

# Trimble NetRS - How to track and log L2C

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## Trimble NetRS -- How to track and log L2C

### 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 web interface for configuring data logging. The left sidebar contains a navigation menu with options like Receiver Status, Satellites, Data Logging, Receiver Configuration, Internet, I/O Configuration, Security, Firmware, Programmatic Interface, In Browser, and Standalone Window. The main content area is titled 'Edit or Create Data Logging Session' and includes the following sections:

- Select Session:** T0027daily (dropdown),  Enabled
- Schedule:** Currently it is 2009/Dec/23, 17:58 UTC. Options:  Manual,  Once Only,  Daily,  Continuous Logging. File Durations: 1440 minutes.
- Data Format:**  T00,  Binex
- T00 Options:** Measurement Interval: 15 Sec (dropdown), Position Interval: 1 Min (dropdown).  Smooth Code Phase,  Use Record Type 27,  Smooth Carrier Phase,  Include Raw WAAS Data.
- File Naming:** File names will be generated in the form: SystemNameYYYYMMDDHHmmS.ext. The SystemName is 038L2CON. 'S' (The Session Identifier) is y (dropdown).
- Directory Options:**  Create Per-Day subdirectories,  Create Per-SessionId subdirectories.
- Sample:** /200912/y/038L2CON200912231758y.T00
- Buttons: OK, Cancel, Delete

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

OK Cancel

- 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.

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