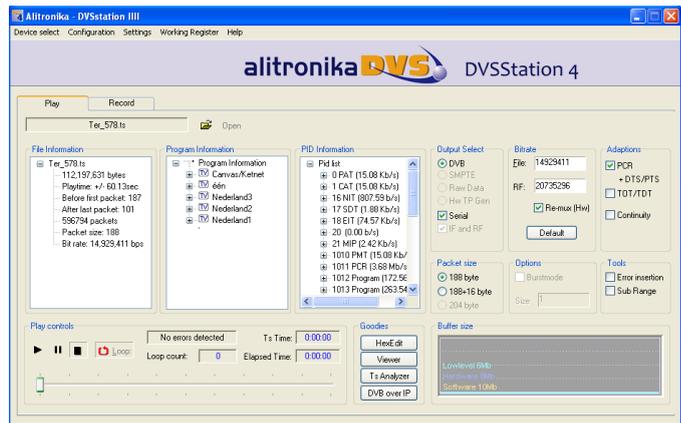


Digital Video Interfacing Products

DVSStation4

Integrated Transport Stream
Player
Recorder
Analyser
TS Viewer
DVB to IP conversion
TS file Editor



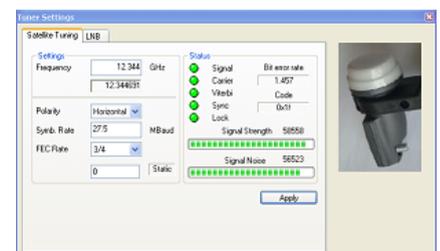
Free, unlimited licence with every Alitronika device

Standard Features

- High performance MPEG-2 Stream Player, Recorder and Analyser supporting all Alitronika's devices.
- Automatically obtains the bitrate from the PCR during Recording and playing.
- Accurate estimation of bitrate when there is none in the PCR.
- Unlimited numbers of play loops.
- Supports sub-loops, partial file play.
- Recoding file selectable by size by duration of recording.
- Automatic correction of PCR/PTS/DTS and continuity counter.
- Integrated file information, (P)SI viewer.
- Allows Null packet insertion using hardware only.
- Allows PID filtering using hardware only.
- Support for Hardware Null packet and counter packet generation for testing without any load on the PC.
- Supports Error insertion.
- Allows user to set TOT/TDT.
- Supports Time stamping using hardware only.
- Integrated Hex editor for viewing/ Editing TS files.
- Multiple application can be run simultaneously on the same PC for recoding or playing of multiple Streams.
- Support unlimited number of LNB setting.
- Support DVB-T/S/C Tuner settings.
- Displays all operational registers of the hardware during play and record for diagnostics purposes.
- Displays Hardware and software buffer usages during play and record operations.
- Allows selection of DVB-ASI, DVB-SPI, RAW data, Burst or continuous mode.

Application

- Universal MPEG-2 Transport Stream generator and recorder for feeding or recording to/from any digital video equipments
- Transport Stream Recording.
- Transport Stream Playing.
- Transport Stream Analysing
- Transport Stream Monitoring.
- Video on Demand Server.
- Transport Stream Test Generator.
- High Speed Serial Data Link.



1 GENERAL DESCRIPTION

The layout of the DVStation4 has the same familiar look as the DVStation3 and many other application software. There are two basic screens, play & record. The screen shot below shows the play screen.

As it can be seen the DVStation4 has many functions, since it must support all Alitronika devices.

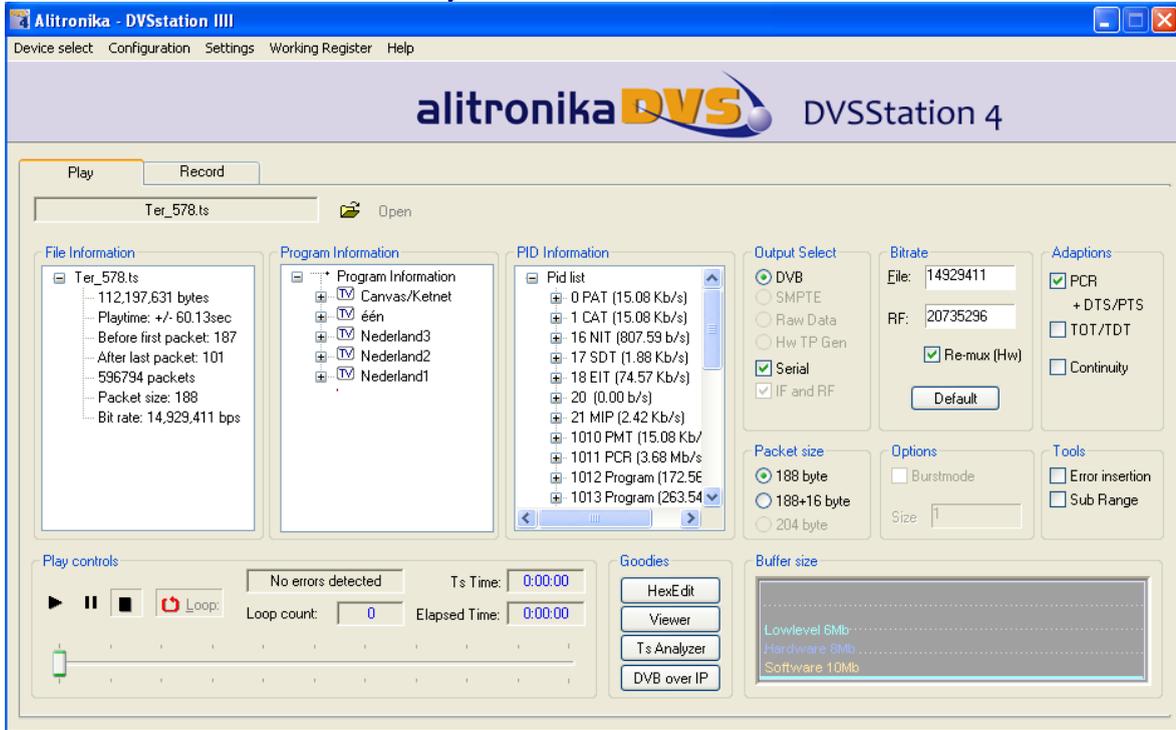
Therefore not all of these functions are used by all of the devices.

In general if a device does not support a function, then the option for selecting that function is disabled by the application software and is not selectable by the user.

For examples the play screen does not appear for devices that only have input and do not have any output capability, or the tuner settings only applies to the De-modulator devices such as AT800USB/PCI.

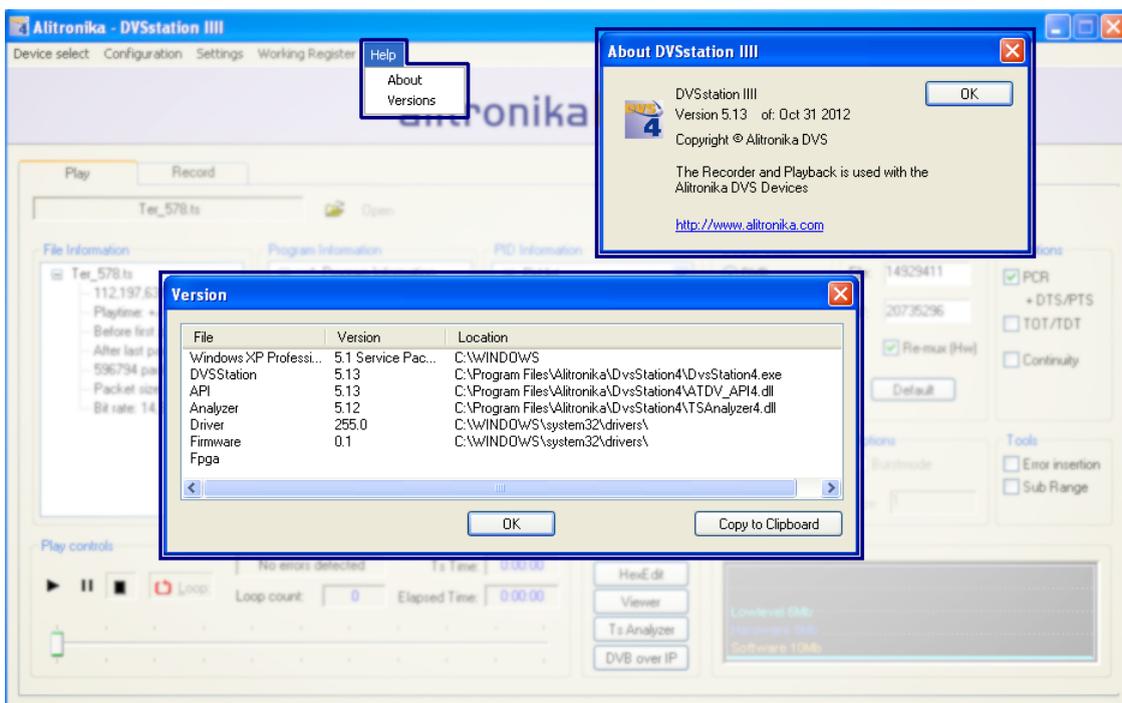
In most cases the DVStation4 pre-selects (Default) the options that are valid for a device.

As an example when a device has only DVB-ASI output, then this output is automatically selected by the application and the user need not make any selections.



1.1 How to check the version

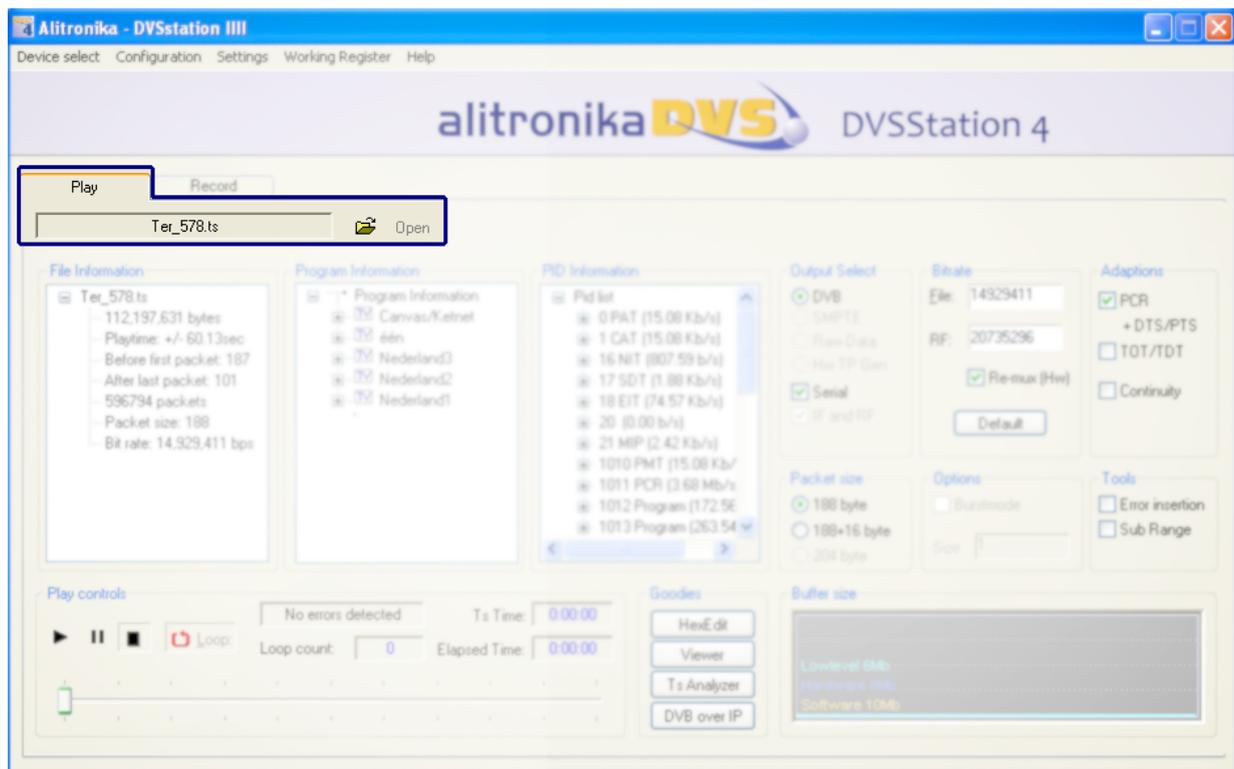
The version number and release date together with the address where you can get technical support can be viewed by clicking on "About" from the top tool bar.



2 Play Mode

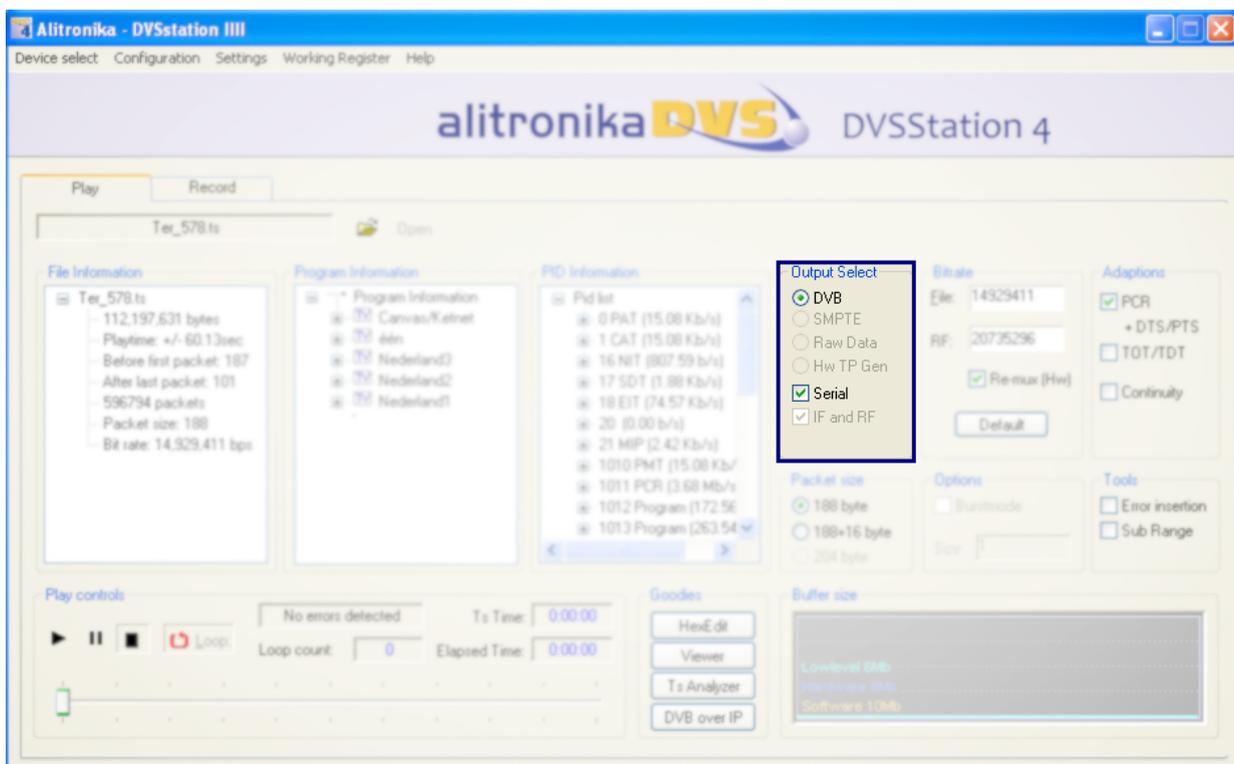
2.1 Selecting a TS file in play mode

To select a file to play simply click on “open” and then select the desired file from any location on your PC drives which it resides.



2.2 Output Selection

The output modes, DVB, SMPTE, RAW data and Hardware Generated TP can be selected from the “Output Select” section shown. For devices which support both Serial (DVB-ASI) and Parallel (DVB-SPI), one or both outputs could be selected. For devices that only have one type of output this option is pre-selected by the application and there is no user option.

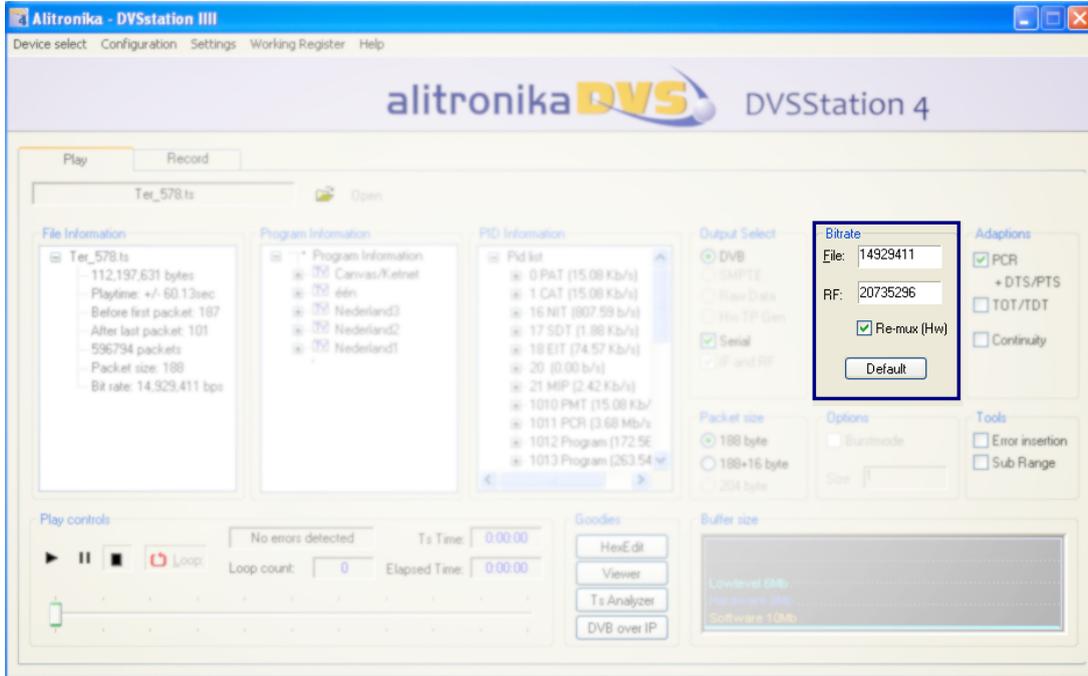


2.3 Selecting Output bitrate

The bitrate of the file to be played is shown in the “file” box of the bitrate section as show. The bitrate at which the file is played back is shown in the “Out” box.

The actual bit rate is obtained from the Transport Stream, but the output bit rate is user selectable.

If the user wishes to play the TS at it original bitrate, then the “Re-Mux” function should be un-checked and the “Default” button selected. The Re-Mux function is carried out by the hardware.

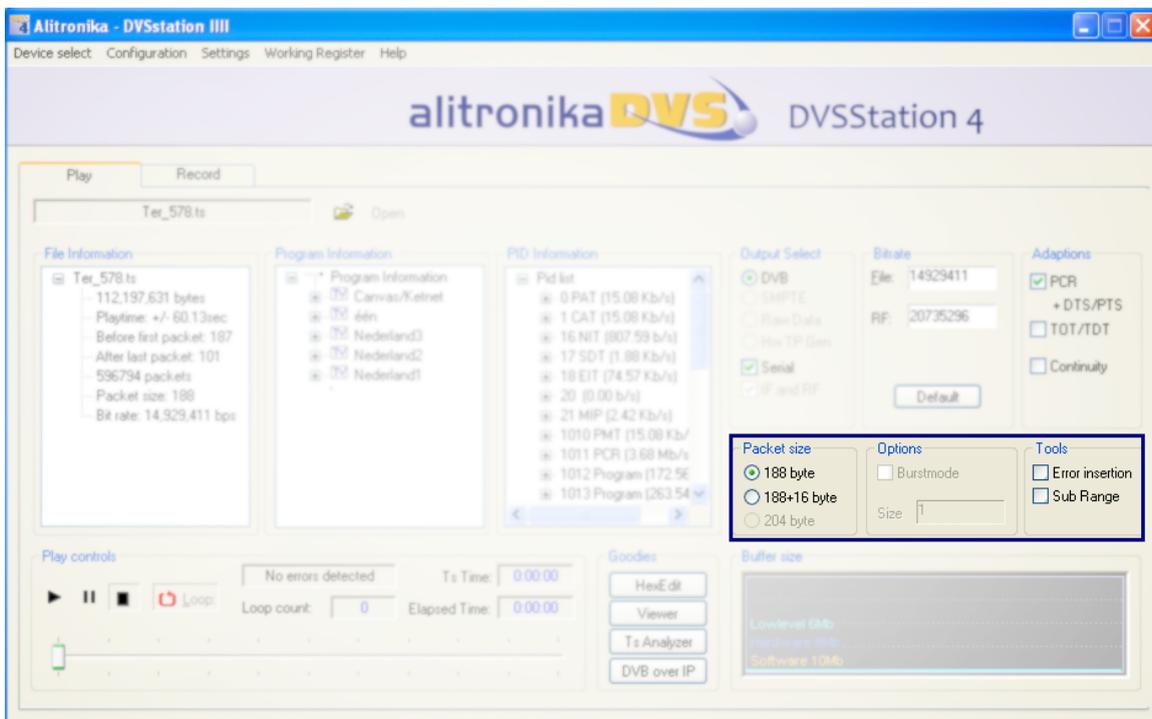


2.4 Output options

All Alitronika devices with output function support many useful play out options, such as burst mode in which the transport packets are transmitted in bursts. The burst size is user selectable.

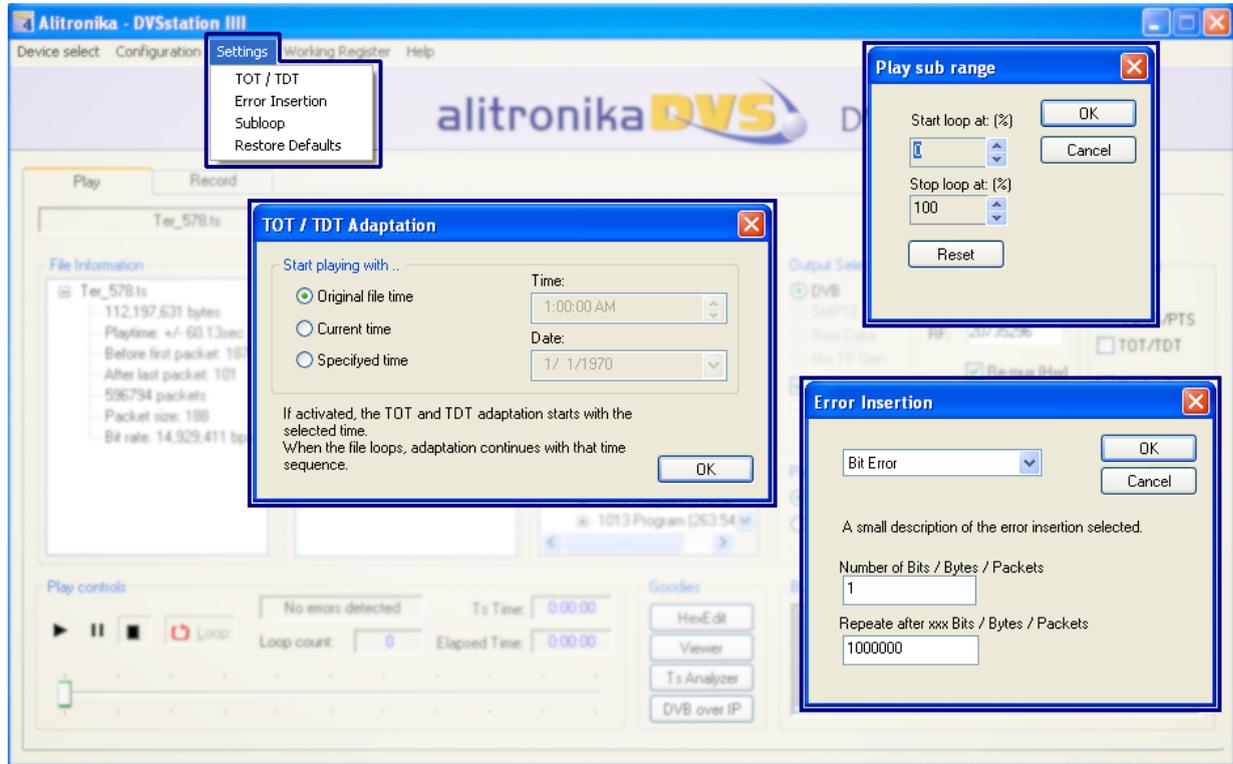
Also there other function, Error insertion, play in loop and sub-loops, add extra 16 byte to a 188 byte packet size to make a 204 byte packets and so on.

All these function are easily selectable by the user and need no further discussions.



2.5 How to set the user selectable output options

The setting for all of these options can be accessed via “Setting” from the top menu bar. There is a separate window for each one of these options. They are all shown in the screen shot below, although they do not all appear at the same time. These functions include selecting loop & sub-loop size, TOT/TDT adaptation as well as bit error insertion.



2.6 The Play panel

The play back interface is based on a typical control layout.

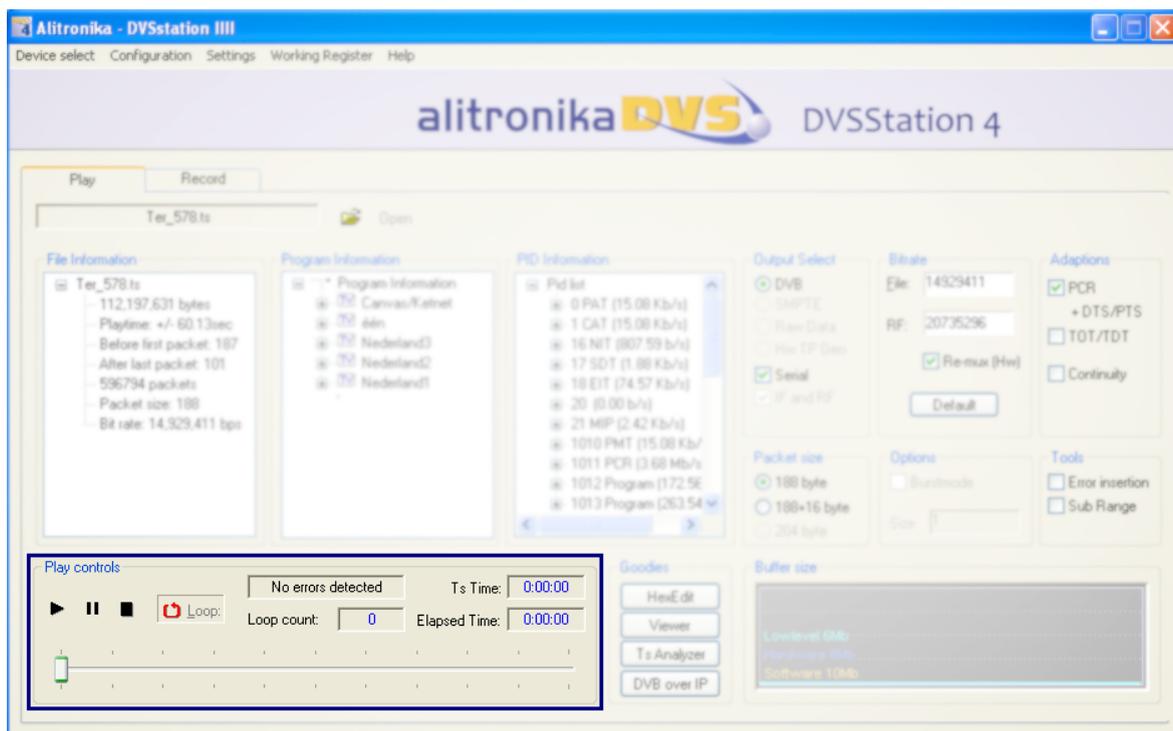
In addition to “ Play “, “ Pause” and “Stop” there is a progress bar and a timing indictor.

Files may be played once or be “looped “ to play continuously by selecting the loop option.

This is particularly useful as a source of repeatable DVB, SMPTE or RAW data when testing other equipments for performance, conformance and fault diagnosis.

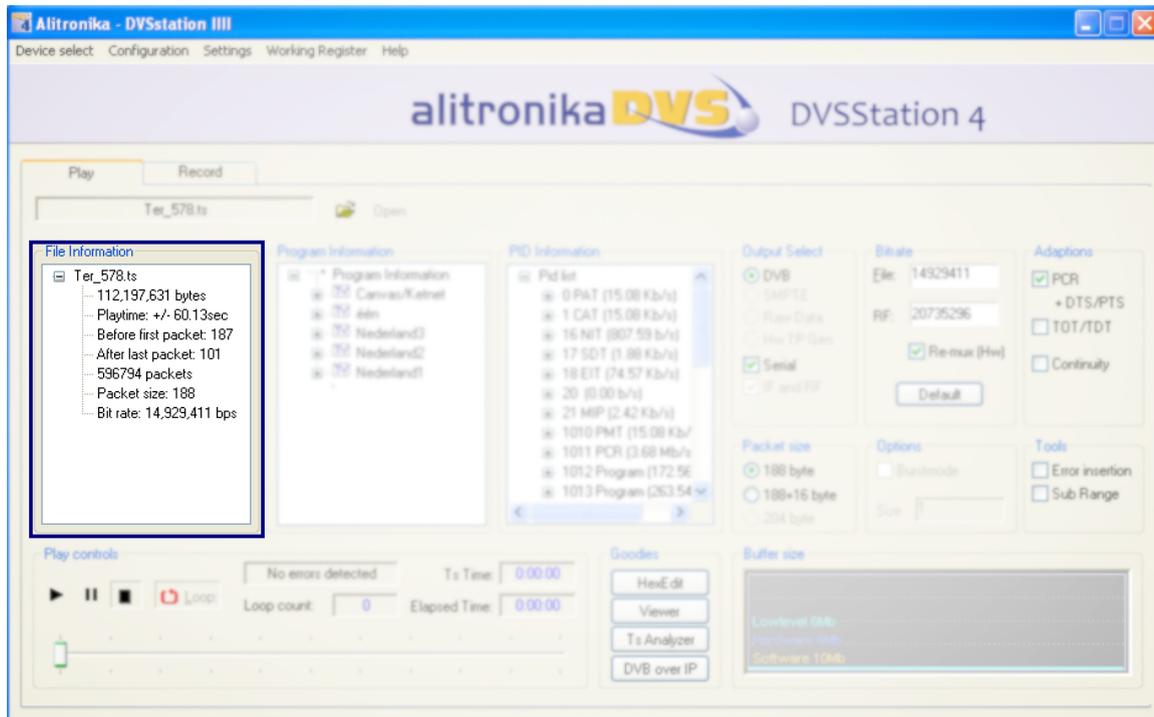
A loop counter shows the number loops played out.

The progress bar can be controlled by the user to move to a desired location in the file.



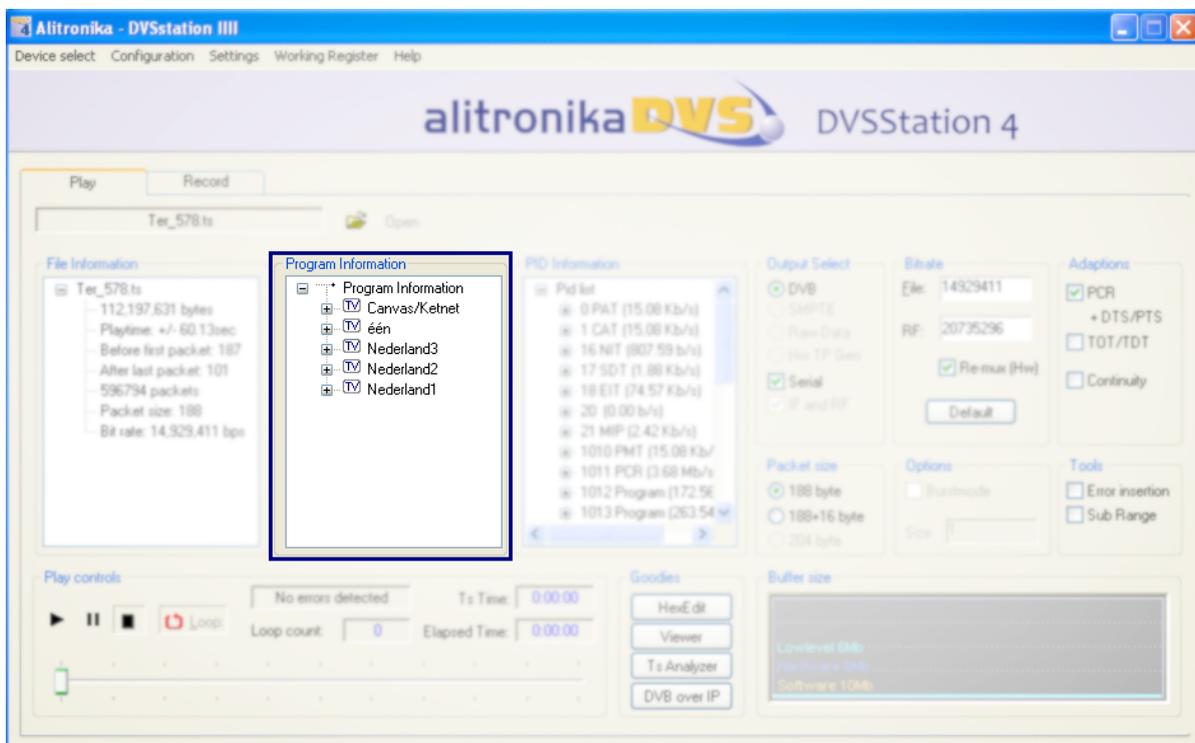
2.7 File information window

The “File Information “ window displays all the file properties, such as the size of the file, bitrate, packet size and other useful information about the TS file.



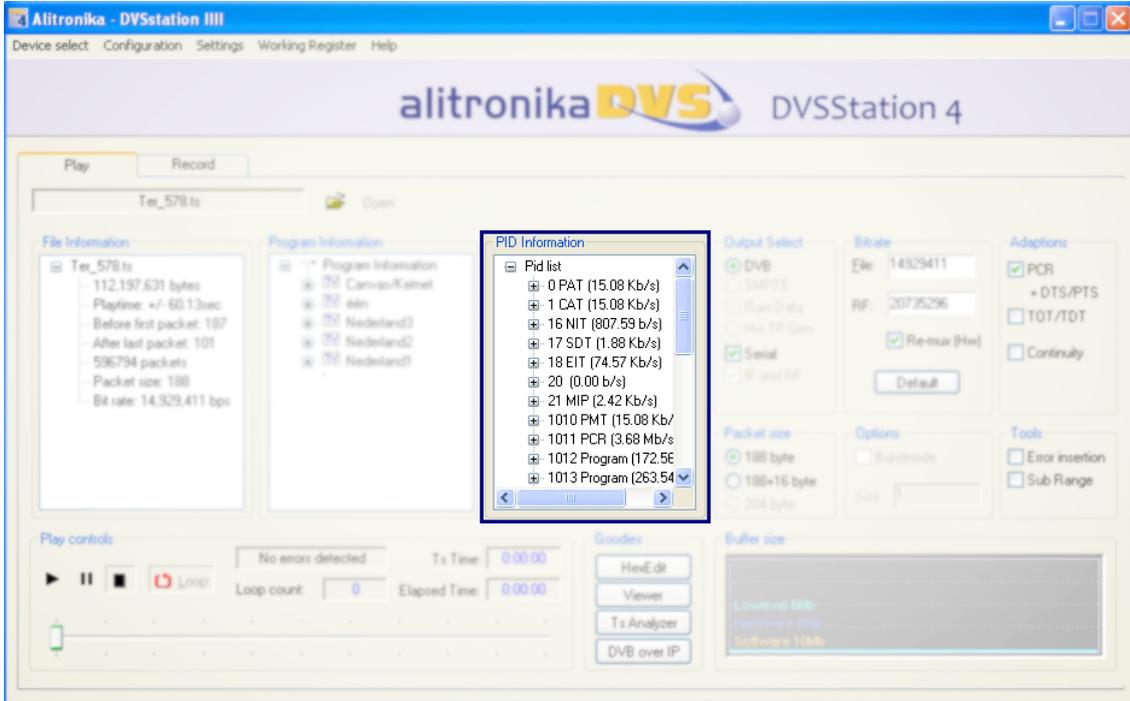
2.8 Program Information Window

The section shows most of the useful information about the content of the TS.



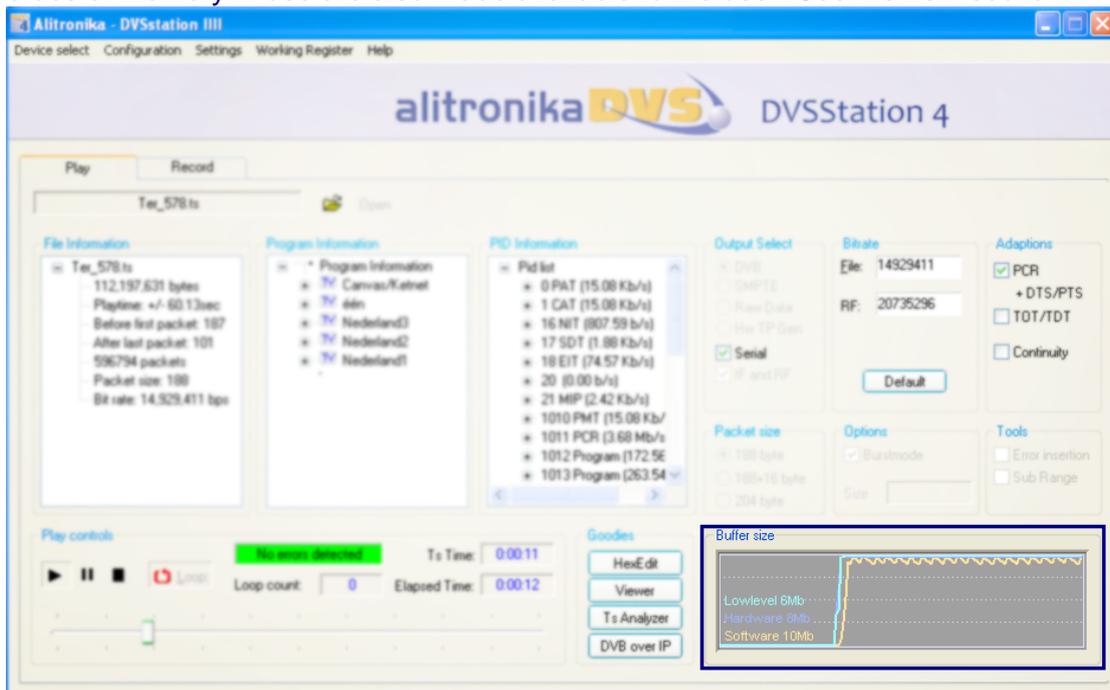
2.9 PID Information Window

The Real Time Integrated Transport Stream analyzer displays the result of the stream analyses in this window. Alitronika's powerful application software, DVStation4 supports a Real Time Quick Transport Stream Analyser. The DVStation is an integrated transport stream player, generator, recorder and monitor and now has an integrated TS analyser function. This is not a full transport stream analyser, since it does not display all the information about the TS, which is being recorded or played back, but when working with a lot of TS a simple tool is sufficient to show what is in the TS streams. DVStation4 is just the right tool for such cases. It generates a complete list of the PIDs used in the transport stream. The PID information is then displayed as seen.



2.10 Buffer Usage Display

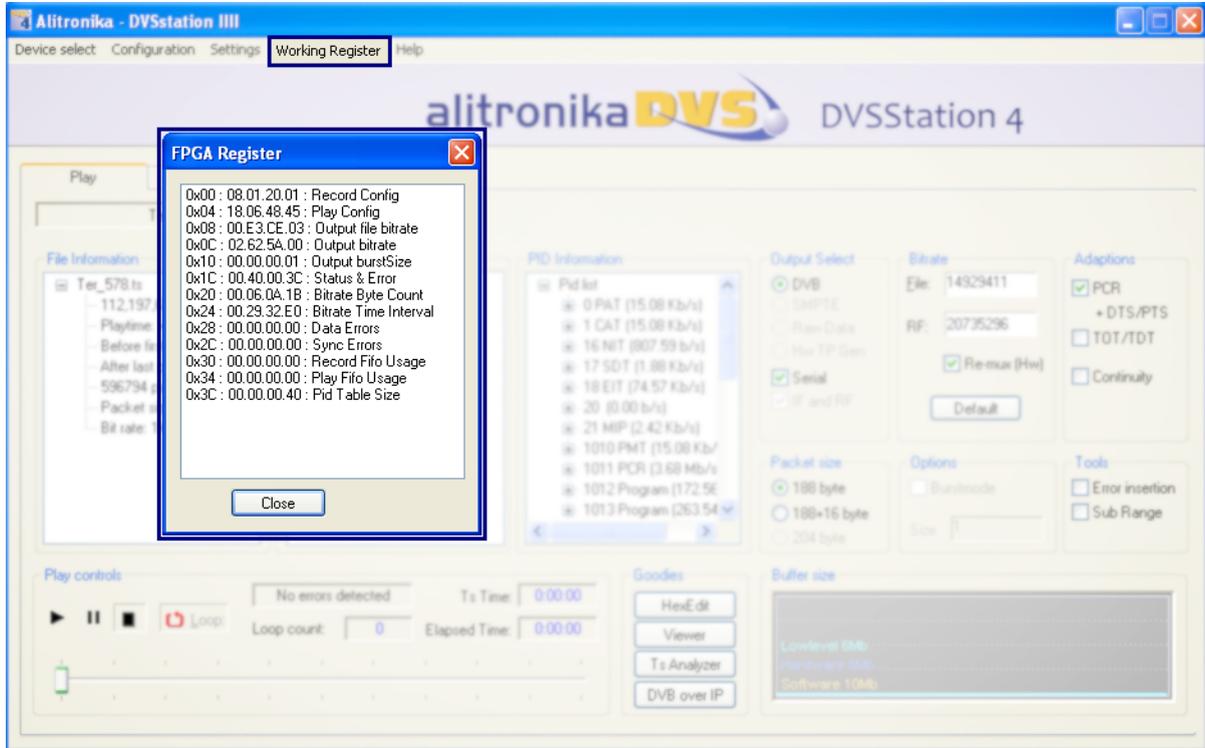
All Alitronika devices have 8 or 16 MB SDRAM on board, used as hardware buffer. In addition there two software buffer of 10 and 20 MB to ensure the smooth buffering and provide sufficient memory resources during play and record. Although in most cases the bitrate on the incoming or out going transport streams are far lower than to be of any concerns, but there are situations in which the memory usage may be of some concern. The " Buffer Size" window displays the memory usage graphically. In addition the actual numerical values of memory in use are also made available to the user. See the next section.



2.11 Working registers

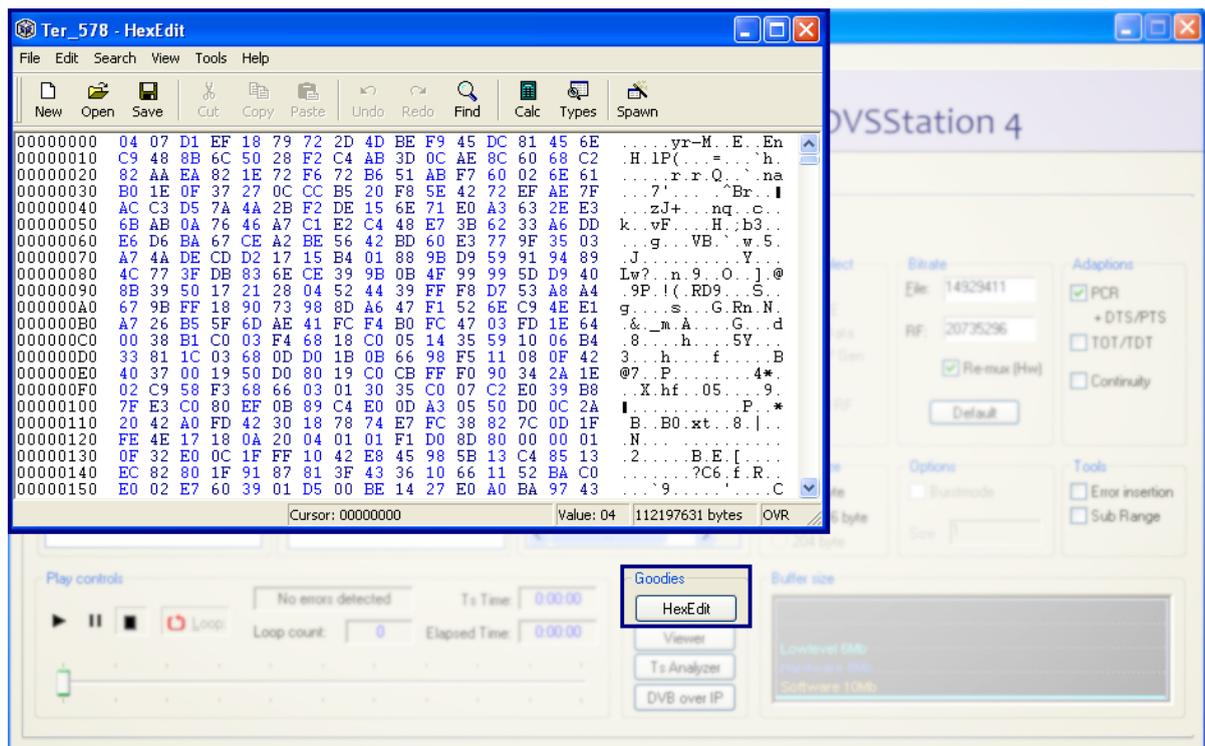
At the hart of every Alitronika device is a powerful FPGA. Most of the functions of the devices are carried out by the Firmware residing in this FPGA. The firmware communicates with the application software via the deriver through a series of working registers. These registers, described in details in the datasheet of the devices, contain all the information as regard to setting and the operation of the devices.

Normally there is no need for the user to know about these. But they can be powerful tools during diagnostics of errors and other conditions. They are made accessible to the user via "FPGA Register" option in the top menu bar as seen below. The Hardware buffer usage can be read directly.



2.12 Hex file Editor

Again when working with a lot of TS, during playing & recording it is often very useful to be able to edit a section of the TS file. DVSSStation4 provides a free to use Hex editor for such a situations. Simply clicking on "Edit it" button will activate it.

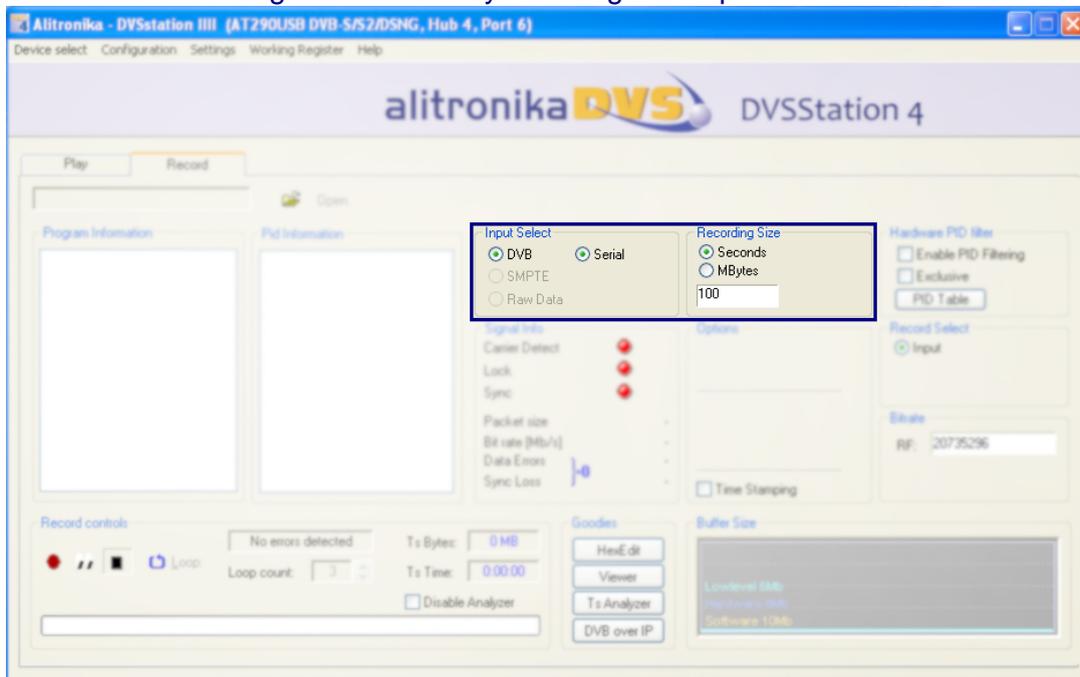


3 Record and Monitor

3.1 Record Options

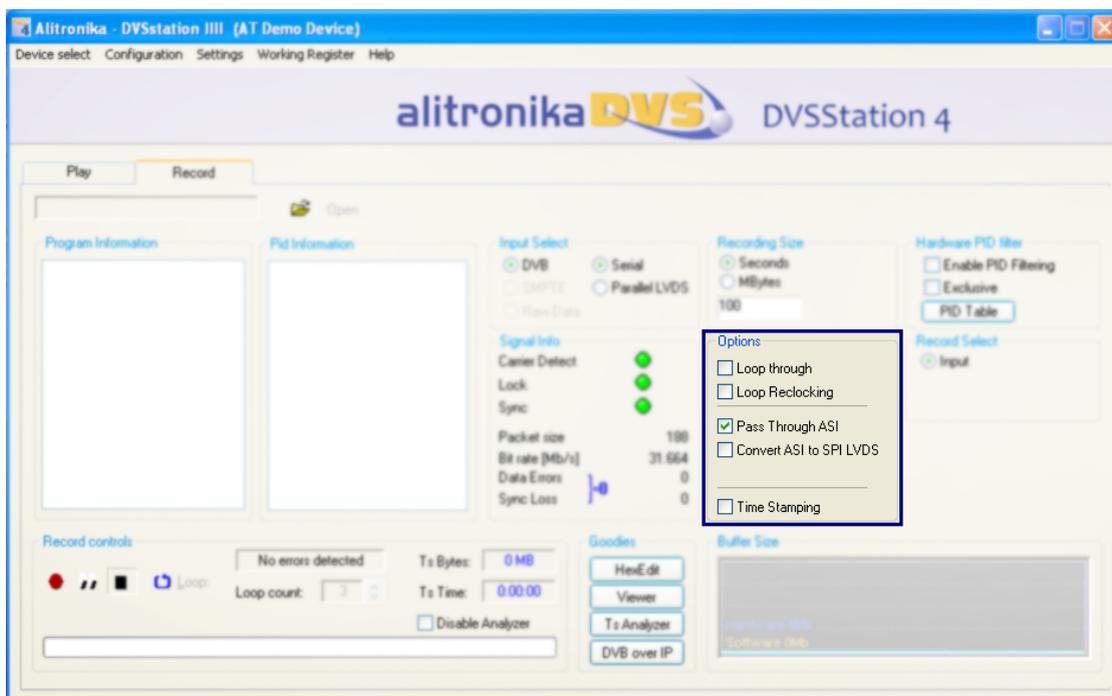
The recording and monitoring of transport streams is as simple as playing. Most of the options are device dependent. So if a device does not support a DVB-SPI input, the option is not enabled. The application software selects most of the options by default; some are left to the user to select. For example users are able to select to record from DVB-ASI or DVB-SPI input of a device that supports both. Other options are entirely of the users choosing such as the size of the file to be recorded.

Files could be recorded according to the size of by selecting a time period.



2.2 Loop Through, Pass Through, Time stamping.

Most of Alitronika device with an input also have a loop through, this is useful in cases when the signal has to be used by another device in the chain. In most case when the device also has an output, the input signal can be "Passed through" to the output during recording, hence eliminating the use of a router if the signal has to be used by more than one device. During the recording of a transport stream, the "Time stamping" function could be enabled. This function is entirely carried out by the hardware. Transport Packets are time stamped, that is the time of arrival of the 11th byte (which contains the PCR) of every TP is marked by a 32 bit counter. These 4 bytes are added to the start every packet.



2.3 PID filtering

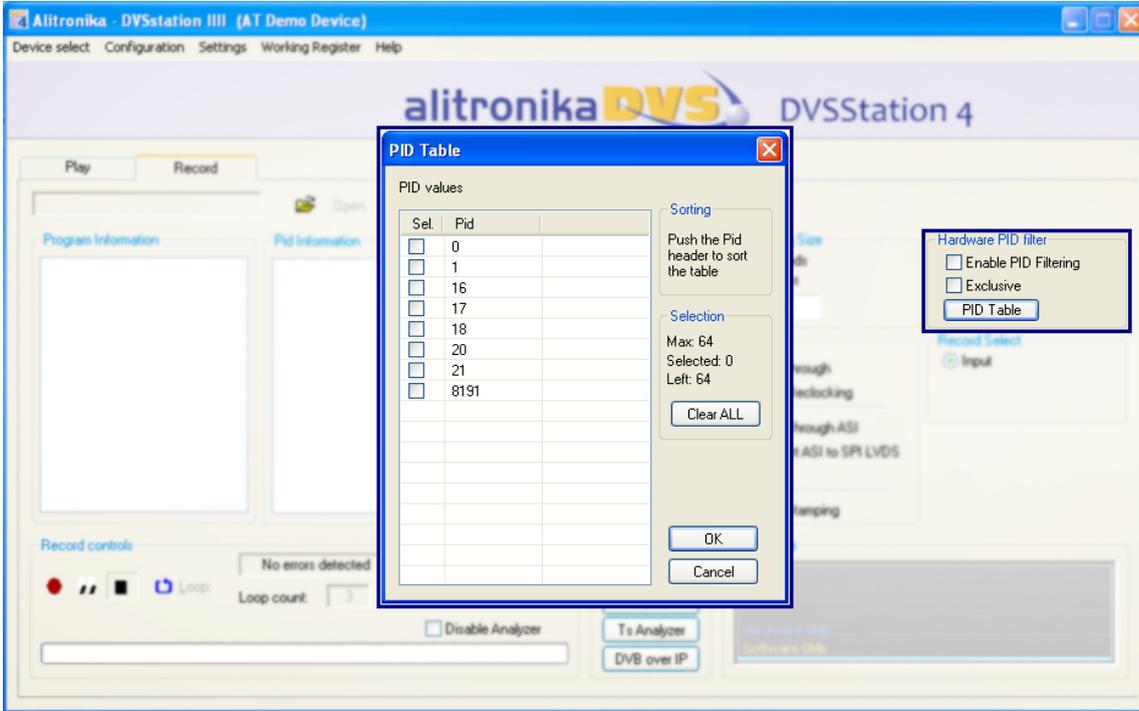
All of the Alitronika devices with input support PID filtering. The merit and usefulness of PID filtering is not the subject of this user manual. Some application may require PID filtering to reduce the amount data for further processing. When PID filtering is done by the hardware it further frees up processing power.

In order to keep the size of the PID table, two types of PID tables could be defined by the user.

An “Exclusive” PID table excludes all the PIDs in the transport stream, which are in the PID table.

An “Inclusive” PID table lets all the PID in the table through and filters out the rest.

The type, the size and the content of the PID tables are selected by the user.

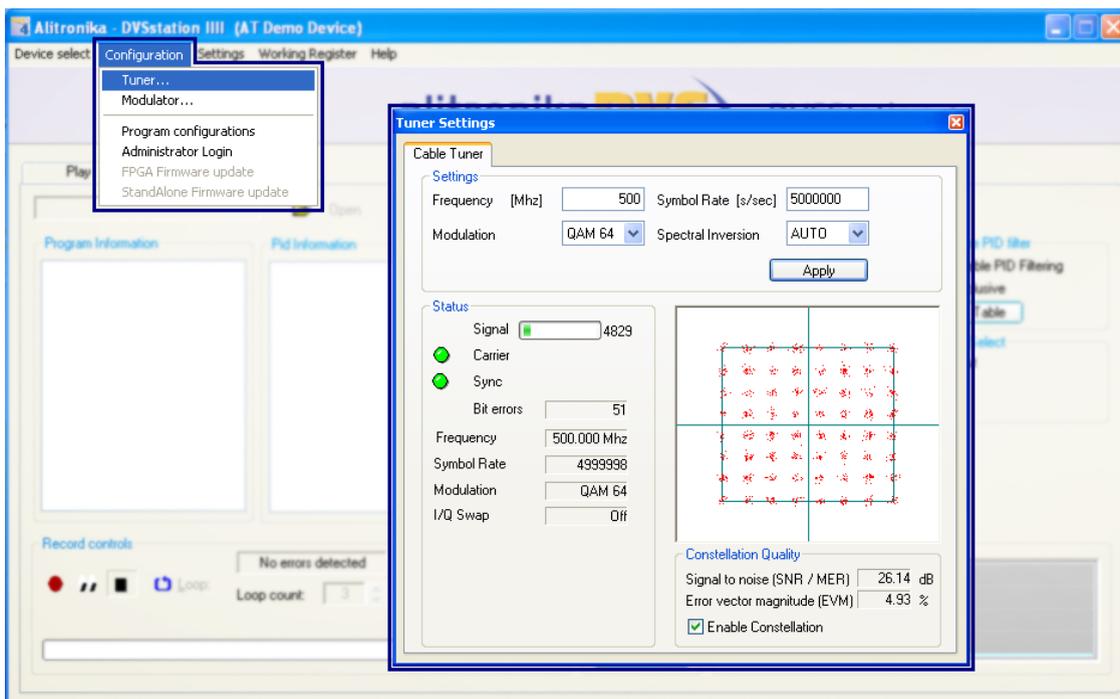


2.4 Tuner setting

Alitronika devices with RF tuners like Cable, Satellite, Terrestrial demodulator devices, allow the user to select the desired channel, frequency, modulation mode and other parameters.

The tuner settings are accessible via the “Configuration” option from the top menu bar.

The screenshot below shows the options for devices with DVB-C (Cable QAM) function.

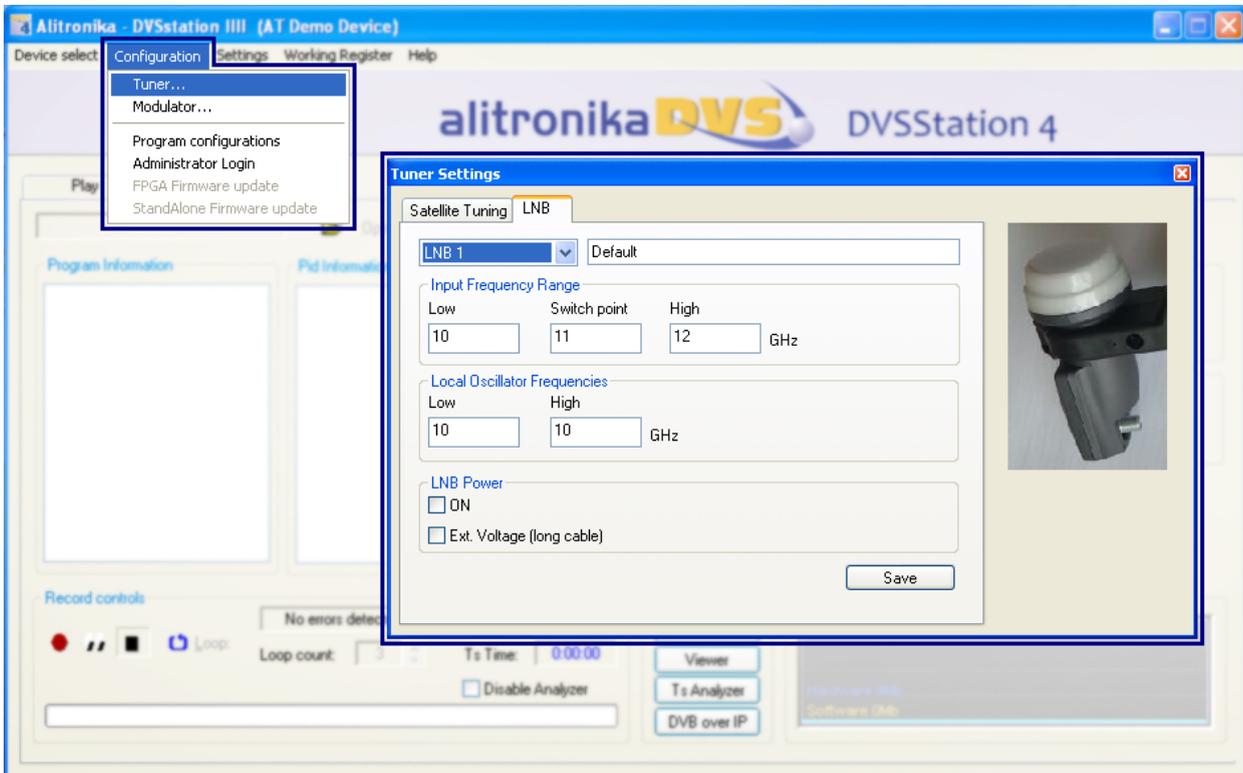
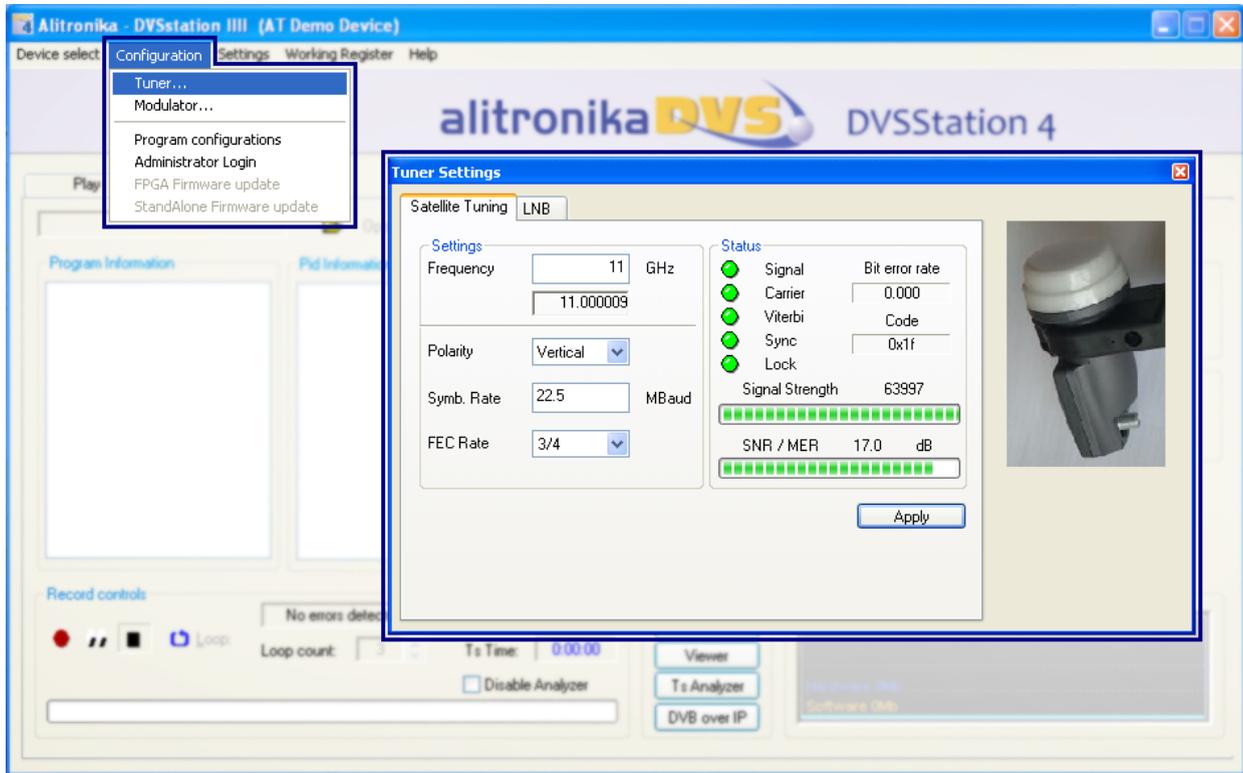


2.5 Satellite tuner and LNB Power

Alitronika's DVB-S devices with satellite tuners on board also support settings as well as supplying power for the LNB units. Setting for multiple LNB units may be saved & selected as they are used.

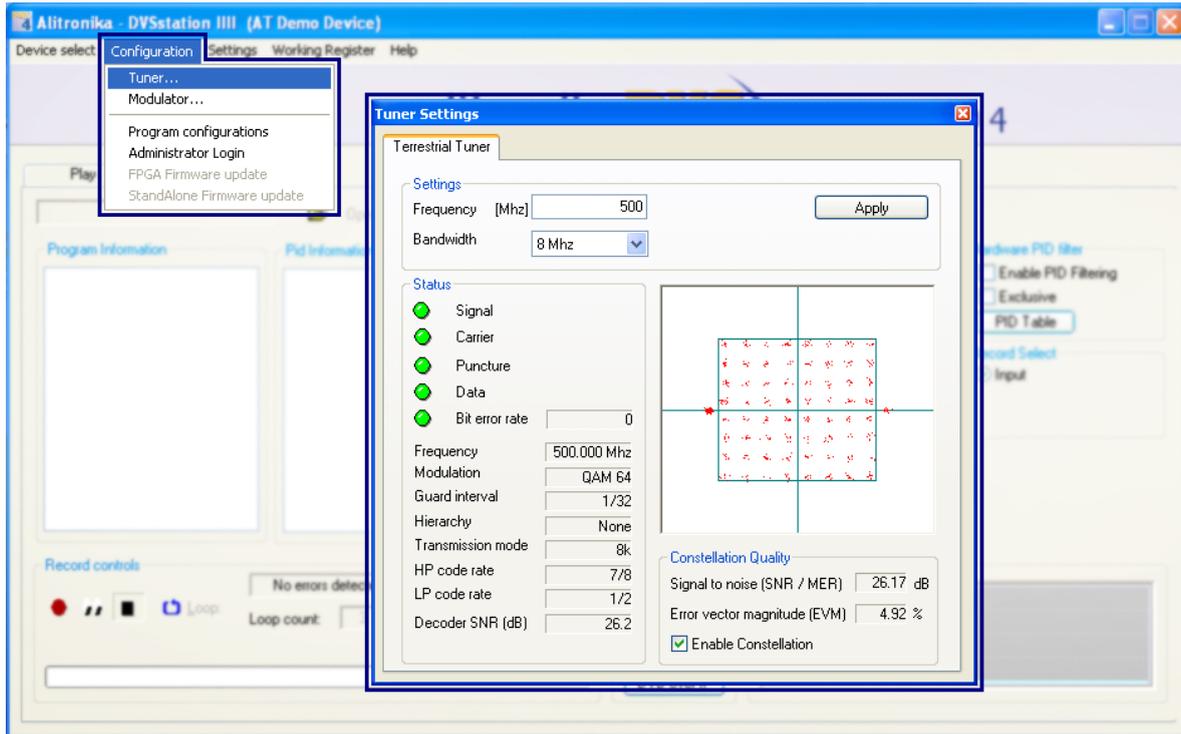
The DVB-S devices supply power supply for Vertical, Horizontal and an extra 1V DC to compensate long cables. This option may only be selected if a long cable used between the tuner & the LNB units.

Screenshots below show the available user options for the DVB-S tuner and the LNB device.



2.6 Terrestrial Tuner

Alitronika's DVB-T devices with terrestrial tuners need only a few parameter to be set, these are shown in the screen shot below.

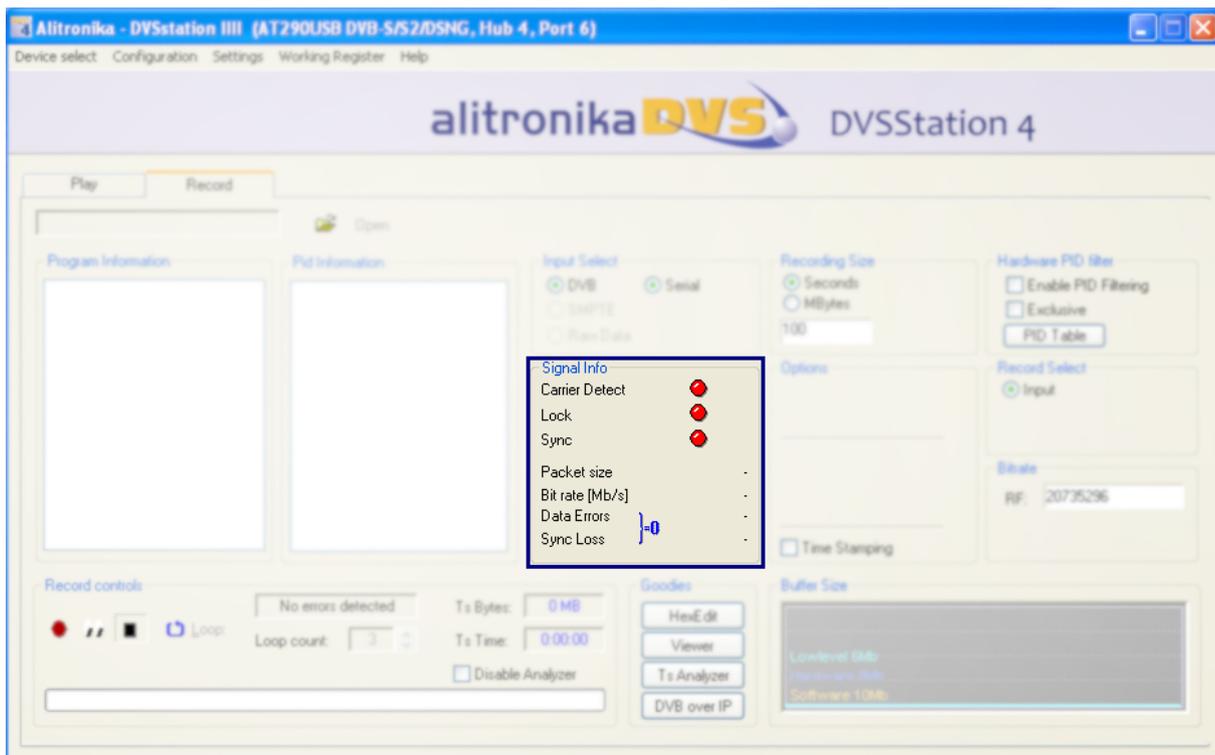


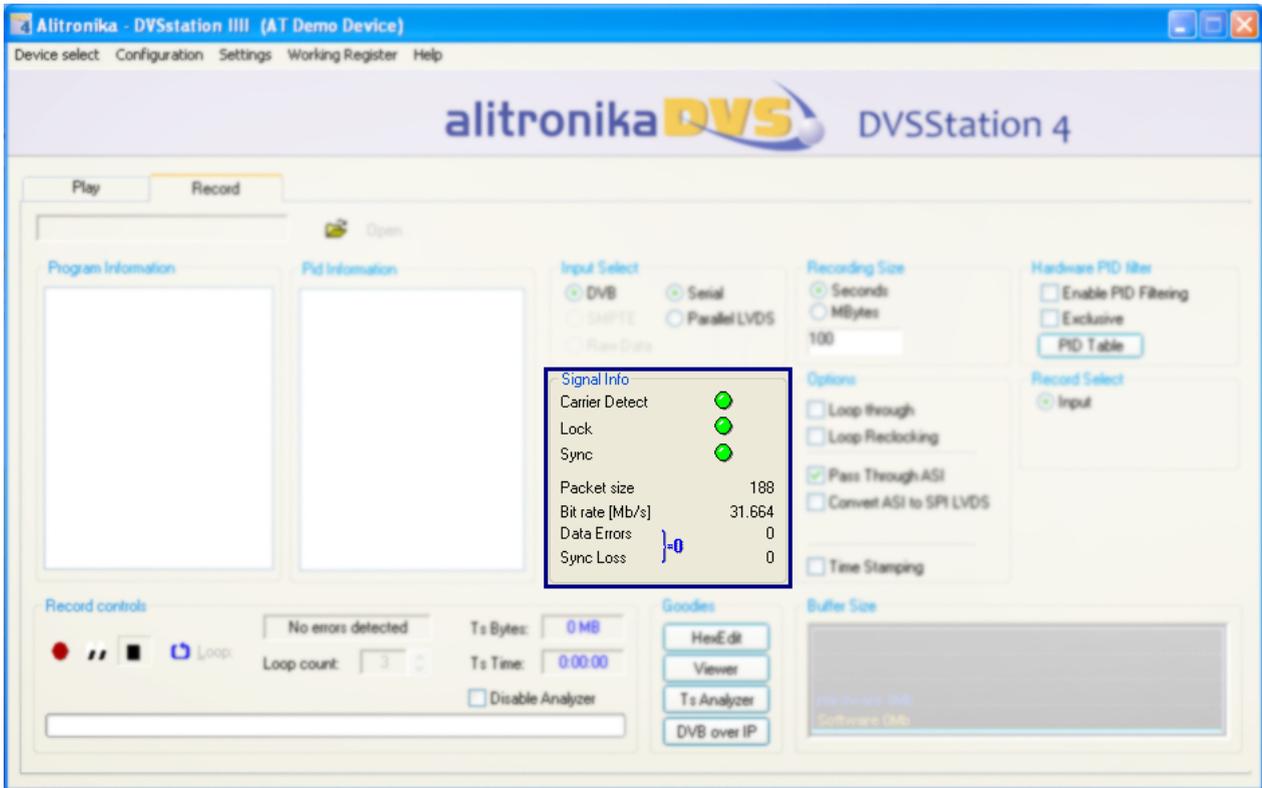
2.7 Carrier detection, lock and synchronization

Alitronika devices with any type of input, DVB-ASI, DVB-SPI, DVB-C, DVBS or DVB-T, first detect the presence of a valid signal, then the receiver modules on board these devices lock into the incoming Transport Stream, if needed after decoding, and then synchronize to the input TS.

There are three indicators showing the status of each of these. A red colour, naturally, indicates lack of a valid signal of lock or the device is not able to synchronize to the input stream.

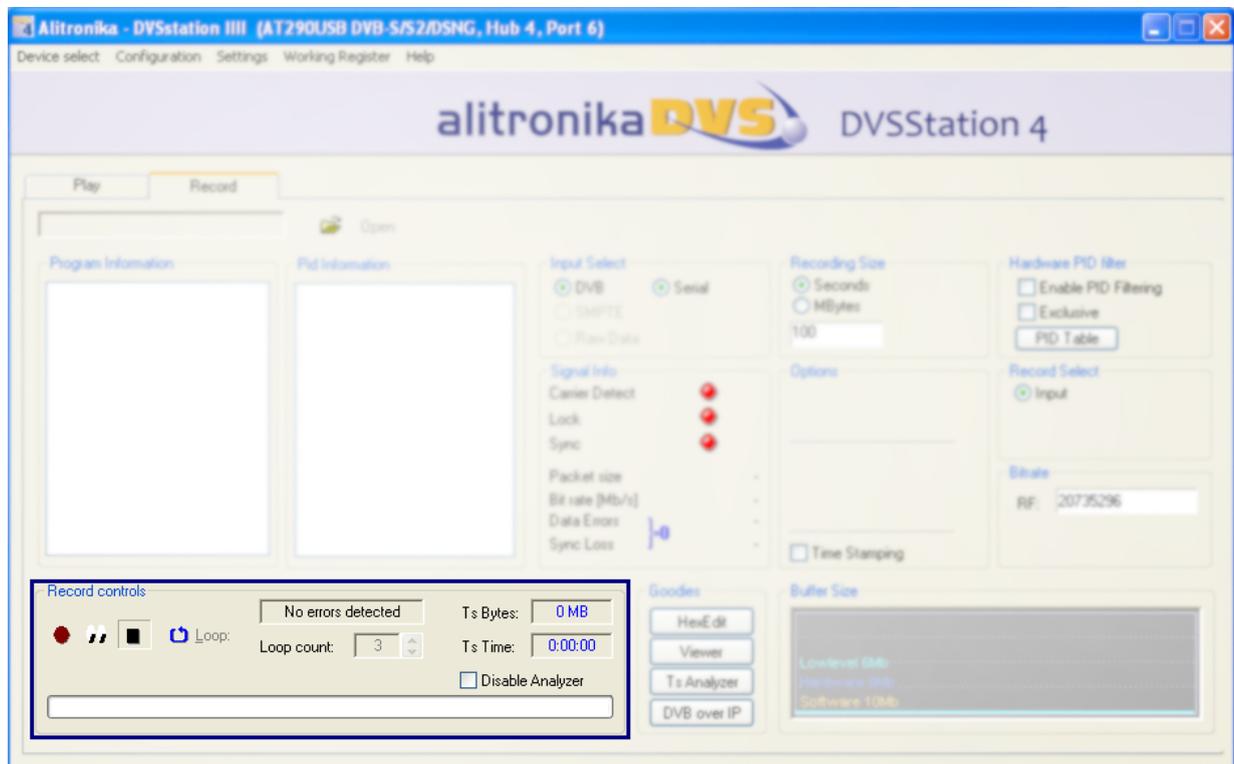
When everything is correct, normal operating condition, the indicators all show green and other information such as TS packet size, bitrate, error rate and synch error appear as shown in the following screen shots. The recording or monitoring can then start.





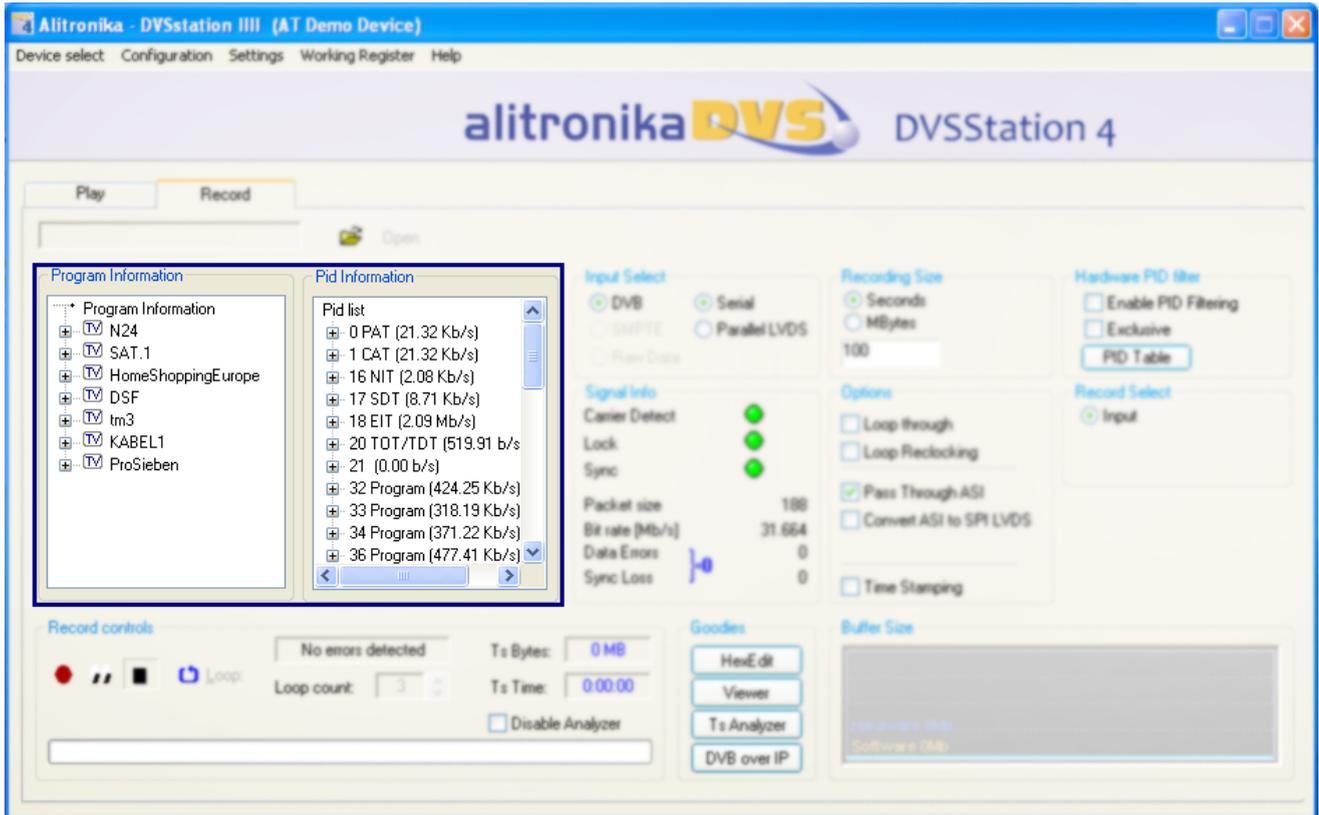
3.8 The Record panel

The Record interface is also based on a typical control layout with "Record" and "Stop" buttons. The progress bar indicates the status of recording. A byte or time indicator is also present.



3.9 The Integrated TS analyzer

During recording or monitoring the integrated TS analyser indicated the content of the incoming TS as shown below. Both Program and PID information are available.



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