

IP Multiview System



MultiScreen-instrumental monitoring system / multiviewer for UNLIMITED number of TV-and Radio-channels

Stream MultiScreen system is intended for simultaneous visual and instrumental monitoring of multiple video and audio sources in real-time using one or several LCD-panels in poly-screen mode.

Having been based on successful combination of versatile features, which include multi-channel and multi-format abilities and high-level reliability, MultiScreen system has been implemented in the projects of largest Satellite and Cable Head-End operators, TV Channels and OTT operators.

The screenshot displays the Stream MultiScreen v. 5 interface, which is divided into several functional sections:

- Advanced Screen Layout Generator:** A grid of 16 video feeds from various channels including BigMagic, SBTN, RTVI, GEO, Filipino, Abu Dhabi, RTR Planeta, Israeli, ProSieben, NTV Canada, Russia Today, Nova, ZeeCinema, MBC, Asitak, and Melody Arabia.
- One Stream - Multiple Windows:** A section showing a single video stream being displayed in multiple overlapping windows.
- Video Aspect Ratio:** A section showing a video feed with a manual set up for aspect ratio and an error detection section showing a video aspect ratio of 01m:13s.
- Dynamic Text Fields:** A section showing a clock and date display for New York, London, and Tokyo, along with a DVB Teletext display.
- Digital Audio Peak Level Meter:** A section showing a digital audio peak level meter conforming to IEC 60268-18, with a scale from -50 to 0 dB.
- Audio Formats:** A section showing supported audio formats: MPEG-1/2/4 Audio, Dolby Digital AC-3, and SMPTE 302-M.
- Multi Channel Audio:** A section showing a multi-channel audio display with a scale from -50 to 0 dB.

Stream MultiScreen, v. 5

<http://www.stream-labs.com>

Supported inputs:

Stream MultiScreen server represents an effective media platform, which provides simultaneous visual and instrumental control of unlimited number of TV- and Radio- channels. The number of physical inputs per 1 server depends on the installed input card.

- Composite (NTSC, PAL, SECAM);
- Analog (NTSC, PAL, SECAM);
- SD-SDI (SMPTE-259M, 10 bit, 270 Mbit/s);
- HD-SDI (SMPTE-292M, 10 bit, 1,5 Gbit/s);
- DVB-ASI (ETSI EN 50083-9). Bitrate range 0..214 Mbit/s;
- AES/EBU (24 bit/ 192 kHz) channels;
- DVB-T/T2 (ETSI EN 300 744, 302 755);
- DVB-S/S2 (ETSI EN 300 421, EN302-307, EN301-210);
- DVB-C/C2 (ETSI EN 300 429 Annex A/B/C);
- IP/Ethernet (ETSI TS 102 034).

Video input formats:

- MPEG-1 (ISO/IEC 11172-1);
- MPEG-2 (ISO/IEC 13818-1);
- MPEG-4.2 (ISO/IEC 14496-2);
- MPEG-4.10 (H.264, ISO/IEC 14496-10).
- HEVC (ITU-T H.265 High efficiency video coding)

Audio input formats:

- MPEG-2 Layer II (ISO 11172-3);
- Dolby Digital (E-AC3, AC-3, ATSC A.52b);
- AAC/ADTS/LATM/ADIF (ISO/IEC 13818-7, ISO 14496-3);
- AES SMPTE 302M

Data containers:

- MPEG-2 TS (ISO/IEC 13818-1), MPTS or SPTS;
- DVB T2-MI Streams (ETSI TR 101 290-1, A14-1). **Option** DVB T2MI splitter;

Supported Mobile and Internet streaming (OTT) protocols:

- FLASH RTMP streams (Real Time Messaging Protocol). The support of H.264 video and AAC and MP3 audio streams;
- HLS (HTTP Live Streaming Monitoring); supports encrypted streams
- MMS&MMSH (Microsoft Media Server Protocol & MMS over HTTP);
- RTSP (RFC 1889, 2326, 3550).

Metadata:

- Teletext and Closed Captions (ETSI EN 300 472 , ETS 300 706)
- DVB Subtitles (ETSI EN 300 743)
- EPG (ETSI EN 300 468)
- Digital Program Insertion Cueing Message logging (SCTE-35 over MPEG2-TS)

Supported external events' notification:

- SNMP Trap (RFC 3411-3418, STD0062);
- SNMP Get (RFC 1155, RFC 1212, RFC 1213, RFC 1157, RFC 3411).

Supported Outputs:

- Video: up to 6 VGA, DVI-D, HDMI v.1.3, v1.4(Video+Audio), DisplayPort.
- Audio: 3,5" mini jack, stereo, unbalanced and balanced, S/PDIF, HDMI, Display Port.
- TSolP. Encoding Mosaic to IP (Optional): MPEG-2 transport stream, H264/AVC, HD up to 1080.
- TSolP. Encoding Video/Audio from input interfaces(SDI\Composite) to MPEG-2 transport stream, H264/AVC, HD up to 1080.

All measurement errors and clearing are signaled via multiple communication routes:

- On-screen Visualization Alerts
- Audio Alerts
- Visual Alerts in MultiMonitor(State Panel)
- SNMP traps
- Email sending

TSL UMD

Integration of visualization with external devices in accordance with TSL UMD v.5.0 Protocol is implemented. Visual object for UMD, which includes 2 indicators and text box, can be added to visualization mosaics. Control of UMD is carried out by external devices (like TSL TallyMan controller) in accordance with TSL UMD v.5.0 Protocol.

List of Alarms

Reception and displaying of video/audio signals, facilitating instrumental intelligent analysis; and control of input signals for a number of important parameters according to ETSI TR 101-290 (ETR 290) level 1 and 2:

No license
Low throughput
TR-290 TS_sync_loss
TR-290 transport_error
TR-290 PAT sections loss
Service lost
TR-290 PMT sections error
TR-290 CAT sections error
TR-290 PCR repetition error
TR-290 continuity counter error
PID scrambled
PES decoder error
Black video
Video aspect ratio
Audio signal level: overload
Transport Stream Bitrate
Teletext page loss
TR-290 EIT Error
TR-290 EIT PF Error

HLS Transport error
Sync loss
Signal loss
TR-290 sync_byte_error
TR-290 PAT sections error
TR-290 PMT sections loss
TR-290 CAT sections loss
TR-290 PCR discontinuity indicator error
PID lost
RTP sequence error
TR-290 PTS error
Decoder runtime error
Frozen video
R-128 Loudness Level
Audio signal level: silence
Service Bitrate
Subtitles Loss
TR-290 EIT Actual Sections Loss
TR-290 EIT Other Error

MultiMonitoring Settings
Monitoring 1860x980

Alarms list:

<input checked="" type="checkbox"/> No license	<input checked="" type="checkbox"/> HLS Transport error
<input checked="" type="checkbox"/> Low throughput	<input checked="" type="checkbox"/> Sync loss
<input checked="" type="checkbox"/> TR-290 TS_sync_loss	<input checked="" type="checkbox"/> Signal loss
<input checked="" type="checkbox"/> TR-290 transport_error	<input checked="" type="checkbox"/> TR-290 sync_byte_error
<input checked="" type="checkbox"/> TR-290 PAT sections loss	<input checked="" type="checkbox"/> TR-290 PMT sections error
<input checked="" type="checkbox"/> Service lost	<input checked="" type="checkbox"/> TR-290 PMT sections loss
<input checked="" type="checkbox"/> TR-290 PMT sections error	<input checked="" type="checkbox"/> TR-290 CAT sections loss
<input checked="" type="checkbox"/> TR-290 CAT sections error	<input checked="" type="checkbox"/> TR-290 PCR discontinuity indicator error
<input checked="" type="checkbox"/> TR-290 PCR repetition error	<input checked="" type="checkbox"/> PID lost
<input checked="" type="checkbox"/> TR-290 continuity counter error	<input checked="" type="checkbox"/> RTP sequence error
<input checked="" type="checkbox"/> PID Scrambled	<input checked="" type="checkbox"/> TR-290 PTS error
<input checked="" type="checkbox"/> PES decoder error	<input checked="" type="checkbox"/> Decoder runtime error
<input checked="" type="checkbox"/> Black video	<input checked="" type="checkbox"/> Frozen video
<input checked="" type="checkbox"/> Video aspect ratio	<input checked="" type="checkbox"/> R-128 Loudness Level
<input checked="" type="checkbox"/> Audio signal level: overload	<input checked="" type="checkbox"/> Audio signal level: silence
<input checked="" type="checkbox"/> Transport stream bitrate	<input checked="" type="checkbox"/> Service bitrate
<input checked="" type="checkbox"/> Teletext page loss	<input checked="" type="checkbox"/> Subtitles Loss
<input checked="" type="checkbox"/> TR-290 EIT Error	<input checked="" type="checkbox"/> TR-290 EIT Actual Sections Loss
<input checked="" type="checkbox"/> TR-290 EIT PF Error	<input checked="" type="checkbox"/> TR-290 EIT Other Error

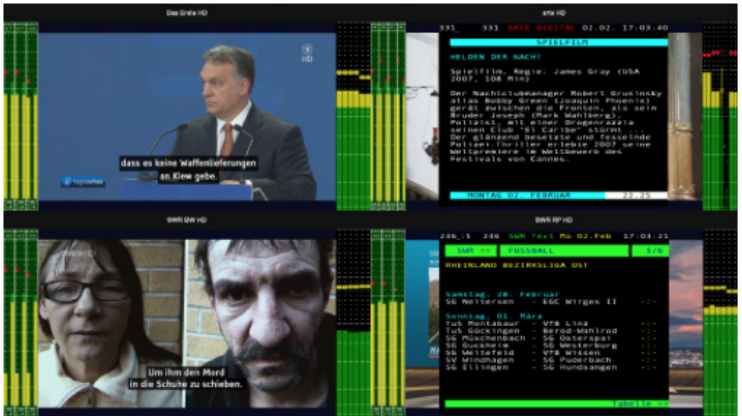
OK

Cancel

Example of Mosaic



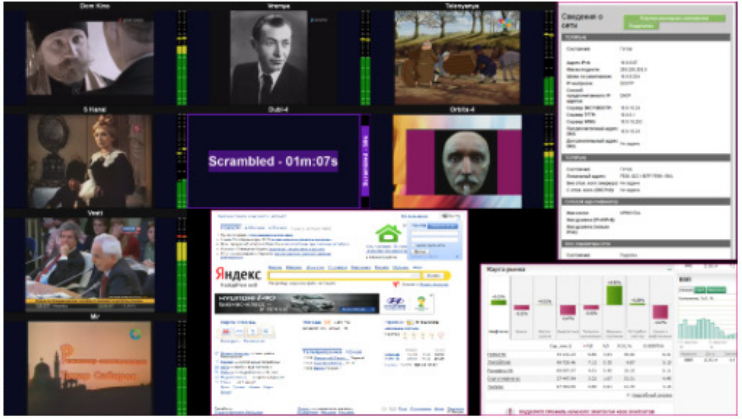
DVB Subtitles, TeleText, Loudness, Multichannel Audio



Displaying of EPG: EIT Present and EIT Following



Displaying of the content of web pages



Displaying of information about TS on a top of Video:

Service #10303 / 8272kbps

SWR » PMT: 5120; PCR: 5121

SDT SWR BW HD / TV (AC HD)

Stream 1370 / 12kbps

Stream 2171 / 91kbps

Video 5121, AVC / 6940kbps

1280x720(0:0): 50fps

Audio 5122, MPEG-1 / 206kbps

Audio 5120, MPEG-1 / 206kbps

Stream 5124, Teletext / 305kbps

Stream 5125, DVB Subtitling / 26kbps

Audio 5126, AC3 / 477kbps

48.0kHz, 2 channels

Service number and Service bitrate
 PID Program Map Table (PMT)
 PID Program Clock Reference (PCR)
 PID and audio stream codec of the program
 PID and video stream codec of the program
 Resolution of video stream and FPS
 Aspect Ratio
 Bitrate of Video stream
 Bitrate of Audio stream
 Teletext PID and bitrate
 DVB Subtitles PID and bitrate

History of Alarms displayed on TV screen

SBTN

TR-290 PAT sections loss

Service lost

TR-290 PMT sections loss

PID lost

RTVI

TR-290 PAT sections loss

Service lost

GEO

TR-290 PAT sections loss

Service lost

TR-290 PMT sections loss

Active Alarm displayed with timer + history inside

Frozen video - 02m:21s

TR-290 PAT sections loss

Service lost

TR-290 PMT sections loss

PID lost

Frozen video

On-screen visualization of Alarms

Black frame - 18m:37s

No stream license - 18m:51s

Frozen video - 18m:36s

TR-290 Continuity counter - 1273

TR-290 Continuity counter - 1321

TR-290 Continuity counter - 1175

TR-290 Continuity counter - 704

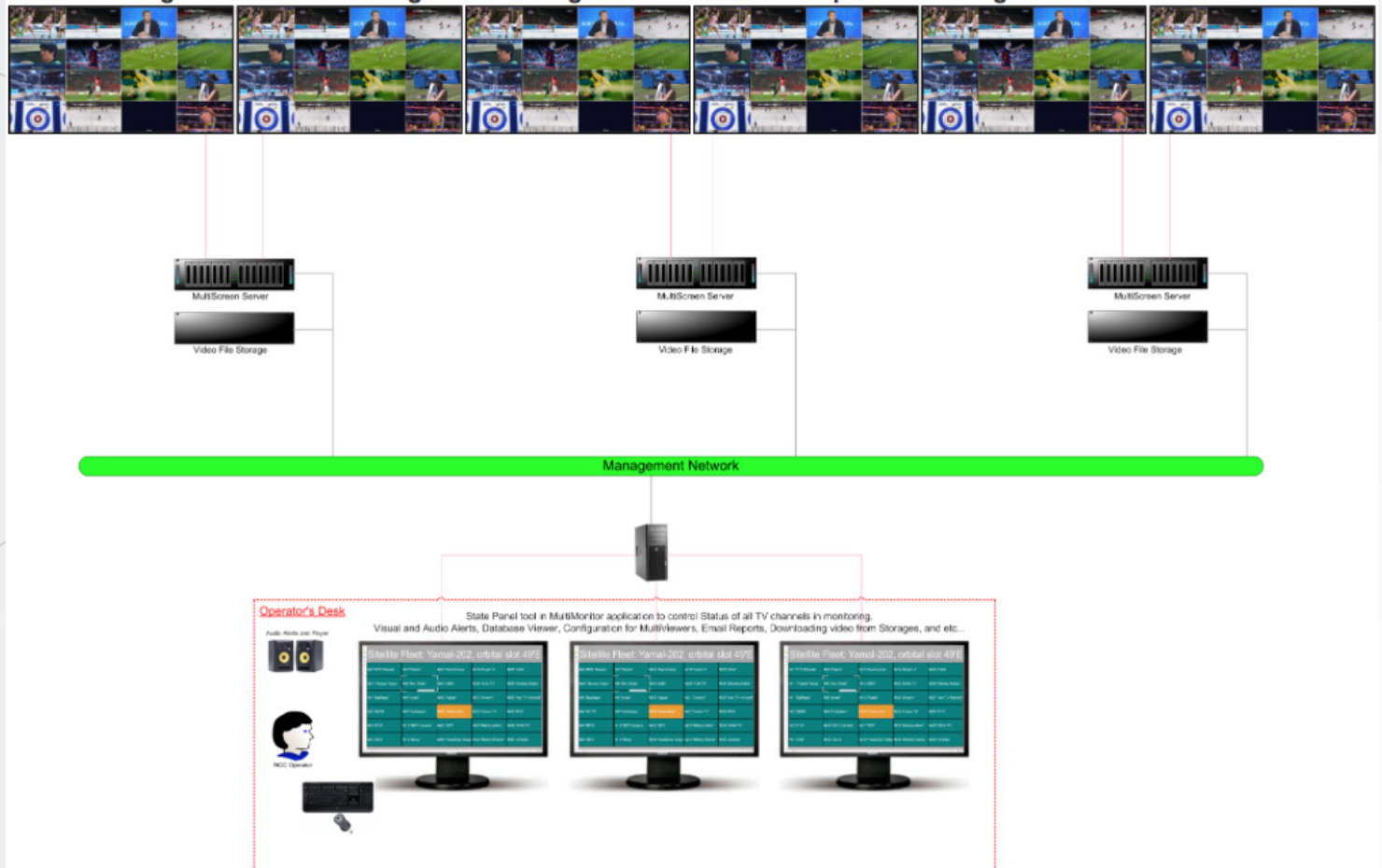
TR-290 Continuity counter - 1706

TR-290 Continuity counter - 1778

TR-290 Continuity counter - 1777

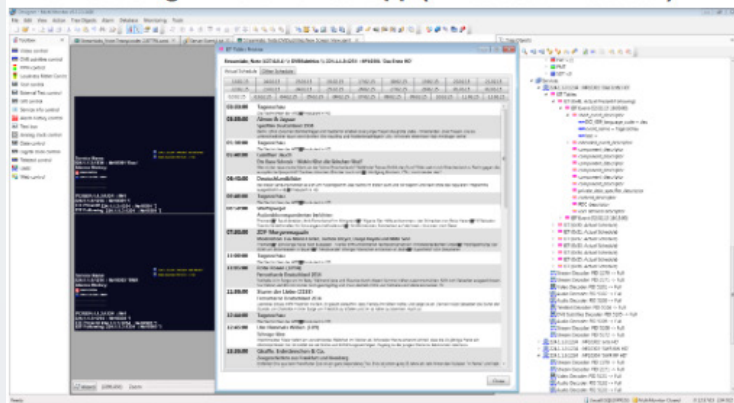
TR-290 PCR Discontinuity - 22

This basic diagram shows monitoring and recording of TV channels in compliance with regulations.

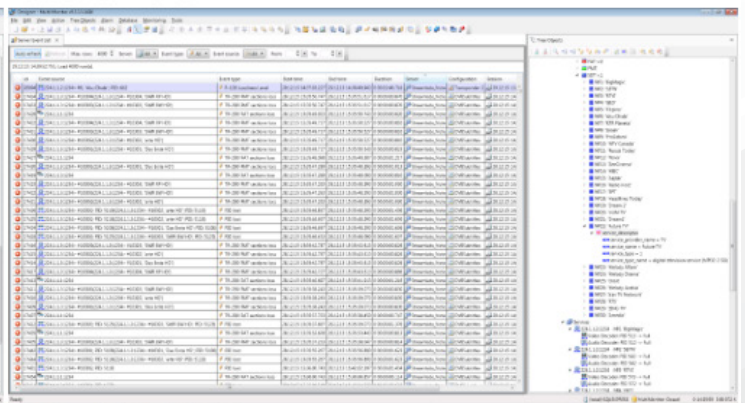


Client application MultiMonitor allows managing of all servers in the network, creating of Screen Views for MultiViewers, loading events from database for preview, watching of channels' statuses, redirecting channels with problems to Penalty Server, downloading video with errors from storage, providing visual and audio alerts to operator, emailing, etc.

EPG Decoding in MultiMonitor app.(EIT tables + Toolbox)



Database Viewer



UPLINK

№7 'RTR Planeta'	№16 'Radio Herz'
№11 'Russia Today'	№17 'SPT'
№1 'BigMagic'	№18 'Headlines Today'
№2 'SBTN'	№19 'Dream 2'
№3 'RTVi'	№20 'HUM TV'
№4 'GEO'	№21 'Dream1'
№5 'Filipino'	№22 'Future TV'
№6 'Abu Dhabi'	№23 'Melody Afiam'
№8 'Israeli'	№24 'Melody Drama'
№9 'ProSieben'	№25 'Orbit'
№10 'NTV Canada'	№26 'Melody Arabia'
№12 'Nova'	№27 'Iran TV Network'
№13 'ZeeCinema'	№28 'RTS'
№14 'MBC'	№29 'ZING TV'
№15 'Aajtak'	№30 'Amedia'

DOWNLINK

№7 'RTR Planeta'	№16 'Radio Herz'
№11 'Russia Today'	№17 'SPT'
№1 'BigMagic'	№18 'Headlines Today'
№2 'SBTN'	№19 'Dream 2'
№3 'RTVi'	№20 'HUM TV'
№4 'GEO'	№21 'Dream1'
№5 'Filipino'	№22 'Future TV'
№6 'Abu Dhabi'	№23 'Melody Afiam'
№8 'Israeli'	№24 'Melody Drama'
№9 'ProSieben'	№25 'Orbit'
№10 'NTV Canada'	№26 'Melody Arabia'
№12 'Nova'	№27 'Iran TV Network'
№13 'ZeeCinema'	№28 'RTS'
№14 'MBC'	№29 'ZING TV'
№15 'Aajtak'	№30 'Amedia'

Satellite Fleet: Yamal-202, orbital slot 49'E

№7 'RTR Planeta'	№5 'Filipino'	№13 'ZeeCinema'	№19 'Dream 2'	№25 'Orbit'
№11 'Russia Today'	№6 'Abu Dhabi'	№14 'MBC'	№20 'HUM TV'	№26 'Melody Arabia'
№1 'BigMagic'	№8 'Israeli'	№15 'Aajtak'	№21 'Dream1'	№27 'Iran TV Network'
№2 'SBTN'	№9 'ProSieben'	№16 'Radio Herz'	№22 'Future TV'	№28 'RTS'
№3 'RTVi'	№10 'NTV Canada'	№17 'SPT'	№23 'Melody Afiam'	№29 'ZING TV'
№4 'GEO'	№12 'Nova'	№18 'Headlines Today'	№24 'Melody Drama'	№30 'Amedia'

Zoom: 100% | AutoScale

Transponder 1	Transponder 2	Transponder 3	Transponder 4	Downlink	H.264 Processing	H.265 Transcoding	Uplink
№1 'RBT'	№11 'KHL HD'	№11 'Russia Today'	№21 'Dream1'	№7 'RTR Planeta'	№7 'RTR Planeta'	№7 'RTR Planeta'	№7 'RTR Planeta'
				№11 'Russia Today'	№11 'Russia Today'	№11 'Russia Today'	№11 'Russia Today'
				№1 'BelMagi'	№1 'BelMagi'	№1 'BelMagi'	№1 'BelMagi'
№2 'HRT'	№12 'ZEE TV SD'	№12 'Nova'	№22 'Future TV'	№2 'SBTN'	№2 'SBTN'	№2 'SBTN'	№2 'SBTN'
				№3 'RTVI'	№3 'RTVI'	№3 'RTVI'	№3 'RTVI'
				№4 'GEO'	№4 'GEO'	№4 'GEO'	№4 'GEO'
				№5 'Figma'	№5 'Figma'	№5 'Figma'	№5 'Figma'
№3 'RTL'	№13 'Momo Kids'	№13 'ZeeCinema'	№23 'Melody Afiam'	№6 'Abu Dhabi'	№6 'Abu Dhabi'	№6 'Abu Dhabi'	№6 'Abu Dhabi'
				№8 'Target'	№8 'Target'	№8 'Target'	№8 'Target'
				№9 'ProSieben'	№9 'ProSieben'	№9 'ProSieben'	№9 'ProSieben'
№4 'CTC'	№14 '2M'	№14 'MBC'	№24 'Melody Drama'	№10 'NTV Canada'	№10 'NTV Canada'	№10 'NTV Canada'	№10 'NTV Canada'
				№12 'Nova'	№12 'Nova'	№12 'Nova'	№12 'Nova'
				№13 'ZeeCinema'	№13 'ZeeCinema'	№13 'ZeeCinema'	№13 'ZeeCinema'
				№14 'MBC'	№14 'MBC'	№14 'MBC'	№14 'MBC'
№5 'TVCI'	№15 'Russian Movie'	№15 'Aajtak'	№25 'Orbit'	№15 'Aajtak'	№15 'Aajtak'	№15 'Aajtak'	№15 'Aajtak'
				№16 'Radio Herz'	№16 'Radio Herz'	№16 'Radio Herz'	№16 'Radio Herz'
№6 'GKP'	№16 'SIC'	№16 'Radio Herz'	№26 'Melody Arabia'	№17 'SPT'	№17 'SPT'	№17 'SPT'	№17 'SPT'
				№18 'Headlines Today'	№18 'Headlines Today'	№18 'Headlines Today'	№18 'Headlines Today'
				№19 'Dream 2'	№19 'Dream 2'	№19 'Dream 2'	№19 'Dream 2'
				№20 'HUM TV'	№20 'HUM TV'	№20 'HUM TV'	№20 'HUM TV'
				№21 'Dream1'	№21 'Dream1'	№21 'Dream1'	№21 'Dream1'
				№22 'Future TV'	№22 'Future TV'	№22 'Future TV'	№22 'Future TV'
				№23 'Melody Afiam'	№23 'Melody Afiam'	№23 'Melody Afiam'	№23 'Melody Afiam'
				№24 'Melody Drama'	№24 'Melody Drama'	№24 'Melody Drama'	№24 'Melody Drama'
				№25 'Orbit'	№25 'Orbit'	№25 'Orbit'	№25 'Orbit'
№8 'Zee Tamil'	№18 'ZEE Punjabi'	№18 'Headlines Today'	№28 'RTS'	№26 'Melody Arabia'	№26 'Melody Arabia'	№26 'Melody Arabia'	№26 'Melody Arabia'
				№27 'Iran TV Network'	№27 'Iran TV Network'	№27 'Iran TV Network'	№27 'Iran TV Network'
№9 'Zee Salam'	№19 'TVI'	№19 'Dream 2'	№29 'ZING TV'	№28 'RTS'	№28 'RTS'	№28 'RTS'	№28 'RTS'
				№29 'ZING TV'	№29 'ZING TV'	№29 'ZING TV'	№29 'ZING TV'
				№30 'Armedia'	№30 'Armedia'	№30 'Armedia'	№30 'Armedia'
№10 'KHL SD'	№21 'PTC Punjabi'	№20 'HUM TV'	№30 'Armedia'				

Stream MultiScreen can work jointly with system MultiRec, crafted for compliance recording. Database for alerts, generated by MultiScreen has been integrated with archive of recordings, produced by MultiRec; and allows downloading of fragments of archive, matching to alerts, straight from MultiScreen application in one click. You may view them later on at your convenience.

[illegible]

The screenshot shows the Windows Task Manager Performance tab. The CPU usage is at 100%. The 'Processes' tab is also visible, showing a list of running processes. The 'System' tab is selected, displaying system information such as RAM usage (16 GB) and disk usage (C: 100%). The 'Performance' tab is highlighted, showing the CPU usage at 100%.

Multi-view Server Hardware Datasheet

Processor

Intel® Core™ i7-5820K 6Cores Processor 3.60GHz 15MB Cache LGA-2011(R3)

Motherboard

Supermicro Workstation Board Intel® C612 Chipset Single Socket LGA-2011(R3)

Realtek ALC1150 Hi-Definision 7.1 Audio Built-In

Graphics Accelertor Unit

Nvidia GeForce GTX 950 with 2GB GDDR-5 (2DVi, 1HDMI, 1Display Port)

Memory

ECC Registered DDR-4 SDRAM 16GB(8GBx2) PC-2133..Intel Certified

Storage

1xSSD 2.5inch SATA- 6Gb/s 256GB

Chassis Unit

3U Rackmount Server Chassis 650watt Single Power Supply

Slided Rackmount Rail Kit Include

Radical Enlighten Co,Ltd.

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