TETRA Trunk Tracker – Features and Usage

by thewraith2008 (13th July 2018)

Menu - G/SSI Editor (F4)

Displays a snapshot* of all GSSIs seen with associated SSI.

* Snapshot is of GSSI list at time editor was opened. If new items added after
  it was opened, they will not be shown. Close and re-open to refresh.

This editor has an idle time-out of 5 minutes before it closes.
The reason for this is so data does not become too outdated.

From here you can change: (Only existing G/SSIs in list)
 - GSSI Label, Priority and lockout skip state
 - SSI Label

Select MCC(Country) MNC(Network) from drop down list to display all GSSIs for that Country/Network.
Current Country/Network is loaded by default when tuned to CC.

When GSSI is checked, calls will be allowed.
When GSSI is Un-checked, calls will be ignored.

This editor can be accessed a few ways.

 1. Directly, either via by menu or F4
 2. On a active call, click 'Group' field in 'Call Details' panel
 3. On a active call, click 'TX SSI' field in 'Call Details' panel
 4. Click on one of the entries in current call list. On right of 'TX SSI' in 'Call Details'
 5. Double clicking some items in call event log. Some Group: and SSI: entries (see below)

  #2-5 will open dialog window if not already opened.

#2. Will use current call GSSI and highlight item, show label (if any), priority and lockout skip state.

#3,4 Will use current call GSSI and SSI and will:
    - highlight item, show GSSI label (if any), priority and lockout skip state.
    - highlight item, show SSI label (if any).

 #5   Works like #2,3,4 when double clicking item in call event log window.
    - Entries with "Group: xxxxxx".
    - Entries with "TX SSI: xxxxxx"
      (Assumes GSSI from previous 'Group' event entry to be releated - Used to search for SSI)
    - Entries with "Calling SSI: xxxxxx"
    - Entries with "D-TX-Ceased" or "D-TX-Granted" "SSI: xxxxxx"
    - Entries with "Skipping Call, lockout found GSSI: xxxxxx"

Right clicking a highlighted GSSI toggles lockout skip state and makes change take effect immediately.
 (with no need to click "Update" button).

Use GSSI "Update" - To store label, priority and Lockout skip state for a GSSI.

To store SSI label: Enter/remove label then press enter key.

Menu - Compact (F11)

Minimises the GUI to show "Call details" panel only.

Presets - Base frequency

Used with carrier number and offset to calculate VC frequency.
Select frequency your network appears in. e.g. 865MHz select 800 MHz.

Presets - Offset

Used by networks. Default here is +12.5 KHz.

This value is shown in TETRA Demodulator "Network Info" > Current > Offset

0 = 0 KHz
1 = +6.25
2 = -6.25
3 = +12.5KHz

Presets - VC Park

Parks SDR# VC on unused frequency when no call.

You can find a unused frequency (carrier number) with TETRA Demodulator
Select a frequency in SDR# and main plug-in window on left of SDR# shows
"Current: xxxx yyy.yyyy MHz" Then xxxx = carrier number.

I've notice that TETRA Demodulator does not show correct number on unused
frequencies, as it does not know what offset to apply. But it's good enough
so long as you don't put VC park 12.5Khz away from CC or other active carrier.

Presets - CC Park

Parks SDR# on CC carrier (frequency) where we wait for call set-up activity.

Presets - Call time-out

For when D-Release is not seen. (Happens sometimes)
When 'D_TX_Ceased' occurs, timer will start. If no 'D_TX_Granted' or D-Release occur then timer will time
out and force release of call and return to idle.
Don't set to high. 5 seconds works good.

Presets - VC Volume

Set the volume for calls on VC SDR#
Also sets volume of recorded calls.

Call Recording - Record All Calls/Record select GSSIs:

This recording capability is basic and with limits.

Entire call is saved in one file. (not per SSI transmission)

"Record ALL calls"
- All calls will be recorded.

"Record select GSSIs"
- When a GSSI is added to listbox, these GSSIs will be the only calls recorded when seen.

"Delete forced ended calls"
- When a call is ended early because of priority override. WAV will not be complete.
- When a call is manually release by user. WAV will not be complete.
- This option deletes these files.

There is no pre/post buffers.
Some of previous call audio maybe heard when priorities kick in.
Part of start or end of call may be cut-off.

Two methods of setting up recording exist.
I recommend you get everything else running OK before setting this up.

Method 1:
Records via default recording device (Wave)
Any other sounds playing on desktop will also be recorded. (i.e. system sounds, playing a WAV)

Method 2:
Records via default recording device (when set as virtual cable line#)
This way you can playback WAVs or use system without interfering with recording.

See "**TTT_set-up_manual.pdf**" for set-up and configuration.

Saved in the folder "Record" under the folder "Daily" and "ddmmyyy".

Options - Suppress some PDUs messages

*** Only meant for testing ***
TETRA Demodulator outputs some of the following downlink PDUs.
Not all are currently used by this program. Will be shown in there raw form on event log.

D_Alert
D_Call_Proceeding
D_Call_Restore
D_Connect
D_Connect_Acknowledge
D_Disconnect
D_Facility
D_Info
D_SDS_Data
D_Status
D_TX_Continue
D_TX_Interrupt
D_Wait

These are always shown in event log and not shown as raw:
D-Release
D_Setup
D_TX_Ceased
D_TX_Granted

Options - Suppress lockout messages

When call priority used, will stop the lockout GSSI messages showing in event log.

Options - Ignore call priority (* not simple)

Ignore any priorities that are set.
Calls will be first seen first served without interruption.

Ignored if Hold function is in-use.

This feature in not available in the Simple version

Options - Ignore priorities when record call (* not simple)

If the above "Ignore call priority" option is NOT set and if current call is been recorded, this option will prevent priorities overriding this call.

This feature in not available in the Simple version

Logging Options - Create CC,VC log

Creates 2 log files of the raw output of CC and VC 'Network Info' window.
 This is data is de-duplicated a little as most PDUs are sent 4 times.

Starts new file on new day.
Saved in folder "Daily" in a folder for each day.

Logging Options - Create event log

Saves what is shown in event log window to file.

Starts new file on new day.
Saved in folder "Daily" in a folder for each day.

Logging Options - Create Call Activity CVS log

Saves daily call count for each GSSI seen.

Starts new file on new day.

Stored as eg. "Call_Activity_13-06-2018.csv"
Saved in folder "Daily\ddmmyyyy" in a folder for each day.

First row is labels (A1="GSSI", B1="Call Activity")
File Format: GSSI;CallactivityCount
Can be used in a spreadsheet with chart to graphically display call activity.

Stored as eg. "DailyCallActivity_13-06-2018.csv"
Saved in folder "Daily\ddmmyyyy" in a folder for each day.

File Format: CALLID;GSSI;TIME(of call);PDU-GRANT_TYPE
Can be used in a spreadsheet with chart to graphically display call activity.

NOTE: In Simple version this is a log only mode. No calls are heard/processed.
    To log this data we need to stay on CC all the time.

Checkbox Detection

This is used to control TETRA Demodulator checkboxes 'Demodulator' and 'Auto'

See "**TTT_set-up_manual.pdf**" for usage details.

"Call" indicator - Shows call state

Green = Active call
Grey = No call

Secondary function:
Clicking when green will exit call.
The current GSSI will go into a temporary lockout pool for 15 seconds.
This is to prevent same GSSI restarting because of late to call D-Setup PDUs.
After 15 seconds the GSSI is cleared and calls allowed to be passed again.

GSSI Hold function - Only allows calls with GSSI

** TETRA Trunk Tracker window MUST have focus for this to work.

On a call, pressing space bar will choose current GSSI to hold on **.
Space bar again to clear **.
Clicking "Call details" panel "Group" caption has same effect.

"Call details" "Group" caption will change to orange and tool tip will show the GSSI on that is on HOLD.

Priorities are ignored when in-use.
No call skipping will be indicated on event log window.
No lockout call skipping will be indicated on event log window.
GSSI Hold function is not saved and will reset to normal operation after restart.
Changing the hold GSSI lockout skip state will clear hold.

Position SDR#

Sets if the SDR# windows will be restored to a stored position on start or reset.

To set, double click field to retrieve current position of the SDR# window.

1st field is for CC SDR# and 2nd field is for VC SDR#

TETRA Trunk Tracker created files

NOTE: Do not edit files while program is running as changes will be overwritten on program exit.

Other than "**TETRA_mnc.txt**" and "**TETRA_la.txt**".I don't recommend editing this files directly anyway.

TETRA_SSI.txt and **TETRA_GSSI.txt** are sorted on program start.
Large record files will delay start of TETRA Trunk Tracker.

- GSSI list file (**TETRA_GSSI.txt**):
  Saves GSSI, MCC, MNC, Label, Priority, Lockout skip state.

- SSI list file (**TETRA_SSI.txt**):
  Saves SSI, GSSI, MCC, MNC, Label, Last seen date/time.

- Setting save file (**Tetra-trunk-tracker.dat**) or (**Tetra-trunk-tracker-simple.dat**)
  Saved program settings.

- Event LOG file (**TETRA_event.log**)
  Saved daily call events from event log window.

- Raw CC VC log files (**TETRA_cc.log, TETRA_vc.log**)
  Saved daily raw output of "Network Info" window for CC and VC.

- Country Code labels file (**TETRA_mcc.txt**) [list supplied]
  User created label file - Displays as menu item (next to "Tools")

  Format: MCC;LABEL
      Anything but exactly what is shown will cause crash and/or loss of data. (Don't not use ; in label)
  e.g.: 200;YourCountry

- Network labels file (**TETRA_mnc.txt**)
  User created label file - Displays as tool-tip where MNC,LA are shown on UI.

  Format: MCC;MNC;LABEL
      Anything but exactly what is shown will cause crash and/or loss of data. (Don't not use ; in label)
  e.g.: 100;5;Big Company Network

- Location Area labels file (**TETRA_la.txt**)
  User created label file - Displays as tool tip where MNC,LA are shown on UI.
  Only when Network labels file used.

  Format: MCC;MNC;LA;LABEL
      Anything but exactly what is shown will cause crash and/or loss of data. (Don't not use ; in label)
  e.g.: 100;5;20;Mt Somewhere

- Winsock errors log file (**error.txt**)

- Selected GSSIs for call recording file (**TETRA_rec_gssi.txt**)

- Call Activity CVS log #1 file (**Call_Activity_xx-xx-xxxx.csv**)
  Saves GSSI and call activity counter for day.

- Call Activity CVS log #2 file (**DailyCallActivity_19-06-2018.cvs**)
  Saves Call ID, GSSI, Time of Call, PDU (D-Setup) and grant message call activity for day.

Sample of folder structure:

- **TETRA_Trunk_Tracker_0.99.5** (Folder)
  - **Daily** (Folder)
    - **20180701** (Folder)
      - **Record** (Folder)
        - 014021_14520_100801.wav
    - Call_Activity_01-07-2018.csv
    - DailyCallActivity_01-07-2018.csv
    - TETRA_cc.log
    - TETRA_event.log

- TETRA_GSSI.txt
- TETRA_la.txt
- TETRA_mnc.txt
- TETRA_rec_gssi.txt
- TETRA_SSI.txt
- tetra_trunk_tracker.dat
- tetra_trunk_tracker.exe