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USER MANUAL

MTSA-PRO

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4.9 SYSTEM MESSAGE AND TR 101 290 SUMMARY WINDOW 29

Section 1 — General & Safety Instructions



The STOP sign symbol is intended to alert you to the presence of REQUIRED operating and maintenance (servicing) instructions that if not followed, may result in product failure or destruction.



The YIELD sign symbol is intended to alert you to the presence of RECOMMENDED operating and maintenance (servicing) instructions.



The LIGHTNING flash symbol is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

**TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT.
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Safety Instructions



**YOU SHOULD ALWAYS FOLLOW THESE INSTRUCTIONS TO HELP ENSURE
AGAINST INJURY TO YOURSELF AND DAMAGE TO YOUR EQUIPMENT.**

Read all safety and operating instructions before you operate the unit.

Retain all safety and operating instructions for future reference.

Heed all warnings on the unit and in the safety and operating instructions.

Follow all installation, operating, and use instructions.

Unplug the unit from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the unit.

Do not use accessories or attachments not recommended by Blonder Tongue, as they may cause hazards, and will void the warranty.

Do not operate the unit in high-humidity areas, or expose it to water or moisture.

Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious personal injury and damage to the unit. Install the unit only in a mounting rack designed for 19" rack-mounted equipment.

Safety Instructions - continued

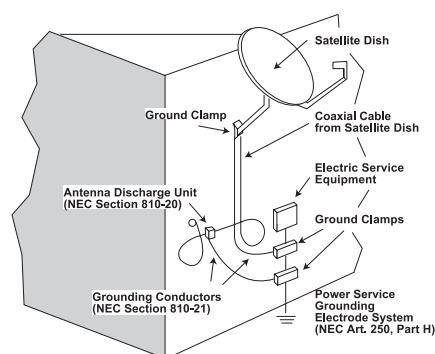
Do not block or cover slots and openings in the unit. These are provided for ventilation and protection from overheating. Never place the unit near or over a radiator or heat register. Do not place the unit in an enclosure such as a cabinet without proper ventilation. Do not mount equipment in the rack space directly above or below the unit.

Operate the unit using only the type of power source indicated on the marking label. Unplug the unit power cord by gripping the plug, not the cord.

The unit is equipped with a three-wire ground-type plug. This plug will fit only into a ground-type power outlet. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the ground-type plug.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Be sure that the outdoor components of the antenna system are grounded in accordance with local, federal, and National Electrical Code (NEC) requirements. Pay special attention to NEC Sections 810 and 820. See the example shown in the following diagram:



We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the unit is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the lines between the unit and the antenna. This will prevent damage caused by lightning or power line surges.

Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing the antenna, take extreme care to avoid touching such power lines or circuits, as contact with them can be fatal.

Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.

Never insert objects of any kind into the unit through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.

Do not attempt to service the unit yourself, as opening or removing covers may expose you to dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.

Unplug the unit from the wall outlet and refer servicing to authorized service personnel whenever the following occurs:

- The power supply cord or plug is damaged;
- Liquid has been spilled, or objects have fallen into the unit;
- The unit has been exposed to rain or water;
- The unit has been dropped or the chassis has been damaged;
- The unit exhibits a distinct change in performance.

When replacement parts are required, ensure that the service technician uses replacement parts specified by Blonder Tongue. Unauthorized substitutions may damage the unit or cause electrical shock or fire, and will void the warranty.

Upon completion of any service or repair to the unit, ask the service technician to perform safety checks to ensure that the unit is in proper operating condition.

Returning Product for Repair (or Credit)

A Return Material Authorization (RMA) Number is required on all products returned to Blonder Tongue, regardless if the product is being returned for repair or credit. Before returning product, please contact the Blonder Tongue Service Department at 1-800-523-6049, Ext. 4256 or visit our website: **www.blondertongue.com** for further information.

Section 2 — Product Summary

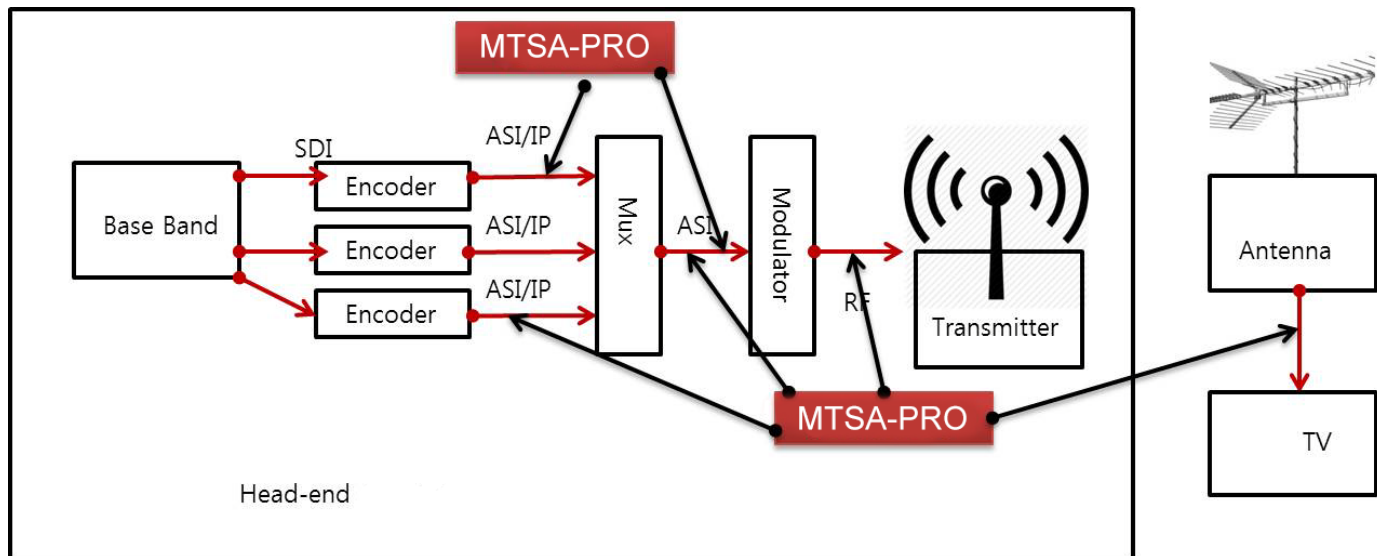
2.1 Revision History & Reason

This is the first issue of this Instruction Manual.

2.2 Product Application & Description

Application:

The MTSA-PRO is designed to analyze MPEG transport stream in real time/off line bases, Hardware and Software as in a package. The Hardware interlocks with the PC via USB cable to maximize its utilization as a mobile analyzer. Furthermore, it supports TS file output through ASI and real time input can be re-transmitted via ASI.



Features:

- Real time analysis via RF/ASI/IP input and TS file
- Single DVB-ASI input and single DVB-ASI output adapter for USB (half duplex)
- MPEG TS analysis and capture
- USB 2.0, bus powered, no power supply required
- ATSC and OpenCable DTV standards compliant
- ETSI TR 101 290 Priority with real-time 3-stage error monitoring reporting and error logging.
- Diagnostic and verification of MPEG designs
- PCR & PTS analysis, arrive time graphing, measurement display and jitter analysis
- Triggered recording
- Data rate analysis
- Table and packet views
- SI/PSI & PSIP view and interval analysis
- CAS view: ECM and EMM repetition rate and update time
- PES header analysis
- Real-time A/V decoding

2.3 Product Specification

Specifications

Input

ASI/SMPTE-310M	Connectors: 1x BNC; 75Ω Standard: DVB-ASI Bitrate: 0~108Mbps (in 1bps step) Mode: 188/204 bytes packet mode
RF Demod	Connector: 8VSB, QAM64B, QAM256B Freq Range: 1xF 75Ω Level Min: 57-1000 MHz -15 dBmV QAM256B -20 dBmV QAM64B -30 dBmV 8VSB

Output

ASI/SMPTE-310M	Connectors: 1x BNC; 75Ω Standard: DVB-ASI SMPTE-310M Bitrate: 0~108Mbps (in 1bps step) Mode: 188/204 bytes packet mode
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General

Dimensions (W x D x H):	6.06" x 3.89" x 1.12" (154mm x 100mm x 29mm)
Weight:	0.5 lbs. (227g)
Power:	USB 2.0 powered; no power supply required
OS Supported:	Windows 7

Software

TS Input: TS Out: Analysis Mode: 7 analysis Window Tab:	ASI, SMPTE-310M, File, IP (UDP/TS or UDP/RTP/TS), RF 0~108Mbps (in 1bps step) 188/204 bytes packet mode Service, PID, Table, Service View, Bit-rate, TR 101 290, Table History
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Recommended System Requirements: CPU better than Intel Core i3; more than 2 GB RAM; Windows 7

Section 3 — PACKAGING AND DRIVERS
3 MTSA-PRO System Package

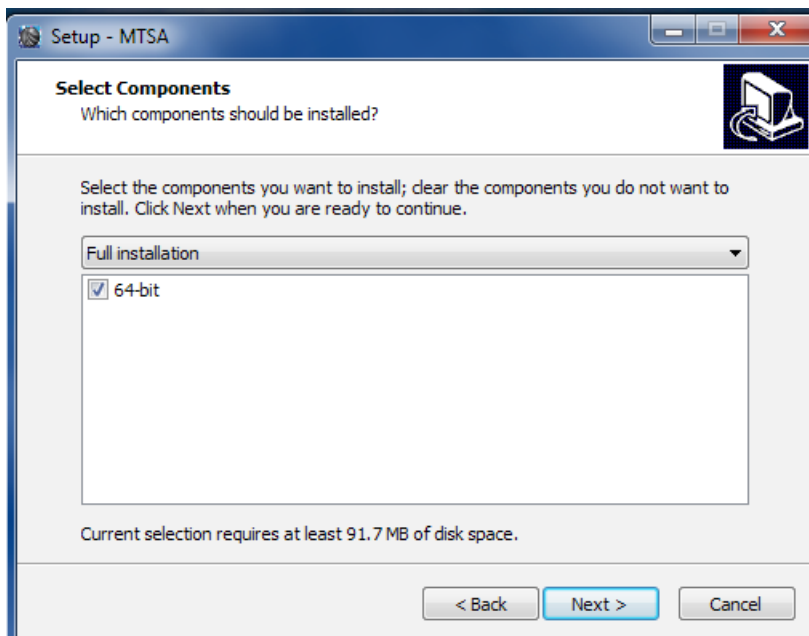
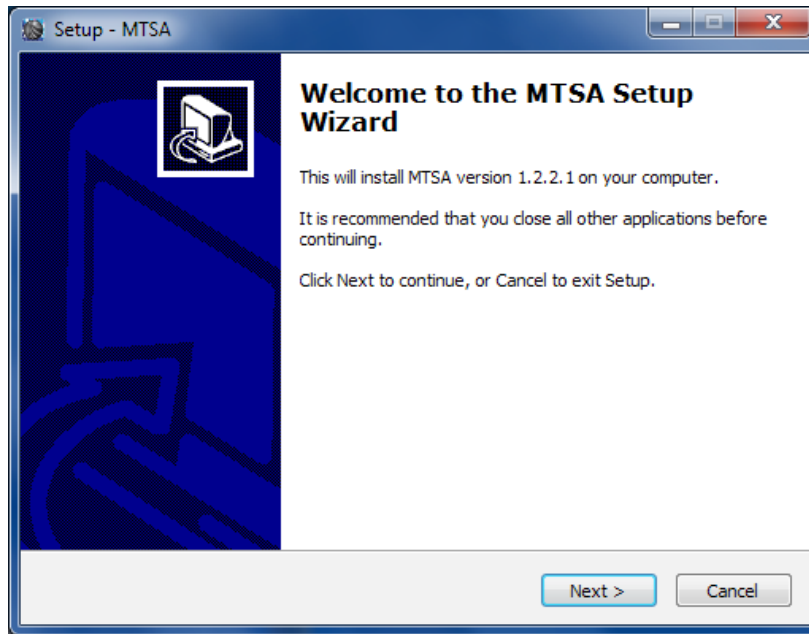


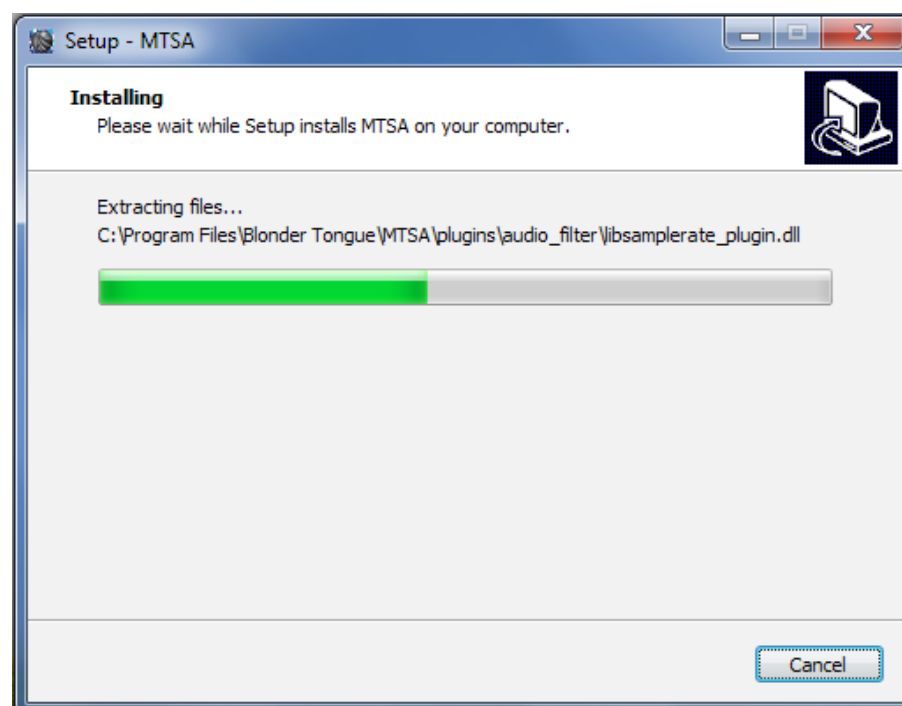
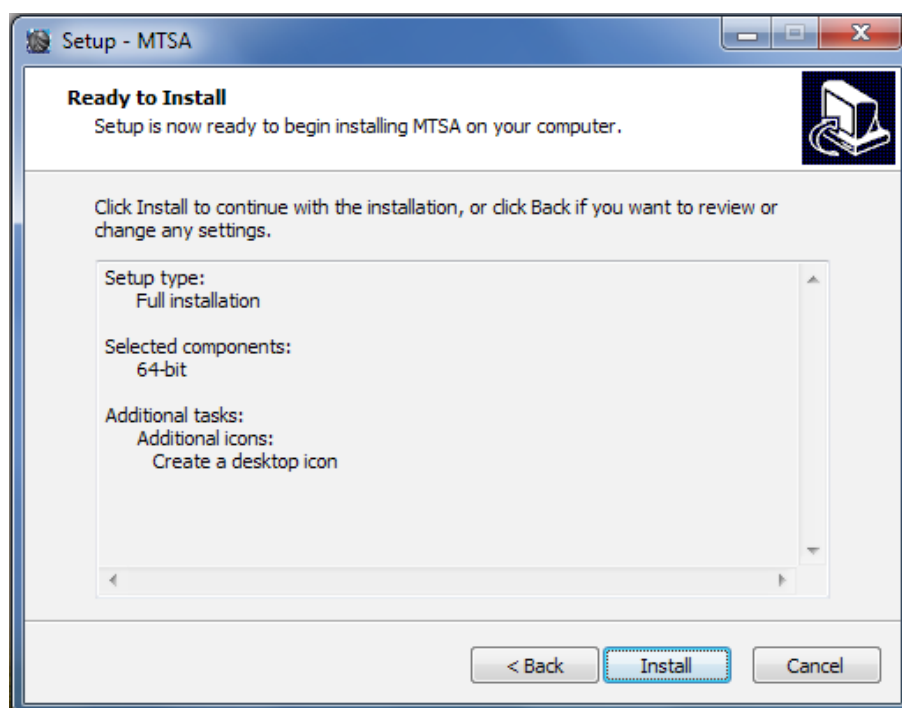
USB Conection Cable



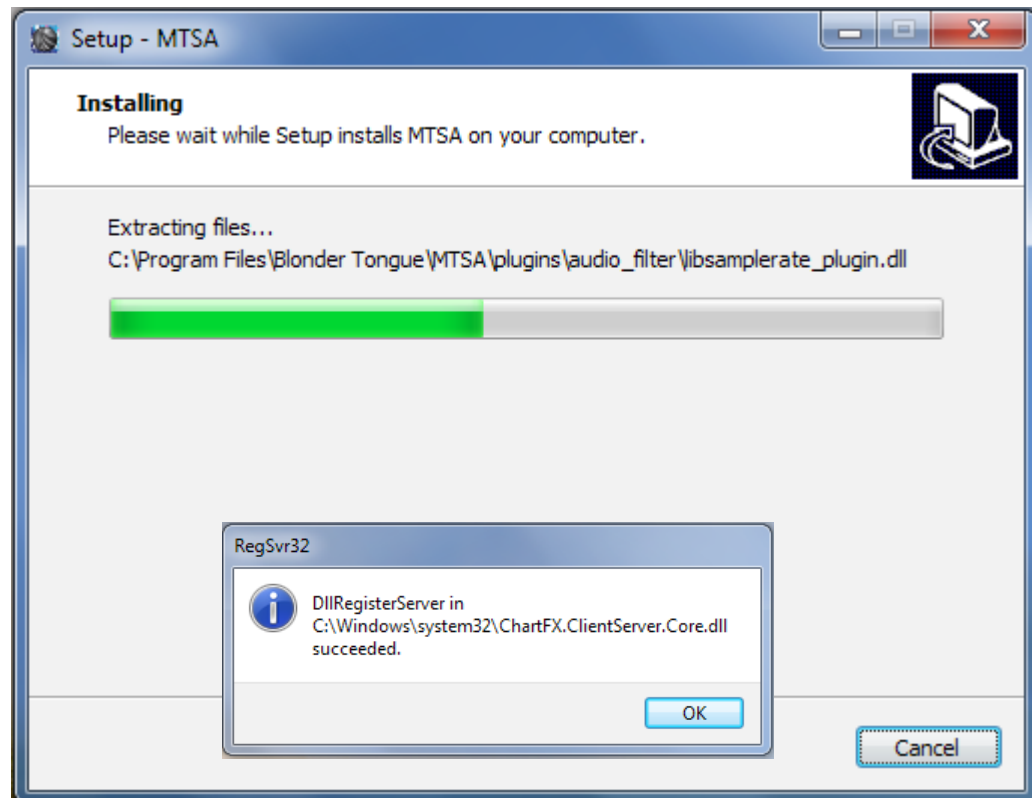
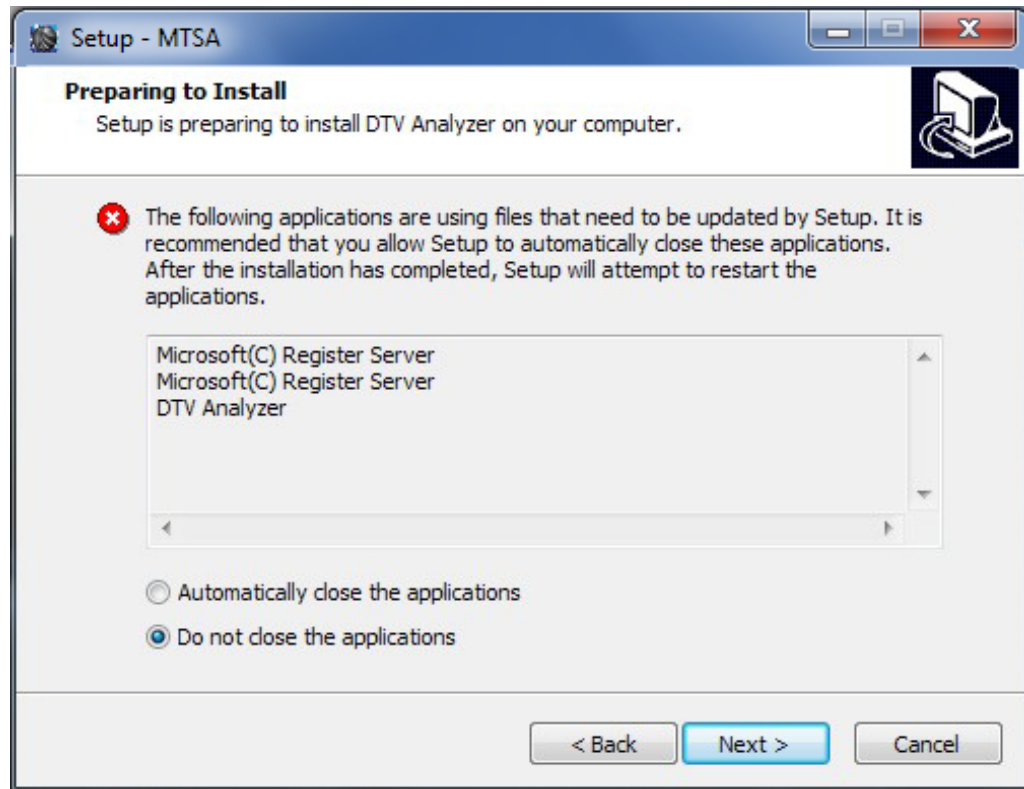
3.1 Software installation

- Software installation must be run with Administrator privilege for Windows 7 or above.
- Disconnect the USB cable from the MTSA-PRO before installation.
- Get & run the setup file from the BT website.
- Press 'Next' to begin installation.

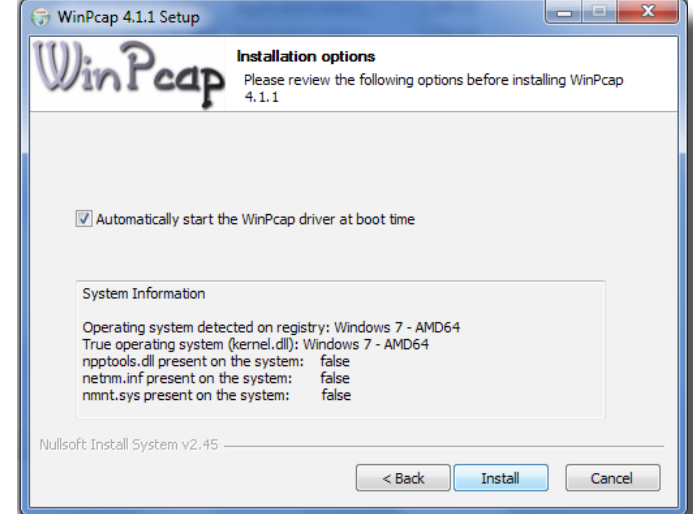
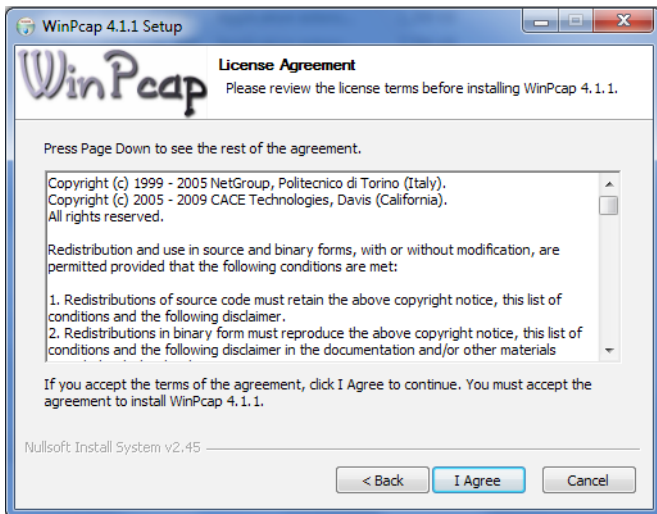
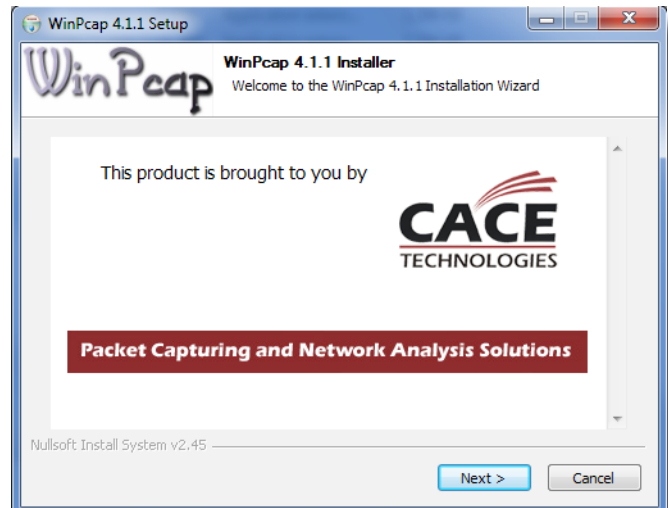
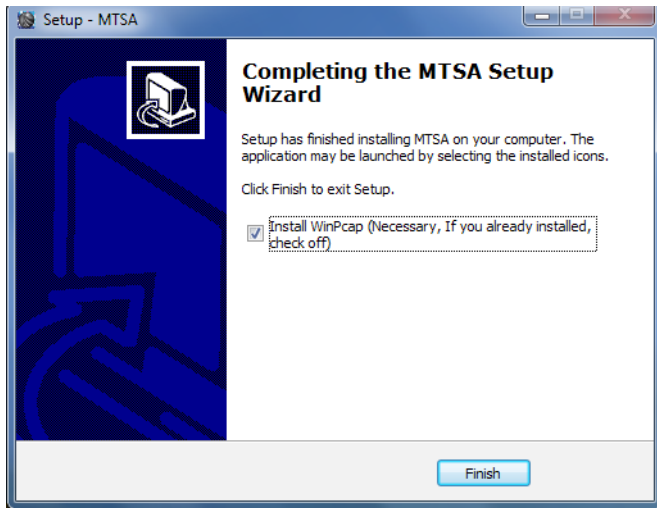




If you see below messages, please select 'Do not close the application'



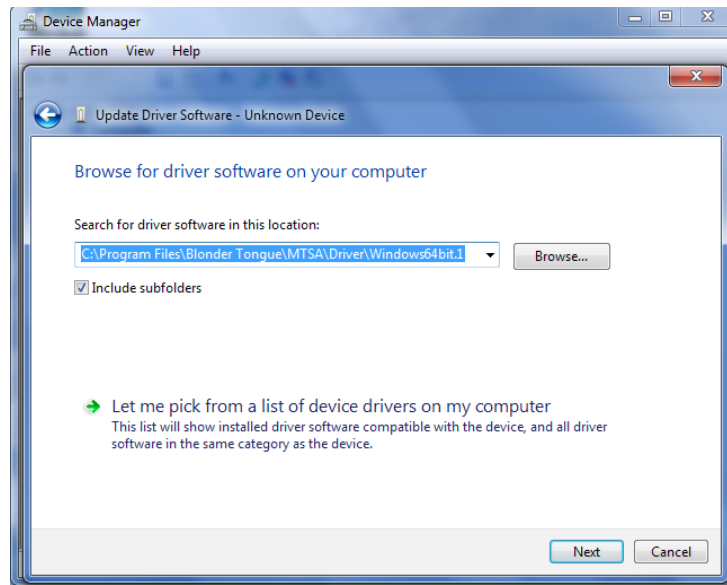
After the installation is completed, the 'WinPcap' file needs to be installed. This must be done during the installation, no reinstallation required for version updates.



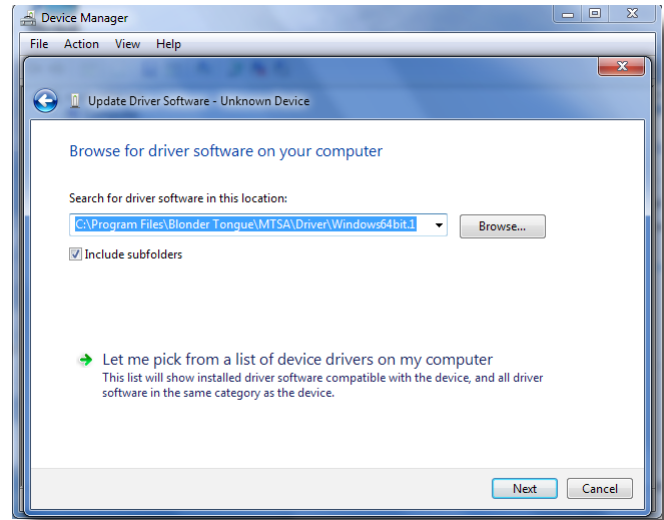
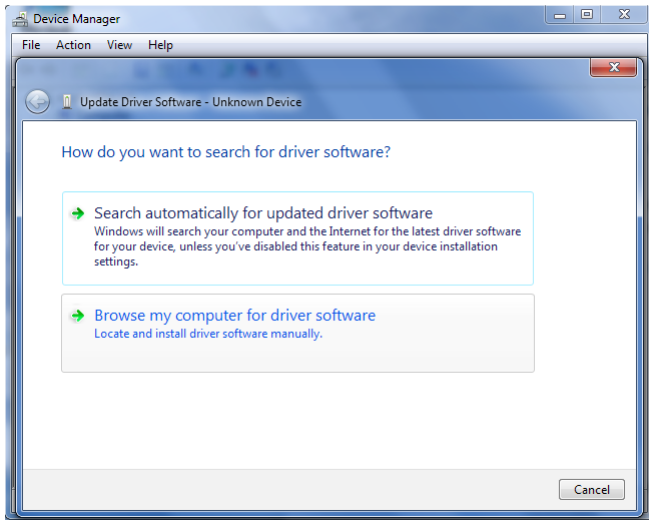
Be sure to check the box to automatically start the WinPcap driver at boot time.

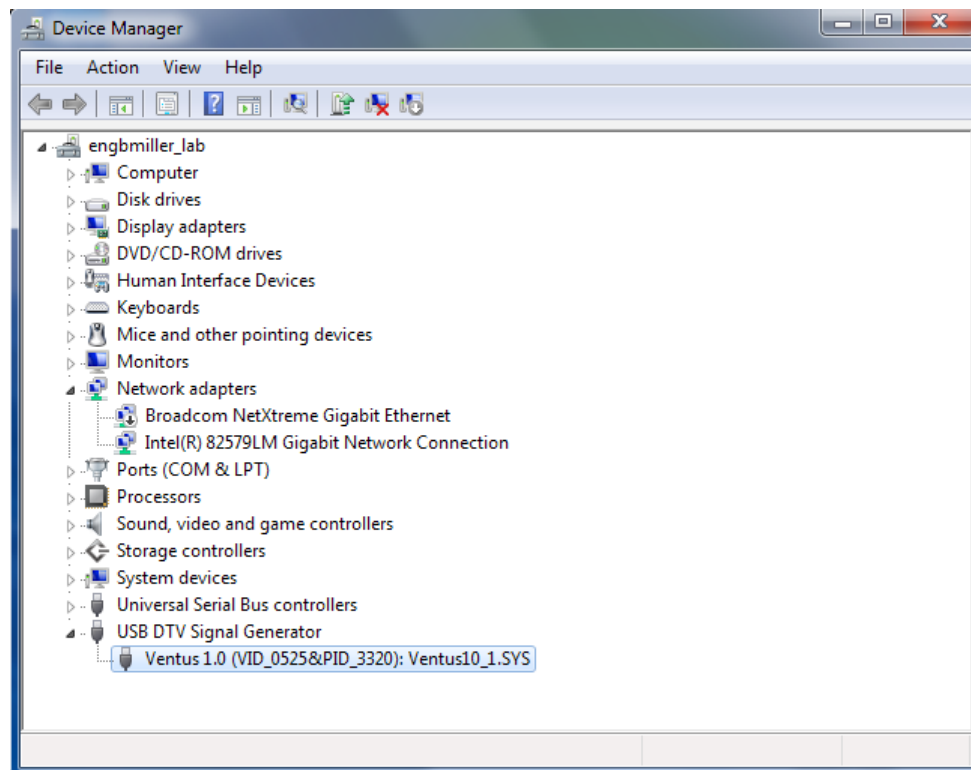
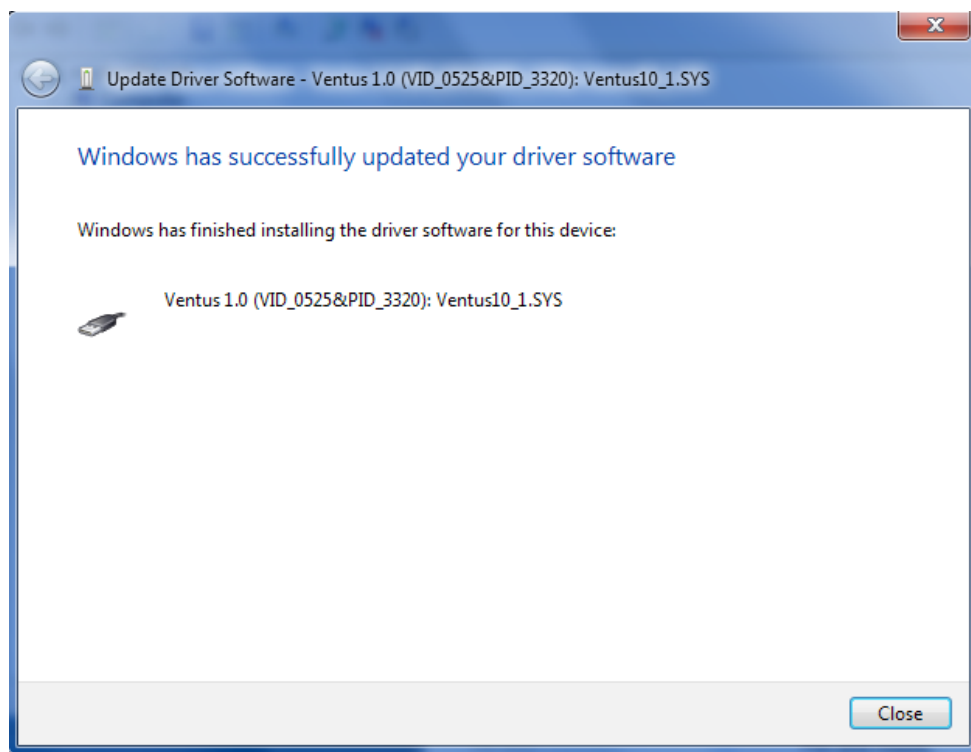
After the software installation has completed, the Driver will automatically start its installation when the hardware is connected. If not, see Section '3.2 Driver Installation'.

Right click on the 'Unknown device' in Device manager and then click Update Driver Software.



Select 'Browse my computer for driver software' then select either c:\Program Files\Blonder Tongue\MTSA\Driver\Windows32bit.1 or Windows64bit.1" based on your Window's OS. Click on 'Next'.



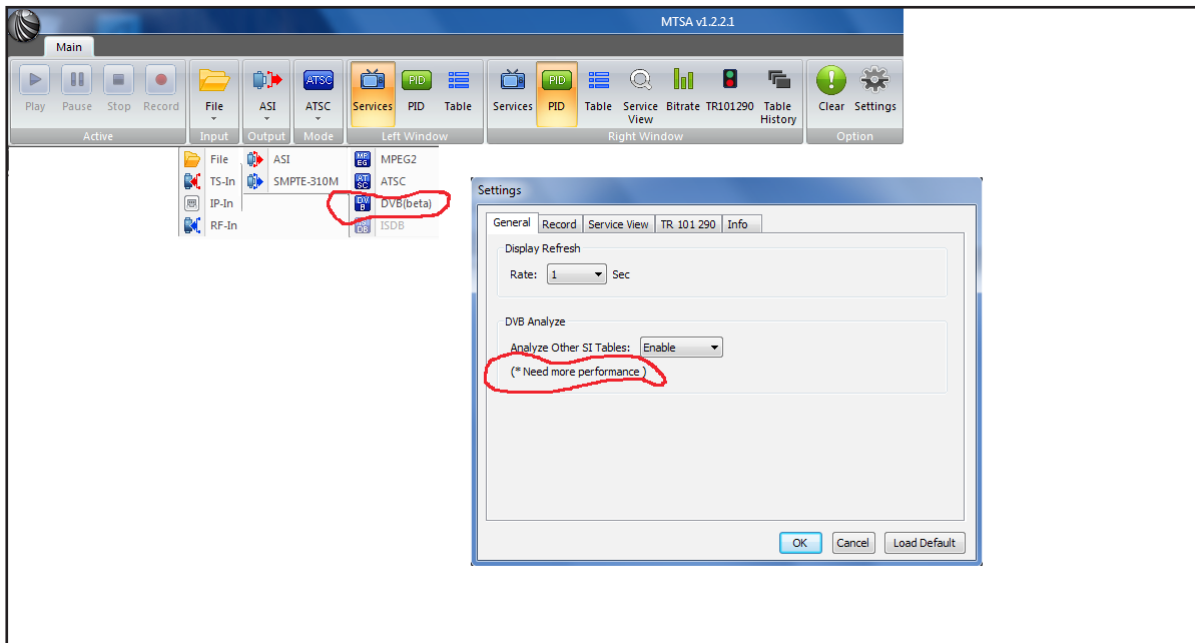


Section 4 — SOFTWARE

4 MTSA-PRO Software

4.1 Control Window

The Control Window shows settings and status. Additional controls are accessed by clicking on the tabs; Active, Input, Output, Mode, Left/Right Window, and Option. The user should be aware that the Input, Output, Mode, and Option are only active when the system is NOT running.



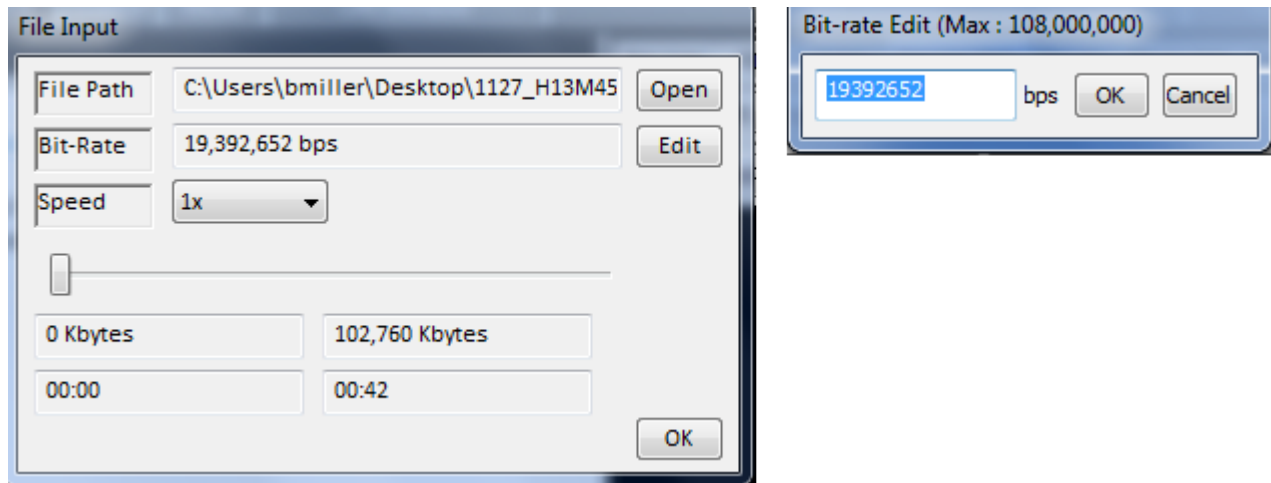
This tab controls the start and stop of the analyzer. Selections are Play, Pause, Stop and Record.

- Pause is active in the file analysis mode.
- Record is active while analysis is in progress. You can start/stop during the analysis at any time.

4.1A Input Tab

The Input tab is where the input port is selected. Click on the down arrow to choose the desired interface.

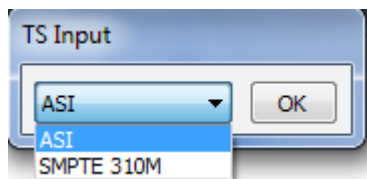
You can select input port and detailed settings. File, TS-In, IP-In, and RF-In can be selected and each option comes with pop-up window for detailed settings.



A media file can be played through the unit for analysis and concurrently sent to the ASI output.

- Select a file with 'Open' button. Typical file extensions are .ts, .tp and .trp.
- The bit rate is calculated automatically after selecting the file. The rate can be modified with 'Edit' button if necessary.
- The user can select between two speeds; 1x and Max analysis modes. The 1x mode is the standard setting for stream analysis and an active ASI output. The 'Max' mode enables high speed analysis. In this mode the Data output through Media Player and ASI output port are NOT available.
- You can select the Analysis starting point by adjusting the navigation bar.

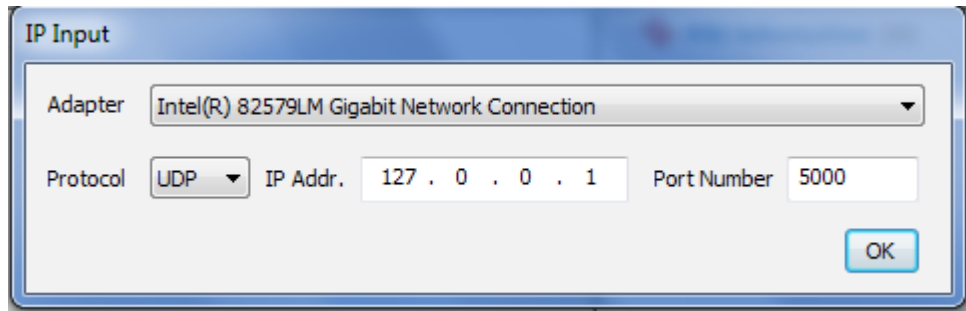
4.1B TS-Input window



The TS Input can be ASI or SMPTE 310M. SMPTE-310M is a protocol standard that provides for transmitting 19.39 Mbps transport streams between transmission devices such as multiplexers and 8- and 16-VSB excitors in a headend or station origination facility.

The IP Input window is used to setup the address and protocol to receive an IP stream.

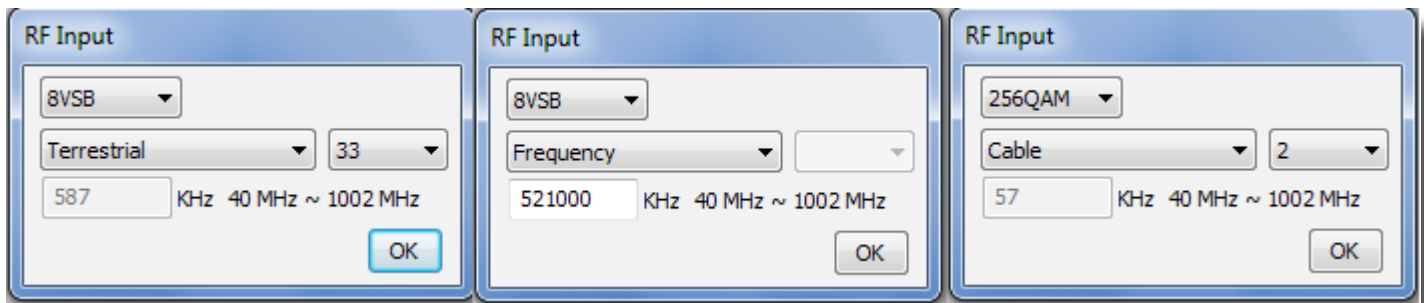
- Adapter: Select your computer's network adapter.
- Protocol: options are UDP and RTP.
- IP Addr: IP address of the destination.
- Port Number: IP port of the destination.



4.1C RF-In Input Window

The RF input selection sets up the RF mode and parameters for the receiver.

- Modulation type can be 8VSB, 64QAM or 256QAM
- Input tuning can be in frequency or RF channel number. Terrestrial or Cable selections only accept channel numbers.



4.1D Output Tab

The Output tab allows the user to select between ASI or SMPTE-310M. An internal re-mux feature is activated for SMPTE-310M with an ASI or RF input.



4.1E Mode Tab

The user selects the Broadcasting standard for table decoding. Options are MPEG2, ATSC and DVB.

- The MPEG2 PSI tables are common to both ATSC and DVB. They include PAT, PMT, NIT and CAT.
- ATSC adds the extended PSIP tables, MGT, VCT, STT, etc. These tables contain virtual channel numbers and names.
- DVB is the European version of extended tables. They include NIT, SDT, EIT, TDT, etc. A software update for DVB mode is required before DVBit is fully operational.



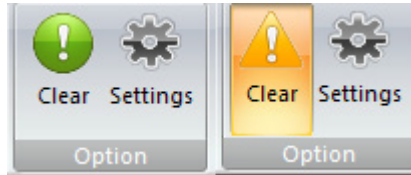
- Left Window Tab & Right Window Tab

The selections in the Left/Right Window results in the same action as clicking on the tabs in the corresponding window.



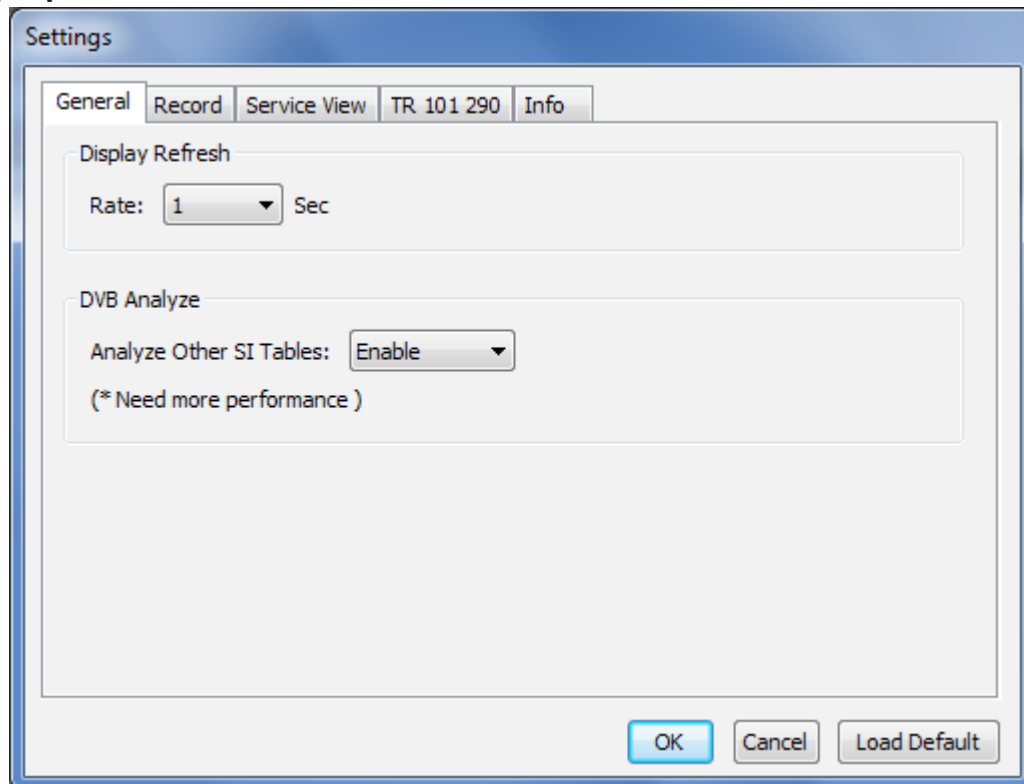
4.1F Option Tab

- The Option Tab is comprised of the Clear and Settings buttons
- Clear cancels outstanding alarms and clears the associated alarm status. The color of this button changes from green to yellow with exclamation mark when an alarm is triggered.



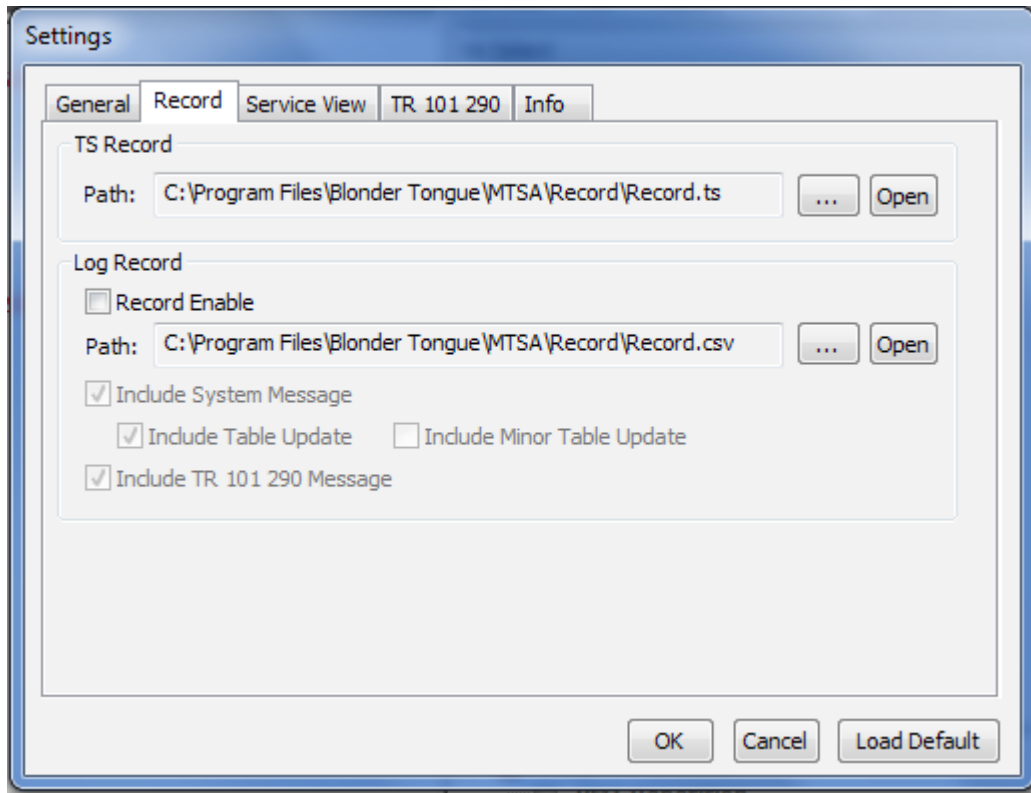
Clicking the Settings button brings up a pop-up window with 5 tabs. Press OK to save settings, 'Cancel to abort changes and Load Default to re-initialize settings to factory default.

4.1G Settings Pop-up window – General Tab



The General tab allows the user to set the GUI update rate. The default is 1 sec. The DVB Analyze option needs a software update before it is fully operational.

4.1H Settings Popup Window– Record Tab

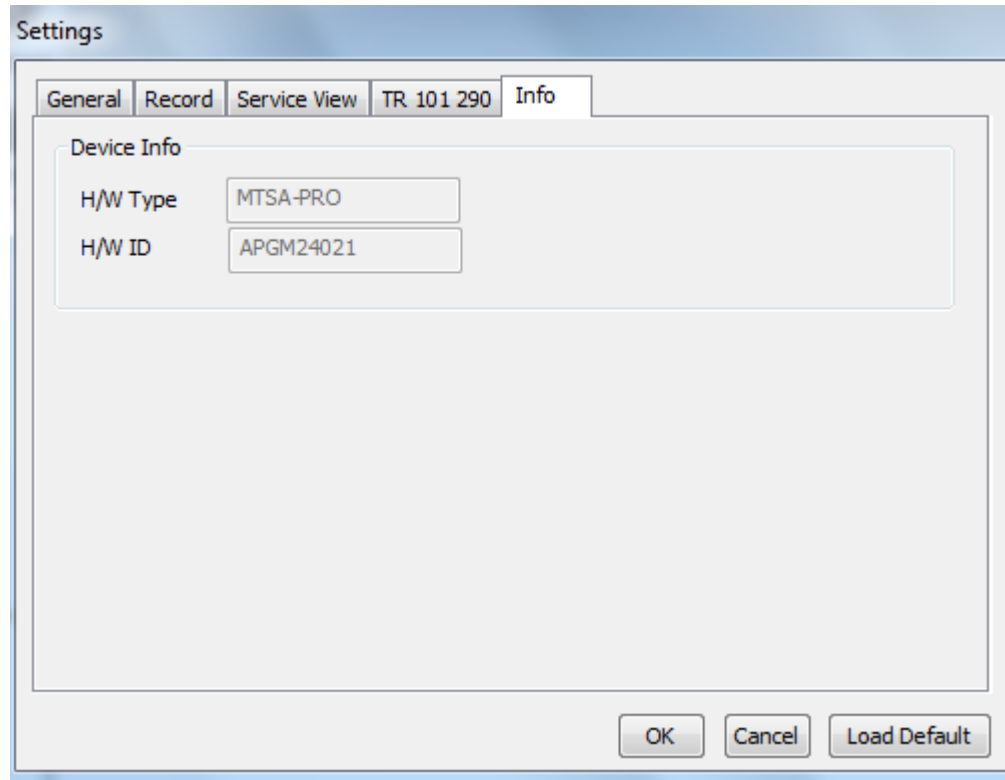


The Record tab facilitates recording streams and logging of system and table messages. Press the Record/Stop button in the Active tab to start/stop recording.

- Set the path and file name for recording the transport stream by pressing the ... button.
- Press Open to view the file path in TS Record. The date and time is appended to the file name.
- Check the Record Enable box to save log data in Log Record. The Log file is saved in '*.csv' format.
- Set the path and file name for the log file by pressing the ... button.
- Press Open to view the file path in Log Record. The date and time are appended to the file name.
- The date and time of the log data is appended be added to the actual file name
- Check the Include System Message box in Log Record to save system operation messages in the log data file.
- Check Include Table Update box in Log Record to save table update messages.
- Check Include Minor Table Update in Log Record to save frequently updated table messages. Frequently updated table messages includes STT, EIT, STT in ATSC mode.
- Check Include TR 101 290 Message box in Log Record to save TR 101 290 error messages to the log file.

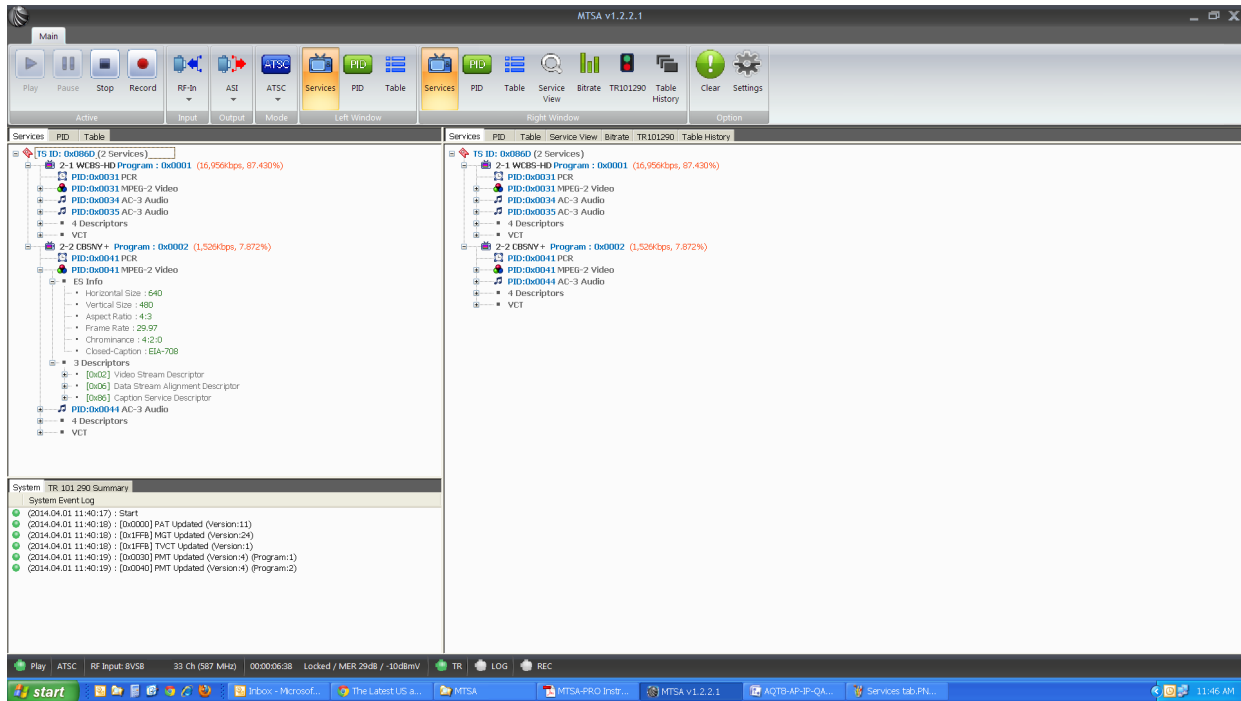
4.1l Settings Popup Window – Info Tab>

This is a read only tab which displays the HW type and serial number.

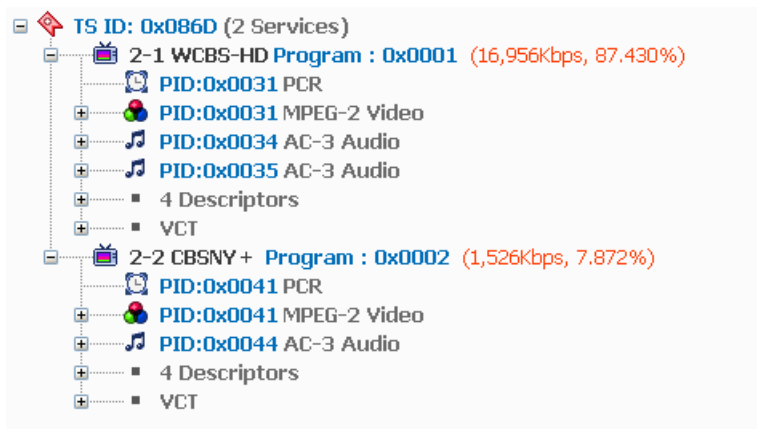


4.2 Analysis Window – Services Tab

The Service tab displays the analysis of the service components in a tree structure format. Double click on the node or click on +/- to expand or minimize the display. The TSID and number of services are shown at the top. For each service, the Service name, Program Number, bit rate and occupancy information is shown along with the configuration information in sub-node.

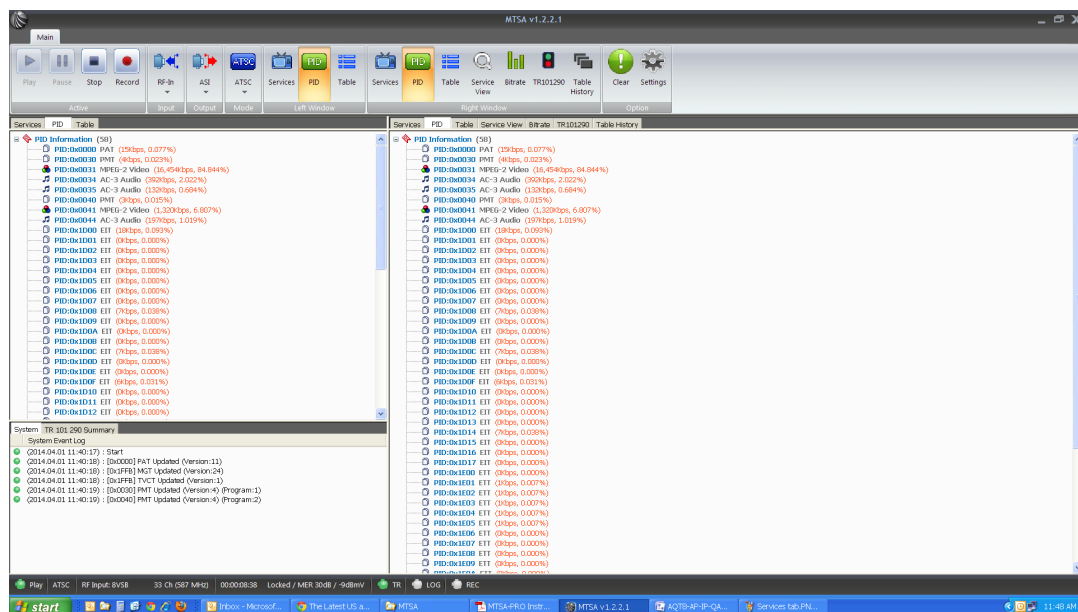


The component of each program lists the PID and properties along with the ES Info and Descriptor in the sub-node. The ES info shows component information analysis inside the ES (elementary Stream) data and Descriptor shows contents included in PMT information table.



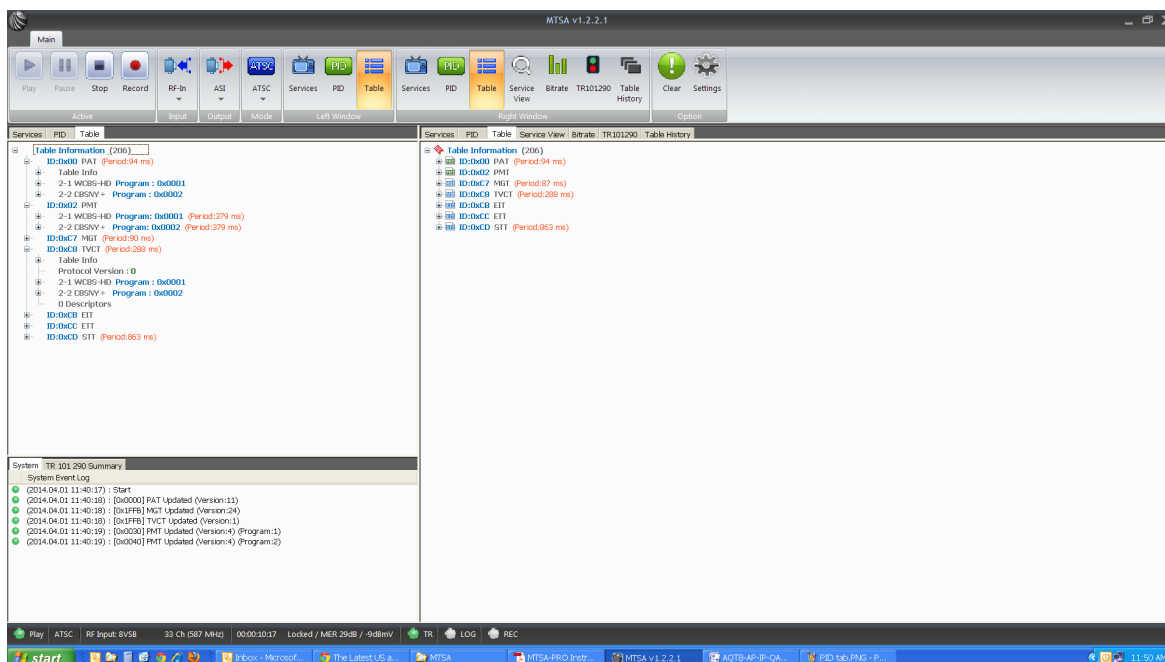
4.3 Analysis Window – PID Tab

The PID tab lists all the PIDs in the service along with its service type, bit rate and occupancy.



4.4 Analysis Window– Table Tab

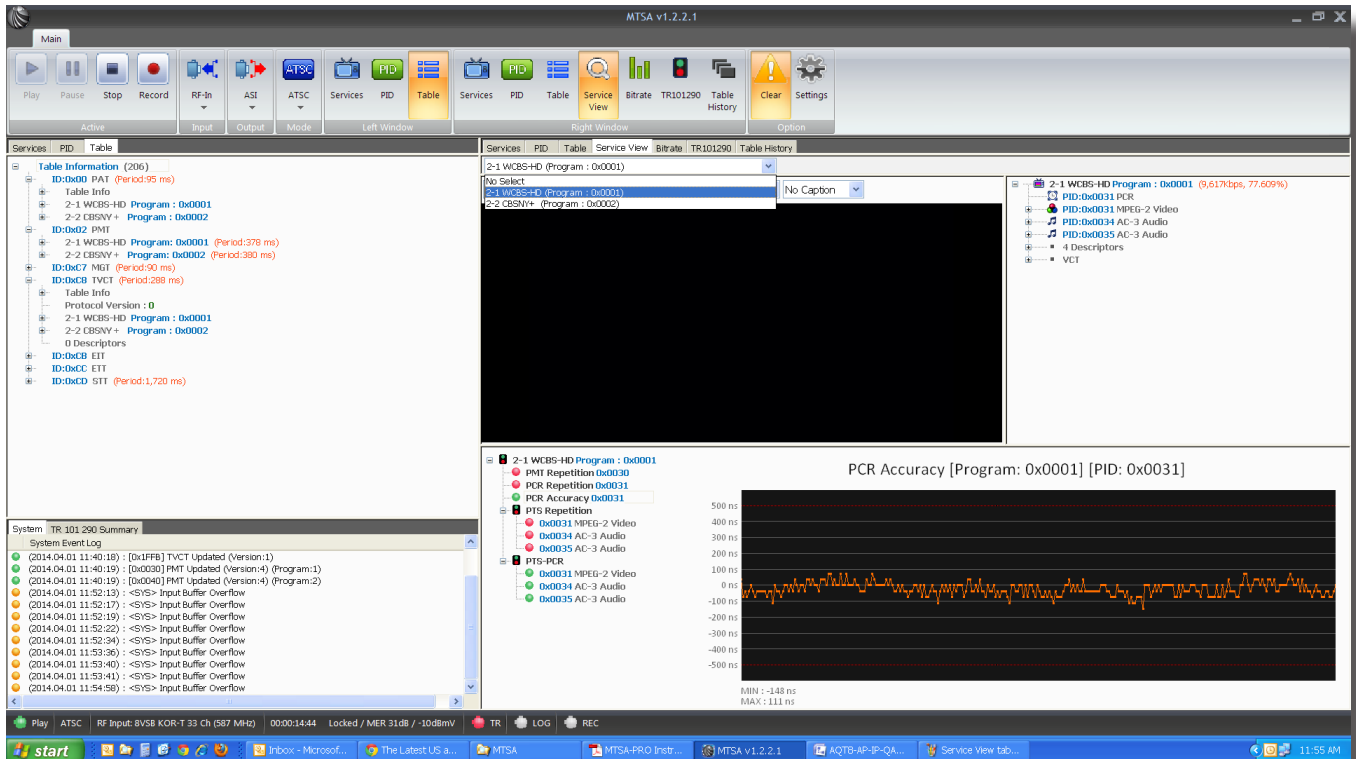
The Table tab shows the MPEG tables in a tree structure indexed by Table ID. Double click on the node or click on +/- to expand or minimize the display.



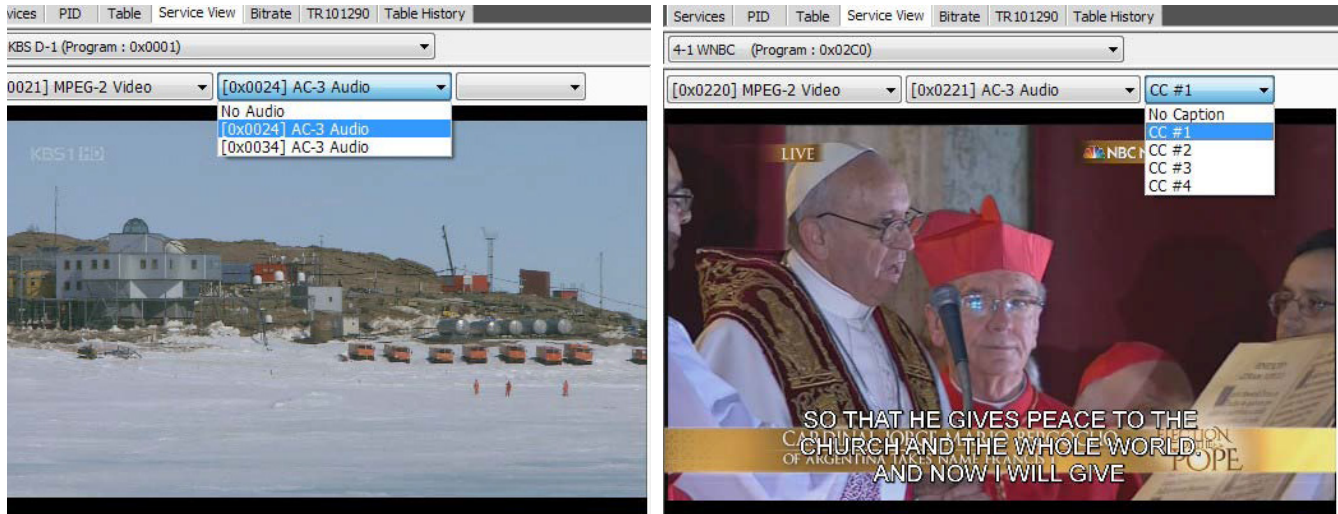
4.5 Analysis Window – Service View Tab

The Service View shows service timing errors with a Media Player for playing a selected program.

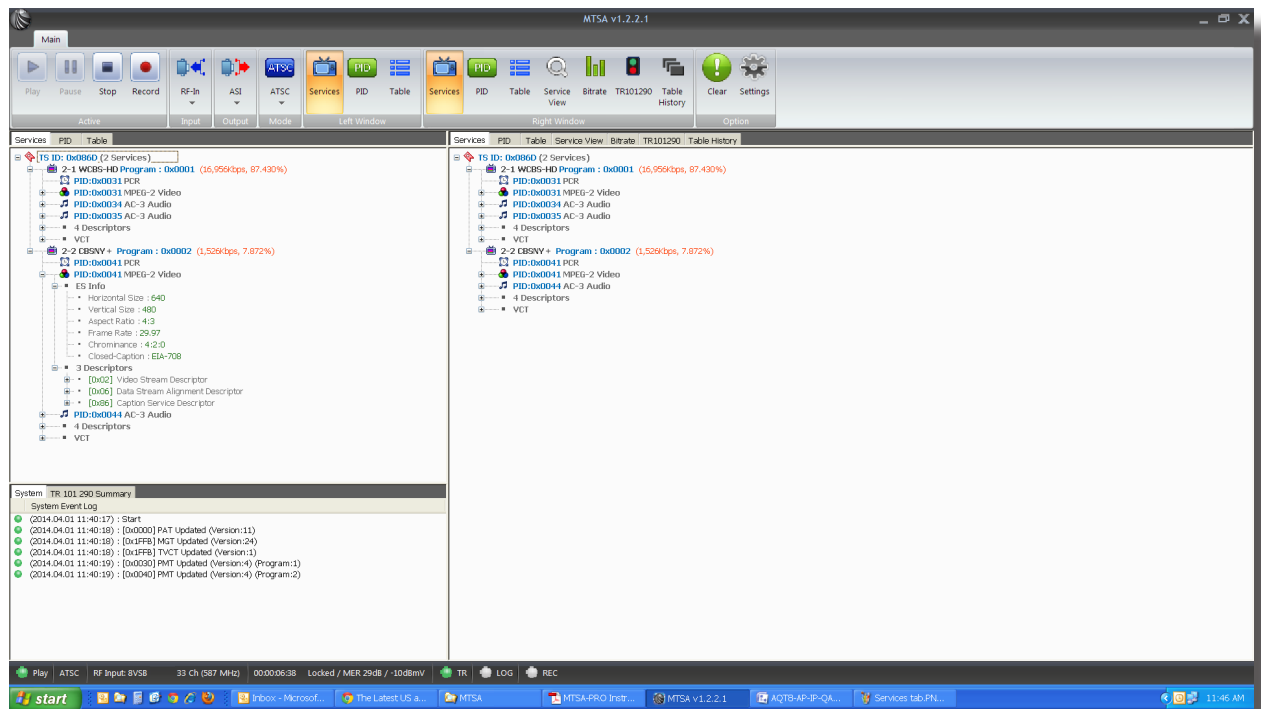
During the Analysis operation, the drop-box menu selection is inactive until a program is detected. If Auto Select Program has been selected in Settings-Service View tab, the first program detected is specified as the program and begins playing automatically.



Once a program is specified the Media player is activated. The Media player is not supported in Max Speed of File Input mode. Three drop box menus right above the Media Player screen are activated after the program has been specified. The user can select Video, Audio and Sub-title.

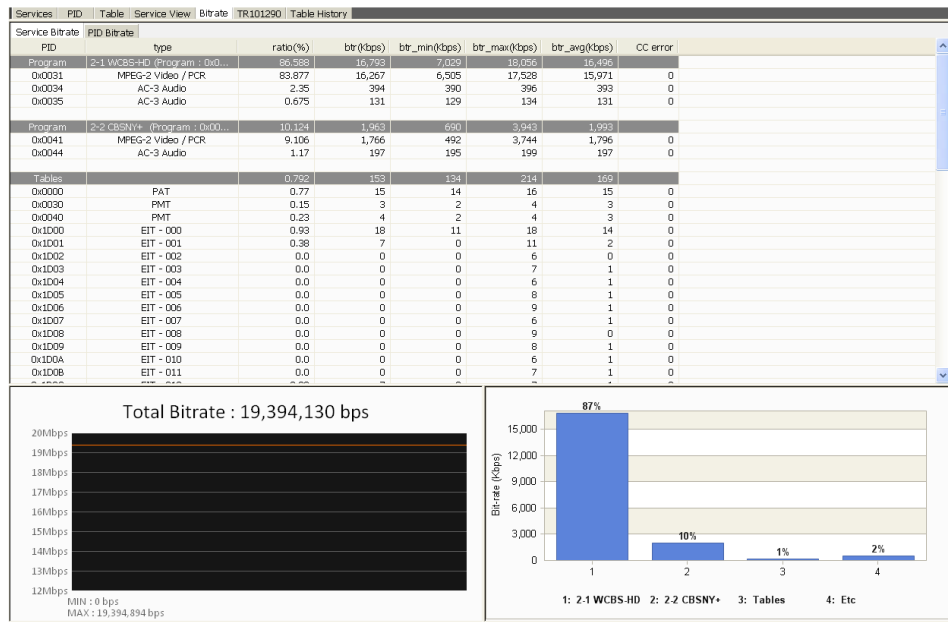


The configuration tree on the right shows the components of the program. This is the same configuration as the Service tab.



4.6 Analysis Result Window – ‘Bit-Rate’ Tab

The Bit-rate tab shows a breakdown of the elementary streams contained within the transport stream. Rates are listed in tabular and graphic formats. Two sub-tabs are present to organize the data by Service or PID.

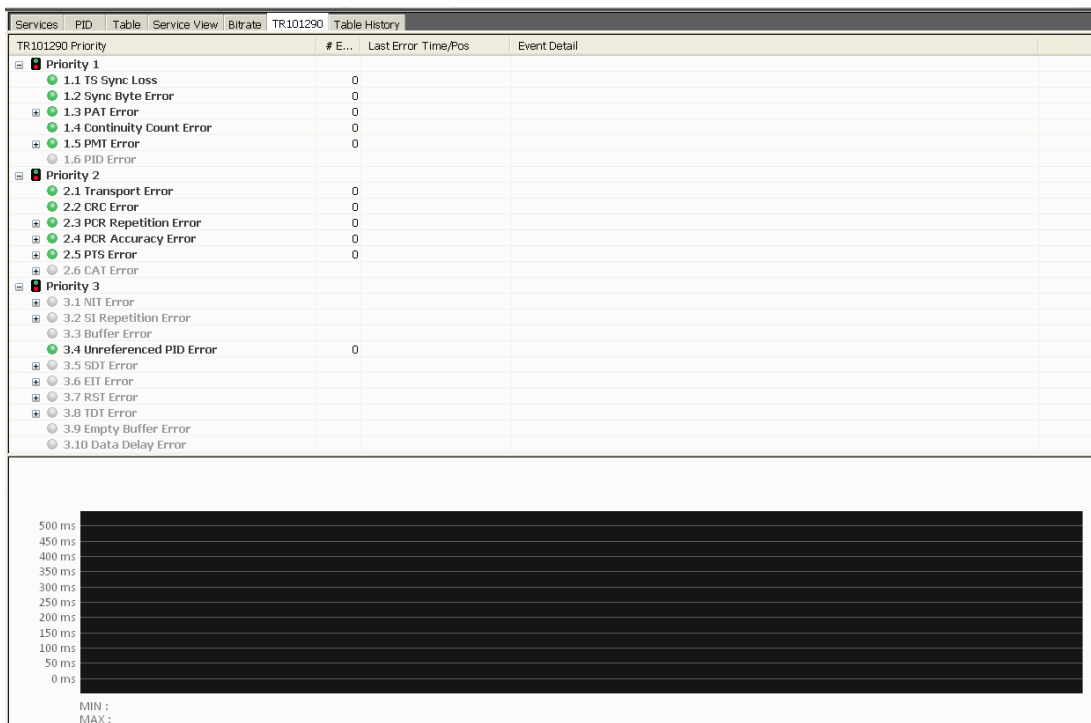


4.7 Analysis Result Window – ‘TR 101 290’ Tab

The System message and TR 101 290 summary window is divided into System and TR 101 290 Summary tabs.

The MTSA-Pro calculates PMT Repetition, PCR Repetition, PCR Accuracy, PTS Repetition plus PCR-PTS value. PCR-PTS indicates the difference in its value compare to PCR input value right before PTS.

- Icon color key: Gray: (Not analyzed), Green (normal), Red (error). Selecting an item on the left side table activates the graphing function.



4.8 Analysis Result Window– Table History Tab;

The Table History tab shows the current and past table data.

The screenshot displays the 'Table History' tab in the MTSA-PRO software. The top menu bar includes 'Services', 'PID', 'Table', 'Service View', 'Bitrate', 'TR101290', and 'Table History'. The main window is divided into three sections:

- Table List (Left):** A list of tables with their full names. The 'PMT' (Program Map Table) is selected and highlighted in blue. Other tables include PAT, MGT, TVCT, EIT, ETT, and STT.
- Parameter View (Right):** A detailed view of the selected PMT table. It shows a tree structure of parameters with their hex values, values, bits, and descriptions. The 'Current' section is highlighted in blue.
- Data View (Bottom):** A table showing the hex and ASCII data for the selected table. The data is displayed in a grid with columns for Address, Hex, and ASCII. The current data is highlighted in blue.

- When a specific information table has been clicked, the history is displayed in decoded and byte formats.
- Current table data is displayed in blue while the history is gray.

This screenshot shows the 'Table History' tab with the 'AIT' (Application Information Table) selected. The interface is similar to the previous one, but the 'AIT' is highlighted in blue. The 'Parameter View' on the right shows the details for the AIT, and the 'Data View' at the bottom shows the hex and ASCII data for the AIT. The current data is highlighted in blue, while the history is in gray.

Selecting a parameter in the decoded section results in highlighted byte data.

The screenshot displays the MTSA-PRO software interface. The top menu bar includes 'Services', 'PID', 'Table', 'Service View', 'Bitrate', 'TR101290', and 'Table History'. The 'Table' tab is active, showing a list of tables on the left and a detailed view of the selected table on the right.

Table List:

Table	Full Name
PAT	Program Association Table
PMT	Program Map Table
MGT	Master Guide Table
TVCT	Terrestrial Virtual Channel Table
EIT	Event Information Table
ETT	Extended Text Table
STT	System Time Table

Table Details (PMT - Transport Stream Program Map ...):

Parameter	Hex	Value	Bits	Description
Section Header	0x02	2	64	PMT Information
Table ID	0x02	2	8	
Section Syntax Indicator	0x01	1	1	
'0'	0x00	0	1	
Reserved	0x03	3	2	
Section Length	0x00A2	162	12	
Program Number	0x0001	1	16	
Reserved	0x03	3	2	
Version Number	0x04	4	5	
Current Next Indicator	0x01	1	1	Current
Section Number	0x00	0	8	
Last Section Number	0x00	0	8	
Reserved	0x07	7	3	
PCR PID	0x0031	49	13	
Reserved	0x0F	15	4	
Program Info Descriptor Length	0x001D	29	12	
Registration Descriptor	0x05	5	48	
Smoothing Buffer Descriptor	0x10	16	64	
Component Name Descriptor	0xA3	163	96	
Redistribution Control Descriptor	0xAA	170	24	
ES Info	0x02	2	224	MPEG-2 Video
ES Info	0x81	129	368	AC-3 Audio
ES Info	0x81	129	368	AC-3 Audio

Table History:

- [PID:0x0030] Program : 0x0001
 - [Current] Version : 04
 - Section : 000 (1/1)
- [PID:0x0040] Program : 0x0002
 - [Current] Version : 04
 - Section : 000 (1/1)

Decoded Section Data (Address 00000 to 000A0):

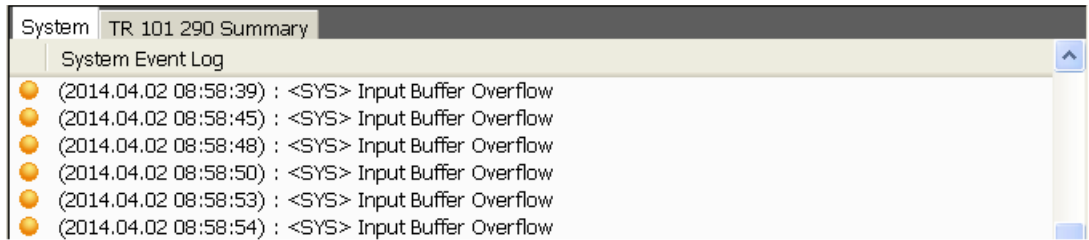
Addr...	Hex	ASCII
00000	02 B0 A2 00 01 C9 00 00 E0 31 F0 1D 05 04 47 411.... GA
00010	39 34 10 06 C0 BD 5B C0 08 00 A3 0A 01 65 6E 67	94....[..... eng
00020	01 00 00 02 48 44 AA 01 FF 02 E0 31 F0 17 02 03HD....1....
00030	22 44 5F 06 01 02 86 0D E2 65 6E 67 7E 3F FF 65	"D_.....eng.?. e
00040	6E 67 C1 7F FF 81 E0 34 F0 29 05 04 41 43 2D 33	ng.....4.)... AC-3
00050	A3 0F 01 65 6E 67 01 00 00 07 61 75 64 69 6F 2D	...eng....audi o-
00060	30 81 0A 08 38 0F FF 0F 01 BF 65 6E 67 0A 04 65	0...8....eng.. e
00070	6E 67 00 81 E0 35 F0 29 05 04 41 43 2D 33 A3 0F	ng...5.)... AC-3..
00080	01 65 6E 67 01 00 00 07 61 75 64 69 6F 2D 31 81	..eng....audi o-1.
00090	0A 08 20 03 FF 2F 01 BF 73 70 61 0A 04 73 70 61	... /... spa... spa
000A0	00 03 14 50 01	... P.

Decoded Section Data (Address 00003 to 00004):

Addr...	Hex	Binary	ASCII
00003	00	0000 0000	.
00004	01	0000 0001	.

4.9 System Message and TR 101 290 Summary Window

The System message and TR 101 290 summary window is divided into System and TR 101 290 Summary tabs.



<'System' Tab >

System shows color-coded operational messages. Operational and stop messages (Green) information table refresh messages (Green), and internal operation warning messages (Orange).

Selecting a parameter in the decoded section results in highlighted byte data.

















	Description	Reason
<Warning> PCR prediction failed	The system cannot carry out PCR data related analysis on input data	Input data
<Warning> [PID] "Name" Update failed	Abnormal data detected during the 'update' process after the table data collection	Input data
<Warning> [PID] "Name" PACKET COLLECTING FAILED	Information table packet collection failure	Input data
<Warning> Clean Unkown PIDs	Deleting any unknown PIDs from the memory when there is too many types of PID	Input data
<Warning> Media Player Packet Loss Occur	Packet Loss occurred during its data transfer to the Media Player while Media Player is in its operation at 'Service View'	PC calculation overflow
<SYS> Input Buffer Overflow	Data not processed. Omitted.	PC calculation overflow

<'TR 101 290 Summary' Tab> TR 101 290 error detection results are presented in a summarized format. For further information see. ' analysis window – TR101290'>

TR101290 Priority	# E...	Last Error Time/Pos	Event Detail
Priority 1			
1.1 TS Sync Loss	0		
1.2 Sync Byte Error	0		
1.3 PAT Error	1	2014.05.06 - 13:38:52	PAT Repetition Error [1045 ms]
1.4 Continuity Count Error	124	2014.05.06 - 13:38:57	TS Continuity Counter Error [PID:0x1D16 (15)->(1)]
1.5 PMT Error	2	2014.05.06 - 13:38:53	PMT Repetition Error [Program:0x0001, 1519 ms]
1.6 PID Error			
Priority 2			
2.1 Transport Error	4616	2014.05.06 - 13:38:52	TS Error Indicator Error [PID:0x0031]
2.2 CRC Error	0		
2.3 PCR Repetition Error	7	2014.05.06 - 13:38:52	PCR Repetition Error [Program:0x0001, PCR PID:0x0031, 67 ms]
2.4 PCR Accuracy Error	6	2014.05.06 - 13:38:52	PCR Accuracy Error [Program:0x0001, PCR PID:0x0031, -1455110579 ns]
2.5 PTS Error	5	2014.05.06 - 13:38:52	PTS Repetition Error [Program:0x0001, PID:0x0034, 1280 ms]
2.6 CAT Error			
Priority 3			
3.1 NIT Error			
3.2 SI Repetition Error			
3.3 Buffer Error			
3.4 Unreferenced PID Error	6	2014.05.06 - 13:38:51	Unreferenced PID Error [PID: 0x0825]
3.5 SDT Error			
3.6 EIT Error			
3.7 RST Error			
3.8 TDT Error			
3.9 Empty Buffer Error			
3.10 Data Delay Error			

4.10 Operation Status Window

Operation status window shows the summary of overall operation information. Various operating status is shown below.
Various operating status is shown below.

	Stop	ATSC	FILE Input(1x): \\1127_H13M45_CH2-1_The Bold and the Beautiful.trp	00:00 / 00:42	19,392 Kbps		TR		LOG		REC
	Stop	ATSC	IP Input: udp:\\127.0.0.1:5000	00:00:00:00	0 Kbps		TR		LOG		REC
	Stop	ATSC	TS Input: ASI	00:00:00:00	0 Kbps		TR		LOG		REC
	Play	ATSC	RF Input: 8VSB KOR-T 33 Ch (587 MHz)	00:00:07:59	Locked / MER 32dB / 5dBmV		TR		LOG		REC

Summarized information will be shown in following sequence.

- ① Operation status (Play, Stop, Pause , -current operating status)
- ② Analysis mode (MPEG-2, ATSC, DVB and ISDB)
- ③ Input configuration (input port configuration information)
- ④ Analysis processing time and input status (File/TS/IP input status shows its Bit-rate, whereas RF input shows quality of RF status - Lock, MER (modulation error ratio), RSSI (received signal strength indicator).
- ⑤ TR 101 290 error detection status (Gray – operation disabled, Green- normal , Red –error)
- ⑥ LOG record status (Grey –recording disabled , Green – recording)
- ⑦ TS Recording Status (Grey - recording disabled, Green – recording) (file size and recording time is shown during recording status)

NOTES:

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Seller will at its sole option, either repair or replace (with a new or factory reconditioned product, as Seller may determine) any product manufactured or sold (or in the case of software, licensed) by Seller which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing: (i) for a period of three (3) years from the date of original purchase for all stock hardware products (other than those specifically referenced herein below having a shorter warranty period); (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort™, IPTV products, test equipment and fiber optics receivers, transmitters, couplers and integrated receiver/distribution amplifiers; (iii) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed from Seller) with respect to all software products licensed from Seller (other than Core Product Software) that is (a) developed for a specific function or application, (b) complimentary to and does not function without the Core Product Software, and (c) listed with a specific model number and stock number in Seller's Price List ("**Non-Core Software**"); (iv) for a period of ninety (90) days from the date of original purchase, with respect to non-serialized products and accessories, such as parts, sub-assemblies, splitters and all other products sold by Seller (other than Core Product Software and Refurbished/Closeout Products) not otherwise referred to in clauses (i) through (iii) above. The warranty period for computer programs in machine-readable form included in a hardware product, which are essential for the functionality thereof as specifically stated in the published product specifications ("**Core Product Software**") will be coincident with the warranty period of the applicable hardware product within which such Core Product Software is installed.

Software patches, bug fixes, updates or workarounds do not extend the original warranty period of any Core Product Software or Non-Core Software.

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(ii) Seller does not warrant that the use of any software will be uninterrupted, error-free, free of security vulnerabilities or that the software will meet the customer's particular requirements; and the customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (a) suitably modified software, or part thereof, or (b) comparable replacement software or part thereof;

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This warranty does not cover failure of performance or damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) exposure to unusual physical or electrical stress, abuse or accident or forces or exposure beyond normal use within specified operational or environmental parameters set forth in applicable product specifications, (vi) lack of reasonable care or (vii) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

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