

Trimble Survey Controller[™]

Release Notes



Version 10.71
Revision A
September 2003

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Release Notes

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Release Notice

This is the September 2003 release (Revision A) of the *Trimble Survey Controller Release Notes*. It applies to version 10.71 of the Trimble Survey Controller software.

Product Information

This section contains information about the Trimble Survey Controller software version 10.71 running on a Trimble® ACU or TSCe controller ("the controller"). For detailed information, refer to the *Trimble Survey Controller Getting Started Guide*.

New user

In a new controller, Microsoft Windows® CE.NET and the Trimble Survey Controller 10.71 software are



already installed.

To use the Trimble Survey Controller software in a language other than English, you must transfer the language pack file from the *Trimble Survey Controller Software CD* to the controller. Select *Install Survey Controller/Upload Language Pack* from the main menu on the *Trimble Survey Controller Software CD*.

Upgrading from a previous version of Trimble Survey Controller

- If your controller is running Trimble Survey Controller version 10.00 or version 10.01, Microsoft Windows CE v3 is installed on the controller. Use the Microsoft authorization key that is provided with the *Trimble Survey Controller Software CD* to upgrade to Microsoft Windows CE.NET.
- If your controller is running Trimble Survey Controller version 10.5 or version 10.6, Microsoft Windows CE.NET is already installed. You need to upgrade to the latest version of Microsoft Windows CE.NET, but no Microsoft authorization key is required.
- If your controller is running Trimble Survey Controller version 10.7, the latest version of Microsoft Windows CE.NET is already installed. You will not need to upgrade the operating system.

Note – When you install the latest operating system, the existing */Disk/Trimble Data* folder is renamed */Disk/Trimble Data V10*. If the controller has limited disk space, you may need to delete files before you can complete the installation. You can usually delete files between Step 3 and Step 4 below.

Note – If your controller is already running the latest operating system (4.0.9) you do not need to reinstall it. If you are upgrading from Trimble Survey Controller version 10.50 or version 10.60 you must rename or delete the current */Disk/Trimble Data* folder using Windows Explorer. The files in this folder are not compatible with the new version of Trimble Survey Controller. If you are running Trimble Survey Controller version 10.70 you do not need to do this, the version 10.70 files are compatible with version 10.71.

During the upgrade, complete all of the following steps. Follow the prompts that are provided by the installation wizard:

1. Install Microsoft ActiveSync software version 3.7 from the *Trimble Survey Controller Software CD*.
2. Upgrade the controller to the latest version of the Microsoft Windows CE.NET operating system.
3. Install Trimble Survey Controller version 10.71 on the controller.
4. Transfer a new language pack to the controller.

Using Trimble Survey Controller version 10.71 with other Trimble products

Trimble Survey Controller version 10.71 communicates with the software and hardware products shown in the following table. The software can also communicate with any version later than that shown.

Product type	Trimble product	Version
Software	Trimble Geomatics Office	1.61
	Trimble Link	3.00
	Data Transfer	1.08
	Trimble Total Control	2.71

	Terramodel®	10.13
Receiver	Trimble R7	2.00
	Trimble R8	2.00
	5700	2.00
	5800	2.00
	4800	1.30
	4700	1.30
Conventional Instrument	Trimble 5600 Series	696–03.05
	Trimble ATS	696–03.05
	Trimble 3600 Elta CP (with interpreter)	1.15
	Trimble 3600	2.00
	Trimble 3300 Series	5.65

Updating office software

Note – If you have GPS Pathfinder® Office software version 2.51 or later installed, make sure that the Connection Manager utility is closed before you update the office software.

Before using Trimble Survey Controller with Trimble office software, update the office software. To do this, select *Update Office Software* from the main menu on the *Trimble Survey Controller Software CD*.

The Trimble Survey Controller version 10.71 software uses a version 10.7 DC file.

If you use Trimble Geomatics Office, Trimble recommends that you update the Trimble Geomatics Office software from version 1.60 to 1.61. This option will not update versions of Trimble Geomatics Office that are earlier than version 1.60.

Although Trimble Survey Controller version 10.71 can output a version 10.0 DC file to older versions of the office software, the process does not support all new records and some information may be lost.

Upgrading Trimble 3600 and 5600 instrument firmware

If you need to upgrade the Trimble 3600, 5600, or ATS instrument firmware, return the instrument to your Trimble service center.

Configuring the system options

The new Trimble Survey Controller systems are shipped unconfigured. They are configured automatically when you connect the controller to the instrument. Alternatively, select *Configuration/Options* and select the option(s) appropriate for you:

- GPS users – select *GPS surveying*
- Conventional Total Station users – select *TS surveying*
- Integrated surveying users – select both options
- Helmert, Station Setup Scale factor users – select *Advanced Geodetic Support*

These options control the styles that are available and the relevant options that appear throughout the software. You can reconfigure the Trimble Survey Controller system at any time.

New Features

This section summarizes new features in the Trimble Survey Controller software. For more information about the features, refer to the Trimble Survey Controller Help or the *Trimble Survey Controller Getting Started Guide*.

Note – The help is also provided on the Trimble Survey Controller Software CD in a PDF document, which you can search or print.

***** Bluetooth wireless radio communication *****

Bluetooth is an international standard for a compact, low cost, low power wireless connection between devices.

The integrated Bluetooth module in the ACU, with the Microsoft Windows CE.NET operating system, enables wireless connection to:

- a 5800 or Trimble R8 GPS receiver
- a Bluetooth cellular modem
- another Trimble ACU
- a TSCe controller that is equipped with the BlueCap attachment.

Note – Bluetooth connections can be subject to interference. If you work in an environment that is subject to interference, Trimble recommends that you use a cable between the controller and the receiver when logging data.

Tip – When you use Bluetooth to connect to a 5800 or Trimble R8 receiver, minimize connection time by switching on the receiver before you start Trimble Survey Controller.

Bluetooth connections improved

General Bluetooth connection and communication between the controller and the 5800 or Trimble R8 GPS receiver is more robust.

Bluetooth Improvements for Cellular Phones

You can now connect Trimble Survey Controller through Bluetooth to a wider variety of cellular phones for use in GPRS/Internet and circuit switched RTK surveys.

***** Cellular modems *****

Routing corrections through Trimble Survey Controller

Connect a cellular modem (or radio) directly to a controller and route the CMR or RTCM data through Trimble Survey Controller.

PIN support

Configure Trimble Survey Controller to set the PIN in a cellular modem.

Directory support

Store phone numbers in a directory. Access the directory to dial the base station modem or a wide area RTK network.

Redial and Hangup support

Hang up and redial at any time when using a cellular modem in a GPS survey.

Bluetooth cellular modem

Connect to a cellular modem using Bluetooth.

Connecting to the Internet

When out in the field, you can connect to the Internet. Connect the controller to a cellular modem by using a cable or Bluetooth.

Cellular modems and cellular network providers

Different cellular modems and cellular networks behave in different ways. If you have difficulty using a phone with Trimble Survey Controller, please contact your nearest Trimble Distributor.

*** * * GPS Support * * *****Trimble R7 and Trimble R8 GPS Receiver support**

Trimble Survey Controller now supports the new Trimble R7 and Trimble R8 GPS receivers.

5800 or Trimble R8 internal memory

Log data to a 5800 or Trimble R8 GPS receiver that has internal memory.

5800 or Trimble R8 start base support

Start a base survey on a 5800 or Trimble R8 GPS receiver.

Networked Transport of RTCM via Internet Protocol (NTRIP) Support

Connect to an NTRIP server via an internet connection.

4000 start base support

Start a base survey on a Trimble Series 4000 GPS receiver.

To connect the controller to the receiver, you must set the baud rate on the receiver to 38400, 8, none, 1. Trimble Survey Controller will not connect at any other setting.

Note – You cannot use Trimble Survey Controller to configure the base radio when the radio is connected to the Series 4000 receiver. To configure the radio, connect it directly to the controller.

WAAS and EGNOS support

Configure Trimble Survey Controller to enable tracking of either WAAS or EGNOS satellites. In addition, you can configure tracking to ignore the health status of WAAS or EGNOS satellites.

VRS vectors

Choose to store vectors to the nearest physical reference station in a VRS network.

Vector storage is possible if Trimble Survey Controller is receiving the physical reference station information from the network RTK server. If this information is not available when you start a network RTK survey, the message *Waiting for base information* appears in the Trimble Survey Controller status line.

Trimble Survey Controller has been optimized to work with the latest receiver firmware in VRS and other network RTK surveys. If you use network RTK, Trimble recommends that you upgrade to the [latest receiver firmware](#).

Continuous topo

Store continuous topo points using Time or distance. This option is provided in addition to Fixed time, Fixed distance, and Time & distance.

*** * * Conventional Instrument Support * * ***

Station setup plus and Resection enhancements

Measure multiple rounds to multiple backsight and foresight points, with detailed reporting on residuals and standard deviations. Choose between four different views for the residuals display.

Resection Helmert adjustment

Choose to use a Helmert transformation when calculating a resection. This option is available when Advanced Geodetic support is on.

Rounds

For single backsight station setups choose whether or not to include the backsight point in the rounds list. View improved reports of standard deviations and residuals information. Perform automated rounds using non-active targets.

Station setup plus, Resection, and Rounds

Choose the order in which to perform face 1 and face 2 measurements. You can also choose to measure on face 1 only.

Measure topo

Perform any number of face 1 and face 2 measurements. All the face 1 and face 2 measurements from the station setup are now combined to create a mean observation. The face 1 and face 2 observations do not need to be matched.

Station elevation

To transfer an elevation to a station point, measure to one or more elevation control points.

European cadastral Neighborhood Adjustment

Adjust all conventional foresight measurements using the Neighborhood Adjustment method.

Surface scanning

Perform a surface scan using a Trimble 5600 DR instrument.

Remote object elevation

To calculate the height of a remote object, measure to the base of the object and observe the vertical angle.

Vertical plane and angle

Define a vertical plane with two measurements, and coordinate other points on this plane with HA VA observations. This is similar to the GDM Program 65 Corner and Angle functionality.

Continuous topo

Store continuous topo points using one of the following methods: Fixed time, Fixed distance, Time & distance, or Time or distance.

Measuring to the laser pointer

Configure Trimble Survey Controller to measure to the laser pointer with a Trimble 5600 DR200+ or DR300+ instrument.

Tiltable RMT support

Trimble Survey Controller now corrects steep vertical angles when you observe to a non-tiltable target.

Define the search window

When you start a robotic survey, point and measure with the 5600 or ATS instrument to define the search window.

Remote Measurement Target (RMT) ID

Configure the RMT ID in Trimble Survey Controller so that the rover only locks to a 5600 or ATS instrument with the same RMT ID.

Loading station data to an ATS instrument

When you complete a station setup with a Trimble ATS instrument, Trimble Survey Controller now loads the station information into the instrument.

Observation standard errors

Observation standard error statistics are stored with each conventional observation.

Stakeout improvement

Trimble Survey Controller now operates faster when performing stakeout operations on a Trimble 5600 DR200+ or 300+ instrument.

***** Roading Support *****

Graphical cross-section display

Trimble Survey Controller provides a graphical display of a cross-section, including any superelevation and widening that has been applied. When staking out, you can view the cross-section for the selected station, the target, and your position. If you have specified construction offsets, they are also displayed. When you select the cross-section from the Map, the cross-section that appears is relative to your current position.

Real time editing of road designs

You can redesign your road in real time in the field. This makes the road fit better to the field conditions. Use the *Select new offset for side slope* function to move the side slope to a more suitable offset and to access

options that enable you to specify new slope values.

Slope staking on the fly

You can stake a side slope when the road consists of only a horizontal alignment, or when the road consists of a horizontal and vertical alignment. Use this function to access options that enable you to define the hinge position relative to the alignment, and to specify values defining the sideslope.

Graphical display of calculated side slopes

Trimble Survey Controller provides graphical and text confirmation of the As-staked side slope. You can view the calculated and as designed side slope values. In addition, the software draws a line from the hinge to your current position to confirm what is being calculated.

Editable design elevations

View the elevation for the position that you have selected for stakeout. You can also use this function to edit the elevation.

Current elevation display

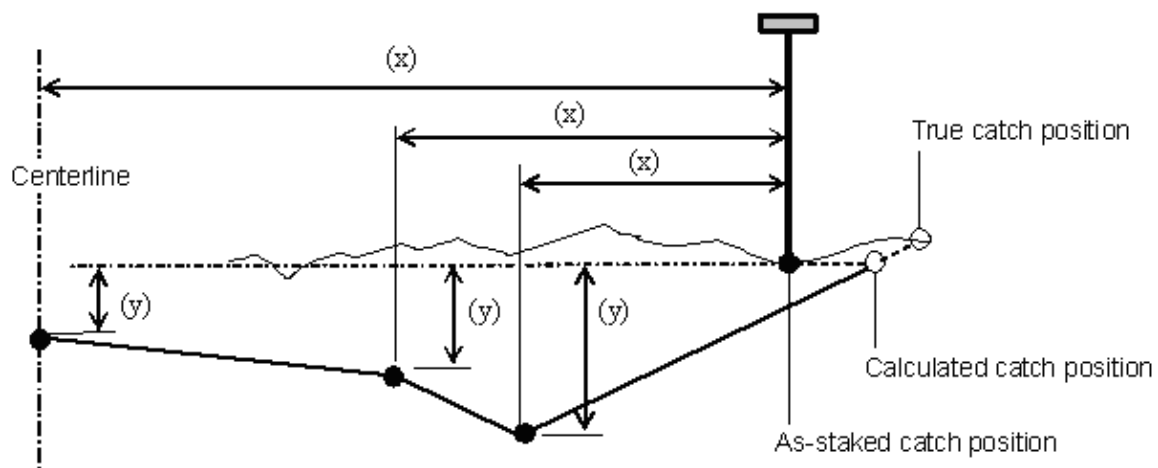
When you stake out a road using the *Position on road* option, you can view your current elevation in the graphical stakeout screen.

Improved availability of key stations

When you stake out, you can select key stations relating to horizontal and vertical curves, superelevation and widening, and the position of templates.

Catch point report

Trimble Survey Controller now reports distances relative to the **As-staked** catch position. When you stake a catch point on a road, the As-staked catch position is used to calculate the deltas for the horizontal offset to the end of each template element (x), and the deltas for the vertical distance to the end of each template element (y). See below.



Trimble Survey Controller previously reported the deltas relative to the **calculated** catch position.

Note – The vertical distances do not change. The calculated position is projected horizontally from the As-staked catch position, so the values are identical.

***** Feature and Attribute Library Support *****

Prompt for attributes option

When the *Prompt for attributes* option is turned off, you will not be prompted to enter the attributes every time you store a point in Trimble Survey Controller.

Feature code descriptions

When you are using feature and attribute libraries you can access a full description of each code.

Recently used feature codes

Recently used feature codes appear indented at the top of the feature code lists.

Attributes with Continuous topo

Store attributes when you measure continuous topo points.

Feature code defaults

When storing attributes, Trimble Survey Controller applies the default values from the last used code of the same name. Use the Defaults softkey to set the defaults to those from the feature and attribute library.

Attributes supported with Auto-store on

When Auto-store is on, you receive a prompt to enter attributes.

***** General enhancements *****

English Male sound events

If you prefer, you can listen to sound events (stored as .wav files) in a male voice. Use Trimble Data Transfer to transfer the *English WAV Files Male.Cab* file to your controller. This file is on the Trimble Survey Controller CD at *\Trimble Survey Controller\Application Files*.

Averaging

Trimble Survey Controller automatically averages duplicate points within tolerance. Alternatively, you can select *COGO / Compute average* to average points manually.

Note – Trimble Survey Controller averages using grid coordinates. The grid coordinates that it averages are taken from observations and/or computed coordinates. Trimble Survey Controller can only include observations in the average if at least one of the observations to that point includes a distance as well as angles. If no distances were recorded for any of the observations to the point, all of the observations are excluded from the calculation. In this case, only the observations that can provide coordinates will be averaged.

Survey / Station and Offset

Points can be displayed as a station and offset relative to a line, arc, or road. Select *Options / Display / View / Station and Offset*:

- in *Review, Measure Topo, or Stakeout* – to review or display points as a station and offset

- in *Key in Point* – to define a point by station and offset

Linked job support

Link jobs in addition to comma delimited (*.csv or *.txt) files. Linked files appear in the map and provide easy access to points that do not exist in the current job.

Calculator

Access an RPN or a standard calculator from most fields and from the *Cogo / Calculator* menu.

Shape file support

Use Shape files as background maps in Trimble Survey Controller.

Note – Shape files must be defined in terms of Northings and Eastings.

Coordinate system enhancements

New coordinate systems have been added for Belgium, Ireland, Italy, Netherlands, Norway, Portugal, Spain, and the United Kingdom. In addition Trimble Survey Controller now supports Projection grids.

GDM job transfer with Data Transfer

Transfer GDM job files with user-defined labels (90–99) from a Survey Controller job that contains points with attributes named in the range 90–99.

Sample GDM UDS attributes library files are provided in the *\Trimble Survey Controller\Utilities\Attribute Library* folder on the *Trimble Survey Controller Software CD*. Use the Trimble Geomatics Office software to transfer *GDM Attribs.fcl*, the Trimble Data Transfer Utility to transfer *GDM Attribs.ddf*, or the ActiveSync software to transfer *GDM Attribs.fal*.

M5 file transfer with Data Transfer

Transferred M5 files include extra Resection and Station setup plus details.

Attribute support for SDR33 files

Export attributes in an SDR33 file format. The SDR33 file contains an additional units record.

DXF files with erroneous 0,0,0 positions

Trimble Survey Controller ignores erroneous 0,0,0 coordinates when they exist in a background DXF file.

ASCII File Transfer Utility

A new ASCII file transfer utility is available. The utility program SCFileUtil.exe is in the *\Trimble Survey Controller\Utilities\SC File Utility* folder on the *Trimble Survey Controller Software CD*.

Use this utility to transfer user-definable ASCII coordinate files between the controller and an office computer. Operating instructions are available in English only in the document *SCFileUtil User Instructions.rtf*. The folder also contains a sample set of ASCII coordinate file format definitions in the file *Formats.ini*.

To use the utility, copy the SCFileUtil.exe and Formats.ini files to a suitable folder on the computer. Follow the operating instructions provided.

Note – The Trimble Data Transfer utility must be installed on the same office computer. The utility is on the Trimble Survey Controller Software CD and can be downloaded from the Trimble Web site.

The file `Formats.ini` contains the definitions for the ASCII coordinate file formats. Edit this file to add new format definitions or to modify existing definitions. Instructions for defining formats are in the instructions document and (as remarks) at the start of the `Formats.ini` file.

Other Information

Starting an RTK Base with an Internet Connection

Trimble Survey Controller does not support using RTCM as the broadcast format when starting an RTK base with an Internet Connection. You should use the CMR or CMR+ format.

Charging the controller batteries

Before using a controller for the first time, make sure that the battery is fully charged. For more information, refer to the *Trimble Survey Controller Getting Started Guide* and the *TSCe Controller User Guide*.

Running the ACU on its internal batteries

Trimble recommends that you do not run the ACU on its internal batteries. By default, the Microsoft Windows CE.NET v4.0.9 operating system does **not** allow you to do so. However, you can reconfigure this in the Control Panel. When the ACU is running on its internal batteries, the battery icon flashes. If this occurs, connect the ACU to an external power source as soon as possible.

Hard reset on the ACU

When you perform a hard reset on the ACU, make sure that it is running on external power. Otherwise the controller will not restart.

Database search rules

Trimble Survey Controller gives points and observations a classification to determine the relative importance of coordinates and observations stored in the job database.

Classifications are in the following descending hierarchy:

- Coordinates:
 1. Control – keyed in or transferred
 2. Averaged – created when duplicate points are averaged
 3. Adjusted – traverse adjusted points
 4. Normal – keyed in, measured or transferred
 5. Construction – created using COGO functions
 6. Deleted – created when a point is deleted

- Observations:
 7. Normal / Mean Turned Angle (MTA) – created from conventional observations
 8. Construction – created by fast-fix observations
 9. Stakeout – staked point observations
 10. Backsight – conventional backsight observations
 11. Check – duplicate observations stored as check point

12. Deleted – created when an observation is deleted

Notes:

If more than one coordinate or observation exists for a point within the current job, Trimble Survey Controller uses the first.

A Mean Turned Angle observation (MTA) is always used in preference to any other face 1 or face 2 observation from the same station setup.

For more information about search classes, refer to Database Search Rules in the Help.

Documentation

Trimble Survey Controller help is "context-sensitive." This means that to get assistance, you tap the "?" at the top of the screen. This locates the topic that relates to what you are doing. You then tap the topic title to view the relevant help.

The help is also provided on the *Trimble Survey Controller Software CD* as a single file in Adobe's Portable Document Format (PDF). View this file on an office computer. You can use it to search for a particular topic or to print pages from the help.

The following topic describes a change to the documentation supplied with Trimble Survey Controller version 10.71.

Mean Turned Angles (MTA) automatically created using Measure topo

Perform any number of face 1 and face 2 measurements. All the face 1 and face 2 measurements from the station setup are now combined to create a mean observation. The face 1 and face 2 observations do not need to be matched.

Note – The Trimble Survey Controller Getting Started Guide describes how you can average points in Measure topo and how MTAs are not created by Measure topo. These Release Notes replace that information. Please update your printed copy accordingly.