

Trimble NetRS - How to track and log L2C

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To enable L2C tracking on a NetRS receiver

1. **Change the Record Type to allow L2C data to be written to a session file** (Firmware 1.2-0 or later required and firmware 1.3-0 is preferred)

- Go to the receiver's web interface.
- Click the "Data Logging" link in the menu on the left hand side.
- Click on the session name that you would like enable L2C on.
- Select "T00" Data Format and check the the "Use Record Type 27" option.

The screenshot shows the Trimble NetRS web interface. On the left is a navigation menu with categories: Receiver Status, Satellites, Data Logging (selected), Receiver Configuration, Internet, I/O Configuration, Security, Firmware, Programmatic Interface, In Browser, and Standalone Window. The 'Data Logging' section is expanded, showing sub-items: Status, AutoDelete, Power Saving, and Data Files. The main content area is titled 'Edit or Create Data Logging Session'. It features a 'Select Session' dropdown set to 'T0027daily' with an 'Enabled' checkbox. The 'Schedule' section shows 'Currently it is 2009/Dec/23, 17:58 UTC' and radio buttons for Manual, Once Only, Daily, and Continuous Logging (selected). A 'File Durations' input is set to 1440 minutes. The 'Data Format' section has radio buttons for T00 (selected) and Binex. The 'T00 Options' section includes 'Measurement Interval' (15 Sec), 'Position Interval' (1 Min), checkboxes for 'Smooth Code Phase' and 'Smooth Carrier Phase', and checked checkboxes for 'Use Record Type 27' and 'Include Raw WAAS Data'. The 'File Naming' section explains the file name format 'SystemNameYYYYMMDDHHmmS.ext' and shows 'The SystemName is 038L2CON'. A dropdown for 'S' (The Session Identifier) is set to 'y'. The 'Directory Options' section has checkboxes for 'Create Per-Day subdirectories' and 'Create Per-SessionId subdirectories' (checked). A sample file path is shown: '/200912/y/038L2CON200912231758y.T00'. At the bottom are 'OK', 'Cancel', and 'Delete' buttons.

- Select "OK" to save the setting. (you may be prompted for a username and password).

2. **Change the receiver's configuration**

- Click the "Receiver Configuration" link in the menu on the left hand side.
- Click the "L2 Tracking" link.
- Select "L2C and L2-Y-code" or "L2C or L2-Y-code" to enable L2C tracking.

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Receiver Status
Satellites
Data Logging
Receiver Configuration

- ☐ Summary
- ☐ Antenna
- ☐ Clock Steering
- ☐ Multipath
- ☐ **L2 Tracking**
- ☐ Masks
- ☐ One Pulse Per Second
- ☐ Reference Frequency
- ☐ Configuration Files
- ☐ Shutdown Voltage
- ☐ System Reset

L2 Tracking Control

<input type="radio"/>	Off No L2 Signals will be tracked.
<input type="radio"/>	L2-Y-code Only Y-code on L2 will be tracked.
<input type="radio"/>	L2C or L2-Y-code L2C will be tracked if available. L2-Y-code will be tracked if L2C is not available.
<input checked="" type="radio"/>	L2C and L2-Y-code Both signals will be tracked simultaneously.

- Select "OK" to save the setting. (you may be prompted for a username and password).

3. Translate the file using "runpkr00" ([available from this Knowledge Base article](#)):

```
>>user$ runpkr00 -g -d $FILE.T00
```

If RT27 was used the resulting file will be named "\$FILE.tgd", otherwise it will be named "\$FILE.dat".

One more caveat if you're using BINEX for logging or streaming with this configuration: The NetRS uses BINEX 7f-03 which can only handle one L2 observation at a time, not both P2 and C2 simultaneously. In FW version 1.2-0 and later when the receiver is configured to track both "L2C and L2-Y-code", any BINEX sessions will contain ONLY P2 - no L2C info will be available. The only way to get L2C in a BINEX stream or file is to set the receiver to track "L2C or L2-Y-code", in which case both the BINEX and ".T00" files (whether or not RT27 or RT17

was used) will contain only C2 for block IIR-M satellites and P2 for the rest. In this case if the +C2 option is not used when translating the BINEX data will tecq there will be no L2 data for SV's that do not broadcast L2C.

Here is a quick summary of what different file and stream types will contain when different L2C tracking options are selected.

3.

	L2 OFF	L2-Y-code only	L2C or L2-y-code	L2C and L2-Y-code
BINEX	No L2 at all	P2 only	C2 for block IIR-M/II-F satellites and P2 for the rest	P2 only for all satellites
T00/RT17	No L2 at all	P2 only	C2 for block IIR-M/II-F satellites and P2 for the rest	P2 only for all satellites
T00/RT27	No L2 at all	P2 only	C2 for block IIR-M/II-F satellites and P2 for the rest	C2 AND P2 for block IIR-M/II-F satellites and P2 for the rest

To convert Trimble files into the RINEX format while including the L2C observable

1. Convert the Trimble .T00 formatted files into the Trimble .tgd format using runpkr00

- Once the receiver's data files have been downloaded, use the program runpkr00 to convert them.

- Documentation and executables for runpkr00 are available on the knowledgebase: [/questions/744](#)

- The Trimble runpkr00 program allows users to extract .DAT or .TGD files from R00/T00/T01/T02 files logged by Trimble GPS/GNSS receivers. Note that for GNSS signals to be extracted from "Record Type 27" (RT27) files the "-g" flag must be added separately to the command line, which will produce a .TGD file. Both .DAT and .TGD files can then be

interpreted by teqc.

-e.g. the command "runpkr00 -g -d filename.T02" will produce "filename.TGD" if RT27 format was logged and "filename.DAT" if not. Using the "-g" flag at all times is recommended.

2. Use TEQC to convert the Trimble .tgf formatted files into the RINEX format

- Executables and Documents for TEQC can be found at

<http://www.unavco.org/software/teqc/teqc.html>

- Use the +C2 flag with teqc (LC2 code pseudorange to be included in default observables (i.e. no use of -O.obs[_types]))

- e.g. the command "teqc +C2 filename.tgf > filename.10o" will produce a RINEX file with the L2C observable.

Online URL: <https://kb.unavco.org/article/trimble-netrs-how-to-track-and-log-l2c-667.html>