System Overview

Nx Witness is an open, extensible IP video management system with Cloud, Desktop, Mobile, and Server applications.

Nx Witness
VIDEO MANAGEMENT SYSTEM

CLOUD	DESKTOP	SERVER	MOBILE
A cloud-based service that enables simple, centralized remote access and insight into any Nx Witness system.	A rich media player with a flexible GRID interface designed for connecting to and managing an Nx Witness system.	A powerful, lightweight media server designed to discover, add, and manage system devices and resources.	A mobile application for iOS and Android devices designed for remote viewing and control of

BROWSERS	OPERATING SYSTEMS	OPERATING SYSTEMS	OPERATING SYSTEMS
Google Chrome	Windows	Windows	Google Android
Mozilla Firefox	Ubuntu Linux	Ubuntu Linux	Apple iOS
Microsoft Edge	Mac OS	ARM / Debian Linux	Microsoft Edge

Desktop Overview

A rich desktop application with a flexible GRID interface designed for connecting to, viewing, and managing your Nx Witness System.

USABILITY	MEDIA	CONFIGURATION	SEARCH
Drag & Drop Interface	IP Video Cameras / Devices	Events & Rules Engine	Smart Motion Search
Consolidated Notifications	RTSP/HTTP Streams	User Management	Keyword Search
Adaptive Playback	I/O Devices	IP Video Devices	Calendar Search
Customizable Layouts	Web Pages / URLs	Server Management	Object Search
Digital Maps	Recorded Video Files	I/O Device Management	Bookmarks
Adaptive Scaling	Static Image Files	Storage Management	Audit Trail

Desktop Specs

HARDWARE REQUIREMENTS

MINIMUM SUPPORTED SPECS

HARD DRIVE: HDD/SSD/mSATA
RAM: 2GB
CPU: Quad Core Intel Celeron CPU or higher
GRAPHICS: Intel HD Graphics 3000
                w/ OpenGL2.1 support
NETWORKING: 1Gbps NIC

PERFORMANCE SPECS

HARD DRIVE: Performance SSD
RAM: 16 GB
CPU: Intel Core i5
GRAPHICS: NVIDIA GeForce GTX 1050
                (OpenGL2.1 support is required)
NETWORKING: 10 Gbps NIC

MAXIMUM # OF GRID ITEMS PER LAYOUT

64 Items (e.g. 64 live streams)

SUPPORTED OPERATING SYSTEMS

WINDOWS

Windows 8
Windows 8.1
Windows 10
Windows 11
Windows Server 2012
Windows Server 2012 R2
Windows Server 2016
Windows Server 2019
Windows Server 2022

UBUNTU LINUX

Ubuntu Linux 16.04 LTS
Ubuntu Linux 18.04 LTS
Ubuntu Linux 20.04 LTS

MAC OS

macOS 10.14, 10.15
macOS 11.0, 11.1, 11.2
macOS 12

UNIQUE CAPABILITIES

DESKTOP MODES

CONNECTED CLIENT: Manage any connected Nx Witness System

MEDIA PLAYER: View, edit, and export offline videos and images

VIDEO WALL: Put Nx Desktop into Video Wall mode to control remotely

UNIQUE FEATURES

MULTILINGUAL SUPPORT: Support for 20+ languages

SHOWREEL: Fully customizable viewing sequences of any GRID media

CUSTOMIZABLE BRANDING: Customizable Desktop background

DRAG & DROP REASSIGNMENT: Move cameras/streams between Servers

INTEL® QUICK SYNC: Decode high-resolution video on low power hardware

SEARCH

ADVANCED OBJECT: Search by detected object and metadata attributes

FLEX TIMELINE: Search by date / time using calendar or mouse movements

EVENTS: Quickly search System event log to find event-driven video

SMART MOTION: Select specific pixels to search a year of archive in seconds

BOOKMARKS: Create Bookmarks manually or automatically with Rules Engine

SUPPORTED MEDIA PLAYBACK & CONTROL

LIVE STREAMING (CAMERAS & STREAMS)

CODECS: H.265   H.264   MJPEG

OFFLINE MEDIA FILES

VIDEOS: AVI MKV MP4 MOV, TS M2TS MPEG MPG FLV WMV 3GP

IMAGES: JPG PNG GIF BMP TIFF

CONTROL DEVICES

I/O Devices: Status and Triggers
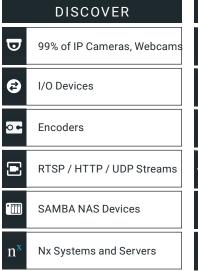
SERVERS: Server Health Monitoring

BUILT-IN BROWSER

BROWSER SUPPORT: Websites, URLs, IP Addresses

Server Overview

A lightweight media server designed for discovering, adding, and managing system resources and their related metadata.

DISCOVER	MANAGE	VIEW	INTEGRATE
99% of IP Cameras, Webcams	Device Configurations	Server Health	HTTP Events & Actions
I/O Devices	System Rules	Live / Recorded Video	Server API
Encoders	Failover / Redundancy	System Configuration	Metadata SDK
RTSP / HTTP / UDP Streams	Connections (HTTP, HTTPS)	Log Files	Video Source SDK
SAMBA NAS Devices	Archived Video	Audit Trail	Storage SDK
Nx Systems and Servers	Flexible Archive Backup	Storage Status	Server via Cloud API

Server Specs

Nx Witness VIDEO MANAGEMENT SYSTEM

COMPATIBLE HARDWARE

RECOMMENDED BASED ON # OF STREAMS

STREAMS	RAM	NIC	CPU
Up to 8	1 GB	1 GB	Dual Core ARM
Up to 16	2 GB	1 GB	Dual Core Atom
Up to 32	4 GB	1 GB	Dual Core Celeron
Up to 64	8 GB	1 GB	Core i3
Up to 128	16 GB	1 GB	Core i3

*CPUs change fast and this spec sheet is fixed.

RECOMMENDED MAXIMUMS

OF RESOURCES PER SYSTEM: 10,000
OF CLIENTS PER SYSTEM: UNLIMITED
OF STREAMS PER SERVER: 128
OF SERVERS IN A SERVER HIVE: 100
OF USERS IN A SYSTEM: 1000

* Based on lab environments. Designing a system that exceeds the numbers above? Contact us for assistance.

SUPPORTED OPERATING SYSTEMS

WINDOWS

Windows 8
Windows 8.1
Windows 10
Windows 11
Windows Server 2012
Windows Server 2012 R2
Windows Server 2016
Windows Server 2019
Windows Server 2022

UBUNTU LINUX

Ubuntu Linux 16.04 LTS
Ubuntu Linux 18.04 LTS
Ubuntu Linux 20.04 LTS

ARM DEVICES

Raspberry Pi
NVIDIA Jetson Development Devices
* Contact us to learn more about our ARM support

UNIQUE CAPABILITIES

SERVER HIVE

SYNCHRONIZATION: SERVERS SYNCHRONIZE SYSTEM DATA IN REAL TIME

FAILOVER: AUTOMATIC CAMERA FAILOVER WHEN SERVER FAILS

ARCHIVE INTEGRITY

INTEGRITY CHECK: NOTIFICATION WHEN FILES MANUAL MODIFIED

BACKUP: REAL-TIME (CONCURRENT) OR SCHEDULED

NO PREREQUISITE SOFTWARE REQUIRED

DATABASE: SQLITE + PROPRIETARY ARCHIVE INDEX

LIGHTWEIGHT: ~75MB INSTALL FILE

STORAGE

LAN / WAN: HDD SSD NAS (SAMBA)

STORAGE SDK: INTEGRATE NEW STORAGE MEDIUMS (E.G. FTP, CLOUD)

SECURITY

USER RIGHTS: LDAP/ACTIVE DIRECTORY   SECURE PASSWORD RECOVERY

TECHNOLOGIES: HTTPS   OPEN SSL   SALTED MD5 HASH   TLS/SSL

ENCRYPTION: SECURE CONNECTIONS   ENCRYPTED VIDEO

SUPPORTED MEDIA STREAMING

LIVE STREAM (AVAILABLE VIA SERVER API)

VIDEO: H.265 H.264 MJPEG

AUDIO: AAC   PCM (Mu-Law, A-law)   g726 MP3

PROTOCOLS: RTSP WebM   HLS

TRANSCODING: SUPPORTED (FOR WEB CLIENT, MOBILE, API)

OTHER MEDIA

VIDEOS: AVI MKV MP4 MOV TS M2TS MPEG MPG FLV WMV 3GP

IMAGES: JPG PNG GIF BMP TIFF

VIRTUAL CAMERA: Upload footage from offline cameras (e.g. wearable cameras)

Cloud Overview

A public cloud application built to enable simple, fast, remote connectivity and management of Nx Witness Systems.

CONNECT	VIEW	MANAGE	SCALE
NAT Traversal	Live Video (adaptive)	System Settings	Unlimited # of Systems
Data Proxy via AWS	Recorded Video (adaptive)	User Permissions	Unlimited # of Users
LDAP Credentials	Camera Details	Cloud Connections	Unlimited # of Devices
Encrypted Connections	Keyword Search	Email Notifications	Cloud API
Wifi / LAN / WAN	Calendar Search	Push Notifications	
4G / LTE / Data	Scalable Timeline	Health Monitoring	

Cloud Specs

SCALABILITY

MAXIMUM # OF CONNECTED SYSTEMS

UNLIMITED

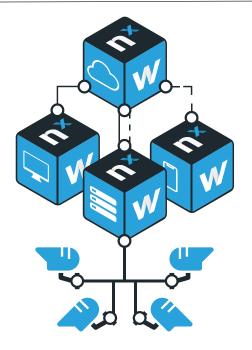### MAXIMUM # OF USERS

UNLIMITED

NX CLOUD SERVICES

CLOUD CONNECT

Connect any Nx Witness System to Nx Cloud for simple remote connectivity from anywhere using Network Optix's NAT Traversal and Cloud Data Proxy technology.

MANAGE USERS

Add an unlimited number of users to a single Nx Cloud System. Share access to your Nx Witness System in seconds using only email addresses. Create Custom Roles to quickly assign access to multiple Nx Cloud connected Systems.

UNIQUE CAPABILITIES

CONNECTIVITY

CLOUD DATA PROXY: Connect via Nx Cloud to view System data and video

NAT TRAVERSAL (DEFAULT): Connect directly to System via Cloud addressing

SECURE COMMUNICATIONS

SECURITY

PASSWORD RECOVERY: Reset password via email

TWO FACTOR AUTHENTICATION: Combine Password with Authenticator

ENCYRPTED CONNECTIONS: HTTPS OPENSSL

ENCRYPTED VIDEO: Encrypt transmitted and stored video archives

INTERFACE

CLOUD INTERFACE

SYSTEMS: View connected System tiles in Cloud Web Admin

SETTINGS: View users, rename systems, disconnect systems

VIEW: View live or recorded video from connected cameras / streams

INFORMATION: Integrated Health Monitoring of the last 24 hours

MONITORING: Real-time Server monitoring and Logs

SUPPORTED BROWSERS

MOBILE / TABLET: CHROME SAFARI FIREFOX EDGE (AND OTHERS)

COMPUTERS: CHROME SAFARI FIREFOX EDGE (AND OTHERS)

INTEGRATION TOOLS

FOR DEVELOPERS

CLOUD API: Integrate with 3rd party applications and devices

FOR ADMINS

ZAPIER: Create connections to other Cloud apps with Zapier.com

Mobile Overview

A mobile application for iOS and Android devices designed for on-the-go viewing and control ofsystem devices.

CONNECT	VIEW	CONTROL	SEARCH
NAT Traversal	Live Video (Adaptive)	Fisheye Dewarping	Keyword Camera Search
Data Proxy via Cloud	Recorded Video (Adaptive)	Pan-Tilt-Zoom (PTZ)	Calendar Search
Encrypted Connections	Camera Status	Soft Triggers	Thumbnail Search
Wifi / LAN / WAN	Layouts	2-Way Audio	Push Notifications
4G / LTE / Data	Adjustable Resolutions	Cloud or Local Systems	Flex Timeline
Encrypted Video	Portrait / Landscape	Unlimited # of Systems	Smart Motion

Mobile Specs

SUPPORTED DEVICES

GET IT ON Google Play   **Download on the App Store**

ANDROID PHONES / TABLETS

Android 8
Android 9
Android 10
Android 11
Android 12

APPLE PHONES / TABLETS

iOS 12, 13, 14, 15
iPadOS 14, 15

VIEWING / PLAYBACK

VIEWING MODES

PORTRAIT

LANDSCAPE

ADJUSTABLE RESOLUTIONS

HIGHEST SPEED (BEST AVAILABLE FRAME RATE)

BEST QUALITY (BEST AVAILABLE RESOLUTION)

1080p

720p

480p

360p

KEY FEATURES

CONNECT FROM ANYWHERE

LAN / WAN: Connect to Systems using public IP address or Dynamic DNS

VIA NX CLOUD: Login to Nx Cloud to view all shared Systems

ADAPTIVE CONNECTIONS: Works well on Wifi or Data (4G / LTE / 3G)

VIEW LIVE OR RECORDED VIDEO

LIVE VIDEO: View live video remotely in real-time

ARCHIVED VIDEO: Review archived footage remotely

CONTROL CAMERAS

FISHEYE CAMERAS: Universal dewarping for fisheye cameras

PTZ: Control PTZ cameras with Joystick and/or tap to move UX

SOFT TRIGGERS: Control soft triggers on cameras

2 WAY AUDIO: Talk through I/O or IP cameras that support Audio In / Out

SEARCH

KEYWORD: Search for cameras or layouts by name

CALENDAR: Search by date and time

LAYOUTS: View thumbnails of System Layouts

LIVE THUMBNAILS: Thumbnails refresh in real time

FLEX TIMELINE: Search using the same timeline interaction as Nx Desktop

SMART MOTION: Search using Smart Motion

PUSH NOTIFICATIONS: Recieve customizable push notifications for key events

Try Nx Witness FREE for 30 days.

Nx Witness is FREE for live streaming. To try recording
cameras activate a FREE 30-DAY TRIAL for 4 cameras.

Get Started with your free trial today:
http://networkoptix.com/nx-witness

Developer Tools

Nx Witness VIDEO MANAGEMENT SYSTEM

VIDEO SOURCE SDK
`C++`

3RD PARTY VIDEO DEVICES

The Video Source SDK provides the ability to integrate virtually any live or recorded video source (IP Cameras, NVRs, DVRs, etc) into System. It also allows integrating device I/O ports and motion detection information.
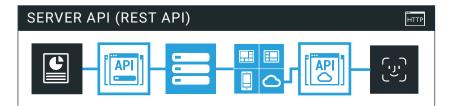
3RD PARTY I/O DEVICES

The Video Source SDK also provides the ability to integrate 3rd party I/O devices which can increase hard wire interoperability with 3rd party systems and connected devices.
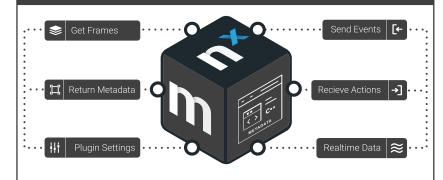
STORAGE SDK (C++)
`C++`

3RD PARTY STORAGE

The Storage SDK allows developers to read from or write to any storage location: local, remote, and cloud. Creating a storage plugin requires implementing standard functions such as: I/O stream, if file exist, delete file, list of files in the folder, etc.The Storage SDK also contains an example for using an FTP server as astorage location.

SERVER API (REST API)
`HTTP`

INTEGRATE ANYTHING USING HTTP API CALLS

A REST API that gives developers the ability to access almost every system feature available in the regular client: query/manage system resources (servers, cameras, users, permissions), pull live or recorded video out of System, generate events, create rules, control PTZ cameras, and more.

METADATA SDK (AVAILABLE IN V4.0)

- Get Frames
- Return Metadata
- Plugin Settings
- Send Events
- Recieve Actions
- Realtime Data

CREATE PLUGINS THAT RUN ON NX SERVER

The Metadata SDK allows developers and tech partners to create installable Plugins for Nx Witness which run on the Nx Server application to create tight, seamless integrations. The Metadata SDK is focused on bringing object metadata from 3rd party Systems - like Face Recognition, Retail Analytics, License Plate Recognition, etc - to enhance both real-time system intelligence and post-event, post-capture video search and review.

Nx Witness Dev Tools are FREE!

Nx Witness developer tools are FREE to use and can be accessed by installing Nx Witness VMS and opening the Server Web Admin interface.

Download Nx Witness today at:
http://networkoptix.com/nx-witness