# SL NEO Platform
## Capture & Ingest

- Multi-Channel Live Ingest
- Broad Signal Support
- Flexible Recording Formats
- Pathfire workflow

**Capture live content without delay**

## Overview

SL NEO Capture & Ingest is a high-performance, multi-format, multi-channel live ingest and recording solution designed for modern broadcast, production, and OTT workflows. It enables reliable capture of live video from virtually any source — SDI, SMPTE-2110, ASI, and a wide range of IP protocols — while providing real-time access to recorded media, rich metadata handling, and seamless integration into downstream workflows.

Built as part of the SL NEO Media Platform, Capture & Ingest ensures that content is recorded once and immediately ready for playout, editing, QC, archiving, or distribution.

## Highlights

### Multi-Channel Live Ingest

Simultaneous recording of multiple HD or UHD sources on a single server, supporting up to 24 HD or 4 UHD channels with single-channel, multi-channel, and synchronized multi-camera workflows.

### Broad Signal Support

Capture from SDI, ASI, SMPTE-2110, NDI, and IP streams (SRT, RIST, RTMP, Zixi, HLS), including online sources such as YouTube, Facebook, and Twitch.

### Flexible Recording Formats

Record to a wide range of professional codecs and containers, with optional compressed stream passthrough.

Codec & Container Support Codecs:

- DV, DVCPRO, MPEG-2, XDCAM, H.264, XAVC, AVC-Intra, AVC-Ultra, HEVC, DNxHD, DNxHR, ProRes

Containers:

- MXF (D10, OP-Atom, OP-1A, OP-1B, XDCAM), MOV, MP4, MPG, TS, AVI

### Program Archiving

Automatic recording of content played via the Program Channel for program archiving.

### Edit While Recording

SL NEO supports editing during recording, enabling both SL NEO modules and third-party applications to work with growing MXF files (OP1a, OP-Atom, OP1b) before recording is complete.

### Continuous Chunked Recording

The recorder can be configured to create continuous chunked recordings with date/time–based automatic deletion. This allows recording to use a fixed amount of disk space, while the chunk sequence is presented in SL NEO as a single continuous clip for review, playback, export, or use in NLE systems.

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## Key Features

- Multi-channel ingest from a single server
- Up to 24 HD or 4 UHD simultaneous recording channels
- Unified control of playout, graphics, and ingest channels, with flexible role-based access for different operators.
- SDI, ASI, SMPTE-2110, NDI, SRT, RIST, RTMP, Zixi, HLS, YouTube, Facebook, Twitch
- Recording without re-encoding (compressed passthrough)
- Simultaneous recording in multiple codecs and containers
- Low-resolution proxy creation in real time
- On-the-fly frame-rate, resolution, and format conversion, SDR/HDR and color-space conversion
- Aspect ratio control with AFD support
- Subtitle and VANC data handling: DVB-TTML, DVB bitmap subtitles, CEA-608/708, OP-42/47, MXF S436M
- Subtitle extraction and DVB-SUB bitmap OCR with conversion to SRT, supporting all languages
- Audio channel remapping and mixing
- Accepts audio from multiple sources (WDM, mics, Dante/AES67, IP streams) and mixes it into playout outputs, with up to 60 s A/V offset for precise synchronization.
- LOAS/LATM audio support for DVB workflows
- Live previews over LAN and Web
- Instant access to files while recording
- Continuous 24/7 recording with clip creation
- Manual and automated exports
- Browsing, clip trimming, and fast collaborative proxy editing in the NewsCut NLE application, with content lifetime settings
- Content marking, including adding and storing keyframes and other attributes
- Hot redundancy for parallel recording to Main and Backup servers from a single recording schedule
- Real-time visual control of Playout and Ingest channels in the Multiscreen module
- Integrated media database and metadata tightly integrated with playout, with support for external storage systems.
- Desktop client, Web UI, hardware panels and remote control
- REST API and automation interfaces
- Router control for all major vendors
- On-prem, hybrid, and cloud deployment
- System status monitoring in Air Manager with SNMP support for external monitoring systems

## Recording Manager

Recording Manager is a client-server system that controls automated recording workflows across multiple recorders and sources.

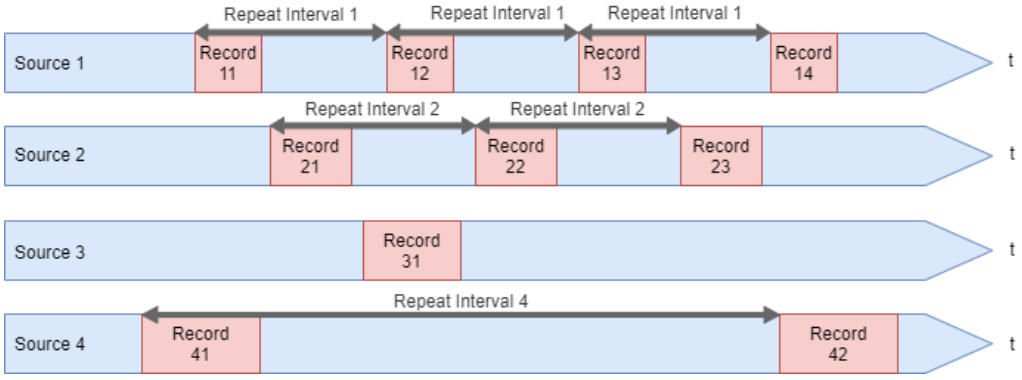
- Centralized scheduling and job management
- Parallel and sequential recording execution
- Automatic source switching via SDI router or IP control
- Main / Backup source switching for all supported input types
- Conflict detection and schedule verification
- Multi-user desktop and web-based operator UI

Recording tasks continue to run even if the client application is closed, as all schedules and jobs are managed server-side.

### Sequential Execution of Recording Tasks

Depending on their position on the timeline, recording tasks may be executed either in parallel or sequentially. If tasks fully or partially overlap on the timeline, they are executed in parallel for the duration of the overlap. If tasks do not overlap in time, they are executed sequentially.

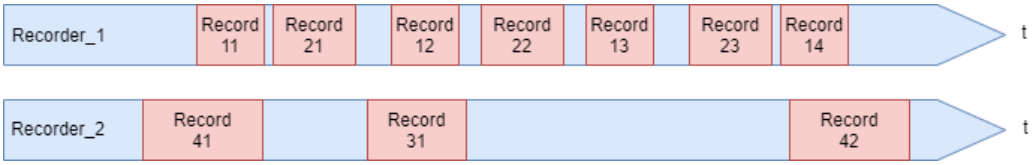
An example of sequential task execution is recording daily news bulletins from different broadcast channels where the bulletins air at different, non-overlapping times. Sequential execution allows significant savings in media server hardware and software resources. This is achieved by replacing static, configuration-level bindings between sources and recorders with dynamic switching of these connections when transitioning from one task to the next.




### Parallel–Sequential Execution of Recording Tasks

In real broadcast workflows, recording tasks often run in a mixed parallel–sequential mode. When sources are scheduled at different times, a single recorder can be reused sequentially. When multiple sources overlap in time, additional recorders are automatically engaged.

This approach optimizes hardware usage by dynamically allocating recorders based on the schedule. It is commonly used in broadcast environments with many external feeds connected via an SDI or IP router — often referred to as a **Pathfire** workflow — allowing dozens of sources to be recorded efficiently without dedicating a recorder to each one.



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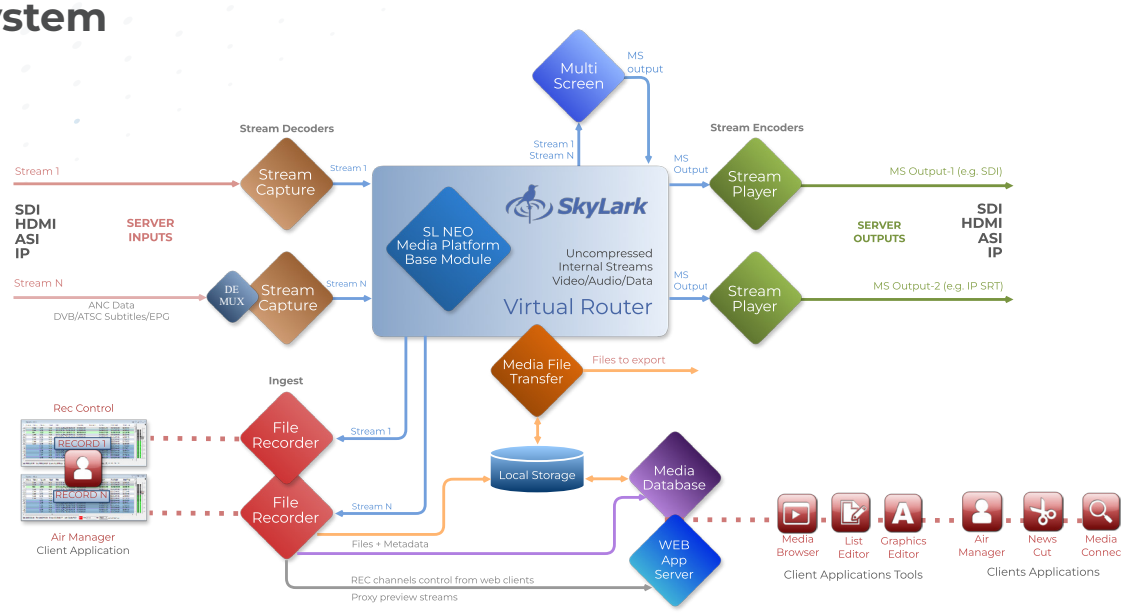
## Ecosystem




The SL NEO Capture & Ingest 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 Program Player, Media QC, and other workflow components — can be integrated to create a fully tailored broadcast solution:

- **Media QC**
  For automated compliance and quality checks
- **Transfer Manager**
  For file transfer, transcoding, and delivery
- **Program Player**
  For immediate playout of recorded content
- **SL NEO Base Module**
  For coordination, management and control for all the system

## Use Cases

- **Broadcast Operations**
  Ingest live channels, studio feeds, and contribution links directly into playout, QC, or compliance workflows.
- **Newsrooms**
  Capture breaking news via IP feeds or field SRT links with immediate access for editing and distribution.
- **Sports Production**
  Synchronized ISO recording of multiple cameras with instant clip access for highlights and replay.
- **Post-Production**
  Record live sources with proxy generation and fast handoff to NLE and MAM systems.
- **Compliance & Archiving**
  24/7 recording with subtitles, VANC, and audio metadata for regulatory storage and review.

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# SL NEO Platform
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## 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 | 4 to 12 × 3.5" Enterpise HDD<br>4 to 24 × 2.5" Datacenter SSD |
| OS | Windows Server |

### Capture Ports & REC Channels

| Mode | HD/SD | Ultra HD |
|---|---|---|
| Capture Ports | 4 - 24 | 2 - 4 |
| REC Channels | 4 - 24 | 2 - 4 |

### 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, SMPTE ST 2084, ARIB STD-B67 |

### I/O Streams: Interfaces, Protocols, Codecs

| | |
|---|---|
| SDI | SDI 1.5G to 12G, embedded audio |
| IP (Broadcast) | SMPTE ST 2110, SMPTE ST 2022-7 |
| IP (Streaming) | NDI, HLS, RTMP, UDP, RTP, SRT, Zixi, RIST, MPEG-DASH, YouTube, Facebook, Twitch |
| DVB / ATSC IP | UDP / RTP, Unicast / Multicast, SPTS / MPTS |
| DVB / ATSC ASI | SPTS / MPTS |
| Video Codecs | MPEG-2, H.264, HEVC |
| Audio | 48 kHz / 16–24 bit PCM (SMPTE-302M), MPEG-1 L-II/III, AAC, AC3, AC3 and E-AC3 Pass-Through |

### 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<br>Record captions and VANC data into MXF S436M tracks |

### Protocols & Device Support

| | |
|---|---|
| Monitoring | SNMP (SL NEO Software) |
| Hardware Panels | X-KEYS XK-24 / 60 / 80 |
| Automation | REST API, Router & GPI control |

### File Containers

| Category | Supported |
|---|---|
| MXF | OP-1A, OP-1B, D10, Avid OP-Atom |
| Sony | XDCAM HD/422, XAVC (50...480, Long GOP) |
| Panasonic | P2 AVC-Ultra (50...480, Long GOP) |
| General | AVI, MPEG PS/TS, MOV, DV DIFF, MP4, MPG, GXF |

### Video/Audio Codecs (Recording to Files)

| | |
|---|---|
| SD / HD | DV25<br>DVCPRO25/50/HD100<br>HDV<br>IMX 30/40/50<br>XDCAM EX SP/HQ<br>XDCAM HD LP/SP/HQ/422<br>DNxHD 120/145/180/220<br>AVCHD<br>XAVC 50/100/200<br>XAVC Long GOP<br>AVC-Ultra 50/100/200<br>AVC-Ultra Long GOP<br>ProRes HQ/SD/LT<br>MPEG-2 I-Frame/Long GOP<br>H.264 I-Frame/Long GOP |
| Ultra HD | H.264 8/10-bit<br>XAVC 300/480<br>XAVC Long GOP<br>AVC-Ultra 300/480<br>AVC-Ultra Long GOP<br>ProRes SQ/HQ<br>DNxHR SQ/HQ<br>HEVC 8/10-bit |
| Audio | ADPCM, MPEG-1 L-II/III, AAC; AC3, E-AC3, WMA, FLAC, ALAC |

### Recording Environments

| | |
|---|---|
| File Streams per Recorder | Two streams (Full Resolution + Proxy) |
| OS File System | File-based recording; normal or fragmented file mode (array of files with configurable fixed duration) |
| SL NEO Media Database | Virtual clips (files + metadata), growing-file recording mode |
| Shared Storage | Avid Unity / Interplay |
| Mode | Single-channel, multi-channel, and synchronized multi-camera recording |
| On-the-Fly Processing | Frame rate, resolution, and field order conversion<br>Interlaced / progressive conversion<br>Aspect ratio handling with scale, crop, letterbox, and AFD support<br>SDR / HDR color space conversion (BT.709, BT.2020, HLG, PQ) |
| Audio Processing | Channel re-mapping and re-mixing<br>Loudness normalization<br>Audio level control |

## 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 | |
| | NVENC Assistance (for file encoding or output stream encoding) | |
| | Avid Unity / Interplay Support (for REC channels) | |
| | Web Application Server | |
| Client Applications | Air Manager, Rec Manager, NewsCut | |
| Additional I/O & Channels | Capture Port (SDI / HDMI, ASI / IP with DeMux and stream decoding, all supported protocols) | |
| | Output Port (SDI / HDMI, ASI / IP with stream encoding, all supported protocols) | |
| | MultiScreen Processor (4, 8, 16 or 24 inputs – software license) | |
| | REC Channel (Full Resolution + Proxy) | |
| Device Server Software Licenses | VDCP for REC Automation (Slave mode for single REC channel) | |
| | SDI Router for REC Automation (for single device) | |
| | VTR for REC Automation (for single device) | |
| | TSL 5 UMD (Master mode for single device) | |
| SDI Routers Control Protocols | Grass Valley Triton BDS<br>Grass Valley NVision / Native Protocol / Vega / M-2100<br>Nevion Vikinx v128 / Thor<br>Leitch<br>Imagine LRC<br>Kramer<br>ProBel SW-P-02 / SW-P-08<br>ELPRO SDZ HD Series | BMD Videohub Ethernet / RS-232<br>Snell Switcher / Remote Protocol<br>Evertz Quartz / QMC-2<br>Sierra XXvse<br>Utah SC-4 / RCP-1<br>Venux VM / SI / 3000 ASCII<br>Ross Video Presmaster / NK-SCP/A<br>AJA KUMO |



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