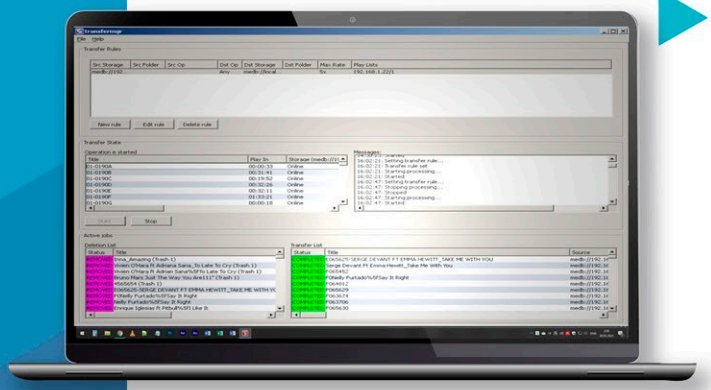
SL NEO 2000 Servers
Multipurpose Playout

- Multichannel Playout with Graphics for Live Production and Broadcasting
- Up to 8x HD or 2x UHD PGM Channels with Multiformat Output Channels
- SDI/HDMI, ASI/IP I/O, Open/Closed Captioning, AV & ANC Data Processing
- IP I/O: SMPTE ST2110, NDI, HLS, RTMP, RTP, UDP, SRT, Zixi, MPEG-DASH, RIST

Main Features



Automated File Ingest

Transfer Manager Lite - Server/Client tool for automatic copying and moving file content between production units. File operations are automated, according to configurable rules.

Transfer Manager used for moving files from Ingest to Playout zone, NLE and to archive. Integration with SL NEO Media Database allows to start the file copying process simultaneously with the start of recording.

The second scenario - priority copying from NLE and archive to Playout Servers arrays with analysis of executable playlists. Files first in the play queue are copied first.

The module supports multithreaded copying with adjustable speed.

Transfer Manager supports copying CLF playlists files for guarantee delivery from traffic to watch folders on Playout Servers.

The full version - **Transfer Manager Pro** is available as an option. It allows transcoding files: changing codec and container, performing up/down/cross conversions and Loudness Level normalization during file copying.

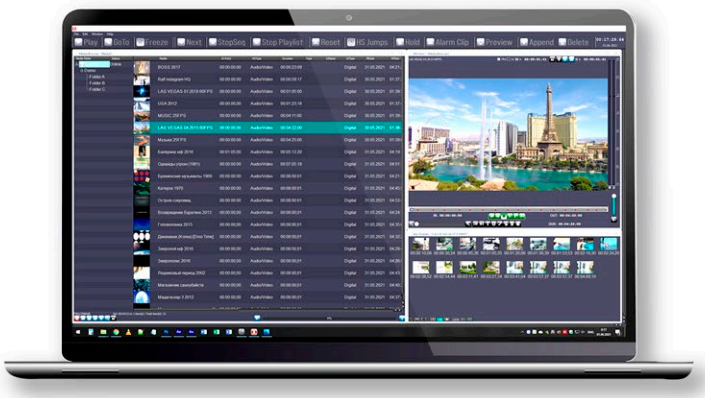
Media Database for working with Media

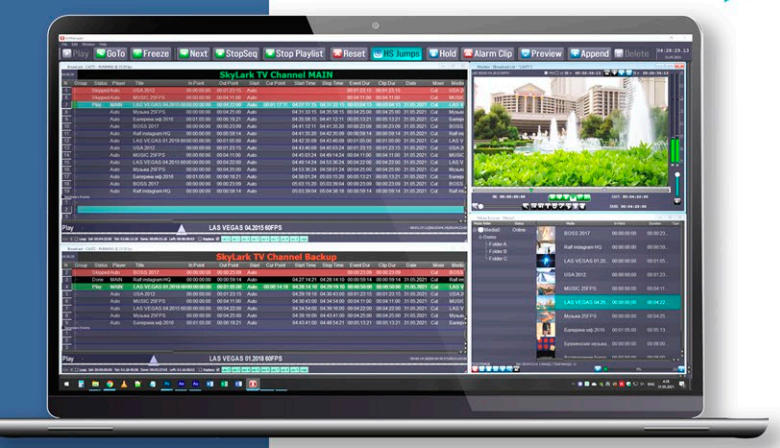
SL NEO Media Database significantly expands the functional scope of the operating system when working with media:

Users does not work with files but with clips, text metadata enables material search by basic attributes: time, place, event, person,

While additional technical profiles, such as proxy, enable collective editing without a significant load on the network.

Each SL NEO 2000 series server comes with an included Media Database module that operates 10 text metadata fields in the initial configuration.





Manual and Scheduled Playback

Air Manager - multifunctional client application containing tools for managing multiple recording and playback channels.

The Air Manager GUI can contain several windows named **Broadcast**.

Each such window is connected to a specific active Program Player module and displays the current schedule loaded into the module and the status of events.

Window “Broadcast“ let you edit the playlist and the events in the list, including emergency jump to any event, hold functions, alarm clip insertion, and much more. Different types of event starts are available: manually, by time, sequential playback or start by external commands.

The SL NEO 2000 server is a convenient and reliable tool for playing short news stories: quick start, instant jump to any clip in the playlist, play files that are still being copied, edit the output point of the clip during playback.

Servers supports multi-channel playback by playlists with synchronous startup.

Redundancy schemes from N+1 to N+N provide for on-line synchronization of backup playlists from the main server, automatic copying of content from the main server to the backup with tracking of changes in file versions.

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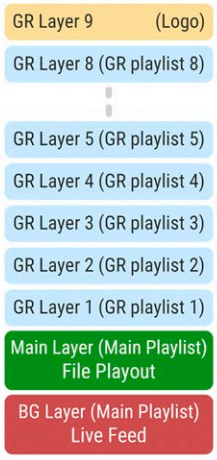


On Air Graphics

8 Graphics Players plus 1 Logo Player for each SL NEO 2000 Server Program Channel.

Playback of the prepared layered compositions is done manually or automatically.

Text data are not tied to the design templates and can be downloaded from external sources (Excel, RSS, HTML, Weather Stations).

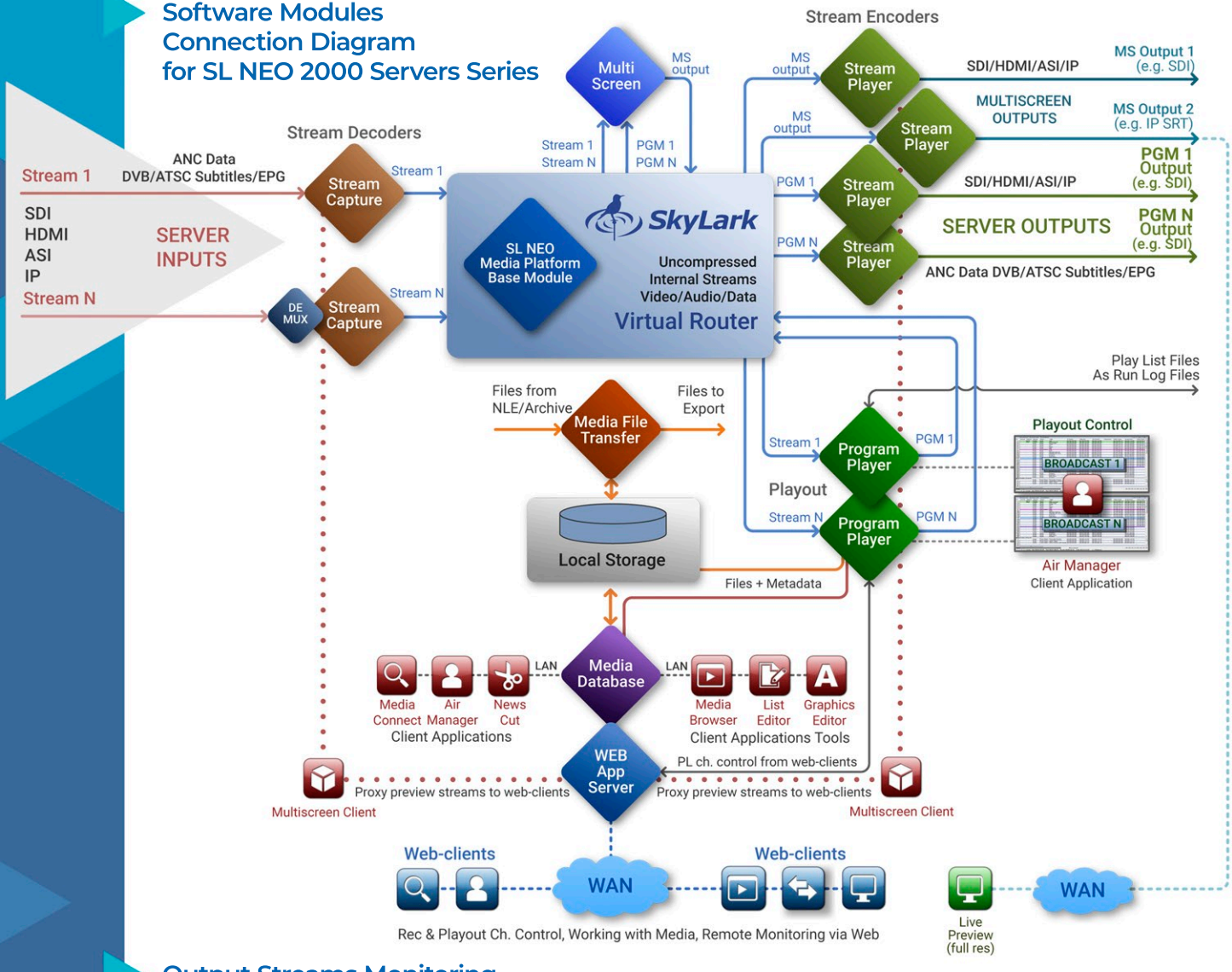
Graphic Composition - the main element of the design of programs of any format: TV news, weather forecasts, etc.

In addition to text and pre-rendered animations, compositions can contain 2D DVE, PIP, video from LIVE sources from server inputs, mixes of audio tracks.

Compositions are created and edited with the built-in network graphics editor (Air Manager and News CUT applications).

Playback of compositions does not require a pre-rendering.

Software Modules Connection Diagram for SL NEO 2000 Servers Series



Output Streams Monitoring

SL NEO platform offers two different technologies to monitor all AV inputs, outputs and internal system streams:

1. **Built-in MultiScreen Client application** allows workstations to perform on-line monitoring of AV signals coming from all active Program Players, Stream Encoders and other Server software modules in Network.

2. Optional **Multiscreen Monitor Output** is needed to view all output signals in multiview mode with an overlay of audio levels. Built-in up/down/fps conversion allows signals with different resolution and frame rates to be displayed together on the same display.

Alarms will alert the operator to abnormal situations such as freeze frame or "black" field, when audio levels are exceeded or undershot.

For the SL NEO 2000 Servers, the Optional Multiscreen Monitor Output and built-in MultiScreen Client application allow you to monitor all signals/streams of the server outputs.

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The Name of the Base Model of the SL NEO Server is made up of the values of the 5 variables located after the name of the product line:

SL NEO S F.C.P H A

S	F	C	P	H	A
First Digit of the SL NEO Series Number	Maximum Video Operating Mode	Number of Capture Ports	Number of PGM CH or Output Ports	Type of Hardware I/O Board (Brand)	Useful capacity of the Array in Tb

SERIES	FORMAT		CAPTURE	PLAYOUT	HARDWARE	ARRAY
S = 2 - 2000 Series Playout Servers	F = 2 - HD 1080i 50/60	FULL GRAPHICS KIT	for F = 2, C = 0...8	for F = 2 or 5, P = 1...8	H = D - Dektec DTA	SDI + Audio Embedded
	F = 3 - 3G 1080p 50/60		for F = 3, C = 0...8	for F = 3 or 6, P = 1...8	H = A - Dektec DTA	DVB/ATSC ASI (SPTS)
	F = 4 - UHD 2160p 50/60		for F = 4, C = 0...2	for F = 4 or 7, P = 1...2	H = M - Matrox DSX LE3/4	SDI + Audio Embedded
	F = 5 - HD 1080i 50/60	LOGO ONLY	For Base Models 2000 Series: C = Number of Capture Ports (no REC CH in 2000 Series Servers) P = No. of PGM CH = No. of Output Ports		H = N - Nvidia NIC	IP: SMPTE ST 2110/2022-7
	F = 6 - 3G 1080p 50/60				H = E - Onboard 1GbE Port	IP: NDI, HLS, RTMP
	F = 7 - UHD 2160p 50/60					SPTS IP: RTP, UDP, SRT, Zixi
					H = B - BlackMagic SDI I/O	SDI + Audio Embedded
					H = H - BlackMagic HDMI	HDMI + Audio Embedded

For cases where layered graphics functions are unnecessary, you can use Models without Graphics Package: only Logo Layer will be active in ALL PGM CH.

In **variable F** these models are marked with numbers 5, 6 and 7 for HD, 3G and UHD formats respectively. **You can activate the full graphics package for each PGM Channel at any time.**

Example:	SL NEO 23.4.6 D8
Max mode:	3G 1080p 50/60
Number of Capture Ports and REC Channels	4
Number of PGM Channels and Output Ports	6
Hardware: Dektec DTA	I/O: SDI + Audio Embedded
Internal Array:	Useful capacity 8 Tb

Technical Specifications for SL NEO 2000 Servers

Hardware configuration, including CPU/HDD models, number and types of I/O Boards depends on the selected SL NEO Server Model and set of Options.

Server Hardware

Supermicro 2...4U chassis, two power supply modules in hot backup.
One or two Intel Xeon Gold CPU, 48/96Gb DDR4 RAM,
SSD for OS, two onboard 1GbE ports.
Built-in hardware RAID-10, 8x or 16x SE SAS 3.5" RE 8 or 16Tb array useful capacity.
OS Windows Server 2022 x64

I/O Ports & PGM Channels

Capture Ports HD/SD: 0...8, Capture Ports UltraHD: 1...2
PGM Channels HD/SD: 1...8, PGM Channels Ultra HD: 1...2
Output Ports HD/SD: 1...8, Output Ports UltraHD: 1...2

Video Formats and Color Spaces

625i/525i, 720p, 1080i/1080p, 2K cinema 2048x1080p, 2160p
25/29,97/50/59.94/60 fps
Color Spacing: BT.601/709/2020, SMPTE ST2084, ARIB STD-B67

I/O Streams: Interfaces, Protocols, Codecs

SDI: SD/HD/3...12G SDI, 4x 3G SDI/Embedded Audio
IP: SMPTE ST 2110, SMPTE ST 2022-7
IP: NDI, HLS, RTMP, UDP, RTP, SRT, Zixi, RIST, MPEG-DASH
DVB/ATSC IP UDP/RTP Unicast/Multicast SPTS/MPTS
DVB/ATSC ASI: SPTS/MPTS
Video Codecs: MPEG2/H.264/HEVC
Audio: 48kHz/16/24 bit PCM, ADPCM, MPEG-1 L-II/III, AAC, AC3

I/O Ancillary/MPEG2 TS Data

OP-42/47 Teletext, Closed Captions
CEA-608/708 Closed Captions
DVB/ATSC Subtitles, EPG
SCTE-104/SCTE-35 markers with metadata
VBI/VANC Data: VITC, AFD, WSS

Protocols, Device Support

XKEYS XK-24/60/80 Support
SNMP (SL NEO Software)

Video Codecs (Files Playout)

SD/HD

DV25, DVCPRO25, DVCPRO50, DVCPROHD100, HDV
IMX 30/40/50
XDCAM EX SP/HQ, XDCAM HD LP/SP/HQ.422
DNxHD 120/145/180/220
AVCHD
XAVC 50/100/200, XAVC Long GOP
AVC-Ultra 50/100/200
AVC-Ultra Long G (12/25/50)
PRORES HQ/SD/LT
MPEG-2 I-Frames/Long GOP
H.264 L I-Frames/Long GOP

Ultra HD

H.264 8/10 bit
XAVC 300/480, XAVC Long GOP
AVC-Ultra 300/480, AVC-Ultra Long G
PRORES SQ/HQ
DNxHR SQ/HQ
HEVC 8/10 bit

Audio Codecs (Files Playout)

RAW 16/24 Bit PCM, ADPCM, MPEG-1 L-II/III, AAC, AC3

File Containers

MXF-OP1A, MXF-D10
Avid MXF (OP-Atom)
Sony XDCAM HD/422 (MXF-OP1A)
Sony XAVC 50/100/200/300/480/LongGOP (MXF-OP1A)
P2 AVC-Ultra 50/100/200/300/480/LongG (MXF-OP1B)
Microsoft AVI, MPEG PS/TS
QuickTime MOV, DV DIFF
MP4, MPG, GXF

Still Graphics (single files and sequences)

JPG, BMP
With Alpha: PNG, TGA, TIFF, PSD

Video Codecs with Alpha

Uncompressed
TGA, QTRLE
Speed HQ, Lagarith
Key from a separate file
JPGA codec for AVI

File Containers for Video with Appha

Microsoft AVI, QuickTime MOV (audio supported)

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Hardware & Software Options

Hardware Options

LTC Input (Including one of supported LTC Readers and Software License: Adrienne AEC-41, Plura PLC, Miranda Little Red, Horita TCI-50)
GPIO (Including one of supported USB GPIO and Software License, up to 8 IO Ports: Ontrak ADU200, ADU2X8)
GPU Board
Increase Internal RAID Array Capacity
2x SSD in RAID-1 for System

Additional Hardware Ports

SD/HD/3/6/12G, 4x3G SDI, HDMI, ASI I/O Ports
NVIDIA ConnectX 10/25/40/50/100/200G Ports for SMPTE ST2110/2022-7
1G Ethernet Ports for UDP/RTP IP with SMPTE 2022-1 FEC
Standard 1/10G Ethernet Ports for IP Streams, Control, File Transfer
RS-232/422/485, i-Link/IEEE1394 Hardware Ports
AES I/O for Matrox DSX Boards

Software Options

Transfer Manager PRO
Profanity Delay
Time Shift
SCTE-104/SCTE-35 Generation (for Single PGM Channel)
EBU R128 Loudness Normalization (for Single Output Port)
CEA-608/708, OP-42/47 Live Closed Captions (generation from Live Data Source or from Files, for Single PGM Channel)
DVB/ATSC Subtitles (generation from Live Data Source or from Files, for Single PGM Channel)
Main - Backup PGM Channel Sync (for Single PGM Channel)
NVENC Assistance (for File Encoding or Output Stream Encoding)
Avid Unity/Interplay Support (for REC Channels)
Web Application Server
TS Mux (up to 16x SPTS in 2x Groups)

Client Applications

Air Manager, Rec Manager, News Cut

Additional I/O Ports & Channels (SD/HD or UHD Software Licenses)

Capture Port (SDI/HDMI, ASI/IP with DeMux and Stream Decoding, all supported Protocols including SDI/NDI Fill+Key)
Output Port (SDI/HDMI, ASI/IP with Stream Encoding, all supported Protocols including SDI/NDI Fill+Key)
MultiScreen Processor (4, 8, 16 or 24 Inputs Software License)
REC Channel (Full Res + Proxy)
PGM Channel with Full Graphics (8 GR Layers + Logo Layer)
PGM Channel with Lite Graphics (1 GR Layers + Logo Layer)
Graphics for PGM Channel (additional GR Layers)

Device Server Software Licenses

VDCP for REC Automation (Slave mode for Single REC Channel)
VDCP for Playout Automation (Slave mode for Single PGM Channel)
VizRT (Master mode for Single PGM Channel)
Chyron CII (Master or Slave mode for Single PGM Channel)
SDI Router for Playout Automation (for Single Device)
SDI Router for REC Automation (for Single Device)
VTR for REC Automation (for Single Device)
TSL5 UMD (Master mode for Single Device)
Ember+ (for Junger Audio Devices. Master mode for Single Device)

Ordering Information

To order the SL NEO 2000 Series Server, send us the following information:

- Base Model Name,
- Capture and Output Ports formats (SD/HD/3G/UHD, FPS), types (SDI/HDMI/ASI/IP), protocols for IP and number,
- PGM Channels formats (SD/HD/3G/UHD, FPS) and number,
- Codecs and Containers for Media Files,
- External Data Sources for Graphics and Closed Captions,
- Information about redundancy scheme,
- Type (internal, external) and useful capacity of RAID-array,
- Required Hardware and Software Options,
- Required Client Licenses.

The Client Applications are pre-installed on the server platform, and one set of Client Software for installation on a workstation is included with each SL NEO Server.

SDI Routers Control Protocols

Grass Valley Triton BDS
Grass Valley Nvision/Native Protocol/Vega/M-2100
Nevion Vikinx v128/Thor
Leitch
Imagine LRC
Kramer
BMD Videohub Ethernet/RS-232
Snell Switcher/Remote Protocol
Evertz Quartz/QMC-2
Sierra XXvse
Utah SC-4/RCP-1
Pro Bel SW-P-02/SW-P-08
Venux VM/SI/3000 ASCII
Ross Video Presmaster/NK-SCP/A
ELPRO SDZHD Series
AJA KUMO
LES
Profitt