

## RELEASE NOTES

# Trimble® Convert to RINEX Utility

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#### **Release notice**

This is the September 2010 release (Revision A) of the *Convert To RINEX Utility Release Notes*. It applies to version 2.0.3.0 of the utility.

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## Introduction

These release notes describe the features and operation of the Trimble® Convert to RINEX (*Receiver INdependent EXchange*) utility. This utility converts Trimble GPS measurement files in DAT, T01, T02, r17, r27, or .cap format to RINEX version 2.10, 2.11, or 3.0 format. The files may include GPS L2C and GLONASS observations.

### Version 2.0.3.0: Known issues, resolved

A new control suppresses kinematic records.

The presence of kinematic records no longer causes OPUS to reject the file. You can set this option as a global control, for an individual file, or through the command line by using the `-k` parameter.

### Version 2.0.0.9: Known issues, resolved

- The last measurement in a T02 file is now no longer duplicated at the end of the RINEX file.
- You can now successfully use parameter files to set the header text for the receiver and antenna.

### Version 2.0.0.5: Features

- Support for T02, TGD, and RT27 Files
- Improved identification of week numbers from old format data files
- New file open filters for .r17, .r27, and .cap for RT17/RT27 data
- Resolved an issue with reading marker position from RINEX OPT files
- Improved file filtering to make selection easier
- Improved handling of international date formats
- New entry for the new 15 leap-second correction that occurred on 1 January 2009
- Ensured that the phase associated with L2e tracking is used when you select RINEX version 2.10
- New filter to exclude data from unhealthy satellites that are occasionally observed with GLONASS satellites

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## Version 1.0.1.36: Features

- Added support for machines that run the 64-bit Windows® operating system
- Improved handling of dates from an ephemeris during GPS week roll-overs
- Added RINEX version 3.0 support for command line operation
- Modified phase-shift handling to be consistent with RINEX files generated from Trimble GPSNet™ software
- Improved the handling of week numbers for events

## Version 1.0.1.32: Features

The utility converts or supports the following:

- Static files
- Continuous kinematic files
- Stop-and-Go kinematic files
- RINEX version 2.10, 2.11, or 3.00
- GPS and GPS+GLONASS
- Events (single and multi-port)
- Met sensor input
- Tilt sensor input
- User-selectable output folders
- Compatibility with the Windows Vista® operating system
- Command line operation including parameters for:
  - Marker Name
  - Marker Number
  - Log Receiver Clock Offsets (only if they are non-zero)
  - Adjust Obs & Clock (account for millisecond time steps in observations and the time of observations)
  - Receiver Code
  - Receiver (serial) Number
  - Antenna (serial) Number
  - Path location for output files

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## Installing the utility

Use the Windows installer program *convertToRinex.msi* to install the utility onto the office computer. The installation process places the utility on the *Start* menu, and creates a shortcut on the computer desktop.

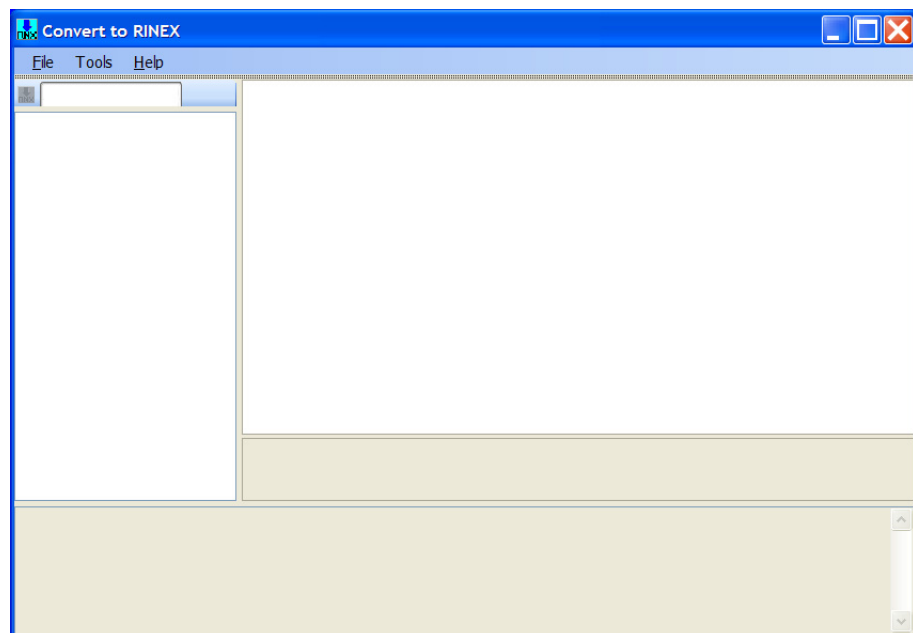
For the Convert to RINEX utility to work correctly, you must have the Trimble antenna and receiver configuration files installed. If you use Trimble Office software, such as Trimble Geomatics Office™ or Trimble Business Center, these files are already installed.

**Note** – *Version 1.0.1.32 and later of the RINEX utility will run on the Windows Vista operating system.*

If you do not use Trimble Office software, you can download the antenna and receiver configuration files from [http://www.trimble.com/trimbleconfiguration\\_ts.asp](http://www.trimble.com/trimbleconfiguration_ts.asp) (*Support / Support A-Z / Trimble Configuration Utility*).

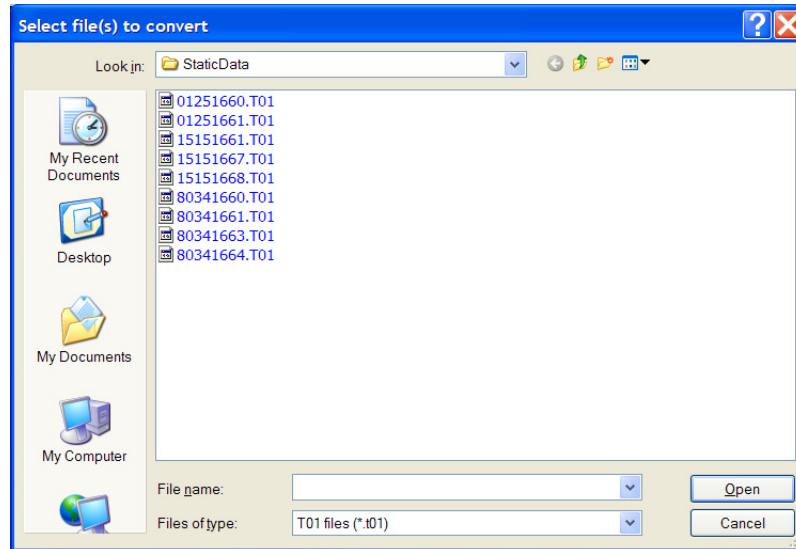
## Operating the utility

1. Do one of the following:
  - Double-click the Convert to RINEX icon
  - Select *Start / All Programs / Trimble / Convert to RINEX*:



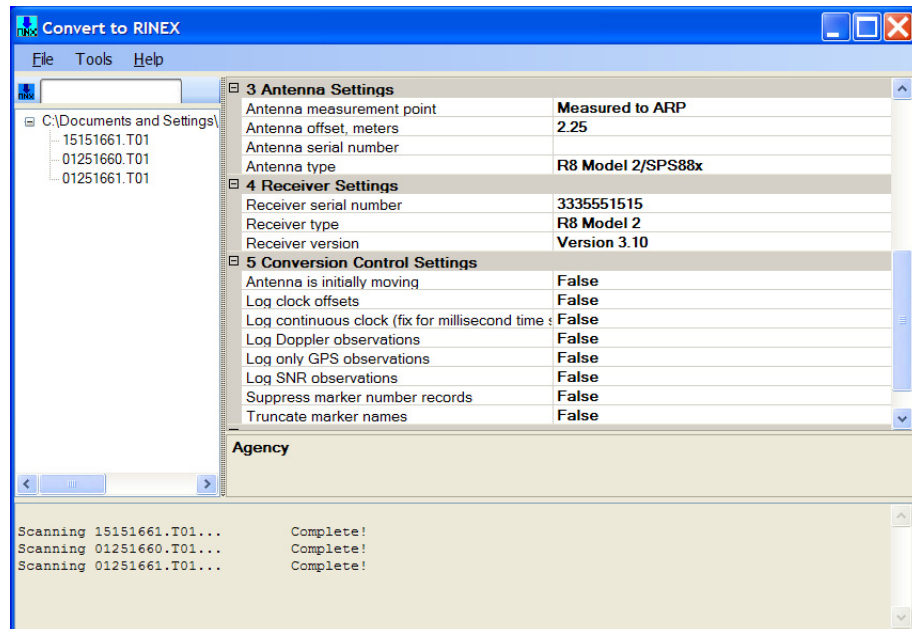
2. Select *File / Open* and then select the files to be converted. You can select more than one file for conversion. Use the *Files of type* control to select DAT or T01 files.

The selected files appear in the file pane of the *Convert to RINEX dialog*.



**Note** – All files for a single conversion run must come from the same folder. If you try to select a second group of files before converting the first group that you selected, the first group is cleared without being converted. To convert files from two different folders, select and convert the first group from one folder and then select and convert the second group from the other folder.

3. To view information for a file, select it. The information appears in the pane to the right:

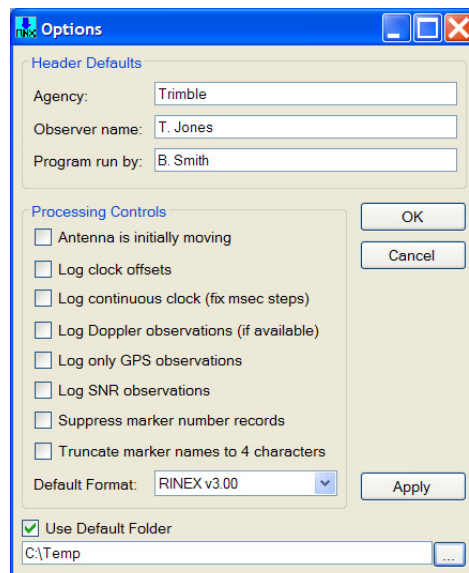


4. Once you verify all the information, click the Convert icon  or select *File / Convert Files*, to create the RINEX files.

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**Note** – If an antenna with an “S” measurement method is encountered in the file, the utility treats the antenna height as being measured to the bottom of antenna mount. When this occurs, an error message appears. All other antenna measurement methods are handled appropriately, based on the specific measurement method.

5. To store file header information for later use, select *Tools / Options* and then complete the *Agency*, *Observer name*, or *Program Run By* fields. You can also store *Processing Controls* and *Default Folder* information for later use:



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## Command line operation

This section describes how to use the Convert to RINEX utility from a command line.

```
C:\Program Files\Trimble\convertToRINEX>converttorinex /?
```

### USAGE:

```
convertToRINEX input.dat [-p outputPath] [-r RUNBY] [-o OBSERVER] [-ag AGENCY]
                        [-ac ANTENNACODE] [-an ANTENNANUMBER] [-h HEIGHT] [-n]
                        [-rc RECEIVERCODE] [-rn RECEIVERNUMBER]
                        [-mo MARKERNAME] [-mn MARKERNUMBER])
                        [-v X.XX] [-k] [-d] [-s] [-m] [-t] [-c] [-g] [-co]
                        | @ParamFile
```

- Run in interactive mode.
- ? Display help information.
- p Path in which to place the output files (OBS, NAV, MET, ...).
- r Person or agent performing the RINEX conversion.
- o The name of the person performing the survey.
- ag Observer's agency.
- v Output RINEX format: version X.XX. (Default = 2.11)
- ac One- or two-character code (from ANTENNA.INI)
- an Value to write in the NUMBER field of "ANT # / TYPE".
- h Add HEIGHT (in meters) to all antenna heights.
- n Do NOT perform default antenna height corrections.
- k First observation in file is kinematic.
- ca Account for millisecond time steps in observations and time of observation.
- co Include receiver clock offset values in OBS output.
- d Include Doppler values in OBS output.
- s Include raw signal strength values in OBS output.
- g Include only GPS observations in OBS output.
- m Generate a RINEX METeorological file if data are present.
- t Generate a RINEX AUXiliary file containing TILT data if data are present.
- mo Value to write in the Obs file MARKER NAME field.
- mn Value to write in the Obs file MARKER NUMBER field.
- rc The receiver numeric code (from RECEIVER.INI)
- rn Value to write in the NUMBER field of "REC # / TYPE / VER".



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If a ParamFile is specified, it must consist of lines of the following form:

<ParameterName> = <Value>

where <ParameterName> may be any of the following:

DatFile	Name of DAT/T01 file to be converted.
ObsFile	Name of RINEX Observation file to be created.
NavFile	Name of RINEX Navigation file to be created.
MetFile	Name of RINEX Meteorological file to be created.
RunBy	Person or agent performing the RINEX conversion.
Observer	The name of the person performing the survey.
Agency	Observer's agency.
RinexVersion	Output RINEX format: version X.X. (Default = 2.11)
GenMetFile	Set to YES to enable generation of default MET file.
AntCode	One- or two-character code (from ANTENNA.INI)
AntNumber	Value to write in the NUMBER field of "ANT # / TYPE."
AntType	Value to write in the TYPE field of "ANT # / TYPE."
CorrToBase	Set to NO to disable ant. ht. corr. to base of antenna.
AntCorrect	Set to NO to disable any ant. ht. correction.
AntOffset	Vertical offset, to be added to any antenna height values.
RcvrCode	The receiver numeric code (from RECEIVER.INI)
RcvrNumber	Value to write in the NUMBER field of "REC # / TYPE / VER."
RcvrType	Value to write in the TYPE field of "REC # / TYPE / VER."
RcvrVersion	Value to write in the VER. field of "REC # / TYPE / VER."
HdrMarkerName	Value to install in the Obs file MARKER NAME field.
HdrMarkerNumber	Value to install in the Obs file MARKER NUMBER field.
HdrMarkerXYZ	XYZ (3) values for Obs file APPROX POSITION XYZ field.
KinStart	Set to YES to indicate that antenna starts in motion.
LogDoppler	Set to YES to log Doppler. Same as "-d" command line option.
LogSNR	Set to YES to log SNR. Same as "-s" command line option.
LogOnlyGPS	Set to YES to log only GPS to the OBS file. Same as "-g" command line option.
AddMSecOffsets	Set to YES to include millisecond clock rollovers.
AddRcvrOffsets	Set to YES to include receiver-computed clock offsets.
AdjDisabled	Set to YES to disable adjustment of the total clock offset for the time, pseudorange, and phase.
AdjObservations	Set to YES to subtract the total clock offset from the time, pseudorange, and phase.

Blank lines and all characters including and following a '#' are ignored.

Leading and trailing white space (blanks and tabs) in the <Value> field are ignored.

The default value for each of the (YES/NO) control options is the opposite of the example given above. That is, the examples above override the default.