

# N2NKVM

4K HDMI KVM EXTENSION SYSTEM



## USER MANUAL



Designed and Manufactured in the USA

**Smart-AVI**

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# TECHNICAL SPECIFICATIONS

VIDEO	
Format	HDMI 2.0
Video Resolution	3840 × 2160 @ 30Hz (4K UHD)
Color Depth	24-bit
Latency	Less than 1 ms
Video Bandwidth	Single-link 340 MHz (10.2 Gbps)
Input Interface	(1) HDMI 19-pin (female)
Output Interface	(1) HDMI 19-pin (female)
Max Output Distance	Up to 10 ft
Equalization	Automatic
Input TMDS Signal	1.2 Volts [peak-to-peak]
Input DDC Signal	5 Volts [peak-to-peak, TTL]
Data Rate	1.65 Gbps per color
AUDIO	
Format	Stereo
Input Interface	(1) 3.5mm L/R jacket (female)
Output Interface	(1) 3.5mm L/R jacket (female)
USB	
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub
Input Interface	(2) USB Type B
Keyboard and mouse	Keyboard and mouse emulation
SYSTEM	
Interface & Type	CAT5 or Single-Mode Fiber
CAT5 Maximum Length	100 m (328 feet)
Fiber Cable Requirements	Dual
Fiber Maximum Length	Single mode: 10 km (6.2 miles) Multi mode: 500 m (1640 feet)
OTHER	
Power Adapter	100-240 VAC/ 12VDC @ 3A/15W
Dimensions	8.4" W x 1.4" H x 4.5" D
Weight	1.4 lbs
Approvals	UL, CE, ROHS Compliant
Operating Temperature	+32 to +104°F (0 to +40°C)
Operating Humidity	20% to 80% (non-condensing)
Storage Temperature	-4 to 140°F (-20 to +60°C)
Storage Humidity	Up to 95% (No Condensation)
Compliance EMC	FCC (Class A), CE (Class A), ICES-003
Environmental Compliance	RoHS2 (CE)
Support Warranty	1-year

# WHAT'S IN THE BOX?

PART NO.	Q-TY	DESCRIPTION
N2NKVM Unit	1	4K60 Visual and Audio Extender
	1	12VDC 3A
	1	User Manual

# FRONT AND BACK



N2NKVM Front Panel

NAME	DESCRIPTION
PWR (LED)	Light will be <b>ON</b> if the device is powered on.
LINK (LED)	Light will be <b>ON</b> if the device successfully connected to the network.
SYS (LED)	Light will be <b>ON</b> if the device system successfully initialized. Reboot the device if the light is not active after start up.



N2NKVM Back Panel

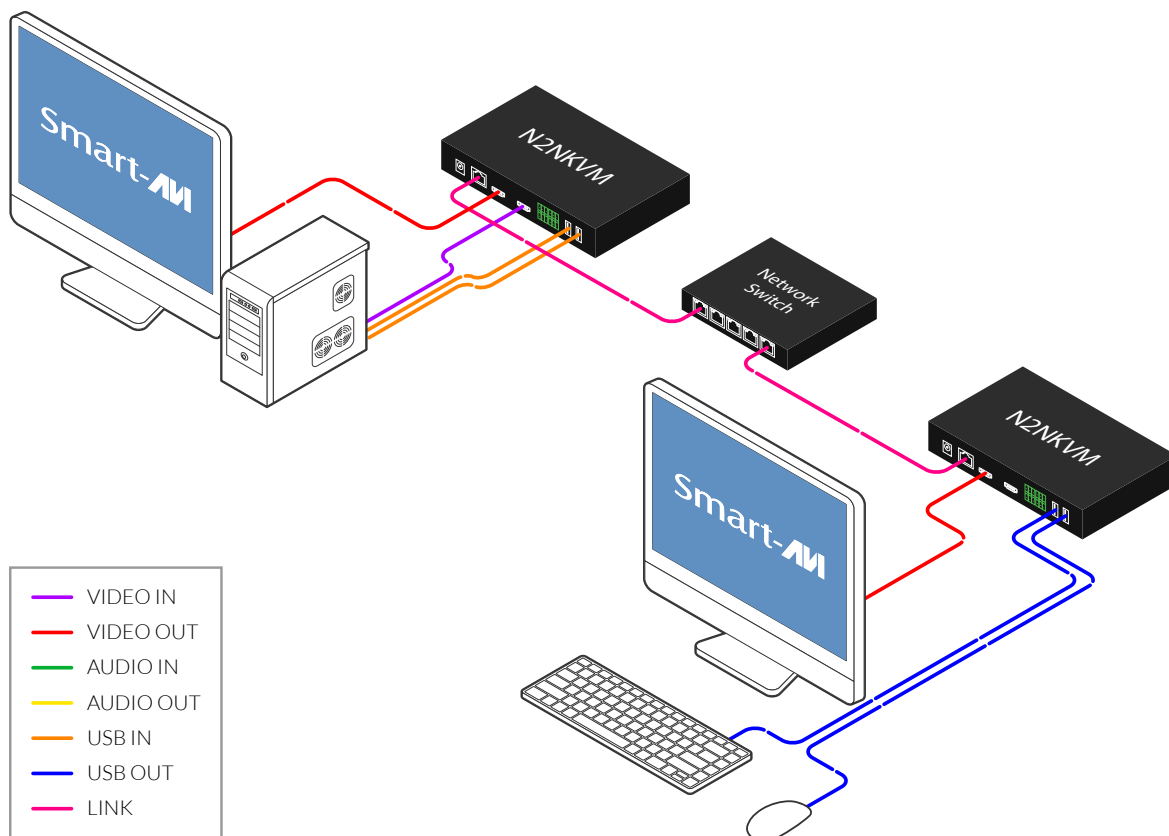
NAME	DESCRIPTION
HDMI IN	Receives HDMI video input from an external source (PC).
HDMI LOOP/OUT	Outputs the incoming HDMI signal for monitoring or daisy-chaining to another display/device.
AUDIO IN	Accepts external audio input (typically via 3.5 mm jack).
AUDIO OUT	Outputs audio signal to speakers, headphones, or another audio device.
MOUSE PC	USB port for connecting a mouse to control the system interface.
KEY NC	USB port reserved for keyboard or auxiliary control devices (may be inactive depending on configuration).
PHOENIX	Terminal block connector used for control signals, alarms, RS232 communication, or power distribution (depending on system setup).
SFP	Slot for an SFP module to enable fiber optic network connection.
ACT (LED)	Light will be <b>ON</b> if the fiber connection is active.
LAN/POE	Ethernet port for network connection; supports Power over Ethernet (PoE) to supply power and data over a single cable.
RST	Reset button used to restart the device or restore factory settings (press duration may vary function).
DC 12V	Power input connector for a 12V DC power supply.

# INSTALLATION

1. Ensure power is turned off or disconnected from all devices and computers.
2. Connect a CAT5 cable to the LAN/POE port on the device for network connection.
3. (Optional) Connect a dual fiber cable to the SFP port for extended-range network connection.
4. Connect HDMI based on device role: ENCODER – connect HDMI from the device IN port to the source computer. DECODER – connect HDMI from the device LOOP/OUT port to the output monitor.
5. (Encoders only, optional) Connect a USB cable from the device PC port to the source computer. This enables KVM control through the software application. Only one USB cable is required per encoder.
6. (KVM mode only) Plug a keyboard and mouse into the USB ports labeled Key and Mouse at the back of the device.
7. Power on the device by connecting a 12VDC power supply to the port labeled 12VDC, then power on all computers. When successfully initialized, three blue LEDs will illuminate on the front panel.

**Note:** Power off all computers and connected devices before making any cable connections.

**Note:** Three blue LEDs (PWR, LINK, SYS) should all illuminate. If SYS does not light, reboot the device.



# DESKTOP APPLICATION

The N2NKVM Desktop Application is your control center for the entire system. Use it to add and configure devices, build video walls and multiviewers, manage users, and control live displays.

**First Login:** Default username: admin | Default password: 123456 | Change your password immediately after first login. Choose an IP address on the same network as the N2N devices, then click Log In.



Figure: Login Page

# DESKTOP APPLICATION (CONTINUED)

## Home Screen

After logging in, the Home screen appears showing any groups that have been created in the System Configuration menu. On first boot it will be empty. Click the gear icon (top-right) to access System Configuration.



Figure: Home Screen

## System Configuration Overview

The System Configuration page has a row of tabs across the top for managing every aspect of the N2N system:



Figure: System Configuration Tabs

TAB	DESCRIPTION
Device	View and manage all connected N2N devices on the network
Encoder	View encoders and add them as input sources
Decoder	View decoders and add them as output monitors
Grouping	Create and manage video walls, multiviewers, and groups
Admin	Manage user accounts and access permissions
Status	View real-time device status
System	Configure global system settings
Logs	View and filter user and system activity logs

**Important:** The IP address in the bottom-right dropdown of System Configuration must match your devices' network. If they differ, device changes will not be applied.

# DESKTOP APPLICATION (CONTINUED)

## Devices & Device Settings

The Device tab lists all connected N2N units with details like ID, type, name, IP, and more.

System Configuration

Device Encoder Decoder Grouping Admin Status System Logs

Search Add Device Upgrade Reboot Factory Reset Device Reset OSD Setting EID Setting

All	No.	Device ID	Device Type	Device Name	IP Addr	Subnet Mask	Gateway	
<input checked="" type="checkbox"/>	1	61	Encoder		192.168.7.61	255.255.255.0	192.168.7.1	4A:
<input type="checkbox"/>	2	132	Encoder	Windows	192.168.7.132	255.255.255.0	192.168.7.1	4A:
<input type="checkbox"/>	3	71	KVM	Decoder1	192.168.7.71	255.255.255.0	192.168.7.1	06:
<input type="checkbox"/>	4	74	Decoder		192.168.7.74	255.255.255.0	192.168.7.1	C2:
<input type="checkbox"/>	5	50	KVM		192.168.7.50	255.255.255.0	192.168.7.1	00:
<input type="checkbox"/>	6	81	KVM		192.168.7.81	255.255.255.0	192.168.7.1	D4:
<input type="checkbox"/>	7	60	Decoder	MXWALL	192.168.7.60	255.255.255.0	192.168.7.1	48:
<input type="checkbox"/>	8	82	Encoder		192.168.7.82	255.255.255.0	192.168.7.1	38:

Device Info

Device Basic Information

Device Model: N/A  
Device Name: N/A  
Software Info: [2.1.0.16][1.0.5][2024081315296]  
Hardware Info: GB1010U-GK400MD-70G  
DHCP: Disable  
IP: 192.168.7.61  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.7.1  
MAC: 4A:3A:80:C6:F4:B8  
Status: Online  
Device Model: input

Other Info

Stream Manager IP: 169.254.1.200  
Maximum Forwards: 5  
Forwarding Level: 8  
Stream Version: v1.0.0.1

Input Property

Resolution: 1920x1080  
FPS: 30 hz

Encoding Attribute

Follow HDMI: Off  
Channel: Primary Stream  
Encoding Type: H264  
Encoding Level: high

IP Setting

User-defined

Device Model  
Device Name

Batch Modification

Start Device ID: 61

Key Lock: Lock / Unlock  
Mac: Fixed / Random  
Device Type: Encoder / Decoder  
Network Settings

Start IP: 192.168.7.61  
End IP: 192.168.7.61  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.7.1

Advanced Settings

Device Type: KVM Device  
DHCP Setting: Static / DHCP  
MAC Modification

Start MAC: : : : : :  
Apply

Select Local NIC: 192.168.7.104

Figure: Device Tab

### Device Action Buttons (check a device first)

- Search — Scans the network for all connected devices.
- Add Device — Manually add a device by IP address.
- Upgrade — Update firmware (KVM mode only). See Section 6.
- Reboot — Restart the selected device.
- Factory Reset — Restore selected device to factory defaults.
- Device Reset — Undo changes made by the current user session (e.g. resolution changes, user accounts).

# DESKTOP APPLICATION (CONTINUED)

Check a device to open its detail panel on the right. From Device Settings you can modify:

The screenshot displays the 'Device Settings Panel' with two main sections: 'Device Info' and 'IP Setting'.

**Device Info**

Device Basic Information	
Device Model:	N/A
Device Name	N/A
Software Info:	[2.1.0.16][1.0.5][2024081315296]
Hardware Info:	GB1010U-GK400MD-70G
DHCP	Disable
IP:	192.168.7.61
Subnet Mask:	255.255.255.0
Gateway:	192.168.7.1
MAC:	4A:3A:80:C6:F4:B8
Status:	Online
Device Model:	input

**Other Info**

Stream Manager IP	169.254.1.200
Maximum Forwards	5
Forwarding Level	8
Stream Version	v1.0.0.1

**Input Property**

Resolution	1920x1080
FPS	30 hz

**Encoding Attribute**

Follow HDMI	Off
Channel:	Primary Stream
Encoding Type:	H264
Encoding Level:	high

**IP Setting**

**User-defined**

- Device Model
- Device Name

**Batch Modification**

- Start Device ID: 61
- Key Lock:  Lock  Unlock
- Mac:  Fixed  Random
- Device Type:  Encoder  Decoder
- Network Settings

Start IP: 192 . 168 . 7 . 61  
End IP: 192 . 168 . 7 . 61  
Subnet Mask: 255 . 255 . 255 . 0  
Gateway: 192 . 168 . 7 . 1

**Advanced Settings**

- Device Type:  KVM Device
- DHCP Setting:  Static  DHCP
- MAC Modification

Start MAC: : : : : :

Figure: Device Settings Panel

- Device Model – Text shown on Line 1 of the front panel display (default: N/A).
- Device Name – Name used throughout the application (default: N/A).
- Device ID – Change via the Start Device ID field under Batch Modification.
- Device Type – Switch between Encoder, Decoder, or KVM. Checkmark the Device Type box first, then select the desired mode.
- Network Settings – Checkmark Network Settings to edit IP address and related settings.
- DHCP / Static IP – Under Advanced Settings, checkmark DHCP for auto-assignment or Static for manual IP.
- MAC Address – Editable from the Advanced Settings panel.

**Tip:** After clicking Apply, click Search again to refresh. Some changes take up to a minute to appear.

# DESKTOP APPLICATION (CONTINUED)

## EDIDs

EDID (Extended Display Identification Data) tells the encoder what resolutions and formats a connected monitor supports. Only encoders and KVM devices have EDID settings – decoders have no input connection.

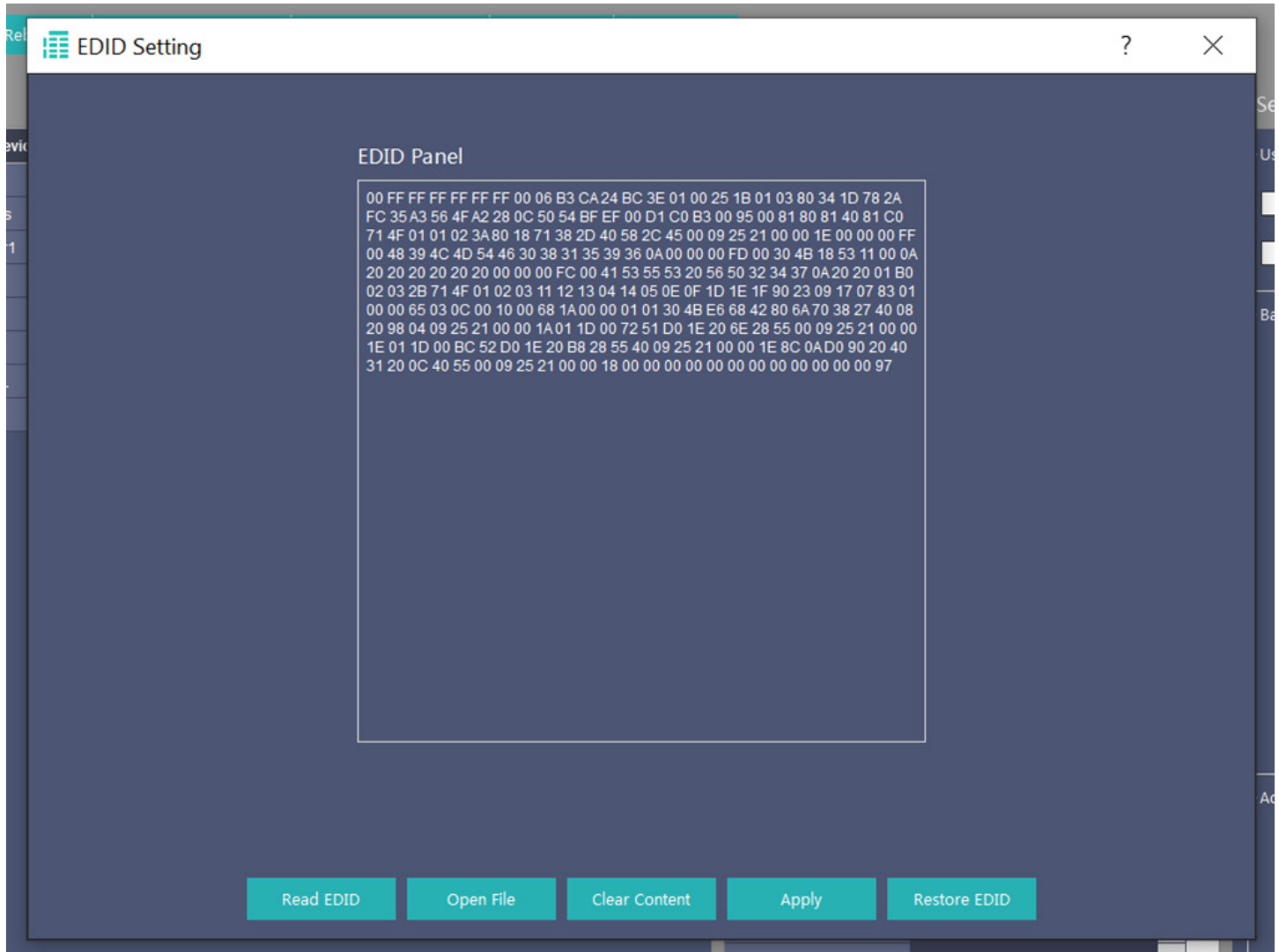


Figure: EDID Settings Screen

## Reading an EDID from a Device

1. Checkmark an encoder device and click EDID Setting.
2. Click Read EDID – a new screen will show the EDID data.
3. Click Save As to save it as a .bin file for later use.

## Writing an EDID to a Device

1. Checkmark the target device and click EDID Setting.
2. Click Open File and locate your saved .bin file.
3. Click Apply – a confirmation will appear indicating success or failure.

**Additional buttons:** Clear Content clears loaded data; Restore EDID resets the device to its default EDID.

# DESKTOP APPLICATION (CONTINUED)

## On-Screen Display (OSD)

OSD lets you overlay custom text or graphics on any encoder's video output. The overlay follows the input source everywhere it is displayed. An active HDMI connection to the encoder is required.

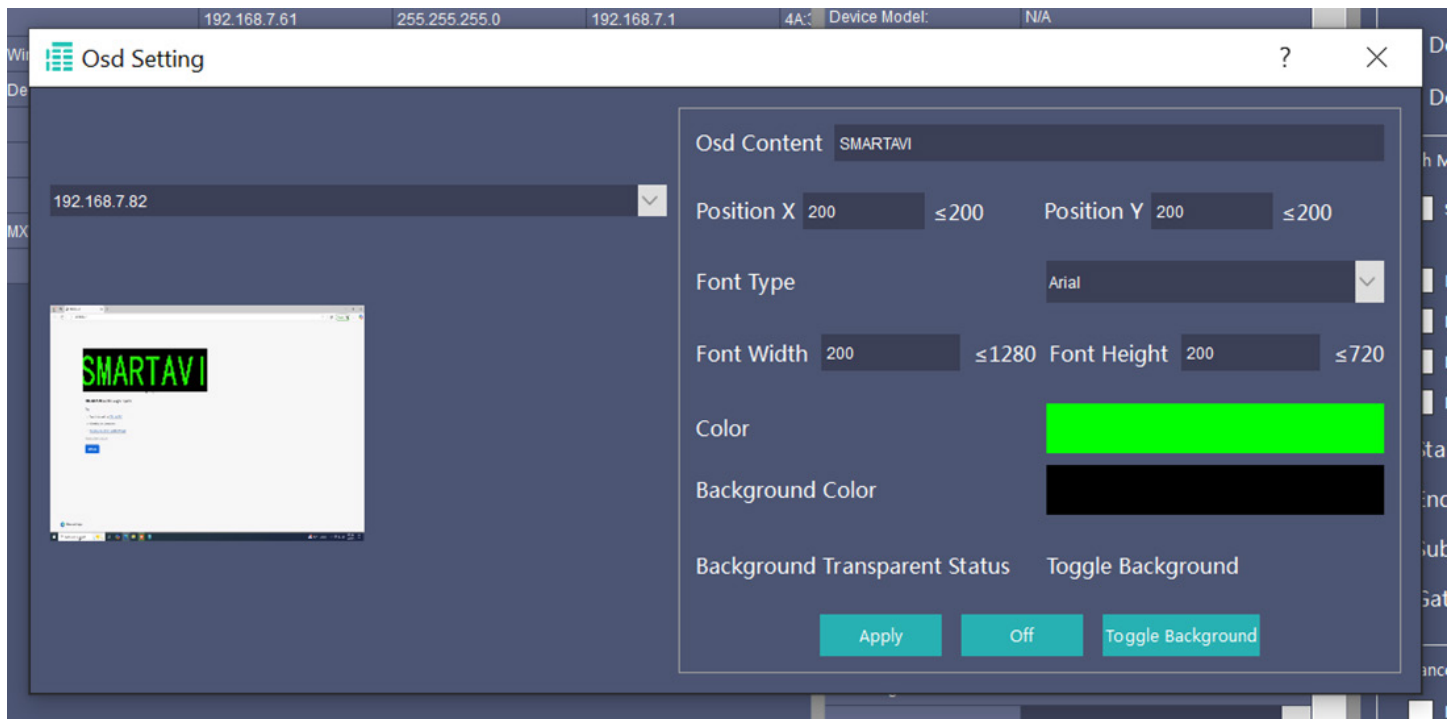


Figure: OSD Settings

1. Checkmark an encoder and click OSD Setting.
2. Type your text in the OSD Content field.
3. Configure font type, size, and color.
4. Click Apply – a preview appears in the left panel.

**Additional:** Toggle Background turns the text background on/off. Off removes the OSD overlay entirely.

# DESKTOP APPLICATION (CONTINUED)

## Encoders & Source Groups

The Encoder tab shows all devices configured as encoders. Encoders must be added as input sources before they can be used in video walls or multiviewers.

The screenshot shows the N2NKVM System Configuration application. The 'Encoder' tab is selected in the navigation menu. The 'Input Devices' panel on the left contains a table with the following data:

All	No.	ID	IP Addr	Device Name	Input Resolution	Encoding Resolution	HDMI Status
<input type="checkbox"/>	1	61	192.168.7.61		1920x1080	1920x1080	Disconnected
<input type="checkbox"/>	2	82	192.168.7.82		1920x1080	1920x1080	Disconnected
<input type="checkbox"/>	3	132	192.168.7.132	Windows	1920x1080	1920x1080	Disconnected
<input type="checkbox"/>	4	71	192.168.7.71	Decoder1	1920x1080	1920x1080	Disconnected
<input type="checkbox"/>	5	50	192.168.7.50		1920x1080	1920x1080	Disconnected
<input type="checkbox"/>	6	81	192.168.7.81		1920x1080	1920x1080	Disconnected

The 'Input Nodes' panel on the right shows a 'Source Group' containing four nodes: X2X (192.168.7.61), EKS (192.168.7.82), MXWALL (192.168.7.60), and Windows (192.168.7.132). An 'Add' button is located between the two panels. The bottom right corner shows 'Select Local NIC 192.168.7.104'.

Figure: Encoder Tab

### Adding an Encoder as an Input Source

1. Click the Encoder tab and press Search.
2. Checkmark an encoder from the left panel.
3. Click Add to add it to the Source Group on the right.

**Important:** This step is required. If you skip it, the encoder will not appear as an available input when configuring video walls or multiviewers.

# DESKTOP APPLICATION (CONTINUED)

## Managing Source Groups

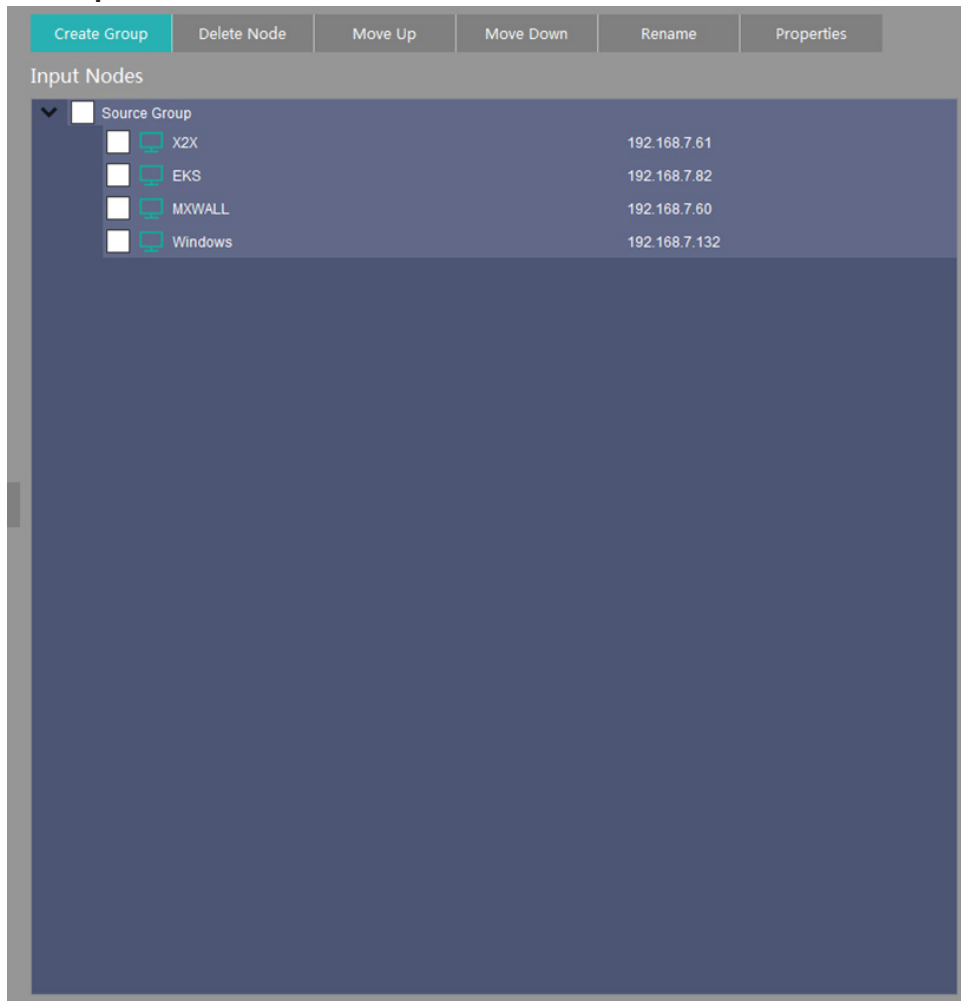


Figure: Input Nodes and Source Groups

- Create Group – Checkmark the Source Group node, then click Create Group.
- Delete – Checkmark a node and click Delete. (Cannot delete nodes in active displays.)
- Move Up / Move Down – Reorder inputs. Put most-used sources at the top for easy access.
- Rename – Checkmark a node and click Rename, then type a new name. (Cannot rename nodes assigned to active displays.)
- Properties – Checkmark an input source and click Properties to view IP, resolution, FPS, and more.
- Mode – Checkmark an input source and click Mode to change its signal mode.

# DESKTOP APPLICATION (CONTINUED)

## Decoders

The Decoder tab shows all devices configured as decoders. They must be added as output nodes before they can be assigned to video walls or multiviewers.

System Configuration

Device Encoder Decoder Grouping Admin Status System Logs

Search Delete Node

Output Devices

All	No.	ID	IP Addr	Device Name	Output Resolution
<input type="checkbox"/>	1	74	192.168.7.74		1920x1080@60
<input type="checkbox"/>	2	60	192.168.7.60	MXWALL	1920x1080@60

Add

Output Nodes

All	No.	ID	IP	Name	Output Resolution
<input type="checkbox"/>	1	62	192.168.7.62	Decoder3	1920x1080@60
<input type="checkbox"/>	2	71	192.168.7.71	KVM1	1920x1080@60
<input type="checkbox"/>	3	74	192.168.7.74	Decoder2	1920x1080@60
<input type="checkbox"/>	4	81	192.168.7.81	Decoder4	1920x1080@60

Select Local NIC 192.168.7.104

Figure: Decoder Tab

1. Click the Decoder tab and press Search.
2. Select a decoder from the list.
3. Click Add to register it as an output node.

To remove an output node: select it and click Delete above the output node panel. The decoder will no longer be available for assignment to displays.

# DESKTOP APPLICATION (CONTINUED)

## Groupings

The Grouping tab is where you create and manage the screen layouts that appear on your output monitors, as well as the groups shown on the Home screen.

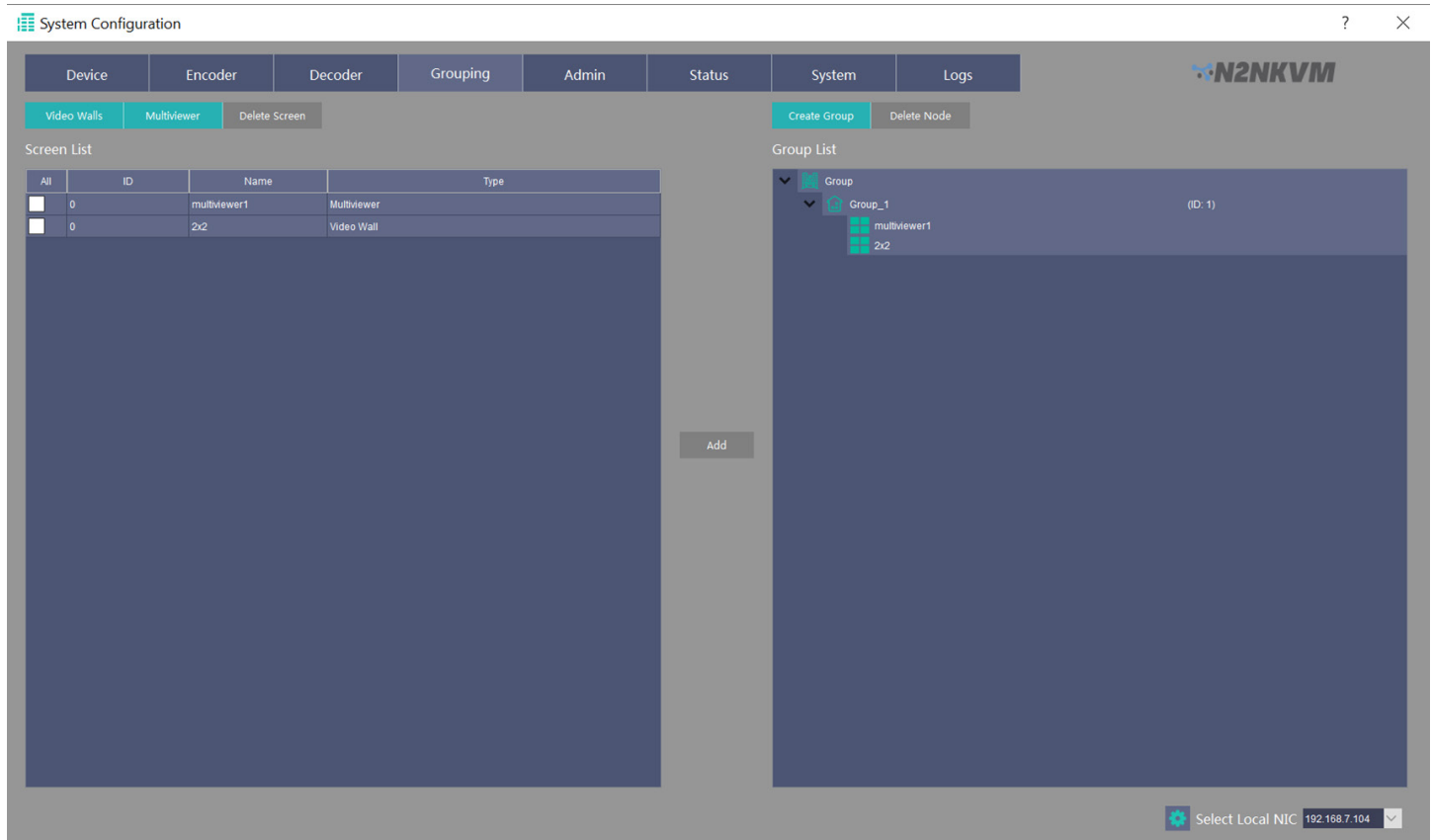


Figure: Grouping Tab

- Create a video wall or multiviewer – click the respective button above Screen List.
- Rename a group – double-click the group name and type a new name.
- Delete a screen – checkmark the desired node and click Delete Screen. Connected devices will stop displaying inputs.
- Create a group (right panel) – click Create Group. An ID is assigned automatically.
- Delete a node – select a node (group, wall, or multiviewer) and click Delete Node.

### Assigning Screens to Groups

1. Checkmark the desired screen from the Screen List panel (left).
2. Select a group from the right panel.
3. Click Add. The screen is now assigned to that group.
4. Close System Configuration and return to the Home page to see your groups.

**Tip:** It may take a few seconds for groups to refresh and appear on the Home page.

# DESKTOP APPLICATION (CONTINUED)

## Video Walls

Video walls stretch a single input source across multiple physical monitors. Access this page by clicking Video Walls in the Grouping tab.

The screenshot shows a 'Video Walls' configuration window. At the top, there's a toolbar with buttons: 'Bind Node', 'Bind Audio Nodes', 'Delete', 'Update Name', and 'Background'. Below this is a 'Property' section with the following fields:

- Name: 2x2
- ID: 0
- Wall Type: LCD
- Node Type: G1001U
- Split Mode: Same Resolution
- Row: 2, Col: 2
- Timing: Standard Timing
- LCD Resolution: 1920x1080P60
- Node Width: 1920, Node Height: 1080, FPS: 60
- Total Width: 3840, Total Height: 2160
- Audio Mode: Enable Video And Audio, Stream Protocol: Udp Multicast
- Free Mode: Disable, Overlay Mode: Disable
- Wall Edge: Top (0), Bottom (0), Left (0), Right (0)
- Sort: 0

A 'Create' button is positioned at the bottom center of the form.

Figure: Video Wall Creation / Editing Menu

## Creating a Video Wall

1. Click Video Walls in the Grouping tab.
2. Enter a Name and ID, configure Rows and Columns, then click Create.
3. The Bind Node screen opens automatically – drag decoders from the left to assign them to wall positions.

**Note:** Rows, columns, and other structural settings cannot be changed after creation. Only the name can be updated later.

# DESKTOP APPLICATION (CONTINUED)

## Binding Video Wall Nodes

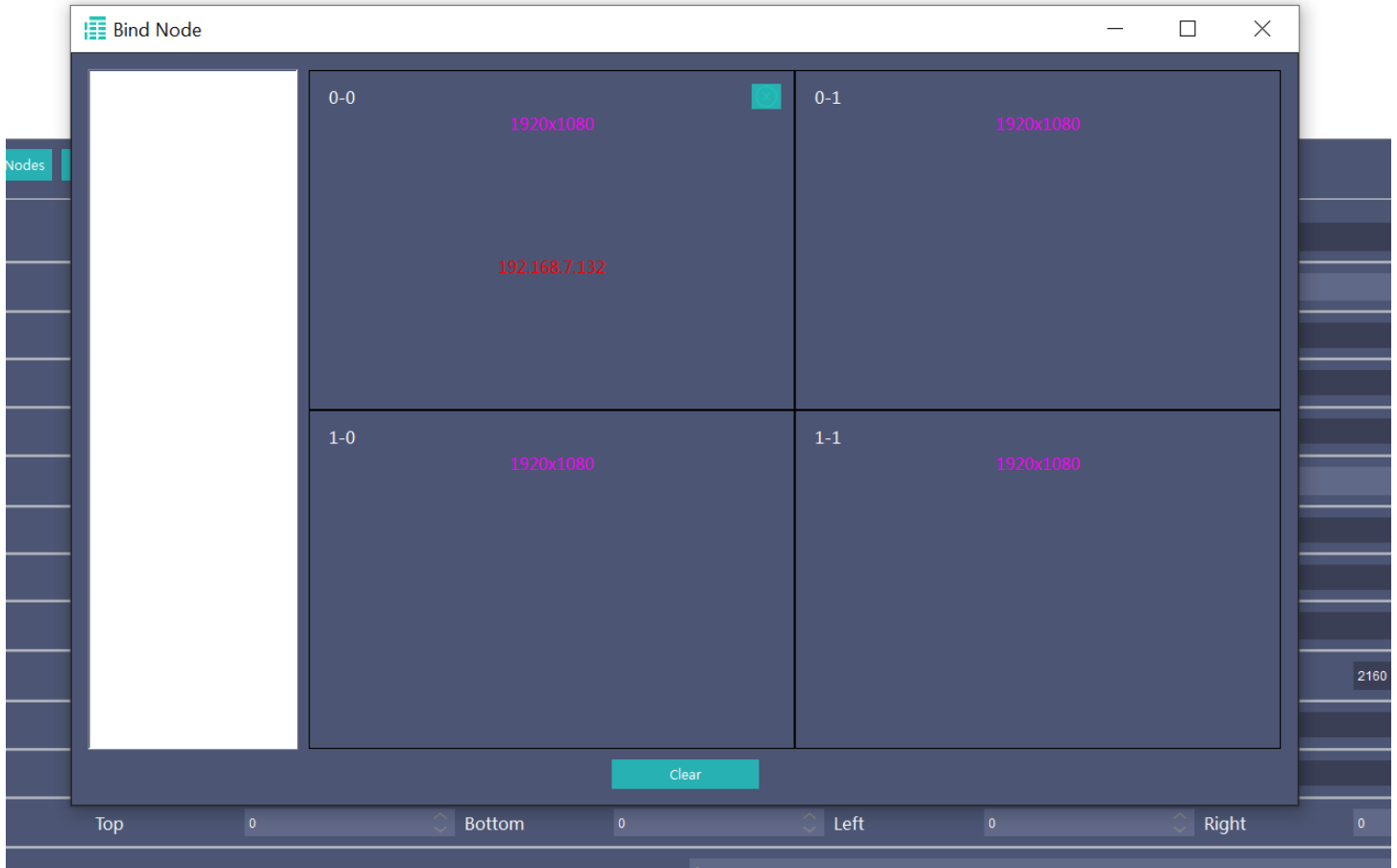


Figure: Bind Nodes Screen

The Bind Node screen appears after creating a video wall, or by clicking Bind Node in the Video Walls page. Drag available decoders from the left panel to assign them to wall positions. Decoder position determines which row/column of the video wall they display. Decoders already assigned to another wall or multiviewer will not appear here.

To bind audio nodes: click Bind Audio Nodes, checkmark the desired decoder node, and click Add. To remove, checkmark the node in the right panel and click Delete.

# DESKTOP APPLICATION (CONTINUED)

## Video Wall Background Image



Video Wall Background Image

Click Background, then Import to load an image. Click Apply to save, or Clear to remove the current background. Background images can also be changed in the scene management menu (click a group on the Home page).

### Deleting or Renaming

- Delete – select the wall from the top of the page and click Delete.
- Rename – select a wall, type a new name in the Name field, and click Update Name.

# DESKTOP APPLICATION (CONTINUED)

## Multiviewers

Multiviewers display multiple different input sources simultaneously on one or more output monitors. Access this page by clicking Multiviewer in the Grouping tab.

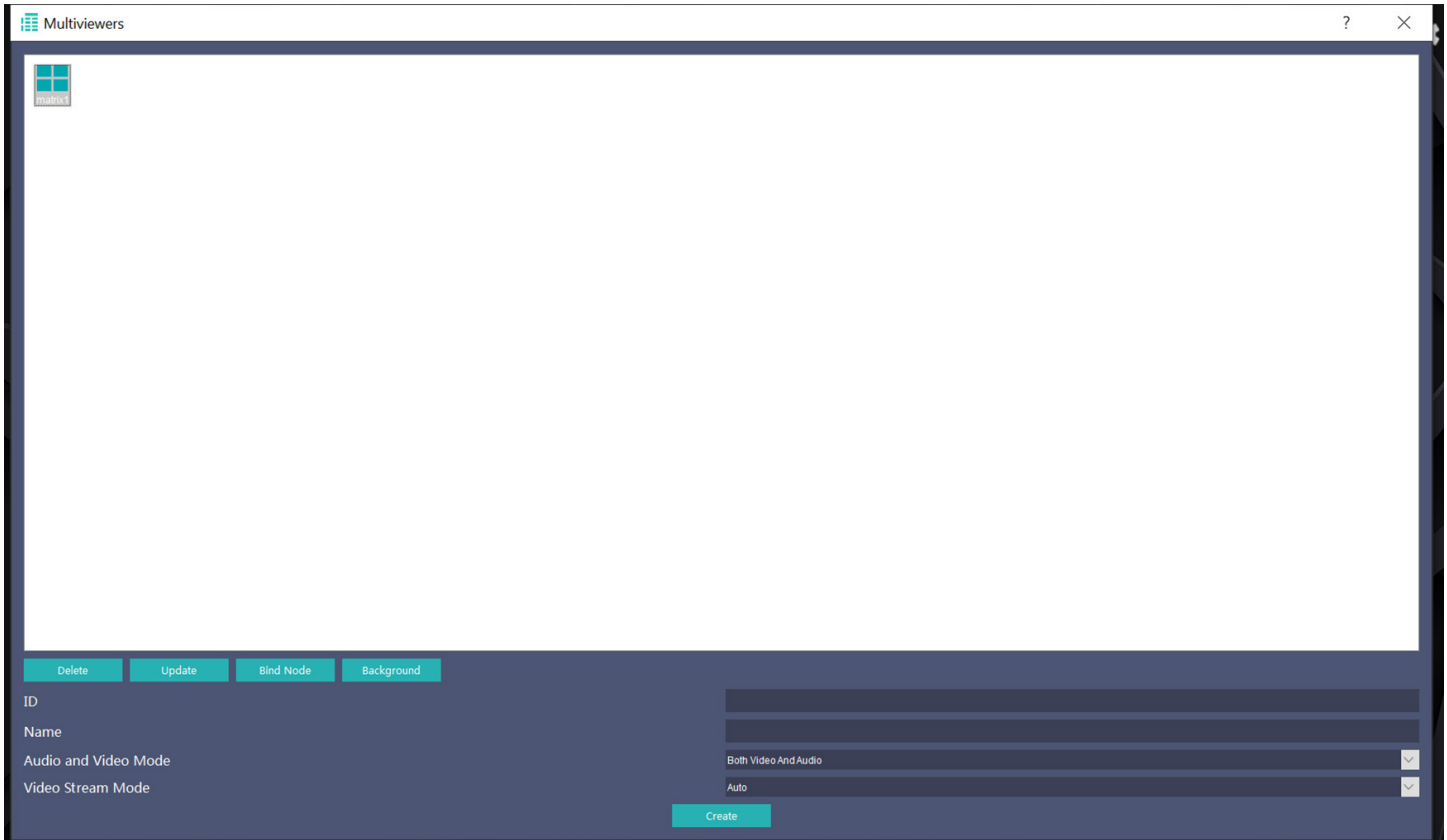


Figure: Multiviewer Main Menu

## Creating a Multiviewer

1. Enter a Name and ID, choose Video or Audio & Video, and set Cast Type:

CAST TYPE	WHEN TO USE
TCP Unicast	One encoder to one decoder (point-to-point).
UDP Multicast	One encoder to many decoders simultaneously.
Auto (Recommended)	Automatically selects the best mode based on your configuration.

2. Click Create. The new multiviewer appears at the top of the page.
3. Select it and click Bind Node to assign output decoders.

**To update settings:** select a multiviewer, configure settings, and click Update. To delete: select it and click Delete.

# DESKTOP APPLICATION (CONTINUED)

## Binding Multiviewer Nodes

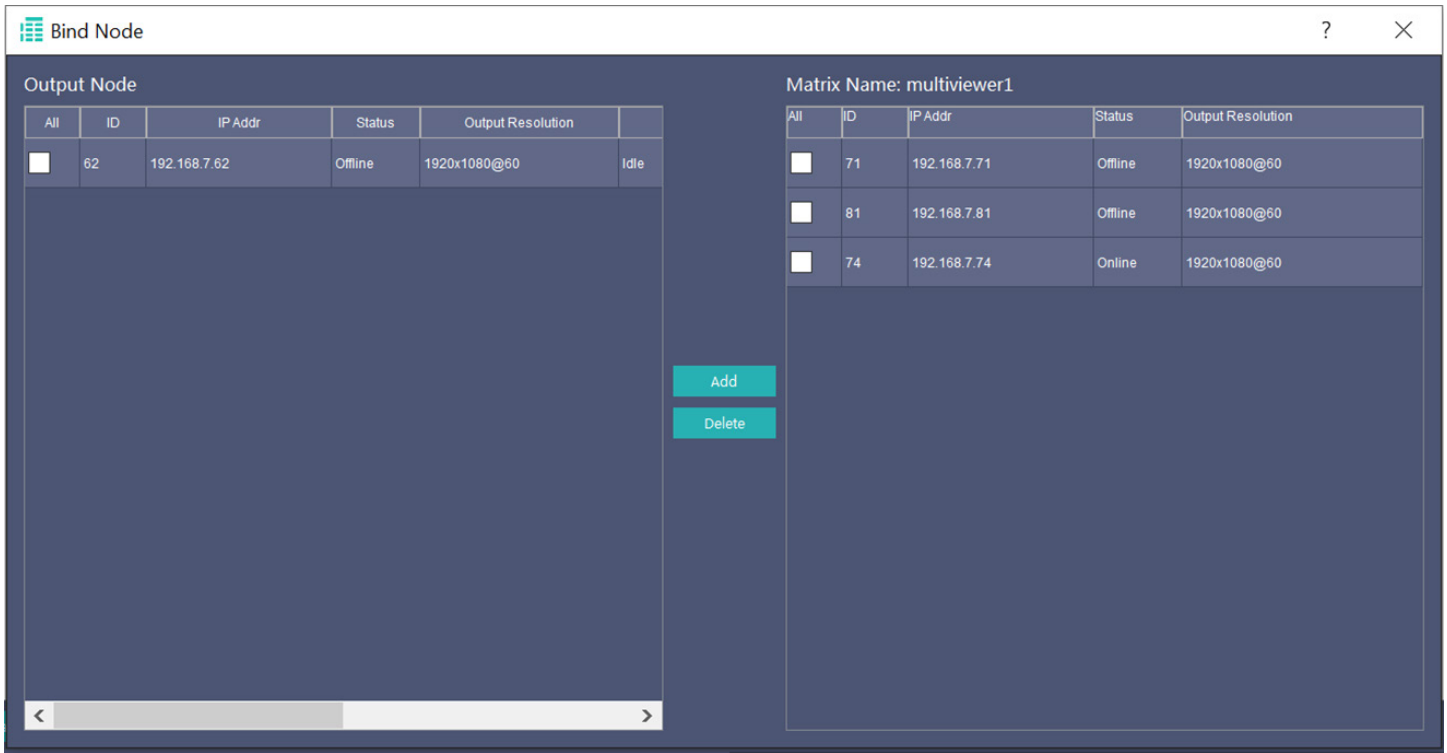


Figure: Multiviewer Bind Node Screen

Click the checkmark next to a decoder node and click Add to assign it as an output monitor. Click the checkmark and Delete to remove it. Nodes already assigned to other displays will not appear here.

# DESKTOP APPLICATION (CONTINUED)

## Multiviewer Background Image

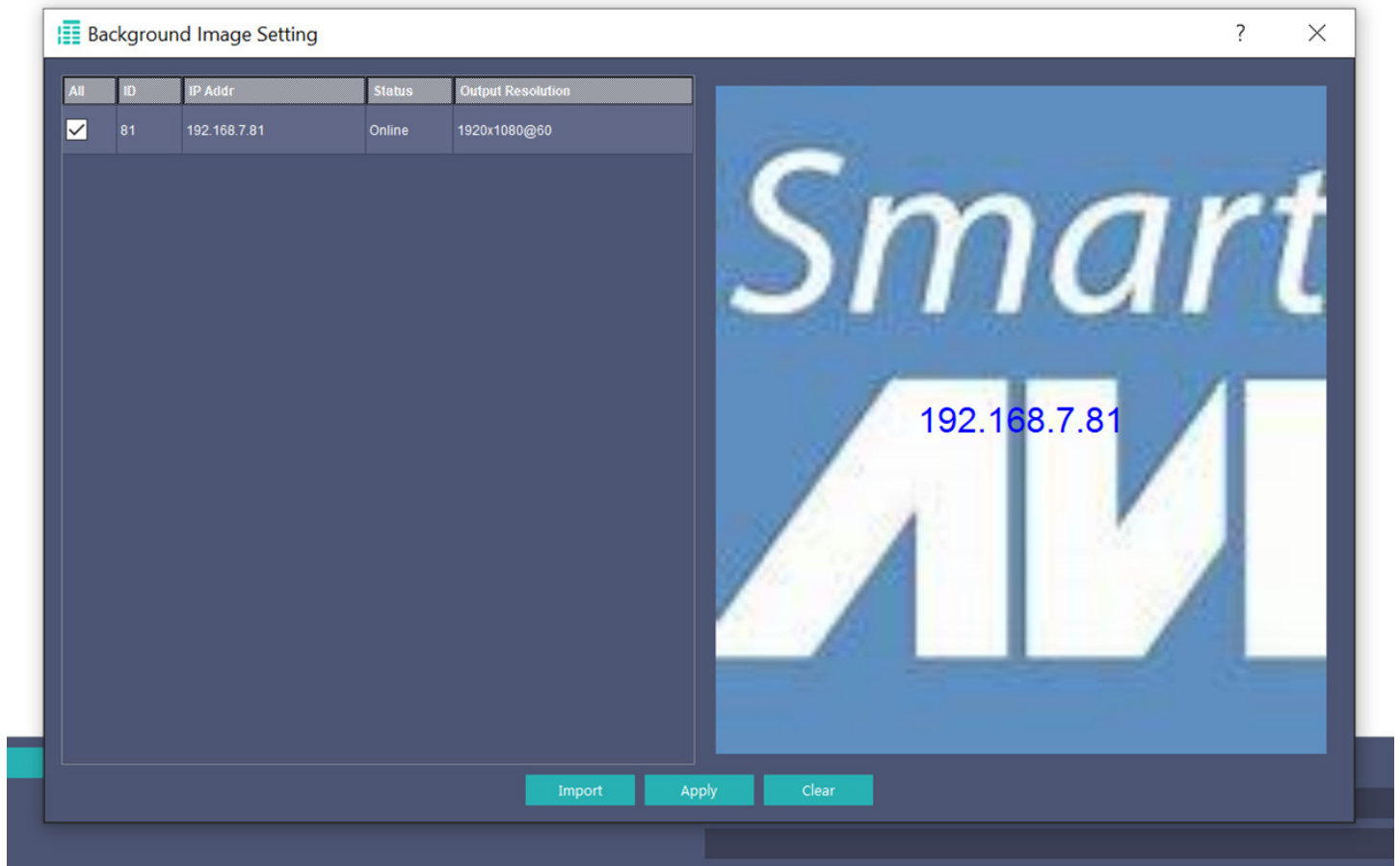


Figure: Multiviewer Background Screen

Click Background. Checkmark output monitors on the right panel – their current background appears on the left. Click Import to load a new image, Apply to save, or Clear to remove the background for checkmarked outputs.

# DESKTOP APPLICATION (CONTINUED)

## Admin Tab – User Management

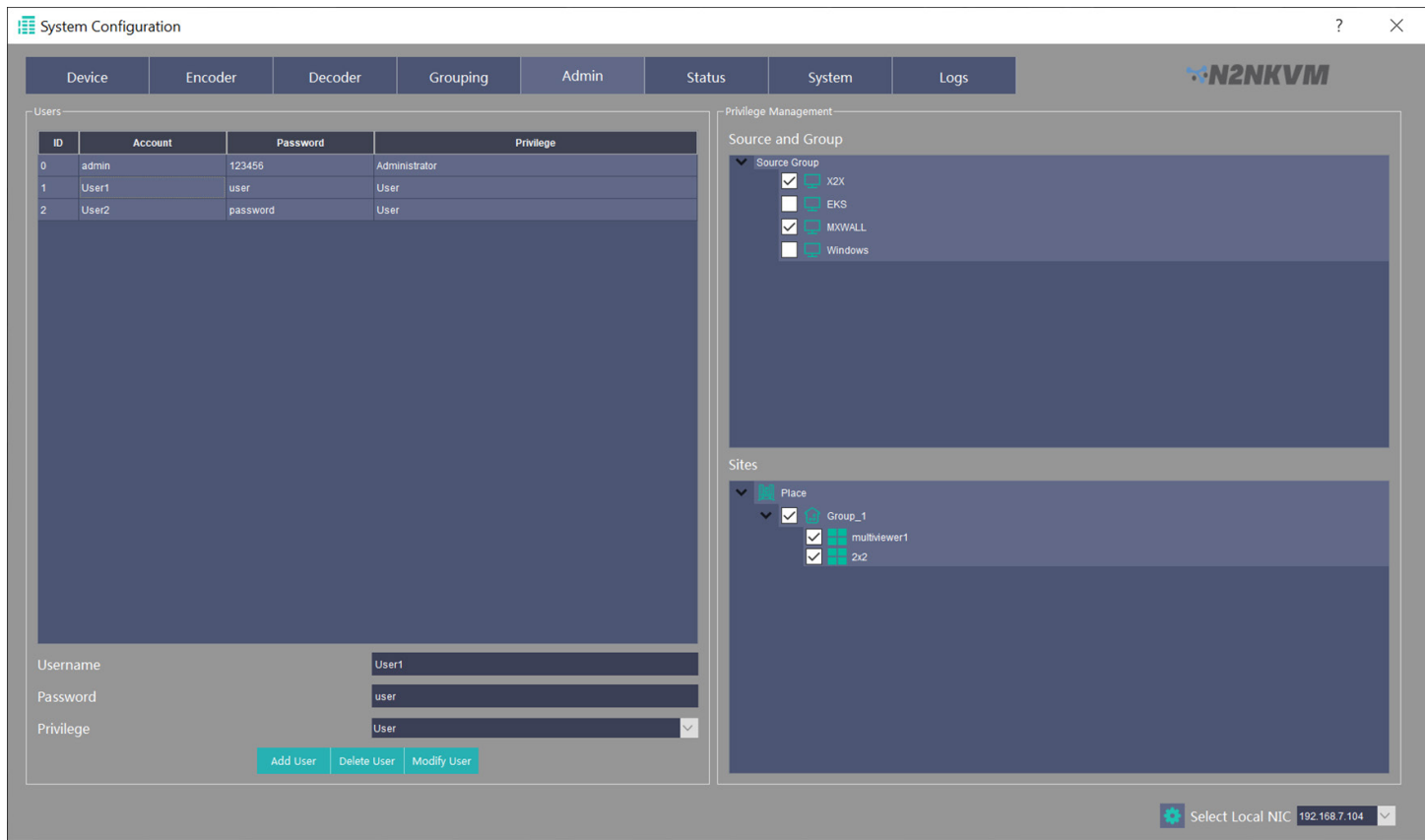


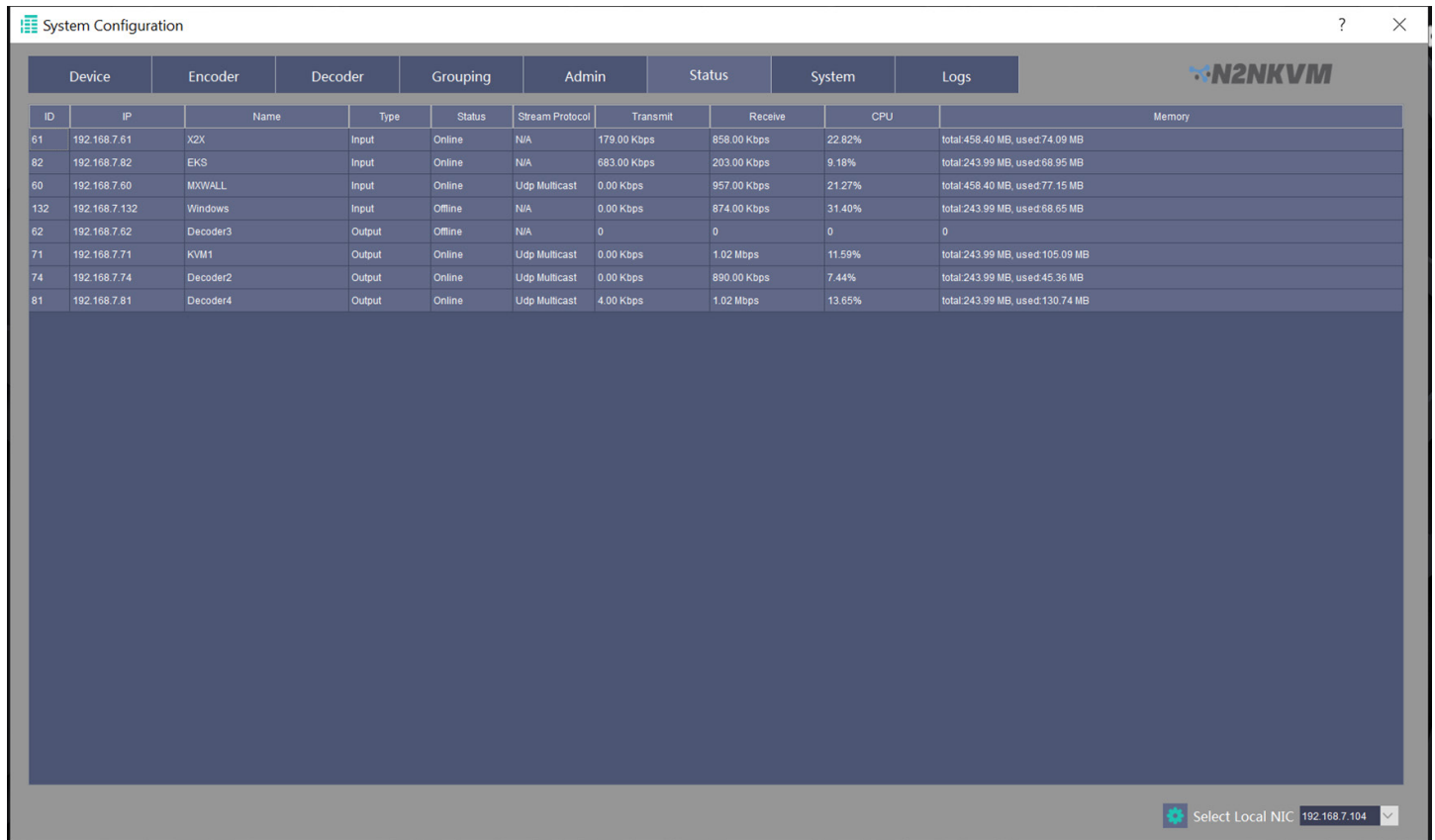
Figure: Admin Tab

- Add User – Click Add User, enter a username and password, click OK.
- Modify User – Select a user, enter new credentials at the bottom, click Modify User.
- Delete User – Select a user from the left panel and click Delete User.
- Privilege Management – Select a user and checkmark input sources or groups from the right panel to grant access. Assigned groups appear on that user’s Home screen.

**Security:** Change the default admin password immediately. Regular users cannot access System Configuration and by default will not see any groups or input sources.

# DESKTOP APPLICATION (CONTINUED)

## Status Tab



The screenshot shows the 'System Configuration' window with the 'Status' tab selected. The window title is 'System Configuration' and the N2NKVM logo is in the top right. The table below lists the status of various devices.

Device	Encoder	Decoder	Grouping	Admin	Status	System	Logs		
ID	IP	Name	Type	Status	Stream Protocol	Transmit	Receive	CPU	Memory
61	192.168.7.61	XZX	Input	Online	N/A	179.00 Kbps	858.00 Kbps	22.82%	total:458.40 MB, used:74.09 MB
82	192.168.7.82	EKS	Input	Online	N/A	683.00 Kbps	203.00 Kbps	9.18%	total:243.99 MB, used:68.95 MB
60	192.168.7.60	MXWALL	Input	Online	Udp Multicast	0.00 Kbps	957.00 Kbps	21.27%	total:458.40 MB, used:77.15 MB
132	192.168.7.132	Windows	Input	Offline	N/A	0.00 Kbps	874.00 Kbps	31.40%	total:243.99 MB, used:68.65 MB
62	192.168.7.62	Decoder3	Output	Offline	N/A	0	0	0	0
71	192.168.7.71	KVM1	Output	Online	Udp Multicast	0.00 Kbps	1.02 Mbps	11.59%	total:243.99 MB, used:105.09 MB
74	192.168.7.74	Decoder2	Output	Online	Udp Multicast	0.00 Kbps	890.00 Kbps	7.44%	total:243.99 MB, used:45.36 MB
81	192.168.7.81	Decoder4	Output	Online	Udp Multicast	4.00 Kbps	1.02 Mbps	13.65%	total:243.99 MB, used:130.74 MB

At the bottom right of the window, there is a 'Select Local NIC' dropdown menu currently set to '192.168.7.104'.

Figure: Device Status Tab

Displays real-time status of all connected devices: device ID, IP address, name, type, and operational status.

# DESKTOP APPLICATION (CONTINUED)

## System Tab

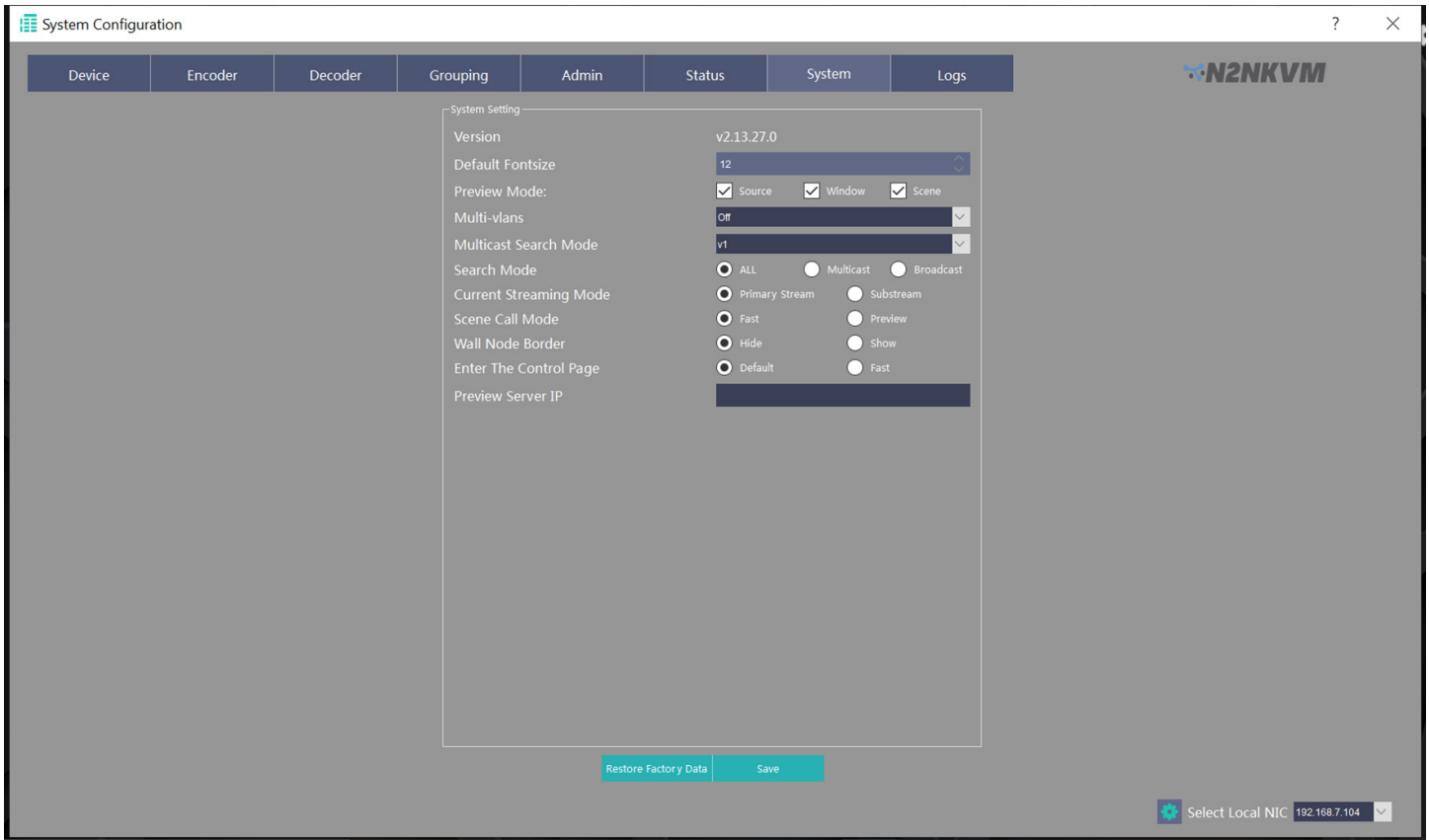


Figure: System Settings Tab

Contains global system settings and the current software version. Configure as needed and click Save. Click Restore Factory Data to reset all settings – this will erase all groupings and user data.

# DESKTOP APPLICATION (CONTINUED)

## Logs Tab

System Configuration

Device Encoder Decoder Grouping Admin Status System Logs

Level

- Notice
- Warning
- Error

Time Period

Start Time: 2025-4-28 10:08:19

End Time: 2025-5-5 10:08:19

Show Specified Logs Show All Delete Log

All	Level	Time	IP	Message
<input type="checkbox"/>	Notice	2025-05-05 09:40:47	192.168.7.104	admin logged into the system
<input type="checkbox"/>	Notice	2025-05-05 09:35:16	192.168.7.104	admin logged into the system
<input type="checkbox"/>	Notice	2025-05-02 11:02:36	192.168.7.104	admin logged into the system
<input type="checkbox"/>	Notice	2025-05-01 13:55:47	192.168.7.104	admin logged into the system
<input type="checkbox"/>	Notice	2025-04-30 13:01:57	192.168.7.104	admin logged into the system
<input type="checkbox"/>	Notice	2025-04-28 11:40:29	192.168.7.104	admin logged into the system

Select Local NIC: 192.168.7.104

Figure: Log Activity Tab

Records all user activity and system events. Filter by type and time using the controls, then click Show Specified Logs. Click Show All for complete history. Checkmark an entry and click Delete Log to remove it.

# DESKTOP APPLICATION (CONTINUED)

## Group Control – Live Display Management

From the Home page, click any group to open Group Control – the live display management area. This is where you assign inputs to outputs in real time.

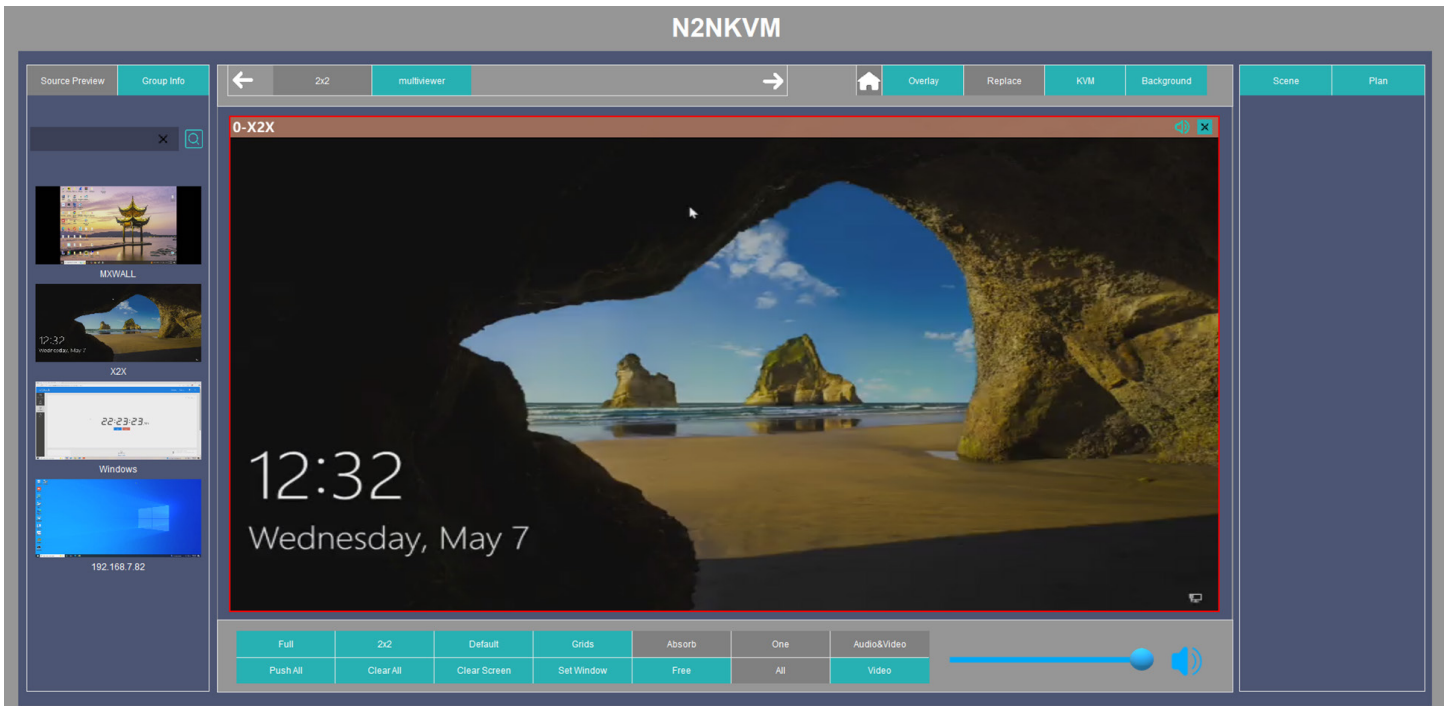


Figure: Group Control – Video Wall View



Figure: Group Control – Multiviewer View

# DESKTOP APPLICATION (CONTINUED)

## Assigning Inputs to Outputs

- Left panel shows input sources added from System Configuration. Toggle between Preview (thumbnail view) and Group (source group view) using the buttons above the panel. Use the search bar to quickly find inputs.
- Click a preview thumbnail (red border appears) or click the IP address (grays out) to select an input.
- Drag the selected input to the desired position in the scene window. The input now appears on that output monitor.
- Each placed input has two buttons in its top-right corner: Delete Input and Toggle Audio.



Figure: Scene Window Options Bar

CAST TYPE	WHEN TO USE
Overlay	New input overlays on top of existing inputs without removing the current layout.
Replace	New input replaces the existing input at that position.
KVM	Take keyboard and mouse control of the selected input (requires USB connection from encoder to computer).
Background	Set a static background image for the scene window.
OSD	Adjust OSD settings for the selected input source.
Full	Single input fills all output monitors — ideal for video walls.
2x2	Divides display into 4 equal sections.
Default	Returns to the layout configured during video wall/multiviewer creation.
All Grids	Access preset grid layouts: 1x2, 2x4, 4x4, and more.
Set Window	Create or modify an input window with exact pixel size and position (video walls only).
Push All	Assigns the selected input to every output monitor at once.
Clear All	Removes all inputs from the entire scene window.
Clear Screen	Removes only the selected input.
Free	Dragged inputs appear as a small floating window (do not snap to grid).
Absorb	Dragged inputs automatically fit to the current layout.
One (multiviewer)	Shows only the selected output monitor in the scene window.
All (multiviewer)	Shows all output monitors and their current inputs.

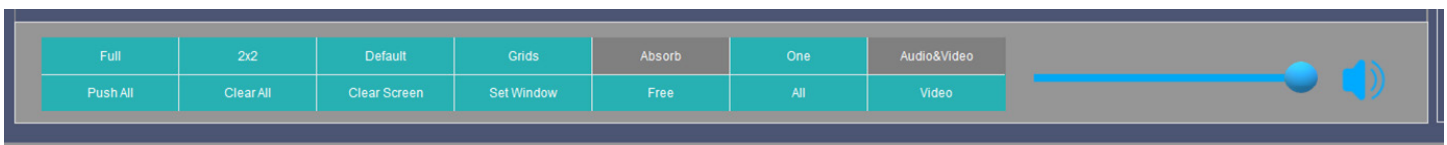


Figure: Scene Window Layout Buttons

# DESKTOP APPLICATION (CONTINUED)

## Custom Grid Layouts

Click the Grids button to open the Custom Grids menu. Select any existing preset to apply it immediately. To set a temporary custom layout, enter Row and Col values and click Apply.



Figure: Grids Screen

# DESKTOP APPLICATION (CONTINUED)

To create a permanent custom layout, click Manage Layout.

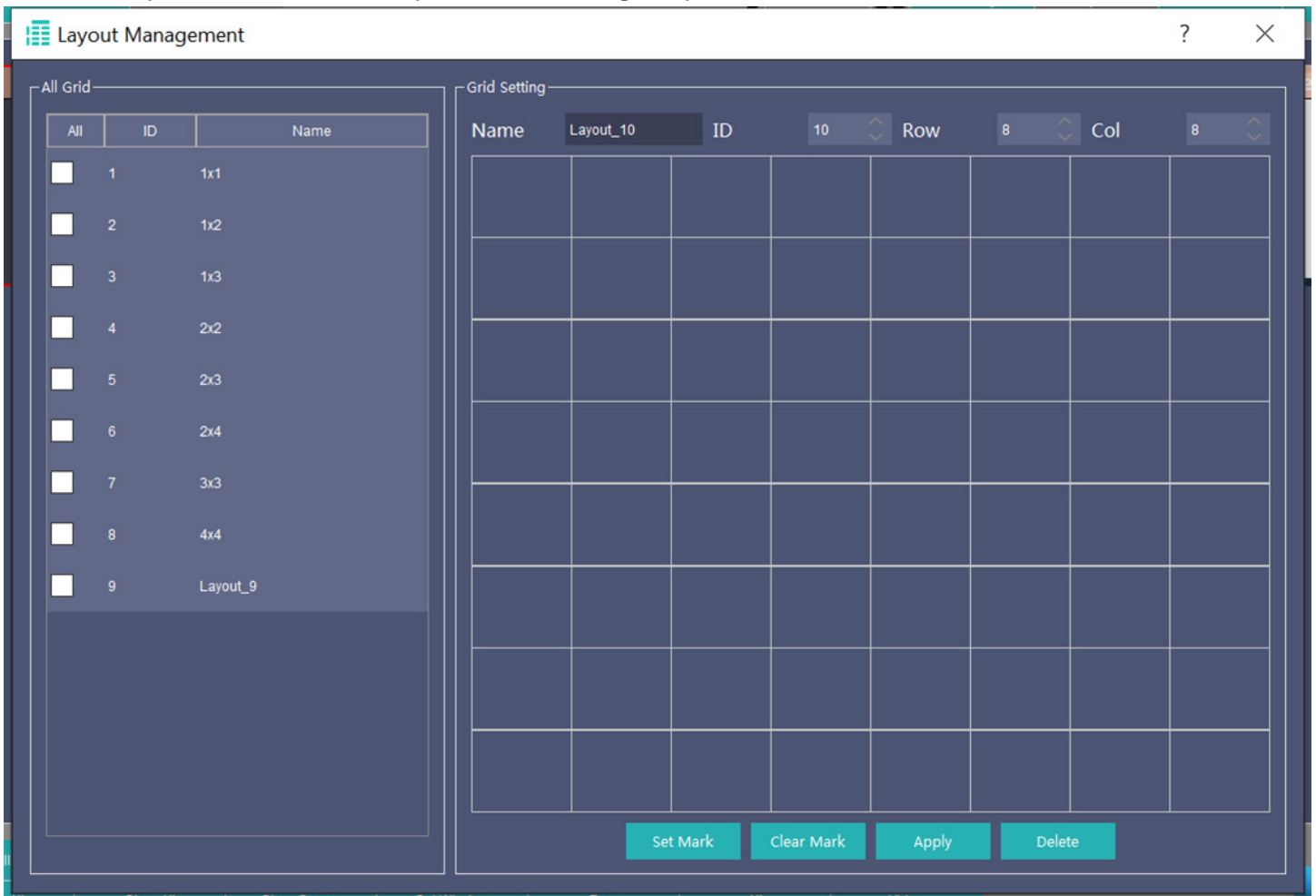


Figure: Manage Layout Screen

- Add a layout – fill in Name, ID, Row, Col, then click Apply.
- Edit a layout – checkmark it from the left panel, modify fields, click Apply.
- Delete a layout – checkmark it and click Delete.
- Set grid label text – click Set Mark to open an OSD menu for each grid section. Click Save to apply. Labels appear as overlays when that layout is active.
- Clear a label – checkmark the layout, select the grid section, and click Clear Mark.

# DESKTOP APPLICATION (CONTINUED)

## Set Custom Window

The Set Window screen creates or modifies input windows with exact pixel dimensions inside the scene window. It is only available for video walls and is useful for complex layouts requiring precise positioning.

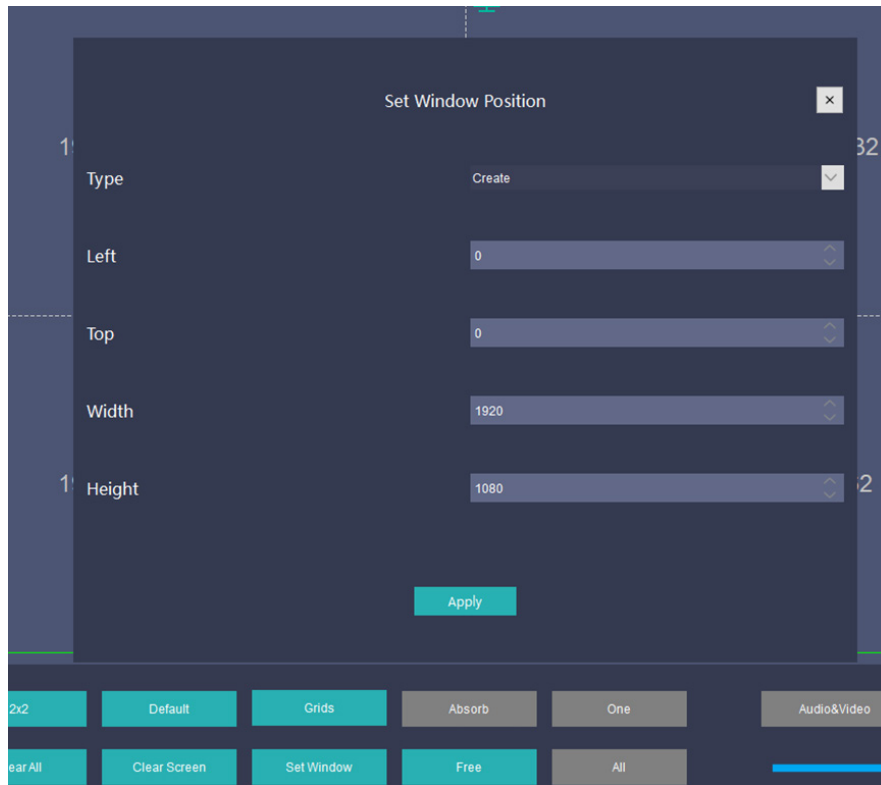


Figure: Set Window Screen

## Creating a Custom Window

- Select an input from the left panel, click Set Window, set Type to Create.
- Left – horizontal distance from the left edge of the scene window.
- Top – vertical distance from the top of the scene window.
- Width / Height – resolution of the input window (default 1920×1080).
- Click Apply to create the window.

To modify an existing window: select it, click Set Window, set Type to Modify, adjust settings, and click Apply.

# DESKTOP APPLICATION (CONTINUED)

## Scenes – Saving & Switching Displays

Scenes let you save the current display layout and recall it instantly.

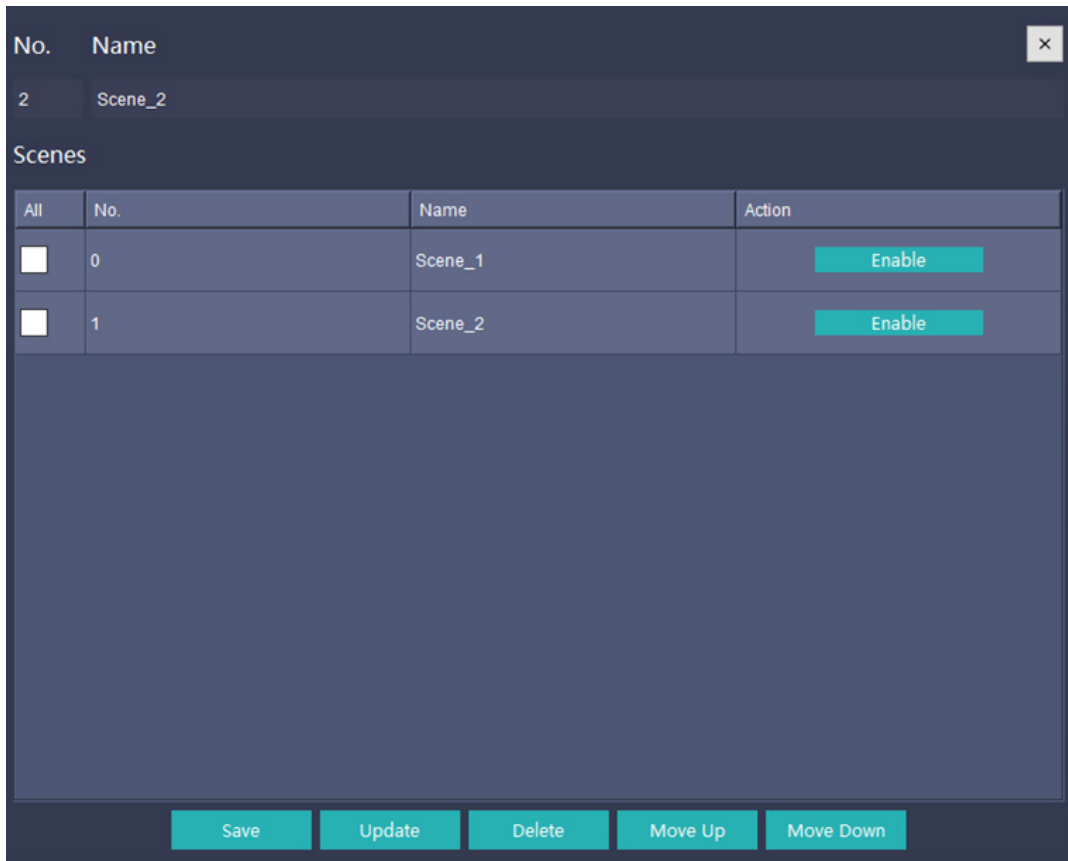


Figure: Scene List Menu

1. Click the Scene button to open the Scene List.
2. Enter a scene name and number, then click Save.
3. The scene appears in the Scene Panel on the right. Click it to load that layout anytime.
4. Click Enable to activate a scene; click Update to rename it.

**Note:** A scene's number cannot be changed after saving – only its name can be updated. The Scene List also allows deleting scenes and reordering them.

# DESKTOP APPLICATION (CONTINUED)

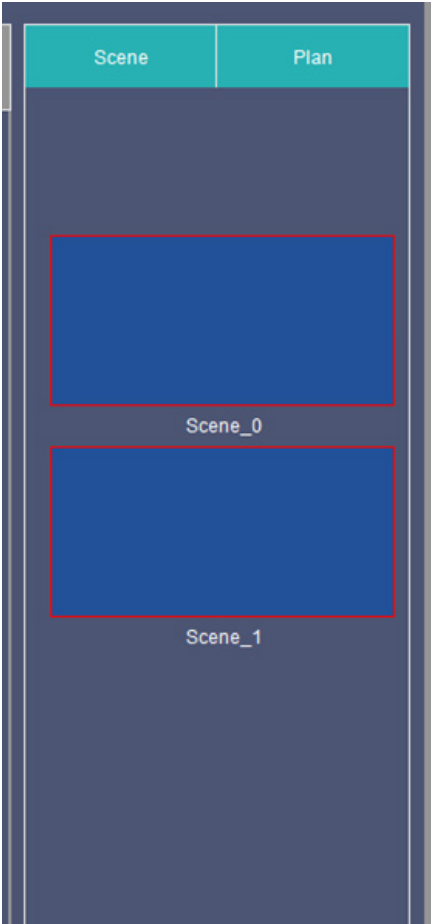


Figure: Scene and Plans Panel

# DESKTOP APPLICATION (CONTINUED)

## Plans – Automatic Scene Scheduling

Plans automate scene switching on a timer – useful for digital signage and rotating displays.

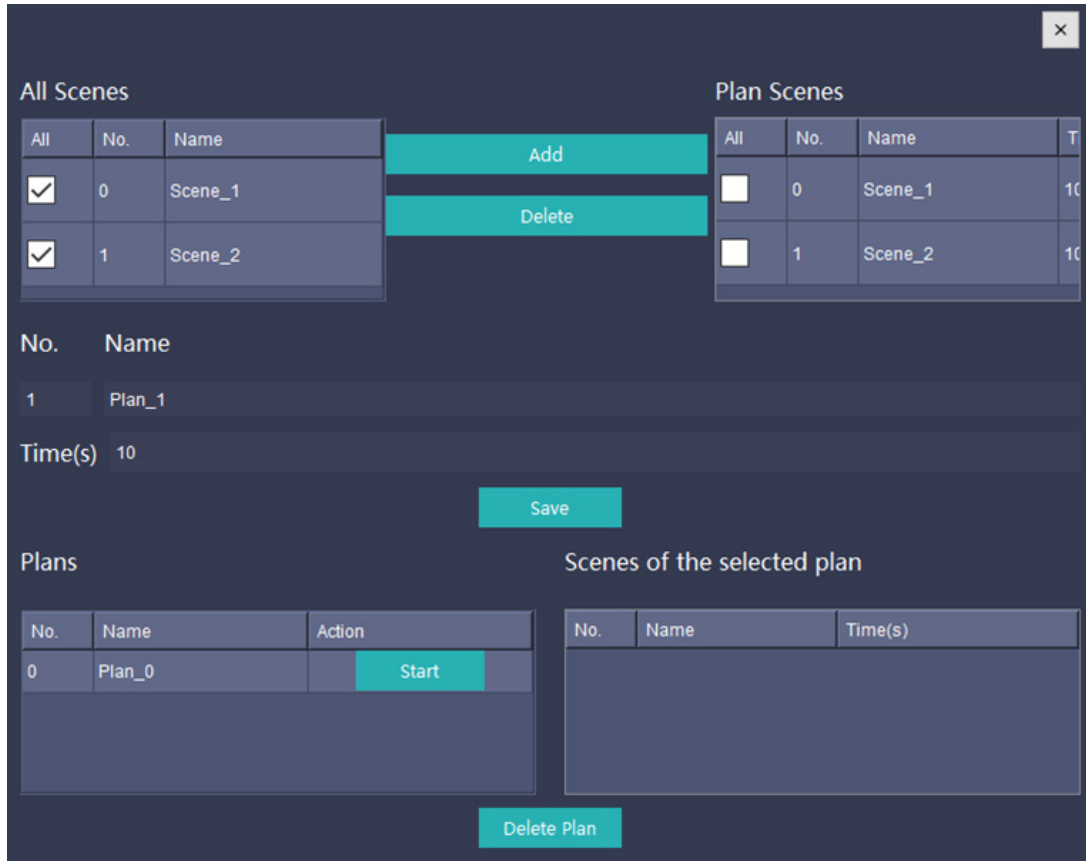


Figure: Plan Panel

1. Click the Plan button to open the plans menu.
2. Checkmark scenes from the All Scenes panel and click Add to include them.
3. Enter a plan number, name, and default display time per scene, then click Save.
4. The new plan appears under Plans. Click Start to activate it.
5. To set individual scene durations, double-click the Time column for each scene row.
6. Click Stop to end the plan and return to manual scene control.

**Note:** While a plan is running, the scene window cannot be manually changed. Minimum time per scene is 10 seconds. Plans can be deleted by selecting them and clicking Delete Plan.

# KVM SYSTEM

The KVM mode enables control of multiple computers from a single keyboard, mouse, and monitor through the device's own board firmware. This section covers the dedicated KVM on-screen interface, separate from the Desktop Application.

**Prerequisite:** To switch a device to KVM mode: in the Desktop Application, go to Device Settings, checkmark Device Type, select KVM, and click Apply.

## Logging In



Figure: N2NKVM Login Page

Default login – Username: admin | Password: 123456 | Only one user account can be logged in at a time.

- Check Configuration Menu to access the full Settings page (recommended for initial setup).
- Uncheck Configuration Menu to go directly to the main KVM display on login.

# KVM SYSTEM (CONTINUED)

## Standard User Interface

The screenshot displays the N2NKVM Standard User Interface. At the top, there are three tabs: "Source management", "Enter system", and "Exit system". The "Source management" tab is active. Below the tabs, there are five buttons: "Delete", "Refresh", "Move up", "Move down", and "Top". The main content area is titled "User sources" and contains a table with the following data:

Select	Numbr	IP	Name	Double-click this column to replace the shortcut
<input type="checkbox"/>	1	192.168.7.61	XZX	F3
<input type="checkbox"/>	2	192.168.7.82	EKS	F2
<input type="checkbox"/>	3	192.168.7.132	Windows	F1

The interface also features the N2NKVM logo and the text "SmartAVI Build version: 4-28-2025 V1025" in the top right corner.

Figure: Standard User Source Management

Regular (non-admin) users see only their permitted input sources. If the list is empty, the administrator has not granted access to any inputs. Users can assign custom hotkeys by double-clicking the hotkey column for any input. Click Enter System to proceed, or Exit System to return to the login page.

# KVM SYSTEM (CONTINUED)

## Source Management

Source management | User management | Enter system | Exit system

N2NKVM

SmartAVI  
Build version: 4-9-2025 V1426

Add remote device | Refresh | Delete | Add to right

Delete | Refresh | Move up | Move down | Top

All source

Select	IP	Name	Shortcut key	Mouse coordinates
<input type="checkbox"/>	192.168.7.132	Windows	None	abs
<input type="checkbox"/>	192.168.7.61	X2X	None	rel
<input type="checkbox"/>	192.168.7.74	Decoder2	None	rel
<input type="checkbox"/>	192.168.7.81	Decoder4	None	abs
<input type="checkbox"/>	192.168.7.82	EKS	None	abs
<input type="checkbox"/>	192.168.7.50	192.168.7.50	None	abs
<input type="checkbox"/>	192.168.7.71	Decoder1	None	abs

User sources

Select	Numb	IP	Name	Double-click this column to replace the shortcut
<input type="checkbox"/>	1	192.168.7.132	Windows	None
<input type="checkbox"/>	2	192.168.7.61	X2X	None
<input type="checkbox"/>	3	192.168.7.74	Decoder2	None
<input type="checkbox"/>	4	192.168.7.81	Decoder4	None
<input type="checkbox"/>	5	192.168.7.82	EKS	None
<input type="checkbox"/>	6	192.168.7.50	192.168.7.50	None
<input type="checkbox"/>	7	192.168.7.71	Decoder1	None

Figure: Admin Source Management

Input sources must be added here before they appear in the main KVM display. Select a source from the left panel and click Add to move it to the active sources list on the right. Admins can also assign hotkeys here.

**Important:** For an input source to be usable in the main KVM system, it must be added to the right panel in Source Management.

# KVM SYSTEM (CONTINUED)

## User Management

Source management | User management | Enter system | Exit system

**N2NKVM** SmartAVI Build version: 5-5-2025 V1310

Users table

ID	Username	Password	Permissions
0	admin	admin	Administrator
1	user2	user	User

Permissions

Sources

- Sources table
  - X2X
  - Windows
- MXWALL
- 192.168.7.50

Username: user1  
Password: user  
Permissions: User

Add user | Delete user | Modify user

Figure: User Management Page

- Add User — click Add User, enter username and password, click Submit.
- Delete User — select a user and click Delete User.
- Modify User — select a user, enter new credentials, click Modify User.
- Assign Permissions — click a user, then checkmark input sources in the right panel to grant access.

**Note:** Only one administrator account is allowed. All other accounts are permanently set to standard User permissions.

# KVM SYSTEM (CONTINUED)

## Main KVM Control Area

Click Enter System to enter the main KVM display. Press Ctrl twice to open/close the control panel bar at the top of the screen. The menu bar opens by default when entering the system.

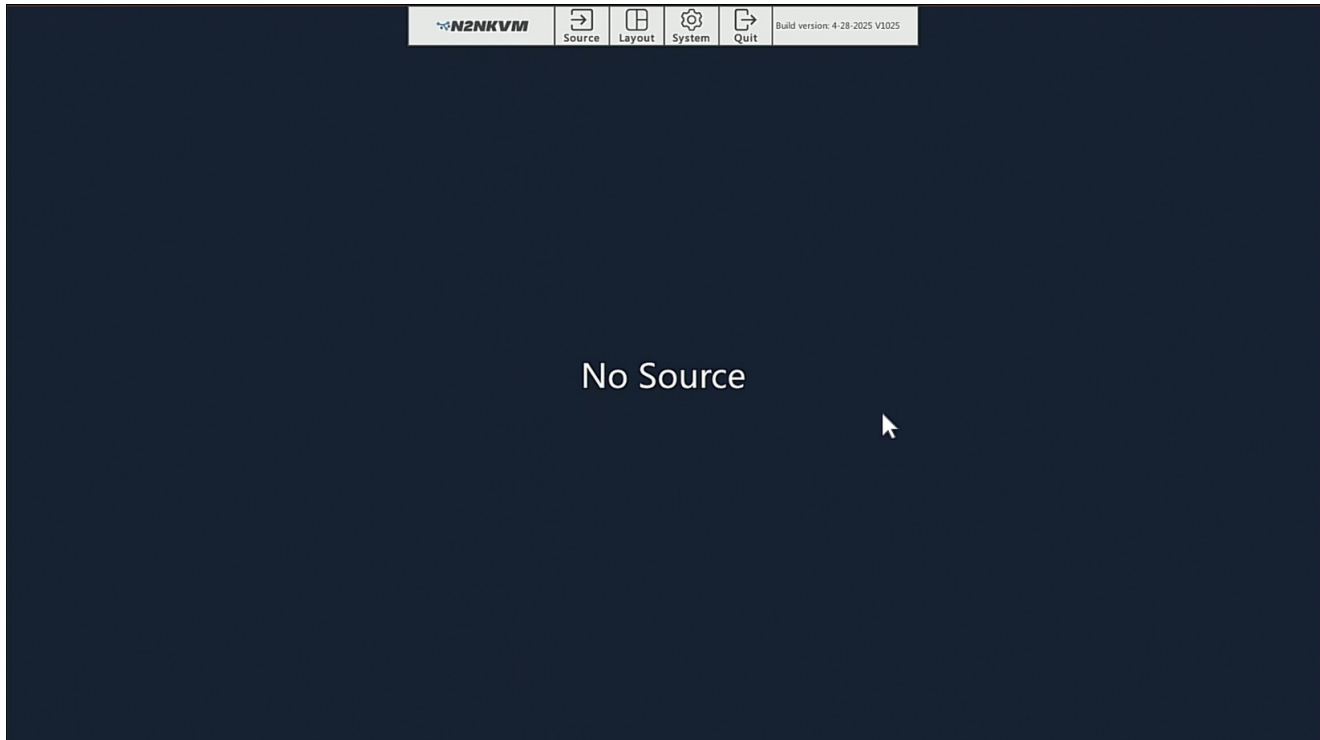


Figure: KVM Input Control Panel

**Note:** When the control panel bar is open, the system is paused – you cannot control any layout or input source until you close the panel.

## Control Panel Tabs

TAB	FUNCTION
Source	Lists available inputs from Source Management. Click an input, then click a display section to assign it.
Layout	Choose from 5 preset layouts to divide the display into multiple input zones. Switching layouts resets unsupported sections.
System	Adjust firmware settings: display resolution, border color. Changing resolution auto-restarts the device. Click Restart to apply other changes.
Quit	Return to the Settings page or Login page (depends on Configuration Menu setting).

# KVM SYSTEM (CONTINUED)

## Assigning Inputs

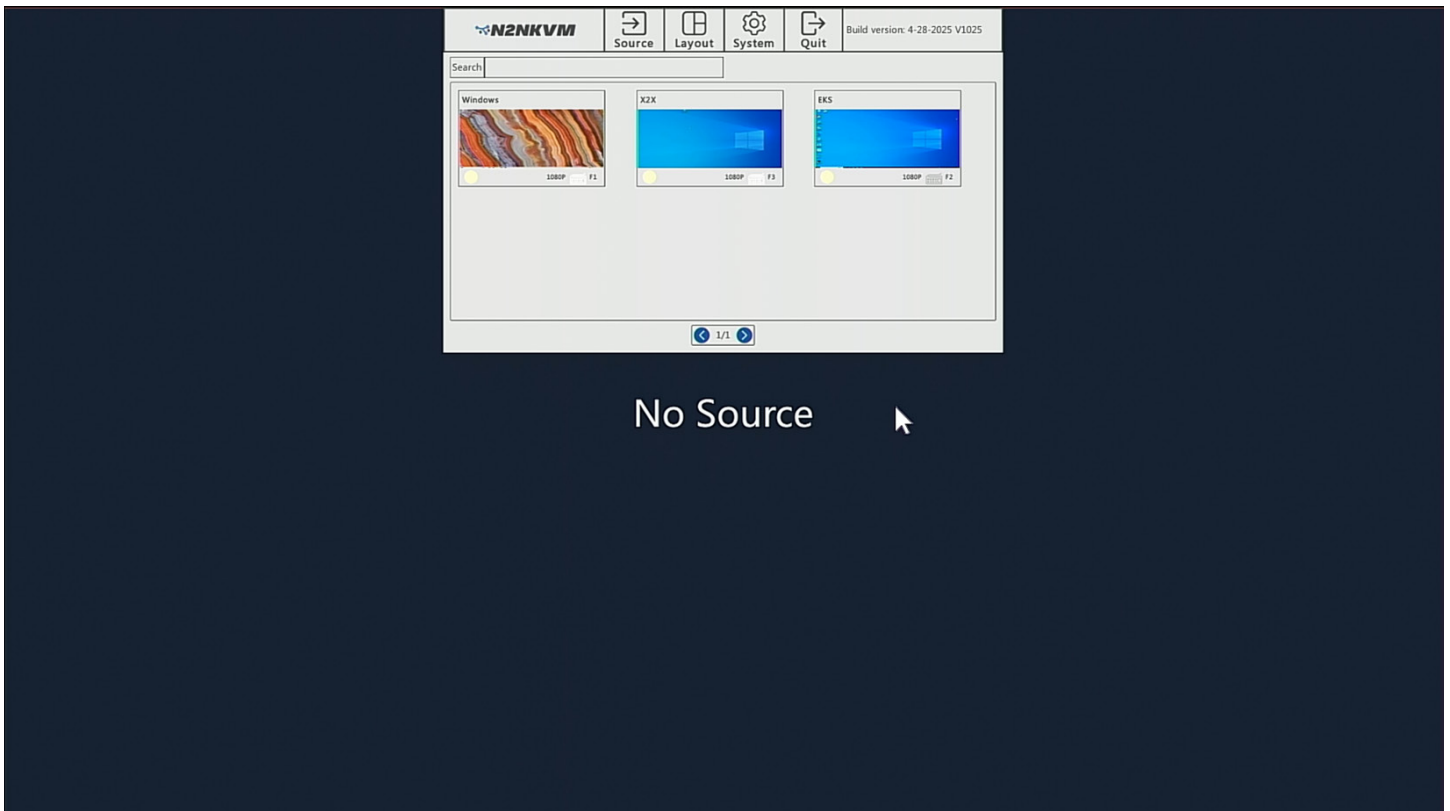


Figure: Source Selection Panel

1. Press Ctrl twice to open the control panel.
2. Click the Source tab.
3. Click an input – the cursor changes to a crosshair target.
4. Click the desired display section to assign the input. The HDMI signal from the encoder will appear.
5. Close the control panel to resume keyboard and mouse control.

If the display shows a blank blue screen, verify the HDMI connections on the encoder device. You can also reset the KVM device in the Desktop Application (see Section 5.3).

KVM control: if only one input is displayed, keyboard and mouse automatically control it. If multiple inputs are shown, double-click an input section to direct control to it.

# KVM SYSTEM (CONTINUED)

## Assigning Inputs

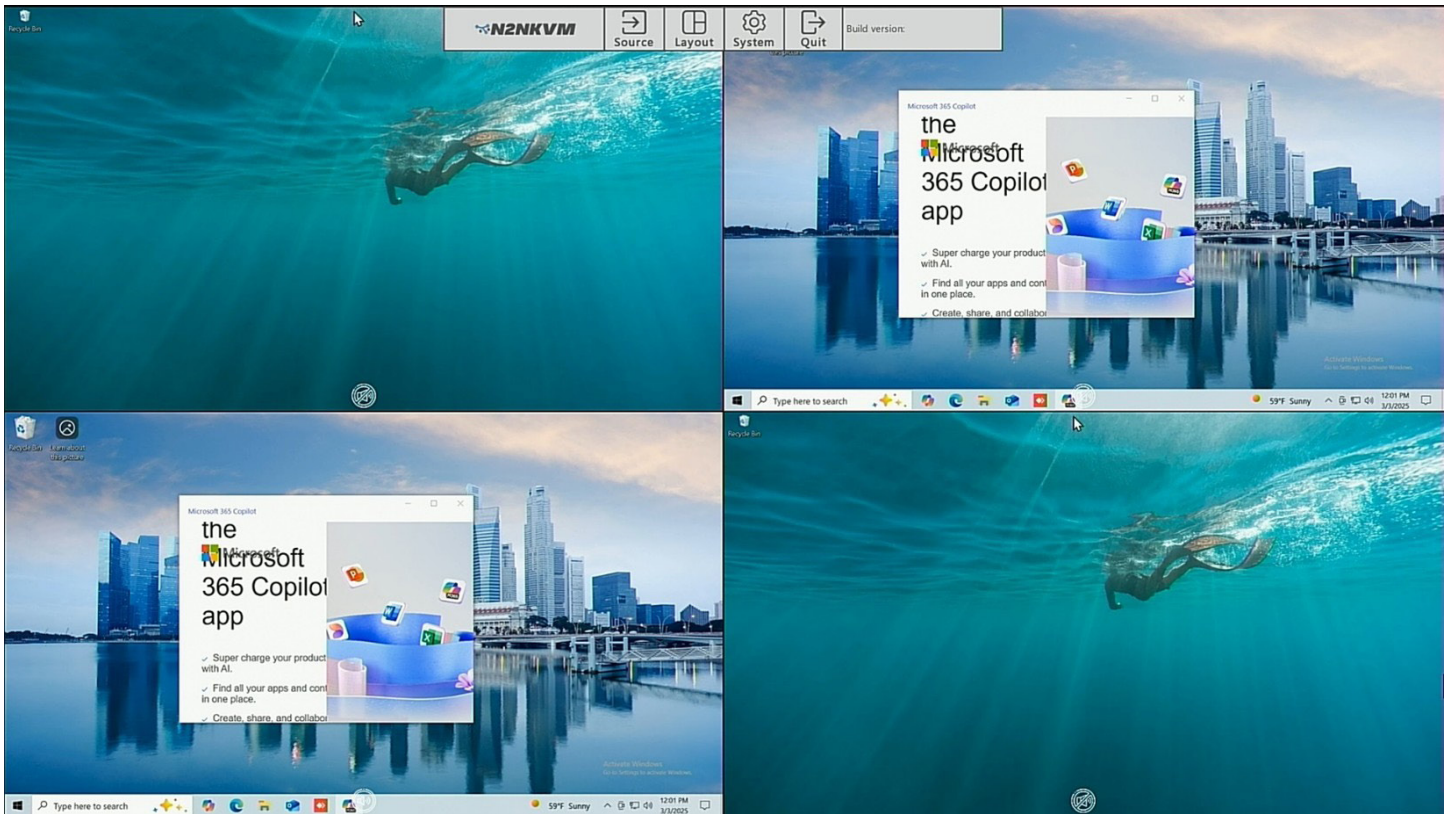


Figure: Layout Example 1

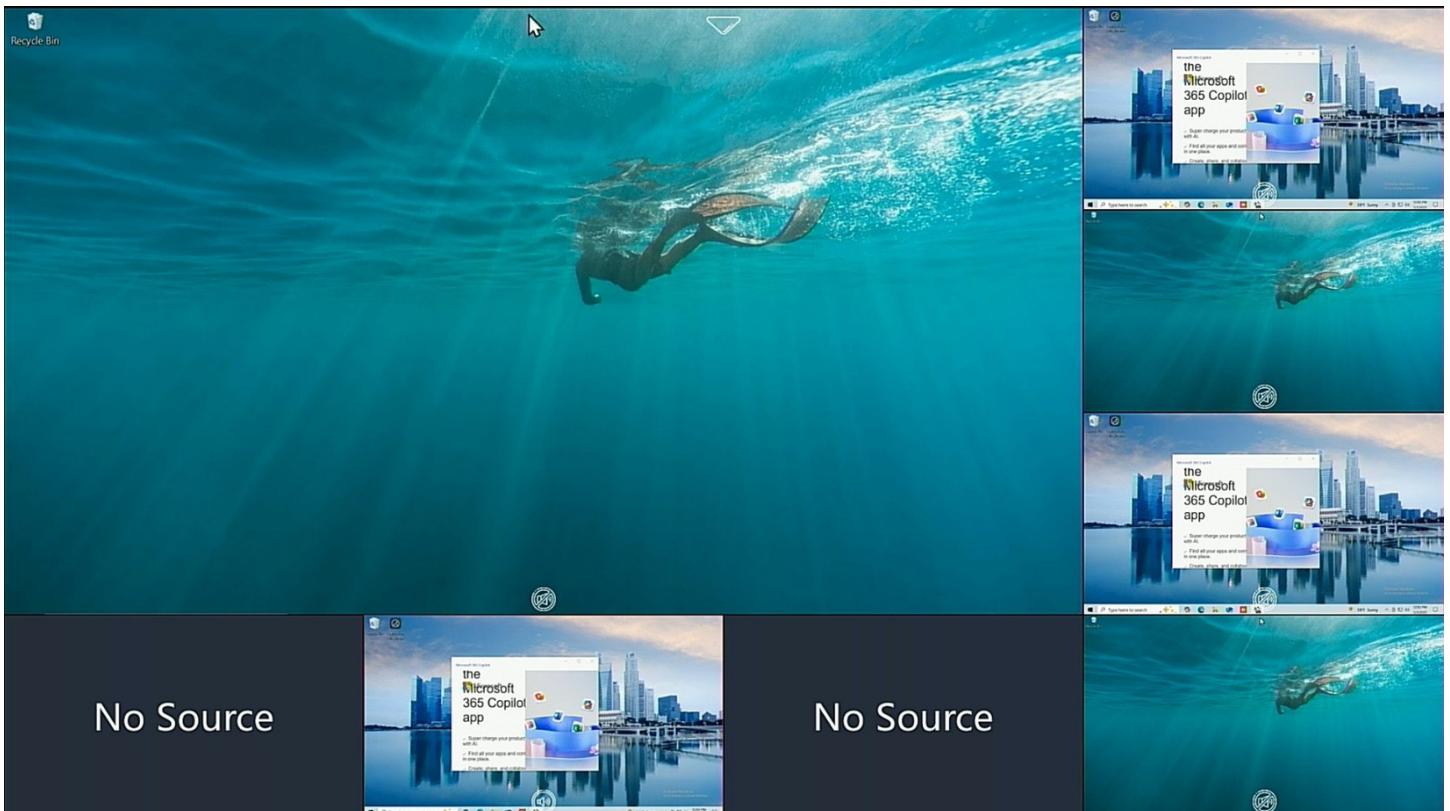


Figure: Layout Example 2

# KVM SYSTEM (CONTINUED)

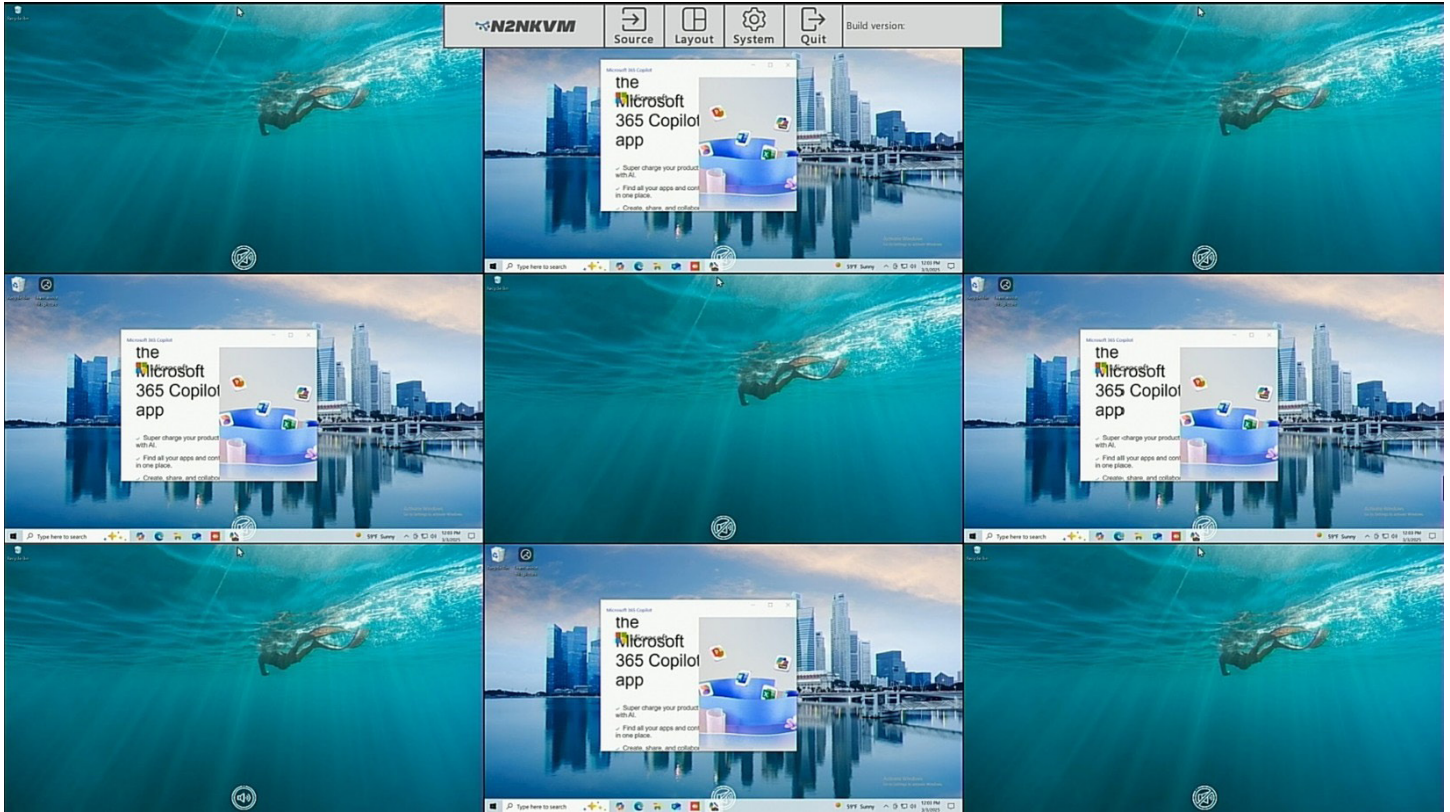


Figure: Layout Example 3

## System Configuration Panel

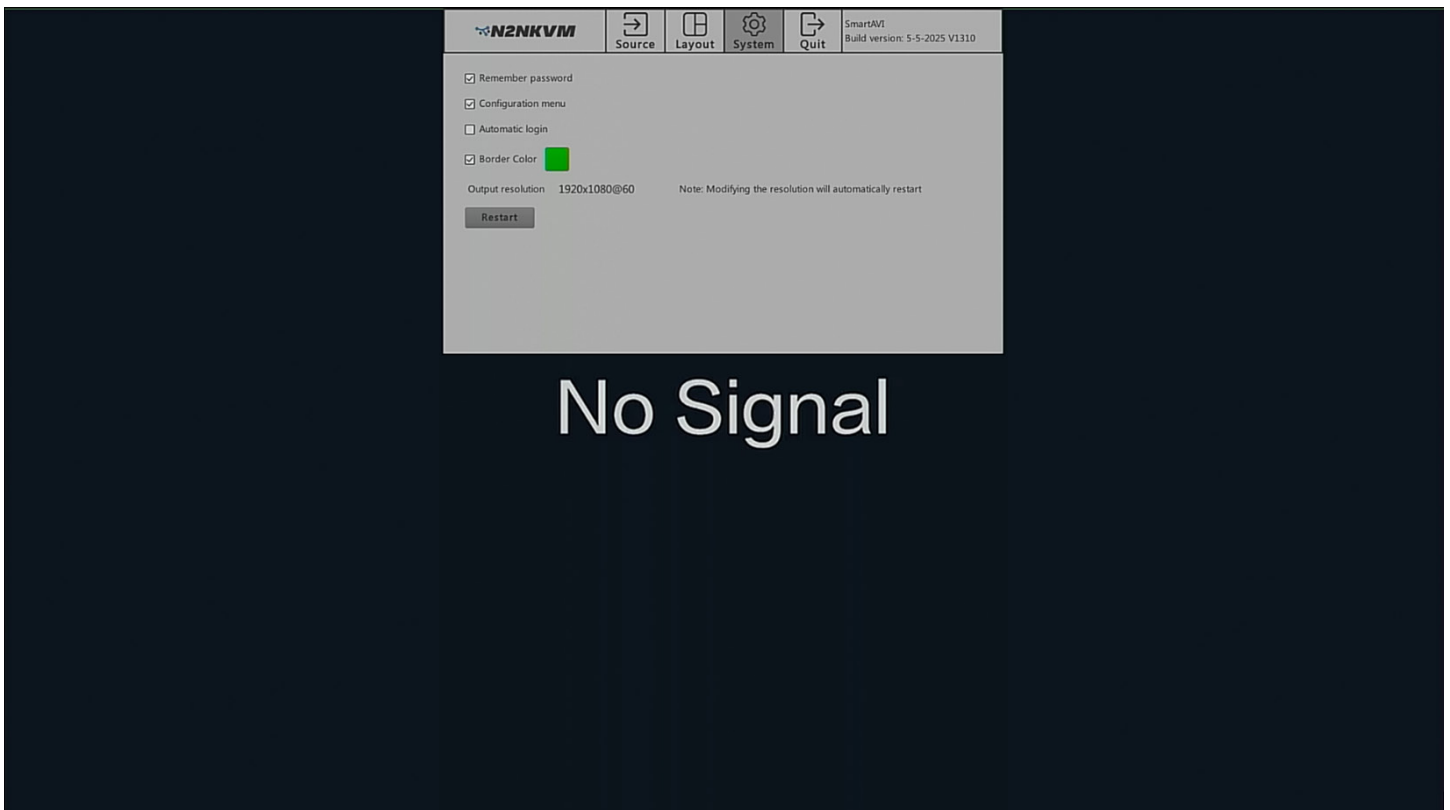


Figure: KVM System Configuration Panel

# KVM SYSTEM (CONTINUED)

## Upgrading KVM Firmware

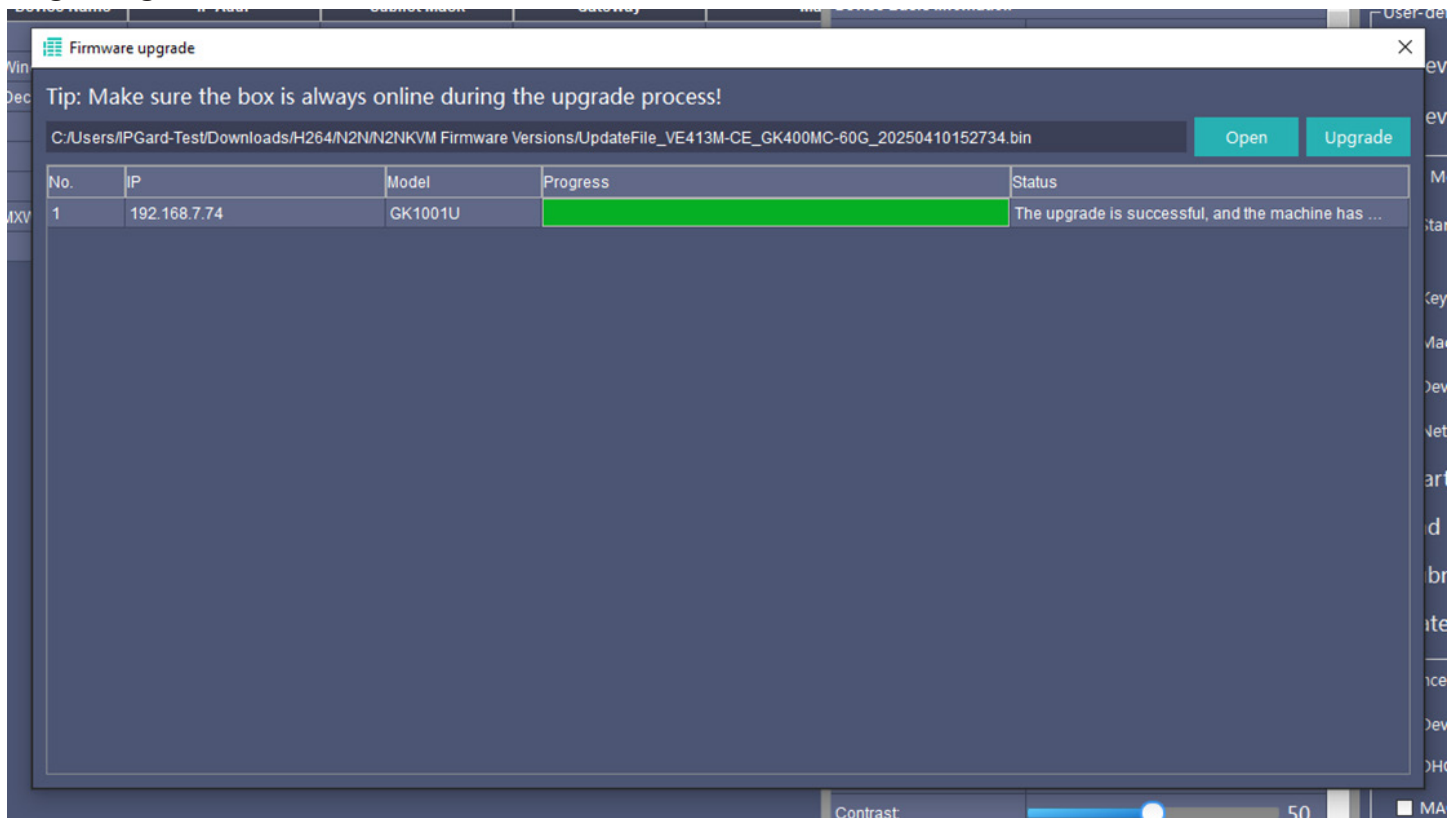


Figure: KVM Firmware Upgrade Screen

1. On a PC with the Desktop Application, log in on the same network as the KVM device.
2. Go to the Device tab and click Search.
3. Checkmark the KVM device and click Upgrade.
4. Open the firmware .bin file and click Upgrade to begin.
5. Monitor the progress bar. The device will reboot automatically when complete.

**Warning:** Do NOT disconnect power or network during a firmware upgrade. If a connection error appears, verify the device is in KVM mode and try again.

# TROUBLESHOOTING

## No Power

- Check that the power adapter is firmly connected to the 12VDC port.
- Verify the power supply output is approximately 12VDC.
- Try a replacement power supply.

## No Video

- Check all HDMI cables are fully seated.
- Connect the computer directly to the monitor to rule out hardware issues.
- Restart the N2NKVM device.
- Restart the connected computers.

## Keyboard is not working

- Verify the keyboard is connected to the Key port.
- Check USB cables between the unit and computer.
- Try a different USB port on the computer.
- Test the keyboard directly on the computer.
- Try a replacement keyboard.

## Mouse is not working

- Verify the mouse is connected to the Mouse port.
- Try a different USB port on the computer.
- Test the mouse directly on the computer.
- Try a replacement mouse.

## No Audio

- Check all audio cables are fully seated.
- Connect speakers directly to the computer to verify they work independently.
- Check the computer's audio output settings – ensure the correct output device is selected.

## No Active LEDs

- Check that the network cable is connected to the LAN/POE port.
- If NO LEDs are lit at all, refer to the No Power steps above.
- If the SYS LED is not lit after startup, reboot the device.

# TECHNICAL SUPPORT

For product inquiries, warranty questions, or technical questions, please contact [info@smartavi.com](mailto:info@smartavi.com).

# LIMITED WARRANTY STATEMENT

## A. Extent of limited warranty

SmartAVI, Inc. warrants to the end-user customers that the SmartAVI product specified above will be free from defects in materials and workmanship for the duration of 1 year, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.

SmartAVI limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

- a. Improper or inadequate maintenance or modifications
- b. Operations outside product specifications
- c. Mechanical abuse and exposure to severe conditions

If SmartAVI receives, during applicable warranty period, a notice of defect, SmartAVI will at its discretion replace or repair defective product. If SmartAVI is unable to replace or repair defective product covered by the SmartAVI warranty within reasonable period of time, SmartAVI shall refund the cost of the product.

SmartAVI shall have no obligation to repair, replace or refund unit until customer returns defective product to SmartAVI.

Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.

SmartAVI limited warranty is valid in any country where the covered product is distributed by SmartAVI.

## B. Limitations of warranty

To the extent allowed by local law, neither SmartAVI nor its third party suppliers make any other warranty or condition of any kind whether expressed or implied with respect to the SmartAVI product, and specifically disclaim implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose.

## C. Limitations of liability

To the extent allowed by local law the remedies provided in this warranty statement are the customers sole and exclusive remedies.

To the extent allowed by local law, except for the obligations specifically set forth in this warranty statement, in no event will SmartAVI or its third party suppliers be liable for direct, indirect, special, incidental, or consequential damages whether based on contract, tort or any other legal theory and whether advised of the possibility of such damages.

## D. Local law

To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law.

# Smart-**AVI**

SMART AUDIO VIDEO INNOVATION

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