

Play Record		onika <mark>DVS</mark>			
Satelite to	Dpen				
File Information	Program Information	PID Information	Output Select	Bitrate	Adaptions
■ Settle tr 476.053.504 bytes Playtime +/ 100.01 rec Before first packet 76 - After last packet 16 - 252.199 packet Packet size: 188 Bit rate: 38,014,791 bps	Pogram Information Pogram Information Pogram Not Pogram Not	C Polist 0 PAP1 (5.48 Kb/s) 0 TAP1 (5.48 Kb/s) 0 T	DV8 SMPTE Ray Dots Hw TP Gen Verial Paralel LVDS Pocket size 188 byte 188 byte 189 Hs byte 204 byte	File: 38014791 Qut: 38014791 Re-mux (Hw) Default Dutante Burstmode Size	PCR +DTS/PTS DTS/PTS TOT/TDT Continuity Tools Encrimination Sub Range
	No enors detected Ts Time: op count 0 Elapsed Time:	Ts Analyzer	Buffer size		

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 & 3 record 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/T2/S/S2/C/C2 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 Player and Recorder for feeding or recording to/from any digital video equipment.
- Transport Stream Recording.
- Transport Stream Playing.
- Transport Stream Analysing
- Transport Stream Monitoring.
- Video on Demand Server.
- Transport Stream Test Generator.
- High Speed Data Link.





I GENERAL DESCRIPTION

The layout of the DVSStation3 has the same familiar look as the DVSStation2 and many other application software's. There are two basic screens, play & record. The screen shot below shows a typical record screen. As it can be seen the DVSStation3 has many functions, since it must support all Alitronika devices. **Therefore not all of these functions & features are applicable to all 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 example 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 DVSStation3 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.

Play Record	<u></u>			
testaa.ts rogram Information	Pid Information	Input Select	Recording Size	Hardware PID filter
* Program Information ■ TV Canvas/Ketnet ■ TV één ■ TV Nederland3	Pid list • 0 PAT (15.22 Kb/s) • 1 CAT (15.00 Kb/s)	DVB OSerial SMPTE Parallel LVDS Raw Data	Seconds MBytes	Enable PID Filtering Exclusive PID Table
 IV Nederland3 IV Nederland2 IV Nederland1 	 16 (0.00 b/s) 17 SDT (1.96 Kb/s) 18 EIT (13.651 Kb/s) 20 (0.00 b/s) 21 MIP (2.39 Kb/s) 	Signal Info Carrier Detect O Lock O	Options Loop through Loop Reclocking	
	 21 MIP (2.33 KD/s) 1010 PMT (15.22 Kb/s) 1011 PCR (2.45 Mb/s) 1012 Program (172.37 Kb/ 1013 Program (263.67 Kb/ 	Sync Packet size 188 Bit rate [Mb/s] 14.929 Data Errors 0 0	Pass Through ASI	
	<	Sync Loss -0 0	Time Stamping	
ecord controls	No errors detected Ts Bytes:	Goodies	Buffer Size	

1.1 How to use DVSStation3 & all of it's many Features & Functions

The best way to learn to use DVSStation3 is actually to **try it out**. Since DVSStation3 is a FREE application software, it can be download it from our website & tried out.

Without an Alitronika device, it automatically goes to Demo mode. In this mode a **virtual device**, called **Demo device** is used to demonstrate as many function of DVSStation3 as possible.

Most features & functions work in this mode, including the Quick Real Time TS Analyzer.

Another important point to make here is how to use the application software most efficiently with minimum of CPU usage. Most of the major functions of Alitronika devices are carried out by the hardware, such as modulation, de-modulation, coding & de-coding of DVB-ASI & SMPTE signals, conversion of DVB-ASI to DVB-SPI or DVB-T/C/S into DVB-ASI and DVB-SPI, PID filtering, the Re-Mux function and so on.

Some features are carried out by the software. These include all of the features in the "**Goodies**" section, such as the TS Analyzer, Viewer, DVB-IP conversion.

Other features like the "**Constellation diagram**" for some de-modulator devices are entirely software based. Users are advised to disable these functions when not needed in order to save CPU & memory usage. The hardware functions have no effect on the CPU/Memory usage.

1.2 Selecting a Device

DVSStation3 supports all Alitronika devices. Multiple devices could be used on one PCI/Laptop and multiple instances of DVSStation3 can run on the same PC/Laptop.

The device selection works as follows:

- No device present : DVSStation3 automatically enters Demo mode.
- Only one device is present : DVSStation3 automatically selects it.
- More than one devices are present :
 Dvsstation3 asks the user to select the device before the session starts.
- If there are only 2 devices present and one is in use, when a 2nd instance of DVSStation3 is opened it automatically selects the remaining device.
 - If even more devices are present then DVSStation3 will ask the user to select a device and so on.

Select a Device for DVSstation	🗵
Select a device to use. Press cancel to keep the (* = Device currently in us	
Devices free to use	Devices already in use :
Demo device AT278USB ATSC-8VSB AT278USB DVB-C AT278USB DVB-T/H	
ОК	Cancel Update List

Notice

- The Demo device is always present & can be selected.
- At anytime the user can re-select another device within DVSStation3 via **Device Select** tab.
- the device (s) already in use are shown in the appropriate (Devices already in use) column.
- Devices which support multiple standards are also treated as multiple devices. For example the AT2780USB is treated as 3 modulator devices DVB-T/H, DVB-C or ATSC-8VSB. This is because AT2780USB is REALLY 3 devices in one! The size & complexity of the modulation schemes makes it impossible to fit inside such a small device. We remind you that our modulators are 100% hardware based, hence require no or small CPU usage.

and the second se	a - DVSstation III (AT2900PCI Configuration Settings Working R	DVB-S/S2/DSNG, Slot 2 (1,0,0)) egister Help				X
		alitronika	ANY, BIG IDEAS.			
PI S	elect a Device for DVSstation	II E	3			
File In	Select a device to use. Press cancel to keep the c (" = Device currently in use Devices free to use Demo device AT2780USB AT5C:8VSB AT2780USB DVB-C AT2780USB DVB-T/H	urrent active device Devices already in use : AT2900PCI DVB-S//S2/DSNG Stot 2 (*		Output Select ● DVB SMPTE Raw Data Hw TP Gen ■ Serial ■ IF and RF Packet size ■ 188 byte 188 H5 byte 204 byte	Bitrate File: 4000000 Default Options Bustmode Size	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertion Sub Range
Play c	ОК	Cancel Update List	dies HexEdit	Buffer size		
ļ.	Loop count	0 Elapsed Time: 0:00:00 v v v v v i v i i i i i	Viewer Ts Analyzer DVB over IP			

1.3 Device Initialization

After selecting a device, DVSStation3 shows the screen below.

During the Initializing a device, DVSStation3 carries out the following operations:

- Up-loads any firmware needed to make the device operational.
- Loads the last settings stored in the none-volatile memory on board the device.

These settings are written into the memory (EEROM) whenever the user selects:

- new mode of operations (e.g. Play or Record mode)
- new parameters (e.g. modulation parameters)
- settings (e.g. time stamping, PID filtering and so on)

Notice the user is advised to check the settings to make sure they are still applicable for the current session. The duration of the Initialization depends on few factors, most important of which is the type of device. Naturally devices with more settings, like the modulators, take longer to be configured. In the example below the AT72XUSB device is being initialized. Since this device requires a lot of settings

for the tuner & the de-modulator sections and they are all done via a slow I2C bus, it takes the longest!

	1			
testR2.ts	Pid Information	Input Select	Recording Size	Hardware PID filter
		Initializing Device	MBytes	Enable PID Filtering
		This may take several minutes	Options	
		depending on the device	Pass Through ASI	
		Data Errors Sync Loss	· Time Stamping	

1.4 How to restore the default settings for a device

It is possible that the last used settings are **not saved correctly** in the memory of a device. This condition can occur due to error in the (USB/PCI) connections or by un-plugging the device or switching its power off before the saving of the settings is completed. In such cases users may experience malfunction by the device. The best way of resolving the problem is to "**Restore**" the factory settings. This can by done via "Configuration" tab then by selecting "**Restore Default**", as shown below:

	Subloop	nsertion	alit	٢C				
Play	Record							
Sate	lite.ts	Ē	Open					
■ Satelite its 476,053,504 Playtime: +/- Before first pa- 2532199 pa- 2532199 pa- Packet size: Bit rate: 38,0	100.01sec acket: 76 sket: 16 skets 188		ram Information	- 12	10 Information Pid list 0 PAT (5.48 Kb/s) ⊕ 1 CAT (5.48 Kb/s) ⊕ 1 CAT (5.48 Kb/s) ⊕ 1 F8 NT (5.93 Kb/s) ⊕ 18 BET (243.94 Kb/s) ⊕ 20 T0 T/DT (107.39 ⊕ 21 (0.00 b/s) ⊕ 101 Program (5.20 Mt ⊕ 102 Program (156.761 ⊕ 102 Program (156.761 ♥ 105 Program (156.761 ♥ 105 Program (156.761) ♥ 105 Progra	Dutput Select DVB SMPTE Raw Data Hw TP Gen Parallel LVDS Packet size 188 tyte 188+16 byte 204 byte	Bittle Elle: 38014791 Qut: 19392643 V Remux (Hw) Default Options Burstmode Size 1	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertio Sub Range
Play controls			0 Elapsed Tim	_	C:00:00 C:0			

1.5 How to check the version

The version number and release date together with the web address where you can get technical support can be viewed by clicking on "Help" from the top tool bar. More information about the version of the SDK, Driver and the application could also be viewed.

Notice Alitronika strongly recommends that users check Alitronika's website for the latest releases. Latest releases often mean some reported bugs have been removed, some performances have been enhanced, new features & functions have been added and most importantly support for new devices have been provided. When users encounter problems, more often than not, downloading & installing a new version would resolve the problems. Most problems stem from incorrect installation, wrong version, mixed Drivers & application software versions & so on. Installing a new version solves most of these.

Play	Record elite. ts	Dpen	alitronika PUS			
File Information Satelife ts 476,053,50, Playtime: + Before first j After last pa 2532199 pa Packet size Bit rate: 38,1	- 100.01sec backet: 76 icket: 16 ickets : 188	Program Information Program Abou D N D N D N D N D N D N D N D N	PID Information t DVSstation III DVSstation III Copyright © Alitronika NL 2004-2008 The Recorder and Playback is used with the Alitronika DVS Devices http://www.alitonika.com	Dutput Select ta Ben _VDS 0 188+16 byte 204 byte	Birate Ele: 38014791 Qut: 19332643 Participation Remux (Hw) Default Options Burstmode Size	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertion Sub Range
	Loop: Loo		Ts Time: 0.00.00 Elapsed Time: 0.00.00 UNE Standard Time: 0.00.00 UNE Standard Ts Analyzer DVB over IP			

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Play Record	1				
Satelite.ts	🖨 Ope	n			
File Information	Version			3 791	Adaptions
 476.053.504 bytes Playtime: +/ 100.01sec Before first packet: 76 After last packet: 16 2532199 packets Packet size: 188 Bit rate: 38.014,791 bp 	File Windows XP Professi DVSStation API Analyzer Driver Firmware Fpga	Version 5.1 Service Pac 4.27 4.27 4.24 5.0	Location C:\WiNDDWS C:\Program Files\Altronika\DvsStation3\DvsStation3.exe C:\Program Files\Altronika\DvsStation3\ATDV_API3.dll C:\Vorgam Files\Altronika\DvsStation3\TSAnalyzer3.dll C:\WINDDWS\system32\drivers\AT400PCL_DVB_PLAY.dv3cfg	643 -mux (Hw) efault	+ DTS/PTS
	<		OK Copy to Clipboard	de	Tools Error insertio Sub Range
Play controls	No errors detected	Ts Time:	0:00:00 Goodies Buffer size		
	Loop count: 0	Elapsed Time:	100:00 Viewer		
1	0 0 0 0 0 0		Ts Analyzer Hardware 8Mb DVB over IP		

1.6 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 derivers through a series of working resisters. These registers, described in details in the datasheet of the devices, contain all the information with 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 users via "Working Register" option in the top menu bar as seen below. The Hardware buffer usage can be read directly. See also section 2.10 for an example of a register discription.

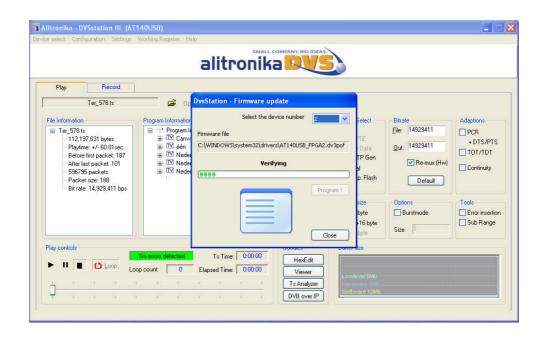
Atironika - DVSstation III (A vice select: Configuration Settings	Worlung Register Help	small company, big ideas			-
Play Record Satelite.ts	📄 🕞 Open	FPGA Register	1		
File Information Actors 3504 bytes Variable 476,053,504 bytes Playtime: +-100,01sec Before first packet: 76 After last packet: 16 Packet size: 188 Bit rate: 38,014,731 bps	Program Information	b041:18.06.48.45; Play Config b048:02.42.44; Pdr 2: Output bitrate b048:02.42.44; Pdr 2: Output bitrate b041:02.00.0001: Output bitrate b041:02.00.0001: Output bitrate b042:02.0001:00; Distate & Error b022:00.0000:00: Bitrate & Error b024:00:000:00:00:00; Bitrate & Errors b022:00:00:00:00:00; Bitrate & Errors b023:00:00:00:00:00; Bitrate & Errors b023:00:00:00:00; Bitrate & Errors b023:00:00:00:00; Bitrate & Errors b023:00:00:00:00; Bitrate & Size b024:00:00:00:00; Bitrate & Size b024:00:00:00:00; Bitrate & Size	Output Select	Bitrate <u>File:</u> 38014791 <u>O</u> ut: 19392643 ✓ Re-mux (Hw) Default	Adaptions PCR + DTS/PTS TOT/TDT Continuity
			Packet size 188 byte 188+16 byte 204 byte 	Options Burstmode Size	Tools Error insertion Sub Range
	No errors detected oop count: 0 Ela	Ts Time: 0.00.00 psed Time: 0.00.00 Viewer Ts Analyzer DVB over IP			

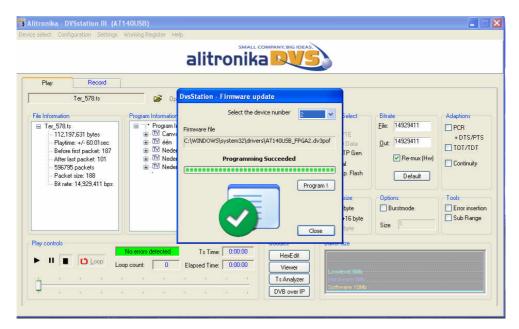
1.7 Up-grading Firmware

Alitronika devices which support **Stand Alone** mode of operation such as AT140USB, may require Up-date/up-grade for their firmware. DVSStation3 checks the firmware version of these devices each time they are detected by the software and if an up-date/up-grade is needed, it informs the user. The up-date/up-grad is done automatically by DVSStation3. The user needs only to follow a few simple steps.

te select	Configuration Settings	Working Register Help				
	Tuner Modulator	alit				
Play	Program configurations Administrator Login FPGA Firmware update	Girci				
	Satelite.ts	Dpen				
F B 2 F	and a state of the	Program Information	PID Information Prid fat ⊕ 0 PAT (5.53 Kb/s) ⊕ 1 CAT (5.53 Kb/s) ⊕ 1 CAT (5.53 Kb/s) ⊕ 17 SDT (1.38 Kb/s) ⊕ 17 SDT (1.38 Kb/s) ⊕ 20 (0.00 b/s) ⊕ 21 (0.00 b/s) ⊕ 101 Program (5.15 Mt ⊕ 102 Program (5.25 fs) ⊕ 103 Program (197.57) ⊕ 200 PMT (5.53 Kb/s)	Output Select ● DVB SMPTE Raw Data ● Hw TP Gen ■ Serial ■ Comp. Flash Packet size ● 188 byte ● 188-16 byte ● 204 byte	Bitate File: 38014791 Qut: 14929411 Permux (Hw) Default Options Burstmode Size	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertior Sub Range
Play contri II		No errors detected Ts Tim op count: 0 Elapsed Tim	Hext.dit	Lowlevel 6Mb	•	

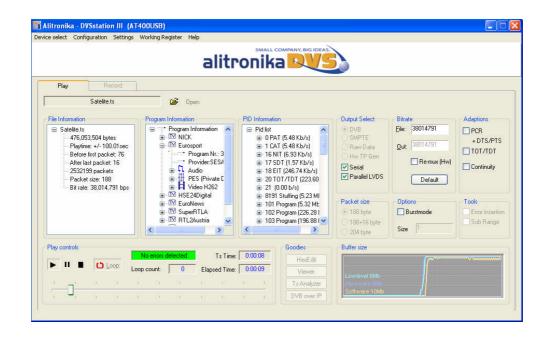
🖥 Alitronika - DVSstation III (AT					
Device select Configuration Settings	Working Register He	alitronika			
Play Record Ter_578.ts		DvsStation - Firmware update			
File Information □ Ter_578.ts − 112,197,631 bytes − Playtime: +/- 60.01 sec − Before first packet: 187 − After last packet: 101 − 556735 packets − Playtime: +188 − Bit rate: 14,929,411 bps	Program Information	Select the device number 2	Gelect ITE Data IP Gen al p. Flash	Bitrate Elle: 14929411 Uut: 14929411 I 4929411 I 4929411 	Adaptions PCR + DTS/PTS TOT/TDT Continuity
Play controls		Close	size byte ⊧16 byte byte	Options Burstmode Size	Tools Error insertion Sub Range
	No errors detected op count: 0	Ts Analyzer		Å	





2.0 The play screen

The screen shot below is a typical DVSStation3 **Play Screen**. This example is used for the AT400USB/PCI devices. It is selected because the AT400USB/PCI devices have the most functions/features. Most of the functions/features are self-explanatory.



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 the PC/ Laptop 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 are no user options.

- **DVB** refers to Digital Video Broadcasting. The types of interfaces are serial (ASI) & parallel (SPI).
- **SMPTE** stands for the Society of Motion Picture and Television Engineering and again with two type of interfaces, serial (SMPTE 259) **also known as SDI** and parallel (SMPTE125).
- **RAW** Data refers to the data being treated as just RAW data and transmitted via the serial interface.
- HW TP Gen. Stands for Hardware Generated Transport Streams. In this mode the hardware basically generates a simple transport stream for testing the ASI links.
 Two types of TS could be selected, a Null Packet TS or a Counter TS.
 The counter TS contains the content of a counter counting from 0 to 188/204.

2.3 File bitrate Output bitrate & RF bitrate

The bitrate of the TS file to be played is shown in bitrate section in the "File" box. The bitrate at which the file is **actually** played back is shown in the "Out" box.

The TS bitrate is obtained from the TS file. The output bit rate is user selectable.

The user may select any valid bitrate as the output bitrate. This is done by checking the "Re-Mux" box and entering the desired bitrate. If the TS is to be played back 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.

Notice this function is not available for modulator devices.

The output bitrate of the modulated TS is dependent on the modulation scheme & the parameters selected for the modulation according to **the DVB-T/T2/H/C/C2/S/S2 or ATSC standards**. It is shown as "RF" bitrate instead of "output" bitrate on some modulator devices.

Play Record					
File Information Ter_578.ts 112.137.631 bytes Playtime: +/ 60.01sec Before first packet: 187 After last packet: 101 596735 packets Packet size: 188 Bit rate: 14,929,411 bps	Program Information	PID Information PId list 0 PAT (15.08 Kb/s) 1 CAT (15.08 Kb/s) 1 CAT (15.08 Kb/s) 1 T SDT (1.88 Kb/s) 1 B EIT (74.57 Kb/s) 2 D (0.00 b/s) 2 MIP (2.42 Kb/s) 1 010 PMT (15.08 Kb/s) 1 101 PCR (13.68 Mb/s)	Output Select DVB SMPTE Raw Data Hw TP Gen Serial IF and RF Packet size	Bitrate Elie: 14923411 RF: 26126472 Default	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools
	No errors detected Ts Tim op count: 0 Elapsed Time	⊕ 1012 Program (172.5E ⊕ 1013 Program (253.54 ♥ ♥ 000.00 Goodies HexEdit Viewer	Lowlevel 6Mb	Size 4	

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. There are many other options & features such as :

- Error insertion
- Play in loops and sub-loops, full TS range or sub-rage (only one section of the TS).
- ADD extra 16 byte to a 188-byte packet size to make a 204-byte packet size and so on.
- PCR correction
- TOT/TDT, change/select Time & Date
- Correct the TS Continuity Counter

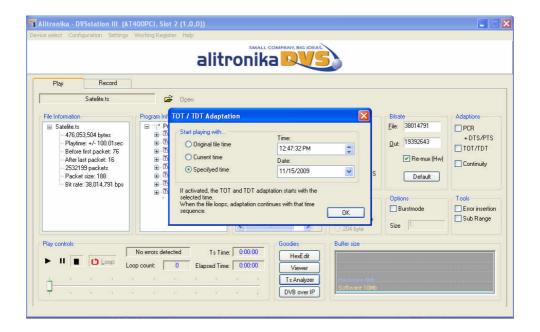
All these function are easily selectable by the user and require no further discussions here.

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.

Some examples are shown in the screen shots below.

Play	Record Satelite.ts	🕞 Open					
– Playtime – Before f – After las – 253219 – Packet	1504 bytes + -/- 100.01 sec fits packet: 76 t packet: 16 9 packets size: 188 38.014,791 bps	Program Information ■ T [*] Program In ■ T [*] NICK ■ T [*] NICK ■ T [*] H552 ■ T [*] Eurosp ■ T [*] H552 ■ T [*] Eurosp ■ T [*] H552 ■ T [*] Superf ■ T [*] Superf ■ T [*] VDX4 ■ T [*] VDX4 ■ T [*] VDX4	Insertion Bit Error A small description of the error Number of Bits / Bytes / Packs 1 Repeate after xxx Bits / Bytes 1000000	ets	Select B PTE w Data TP Gen ial allel LVDS size 8 byte 8+16 byte byte	Bitate File: 38014791 Qut: 13332643 V Remux (Hw) Default Options Burstmode Size	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertior Sub Range
Play controls		10 IC	Ts Time: 0.00:00	Ts Analyzer Har			





2.6 The Play panel

The play back interface is based on a typical control layout. In addition to "**Play**", "**Pause**" and "**Stop**" there are a **Progress Bar** and **Timing Indictors**. Files may be played once or be "**looped** " to play continuously by selecting the loop option. A loop counter shows the number loops played out. *Notice the progress bar can be controlled by the user to move to a desired location in the file.*

The Error message indicator will display "No Errors Detected" under normal condition in which the indicator box is **green**. As soon as there is an error condition the message indicator changes to flashing **red** & displays the appropriate error message.

2.7 File information window

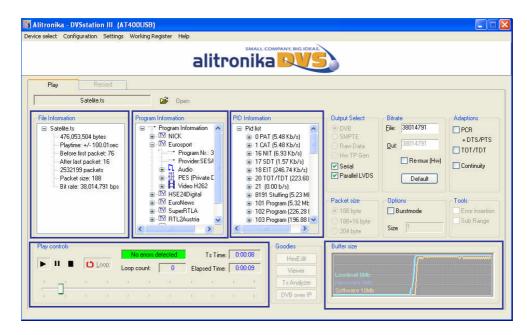
The "File Information " window displays all the file properties, such as the size of the file, bitrate, packet size and other useful information about the TS file.

2.8 Program Information Window

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

2.9 PID Information Window

The Quick Real Time Integrated Transport Stream Analyzer displays the result of the stream analyses in this window. 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.



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 6 and 10 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 via the Working Registers. An example of one such register is the "Record Configuration Register" Shown below.

Record	d_Config A	ddress = H"00"	
Bit	Name	Function	level
0	DVB	Selects DVB Mode	High = Enabled
1	SMP	Selects SMPTE Mode	High = Enabled
2	RAW	Select Raw Mode	High = Enabled
3	RSV	Reserved (not use in current design)	Normally Low
4	LEN	Enable loop through output	High = Enabled
7:5	GRSET	Settings for GS9060 device	Set by software
8	ETS	Enable Time Stamping	High = Enabled
9	PID	Enable PID filtering	High = Enabled
10	TEX	PID Table Exclusive	High = Exclusive Table
12:11	RSV	Reserved (not use in current design)	Normally Low
14:13	ISEL [1:0]	Select input source	"0X": USB "10": SPI
			"11" : ASI/Tuner
15	PCLR	Clears PID table	High = Clear PID Table
16	RSPM	SPI input mode selection	0: Constant clock mode
			1: Standard DVB-SPI mode
28:17	RSV	Reserved (not use in current design)	Normally Low
29	TRST	Tuner reset	High = Reset Tuner
30	RRST	Record reset, resets input modules	High = Reset
31	REN	Record Enable	High = Enabled

3 Record and Monitor

3.0 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 for example a DVB-SPI input/output, the option is not enabled. The application software selects most of the options by defaults; some are left to the user to select. For example users are able to select to record from DVB-ASI or DVB-SPI inputs of a device that supports both inputs. 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 (Mbytes) of by selecting a time period (Seconds).

Play Record				
testaa.ts	🗳 Open			
Program Information	Pid Information Pid list 0 PAT (15.22 Kb/s) 0 1 CAT (15.00 Kb/s)	Input Select O DVB O Serial O SMPTE O Parallel LVDS Raw Data	Recording Size Seconds MBytes 100	Hardware PID filter Enable PID Filtering Exclusive PID Table
⊕ ⁻ [™] Nederland3 ⊕ [™] Nederland2 ⊕ [™] Nederland1		Signal Info Carrier Detect Lock Sync Packet size 188 Bit rate [Mb/s] 14.529 Data Errors 0 Sync Loss 0	Options Loop through Loop Reclocking Pass Through ASI Convert ASI to SPI LVDS Time Stamping	
Accord controls	No errors detected Ts Bytes: Loop count: 3 5 Ts Time: Disable	13 MB Goodies 0:00:07 Viewer Analyzer Ts Analyzer DVB over IP		

3.1 The Record panel

The Record interface, like the play panel, is based on a typical control layout. In addition to "**Play**", "**Pause**" and "**Stop**" there are progress bar and timing indictors. Files may be recorded once or be recorded in "**loops**". This is a unique feature of DVSStation3. It allows the user to record up to 3 files one after another. A loop counter shows the number of files in the loop being recorded. The file names would increment automatically. A "**Monitor**" feature is added in case the user wishes to analyse the incoming TS without recording it.

Notice the monitor is selected by clicking on the "EYE" icon & de-selected by re-clicking on it.

The Quick Real Time TS Analyser could be disabled when not needed.

The Error message indicator will display "No Errors Detected" under normal condition in which the indicator box is **green**. As soon as there is an error condition the message indicator changes to flashing **red** & displays the appropriate error message.

3.3 Loop Through, Pass Through.

Most of Alitronika devices with an input also have a "loop through". 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.

Notice, not all devices could support "Loop through" and/or "Pass through". These are only possible if the selected device has the correct output. The difference between the them is that "Pass through" is the original signal strait passed through from an input to an output. Whereas Loop through means the input signal has passed through some input circuitry and send out often with different clock (re-clocking) or with time delay or even in different form. We assume the user is aware of these differences.

3.4 Time stamping.

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 market by a 32-bit counter. These 4 bytes are added to the start every packet.

Notice the resulting TS is no longer a valid TS file. Further processing is needed to remove the extra added 4 bytes of Time Stamping values from the TS packets.

Warning : Before starting to record check the "Time Stamping" option check box.

3.5 PID filtering

All Alitronika devices with **inputs** support PID filtering. The merit and usefulness of PID filtering is beyond the scope of this document. Some application may require PID filtering to reduce the amount of data for further processing. When PID filtering in done by the hardware, great reduction to data transfer is archived. This will allow TS with higher bitrates to be accommodated.

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.

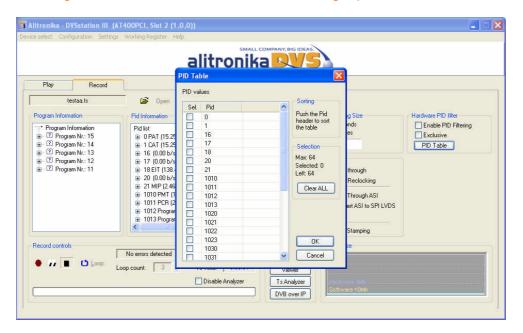
An "Inclusive" PID table lets all the PID in the table through and filters out the rest.

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

It in important to notice that when using PID filtering the resulting recorded TS file may not be a valid TS & hence require further processing such as correcting the bitrate and PID tables.

Furthermore the TS analyzer may not function properly if PIDs which contain PCR are filtered out. Notice, when there is no TS information in the Program Information, PID Information sections & the size of the recorded TS is **0 Mbyte**. The PID filter option may have selected all the PIDs! So there is nothing to show or record.

Warning : Before starting to record check the "Enable PID Filtering" option check box.



3.6 Signal Information

The information displayed in this section is mostly generated by the Hardware. When there is no Carrier, then the "**CD**", Carrier Detect, indicator is red and if the device is unable to lock to an incoming signal then the "**Lock**" indicator is red. The "**Sync**" indicator will be red if the device cannot find proper synchronization to the TS. They will all be green, if everything is correct. It then follows one or all of these indicators do not apply to all signals & conditions. For example in RAW mode, there are no DVB compliant Transport Streams, therefore "**Lock**" or "**Sync**" indicators are not applicable. The bitrate & packet size are derived from the incoming TS. Bitrate Error & Synch errors are also self-explanatory.

4.0 Modulator Settings

The screen shots below show the Modulator Parameter & RF settings for Alitronika DVB-T/H devices, such as AT2800PCI/USB, AT2780PCI/USB, AT278USB (iMod), AT280USB.

It is assumed the user of such a complex device as the DVB-T/H modulator is aware of the correct selection of these parameters. Reference to the DVB standards is highly recommended. In particular users must be aware of the implication of selecting a particular parameter for modulation of a TS. One good example is the effect that different FEC rates have on the bitrate of the modulator RF output.

The "Modulator Settings" screen is accessible via "Configuration" tab on the top tool bar.

As it can be seen, in most cases when there are more than one standard, here DVB-T & DVB-H, there is a common section & a dedicated section, here for the DVB-H modulation.

Notice the user must click on "Apply" after any new selection in order to activate the new settings. The settings are also "Saved" in the none-volatile memory of the device.

Play	Record	Modulator Settings	SMALL COM	DVB-H Options	× 	
File Information Ter_578.ts 112,19 Playtim Before After la 596795 Packet		Progra Bk 1/4 7/8 8 MHz	Modulation Transmission Mode Guard Interval FEC Code Rate Band Width Spectral Inversion Set to DVB-T	Timeslice MPE FEC Indepth Interleaving Cell ID: O Core Status In Sync 204 Pck Size TS Dverflow Modulator Underflow	Bitrate Elie: 14929411 RF: 26126470 Default Options Size 4	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Lenor insertio Sub Range
Play controls	Loop: Loop			s Analyzer DVB over IP		

e select Configuration Settings	WOLKERS!		ALL COMPANY, BIG IDEAS.		
	1			×	
Play Record Ter_578.ts File Information	Progra	Modulation Settings RF and IF setting Use IF output 35 to 37MHz 6 69 to 71MHz	Dutput Level (dBm)	Birate	Adaptions
■ Ter_578.ts 112,197,631 bytes Playtime +/- 60.01sec Before first packet: 107 - After last packet: 101 - 596755 packets Packet size: 188 Bit rate: 14,929,411 bps		RF Freq. Sweep Control Start Freq. [MHz]: Stop Freq. [MHz]:	70 Frequency [MHz] 500 8F Output Level Fade Control 50 50 50 Start Level (dBm) 0	Dielee 14929411 RF: 0 Default Options ✓ Burstmode Size 4	CONSTRUCTION CONSTRUCTION
h	No error		RF Status Cocked		

4.1 IF & RF Settings

The IF & RF setting screen shows all the options available to the user.

The user can select the IF output frequency from two options 35-36MHz or 69-70MHz range.

The RF then follows this IF selection. By defaults the 69-70MHz option is selected.

The RF frequency can be set from 50 to 850 MHz & the output level from -35dBm to +2dBm.

Two very useful features are also available to the users

- Frequency Sweep. This feature allows to user to start at a particular frequency in the allowed range and increase the frequency at user selectable steps & duration to an end frequency.
- Output level Fading. This feature can be use to reduced (Fade) or increase (Ramp up) the output power level at user selectable steps & duration.

The IF & RF setting options are common for all Alitronika modulators.

Notice, if the user selects any arguments, values, parameters which are outside the specification of the modulation standards an error message will appear.

	SM Modulator Settings	ALL COMPANY, BIG IDEAS.	×	
Play Record	Modulation Settings RF and IF settings Use IF output 49 to 51 MHz 99 to 101 MHz Frequency IM DysStation 3	Use RF output	trate e: 40000000	Adaptions PCR
	BE Free Swe	iker a number between 950 and 2150.	Default ptions Burstmode	+ DTS/PTS TOT/TDT Continuity Tools Error insertion
ay controls	Apply	RF Status Cocked	ize 1	Sub Range

4.2 Modulator Parameter & IF & RF Setting screens for DVB-T/H/C/S/S2 & ATSC

The Screen shot below shows the modulator parameter settings for DVB-T/H modulators. These have already been discussed above.

Alitronika - DVSstation III (AT2 vice select Configuration Settings V Play Record Ter_578 is File Information File	Modulator Settings Modulator Settings Modulator Settings Core Setting QAM 64 Modulation Bk Transmission Mode 1/4 Guard Interval 7/8 FEC Code Rate 8 MHz Band Width Inverted	Bitrate Adaptions Timeslice MPE FEC Indepth Interleaving Cell ID: O Set Status In Sync In Syn
N 11 M (*) 1 mm	io error count	Modulator Underflow Size

The Screen shot below shows the modulator parameter settings for DVB-C modulators. There are annexes A, B and C. The extended QAM256 mode can be selected in DVB C Option. A "Free Mode" allows the user to select parameters outside J83 standards.

Play Record Ter_578.ts Ter_578.ts File Information Ter_578.ts Taylow Ter_578.ts Playtime: +/-60.01 sec Playtime: +/-60.01 sec Before first packet: 101 596795 packets Packet size: 188 Bit rate: 14.923,411 bps	Modulator Settings Modulation Settings RF and IF a DVB Standards DVB J83 annexA DVB J83 annexA DVB J83 annexB DVB VB J83 annexC OVB C Free mode Core Status In Sync 204 Pck Size		Bitrate File: 14929411 RF: 45053646 Default Options	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools
<u>n</u>	No erro	Apply 13 Analyzer DVB over IP Software 10%	Size 4	

The Screen shot below shows the modulator parameter settings for ATSC-8VSB modulators. Due to the nature of the modulation standards, there are not many user selectable options.

Alitronika - DVSstation III (AT) Device select Configuration Settings		
	Core Settings Core Status Cor	
	1s Anajyzer	indvare (Ma

The Screen shot below shows the modulator parameter settings for DVB-S/S2 & DVB-DSNG modulators. As explained before, there is a common parameter section, such as Modulation Mode, Code Rate and so on, as well as a section applicable to DVB-S2 only.

Alitronika - DVSstation III (AT2900P Device select Configuration Settings Workin			
Play Record	Adulator Settings Modulation Settings DVB Standards OVB DVB S DVB DSNG DVB DSNG DVB S2 Core Status TS In Sync TS 204 pck size		Trate Adaptions e: 4000000 PCR + DTS/PTS TOT/TDT Continuity Default
	TS Overflow TS Sync Error	Null packet delete Insert pilots ISSY Indicator ISSY long-byte PL scrambing 131072	ptions Burstmode Sub Range
Play controls Nor Play controls Loop co 	Apply	I S Analyzer DVB over IP	

The IF & RF setting options are common for all Alitronika modulators. The frequency range, output level range and IF frequencies differ according to DVB standards & modulation schemes. For example for DVB-S/S2 modulators the selectable frequency range is 950-2150MHz. The IF frequency is selectable between 49-51MHz or 99-101MHz.

🗃 Alitronika - DVSstation III (AT2900		ĵ	🔳 🖬 🔀
Device select. Configuration Settings Worki			
		ALL COMPANY, BIG IDEAS.	
	Modulator Settings		×
	Modulation Settings RF and IF settings		· · · · · · · · · · · · · · · · · · ·
Play Record	O Use IF output	O Use RF output	
File Information	 49 to 51MHz 99 to 101MHz 	Output Level (dBm) -10 🜲	trate
	Frequency (MHz) 100	Frequency [MHz] 950	e: 40000000 PCR + DTS/PTS
	RF Freq. Sweep Control	RF Output Level Fade Control	T0T/TDT
	Start Freq. [MHz]: 950	Start Level [dBm] -10	Continuity
	Stop Freq. [MHz]: 1150	Stop Level [dBm] -45	Default
	Freq. Step [MHz]: 100	Level Step [dBm] -5	ptions
	Duration [s]: 1	Duration [s]:	Burstmode
	▶ ॥ ∎ ◘	► II E O	ze Sub Range
Play controls		RF Status	T. I.
▶ II ■ 🖸 Loop: Loop co	Appiy	Cocked	
		Us Analyzer DVB over IP	

5 Demodulator settings

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 DVB-C receiver/recorder devices such as AT700USB. As can be seen in this example, some settings are user selectable, such as the frequency, and some are the property of the selected channel & hence not selectable by the user.

DVSStation3 displays useful information as much as possible.

Notice not all information shown here is displayed for all tuners. These are hardware dependent and when the hardware, the de-modulator IC to be exact, does not provide them, then they are not displayed. For definition of terms such as SNR, MER, EVM, we refer the user to the DVB standard documents.

rice select Configuration Settings Workin T Play Record	Cable Tuner	Symbol Rate [s/sec] 5000000	×	
File Information Pro	Modulation QAM 64 Status Signal Carrier Sync Bit enors 0 Frequency 500.000 Mhz Symbol Rate 4939398 Modulation QAM 64 I/Q Swap 0 ff	Spectral Inversion AUTO Apply Constellation Quality Signal to noise (SNR / MER) 27.89 dB	Irate e: 40000000 ut: 40000000 Persux (Hw) Detault plions Bustmode ze	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insertion Sub Range
No e		Error vector magnitude (EVM) 4.03 %		

5.1 Satellite tuner and LNB Power

Alitronika DVB-S devices with satellite tuners on board, such as AT600USB, also support settings as well as supplying power for the LNB units. Setting for multiple LNB units may be selected & saved 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 is used between the tuner & the LNB units. Screen shots below show the available user options for the DVB-S tuner and the LNB device.

e select Configuration Setti	er Settings	8
Play Reco	Satellite Tuning LNB	
ATSCK002.te	LNB 1 V Default	
File Information	Input Frequency Range	Adaptions
ATSCK002.ts - 84,921,856 bytes	Low Switch point High	
- Playtime: +/- 35.01s	10 11 12 GHz	
– Before first packet: – After last packet: 0	Local Oscillator Frequencies Low High	x (Hw) Continuity
– 451712 packets – Packet size: 188	10 GHz	E I
- Bit rate: 19,392,643	LNB Power	Tools
	ON ON	Error insertio
	Ext. Voltage (long cable)	Sub loop
	Save	
Play controls	Save	
▶ 11 ■ Time:		
	Lowleve	
Q <u></u>	Softwar	

rice select Configuration Sett	Inter Settings	×
File Information ATSCK0021c - 94.321.856 bytes - Playtime: +/- 35.01c - After last packet: 0 - 451712 packets - Packet size: 188 - Bit rate: 19.332.643	Settings Status Frequency 11 GH3 GH2 11.000003 Signal Bit error rate O Viterbi Code O Viterbi Code Symb. Rate 22.5 MBaud FEC Rate 3/4 Signal Strength 63397 SNR / MER 17.0 dB Apply Apply	Adaptions PCR + DTS/PTS TOT/TDT x (Hw) Continuity At Tools Error insertion Sub loop
Play controls	r r r r r r r r r r r r r	

5.2 Terrestrial Tuner

Alitronika DVB-T devices with terrestrial tuners need only a few parameters to be set by the user, these are shown in the screen shot below, the other parameters are extracted by the de-modulator IC.

Record	rRegister Help iner Settings Terrestrial Tuner - Settings	E	3
Program Information Pr	Frequency [Mhz] Bandwidth 8 Mhz Status Signal Status Signal Puncture Data Bit error rate 0 Frequency 500,000 Mhz Modulation QAM 64 Guard interval 1/32 Hierarchy None Sk	UHF 174 to 230 Mhz Apply UHF 470 to 862 Mhz Apply # # # # # # # # # # # # # # # # # # #	Hardware PID filter Enable PID Filtering Exclusive PID Table
Record controls No e	HP code rate 3/4 LP code rate 1/2 Decoder SNR (dB) 25.1	Constellation Quality Signal to noise (SNR / MER) 24.01 dB Error vector magnitude (EVM) 6.30 % P Enable Constellation	

5.3 Cable Tuners

The following screen shots show the tuner settings for DVB-C Annex A & DVB-C Annex B respectively.

Play Record Fle Infomation Phay File Infomation QAM 64 Signal QAM 64 V Remux (Hw) Continuity Continuity Detaulation QAM 64 V/Q Swap Off Play controls Not	e select Configuration Settings W	Tuner Settings	×	×	
Status Signal Signal<		Frequency [Mhz] 500 Sy Modulation QAM 64 V Sp	ectral Inversion AUTO V]	
Play controls Noc	File Information	Status Signal 65535 Carrier Sync Bit errors 0		e: 40000000 ut: 40000000 V Re-mux (Hw)	■ PCR + DTS/PTS ■ TOT/TDT
		Symbol Rate 4999998 Modulation QAM 64 1/Q Swap Off	Constellation Quality] Burstmode ize 1	Error insertion

	alitror	SMALL COMPANY, BIG IDEAS	1
Record Program Information Pid In Record controls	Cable Tuner annex-B Settings Frequency [Mhz] Modulation QAM 6 Status Status QAM sync lock TS lock	500	Hardware PID filter Hardware PID filter Exclusive PID Table
Wo errol Loop: Loop count:	3 Ts Time: 0:00	COU Viewer Lowlevel 8Mb	

6 The "Goodies" section

DVSStation3 has many functions & features, offering the users almost everything they need during recording, playing, monitoring, modulating, demodulating & converting.

Some of these functions are device dependent, but most are common features available for all devices. As mentioned before, the best way to make full use of these functions & features is by trying out the application software in demo mode.

In addition to these function & features which are in most cases necessary for the operation of the devices, DVSStation3 offers the users extra functions such as TS Viewer, DVB-IP conversion.

These additional features are mostly software based & hence very much system dependent.

In some cases they may require extra CPU power and or memory to function correctly.

It is also assumed the extra hardware/software components needed to support them are present. One example is the DVB-IP conversion, it is assumed the user's system support fast enough Ethernet hardware & software components.

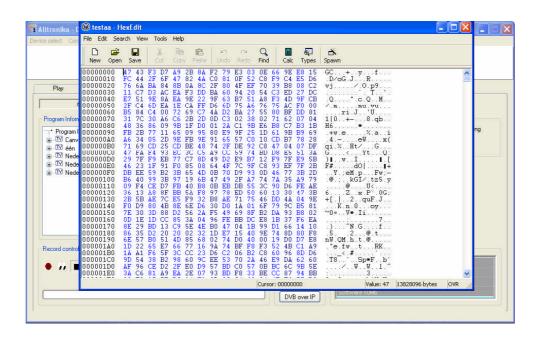
In the case of features such as the TS Viewer & TS Analyzer, it is recommended the users download the required application software from the 3rd part provider & install them on their system. Alitronika accepts no responsibility for functionality of these 3rd party components.

6.1 Hex file Editor

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. DVSStation3 provides a free to use Hex editor for such a situations. Simply clicking on "HexEdit" button to activate the Hex editor. Select the file to be edited, the screen below would appear.

The Hex Editor could be used to:

- "Make" simple, small TS file for test purposes.
- Introduce errors into a TS file for testing error detection applications.
- Remove sections of file for size reduction by leaving the sections of most interest.



6.2 TS Viewer

The TS Viewer could be used at any time even when no devices is present or operational to view a TS file. There are to options for viewing a TS file, the video player provided by Alitronika or the popular and wildly used **VideoLan** TS viewer, please refer to VideoLan website <u>http://www.videolan.org</u> for more information. On activating the Viewer, DVSStation3 will ask for the selection of one.

Once one of them is selected the Video player screen will open.

The user is able to view any video programs present in the PID table.

Play Record testaa ts Program Information * Program Information @ TV Carvas/Ketnet @ TV Nederland3 @ TV Nederland3 @ TV Nederland1	VideoPlay Configuration Pid Into 0 Ise VideoPlayer 0 Ise VideoPlayer 0 Ise VideoLAN 0 Ise VideoLAN	ng 451 SPI LVDS	Hardware PID filter Enable PID Filtering Exclusive PID Table
Record controls			



6.3 TS Analyzer

DVSStation3 is a complete TS Recorder, Player with an Integrated Quick Real Time TS Analyser. In some application a Full TS Analysing function may be required.

In addition to many 3rd party TS Analyzer software which support Alitronika devices, DVSStation3 allows the use of TSReader within the application software.

The FREE version of TSReader, **Lite**, is supplied with DVSStation3, the full versions could obtained from TSReader website at this address <u>http://www.tsreader.com</u>.

Upon activation of TS Analyzer function, the following screen will appear, requesting the selection of one of the TSReader versions, Lite, Standard or Professional from the list.

Notice that we assume the users have obtained the appreciate licences from TSReader website & have already downloaded & installed the software. The path must be correctly entered & a suitable UDP port selected by the user.

Playtime +/ 100 01 sec Bet M C TSReader Professional Torkeader Professinter Professional Torkeader Professinter Professional To	Play Record				
Cancel OK te Size	File Information ■ Satelite ts 476,053,504 bytes Playtime: +/ 100,01sec Before first packet: 76 After last packet: 16 -2532139 packets Packet size: 188	- Program Infor - Yrog - YV - YV - YV - YV - YV - YV - Y	TSReader Configuration	Eile: 38014791 ut: 19392643 ↓ Re-mux (Hw) Default Dptions Burstmode	PCR + DTS/PTS TOT/TDT Continuity

The screen shot below shows a typical TSReader screen.

D/3 TSReader Professional 2.7.44				
File Export View Record Playback Forward	ard Plugins Settings Help			
	Program Number 11 Program Number 11 Program Number 11 Prof Venot 12 Prof	tyfae ' Sottyfe' 9-Route TUSK 3-RODALY IV 9-RODALY IV	1-100 3-100 Rado 1-100 Rado	Contraction of the second seco
Egrand Internation Source Distances BESK Source 1066 Des Hig 2000 DVB 0ESK Signal Lockwei 7 6 dis SNP Profile Default Thebroit Theo DVB	0x0604 (0.32% - 96.43 Mbps) 0x0603 (0.30% - 80.10 Mbps) 0x0612 (0.11% - 33.06 Mbps) 0x0419 (0.65% - 14.00 Mbps) 0x0419 (0.65% - 7.70 Mbps) 0x0419 (0.62% - 5.89 Mbps)	507 Eff 0 3-RODANY IV 1-TAN 1-TAN 2-RODANY IV 0 1-TAN 1-T		13 - Kol Harreshama
Run Time: 000.00.59		User		-

6.4 DVB-IP Conversion

DVSStation3 offers the option of a DVB-IP conversion during the recording or play back of a transport stream. As mentioned earlier in this document this feature, among many others, is a software function and as such **system dependent**. System dependency in not only limited to the PC/Laptop hardware, but also the operating system as well as system configurations, OS version type, service pack type even the number & types of programs running on the system. The TS bitrate is also an important factor.

No efforts are spared in testing and optimizing these functions for as many system configurations as possible, but there is always the one which does not fully operate.

These should be reported to Alitronika Support department, but, then again there is the ONE which falls outside the spec of this application.

The following screen shot shows the user option when activating the DVB-IP conversion function. We strongly recommend reference to appropriate documents, standards, user manuals for using the UDP or <u>RTP options & parameters such as port & address.</u>

	VSstation III (AT- guration Settings		Help					
Play	Record Satelite ts	@ 0	diiti	Ulina)		
Playtin Before After la 25321 Packe	13,504 bytes te: +/- 100.01sec first packet. 76 sat packet. 15 99 packets taize. 188 x: 38,014,791 bps	Program Informatio	on	PID Information PID Information Port Extination Address: 127 Port: 1234	. 0 . 0 . 	LVDS	Bitate File: 38014791 Qut: 19392643 V Remux (Hw) Default Options Butstmode Size	Adaptions PCR + DTS/PTS TOT/TDT Continuity Tools Error insettion Sub Range
Play controls			Ts Time Elapsed Time	с 0.00.00 Т	dies HexEdit Viewer : Analyzer /B over IP			

The resulting DVB-IP stream could be received, recorded, viewed & analyzed by an instant of DVSStation3 or VideoLan running on a remote PC/Laptop on the same network.

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