on the file or folder (or right click using a mouse) to bring up the menu of folder options, then press **Copy**.
7. Navigate to the desired location and hold down or right click using a mouse in the white space to bring up the menu of folder options, then press **Paste**.
8. The file or folder should appear in the new location.

**Tip**

Establish a mobile WIFI connection using your Hot Spot from your mobile device. The mobile WIFI connection will allow you to send or receive information remotely in the field such as updated models, drawings, point files, reports, or as-built information through email or synchronized cloud based storage systems.

1.8 Accessories

The Trimble Tablet is a fully functional Windows 7 computer with specialized housing for field layout applications. The tablet can be utilized with a mouse, external monitor, or other accessories which will enhance the use of your Trimble Field Link Tablet either in the field or in the office. Below are a few of the common accessories available through your authorized Trimble distributor.

1. **Docking Station** which allows charging of two additional batteries simultaneously while charging the tablet itself. The **Docking Station** also has 3 USB ports for keyboard, mouse and monitor, 1 Ethernet port for wired networking, and an audio jack for headphones/microphones or speakers.



2. **Carrying Case** including a neck and/or shoulder strap (See image above).
3. **Extra Batteries** for continuous layout past the typical 10 hour fully charged batteries on the Tablet. Batteries can be changed out one at a time while the Tablet is still in operation
4. **Screen Protectors** to help keep job site debris and conditions from scratching the capacitive touch display.

1.9 Additional Uses

1. Programs such as Adobe, Bluebeam or **Vico Document Controller** can be used to view, markup and take measurements from PDF documents or plans.

2. Use **Trimble Connected Community (TCC)** at www.myconnectedsite.com for project data storage and the TCC Explorer to automatically synchronize specific project folders to your tablet automatically with WIFI connection or overnight at the office.
3. **SketchUp** is a 3D modeling program for everyone. You can quickly draw line work, model difficult 3D shapes, export or import 3D model files, along with many other applications. Visit www.SketchUp.com for more information.
4. Download **Tekla BIMSight** at www.TeklaBIMSight.com for model coordination, conflict detection, make notes or even add documents or images to the as-built model.

Summary

After review of this Trimble Tablet Overview, you should now understand how to:

- ✓ Access the various **Features, Buttons, Indicators** and know the **Specifications** of the Trimble Field Link Tablet.
- ✓ Use the **Capacitive Touch** functions to operate the Tablet.
- ✓ Install **Building Construction Installation Manager (BCIM)** from the Trimble website to manage the installation of **Trimble Field Link for Structures**, software updates, firmware and other Trimble software.
- ✓ Transfer files to and from the Trimble Field Link.
- ✓ Utilize some of the common accessories and additional uses for the **Trimble Field Link Tablet**.

Review Questions

1. Pressing the Function Fn button once, twice or three times along with the F1, F2 or F3 button will allow modification of which of the following functions?
 - a. Turn WIFI Off or On
 - b. Increase or decrease the screen back light.
 - c. Increase or decrease the volume settings.
 - d. All of the above.
2. Which of the following accessories can be plugged into the USB or HDMI ports on the bottom of the Trimble Tablet or Docking Station?
 - a. External Mouse.
 - b. External Keyboard.
 - c. Additional Monitor.
 - d. All of the above.
3. The Trimble Tablet is a fully functional Windows 7 computer with 128 GB memory and 10 hours of battery life.
 - a. True
 - b. False
4. All but which one of the following methods can be used to transfer files and folders to or from the Trimble Tablet.?

- a. USB memory stick.
 - b. Crystal Ball Reports.
 - c. WIFI Connection to Email, FTP Sites or Cloud Based Storage Systems.
 - d. Bluetooth Connection.
5. BCIM (Building Construction Installation Manger) should be utilized to access the latest version of which items?
- a. Latest or previous versions of Trimble Field Link for Structures.
 - b. Latest firmware for RTS (Robotic Total Stations).
 - c. Other Trimble software such as SketchUp or Tekla BIMSight.
 - d. Trimble Field Link Job File Converter
 - e. All of the Above

2. Trimble Field Link Home Screen



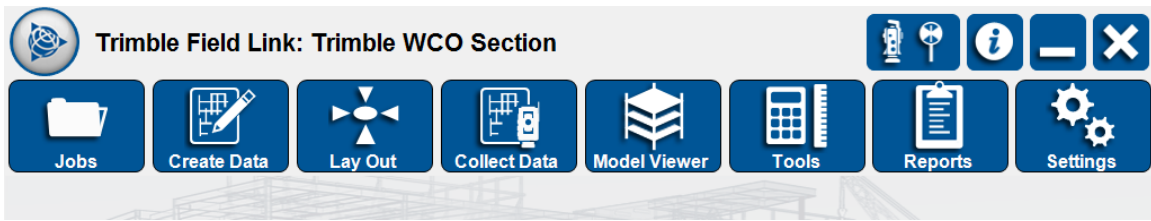
Training Objectives

Upon completion of this **Home Screen** module, you will be able to:

- ✓ Utilize the **Home** button to Navigate within Trimble Field Link for Structures.
- ✓ Open the **Instrument Connection and Settings** menu and perform the various functions within this menu.
- ✓ Connect to the instrument and see the RTS battery, level and service status.
- ✓ Select different prisms and operating modes.
- ✓ Aim, move and search for prisms with the RTS.
- ✓ Make reference elevation shots.
- ✓ Take quick reference measurements from the instrument.
- ✓ Calibrate the instrument in the field for axis and tracking corrections.
- ✓ Find the Serial Number and Version of Trimble Field Link for Structures installed on the tablet using the **Information** button.

2.1 Trimble Field Link Button

Pressing the Home button in the upper left corner of the Home Screen will show or hide all of the various main menu buttons. The Home button is the main navigation method within Trimble Field Link for Structures and can be pressed while operating the various menus to select a different operation.



1. The **Trimble Field Link for Structures** icon should be placed on the desktop of your tablet once installed from BCIM. Press this icon to open **Trimble Field Link for Structures**.
2. If the icon is not on the desktop, press the **Windows** button in the lower left corner of the screen and then select **All Programs**.
3. Scroll down to the **Trimble Field Link for Structures** folder, open the folder, then press **Trimble Field Link for Structures**. (You may want to hold down or right click on the TFL for Structures, press Send To, then Desktop (create shortcut)).
4. The **Trimble Field Link for Structures** home screen will open.
5. Press the **Trimble Field Link** button on the upper left of the screen to open



the menus.

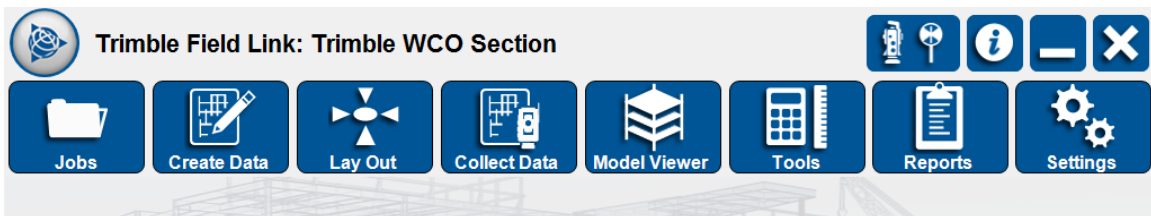
6. Press the **Trimble Field Link** button again to close all of the menus. You can press the Trimble Field Link button at any time to access all of the menus.
7. Once you open a menu, the **Close** button in the upper right will turn into a



Home button.

2.2 Instrument Connection and Settings

Setting up the instrument is the first operation to perform when placing the instrument in the field to start the lay out or data collection process. An instrument setup must be performed in order to layout or collect data. Before proceeding to instrument setup, users have to select the instrument icon in the top right corner. You can open the instrument control panel at any time while TFL is open.



2.2.1 Connection

1. Press the **Instrument** button in the upper right of the screen. The red X over the Instrument button indicates no instrument is connected.
2. Once the instrument window opens, press the **Connection** tab on the upper left of the Instrument menu.

3. Select your model under the drop down arrow under **Model Type**. Current Robotic Total Station models included on the standard installation are the RTS 555, 633, 655, 773, 873, SPS 610, 700, and 710.
4. Next select the connection type under **Mode**. The standard selection mode for a Robotic Total Station is **Radio**. Other connection modes include WLAN and Cable depending on the type of Total Station.
5. Under **Mode Settings**, you can select up to 30 different **Channels** and 255 **Network ID's**. Make sure to match the *Channel* and *Network ID* setting on the RTS display, which will show up after the RTS has been turned on.
6. Once the **Model, Mode, Channel** and **Network** match the settings on your RTS, press the **Connect** button at the bottom of the screen.

Note

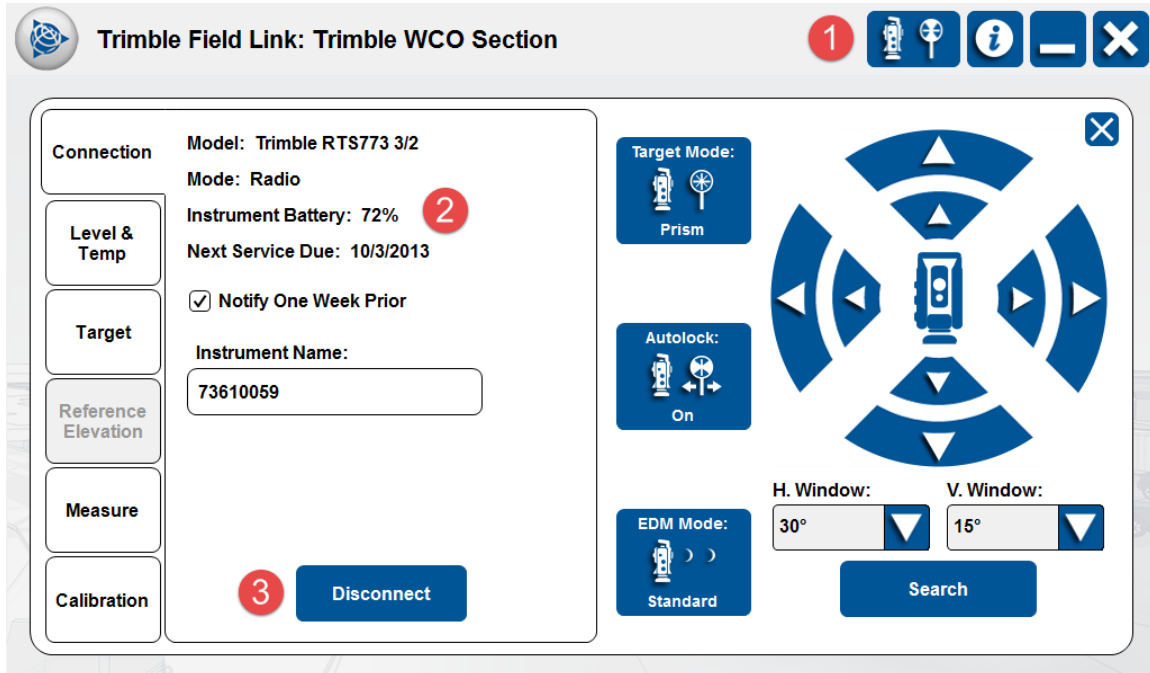


Additional Trimble Total Stations can be controlled utilizing the Trimble Field Link for Structures software. Please contact your Trimble Authorized Distributor to possibly add codes for additional Trimble Robotic Total Stations if you do not have one of the instruments listed above.

Once the connection has been established the view under the connection window will change. the connection type and instrument information including battery status, service information and instrument name. You can rename the instrument under **Instrument Name**.

1. After connection to the instrument has been established, the red X over the instrument button will change to an instrument and prism icon. This prism icon will appear to rotate until it locks onto a prism or will show a laser beam if using the DR Mode (See Section 2.2.3).
2. The Connection window will show the Model, Mode and Instrument Battery status as well as the Next Service Due date.

- Once completed with the layout or collection process, press the **Disconnect** button before turning off the RTS. Pressing the **Disconnect** button will help ensure a proper shut down and later reconnection.



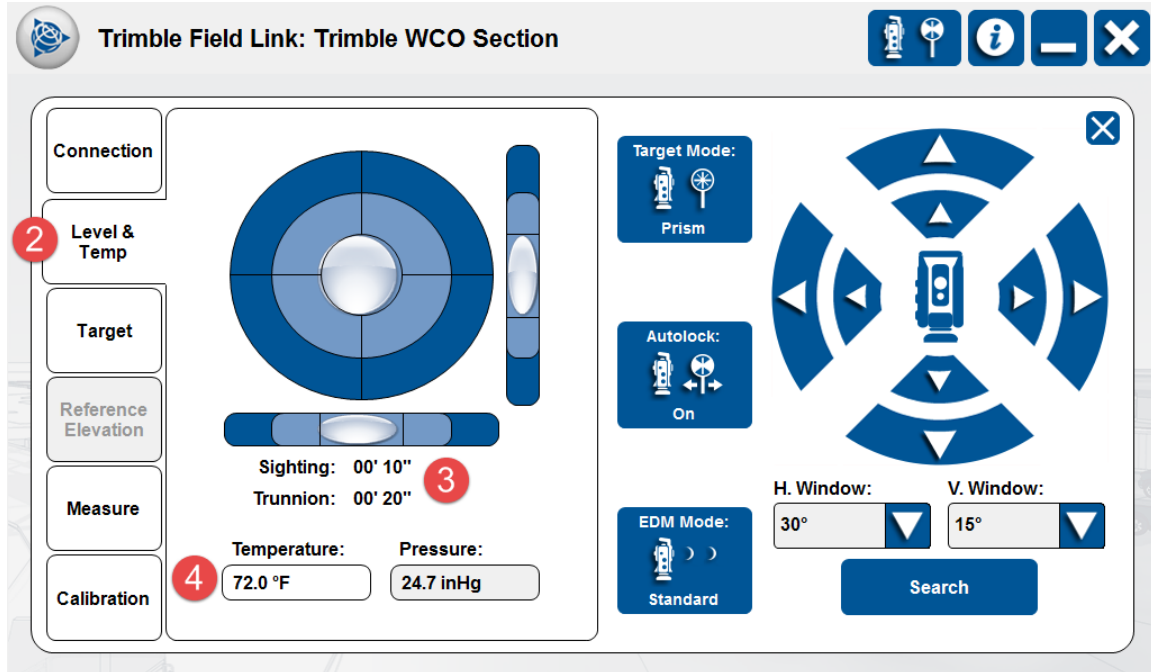
2.2.2 Level & Temp

In the Level & Temp tab, users can view the level bubble showing the instrument level condition and set the temperature information. The temperature is editable field and it is left for users to provide rough temperature information which will help the instrument adjust for the atmospheric influenced (e.g. refraction) errors. Trimble RTS instruments have an internal barometric sensor built in which provides an automatic estimate for atmospheric pressure.

- After actual connection with the RTS is made, the screen will automatically open the **Level & Temp** tab.
- If the instrument control panel is not open, press the **Instrument** button, then press the **Level & Temp** tab.
- Adjust the TriBrach to get the RTS as close as possible to 00.00 degrees for both the Sighting and Trunnion axis. The Trimble RTS will compensate for out of level measurements up to 6 minutes but it is best practice to be as close to perfectly level as possible before shooting control.
- Next enter the approximate **Temperature**. The **Pressure** reading will automatically adjust once the temperature has been input.

Important

For best results on measurement accuracy, the user should enter temperatures within ± 2.5 degrees Celsius (± 5 degrees Fahrenheit) and adjust the temperature during the day to reflect actual conditions to reduce measurement errors. There will also be significant variations from ambient temperatures given by weather information on areas such as hot asphalt surfaces versus shaded interior areas.

**2.2.3 Target**

If the Prism mode is chosen, the correct prism model needs to be selected under the Target tab. There is a variety of available prisms in the database or users can choose a custom prism and then specify the prism constant (e.g. -17.5 mm, -30 mm, -10 mm). Rod Height can be defined in this window and is used to transfer the measurement at the center of the prism to the point location at the bottom of the rod.

Important

Rod height measurements should be taken from the tip of the rod to the center of the prism on a flat surface without angling the tape measure around the rod to get the most accurate height measurement.

1. Press the **Instrument** menu.
2. Press the **Target** Tab.
3. Select the type of prism you will be utilizing by pressing the blue drop down arrow below **Target Type**. An image will display with each prism selection.
4. Enter the vertical measurement from the center of the prism to the bottom of the layout rod tip as accurately as possible under the **Rod Height** entry area. If utilizing **DR Mode**, a **Rod Height** of 0.00 should be entered.

5. If the MT1000 prism is selected, select the **Mode** by using the blue drop down arrow to select either **Active** or **Passive**. **Active** Mode will look for a prism ID whereas **Passive** Mode will only look for a reflective prism.
6. If **Active** Mode has been selected for the MT1000, turn on an ID number on the active prism (the LED lights will light when the MT1000 is turned on), then use the blue drop down arrow to select the matching ID under **RMT ID**.
7. Utilize the instrument control arrows at the right to move the RTS in the direction of the prism. The four interior arrows will move the RTS in fine mode while the four outside arrows will move the RTS in fast mode.

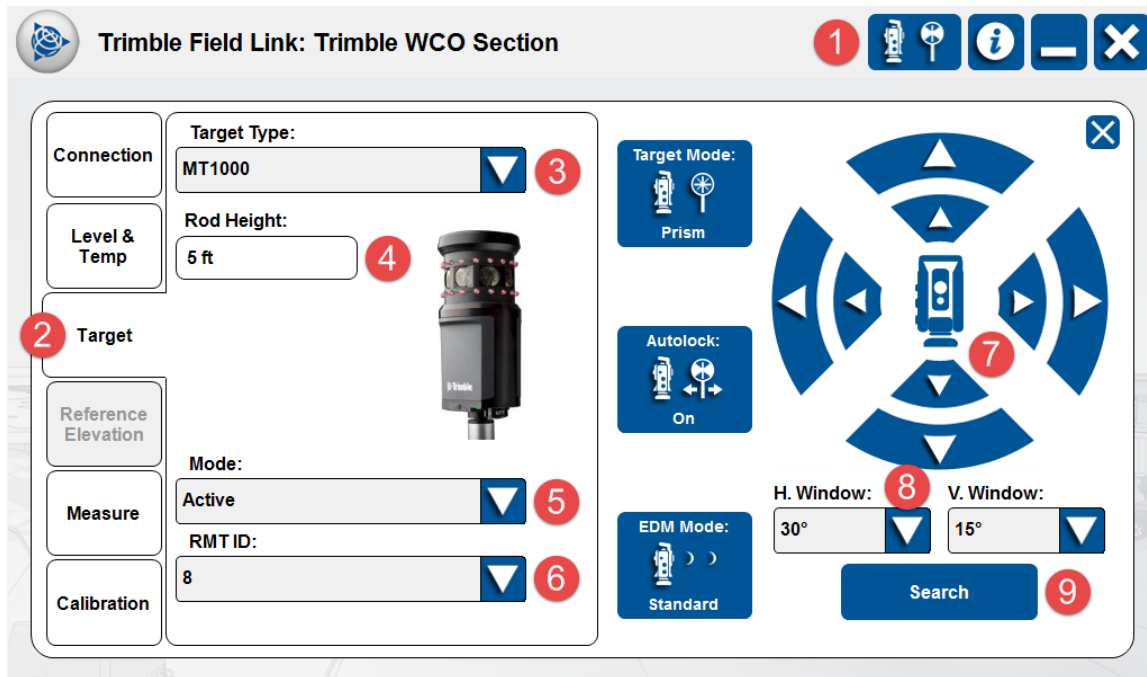
**Tip**

With the Instrument Control Panel open, you can also use the four-way direction controls on the far upper right of the Tablet to control the RTS.

8. To ensure proper set up of the target information or if your RTS unlocks from the prism, you can utilize the **Search** function. The user can set the search window to look for the prism in 15, 30 or 60 degree windows both vertically and/or horizontally by pressing the blue drop down arrow under **H. Window** and **V. Window**.
9. Press the **Search** button.
10. Once the RTS has locked onto the target, the Tablet will verbally announce "Target Locked", show the prism icon in the upper right hand instrument control button as solid, and will end the search. The Tablet will give an error message if no target can be found or announce "No Target" if visual contact is lost and the prism icon will be rotating.

**Tip**

The user may also utilize **Trimble Vision** to lock onto the prism or DR target. See Section 6.3 for information on **Trimble Vision** and **Dynamic Joystick**. If the instrument is not equipped with Trimble Vision, using the Track Light as noted below will help with the search function.



2.2.3.1 Target Mode



The Target Mode can be toggled between Prism and DR by pressing the Target Mode button. DR stands for Direct Reflex, which utilizes a visible laser beam to measure directly to many surfaces without utilizing a reflective target.

Important



DR (Direct Reflex) Mode can only be utilized on surfaces which will reflect the laser back to the RTS head unit. Shiny surfaces such as highly polished concrete or stainless steel may bounce the laser away from the RTS and not allow a measurement. Dark or very rough surfaces such as asphalt, black paint, or carpet may absorb the laser light and also not allow a measurement.

2.2.3.2 Autolock



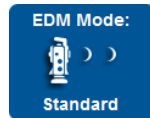
When the Prism mode is used, the **Autolock** function should be on. This will enable automatic prism tracking across the project site. Pressing the **Autolock** button will toggle between **On** and **Off**.

2.2.3.3 Track Light

The RTS 773 and 873 are equipped with Trimble Vision allowing the user to view through the instrument to help align with the prisms. The RTS 555, 633, 655 do not have Trimble Vision and are therefore equipped with a **Track Light** to help with alignment. The **Track Light** button will toggle between **On** and **Off** to operate red

and/or green LED lights on the instrument indicating the direction of the scope. As the user is facing the instrument behind the prism, they will see quickly flashing green LED lights if the instrument is locked onto the prism. The lights will flash slowly green if the instrument is to the left or NOT locked onto the prism. The user will see red flashing LED lights if the instrument is pointed to the right of the prism.

2.2.3.4 EDM Mode

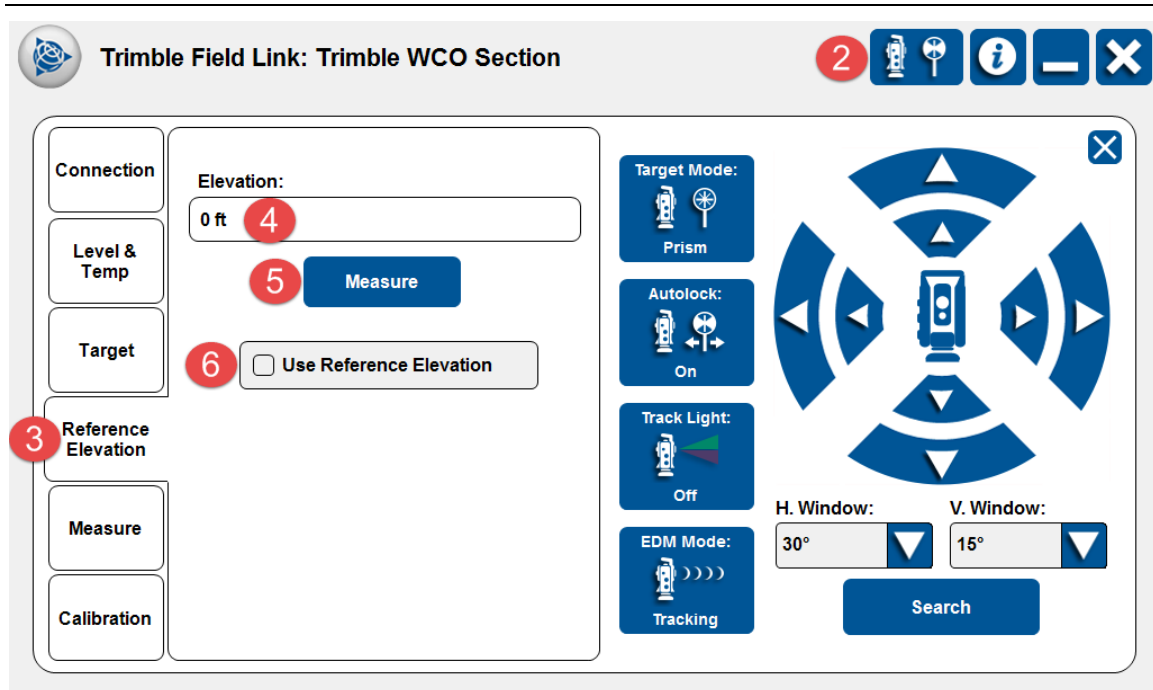


EDM Mode allows users to toggle between **Tracking** (single measurement) and **Standard** (average of multiple measurements). If Standard mode is selected, the RTS will continue in **Tracking** mode until a point is shot, at which time it will revert to the **Standard** mode and take an average of multiple shots.

2.2.4 Reference Elevation

When laying out points in a construction environment, a reference elevation can be applied for every instrument setup (See **Settings Menu – Setup and Lay Out** to turn this selection off or on). In scenarios where the user is only concerned with the horizontal axes, reference elevations may appear to be a trivial process; however it is still recommended to ensure correct instrument vertical orientation and maintain a consistent workflow from setup to setup. You can also shoot a reference elevation or benchmark at any time after the Instrument Set Up has been performed.

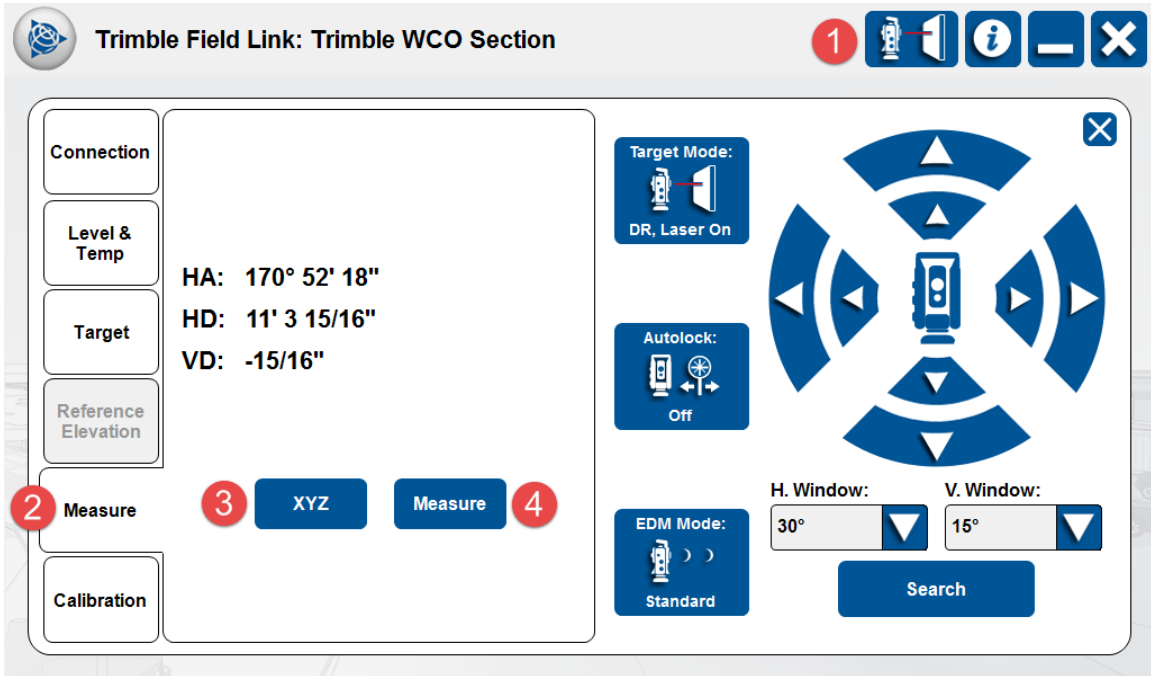
1. The instrument set up within a job must be complete before the **Reference Elevation** tab can be utilized. Once you have shot your control points and the instrument has calculated its position on the project, you can utilize the **Reference Elevation** function. See Section 3.2 Settings, Setup & Lay Out to automatically open the Reference Elevation After Instrument Set Up.
2. Press the **Instrument** menu.
3. Press the **Reference Elevation** Tab.
4. Under **Elevation**, enter the height of the reference elevation.
5. Place the prism and rod at the reference elevation making sure the rod is directly plumb and vertical or position the DR laser light on your elevation, then press the **Measure** button.
6. The **Use Reference Elevation** box will automatically be checked upon measurement. Uncheck this box if you do not want to use the elevation for future lay out or collection of data.



2.2.5 Measure

Measure tab will display the measurements in reference to the instrument location in either **Prism** or **DR** mode. The XYZ option will only be enabled after the **Instrument Set Up** has been completed under the **Layout** or **Collect Data Menus**.

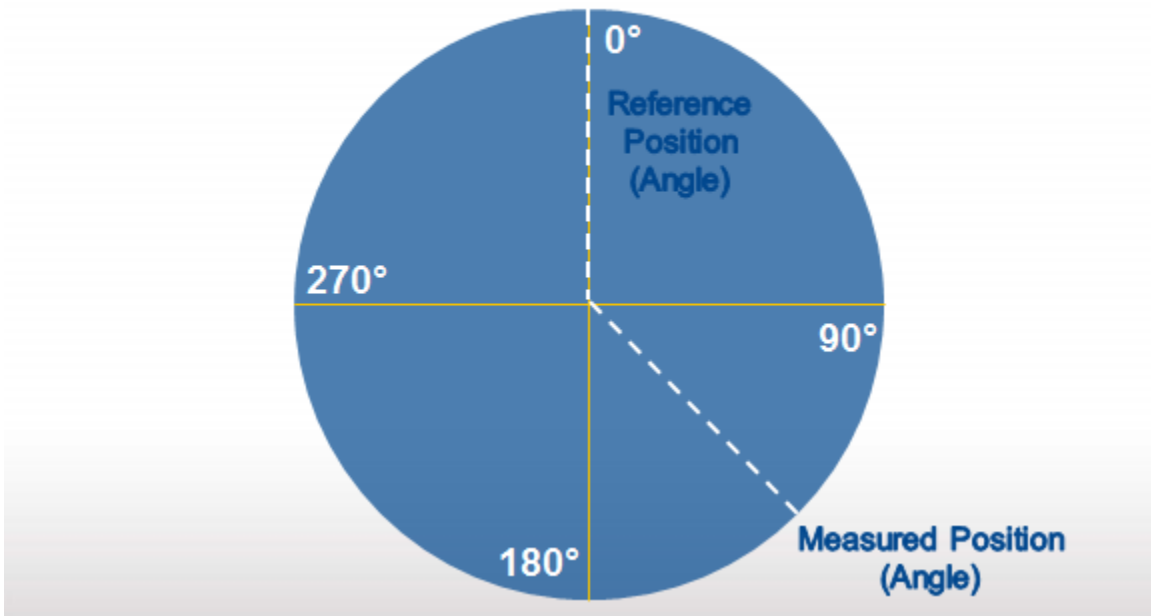
1. Press the **Instrument** menu.
2. Press the **Measure** tab.
3. Users have the ability to toggle the display from **HD/VD**, **XYZ** and **VA/SD** mode by pressing the blue **HD/VD**, **XYZ** or **VA/SD** button. Press the blue button for the desired measurement.
4. Press the **Measure** button to take an average of several shots if in the **Standard EDM Mode**.



HD = Horizontal Distance, VD = Vertical Distance, SD = Slope Distance, HA = Horizontal Angle from 0 - 360* around the instrument.

VA = Vertical Angle based upon 90* = True Horizontal from the RTS, 0* = Straight Down, 180* = Straight Up

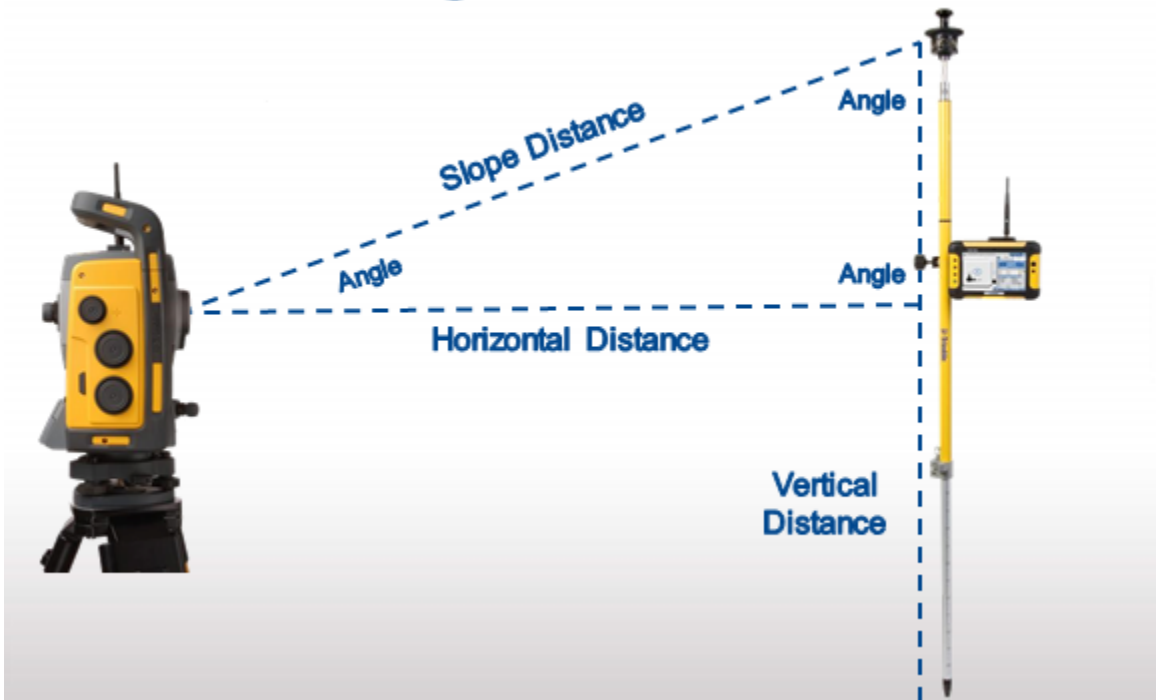
Horizontal Angle Measurement



Vertical Angle Measurement



Distance/Angle Measurement

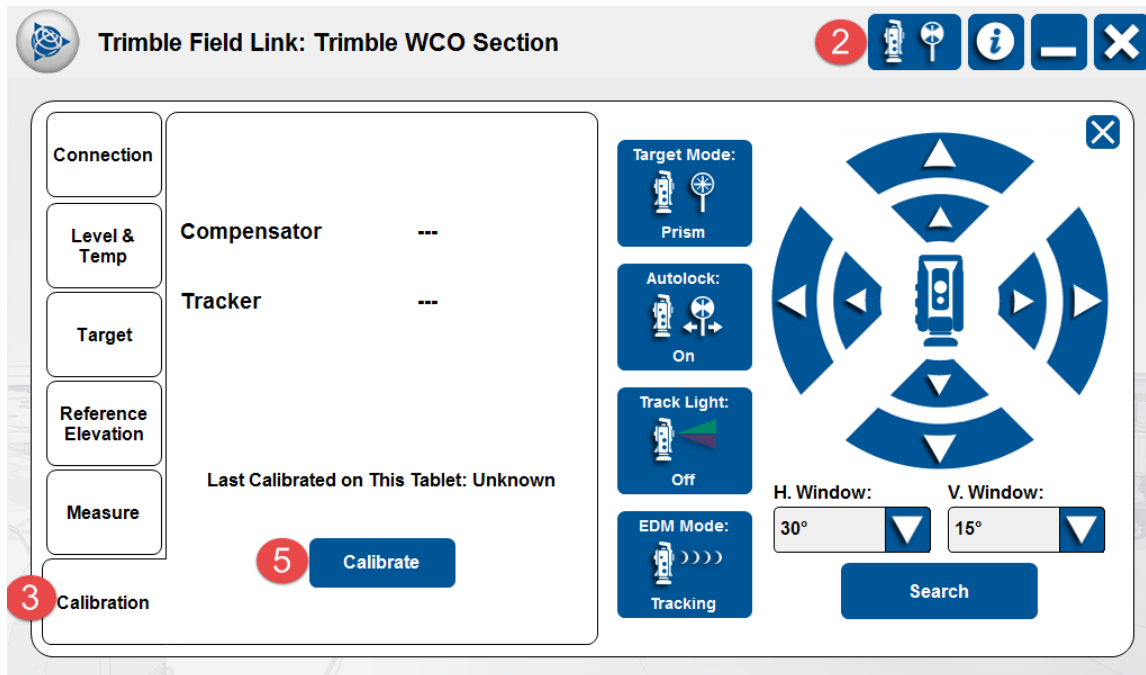


2.2.6 Calibration

Calibration is performed while connected to the instrument by defining a measurement target (target prism) approximately 100m from the instrument location and should be performed periodically to ensure the instrument is properly calibrated.

When user attempts to perform the instrument compensator and tracker calibrations on an instrument that is currently set to Direct Reflex (DR) mode, the software now changes the instrument to Prism mode and turns on Autolock® technology.

1. Place a prism at approximately 100m (328') away from the RTS.
2. Press the **Instrument** menu.
3. Press the **Calibrate** tab.
4. Aim the RTS directly at the center of the prism using the scope and cross hairs.
5. Press the **Calibrate** button. The RTS will run through a series of shots and rotations to find any errors or discrepancies between faces and shots. The RTS then stores and compensates for any of these discrepancies for all future single face shots.



Important

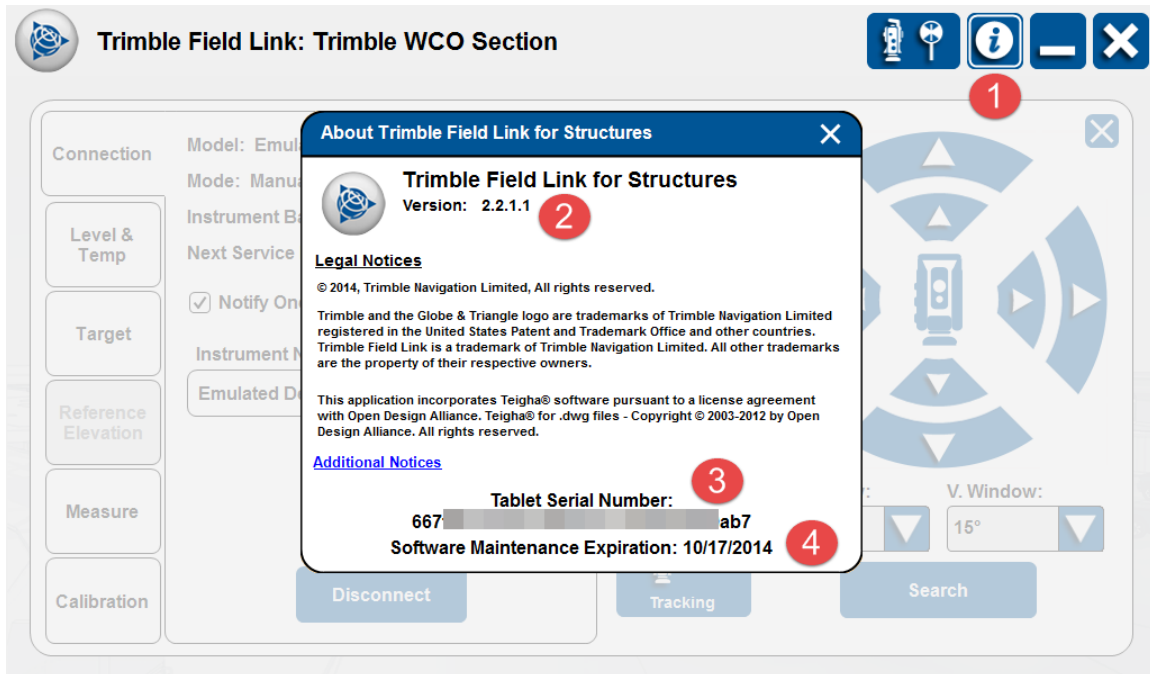


To ensure proper performance, have your authorized Trimble distributor service and calibrate your RTS on an annual basis at minimum. Service may be required more often depending on job conditions, maintenance and care taken with the Robotic Total Stations (RTS). Instrument drops, blows, or falls should be followed by a service and calibration.

2.3 Information button

Press the Information button to find the current version of Trimble Field Link for Structures the tablet is operating, the Tablet Serial Number, and also the Software Maintenance Expiration date. Once opened, the Information screen will also show are the legal notices and a link to additional notices.

1. Press the **Information** button in the upper right corner of the screen.
2. The Version will be visible towards the top of the screen.
3. The Tablet Serial Number will be towards the bottom of the screen, just above the Software Maintenance Expiration date.
4. The Software Maintenance Expiration date will be at the bottom of the screen.



Important



The version, serial number and maintenance expiration are important information to have available when calling for support. Keep your software maintenance up to date through your local Trimble distributor.

2.4 Minimize, Home and Close buttons

Use the X button to close Trimble Field Link for Structures. This button will also appear as a Home button to close out any various menus you are operating and return to the Home screen. Make sure to disconnect from your instrument before closing Trimble Field Link for Structures. Use the minimize button in the upper right corner to access Windows 7 functions without shutting down Trimble Field Link for Structures.

2.5 Project Name

The currently open project name will appear between the Home and Instrument Connection buttons next to Trimble Field Link: *New Job*. Trimble Field Link will automatically open the last used job on start up.

Summary

After review of this **Home Screen** module, you should now understand how to:

- ✓ Utilize the **Home** button to Navigate within Trimble Field Link for Structures.

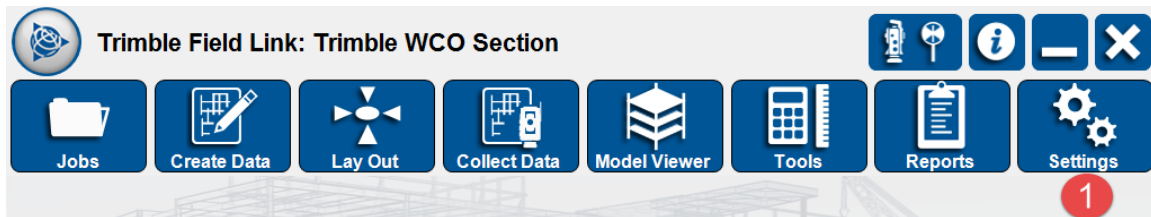
-
- ✓ Open the **Instrument Connection and Settings** menu and perform the various functions within this menu.
 - ✓ Quickly know if the instrument is connected to the Tablet and/or if the RTS is locked onto the prism or in DR Mode.
 - ✓ Connect to the instrument and see the RTS battery, level and service status.
 - ✓ Select different prisms and operating modes.
 - ✓ Aim, move and search for prisms with the RTS.
 - ✓ Make reference elevation shots.
 - ✓ Take quick reference measurements from the instrument.
 - ✓ Calibrate the instrument in the field for axis and tracking corrections.
 - ✓ Find the Serial Number and Version of Trimble Field Link for Structures installed on the tablet using the **Information** button.

Review Questions

1. The Trimble Field Link button can be pressed at any time to access various menus and functions.
 - a. True.
 - b. False.
2. You can press the Instrument and Connections button at any time to access which of the following?
 - a. Instrument Battery Status.
 - b. Level of the Instrument and Temperature Setting.
 - c. Set the Prism type, Rod Height or Instrument Modes.
 - d. Make Reference Elevation shots or quick measurements.
 - e. All of the above.
3. The ambient temperature needs to be input by the user +/- 5 degrees and adjusted during the day as temperatures fluctuate.
 - a. True
 - b. False
4. Calibration should be performed:
 - a. On an annual basis by an authorized Trimble distributor.
 - b. After drops, blows or falls by an authorized Trimble distributor.
 - c. Monthly in the field using the Calibration menu.
 - d. All of the above
5. Where should the user go to find the currently installed version of Trimble Field Link for Structures and the Tablet Serial Number?
 - a. Information button
 - b. Instrument and Connections button.

- c. Trimble Field Link button.
- d. The Home button.

3. Settings menu



Training Objectives

Upon completion of this **Settings** module, you will be able to:

- ✓ Change the **Units & Format** for measurements, coordinate options, and languages.
- ✓ Adjust the Horizontal and Vertical Tolerances for records of layout shots.
- ✓ Ensure Reference Elevations, Points, and Instrument Locations are stored for future use.
- ✓ Turn on Single Touch Control for use of a stylus with the Tablet in cases where gloves are necessary or there may be moisture on the screen.
- ✓ Input contact information for the Owner and Distributor of the Tablet.

3.1 Units & Format

1. Press the **Settings** menu. The **Units & Format** menu will automatically be displayed.
2. Press the blue drop down arrows next to each item including **Distance Unit**, **Temperature**, **Angle Unit**, **Pressure**, **Coordinate Order**, and **Language** to make your selection.
3. Selecting **Distance Units** as Feet will show measurements in decimal feet. Selecting Feet-Inch (1/16") will show measurements to the closest 1/16".
4. **Coordinate Order** will change how points are imported or exported. Depending on the type of software used to create or import points, the points may need to be in (X,Y,Z) or (N,E,Z)= (Northing(Y), Easting(X), Elevation(Z)).

Important



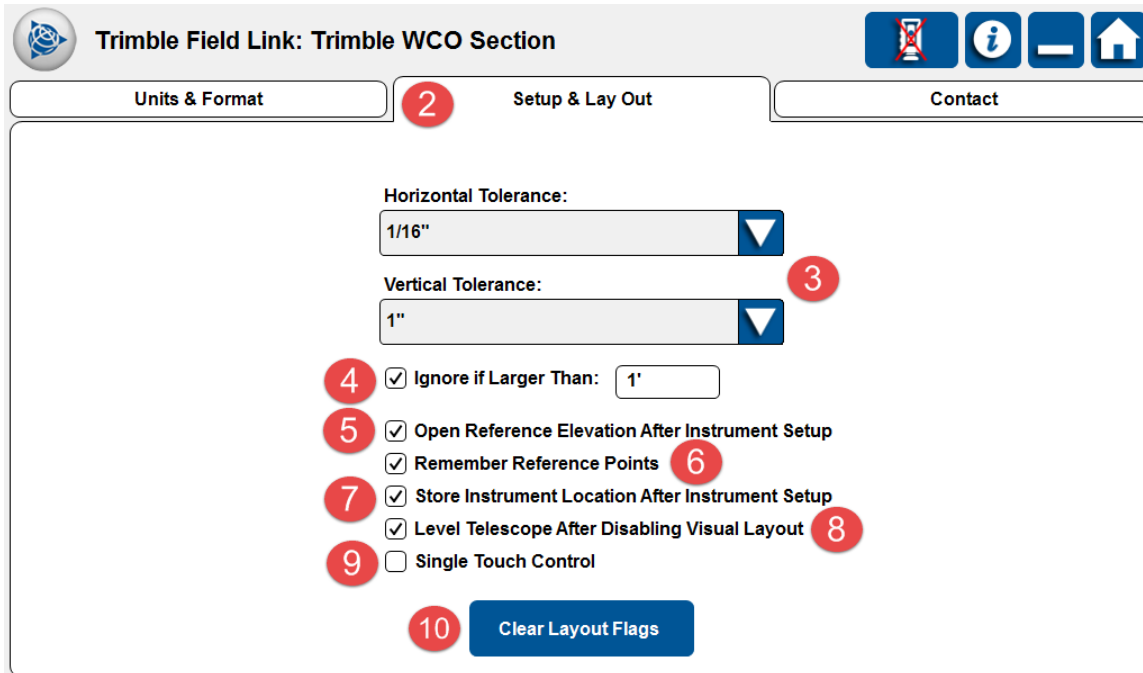
If your points do not overlay on your background model or drawing, they may be imported in the wrong format. Changing the Coordinate Order from NEZ to XYZ may correct the point locations.

3.2 Setup & Lay Out

Setup & Lay Out is where you will enter horizontal and vertical tolerances required for shooting points, along with several options which will help to increase lay out and collection efficiency. This is also the location where you can set the Tablet to **Single Touch Control** for use with a stylus.

1. Press the **Settings** menu.
2. The **Units & Format** menu will automatically be displayed. Press the **Setup & Lay Out** tab at the top center of the screen.
3. Press the blue drop down arrows under **Horizontal Tolerance** and **Vertical Tolerance** and make your selection (1", 1/2", 1/4", 1/8", 1/16" or 25, 12, 6, 3, 1.5mm). Points shot in the field that are outside this tolerance setting will show a red lay out flag on the screen indicating the point was out of tolerance.
4. Under the **Vertical Tolerance** selection, you can check or uncheck the box to **Ignore if Larger Than:** and type in a measurement. Use this selection if you are not concerned with the vertical tolerances such as when providing lay out for rough excavations.
5. Checking the **Open Reference Elevation After Instrument Setup** box will automatically open the Reference Elevation tab under Instrument Connection and Settings after every known or unknown station setup.
6. Check the **Remember Reference Points** box to keep control points used during the Instrument Setup in the selection tabs for quick reference.

7. Check the **Store Instrument Location After Instrument Setup** box to create a point each time the instrument is setup in an unknown location.
8. Check the **Level Telescope After Disabling Visual Layout** box to
9. Check the **Single Touch Control** box to switch to stylus operation of the Tablet in lieu of capacitive touch controls. Setting the **Single Touch Control** will require Trimble Field Link for Structures to shut down and restart.
10. Press the **Clear Layout Flags** button to clear in or out of tolerance flags for points already laid out within the open job.



Trimble Field Link: Trimble WCO Section

Units & Format **2** Setup & Lay Out Contact

Horizontal Tolerance:
1/16"

Vertical Tolerance: **3**
1"

4 Ignore if Larger Than: 1'

5 Open Reference Elevation After Instrument Setup

Remember Reference Points **6**

7 Store Instrument Location After Instrument Setup

Level Telescope After Disabling Visual Layout **8**

9 Single Touch Control

10 Clear Layout Flags

3.3 Contact

Use the **Contact** tab to input information about the Owner of the tablet and the Distributor that should be contacted for training, service, maintenance, rentals or support.

1. Press the **Settings** menu.
2. The Units & Format menu will automatically be displayed. Press the **Contact** tab at the top right of the screen.
3. Press the **Edit** button at the bottom of the screen to input new or change contact information.
4. Enter information for both the Owner and Distributor including *Company name, address, operator or representative, phone number and email*.
5. Press the **Lock** button once complete. You can always go back and use the **Edit** button to change information.

Trimble Field Link: Trimble WCO Section

Units & Format Setup & Lay Out **Contact**

Owner	Distributor
Company: Trimble	Company: Trimble
Address: 10368 Westmoor Drive, Westminster, CO 80021	Address: 10368 Westmoor Drive, Westminster, CO 80021
Operator: Ian Warner	Rep: Jim McCartney
Phone: 303-907-6290	Phone: 720-887-6100
Email: lan_warner@Trimble.com	Email: Buildings.Trimble.com

Edit

Summary

After review of this **Settings** module, you should now understand how to:

- ✓ Change the **Units & Format** for measurements, coordinate options, and languages.
- ✓ Adjust the Horizontal and Vertical Tolerances for records of layout shots.
- ✓ Ensure Reference Elevations, Points, and Instrument Locations are stored for future use.
- ✓ Turn on Single Touch Control for use of a stylus with the Tablet in cases where gloves are necessary or there may be moisture on the screen.
- ✓ Input contact information for the Owner and Distributor of the Tablet.

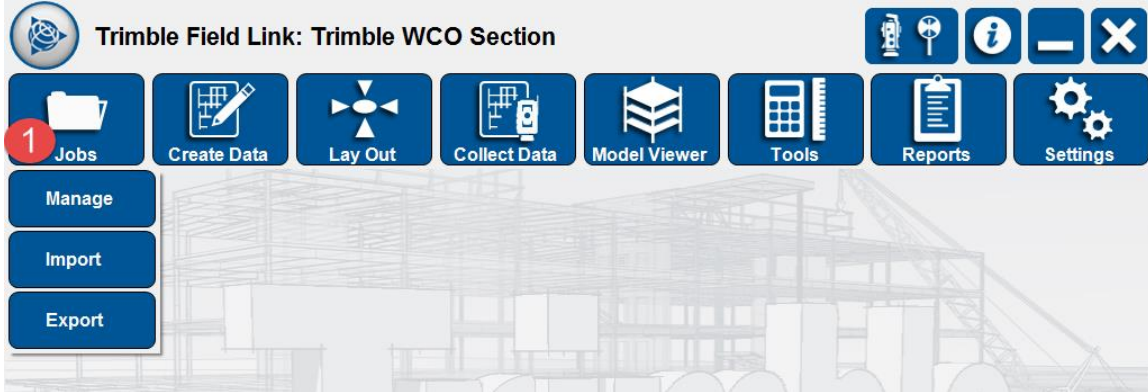
Review Questions

1. Which of the following units and format can be changed under the Settings menu within Trimble Field Link for Structures?
 - a. Coordinate Order (XYZ vs NEZ).
 - b. Language.
 - c. Decimal Feet, Fractional Feet, or Meters.
 - d. All of the above.
2. Your horizontal and vertical tolerances can be set to different values or you can ignore vertical tolerances after they exceed a set value?
 - a. True.
 - b. False.

3. The following options can be selected to help during the layout process under the Settings menu, Setup and Lay Out:
 - a. Open Reference Elevation After Instrument Setup.
 - b. Remember Reference Points.
 - c. Store Instrument Location after Instrument Setup.
 - d. Level Telescope after Disabling Visual Layout.
 - e. Clear Layout Flags.
 - f. All of the above.
4. Where do you change Trimble Field Link for Structures to operate with a stylus in lieu of capacitive touch controls?
 - a. Settings menu, Units and Format.
 - b. Settings menu, Setup & Lay Out.
 - c. Settings menu, Contact.
 - d. Instrument Control and Settings.
5. You can clear layout flags for in and out of tolerance points already laid out within a job by hitting the Clear Layout Flags button under Settings, Setup & Lay Out?
 - a. True.
 - b. False.

4. Jobs menu

Trimble Field Link Jobs menu allows you to Manage projects, Import drawings, models and point files, and Export project data including models, points or measurements.



Training Objectives

Upon completion of this **Jobs** module, you will be able to:

- ✓ **Manage** projects including **Open** existing jobs, create **New** jobs or select **Save As** to save an existing job with a different name.
- ✓ **Import Model** or **Point** files into an existing or new project.
- ✓ **Export Model, Points, or Measurements** from an existing or new project.

4.1 Manage

The native format of the Trimble Field Link is .tfl which can contain points, linework and model information created from various Trimble software programs (Tekla, Trimble Point Creator, Trimble Field Points). You can also create new .tfl files which will then contain the project information.

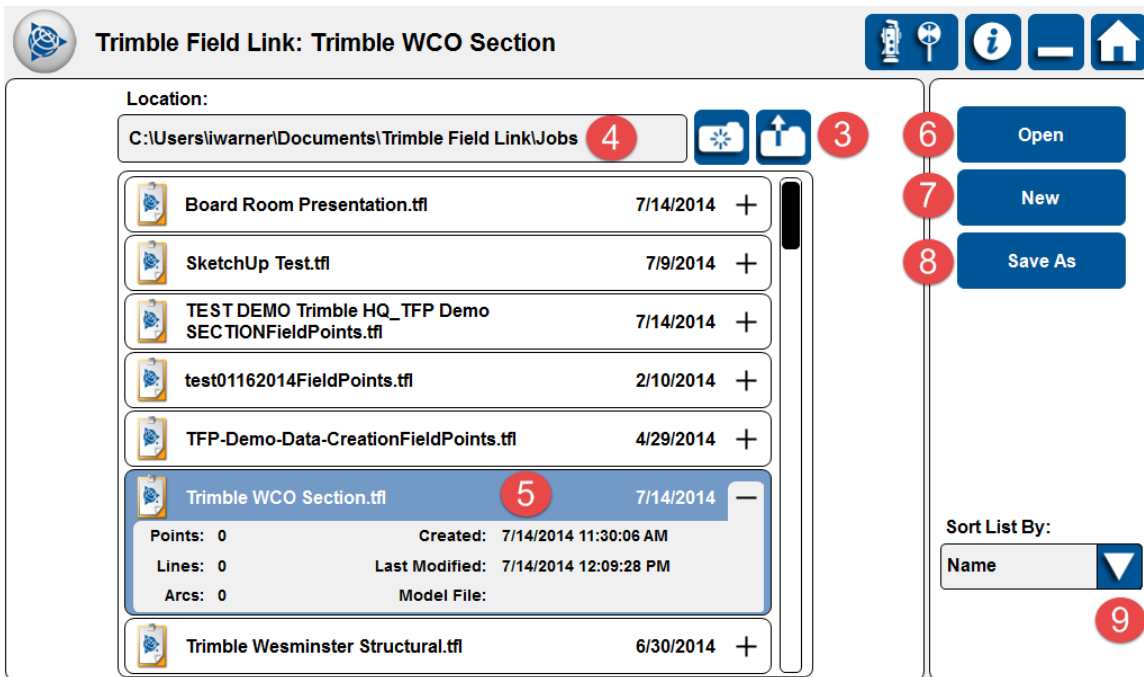
1. Press the **Jobs** menu.
2. Press the **Manage** button.



3. Navigate to the correct folder using the **Folder** button to select the required job file. You can also create a new folder by using the **Create Folder**



4. Trimble Field Link will automatically place new projects under the folder **C:\Users\xxxx\Documents\Trimble Field Link\Jobs** unless otherwise specified for a different folder.
5. Select the .tfl file and make sure the project is highlighted in blue.
6. Press **Open** to open an existing .tfl project.
7. Press **New** to create a new .tfl project and type in a new *Project Name*.
8. Press **Save As** on an existing .tfl project and type in a new *Project Name*.
9. Press **Sort List By** to filter the existing project list by Name or Date. Sorting by Date will bring the most recently used project to the top of the list.



The screenshot shows the 'Trimble Field Link: Trimble WCO Section' window. At the top, there are navigation icons for Home, Back, Info, and Location. Below the title bar, the 'Location' field is set to 'C:\Users\liwarner\Documents\Trimble Field Link\Jobs', with a red circle '4' next to it. To the right of the location field are icons for 'Folder' (red circle '3') and 'Create Folder' (red circle '3'). On the right side of the window, there are three buttons: 'Open' (red circle '6'), 'New' (red circle '7'), and 'Save As' (red circle '8'). The main area displays a list of .tfl files. The file 'Trimble WCO Section.tfl' is highlighted in blue and has a red circle '5' next to it. Below this file, its details are shown: Points: 0, Lines: 0, Arcs: 0, Created: 7/14/2014 11:30:06 AM, Last Modified: 7/14/2014 12:09:28 PM, and Model File: (empty). At the bottom right, there is a 'Sort List By' dropdown menu set to 'Name' with a red circle '9' next to it.

Note



Only one .tfl file can be opened at a time. Two .tfl files cannot be merged. In order to add points or model files to a project, you can use the **Import** button.

4.2 Import Model

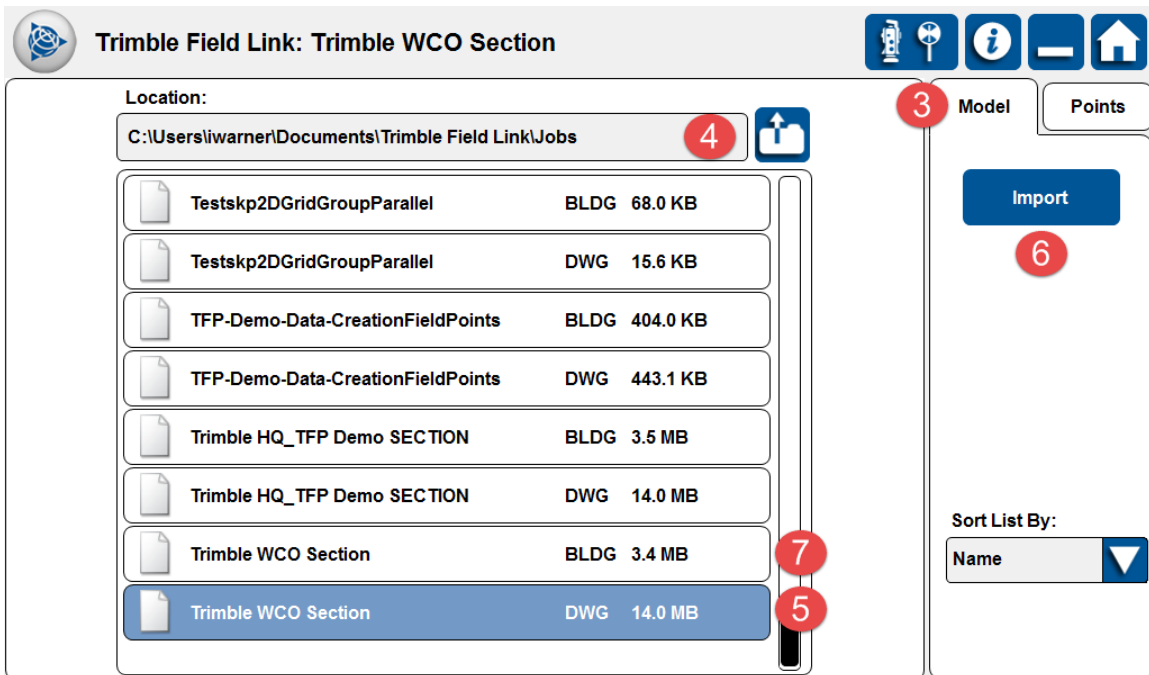
Currently, Trimble Field Link will accept .dwg (AutoCAD 2014 and earlier), .skp (SketchUp 8 or earlier) or iModel (Bentley) files. Trimble Field Link will convert the model into a .bldg file type for faster rendering and model viewing.

1. Press the **Jobs** menu.

2. Press the **Import** button.



3. The **Model** tab will be automatically selected.
4. Trimble Field Link will automatically look for models under the folder **C:\Users\xxxx\Documents\Trimble Field Link\Jobs** unless otherwise specified for a different folder.
5. Navigate to the correct folder to select the required **Model** file. Once selected, the file should highlight in blue.
6. Press the **Import** button on the right tab.
7. Trimble Field Link will automatically convert the model file into a .bldg file and place the converted .bldg file in the same folder where the model file originated.
8. Once the model has been converted to a .bldg file, the program will return to the home screen.



Tip

Once the model or drawing file has been converted to a .bldg file type, the original .dwg model or drawing can be deleted from the project folder to keep the project folder cleaned up and maintain storage capacity. If using a synchronized folder, you can delete old .bldg and .dwg files to be replaced by new files to show a model change has been made.

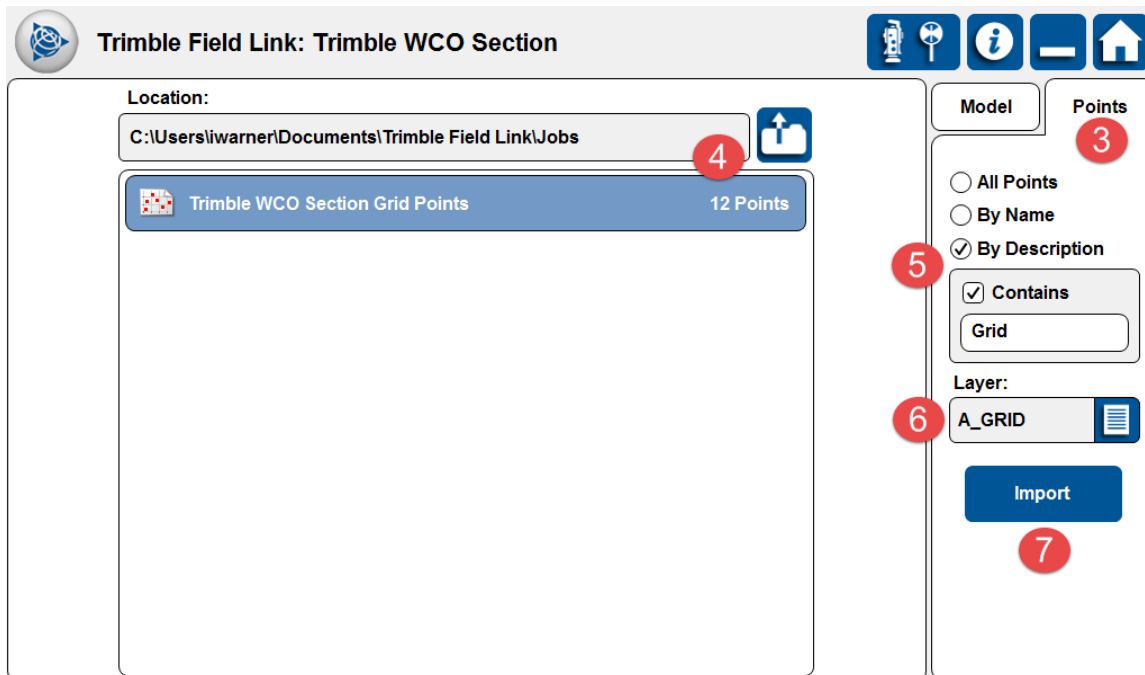
4.3 Import Points

Trimble Field Link can import points created in other software but will require a .csv type point file.

1. Press the **Jobs** menu.
2. Press the **Import** button.

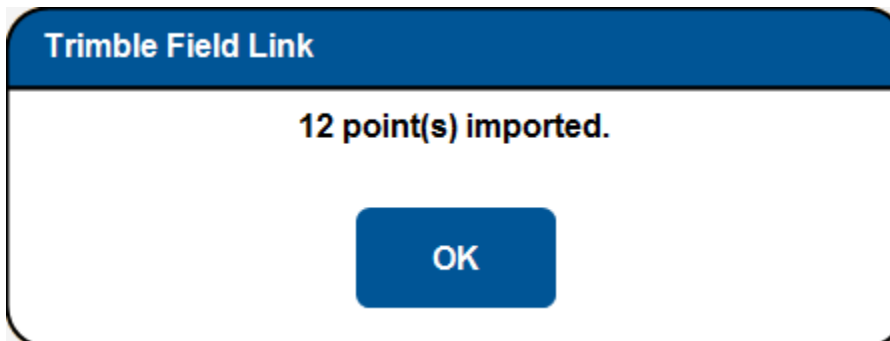


3. The **Model** tab will be automatically selected. Press the **Points** tab at the upper right corner.
4. Navigate to the correct folder to select the required **Point** file. The selected file should highlight in blue.
5. You can import the entire point files by selecting **All Points**. You can also filter the point file by checking the **By Name**, **By Description**, or **Contains** boxes and typing in a filter selection.
6. You can place the point file onto a specific layer to by Pressing the **Layer** button, then selecting the layer from the Layer drop down list. If you want to create a new layer, see the **Create Data menu, Layer Manager** section.
7. Press the **Import** button.



8. A dialogue box will open stating the number of point(s) imported.

9. Press the **OK** button.



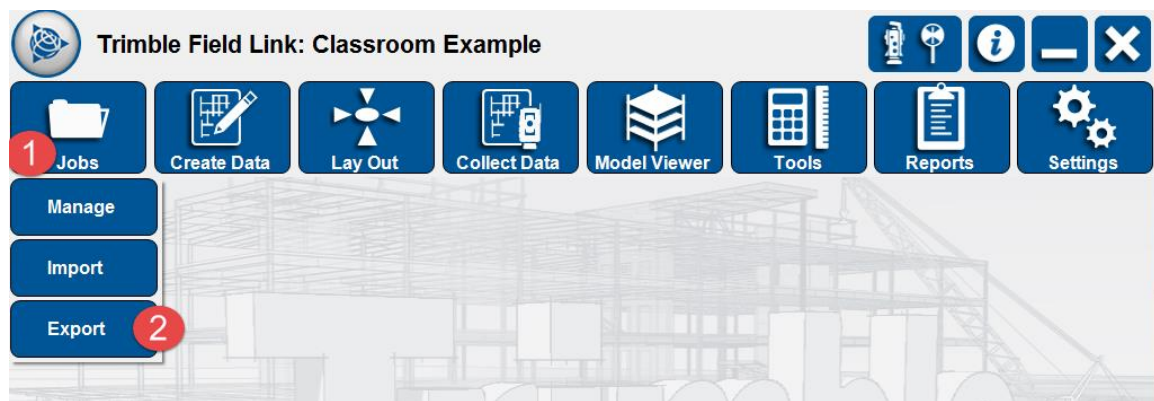
Note



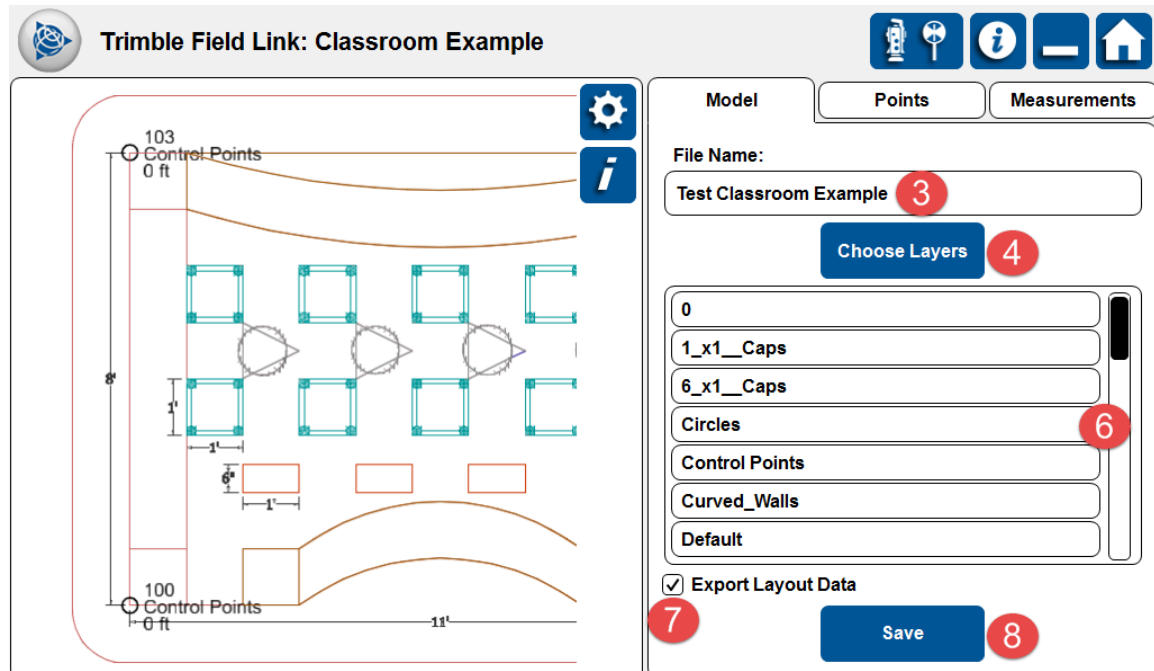
You can import multiple .csv files into a single .tfl project file. Points with the same name will be discarded as duplicate points. If points have different names but the same coordinates, the points will be overlaid. You may want to add R1, R2, R3 (Revision 1, 2 or 3) to the end of the point name to signify if a point has been moved before importing the point.

4.4 Export Model

Trimble Field Link can export collected linework or arcs into a .dwg file format. These lines and arcs can be brought into a modeling software as an as-built layer or help with as-built modeling.



1. Press the **Jobs** menu.
2. Press the **Export** button.
3. The **Model** tab will be the default selection. Type in the *File Name*.
4. Press the **Choose Layers** button.
5. Select the desired layers which should be highlighted in blue or select the **Select All** button.
6. Press **OK**. The selected layers will show in the Selection box.
7. You must select the **Export Layout Data** check box to export points and linework.
8. Press the **Save** button.
9. Trimble Field Link will automatically create an **Exports** folder and place the exported .dwg file under **C:\Users\xxx\Documents\Trimble Field Link\Exports**.
10. A dialogue box will open stating "File saved successfully".
11. Press **OK** button.



4.5 Export Points

Trimble Field Link can export design points, measured points, or collected points into a .csv (comma separated value) file.

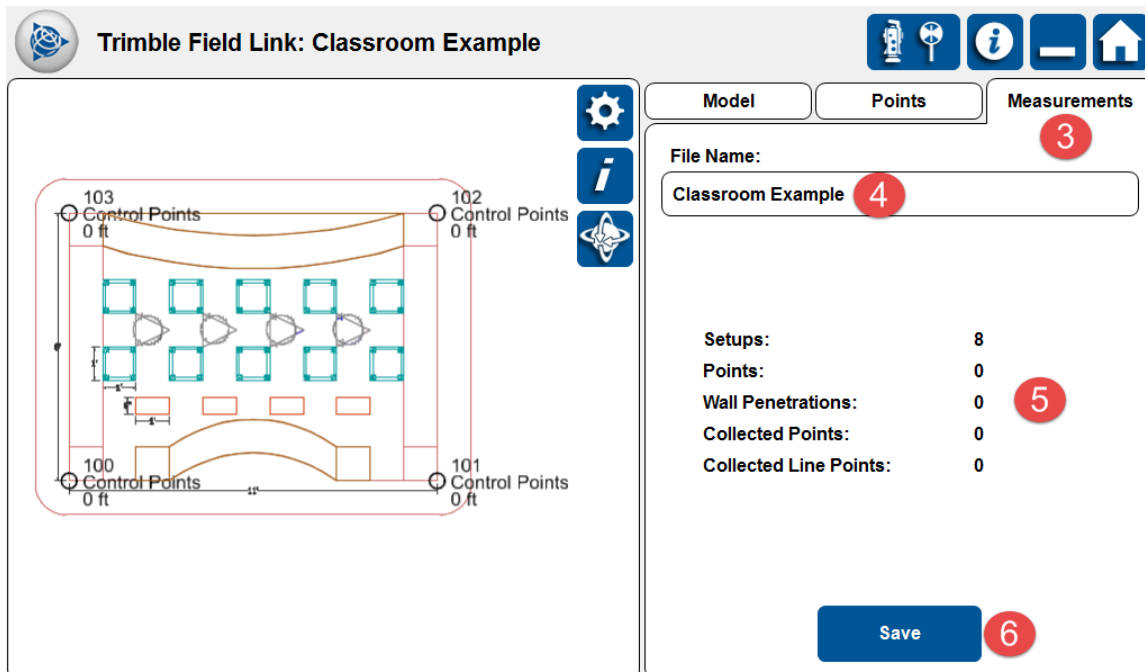
1. Press the **Jobs** menu.
2. Press the **Export** button. The **Model** tab will be the default selection.
3. Press the **Points** tab.
4. Type in the *File Name*.
5. If you have placed points on specific layers, use the Map Options button to turn layers off or on to help select specific points. To select points, you can Press the **Select All** button, or select points individually from the list view. You can also select points individually by pressing on them or multiple points using the window selection tool in the map view. See Section 5.1 for more on Map View and Map Options.
6. Select the **Design Location** or **Staked Location** check boxes. The Design Location are the points as originally created in TFL or other software. The Staked Location will contain the points actual staked location.
7. Press **Save**.
8. Trimble Field Link will automatically create an **Exports** folder and place the exported .csv file under **C:\Users\xxx\Documents\Trimble Field Link\Exports**.
9. A dialogue box will open stating "File saved successfully".
10. Press the **OK** button.

The screenshot displays the Trimble Field Link software interface for a project named "Classroom Example". The main map area shows a layout of a classroom with several control points (100, 101, 102, 103) marked. The right-hand panel is the "Export Points" dialog box, which is currently set to the "Points" tab. The "File Name" field contains "Classroom Example". A "Select All" button is highlighted, and the "Design Location" checkbox is checked. The "Save" button is also visible.

4.6 Export Measurements

Trimble Field Link can export raw data for your entire project including setups, points, collected points or collected linework into a .csv file format.

1. Press the **Jobs** menu.
2. Press the **Export** button. The **Model** tab will be the default selection.
3. Press the **Measurements** tab.
4. Type in the *File Name*.
5. Trimble Field Link will export every project setup, point shot, wall penetration shot (TFL MEP), collected points or collected linework into a .csv file format.
6. Press **Save**.
7. Trimble Field Link will automatically create an **Exports** folder and place the exported .csv file under **C:\Users\xxxx\Documents\Trimble Field Link\Exports\Measurement Data**.
8. A dialogue box will open stating "File saved successfully".
9. Press the **OK** button.



Summary

After review of this **Jobs** module, you should now understand how to:

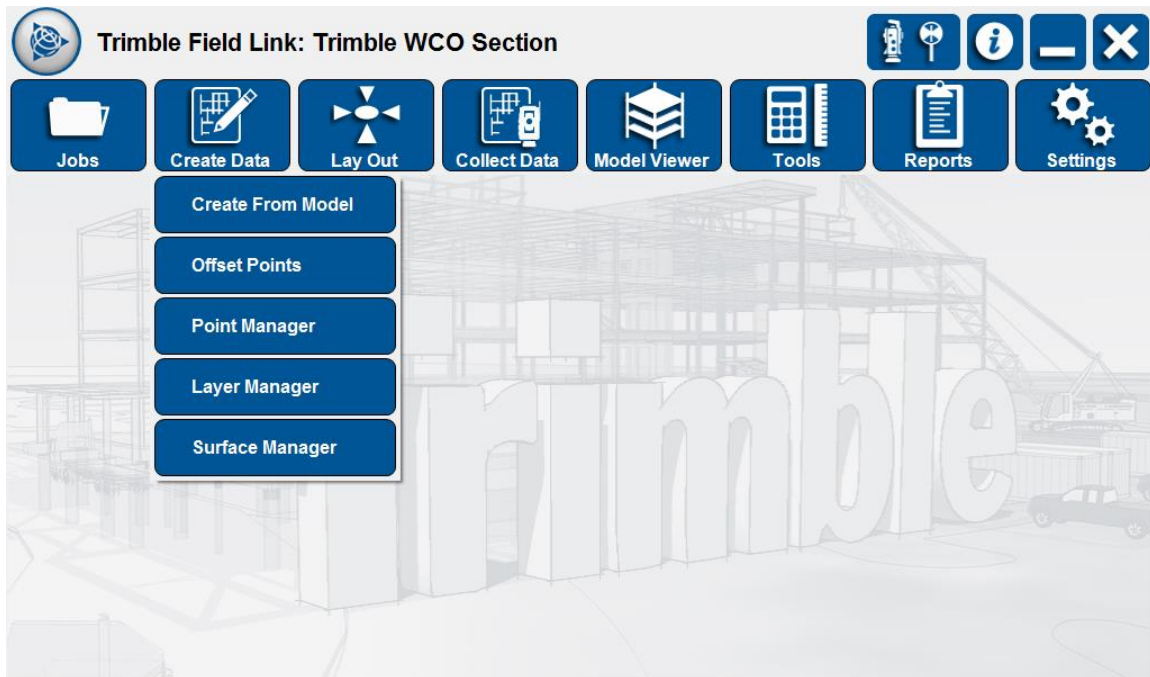
- ✓ **Manage** projects including **Open** existing jobs, create **New** jobs or select **Save As** to save an existing job with a different name.
- ✓ **Import Model** or **Point** files into an existing or new project.
- ✓ **Export Model, Points, or Measurements** from an existing or new project.

Review Questions

1. The native type of file for the Trimble Field Link which will contain points, lines, and measurements is:
 - a. .csv
 - b. .tfl

- c. .dwg
 - d. .skp
 - e. All of the above.
2. You can create a new .tfl project and import points, drawings or models into the empty project.
- a. True.
 - b. False.
3. Trimble Field Link will convert your drawings or models into which type of file before it is imported into your job file?
- a. .bldg
 - b. .dwg
 - c. .tfl
 - d. .skp
4. Which of the follow type of information can you export from a .tfl job file?
- a. Collected lines and arcs.
 - b. Design or Measured Points.
 - c. Measurements including setups, points, and linework.
 - d. All of the above.
5. The default location to store job files, converted models, and exported information for Trimble Field Link is on the Windows 7 desktop.
- a. True
 - b. False

5. Create Data menu



Training Objectives

Upon completion of the Create Data module, you will be able to:

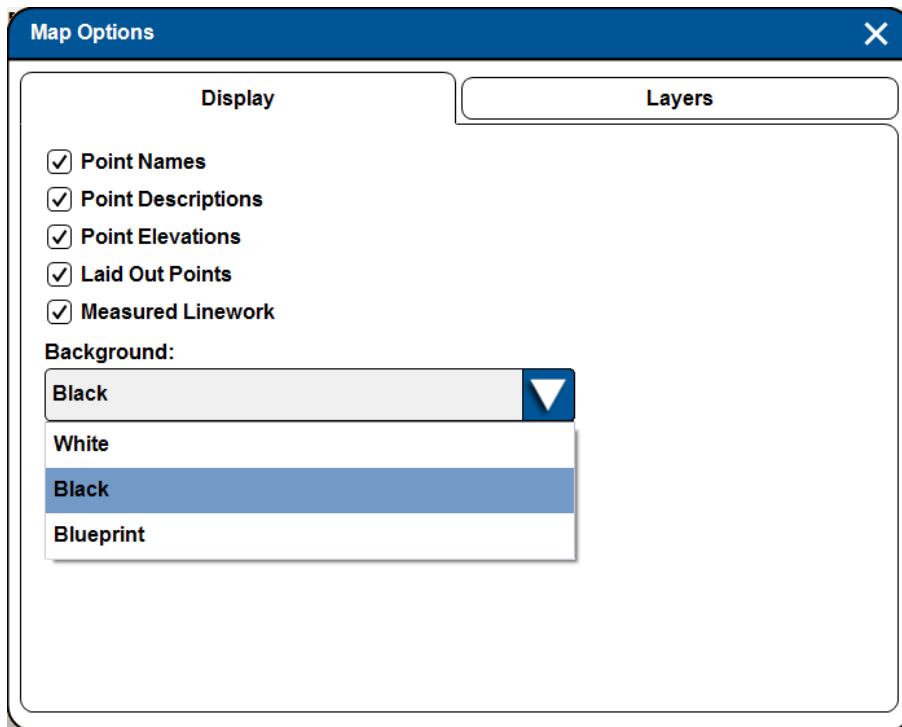
- ✓ Create points from a Model using the predefined snap options with specific point names, descriptions and layers.
- ✓ Create single or multiple vertical and/or horizontal offset points at certain intervals along a line using the **Offset Points** menu.
- ✓ Add, edit or delete points or point information such as description, layer, coordinates or elevations using **Point Manager**.
- ✓ Add, edit or delete layers or information such as description, layer, coordinates or elevations using **Layer Manager**.
- ✓ Add, edit or delete surfaces to be measured in **Surface Manager** (Only available if Surface Module purchased separately through your authorized Trimble distributor).

5.1 Create From Model

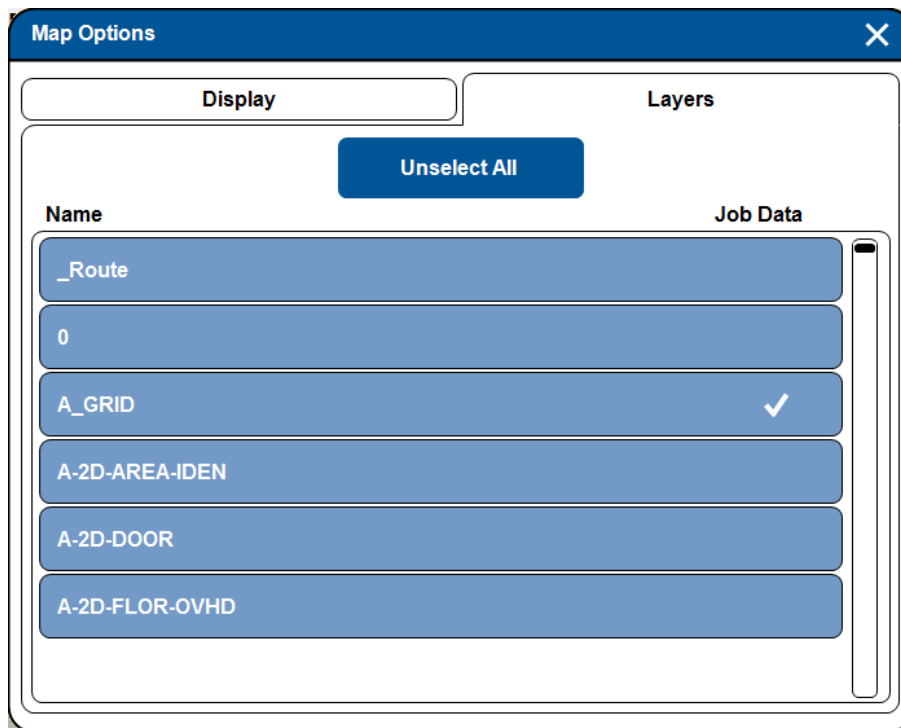
Use the Create From Model tool to create points from a 2D plan or 3D model using the predefined snap options after importing the model (see Section 4.2).






1. Press the **Create Data** menu.
2. Press the **Create From Model** button.
3. Press the **Map Options** button  to change the **Display** options for point information, change the **Background** color.



4. Press on the **Layers** tab in the upper right.
5. Press the **Unselect All** button and then press on the layers to turn them on where you want to create points.



6. Use the **Rotate** button  or the **Plan View** button  in combination with the Capacitive Touch Screen Controls (Section 1.5) to help view a select area.
7. Select the required snaps by pressing in the open selection box. Current options are **Endpoint**, **Midpoint**, **Center (Arc/Circle)**, or **Intersection**.
8. Choose a selection method:
 - a. **Individual (Default)**: Allows you to select one snap point at a time by pressing on the snap point. Move the model slightly if the points do not appear instantly.
 - b. **Current View (Current View Button)**: Press the Current View button just below the snap options to apply the snap chosen to all items that are currently displayed.
 - c. **Window**:  Allows the user to define point creation by dragging a window to enclose a section of the currently displayed items.
9. Define the *Name* and *Description* of the points that will be created. Use any combination of letters (feature codes such as CP = Control Point) and numbers up to 16 characters to define your point Name. The point description is basically unlimited in character length.
10. Define the **Layer** that points will be stored. To create additional layers, see the Section 5.5 Layer Manager.
11. Press the **Undo** button in the lower right corner to undo any points before creation.
12. Press the **Create** button once you are satisfied with your selections.
13. Once points are created, you can delete or edit the points within Point Manager (See Section 5.3).

Trimble Field Link: Trimble WCO Section

3 6 8

Endpoint 7
Midpoint
Center (Arc/Circle)
Intersection
Current View 8

Name: FT1000
Description: Footing
Layer: S-3D-FTNG

10 Create
11 Undo
Total: 24

Important



If you are working with a 3D CAD model make sure to rotate the object to ensure you are creating points at the intended locations (e.g. if you are looking at a column structure from above you will create 2 points instead of one for upper and lower corners).

Tip



Use letters, numbering, descriptions and layers when creating points to help filter or sort points for easy viewing, during lay out, or exporting/importing field data into the office.

Trimble Field Link: Trimble WCO Section

FT1009
FT1010
FT1011
FT1017
FT1018
FT1019
FT1020
FT1021
FT1022
FT1001
FT1002
FT1003
FT1004
FT1005
FT1006

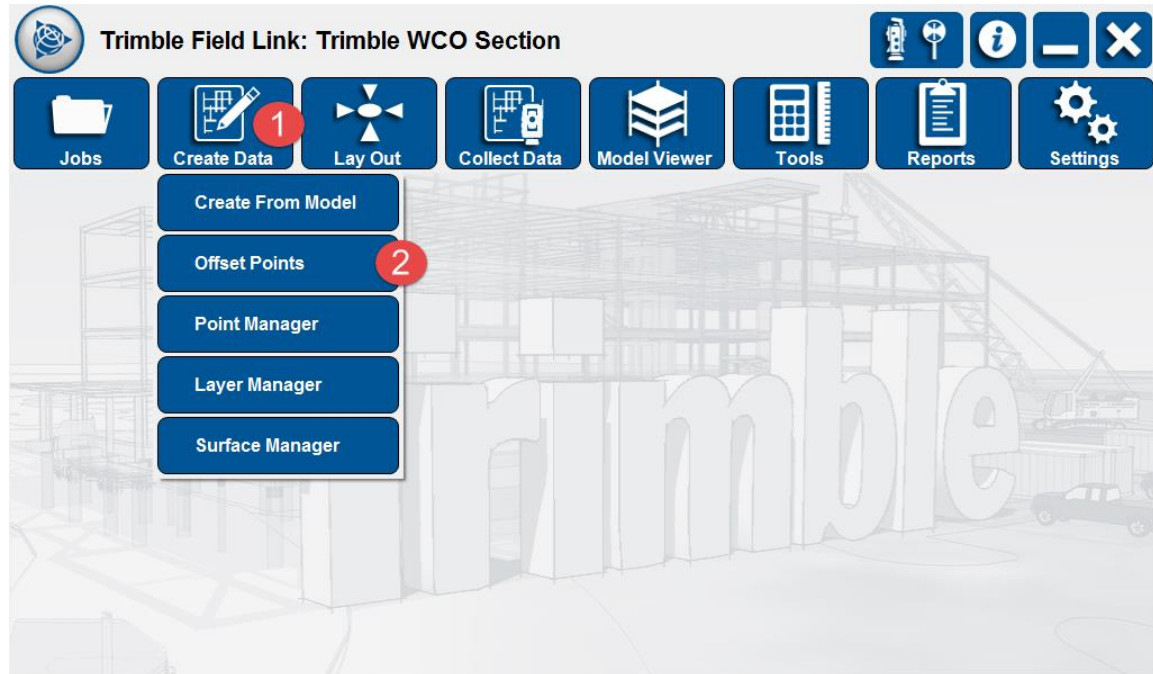
Endpoint
Midpoint
Center (Arc/Circle)
Intersection
Current View

Name: FT1024
Description: Footing
Layer: S-3D-FTNG

Create
Undo
Total: 0

5.2 Offset Points - Multiple

The Offset Points tool allows you to create multiple horizontal or vertical offset points by defining a line with two existing points. You can also use this tool to create points along a line.

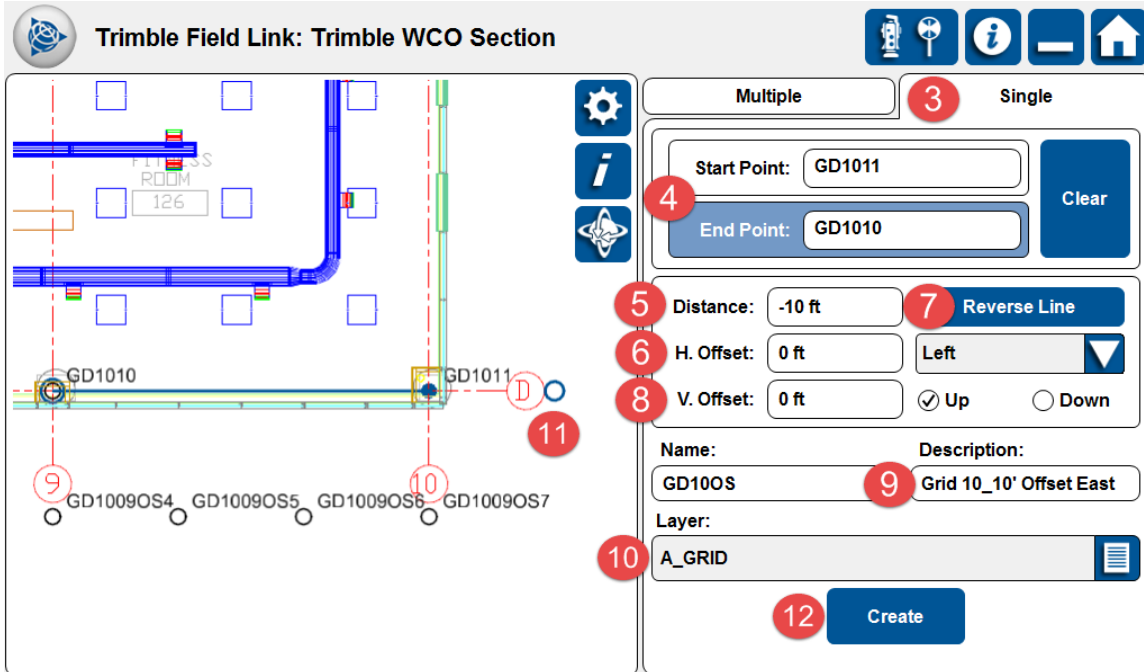


1. Press the **Create Data** menu.
2. Press the **Offset Points** button. The **Multiple** tab will be automatically selected.
3. Define the *Start Point* and *End Point* of the offset line by selecting points on the screen or entering a point number manually.
4. Define the point *Interval*. The Interval defines the space between the new points along the line. The Interval length cannot exceed the distance between the two selected points and negative values cannot be entered in the **Multiple** tab.
5. Define the *H. Offset* (Horizontal) and choose to Offset Left, Offset Right or Both (Multiple only). You can enter 0 to create points along the line.
6. Press the **Reverse Line** button to switch the starting point of the line.
7. Define the *V. Offset* (Vertical) offset and check the Up (Positive) or Down (Negative) selection.
8. Define the *Name* and *Description* of the points that will be created.
9. Select the destination **Layer** for the new points.
10. See the map view for a preview of the new points to verify that the settings are correct.
11. Press the **Create** button.

5.3 Offset Points - Single

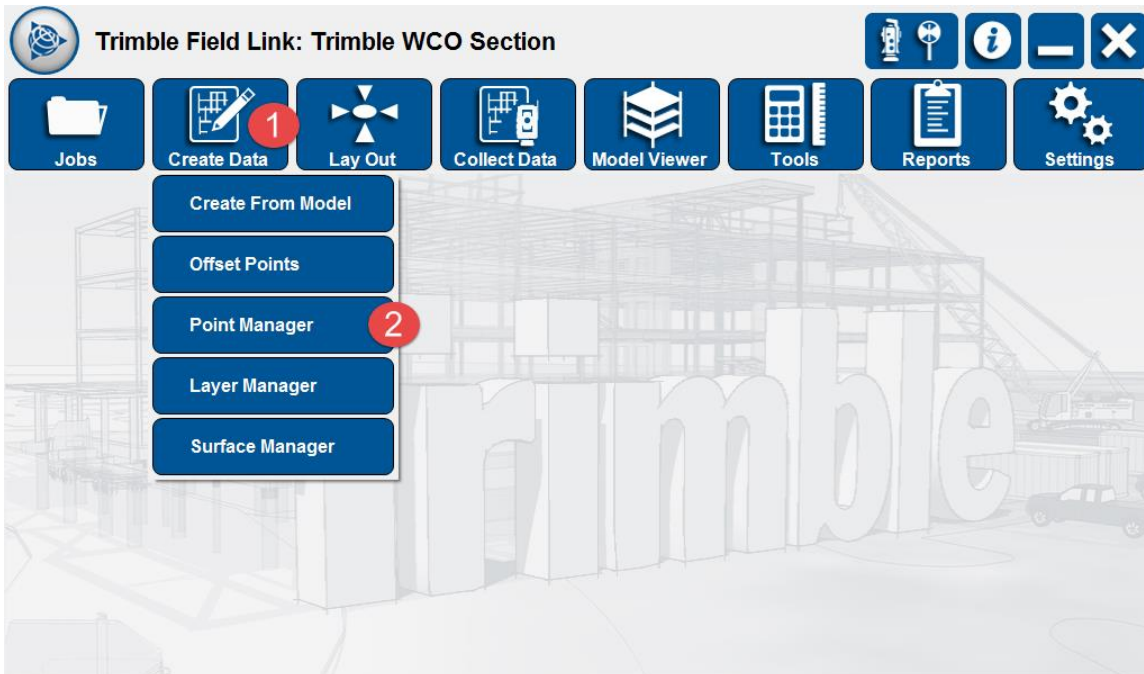
You can create single horizontal or vertical offset points by defining a line with two existing points. You can also use this tool to create a point along a line or offset the endpoint of the line.

1. Press the **Create Data** menu.
2. Press the **Offset Points** button.
3. The **Multiple** tab will be automatically selected. Press the **Single** tab at the upper right of the screen.
4. Define the *Start Point* and *End Point* of the offset line by selecting points on the screen or entering a point number manually.
5. Define the point *Distance*. The Distance defines the space from the beginning point to the created point along the line. Distances entered here can exceed the distance between the two points and negative values can be entered in the Single tab only.
6. Define the *H. Offset* (Horizontal) and choose to Offset Left, Offset Right or Both (Multiple only). You can enter 0 to create points along the line.
7. Press the **Reverse Line** button to switch the starting point of the line.
8. Define the *V. Offset* (Vertical) offset and check the Up (Positive) or Down (Negative) selection.
9. Define the *Name* and *Description* of the point that will be created.
10. Select the destination **Layer** for the new point.
11. See the map view for a preview of the new points to verify that the settings are correct.
12. Press the **Create** button.





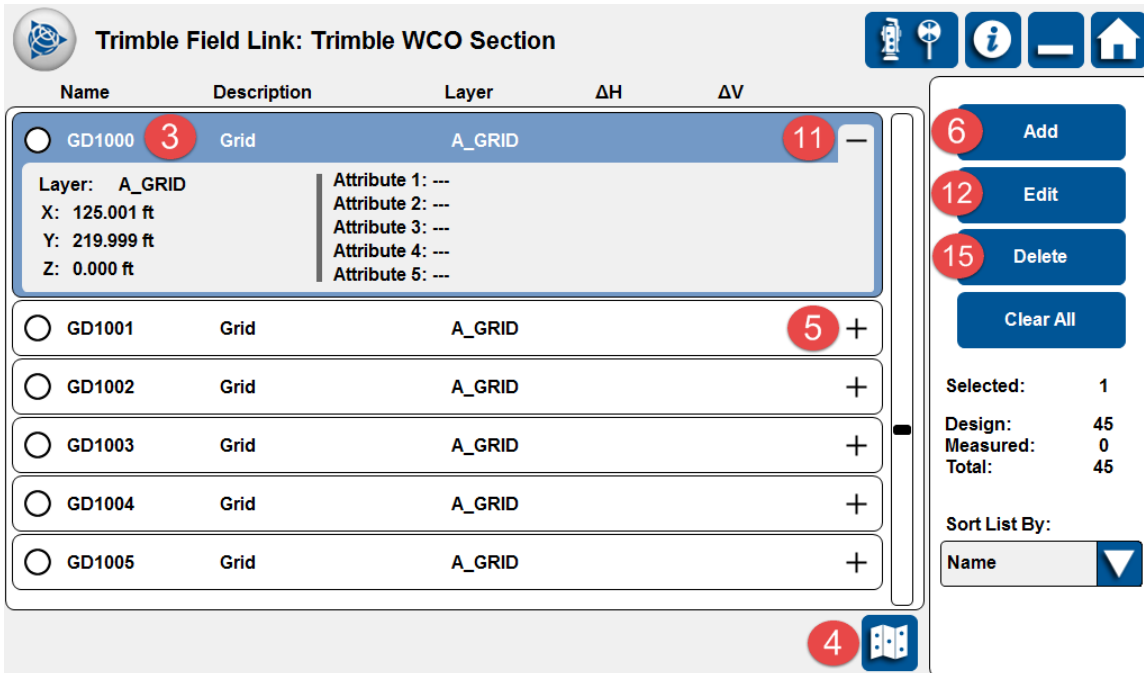
5.4 Point Manager

In Point Manager, users have the ability to view single point information, add, edit or delete points. In the lower right corner selecting the map icon enables toggling between the list and map view to ensure the correct point selection.



1. Press the **Create Data** menu.
2. Press the **Point Manager** button.
3. Press on one of the existing points to highlight it in blue (Unselect the point by pressing it again or press the **Clear All** button to unselect all points).

- You can toggle between views by pressing the List View button  and Map View button . The Map View will allow you to use rotation, capacitive touch controls, Window Selection, and Map Options including layer control.
- Once the desired point is highlighted in blue, press the (+) symbol on the right side in List View or the I button in Map View. The (+) symbol or I button will display the point information including the layer, position and any attribute information associated with the point.



Trimble Field Link: Trimble WCO Section


Name	Description	Layer	ΔH	ΔV
GD1000	Grid	A_GRID		
GD1001	Grid	A_GRID		
GD1002	Grid	A_GRID		
GD1003	Grid	A_GRID		
GD1004	Grid	A_GRID		
GD1005	Grid	A_GRID		

Point Details for GD1000:

- Layer: A_GRID
- X: 125.001 ft
- Y: 219.999 ft
- Z: 0.000 ft
- Attribute 1: ---
- Attribute 2: ---
- Attribute 3: ---
- Attribute 4: ---
- Attribute 5: ---

Right Panel:

- Buttons: Add (6), Edit (12), Delete (15), Clear All
- Summary: Selected: 1, Design: 45, Measured: 0, Total: 45
- Sort List By: Name

Map View: 

- With the point still selected, press the **Add** button in the upper right.
- An **Add Point** window will open. Note the Name will revert to the next number available in the sequence and the position values and layer will be the same as the selected point. This process is similar to a "Save As" function.
- You can also **Add** points without another point selected.
- Define the *Name*, *Description*, *Layer*, *X(Easting)*, *Y(Northing)*, and *Z(Elevation)* of the point that will be created.

Add Point 7

Name:
GD1000R

Description:
Grid Revised 9

Layer:
A_GRID

X: 219.999 ft Y: 125.001 ft Elevation: 100.000 ft

10 OK Cancel

10. Press **OK** to create the point or **Cancel** to start over.
11. Press the (-) symbol to hide the point information again.
12. Select the newly created point and press the **Edit** button.
13. The **Edit Point** window will open allowing you to change the *Description*, **Layer**, *XY* position and *Elevation* of the point. You cannot change the Name under the Edit Point tool.

Edit Point 13

Name:
GD1000R

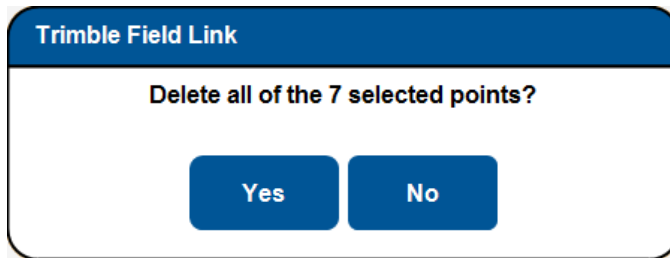
Description:
Grid Revised

Layer:
A_GRID

X: 219.999 ft Y: 125.001 ft Elevation: 100.000 ft

14 OK Cancel

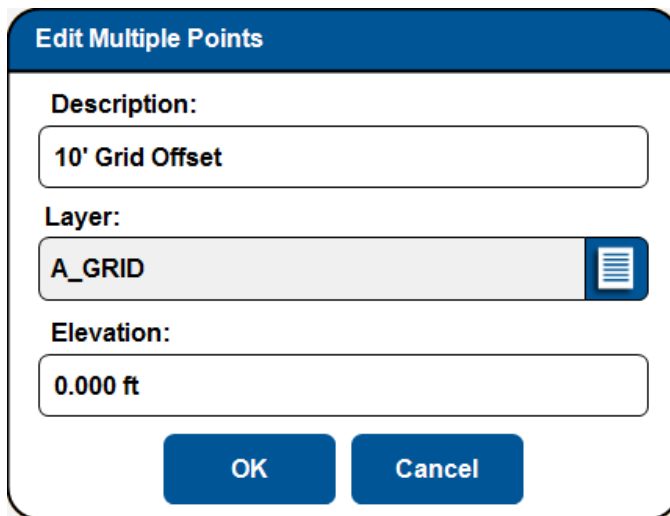
14. Press **OK** to accept any changes made to the existing point or **Cancel**.
15. With the same point selected, press the **Delete** button.
16. A dialogue box will open asking to Delete all of the (x) selected points? Press the **Yes** button to delete the point.



Trimble Field Link

Delete all of the 7 selected points?

Yes No



Edit Multiple Points

Description:
10' Grid Offset

Layer:
A_GRID

Elevation:
0.000 ft

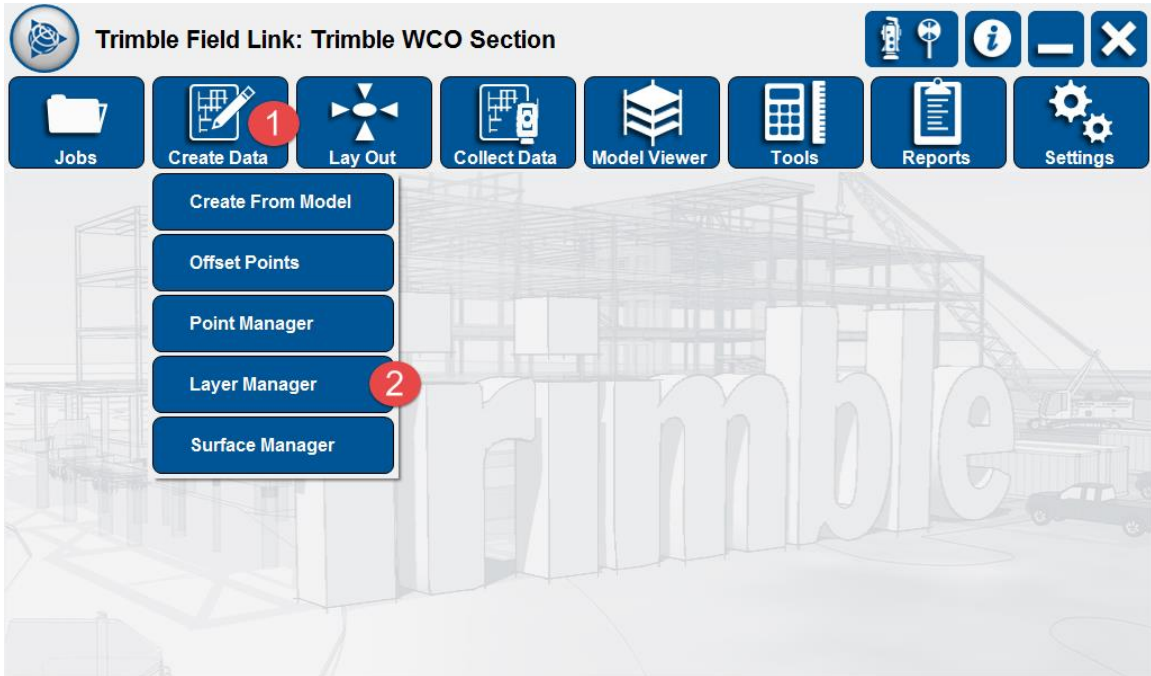
OK Cancel

**Tip**

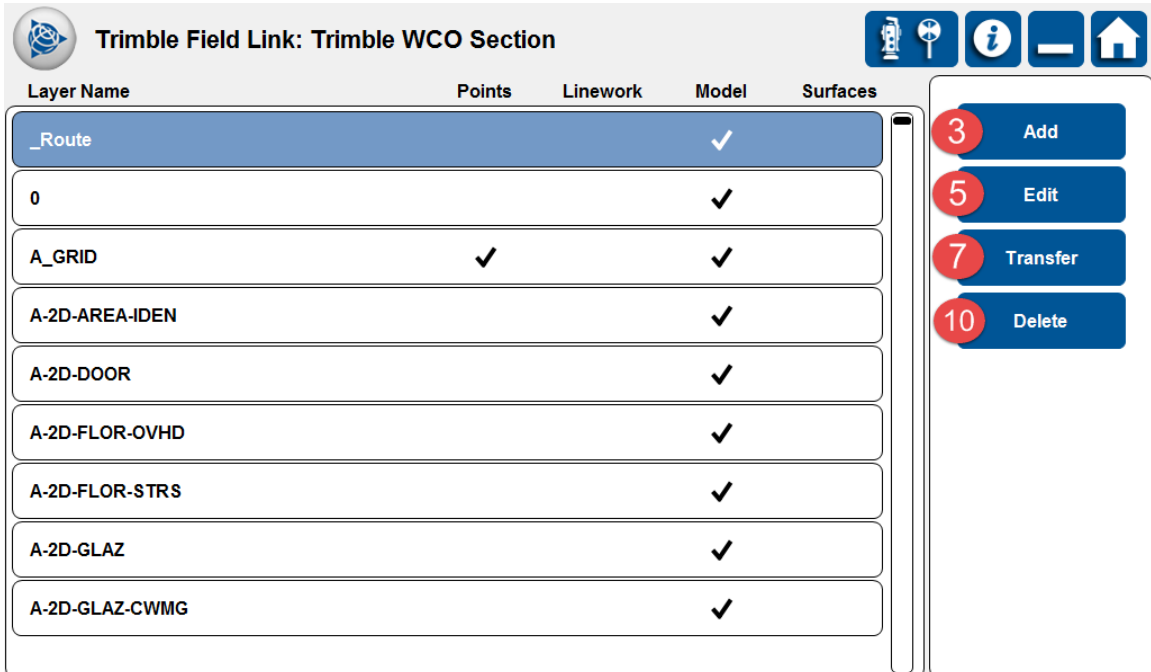
You can select multiple points at one time either manually or by using the selection window and simultaneously **Edit** their Description, Layer or Elevation using the **Edit Multiple Points** option. Use the **Sort List by**, **Map Options**, or **Selection Box** buttons to help sort, filter or define a group of points for easier editing of points.

5.5 Layer Manager

Layer manager allows adding, editing, deleting different layers as well as the ability to transfer data between the layers. The functionality allows for more flexibility and management in handling large datasets and maintaining consistency with design files.

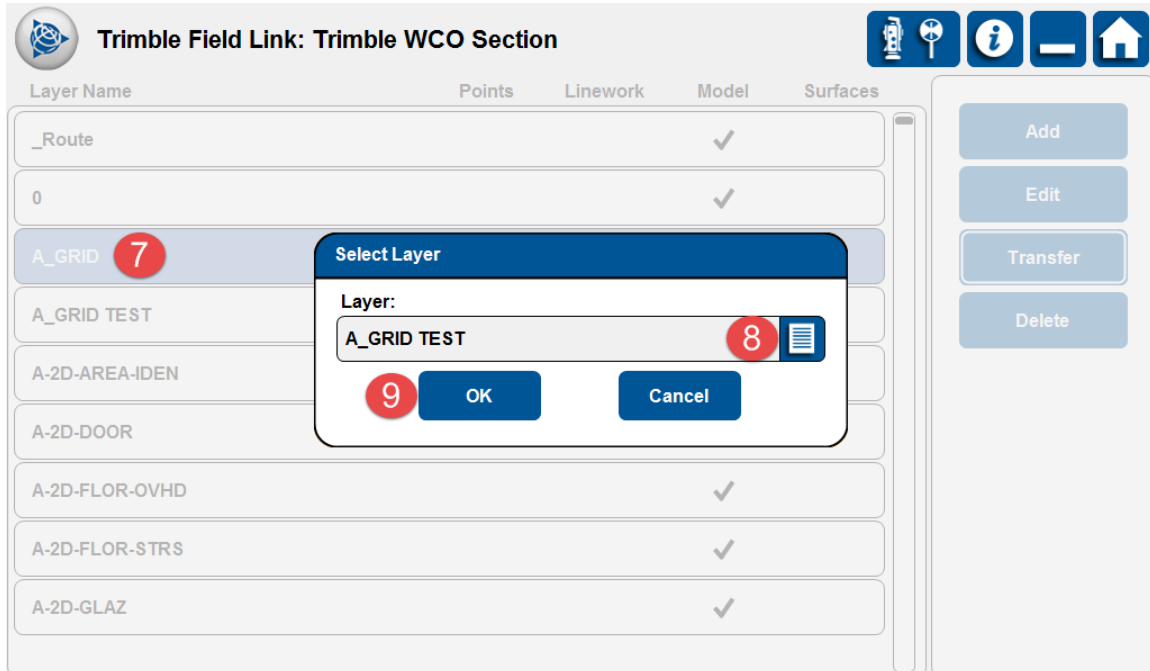


1. Press the **Create Data** menu.
2. Press the **Layer Manager** button.
3. Trimble Field Link creates the "0" and "Default" layers for every job automatically. The first layer in the list will be highlighted in blue. Press the **Add** button.



4. Define the *Name* of the new layer and press **OK**.
5. With the new layer selected, press the **Edit** button. The Edit button will allow you to change the layer name. Only layers that do not contain Model data can have their name edited.

6. Once the new *Name* has been defined, press the **OK** button.
7. Select a layer with a check mark under Points, Linework or Surfaces and press the **Transfer** button.
8. The Select Layer menu will open. Press the **List** button on the right of the menu and select a new layer to Transfer the job data.
9. Press **OK** and you will see the check marks now on the new layer.



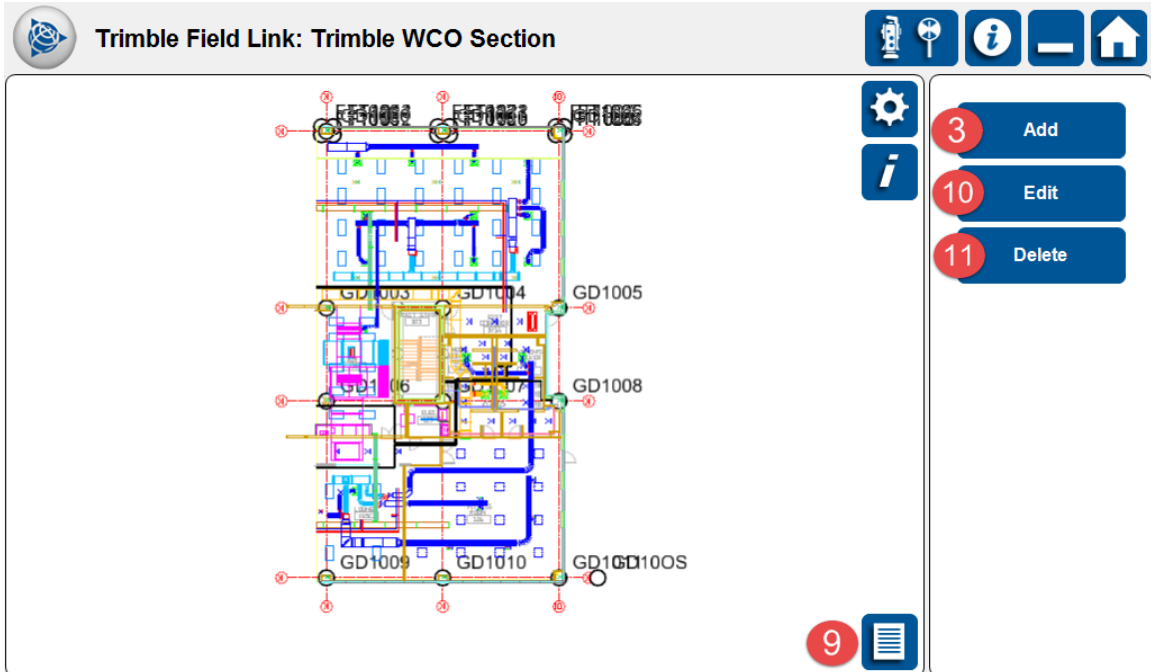
10. Select a layer with no job or Model data and press the **Delete** button.
11. The layer will be automatically deleted.

5.6 Surface Manager (Optional Module)

The surface analysis module is available as a separate item for users who are using or have purchased Trimble Field Link v2.0.0 or later. This module is available for purchase through your authorized Trimble distributor and is a separate installation on BCIM. Surface Manger allows users to add, edit and delete surfaces.

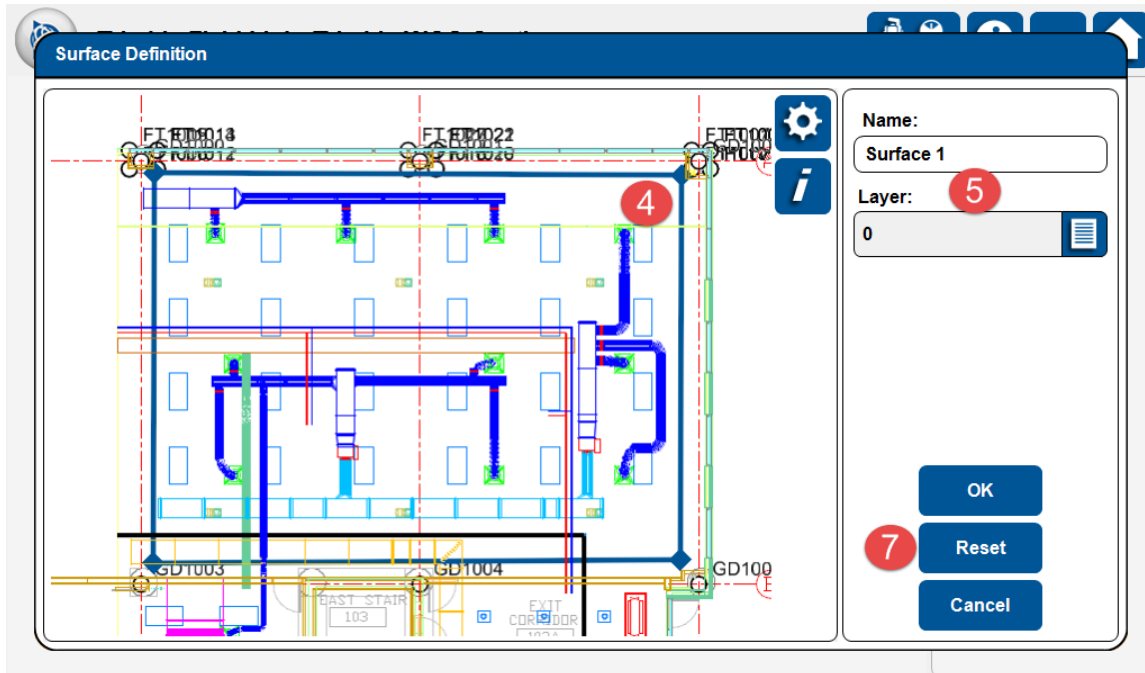


1. Press the **Create Data** menu.
2. Press the **Surface Manager** button.
3. Press the **Add** button on the upper right to open the Surface Definition window.



4. A 4 corner surface area will be shown in the center of the Surface Definition screen. Drag the corners of the surface to the desired locations or press on one of the blue lines to create a new corner. Only 3 corners are required to create a surface or you can create a polygon shape with as many corners as necessary. To delete a corner, drag it over another corner.

- Define the *Name* and **Layer** of the new Surface and press **OK**.



- Press the Add button again.
- Pan, zoom or rotate to a different area and press the **Reset** button to generate a new 4 corner area centered on the current view.
- Define the *Name* and **Layer** of the new Surface and press **OK**.
- You can now select the individual surfaces by pressing on them directly in the Map or List View.
- With the new surface selected, press the **Edit** button. The Edit button will allow you to modify the surface *Name*, layer or area included.
- Once the Edits are complete, press the **OK** button.
- Select any surface and press the **Delete** button.
- Confirm by pressing the **Yes** button to delete.

The screenshot shows the 'Trimble Field Link: Trimble WCO Section' interface. At the top, there is a title bar with a logo and navigation icons. Below the title bar is a table with three columns: 'Name', 'Boundary Points', and 'Measured'. The table contains two rows: 'Surface 1' with 4 boundary points and 0% measured, and 'Surface 2' with 4 boundary points and 0% measured. To the right of the table is a vertical toolbar with 'Add', 'Edit', and 'Delete' buttons. A red circle with the number '12' is positioned over the 'Delete' button. In the center of the interface, a modal dialog box titled 'Trimble Field Link' is displayed, asking 'Delete Surface 2?'. The dialog has two buttons: 'Yes' and 'No'. A red circle with the number '13' is positioned over the 'Yes' button.

Name	Boundary Points	Measured
Surface 1	4	0%
Surface 2	4	0%

Summary

After review of this Create Data module, you should now understand how to:

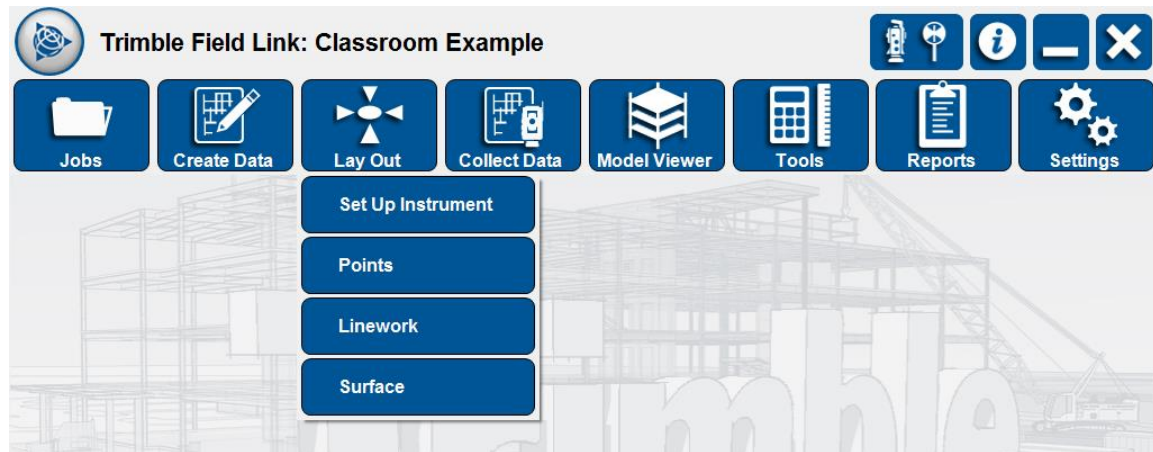
- ✓ Create points from a Model using the predefined snap options with specific point names, descriptions and layers.
- ✓ Create single or multiple vertical and/or horizontal offset points at certain intervals along a line using the **Offset Points** menu.
- ✓ Add, edit or delete points or point information such as description, layer, coordinates or elevations using **Point Manager**.
- ✓ Add, edit or delete layers or information such as description, layer, coordinates or elevations using **Layer Manager**.
- ✓ Add, edit or delete surfaces to be measured in **Surface Manager** (Only available if Surface Module purchased separately through your authorized Trimble distributor).

Review Questions

1. In order to create points from a model, you can select the desired snap options and then press:
 - a. On the point snap locations individually.
 - b. The Current View button.
 - c. The Window selection button.
 - d. All of the above.

2. You can create offset points past the end point of the line or with negative values under the Multiple tab.
 - a. True
 - b. False
3. Which of the following point information items cannot be changed under Edit in Point Manger?
 - a. Name
 - b. Description
 - c. Layer
 - d. XY or NE position
 - e. Elevation
4. The Layer Manger menu allows you to create new, edit names, transfer data or delete layers.
 - a. True
 - b. False
5. To define a surface area for later collection under Surface Manager, you can select the area by which of the following?
 - a. Press the Reset button on a specific view.
 - b. Drag the corners to the desired locations.
 - c. Press along the surface line to create a new corner for polygon type areas.
 - d. All of the above.

6. Lay Out Menu



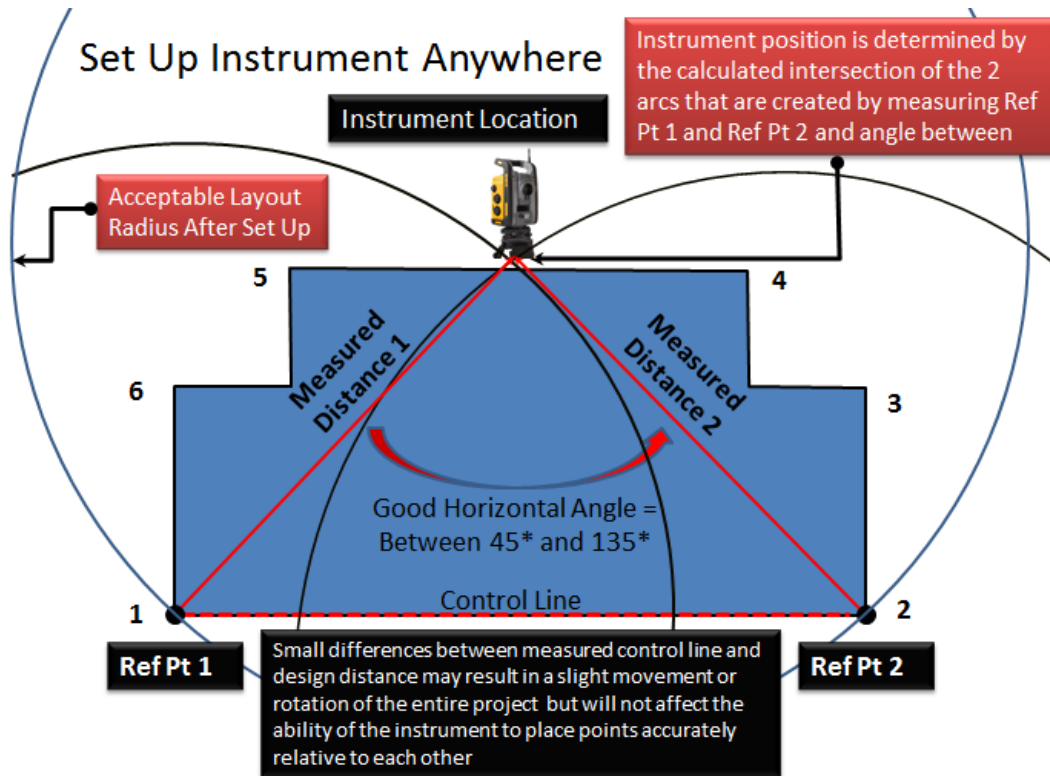
Training Objectives

Upon completion of this **Lay Out** module, you will be able to:

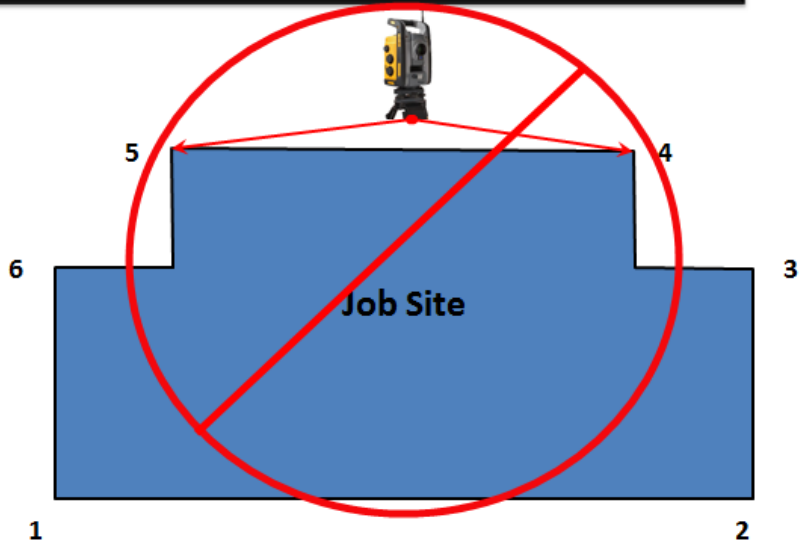
- ✓ Understand the differences and steps to set up the RTS instrument on a known or unknown location.
- ✓ Select a group of points to lay out based upon Name, Layer or Description and commence to lay those points out.
- ✓ Lay out lines based upon two or more points with points along the line, or offsets of the line horizontally or vertically.
- ✓ (Optional Module) Lay out a surface after the surface has been collected.

6.1 Set Up Instrument - Anywhere

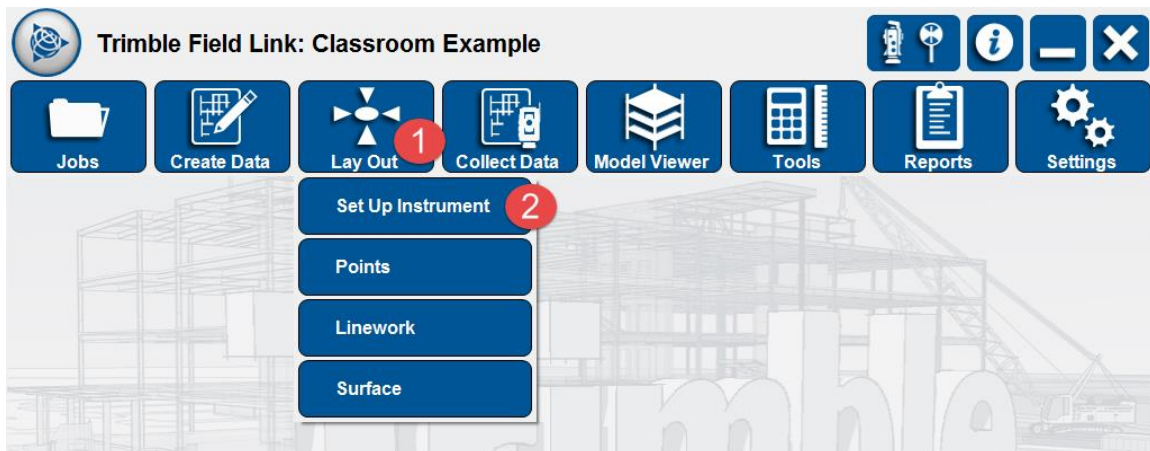
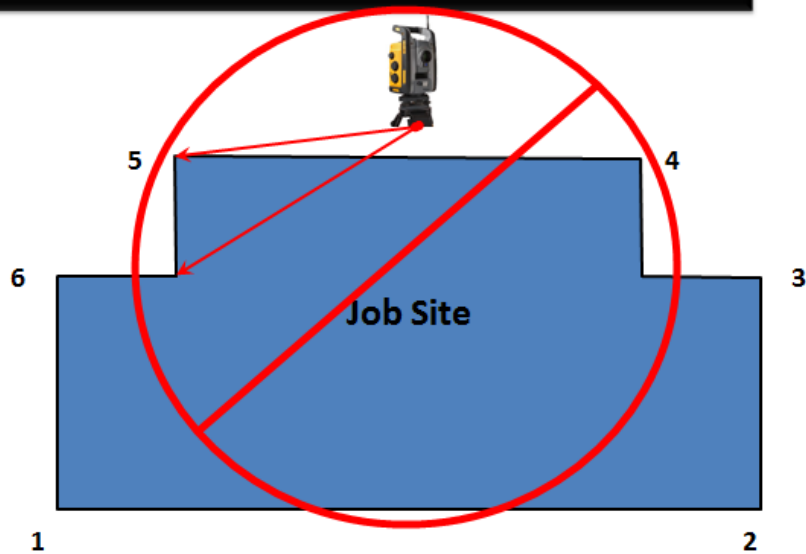
The instrument can be placed in a convenient location as long as there are at least two control points with known location in the field of view between 45 and 135 degrees. The angle requirements help to ensure a more accurate calculation of the instrument position. If two control points are not between 45 and 135 degrees, or for a more refined set up, up to 5 total control points can be shot for a single set up.



- Angle is too flat (obtuse)
- Distance to control points is too short relative to layout distances
- Distance between control points is too short

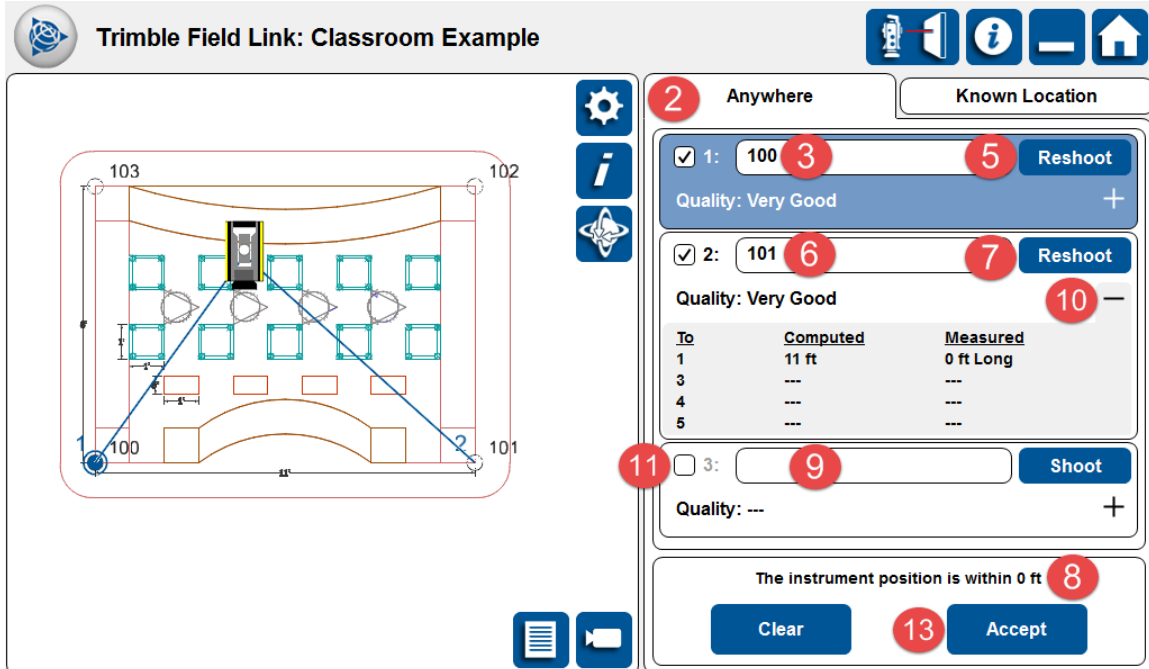


- Angle is too sharp (acute)
- Distance to control points is too short relative to layout distances
- Distance between control points is too short



1. Press the **Lay Out** menu.
2. Press the **Set Up Instrument** button. The **Anywhere** tab will be automatically selected.
3. Enter or select the first reference point by pressing on it in the Map View, List view, or press in the Point 1 field and type the point *Name* directly.
4. Make sure the instrument is level, the rod height and prism type are correct in the Instrument Settings, and the RTS is locked onto the prism (or pointed at the control point directly in DR mode) at the correct point location.
5. Press the **Shoot** button.
6. Enter or select the second reference point in the Point 2 field.
7. Following the same procedures as in Step 4, press the **Shoot** button.
8. At the lower left of the screen, the accuracy of the set up will be displayed. If the points are not within 45 to 135 degrees of each other, an error message will appear at this location.

9. Continue to select and measure up to 5 total reference points.
10. Pressing the (+) button next to each reference point will give the computed distance and error to the other reference points. Press the (-) button to close the measured information tab.
11. If you shoot more than 2 reference points, you can press the check box next to each point to include or exclude the reference point in the set up. Use this function to help check control points or if a control point has moved.
12. You can reshoot each point at any time by pressing the **Reshoot** button.
13. Press **Accept** once you are satisfied with your results.



14. If you have checked the "Store Instrument Location After Instrument Setup" under the Settings menu (See Section 3.2), the Add Instrument Point window will appear. Enter the *Name*, *Description* and **Layer** for the Instrument Location. The XYZ location will be calculated based upon the control points.
15. Press the **OK** button or press **Cancel** to skip saving the instrument location.

Add Instrument Point
14

Name:

Description:

Layer:

X:

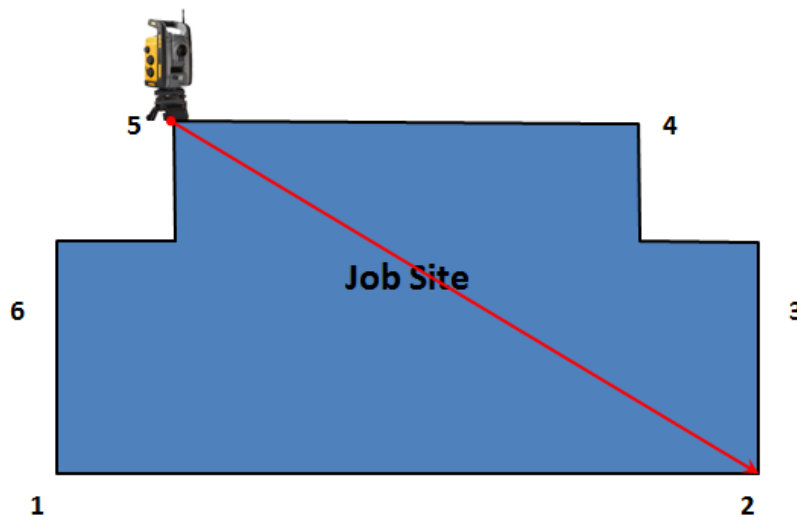
Y:

Elevation:

15
OK
Cancel

6.2 Set Up Instrument – Known Location

When setting up over a known point, the instrument is positioned (leveled and centered above the point with known coordinates x, y and z; in the example below point 5), and the prism is positioned (or DR is pointing) to another point with known coordinates (in the example below point 2). Knowing the location of both points, the software determines the initial instrument orientation and using basic mathematic principles (knowing the angle and distance) can calculate position of other points in the site.



1. Press the **Lay Out** menu.
2. Press the **Set Up Instrument** button. The **Anywhere** tab will be automatically selected.

3. Press the **Known Location** tab at the top right of the screen. The **Station** field will automatically be highlighted in blue.
4. Enter or select the **Station** of the instrument by pressing on it in the Map View, List view, or press in the Station field and type the point *Name* directly. Notice an image of the RTS will be placed over the selected point.
5. Press on the **Backsight** field and make sure it is highlighted in blue.
6. Enter or select the **Backsight** of the instrument by pressing on it in the Map View, List view, or press in the Backsight field and type the point *Name* directly.
7. Make sure the instrument is level and centered above the reference point, the rod height and prism type are correct in the Instrument Settings, and the RTS is locked onto the prism (or pointed at the control point directly in DR mode) at the correct point location.
8. Press the **Shoot** button. You can press the **Reshoot** button if you are not satisfied with the results or need to reposition the prism or DR.
9. The **Measured Distance Between Points** and the **Computed Distance Between Points** will be displayed at the lower right of the screen.
10. Press **Accept** once you are satisfied with your results.



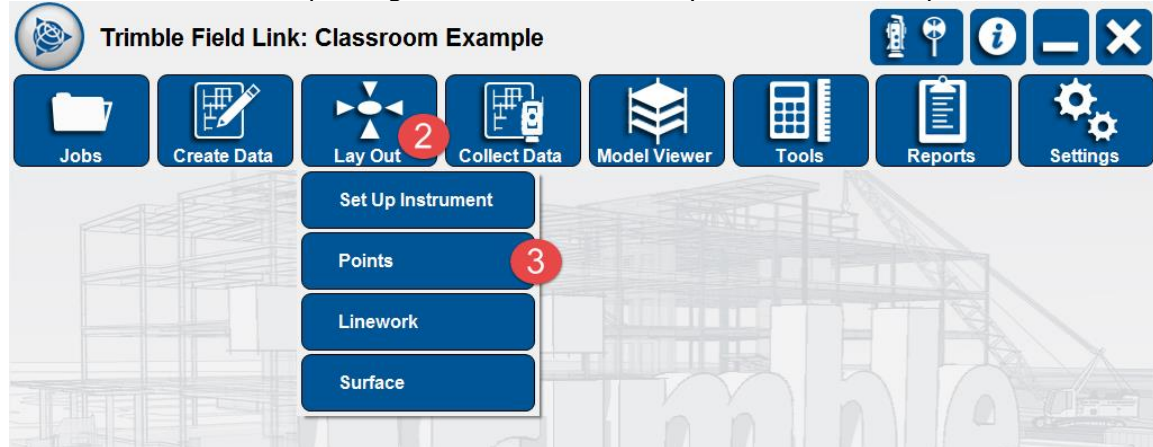
Tip

You can also start a job with no points or data and conduct a No Data Setup as covered under Section 7.1. The No Data Setup can be completed under the Lay Out or Collect Data menus.

6.3 Lay Out Points

Points can be created within the Trimble Field Link for Structures (See Section 5) or with office software such as Vico, Tekla, SketchUp, Trimble Business Center, Trimble Field Points for AutoCAD or Revit, Trimble Point Creator, or even other non-Trimble

software. The points shot or collected should be compared to the model to ensure any deviations, changes or issues are documented in the as-built model or drawings. See Section 4.5 for Exporting Points or 10.2 for Layout Deviation Reports.



1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Lay Out** menu.
3. Press the **Points** button.
4. The **Point** selection tab will be opened automatically. There are numerous options to select points for lay out including individually from the List View, individually or window selection in Map View, or use the filters to select groups of points by **Name**, **Layer** or **Description**.
5. The **Name** filter will be automatically selected. Check the box next to **Contains** and type in your filter criteria. The filter entry for **Name** and/or **Description** is case sensitive and must match the points exactly. You can also select points by selecting the appropriate layer under the **Layer** filter.
6. Press the **Select** button to add the points to the **Layout Point List**.
7. You can press the **X** button to the right of each point to remove points individually or press the **Clear List** button to remove all selected points.
8. Continue to add points to the **Layout Point List** by using the methods in step 4 and 5 above.

Trimble Field Link: Classroom Example

4 Point Lay Out

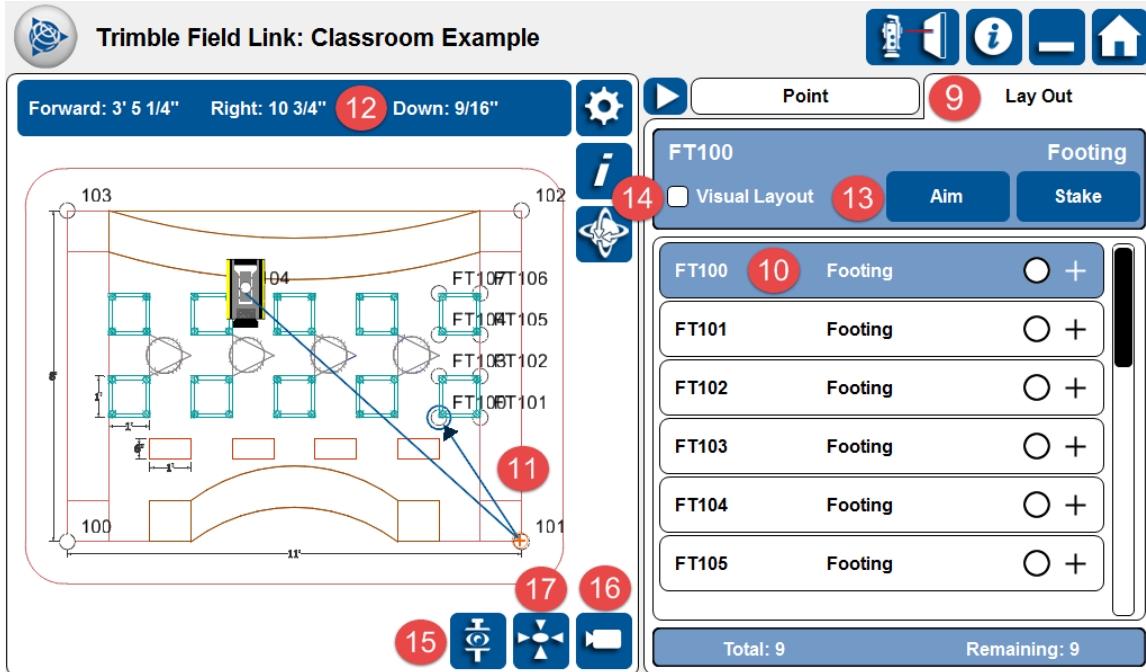
Name	Layer	Description
Point Name: 5 FT		<input checked="" type="checkbox"/> Contains
		6 Select



Layout Point List: Clear List

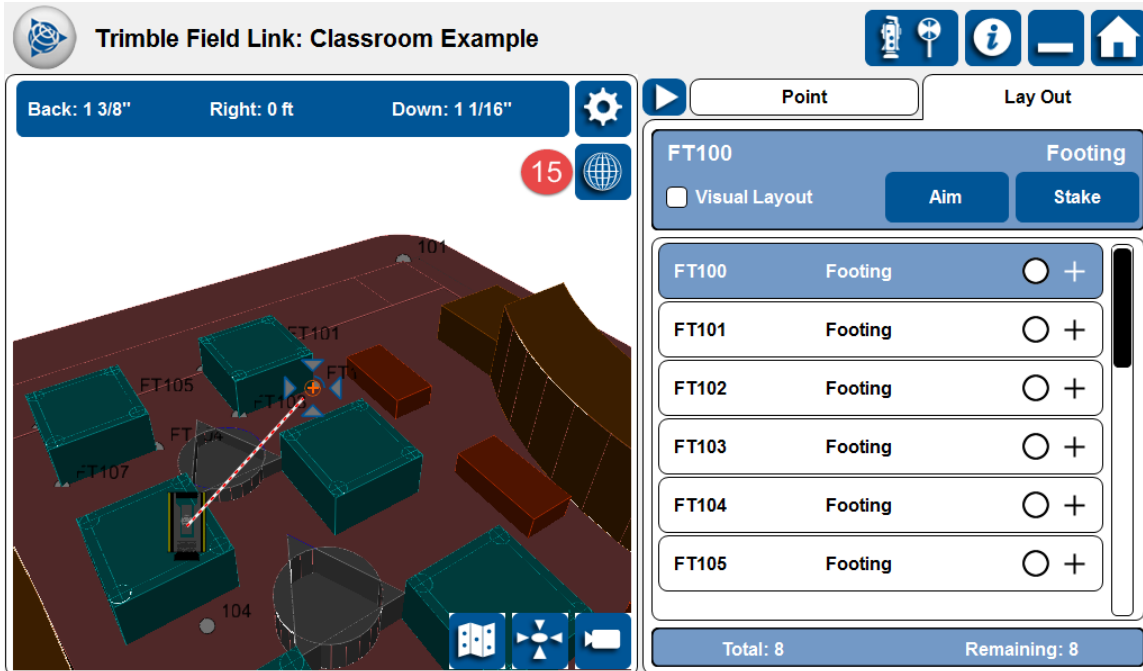
<input type="radio"/>	FT100	Footing	7 X
<input type="radio"/>	FT101	Footing	X
<input type="radio"/>	FT102	Footing	X
<input type="radio"/>	FT103	Footing	X
<input type="radio"/>	FT104	Footing	X
<input type="radio"/>	FT105	Footing	X
<input type="radio"/>	FT106	Footing	X
<input type="radio"/>	FT107	Footing	X

Total: 8

9. Once you are satisfied with your **Layout Point List**, press the **Lay Out** tab on the upper right.
10. With the **Lay Out** tab open, select the first point by pressing on it in the Map View on the left, or List View on the right.
11. The Map View will show the location of the RTS, the current position of the prism or DR, and directions to the selected point at the upper left of the screen.
12. Move the prism or DR according to the instructions on the screen. The Right/Left directions given are assuming you are facing the gun, Back is away from the instrument, Forward is towards the instrument. Pressing on the blue direction bar will toggle between directions (as shown) and Delta H and Delta V information.
13. You can also press the **Aim** button to move the instrument to the final location. However, unless in DR mode, no real time information on the location of the prism will be given until the prism is in the field of view of the RTS.
14. Press the check box next to **Visual Layout** to automatically switch the RTS to DR mode. You can then press the **Aim** button to get the laser beam close to the final location. Pressing the **Stake** button with the Visual Layout selected will cause the instrument to take a series of measurements to correct for any elevation issues automatically.



15. You can press the 3D Perspective Layout button to view the point location from the perspective of the RTS. Pressing the **Shaded**  or **Wireframe**  button in the upper left will change the view from Wireframe to Shaded and is only available in the 3D Perspective mode or the Model Viewer menu.

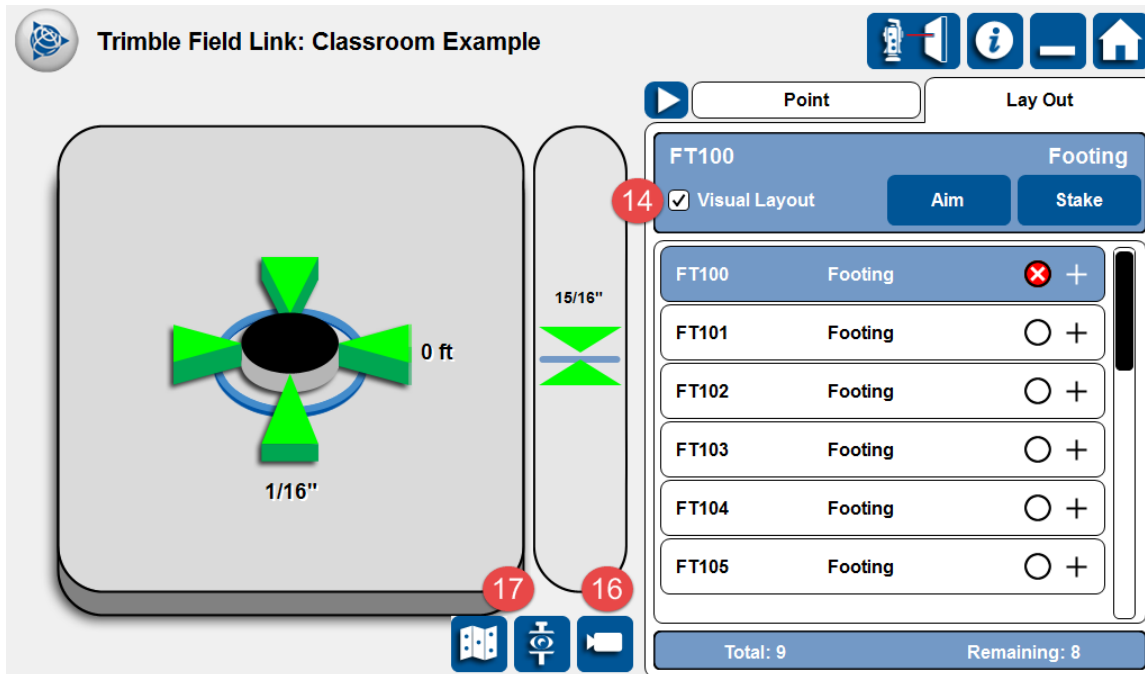


16. If your RTS is equipped with Trimble Vision, you can press the **Trimble Vision** button and move the RTS by pressing on the screen where you want the RTS to aim.

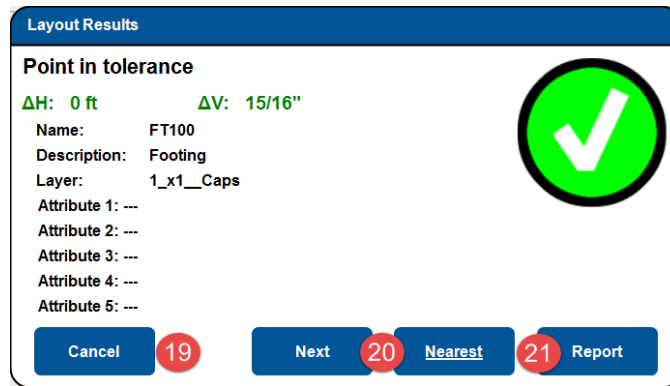
17. When you are within 3' of the point, the Map View will change to a Bulls' Eye view. Once you are within the tolerances input in the Settings menu (See Section 3.2 Setup & Lay Out) the Bulls' Eye will be surrounded in green arrows and the tablet will announce "Stake Point". The user can bring up the



bulls' eye view by selecting the bull's-eye icon or switch back to the Map View, 3D Perspective View, or Trimble Vision by pressing on the respective button.



18. Make sure the rod and prism are plum or the DR laser is in the correct position, then press the **Stake** button.
19. The Layout Results window will appear giving the staked point information. Press the **Cancel** button if you need to change the tolerance settings or stake the point again for a more accurate shot.
20. Press the **Next** or **Nearest** button if you are satisfied with the layout results. **Next** will select the next point sequentially in the list, **Nearest** will select the closest point to your current location.
21. Press the **Report** button to create a Field Report with point design and staked information, photos, and input additional information.




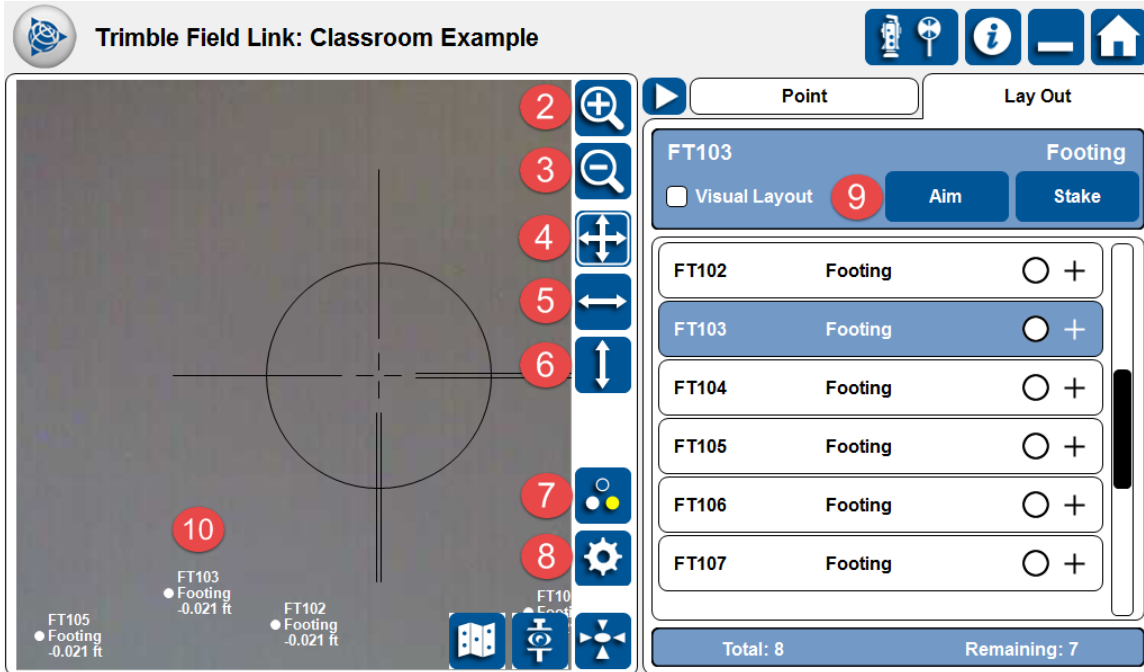
22. The List View will show staked points with a green check mark for those points staked within tolerance or red X for those points staked out of tolerance. Once the point has been staked, it will be removed from the Map View and can only be selected again from the List View in the Point List window.

6.4 Trimble Vision (RTS 773 and 873)

Trimble Vision allows the field crews to remotely control the RTS, see and measure through a live video feed from the Trimble RTS 773 or RTS 873 instrument on their Trimble Tablet within the Trimble Field Link software. Once in Trimble Vision mode, the crews can easily locate and stake field points and collected linework as they are overlaid on the real world imagery. If you press on the screen in the general area of the designated prism, the RTS will automatically lock onto the center of the prism.

While collecting data, the user can also control the RTS instruments while in Vision mode by pressing on the screen where you want to point the instrument with a process called Dynamic Joystick. You can zoom in up to 8x to lock onto items at a distance or ensure a more accurate measurement.

1. While in Map View under Lay Out Points or Linework, press the **Trimble Vision** button .
2. Press the **Zoom In** button up to 8x for magnification.
3. Press the **Zoom Out** button to go back to the original view.
4. The **Any Direction** arrow button should be automatically selected. Press anywhere on the screen to move the RTS to a desired location.
5. Press the **Horizontal** button to only move the RTS in the horizontal direction.
6. Press the **Vertical** button to only move the RTS in the vertical direction.
7. Press the **Color** button to change the point and information color to white, blue or yellow to increase the visibility on various background images.
8. Press the **Map Options** button to change the Vision setting from Standard to High resolution.
9. Press one of the points in the point list and then the **Aim** button. If you are utilizing a prism and can see it in the view of the RTS, press in the general area of the prism to automatically lock the RTS on the center of the prism.
10. Points in the area of view will be overlaid on the image on the screen.

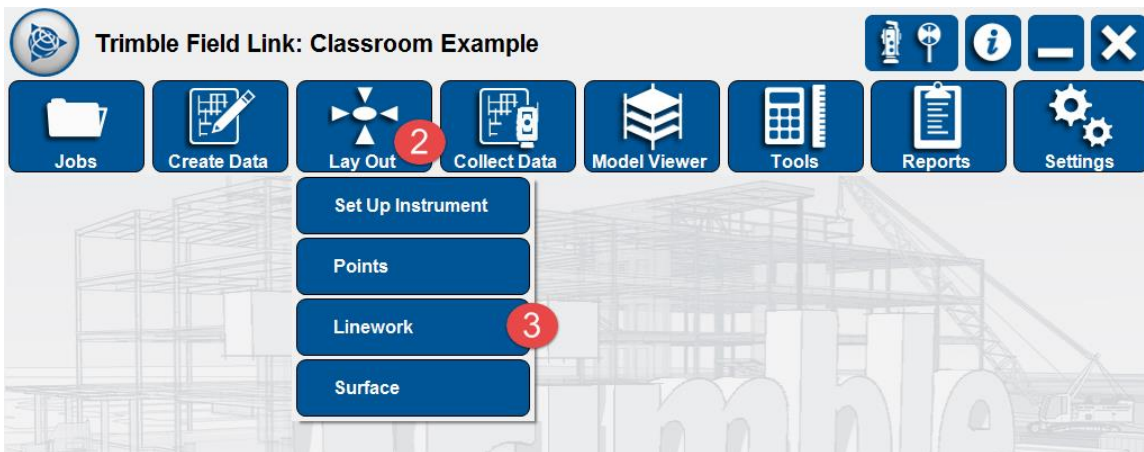


Note

Trimble Vision will take approximately 1 – 2 seconds to refresh the view on the screen so make sure to wait until the RTS has repositioned itself and the screen has updated before utilizing the Dynamic Joystick to aim the RTS.

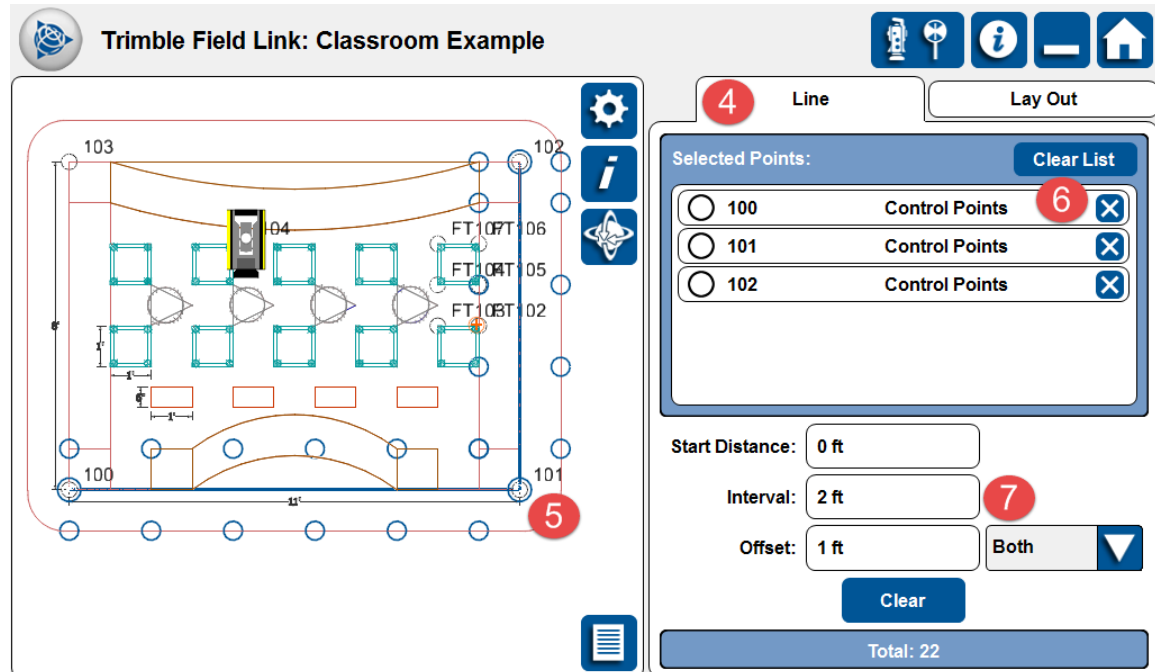
6.5 Lay Out Linework

Trimble Field Link for Structures provides the ability to layout linework by selecting 2 points to define a line segment or multiple points to define a polyline. The Lay Out Linework is similar Section 5.2 (Create Data – Offset Points) however, the points created in this section will not remain in the database until they are staked and there is no Vertical Offset abilities.



1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Lay Out** menu.
3. Press the **Linework** button.



- The **Line** selection tab will be opened automatically. You can select points to define the line by pressing on them individually from the List View or in the Map View.
- You can press the **X** button to the right of each point to remove points individually or press the **Clear List** button to remove all selected points.
- Continue to add points to the **Selected Points List** by using the methods in step 4 above to stake out a polyline.
- Define the **Start Point**, **Interval**, **Offset**, and **Right/Left/Both** selections. You can press the **Clear** button to reset these selections.



- Once you are satisfied with your **Line** selections, press the **Lay Out** tab in the upper right corner.
- With the **Lay Out** tab open, select the first point by pressing on it in the Map View on the left, or List View on the right.
- The Map View will show the location of the RTS, the current position of the prism or DR, and directions to the selected point at the upper left of the screen.
- Move the prism or DR according to the instructions on the screen on the upper left. You can press on the blue direction bar to toggle between Forward/Back, Left/Right, Up/Down to the Down and O/S (Offset) from line mode. The Down and O/S mode is useful to give general directions to a line when there may be obstructions in the way of layout.
- You can also press the **Aim** button to move the instrument to the final location. However, unless in DR mode, no real time information on the location of the prism will be given until the prism is in the field of view of the RTS.
- Press the check box next to **Visual Layout** to automatically switch the RTS to DR mode. You can then press the **Aim** button to get the laser beam close to the final location. Pressing the **Stake** button with the Visual Layout selected


will cause the instrument to take a series of measurements to correct for any elevation issues automatically.

14. You can press the 3D Perspective Layout button to view the point location

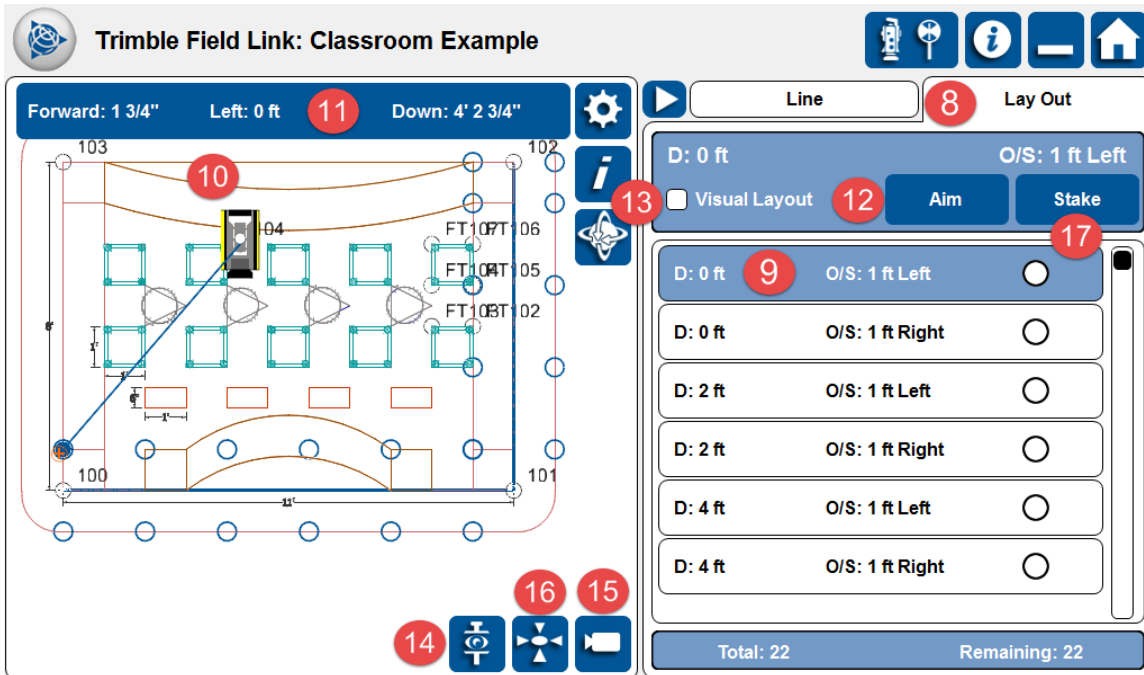
from the perspective of the RTS. Pressing the **Shaded**  or **Wireframe**  button in the upper left will change the view from Wireframe to Shaded and is only available in the 3D Perspective mode or the Model Viewer menu.

15. If your RTS is equipped with Trimble Vision, you can press the **Trimble Vision** button and move the RTS by pressing on the screen where you want the RTS to aim.

16. When you are within 3' of the point, the Map View will change to a Bulls' Eye view. Once you are within the tolerances input in the Settings menu (See Section 3.2 Setup & Lay Out) the Bulls' Eye will be surrounded in green arrows and the tablet will announce "Stake Point". The user can bring up the

bulls' eye view by selecting the bull's-eye icon  or switch back to the Map View, 3D Perspective View, or Trimble Vision by pressing on the respective button.

17. Make sure the rod and prism are plum or the DR laser is in the correct position, then press the **Stake** button.

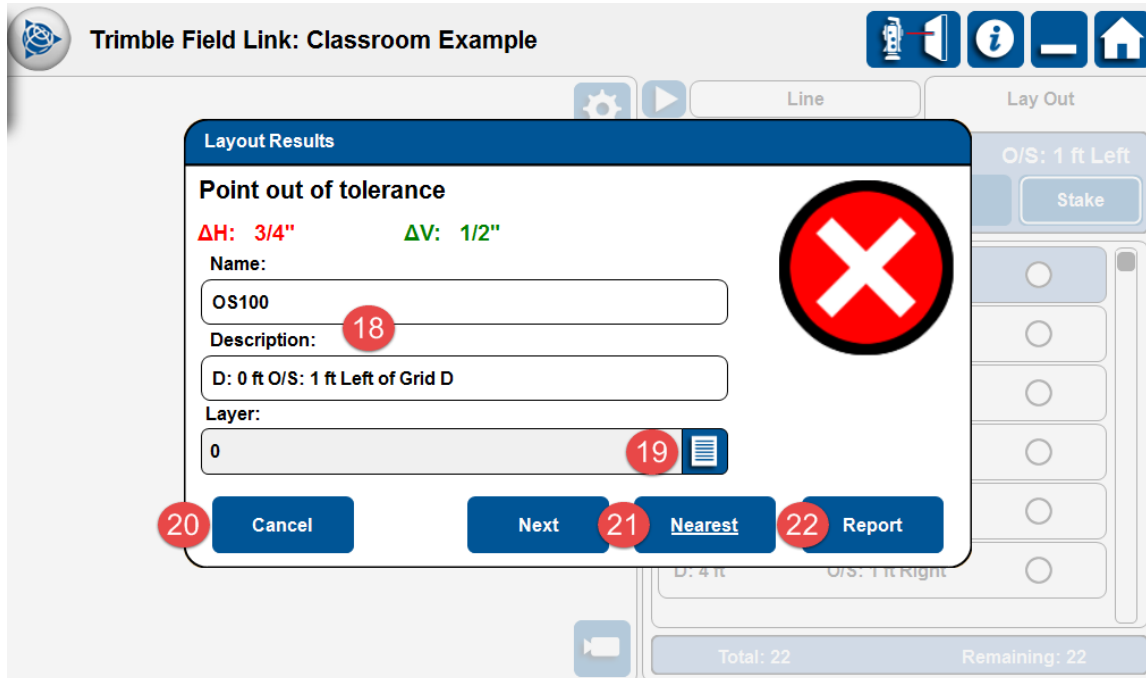


18. The Layout Results window will appear giving the staked point information. By default, the Name, Description and Layer will be created. You can change the *Name* and *Description* by pressing and typing new selections in the fields.

19. Select the destination **Layer** for the new point.

20. Press the **Cancel** button if you need to change the tolerance settings or stake the point again for a more accurate shot.

21. Press the **Next** or **Nearest** button if you are satisfied with the layout results. **Next** will select the next point sequentially in the list, **Nearest** will select the closest point to your current location.
22. Press the **Report** button to create a Field Report with point design and staked information, photos, and input additional information.

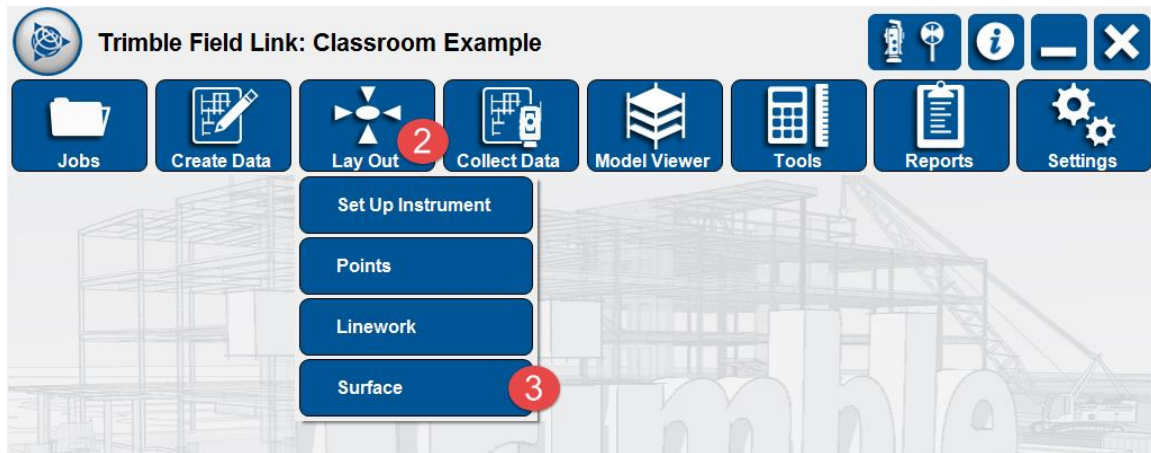


23. The List View will show staked points with a green check mark for those points staked within tolerance or red X for those points staked out of tolerance.

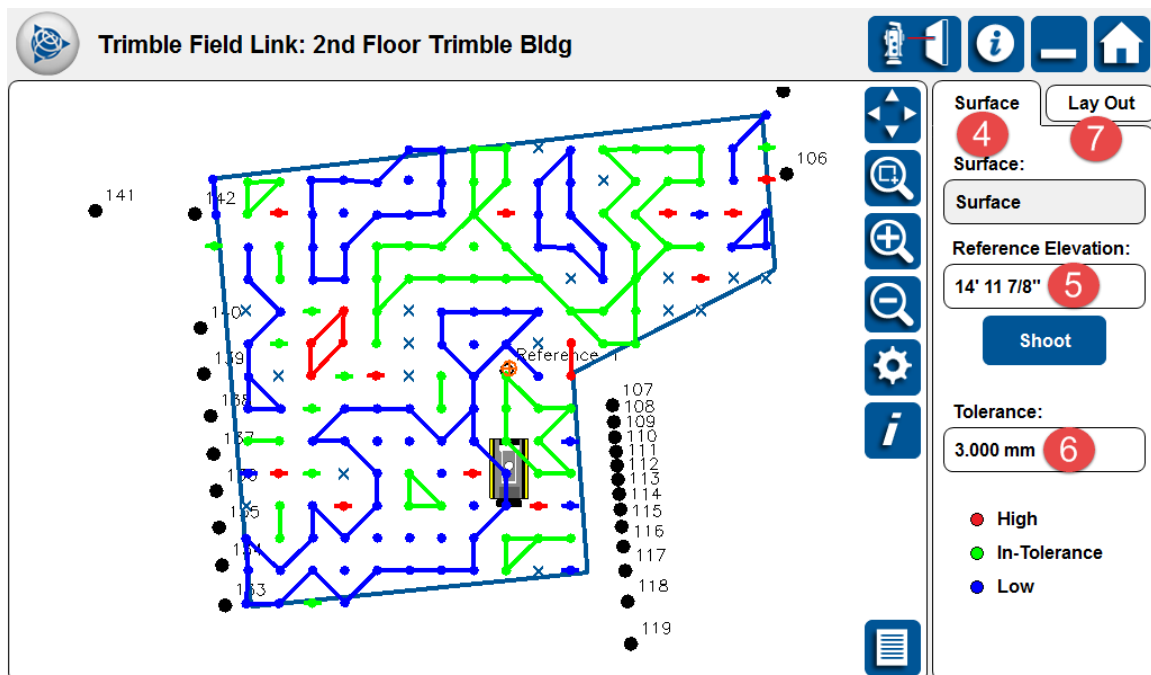
6.6 Lay Out Surface (Optional Module)

Trimble Field Link for Structures provides the ability to lay out surface contours within the Surface Module. In order to use this functionality the surface first must be collected. Surface Collection will be discussed later in this document.

Trimble Field Link allows user to lay out the points along the contours to identify the locations with high or low elevation in the field without having to go back to the office and perform calculations in a design application. The contours are generated based on the points defined and measured in the surface. If very precise contours are needed, then the surface should be created with a close grid spacing.



1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Lay Out** menu.
3. Press the **Surface** button.
4. The **Surface** selection tab will be opened automatically. You can select the surface by pressing on it in the List View or on one of the surface boundaries in the Map View.
5. Define an **Elevation** by typing the entry in the *Elevation* field, or using DR or Prism mode to **Shoot** a reference elevation for the surface.
6. Enter a **Tolerance** for the surface to define High, In-Tolerance or Low points and contours for the collected surface.
7. Once you are satisfied with your **Surface** settings, press the **Lay Out** tab in the upper right corner.



8. With the **Lay Out** tab open, select the first point or contour by pressing on it in the Map View.

9. The Map View will show the location of the RTS, the current position of the prism or DR, and directions to the selected point at the upper left of the screen.
10. Move the prism or DR according to the instructions on the screen on the upper left. You can press on the blue direction bar to toggle between Forward/Back, Left/Right, Up/Down to the Down and O/S (Offset) from line mode. The Down and O/S mode is useful to give general directions to a line when there may be obstructions in the way of layout.
11. Press the **Visual Layout** check box to automatically turn on DR mode and press **Aim**. Press **Stake** if you are in Prism mode.
12. Press the **Advance Points** buttons to move to the next point on each individual contour line or select a new contour or point to lay out.

Choose Point to Layout on Low Contour

The screenshot displays the Trimble Field Link software interface for a project titled "Trimble Field Link: 2nd Floor Trimble Bldg". The top status bar shows navigation icons and a blue direction bar with the following instructions: "Forward: 1' 8 7/8\"", "Right: 2' 7 1/16\"", and "Down: 1/16\"". A red circle with the number 10 is placed over the "Forward" instruction.

The central map area shows a complex layout of blue and green lines representing contours. A red circle with the number 8 is placed over a specific point on the layout. A red circle with the number 9 is placed over a point labeled "Reference". A red circle with the number 7 is placed over the "Surface" label in the right-hand panel.

The right-hand panel contains a "Lay Out" section with the following controls and data:

- Buttons: "Aim", "Stake", and a checked checkbox for "Visual Layout" (marked with a red circle 11).
- Contour Type: Low
- Points In Contour: 14
- Points Staked: 10
- % Staked: 71.43
- Advance Points: (marked with a red circle 12) with navigation buttons: <<, <, >, >>

At the bottom of the map area, there is a vertical list of points numbered 107 through 119. A red circle with the number 12 is placed over the "Advance Points" label in the right-hand panel.

Choose Point to Layout on High Contour

Trimble Field Link: 2nd Floor Trimble Bldg

Forward: 1' 11 13/16" Left: 2' 1 7/8" Up: 1/4"

Surface Lay Out

Aim

Stake

Visual Layout

Contour Type:
High

Points In Contour:
4

Points Staked:
3

% Staked:
75.00

Advance Points:

141, 142, 140, 139, 138, 137, 136, 135, 134, 133, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119

Summary

After review of this **Lay Out** module, you should now understand how to:

- ✓ Set up the RTS instrument on a known or unknown location.
- ✓ Select a group of points to lay out based upon Name, Layer or Description and commence to lay those points out.
- ✓ Lay out lines based upon two or more points with points along the line, or offsets of the line horizontally or vertically.
- ✓ (Optional Module) Lay out a surface after the surface has been collected.

Review Questions

1. In order to complete an Instrument Setup on a known or unknown location, you need a minimum of how many control points?
 - a. 5
 - b. 2
 - c. 3
 - d. 1
2. Trimble Field Link will require that if you are setting up on an unknown location with only 2 control points, the control points will be within a 45 to 135 degree triangle from the instrument. If this type of triangle is not achieved, additional control points will need to be shot or the instrument set up in another location.
 - a. True.

- b. False.
- 3. You can select points for the Lay Out Point list by which of the following methods?
 - a. Individually from the List or Map View.
 - b. Window selection in the Map View.
 - c. Using the Name, Layer or Description Filter.
 - d. All of the above.
- 4. Pressing the Visual Layout check box will automatically switch the RTS to DR Mode and correct for elevation discrepancies.
 - a. True.
 - b. False.
- 5. Switching to 3D Perspective Layout will only allow Wireframe mode.
 - a. True.
 - b. False.
- 6. Using an RTS 773 or 873 with Trimble Vision allows which of the following actions?
 - a. View the project with point information overlaid on the image.
 - b. Center on a prism by pressing near it on the tablet screen.
 - c. Move the instrument with the Dynamic Joystick touch screen.
 - d. All of the above.
- 7. Once your prism or DR mode is within 3' of the layout point, the screen will automatically change to the bulls' eye view.
 - a. True.
 - b. False.
- 8. The Layout Results window will show the deviations from the design point, whether the point was in or out of tolerances, point information and give the user which of the following options?
 - a. Canceling the shot.
 - b. Select the Next sequential point.
 - c. Select the Nearest point.
 - d. Create a Field Report with the point information.
 - e. All of the above.

9. In order to stake a line or polyline, you must define which of the following information?
- a. Start Point.
 - b. Interval distance.
 - c. Offset distance.
 - d. All of the above.
10. While laying out linework, you can toggle the direction bar between Forward/Back/Left/Right to Down and Out by pressing the blue bar.
- a. True.
 - b. False.

7. Collect Data menu

See Section 6.1 for instructions on Set Up Instrument Anywhere or Section 6.2 for Set Up Instrument on Known Locations. Once the Instrument Setup has been completed under the Layout or Collect Data menus, you can move between either menu without performing another Instrument Setup. Pressing the Instrument Setup buttons again will require a new Setup to be performed.

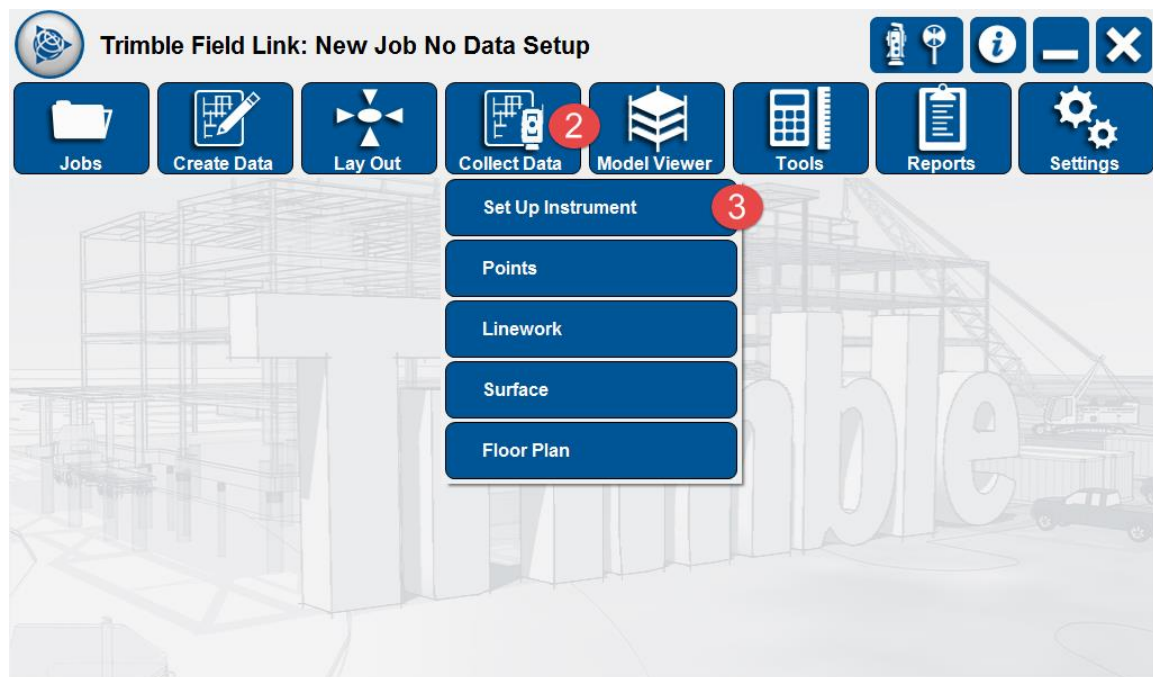
Training Objectives

Upon completion of this **Collect Data** module, you will be able to:

- ✓ Set up the RTS instrument without any project information using the **Set Up Instrument – No Data** option.
- ✓ **Collect Points** for accurate as-built project information.
- ✓ **Collect Linework** to assist the office and field understand relationships between points.
- ✓ **(Optional Module) Collect Surface** to check for floor flatness or ceiling elevations.
- ✓ Use **Collect Floor Plan** module to quickly and automatically collect points in an enclosed room or area.

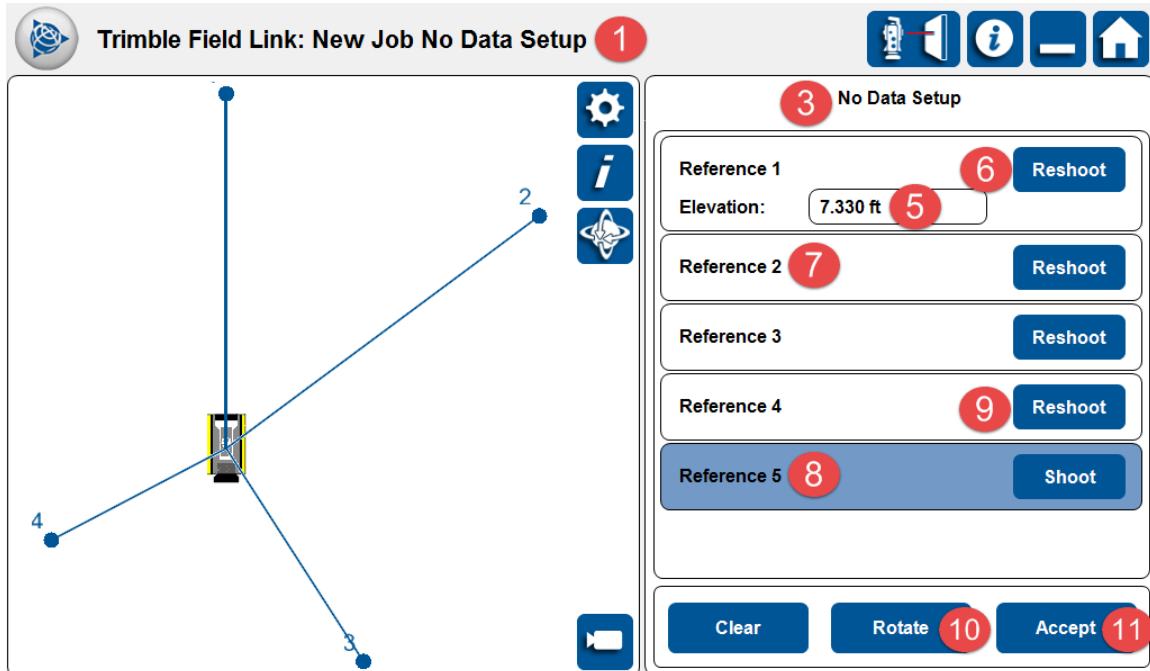
7.1 Set Up Instrument – No Data

Trimble Field Link for Structures allows users the ability to set up the instrument when no points are provided in the job file. This feature allows users to collect as-built data without having to manually enter reference point coordinates. The user is able to create reference points in the field, store the measured points as design points and rotate the map to the desired orientation in the as-built project file.



1. Create a new project by pressing **Jobs, Manage, New** (See Section 4.1).

2. Press the **Collect Data** menu.
3. Press the **Set Up Instrument** button. The **No Data Setup** tab will be automatically selected.
4. Make sure the instrument is level, the rod height and prism type are correct in the Instrument Settings, and the RTS is locked onto the prism (or pointed at the control point directly in DR mode) at the correct point location.
5. Enter an *Elevation of Reference 1*.
6. Press the **Shoot** button.
7. Following the same procedures as in Step 4 for **Reference 2**, press the **Shoot** button.
8. Continue to select and measure up to 5 total reference points.
9. You can reshoot each point at any time by pressing the **Reshoot** button.
10. Press the **Rotate** button to get the desired orientation on the screen.
11. Press **Accept** once you are satisfied with your results.



Important



Make sure to check your backsight or stake your control points periodically to ensure the instrument has not shifted locations due to settlement, thermal changes, or interference.

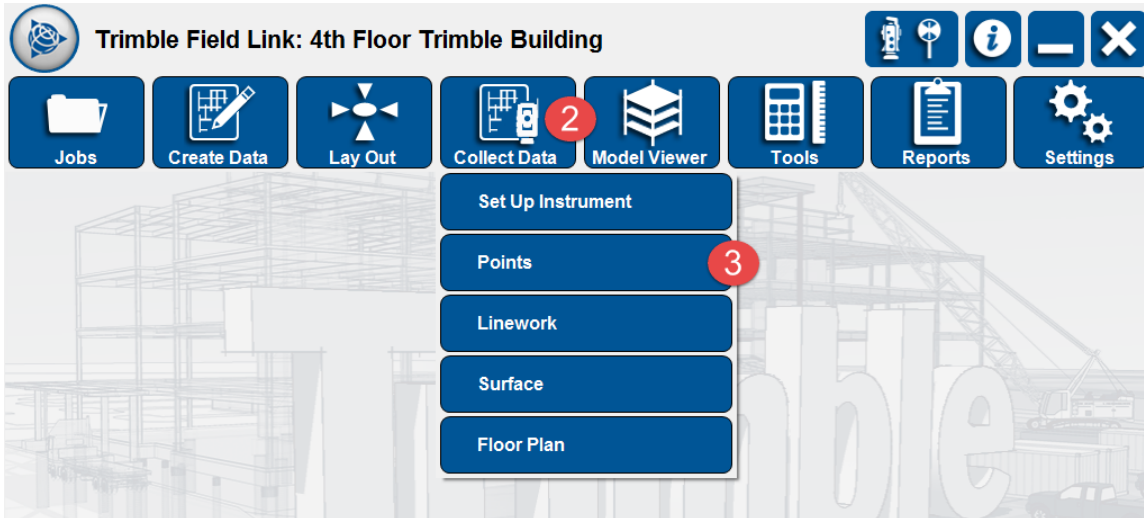
7.2 Collect Points

Use the Collect Points process to save project information such as existing utilities, foundations, anchor bolts, or any other type of project information.

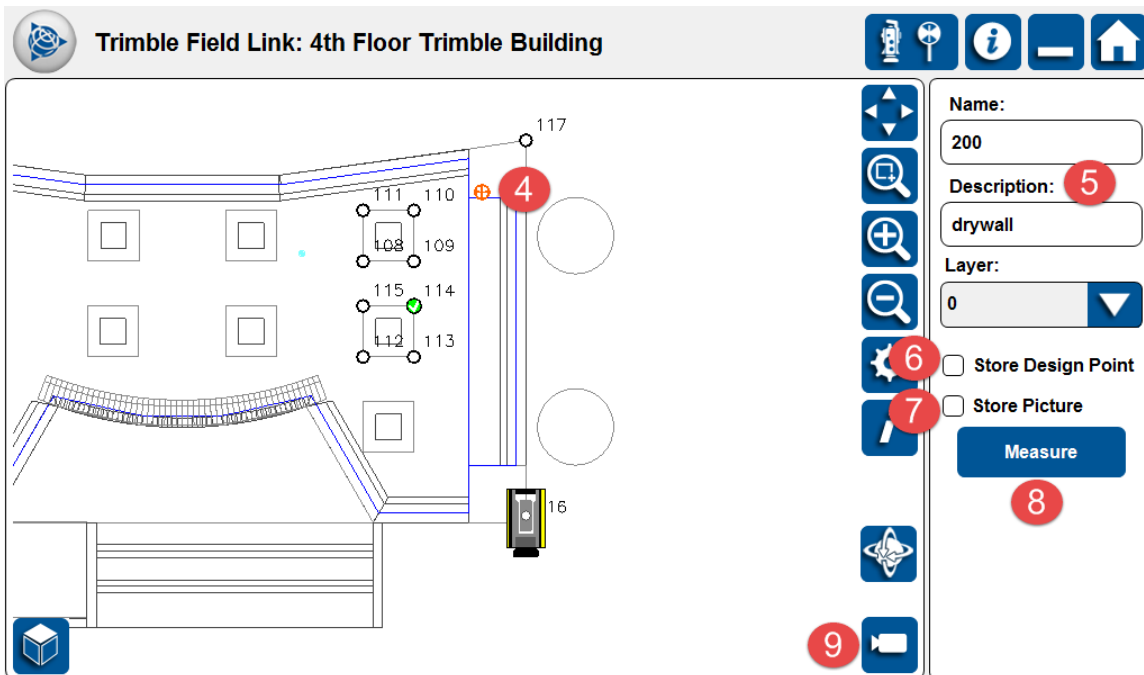



Tip

Use of Feature Codes sets such as AB for Anchor Bolts, TR for Tree, TBC for Top Back of Curb, can help the field and office team understand collected items faster and easier. Feature Codes can also help save time in the office by automatically creating drawings or 3D model information in certain software.



1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Collect Data** menu.
3. Press the **Points** button.



4. Position the prism or the laser pointer on the location to be measured. The prism or DR position is displayed with the symbol  in Map View.
5. Define the *Name*, *Description* and **Layer**.

6. Press the check box for **Store Design Point** to be able to be able to lay out the collected points.
7. Press the check box to **Store Picture** if using an RTS with Trimble Vision. This option will store a date stamped photo of the point from the instrument under Documents/Trimble Field Link/Images/Job Folder/Point Name. These photos can be used later for Field Reporting or other documentation of field conditions.
8. Press the **Measure** button to collect the point.
9. See Section 6.4 Trimble Vision for use with the RTS 773 and/or 873 to collect points or move the RTS by pressing on the screen view.

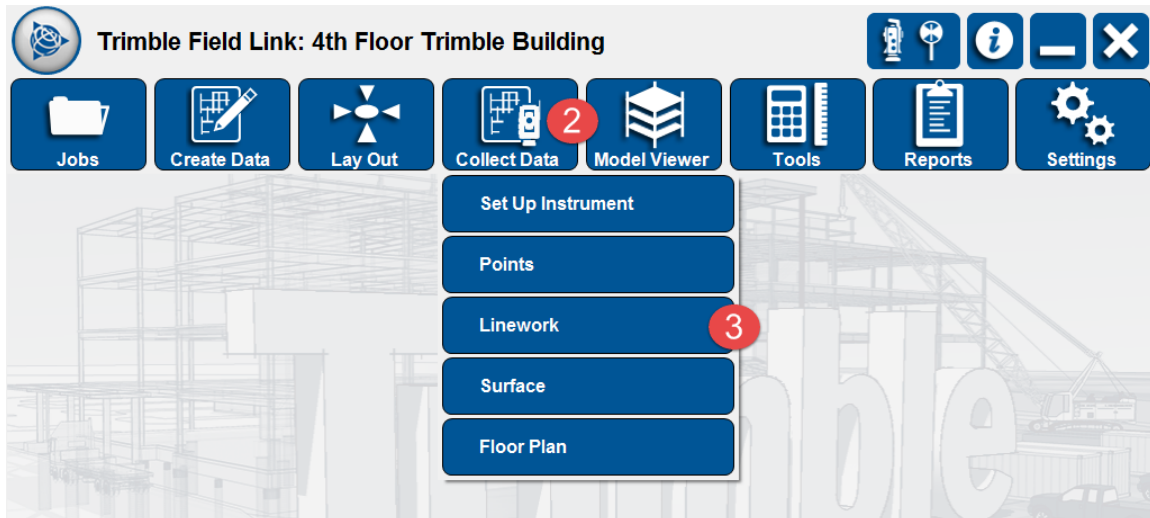
Important



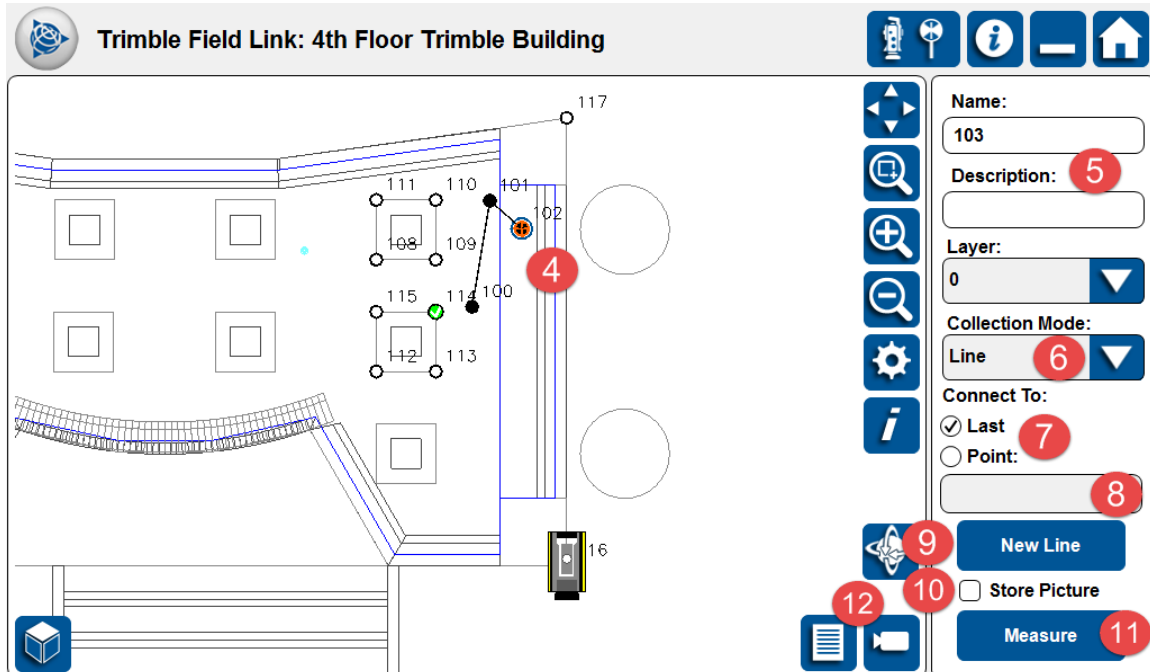
If you do not check the box for **Store Design Point**, you will not be able to layout the collected points immediately. You will need to export these collected points as a .csv file and import them to be able to layout the points.


7.3 Collect Linework

Use the Collect Linework process to save information such as ceiling or floor lines, inside and outside building corners, doorways, windows, utilities or any other type of linework information. This process can help save time by creating drawings or 3D model information automatically in the field.



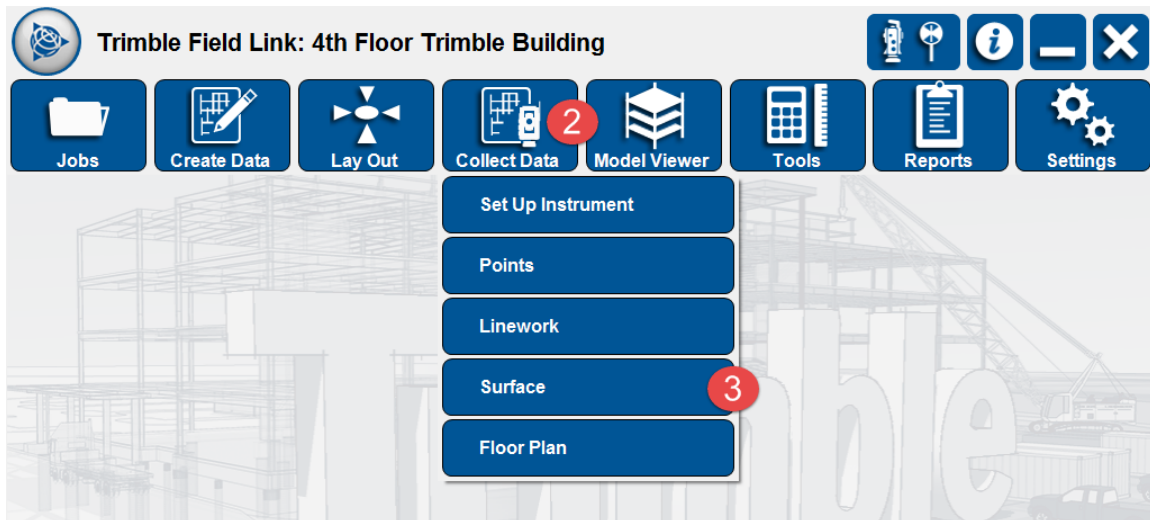
1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Collect Data** menu.
3. Press the **Linework** button.



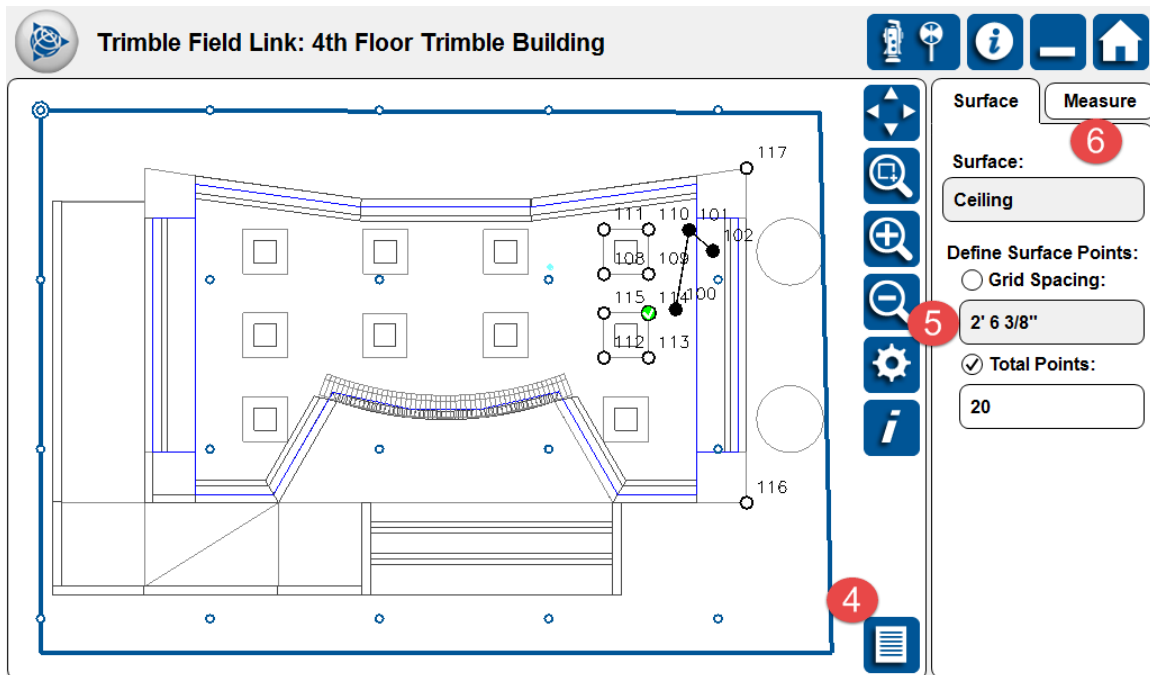
4. Position the prism or the laser pointer on the location to be measured. The prism or DR position is displayed with the symbol  in Map View.
5. Define the *Name*, *Description* and **Layer**.
6. Press the drop down arrow below **Collection Mode** to select **Line** or **Arc**. A line only requires two points while an arc requires at least three points.
7. Press the check box next to **Last** or **Point** under **Connect To**. You can connect the line to a previously collected or design point by using **Last**.
8. If **Connect To Point** is selected, enter the point number or select the point from the Map or List View.
9. Press the **New Line** button to stop the current linework and start a new line.
10. Press the check box to **Store Picture** if using an RTS with Trimble Vision. This option will store a date stamped photo of the point from the instrument under Documents/Trimble Field Link/Images/Job Folder/Point Name. These photos can be used later for Field Reporting or other documentation of field conditions.
11. Press the **Measure** button to collect the linework point.
12. See Section 6.4 Trimble Vision for use with the RTS 773 and/or 873 to collect points or move the RTS by pressing on the screen view.

7.4 Collect Surface (Optional Module)

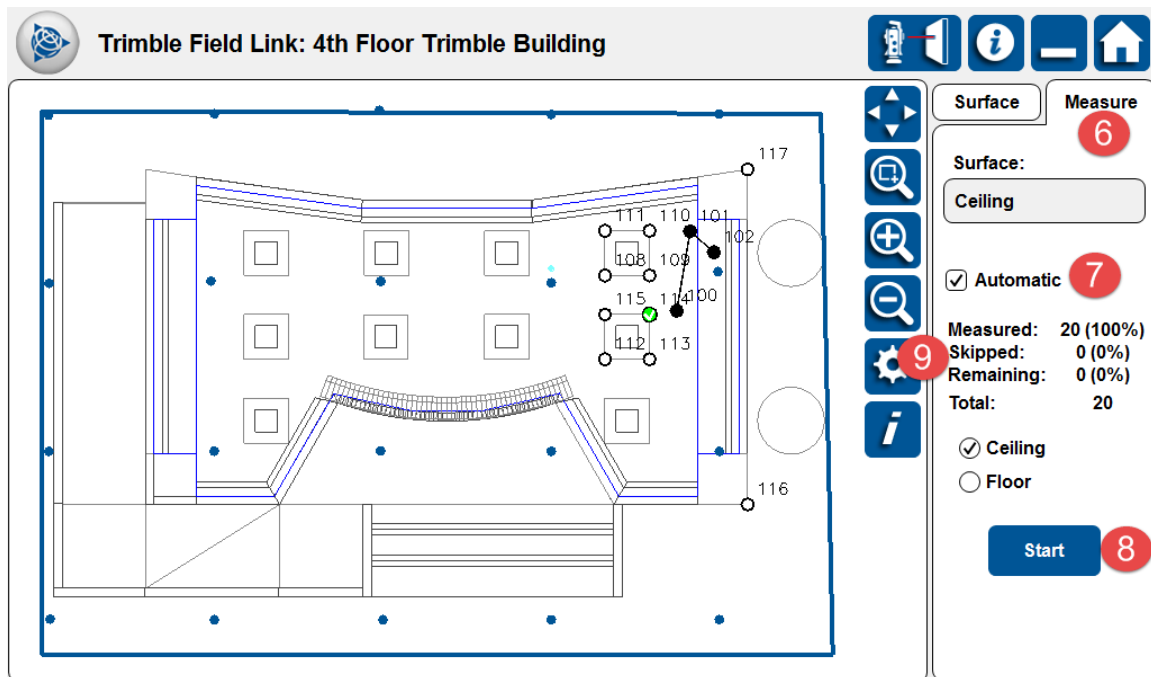
Use the Collect Surface process to quickly gather information such as ceiling surfaces, floor flatness, or topographic information. Before using Collect Surface, you must create a surface as described in Section 5.6 Surface Manager.




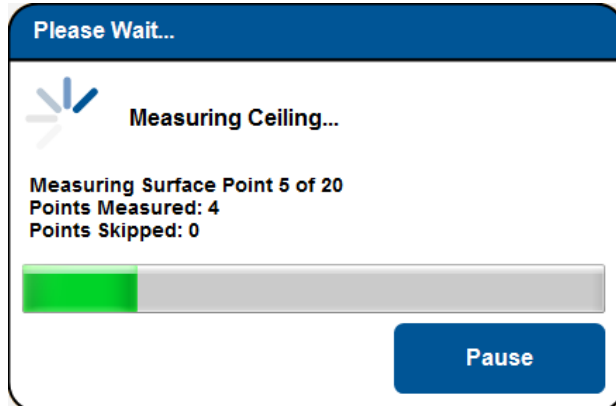
1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Collect Data** menu.
3. Press the **Surface** button.



4. The Surface menu will be automatically selected. Press on one of the surfaces created under Section 5.6 Surface Manager, in either Map View or List View.
5. Under **Define Surface Point**, select the check box next to **Grid Spacing** to define points at a certain interval (e.g. 6" on center or 10' on center), or select the check box next to **Total Points** to define the *Number* of points to collect. Defining either the Grid Spacing or Total Points will automatically populate the other field.
6. Press the **Measure** tab at the upper right corner.
7. Press the check box next to **Automatic** to have the instrument switch to DR mode and collect the surface automatically once you press the **Start** button.



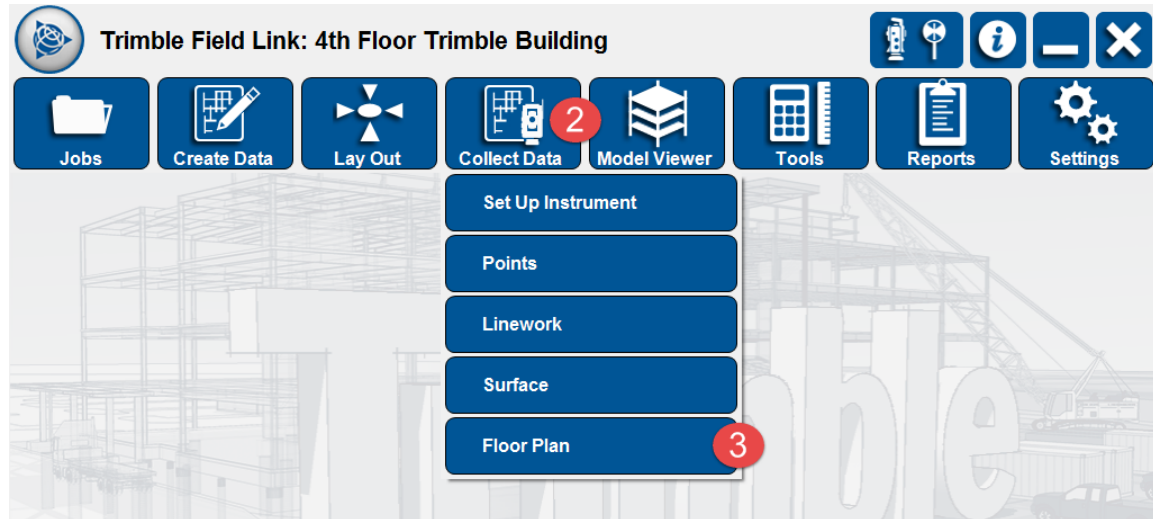
8. If you do not check the box next to **Automatic**, position the prism or the laser pointer according to the directions at the top of the screen on the location to be measured. The prism or DR position is displayed with the symbol . Press the **Measure** button for each surface point.



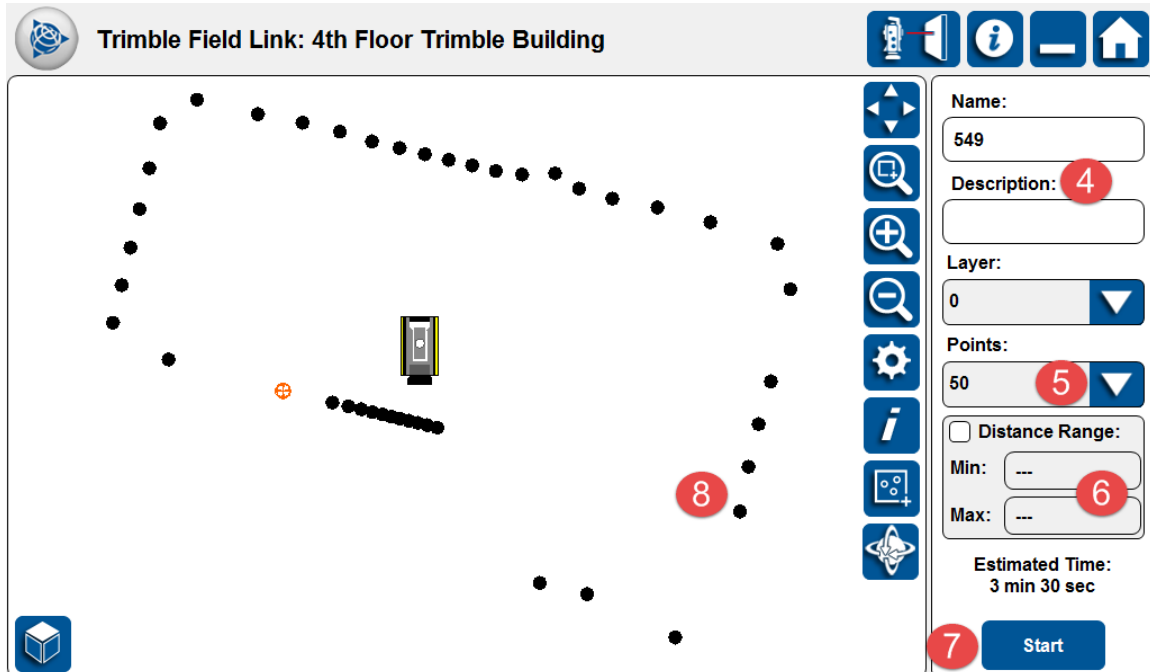
9. The number of points and percentage status of the surface collection will be displayed next to **Measured**, **Skipped**, and **Remaining** on the right. Once the process is complete
10. The surface collection will be complete when **Measured** shows 100%. Any points skipped during the collection process due to obstructions, major elevation changes, or reflectivity, will be shown on the Map View as Red X's.
11. You may need to move the instrument to collect remaining points in manual mode or disregard these points.
12. Once complete, go to **Surface Report** (Section 10.4) to set the reference elevation and tolerances, show calculations of high and low areas, volumes, contour lines and other surface data.

7.4 Collect Floor Plan

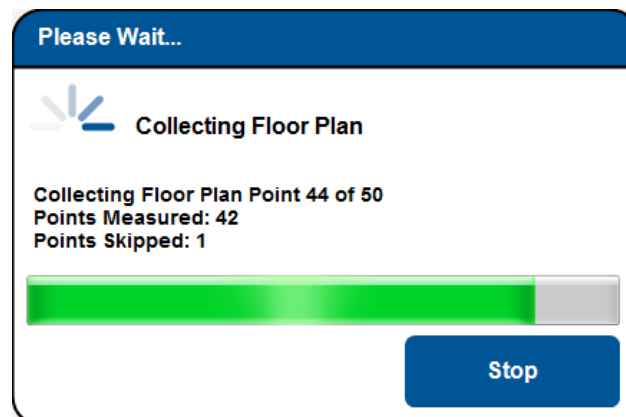
Collecting a floor plan is an automated routine utilizing DR Mode to collect the footprint of a room or enclosed area without manually pointing and shooting the instrument. The instrument will shoot 50, 100, 200 or 400 points at equal degrees along the horizontal plane to produce rough outlines of the project.



1. Ensure a proper **Instrument Set Up** has been Accepted.
2. Press the **Collect Data** menu.
3. Press the **Floor Plan** button. The instrument will automatically revert to the DR Mode.
4. Define the *Name*, *Description*, and **Layer** for the first point.
5. Press the dropdown arrow below **Points** to define the total number of points to be collected (options are 50, 100, 200 or 400). The collection time for the number of points selected will show at the bottom right of the screen.
6. If necessary, check the box next to **Distance Range** and input the *Minimum* and *Maximum* distances to be recorded.



7. Press the **Start** button. A window will appear showing the status of point collection until completed.



8. Once complete, the points will show on the Map View and each point will be stored for later export.

Summary

After review of this **Collect Data** module, you should now understand how to:

- ✓ Set up the RTS instrument without any project information using the **Set Up Instrument – No Data** option.
- ✓ **Collect Points** for accurate as-built project information.
- ✓ **Collect Linework** to assist the office and field understand relationships between points.
- ✓ **(Optional Module) Collect Surface** to check for floor flatness or ceiling elevations.

-
- ✓ Use **Collect Floor Plan** module to quickly and automatically collect points in an enclosed room or area.

Review Questions

1. No Data Setup allows the user to setup the instrument only if there is existing model data.
 - a. True.
 - b. False.
2. Which of the following items must be defined before a point can be collected?
 - a. Name.
 - b. Description.
 - c. Layer.
 - d. Photo.
3. You must check the Store Design Point box to be able to lay out the points without exporting them if collected under Collect Data menu.
 - a. True.
 - b. False.
4. Under Collect Linework, you can collect all of the following items except:
 - a. Lines.
 - b. Arcs.
 - c. Photos.
 - d. Surfaces.
5. Under Collect Linework, you can make continuous lines by using the check box next to Last or Point and defining the point to connect to.
 - a. True.
 - b. False.
6. The Collect Surface optional module will allow for the automatic or manual collection of points for which of the following?
 - a. Ceilings.
 - b. Floors.
 - c. At specified grid spacing.
 - d. All of the above.

7. The Collect Floor Plan module allows for the automatic collection of how many horizontal points around the Robotic Total Station?
- a. 50.
 - b. 100.
 - c. 200.
 - d. 400.
 - e. All of the above.

8. Model Viewer menu

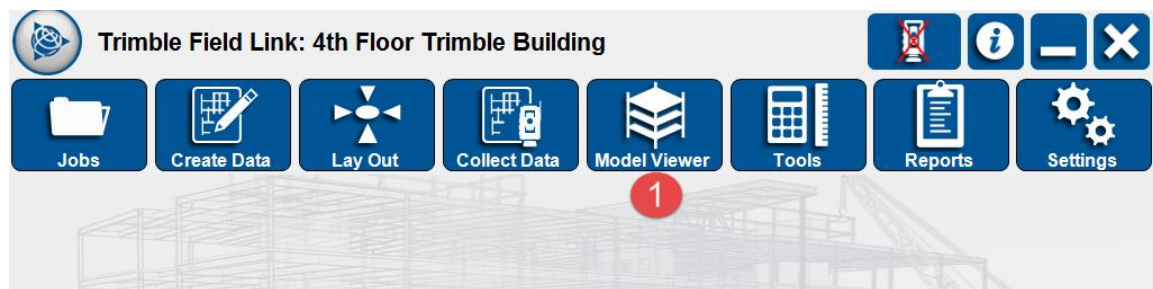
Training Objectives

Upon completion of this **Model Viewer** module, you will be able to:

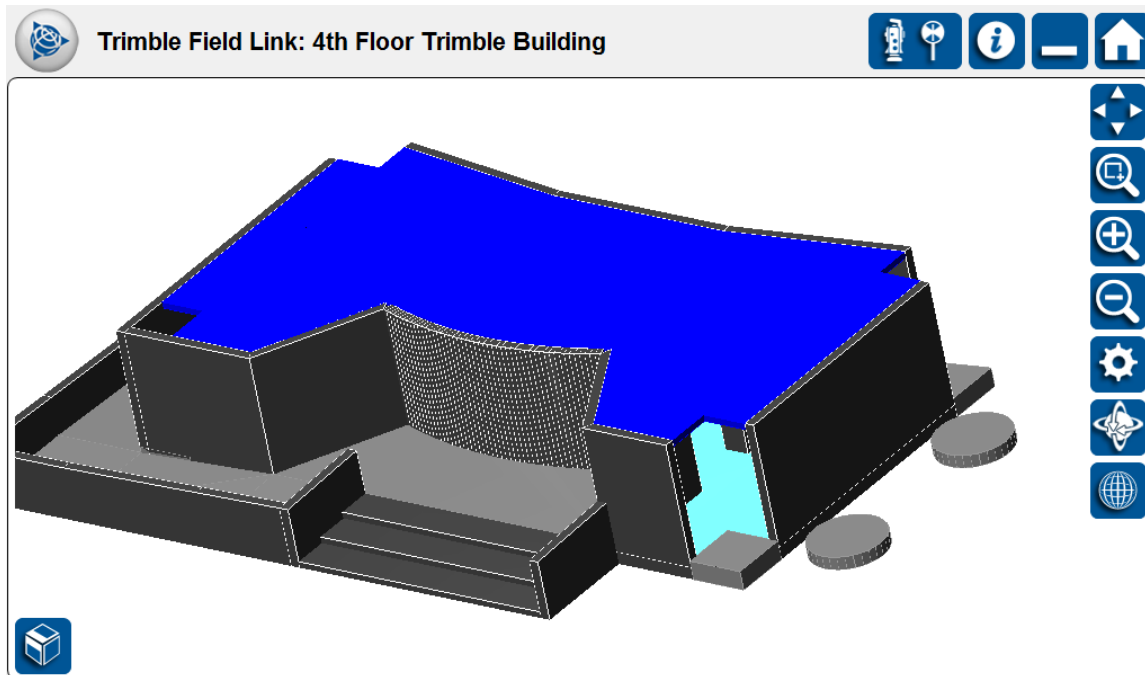
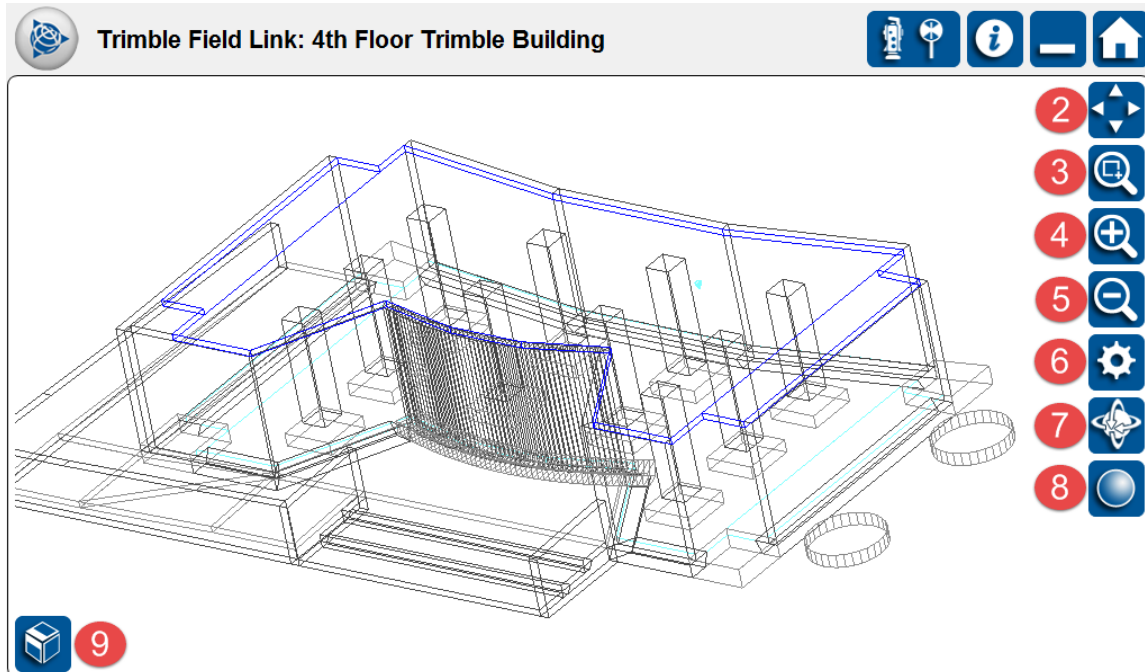
- ✓ View the model with the full screen in wire frame or solid mode.
- ✓ Use the settings icon to turn off layers and change background colors.
- ✓ Understand the single touch controls available under the Settings menu.

8.1 Model Viewer

Model Viewer allows a larger viewing screen and enables users to view models in 3D view as a wireframe or a solid model. The **Settings** icon allows for viewing only specific layers and changing the background color. The screen shots below show the single touch controls for reference as detailed under Section 3.2 Setup & Layout.



1. Press the **Model Viewer** menu. The directions below are given in the Single Touch Control Options as selected under Section 3.2. Use the Capacitive Touch Screen Controls detailed in Section 1.5 if Single Touch Controls are not activated.
2. Press the **Zoom All** button to zoom out to the entire view of the project. You can use this button to return to the entire project view at any time.
3. Press the **Zoom Window** button to create a window to zoom into view.
4. Press the **Zoom In** button to zoom in on the entire project. You can press this button repeatedly to zoom the entire project, then pan or rotate the view.
5. Press the **Zoom Out** button to zoom out on the entire project.
6. Press the **Map Options** button to change the Background color to Black, White or Blueprint. You can also use Map Options to turn off or on model layers.
7. Press the **Rotate** button to toggle between rotate or **Pan**.
8. Press the **Solid** button to toggle between solid or **Wireframe** view.
9. Press the **View Cube** button to toggle between preset views of the model.



Summary

After review of this **Model Viewer** module, you should now understand how to:

- ✓ View the model with the full screen in wire frame or solid mode.
- ✓ Use the settings icon to turn off layers and change background colors.
- ✓ Use the single touch controls available under the Settings menu.

Review Questions

1. The Model Viewer menu allows for the viewing of point information including Name, Description, Elevation and Layers.
 - a. True.
 - b. False.
2. Which of the following viewing modes are available in the Model Viewer?
 - a. Trimble Vision.
 - b. Bulls' eye.
 - c. Solid.
 - d. Point List View.
3. Single touch controls are only available under the Model Viewer.
 - a. True.
 - b. False.

9. Tools Menu

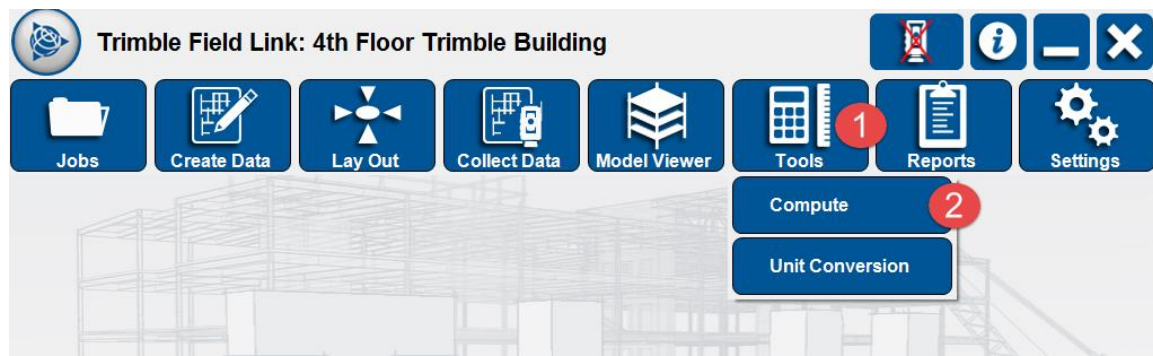
Tools menu is designed to assist users by providing easy access to basic tools to compute geometry information and perform unit conversions.

Training Objectives

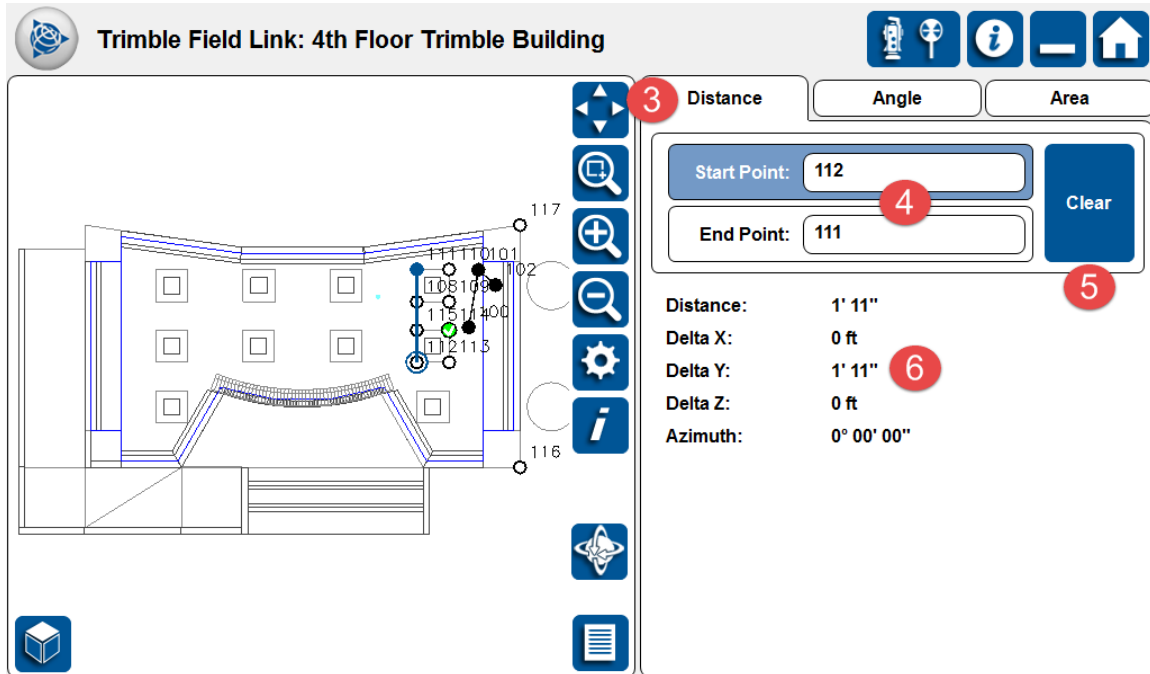
Upon completion of this **Tools** module, you will be able to:

- ✓ Compute Distance, Angles, Areas and Volumes using design or collected points in the model.
- ✓ Perform unit conversions for Length, Area or Volumes between imperial and metric systems.

9.1 Compute Distance

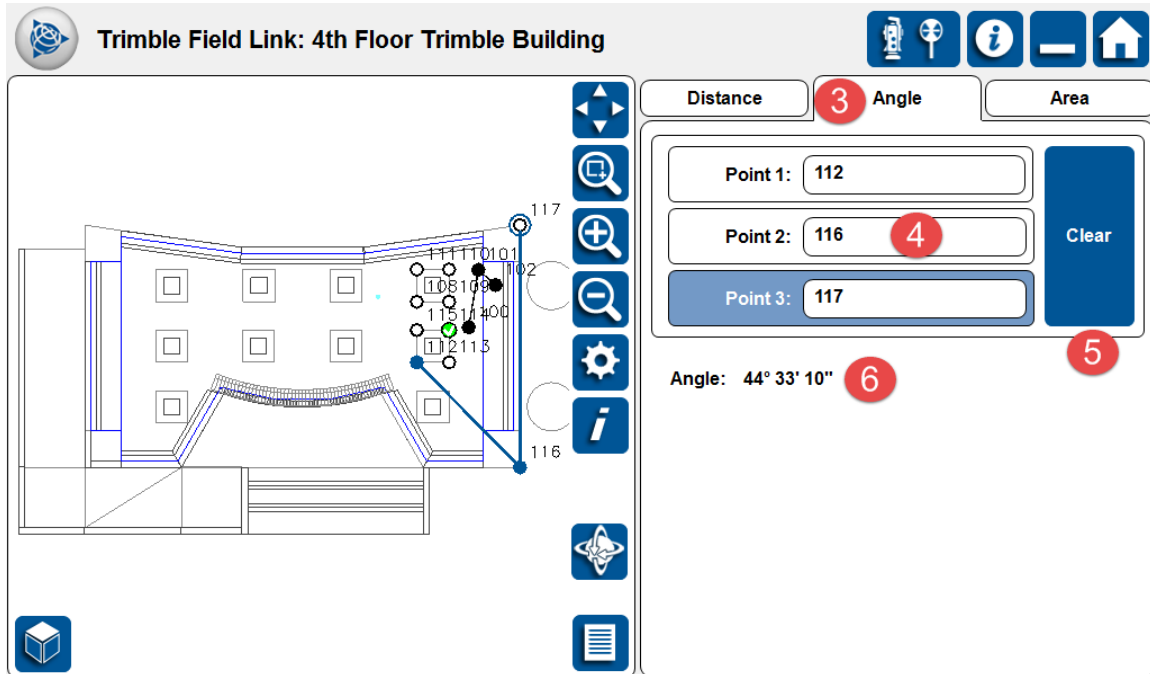


1. Press the **Tools** menu.
2. Press the **Compute** button.
3. The **Distance** menu will be opened automatically.
4. You can select the points to define the distance by pressing on them individually from the List View or in the Map View, or typing the point *Name* in the **Start** and **End Point** boxes.
5. Press the **Clear** button to clear the selection boxes.
6. The Distance between points, Delta X, Delta Y, Delta Z, and Azimuth angle will be populated once the **Start** and **End Point** have been entered.
7. Change the Start Point, End Point or both by pressing on them individually from the List View or in the Map View, or typing the point *Name* in the **Start** or **End Point** boxes.



9.2 Compute Angle

1. Press the **Tools** menu.
2. Press the **Compute** button.
3. The **Distance** menu will be opened automatically. Press on the **Angle** tab.
4. You can select the points to define the angle by pressing on them individually from the List View or in the Map View, or typing the point *Name* in the **Point 1, 2** and **3** boxes.
5. Press the **Clear** button to clear the selection boxes.
6. The Angle between points will be populated once the **Point 1, 2** and **3** have been entered.
7. Change the Start Point, Angel Point, or End Point by pressing on them individually from the List View or in the Map View, or typing the point *Name* in the **Point 1, 2** and **3** boxes.



9.3 Compute Area & Volume

1. Press the **Tools** menu.
2. Press the **Compute** button.
3. The **Distance** menu will be opened automatically. Press on the **Area** tab.
4. You can select the points to define the Area by pressing on them individually from the List View or in the Map View.
5. You must select a minimum of 3 points and select the beginning point to create a boundary around the area.
6. Once the boundary around the area has been defined, the Perimeter and Area will be populated.
7. Enter the *Depth* to automatically calculate the volume of the area.
8. Press the **Reset** button to calculate a new Area or Volume.
9. Press the **Undo** button to unselect the last point entry.

Trimble Field Link: 4th Floor Trimble Building

Distance Angle **3** Area

Selected Point Count: **4** **5**

Perimeter: 5' 2" **6**

Area: 1.278 ft² **6**

Depth: 0.417 ft **7**

Volume: 0.532 ft³, 0.020 yds³

Reset **8**

Undo **9**

9.4 Unit Conversion - Length

Unit conversion enables quick transformation for different length, area and volume units between imperial and metric systems.

Trimble Field Link: 4th Floor Trimble Building

Jobs Create Data Lay Out Collect Data Model Viewer **1** Tools Reports Settings

Compute

Unit Conversion **2**

1. Press the **Tools** menu.
2. Press the **Unit Conversion** button. The Length tab will be automatically open.
3. Press on any open field in either the Imperial or Metric columns and enter the known value. All other fields will be automatically populated.

Trimble Field Link: 4th Floor Trimble Building

Length

Area

Volume

Imperial:		Metric:	
<input type="text" value="1.000"/>	Inches (in)	<input type="text" value="25.400"/>	Millimeters (mm)
3 <input type="text" value="1"/>	Inches (in)	<input type="text" value="2.540"/>	Centimeters (cm)
<input type="text" value="0.083"/>	Feet (ft)	<input type="text" value="0.025"/>	Meters (m)
<input type="text" value="0.028"/>	Yards (yds)	<input type="text" value="0.000"/>	Kilometers (km)
<input type="text" value="0.000"/>	Miles (mi)		

9.5 Unit Conversion - Area

1. Press the **Tools** menu.
2. Press the **Unit Conversion** button. The Length tab will be automatically open.
3. Press on the **Area** tab.
4. Press on any open field in either the Imperial or Metric columns and enter the known value. All other fields will be automatically populated.

Trimble Field Link: 4th Floor Trimble Building

Length


3 Area






Volume

Imperial:		Metric:	
<input type="text" value="144.000"/>	Square Inches (in ²)	<input type="text" value="92903.040"/>	Square Millimeters (mm ²)
4 <input type="text" value="1.000"/>	Square Feet (ft ²)	<input type="text" value="929.030"/>	Square Centimeters (cm ²)
<input type="text" value="0.111"/>	Square Yards (yds ²)	<input type="text" value="0.093"/>	Square Meters (m ²)
<input type="text" value="0.000"/>	Acres (ac)	<input type="text" value="0.000"/>	Hectares (ha)
<input type="text" value="0.000"/>	Square Miles (mi ²)	<input type="text" value="0.000"/>	Square Kilometers (km ²)

9.6 Unit Conversion - Volume

1. Press the **Tools** menu.
2. Press the **Unit Conversion** button. The Length tab will be automatically open.
3. Press on the **Volume** tab.
4. Press on any open field in either the Imperial or Metric columns and enter the known value. All other fields will be automatically populated.


Trimble Field Link: 4th Floor Trimble Building

Length

Area

3

Volume

Imperial:	Metric:
<input style="width: 80%;" type="text" value="1728.000"/> Cubic Inches (in ³)	<input style="width: 80%;" type="text" value="28316.847"/> Cubic Centimeters (cm ³)
<input style="width: 80%; border-left: 2px solid #f00;" type="text" value="1.000"/> Cubic Feet (ft ³)	<input style="width: 80%;" type="text" value="0.028"/> Cubic Meters (m ³)
<input style="width: 80%;" type="text" value="0.037"/> Cubic Yards (yds ³)	<input style="width: 80%;" type="text" value="0.000"/> Cubic Kilometers (km ³)
<input style="width: 80%;" type="text" value="0.000"/> Cubic Miles (mi ³)	

Summary

After review of this **Tools** module, you should now understand how to:

- ✓ Compute Distance, Angles, Areas and Volumes using design or collected points in the model.
- ✓ Perform unit conversions for Length, Area or Volumes between imperial and metric systems.

Review Questions

1. Using the Compute Tool, the user can find the following information using design or collected points?
 - a. Distance between points.
 - b. Angles between points.
 - c. Areas and Volumes bounded by points.
 - d. All of the above.

2. Volumes will be automatically calculated after enclosing an area by picking points?
 - a. True.
 - b. False.
3. Which of the following can be found under the Unit Conversion Tool to translate between Imperial and Metric?
 - a. Length.
 - b. Area.
 - c. Volume.
 - d. All of the above.

10. Reports menu

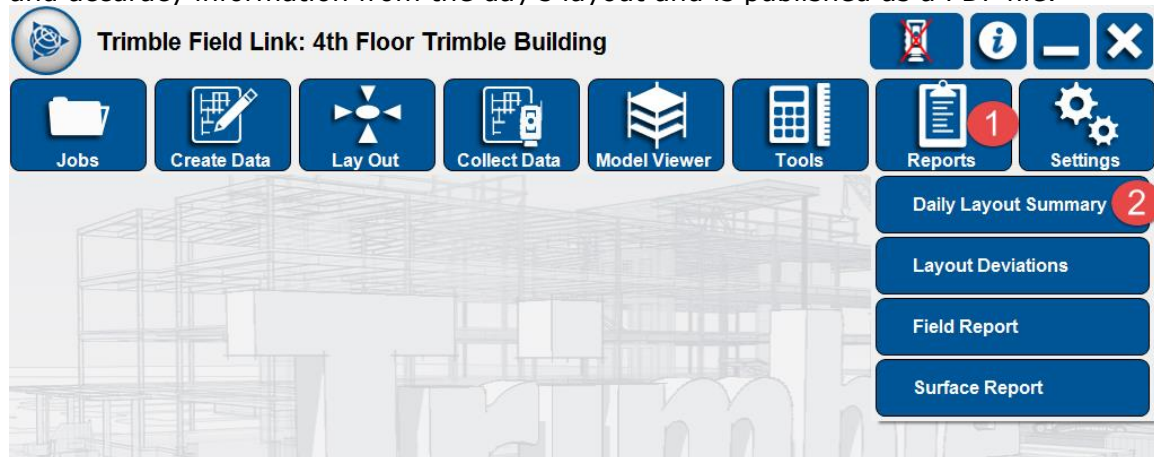
Training Objectives

Upon completion of this **Reports** module, you will be able to:

- ✓ Create a **Daily Layout Summary** showing relevant job information, productivity, points laid out and deviations.
- ✓ Select a date range to produce a **Layout Deviation Report** showing design and staked point information.
- ✓ Include photos, text and measurements within **Field Reports** to show issues or field conditions.
- ✓ Input reference elevations and tolerance information for customized **Surface Reports** with area and volume calculations.

10.1 Daily Layout Summary

The Daily Layout Summary allows users to create a layout report for a specified day. This report contains relevant project information including time usage, productivity and accuracy information from the day's layout and is published as a PDF file.



1. Press on the **Reports** menu.
2. Press on the **Daily Layout Summary** button.
3. Press on the **Calendar** button.
4. Press on one of the days highlighted in blue which indicates layout was performed on that project on that date. Any dates without points laid out will be shown in grey and cannot be selected.
5. Type in any additional information under the **Notes** field.
6. Press the **Save** button to review the PDF report. The report will automatically be saved under the **C:\Users\xxxx\Documents\Trimble Field Link\Reports\Daily Layout Summary Reports** folder.
7. The Daily Layout Summary report will show in the TFL screen for review.

Trimble Field Link: Trimble Field Link Demo

Notes
We had some issues with the forms today and needed 2 hours of downtime to repair.

Layout Session1

First Point Laid Out	482, 8:02 AM
Last Point Laid Out	492, 8:04 AM
Number of Points Laid Out	3
Layout Time	0 hours, 3 minutes
Points Per Hour (Average)	60

Summary

Total Points Laid Out	3
Total Layout Time	0 hours, 3 minutes
Points Laid Out Per Hour	60
Points in Horizontal Tolerance	2, 67 %
Points in Vertical Tolerance	3, 100 %

Periods of inactivity 15 minutes or greater excluded from Total Layout Time.

Point Name	Description	dH	dV
482	7	1/2"	0 ft
481		1/8"	0 ft
492		0 ft	0 ft

Date: 2/28/2012 3

Notes:
We had some issues with the forms today and needed 2 hours of downtime to repair.

5

Save

6

10.2 Layout Deviations

The Layout Deviation report allows you to create spreadsheet style layout data for a range of dates. The data will show the project information, point information, and delta values (in X/Y or N/E and Z), for points that were laid out in the range of dates defined in a .csv format.

Trimble Field Link: 4th Floor Trimble Building

Jobs Create Data Lay Out Collect Data Model Viewer Tools Reports Settings

Daily Layout Summary

Layout Deviations 2

Field Report

Surface Report

1. Press on the **Reports** menu.
2. Press on the **Layout Deviations** button.
3. Press on the **Calendar** buttons under **Start** and **End** to select the date range.
4. You can also press the **Today** or **All** buttons to automatically select the report for the day or all possible points.
5. Under **Include**, uncheck any information you do not want on the report.
6. Press the **Save** button to review the .csv report. The report will automatically be saved under the **C:\Users\xxxx\Documents\Trimble Field Link\Reports\Layout Deviation Reports** folder.

7. The Layout Deviation report will show in the TFL screen for review.

Trimble Field Link: DMK Office Complex

Point Name	Description	Layer	X	Y	Elevation (Z)	Delta X	Delta Y
14	1/4" Anchor Pipe	0	-31.040 ft	-242.770 ft	0.000 ft	0 ft	1/4"
15	1/4" Anchor Pipe	0	-31.040 ft	-249.816 ft	0.000 ft	0 ft	-1/4"
33	3/8 Anchor-Duct	FP Duct Anchors...	-19.035 ft	-259.397 ft	0.000 ft	0 ft	0 ft
34	Equipment Pad	Field Points	-26.513 ft	-257.846 ft	0.667 ft	1 1/4"	-1/4"
35	Equipment Pad	Field Points	-22.513 ft	-257.846 ft	0.667 ft	0 ft	0 ft
36	Equipment Pad	Field Points	-22.513 ft	-254.846 ft	0.667 ft	-8 1/4"	-2"
37	Equipment Pad	Field Points	-26.513 ft	-254.846 ft	0.667 ft	0 ft	0 ft
103		A-Wall-G-2d	-26.310 ft	-243.474 ft	0.000 ft	0 ft	0 ft
104		A-Door-G-2d	-25.889 ft	-249.001 ft	0.000 ft	-1/4"	-1/4"
105		A-Door-G-2d	-25.894 ft	-249.095 ft	0.000 ft	-1/4"	-1/4"

Start: 3/9/2011
End: 3/9/2011
Today All
Include:
 Layer
 Design X
 Design Y
 Design Z
 Expand ΔH
Save

10.3 Field Report

The Field Report allows you to document any relevant field information or issues. The report includes sections for text, pictures and a positional measurement and is published as a PDF file. The Field Report can also be accessed directly from the Layout Point or Linework modules.

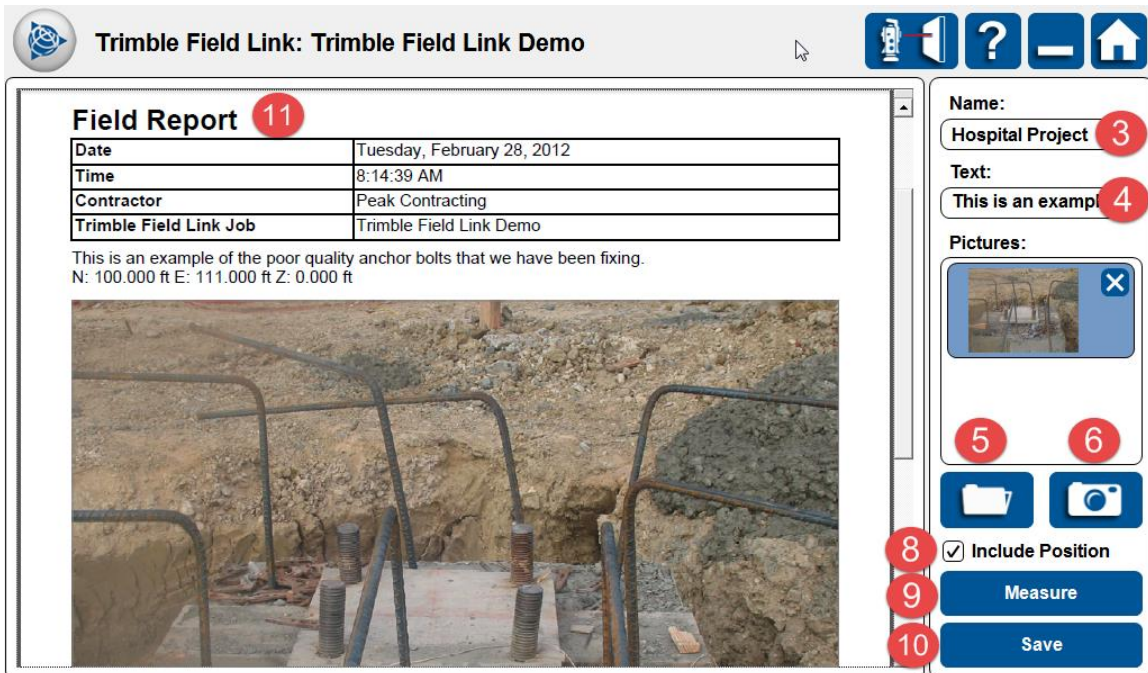
Trimble Field Link: 4th Floor Trimble Building

Jobs Create Data Lay Out Collect Data Model Viewer Tools Reports Settings

Daily Layout Summary
 Layout Deviations
Field Report
 Surface Report

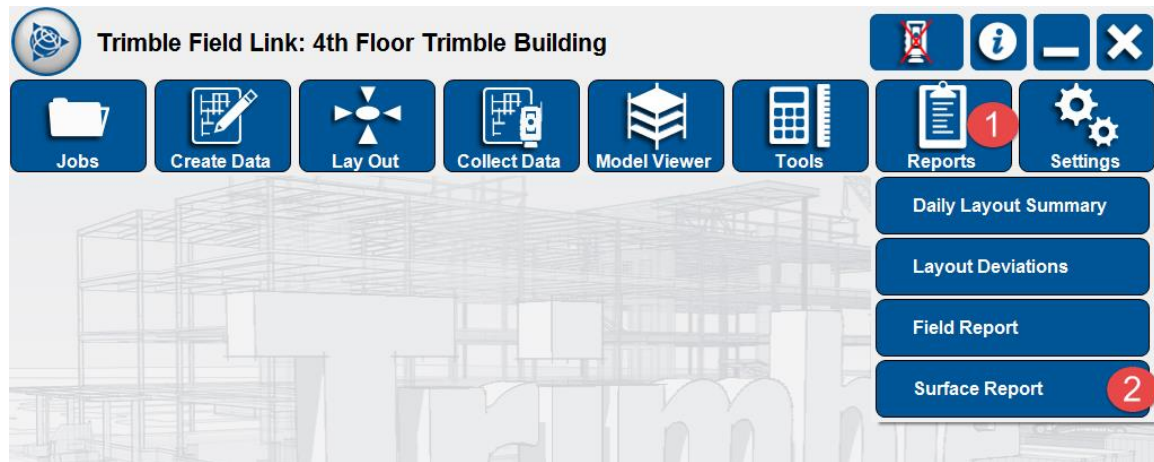
1. Press on the **Reports** menu.
2. Press on the **Field Report** button.
3. Type in the *Name* of the report in the Name field.
4. Type in any additional information under the *Text* field.
5. Press the **Folder** button to navigate and select photos previously taken.
6. Press the **Camera** button to take a photo with the Trimble Field Link Tablet.

7. If using a RTS 773 or 873, once you press the **Camera** button, the **Vision** button will be available on the screen to take a photo from the Robotic Total Station.
8. Press the check box next to **Include Position** to take positional information on the field item.
9. Aim the RTS at the item and press the **Measure** button to include X/Y or N/E and Z information on the report.
10. Press the **Save** button to review the PDF report. The report will automatically be saved under the **C:\Users\xxxx\Documents\Trimble Field Link\Reports\Field Reports** folder.
11. The Field Report will show in the TFL screen for review.

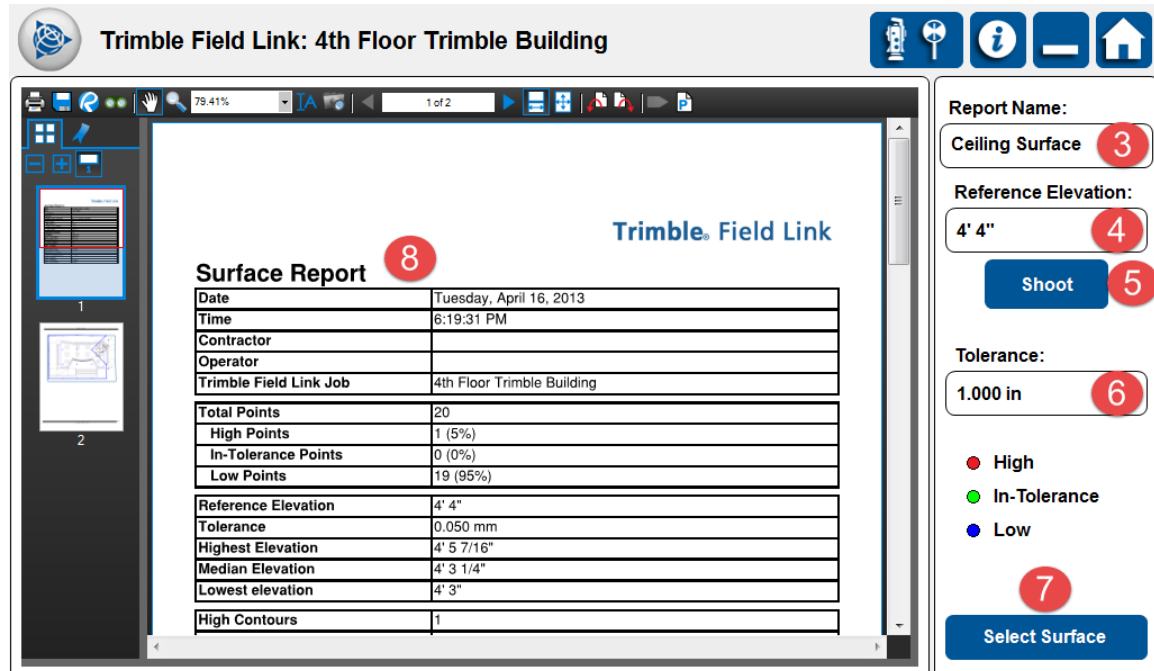


10.4 Surface Report (Optional Module)

The Surface Report enables users to quickly define or modify reference elevations and tolerances for collected surfaces. The Surface Report will show the number of high, in-tolerance and low elevation points based on the reference elevation and tolerance parameters. The report also shows the area and volume calculations for high, in-tolerance and low contour areas.



1. Press on the **Reports** menu.
2. Press on the **Surface Report** button.
3. Type in the *Report Name* field.
4. Type in the reference *Elevation* field.
5. If you are still set up with the RTS from collecting the surface you can press **Shoot** to automatically populate the *Elevation* field.
6. Type in the *Tolerance* for points to be within.
7. Press the **Save Report** button to review the PDF report. The report will automatically be saved under the **C:\Users\xxx\Documents\Trimble Field Link\Reports\Surface Reports** folder.
8. The Surface Report will show in the TFL screen for review.



Summary

After review of this **Reports** module, you should now understand how to:

- ✓ Create a **Daily Layout Summary** showing relevant job information, productivity, points laid out and deviations.
- ✓ Select a date range to produce a **Layout Deviation Report** showing design and staked point information.
- ✓ Include photos, text and measurements within **Field Reports** to show issues or field conditions.
- ✓ Input reference elevations and tolerance information for customized **Surface Reports** with area and volume calculations.

Review Questions

1. You can create a Daily Layout Summary for dates when no points have been staked?
 - a. True.
 - b. False.
2. The Layout Deviation Report will save out which type of file?
 - a. .pdf
 - b. .tfl
 - c. .csv
 - d. All of the above.
3. The Field Report can contain which type of information?
 - a. Text.
 - b. Photos.
 - c. Measurements.
 - d. All of the above.
4. Each type of Report is automatically created and placed within a specific reports folder under C:\Users\xxxx\Documents\Trimble Field Link\Reports.
 - a. True
 - b. False
5. The Surface Report requires which of the following prior to creating an accurate report of the surface?
 - a. Reference elevation.
 - b. Tolerance.
 - c. Collected surface points.
 - d. All of the above.