



- ▶ Delay live video from 5 minutes to 24 hours
- ▶ Manual or AI-Based Content Detection with Operator Validation
- ▶ NLE-Style Editing with Timeline and Mark In/Out
- ▶ Seamlessly integrates ST 2110, SDI, ASI, NDI, SRT, UDP, and more

Ultimate solution for seamless live delay and on-air content editing

Overview

SL NEO Time Delay provides reliable control over live broadcasts, enabling operators to delay, review, and manage content before it goes to air. The system supports flexible delay configurations from minutes up to 24 hours, ensuring protection against unwanted content and enabling time-shifted workflows.

Designed for multi-channel operations and compliance with local regulations, the platform offers an intuitive NLE-style timeline of the delayed signal. Operators can review content in advance, mark unwanted segments with In/Out points, and apply real-time processing such as blur, blackout, freeze, pixelation or overlays to both video and audio.

AI-assisted content detection allows automatic monitoring of multiple channels based on predefined rules, highlighting suspicious segments for operator validation. Final decisions always remain under full operator control.

The system also supports seamless replacement of advertising or other content blocks with localized inserts. With support for SD to UHD across SDI and IP streams, SL NEO Time Delay fits seamlessly into modern broadcast workflows.

Highlights

Flexible Time Delay & Loop Recording

Configurable delay from minutes up to 24 hours with continuous loop recording and instant access to any point in the buffer.

NLE-Style Timeline Editing

Review delayed content in a timeline interface with frame-accurate Mark In/Out and real-time editing of video and audio.

Content Moderation & AI Assistance

Manual or AI-based detection of prohibited content with operator validation and full editorial control.

Editorial Tools for Live Control

Apply skip, blackout, blur, freeze, overlays, pixelation or audio actions in real time to remove or replace unwanted segments.

Multi-Channel Compliance Workflows

Designed for operations requiring content verification across multiple channels and alignment with local regulations.

Local Insertions & Ad Replacement

Replace live segments with ads, promos, or disclaimers manually or via SCTE-35/104 triggers.

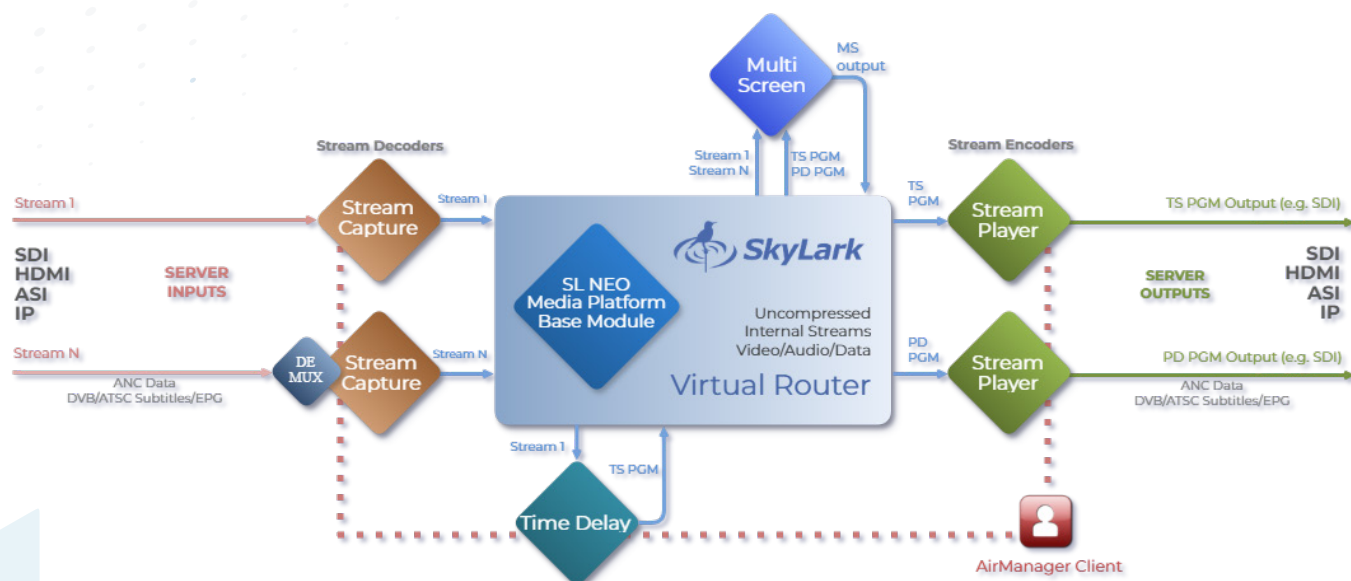
Intuitive Operator Interface

Configure on-screen panels, X-Keys, or GPI controls; mark effects visually in the Timeline View; and track upcoming segments through the Playlist View.

Key Features

- ▶ Configurable delay from 5 minutes to 24 hours
- ▶ Frame-accurate intervention before content reaches air
- ▶ On-the-fly editing: skip, overlays, blackout, blur, freeze, pixelation, mute, beep, audio replacement and captions
- ▶ Manual, automated, or AI-assisted content moderation workflows
- ▶ Emergency actions: instant replacement with file playback, blur, silence, or tone
- ▶ NLE-style timeline for precise control of delayed content
- ▶ Visual marking of editorial actions (Mark In/Out) within the buffer
- ▶ Playlist view for upcoming segments and inserted content
- ▶ Configurable control via HotKeys, X-Keys panels, and GPI triggers
- ▶ Automatic detection of prohibited or suspicious content across multiple channels
- ▶ Operator validation of AI-flagged segments (human-in-the-loop)
- ▶ Use of low-resolution proxy streams for faster AI processing and analysis
- ▶ Scalable multi-channel monitoring based on predefined rules
- ▶ Replace live segments with ads, promos, or disclaimers
- ▶ Manual or SCTE-104/35-triggered insertions
- ▶ DVB-TTML and DVB-SUB bitmap subtitles, including bitmap OCR to SRT (all languages)
- ▶ LOAS/LATM audio support for DVB workflows
- ▶ Enables regionalization and compliance workflows
- ▶ Unified support for SDI, ASI, and IP streams
- ▶ Protocols: ST 2110, NDI, SRT, RIST, UDP, RTP, RTMP, HLS, DASH, Zixi
- ▶ Resolution support up to UHD / 4K
- ▶ Simultaneous handling of multiple signal types
- ▶ Integration with SL NEO Playout, Device Control, and automation systems
- ▶ Control via SCTE-104/35, GPI, and REST API
- ▶ Compatibility with AI-driven and third-party workflows

Ecosystem



The SL NEO Time Delay is fully integrated into the SL NEO media services platform — a modular, software-defined environment where specialized modules operate together in real time across one or more hardware platforms.

Additional modules — including graphics, ad-insertion, and other workflow components — can be integrated to create a fully tailored broadcast solution:

- ▶ **SL NEO TS Multiplexer**
For stream preparation and validation.
- ▶ **SL NEO Device Control**
Automates source switching and responses to signal faults.
- ▶ **SL NEO Playout**
For localization, commercial block insertion, and channel branding.
- ▶ **Control Systems Integration**
Communicates via SCTE-104/35, GPIO, and REST API for AI-driven workflows and third-party automation systems.

Use Cases

- ▶ **Regional Insertion and Compliance**
Use buffer segments for content switching, regional ad or program replacement, graphics overlays, or age gating based on jurisdiction or time zone.
- ▶ **Events Broadcast**
Manage sensitive advertisement embedded in the content such as gambling ads by blurring the overlays.
- ▶ **Turnaround Channel & OTT Preparation**
Validate TS and SDI content, replace or remove ads and inappropriate material, and insert binge markers to generate clean VOD exports..

Specifications

SYSTEM

Chassis	2U - 4U, dual hot-swap power supplies
CPU	1 or 2 × Intel Xeon or AMD Epyc Series
Memory	48 / 96 GB DDR4
System Drive	SSD for OS
Network	2 × onboard 1GbE
Storage	Built-in RAID-10, 4 or 8 × SAS 3.5" RE drives (4 or 8 TB), useful capacity
OS	Windows Server

Video Formats & Color Spaces

Formats	625i/525i, 720p, 1080i/1080p, 2K 2048×1080p, 2160p
Frame Rates	25 / 29.97 / 50 / 59.94 / 60 fps
Color Spaces	BT.601 / BT.709 / BT.2020, HDR: SMPTE ST 2084, ARIB STD-B67

I/O A/V Streams

IP	HLS and DASH (DASH only input) MPEG-TS over UDP MPEG-TS over RTP with FEC NDI, RIST, RTMP, SMPTE ST 2110 Suite SRT, Zixi
ASI	EN50083-9 (coax) 214 Mbps per channel
SDI	12G SDI in accordance to SMPTE ST 2082-10 3 SDI in accordance to ST 424M and ST 425M-AB 1.5G SDI in accordance to ST 292M SD SDI in accordance with ST 259M Analog blackburst reference (tri-level or bi-level)
For- mats	UHD: 2160p50/60M/60 HD: 1080p50/60M/60 1080i50/60M/60 1080p24M/24/25/30/30M 720p50/60M/60 SD: PAL, PAL-16x9, NTSC and NTSC-16x9
Audio	Optional AES/EBU and Dante.

Input Ancillary & MPEG-TS Data

Teletext / CC	OP-42 / OP-47 WST Teletext; CEA-608 / CEA-708 Closed Captions
Subtitles / EPG	DVB-TTML, DVB / ATSC subtitles, EPG; DVB-SUB bitmap OCR & SRT conversion (all languages)
MPEG-TS Audio	LOAS/LATM audio support for DVB workflows
Markers	SCTE-104 / SCTE-35 with metadata
VBI / VANC	VITC, AFD, WSS

DEVICE SUPPORT

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

EDITORIAL EFFECTS

Video	Blackout, blur, freeze, skip, pixelation and video and image overlays
Audio	Beep, mute and audio jingles overlays
CC/Subtitling	Remove captions at timecode

LOOP RECORDING CODECS

Video	SD: DV25, DVCPro XDCAM IMX 30/40/50 HD: MPEG-2 420/422 H.264 420/422 XAVC 50/100 UHD: MPEG-2 420/422 H.264 420/422 XAVC 300
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PLAYOUT CODECS

Video	DVCAM, DVCPPro 25/ 50 / HD 100 HDV 25 MPEG-2, MPEG 2 422 XDCAM IMX-30/40/50, EX 25/35, HD 18/25/35, HD 422 50 H.264 420/422 AVC-Intra 50/100 XAVC-S 420, XAVC-I/L 420/422 DNxHD 120 and 185 DNxHR-HQ, DNxHR-LB, DNxHR-SB ProRes HQ, ProRes, ProRes LT, ProRes Proxy HEVC
Audio Codecs	AAC, AC-3, MPEG-1 L-II/I, MP3, Opus and 16/24-bit PCM, ADPCM
Graphics	Still: BMP JPG PNG PSD Targa TGA TIFF Animated (with Alpha): TGA QTRLE (MOV) Hap Alpha (AVI, MOV) JPGA (AVI) wPNG sequence
Video Containers	MXF-OP1A, MXF-D10 Avid MXF (OP-Atom) Sony XDCAM HD/422 (MXF-OP1A) Sony XAVC 50/100/200/300/480/Long-GOP (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

Hardware & Software Options

Hardware Options	LTC Input (incl. supported LTC reader and software license: Adrienne AEC-41, Plura PLC, Miranda Little Red, Horita TCI-50)
	GPIO (incl. supported USB GPIO and software license, up to 8 I/O ports: Ontrak ADU200, ADU2X8)
	GPU Board
	Increase Internal RAID Array Capacity
	2× SSD in RAID-1 for System
I/O Interfaces & Boards	SDI / ASI — DekTec DTA-2172 / 2174B / 2175 / 2178 / 2179 / 2195
	ASI / IP — DekTec DTA-2160 / 2162 with FEC
	Network — Mellanox ConnectX
	Video I/O — Matrox DSX LE3 / LE4, DataPath Vision RGB
	Capture — Blackmagic DeckLink
	Playout — Blackmagic DeckLink
	Other — Standard Ethernet, IEEE-1394, DirectShow
Additional Hardware Ports	SD / HD / 3 / 6 / 12G SDI, HDMI, ASI I/O ports
	NVIDIA ConnectX 10 / 25 / 40 / 50 / 100 / 200G ports for SMPTE ST 2110 / 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 / IEEE-1394 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 16× SPTS in 2× Groups)
	Air Manager
	Rec Manager
	NewsCut
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 Resolution + Proxy)
	PGM Channel with Full Graphics (8 GR Layers + Logo Layer)
	PGM Channel with Lite Graphics (1 GR Layer + Logo Layer)
	Graphics for PGM Channel (Additional GR Layers)

Hardware & Software Options

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)
	TSL 5 UMD (Master Mode for Single Device)
	Ember+ (for Junger Audio Devices, Master Mode for Single Device)
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
	ProBel SW-P-02 / SW-P-08
	Venux VM / SI / 3000 ASCII
	Ross Video Presmaster / NK-SCP/A
	ELPRO SDZ HD Series
	AJA KUMO

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