USER MANUAL

EMD5104-R

EMERALD® DESKVUE KVM RECEIVER

24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT BLACKBOX.COM

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SETTING UP AND USING DESKVUE

To begin using the Emerald® DESKVUE:

1. Physically connect the monitor(s), keyboard, mouse, and power supply.
2. Turn on the unit and let it boot up.
3. When prompted for a login, enter the default credentials of “admin” (without the quotes) for username, and leave the password blank.

   NOTE: This is the defaut state only; it will change after the password is changed or managed by Boxilla.
4. Configure the Emerald DESKVUE.

NOTE: If using Boxilla, these settings will be available through the Boxilla administrative web interface. When DESKVUE is managed with Boxilla, the Boxilla global hot keys will be applied to the DESKVUE. Custom Layouts are only supported when using the Boxilla manager.

5. You can now make connection(s) through the Workspace tab by clicking on them.

NOTE: Refer to the corresponding sections of this user manual for detailed instructions for each of the above steps.

NOTE: The images and screenshots referenced in this manual are for general instruction purposes only, and they may not match the latest version of the product’s firmware.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

KVM users today need to view, monitor, and interact with multiple computer targets and video streams that can reside on various networks, such as post-production editing, IPTV, live feeds, Command and Control, and rendering jobs.

In a completely new concept in KVM over IP, Emerald® DESKVUE enables these users to arrange their individual workspace for optimal simultaneous interaction with up to 16 different systems. It supports connections to physical systems via Emerald transmitters, virtual machines using RDP, PCoIP, PCoIP Ultra, and standard H.264/265 sources.

The Emerald DESKVUE receiver—as part of the Emerald KVM family and Boxilla KVM Manager—uniquely allows users to tailor their own workspace by connecting a single keyboard, mouse, USB 3/2 devices, audio, and up to four 4K monitors. Each system can be positioned across the screens with pre-defined layouts or freely movable windows. Interacting with each system is as simple as moving the mouse over a window. In this way, each operator has complete situational awareness and full control within easy reach.

Interact with up to 16 systems simultaneously

Connect to physical systems via Emerald transmitters and virtual machines using RDP, PCoIP, PCoIP Ultra, and H.264/5.

Tailor your individual workspace

Freely place and size your systems across up to four monitors; view and interact with them in the most efficient way.

Up to 4k/5k video resolutions

Attach up to four screens at once, with DisplayPort™ resolutions supporting up to DCI 4K 4096x2160 @ 60 Hz; one DisplayPort output can support 5120x2880 @ 60Hz.

NOTE: There is a maximum limit of 16,384 pixels across all four monitors in either the horizontal or vertical dimension. Therefore, the maximum “pixel-space” for an individual DESKVUE is 16,384x16,384.

Highly Secure KVM over IP

Fully integrates with Emerald Unified KVM and the Boxilla KVM Manager for device configuration, monitoring, and authentication.

Design follows User Needs

An extremely small footprint and various mounting options provide a welcoming workspace.

AV WALL Functionality

Enjoy the immersive experience of a 2x2 video wall controller with enhanced video wall functionality, easily controlled via APIs for seamless integration and management.

1.2 FEATURES

- Future-proof KVM, universal access system: Access both physical and virtual machines including Emerald® transmitters, PCoIP, RDP, and H.264/H.265 targets
- Up to 16 connections over 4 video heads
- Up to 4 UHD screens, optionally 1 can be 5K
- Supports multi-head applications (for example, extended desktop), 4K deployments
- Excellent video up to 4K/5K resolutions
- AV wall functionality using a 2x2 video wall with one single image scaled across all displays
- Highly scalable through IP networking/low bandwidth
- Built for 24/7 operation with no single point of failure: redundant managers/redundant links with local database in receiver in case manager is offline
- Remote access to KVM systems to allow operation across IP network through software application
- Compatible with Boxilla managers (for management)
- Connects to physical Emerald transmitters
- Connects to virtual machines (RDP and PCoIP)
- Connects to H.264/H.265 devices, such as IP cameras
- TAA compliant

1.3 WHAT'S INCLUDED

- (1) Emerald DESKVUE multi-source TAA receiver
- (1) 19.5VDC, 9.23A, desktop power supply
- (1) Country-specific power cord

If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com.

1.4 PRODUCT IMAGES

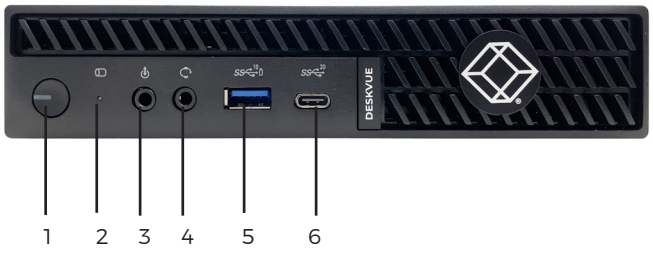


FIGURE 1-1: FRONT VIEW

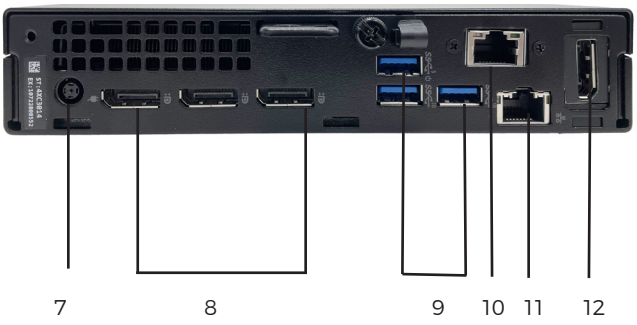


FIGURE 1-2: REAR VIEWVIEW

TABLE 1-1. EMERALD 5104-R COMPONENTS

NUMBER IN FIGURES 1-1 THROUGH 1-2	COMPONENT	DESCRIPTION
1	(1) Power Button	Use to turn the unit on or off.
2	(1) SSD Activity LED	Illuminates to indicate Solid State Drive (SSD) activity
3	(1) 3.5-mm jack (MC)	Connects to analog microphone
4	(1) 3.5-mm jack (SPK)	Connects to analog speaker
5	(1) USB 3.2 Gen 1x1, Type A Port	Connects to USB peripherals
6	(1) USB-C, USB 3.2 Gen 2x2 Port	Connects to USB peripherals
7	(1) Power Input	Connects to external power supply
8	(3) DisplayPort™ Outputs (4K)	Connects to DisplayPort™ output(s) up to DCI 4K 4096x2160 @ 60 Hz
9	(3) USB 3.2 Gen 2x1, Type A Ports	Connects to USB peripherals
10	(1) ETH0	Reserved for future use (not currently used)
11	(1) ETH1	Connects to Network Interface Card (NIC)
12	(1) DisplayPort Output (5K)	Connects to 5K DisplayPort output (5120x2880 @ 60Hz)

CHAPTER 2: APPLICATION DIAGRAM AND SPECIFICATIONS

2.1 APPLICATION DIAGRAM

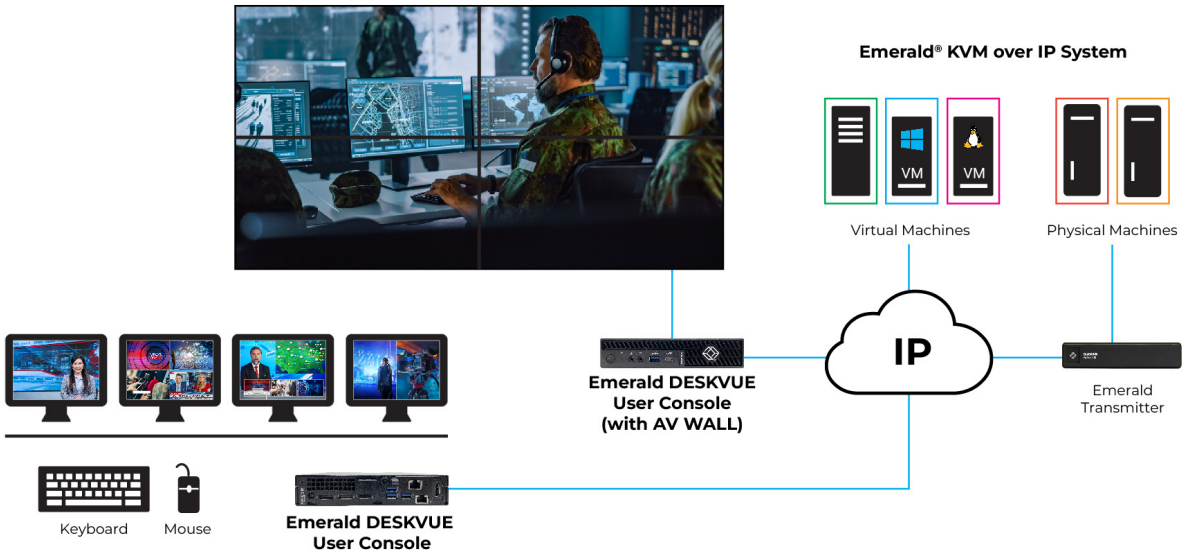


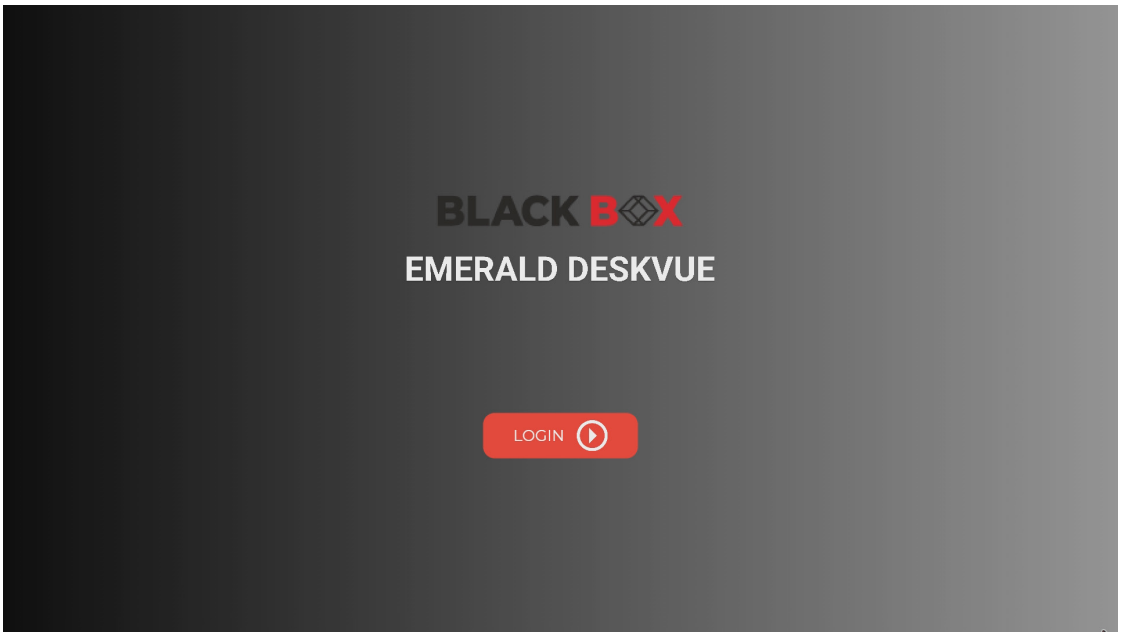
TABLE 2-1. PRODUCT SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Dimensions	Unit: 7.17" H x 1.42" W x 7.01" D (182 x 36 x 178 mm)
Weight	2.91 lb. (1.32 kg)
Processor	Intel Core i9 processor 14900 vPro (36 MB cache, 24 cores, 32 threads, up to 5.4 GHz Turbo, 65W)
Memory	16GB DDR5 Memory, 2X8GB, 5600, Non-ECC, SoDIMM
Storage	M.2 2230, 256GB PCIe NVMe SSD Class 35
Connectors	(4) DisplayPort™ outputs: (3) 4K and (1) 5K; (3) USB 3.2 Gen 2x1, Type A (SuperSpeed USB); (1) USB 3.2 Gen 1x1, Type A (SuperSpeed USB); (1) USB-C, USB 3.2 Gen 2x2 (SuperSpeed USB); (1) 3.5mm Analog Audio Output; (1) 3.5mm Analog Microphone Input; (2) RJ-45 1Gbps Network Ports; (1) Power Input
Maximum Distance from Network	328 feet (100 m) using CATx cabling
User Interface	Emerald® On Screen Display (OSD)
Mounting	None
Power	180 Watt AC adapter, 4.5 mm barrel
Input Voltage/Volts	100-240VAC, 50/60Hz
Input Current/Amps	2.34 Amps
Output Voltage/Volts	19.5VDC
Output Current/Amps	9.23 Amp
Power Consumption/Watts	180 Watt maximum
Heat Dissipation/BTU/h	613.8 BTU/h
Temperature Range	Operating: 50 to 95°F (10 to 35°C); Storage: -40 to +149°F (-40 to +65°C)
Relative Humidity (Maximum)	Operating: 20 to 80% (non-condensing); Storage: 5 to 95% (non-condensing)
Vibration (Maximum)	Operating: 0.26 GRMS; Storage: 1.37 GRMS
Shock (Maximum)	Operating: 40 G; Storage: 105 G
Altitude Range	Operating: <5,518 ft. (1,681 m); Storage: <19,234 ft. (5,862 m)
Compatibility	Boxilla managers, Emerald transmitters, and virtual machines (RDP, PCoIP, H.264/H.265)

CHAPTER 3: APPLICATION

3.1 LOGIN SCREEN

Upon startup, you will be prompted to log in if the unit is not configured for Auto Login, as shown in Figure 3-1. below:



FGURE 3-1: LOGIN SCREEN

To log into DESKVUE, click on the “Login” button, as shown in Figure 3-1 above.

After you click on the “Login” button, the system displays the Username and Password screen, as shown in Figure 3-2 below:

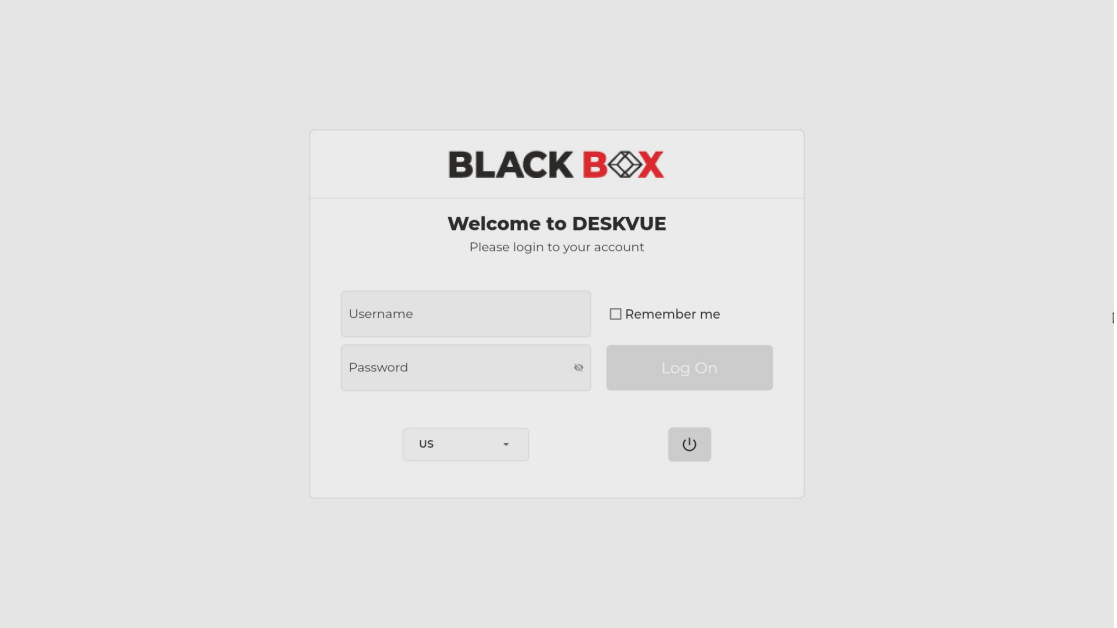


FIGURE 3-2: USERNAME AND PASSWORD SCREEN

Table 3-1 explains the options on the Username and Password screen.

TABLE 3-1. USERNAME AND PASSWORD SCREEN

FIELD/ITEM	DESCRIPTION
Username	Enter the username. By default, the username is "admin" (without the quotes). You can change the username, which is a unique name that uses 1–32 characters. The username can be any valid username for a Microsoft® operating system. This means the username cannot contain " ”/ \ [ ] ; | = + * ? < > `
Password	Enter the password. The password is blank (no password) unless changed or managed by Boxilla. You can view the password that you entered by clicking on the View symbol that is located to the right of the password entry area, as shown in Figure 3-3 below:  FIGURE 3-3: VIEW ICON The password can contain a minimum of 0 characters (blank) and a maximum of 32 characters. It can be any valid password for a Microsoft operating system. The user password MAY contain the following special characters , ~ : ! @ # $ % ^ & ' { } which means the password cannot contain " ”/ \ [ ] : ; | = , + * ? < > `'
Remember me checkbox	Click in the check box if you want the system to remember the last username that you entered. A check mark will appear in the checkbox to indicate that the credentials will be remembered. If you don't want the system to remember the last username and password that you entered, leave the check box empty. If a check mark appears in the box, click on the check box again to remove it.
Keyboard type drop-down list box	Click on the drop-down menu symbol in the keyboard selection box and then select the appropriate keyboard type. The drop-down menu displays available options, as shown in Figure 3-4 below:  FIGURE 3-4: KEYBOARD SELECTION BOX
Log On button	After you enter the username and password, and (optionally) click in the "Remember me" check box, click on the "Login" button to log into the system.
Power button	Click on this button to turn off the system.

3.2 ON SCREEN DISPLAY (OSD)

NOTE: The screenshots and settings shown throughout this manual reference the administrative pages when logged in as an admin user type. If you are logged in as a power user or user, certain pages and options will not be available, since they are only available within the administrator account. If you do not see all of the pages and options this user manual describes, verify that you are logged into an administrator account. When DESKVUE is managed, some pages will be displayed differently since certain options are being managed by Boxilla.

After you log in, the system displays the OSD (On Screen Display), as shown in Figure 3-5 below:

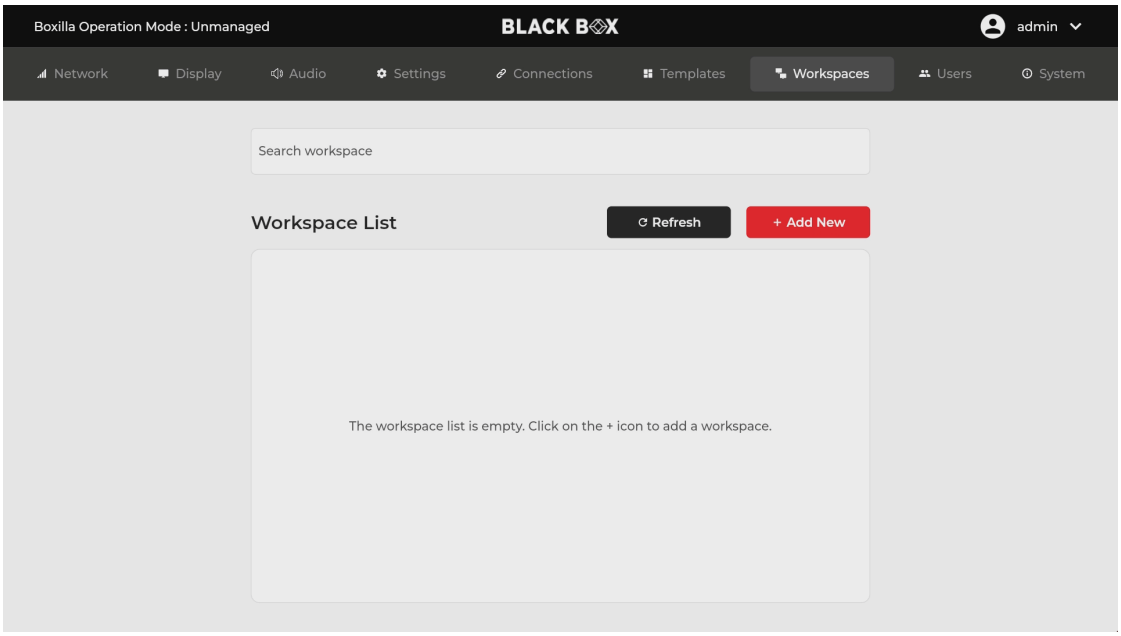


FIGURE 3-5: ON SCREEN DISPLAY

Table 3-2 explains the information and options on the OSD screen.

TABLE 3-2. OSD

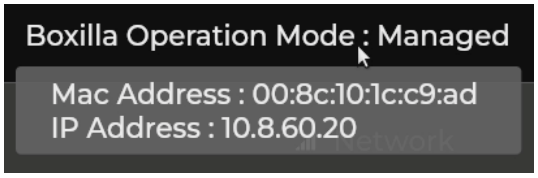
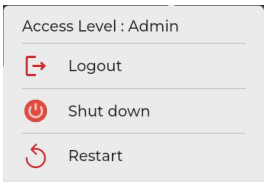
ITEM	DESCRIPTION
Boxilla Operation Mode	In the top left corner of the screen, the system will display "Unmanaged" when the device is not managed by a Boxilla unit. It will display "Managed" when the device is managed by a Boxilla unit. An unmanaged unit can only connect to unmanaged transmitters and both RDP and PCoIP virtual machines, along with H.264 streams. When the Boxilla Operation Mode is "Managed," you can hover your mouse over the "Boxilla Operation Mode" text to see the device's IP address, which is shown in Figure 3-6 below:  FIGURE 3-6: BOXILLA OPERATION MODE WITH IP ADDRESS **NOTE:** To connect to managed transmitters that are part of a KVM domain, your device must be managed by the same Boxilla that manages the other parts of the KVM domain.
User	In the top right corner of the screen, the system will show the user that is logged into the DESKVUE unit. It will also show that user's access level. The "admin" user can also log out, shut down, or restart the system by clicking on the drop-down menu symbol to the right of "admin" and then clicking on the corresponding option from the drop-down menu. The options are shown in Figure 3-7 below:  FIGURE 3-7: ADDITIONAL ADMIN OPTIONS

TABLE 3-2. OSD (CONTINUED)

ITEM	DESCRIPTION
Tabs	**Network:** This tab allows you to enter network settings. **Display:** This tab shows you what monitors are connected to the device. The monitors can be checked to find the display's manufacturer. There are also options to set output to landscape or portrait modes, as well as both resolution and refresh settings. **Audio:** This tab contains options to change and adjust the audio. **Settings:** This tab allows you to customize settings. **Connections:** This tab allows you to set up device connections. Connections can be created for transmitters, RDP, PCoIP, and H.264/5 targets. These connections can be edited and tested. **Templates (unmanaged only):** This tab allows you to view and test different video output templates. **Workspaces:** This tab allows you to configure the templates. Workspaces that are assigned to the active user account will be displayed on the page. Each workspace can be initiated by clicking on the "Connect" button. **Users:** This tab allows you to create admin users, power users, and regular users. The administrator or user can configure which user automatically logs in, if any. **System:** This tab allows you to set system parameters. **NOTE:** Standard users and power users will not have access to any options that conflict with the rights granted to that group of users.

3.3 NETWORK TAB

When the “Network” tab is selected, the system displays the “Network Settings” screen, as shown in Figure 3-8 below:

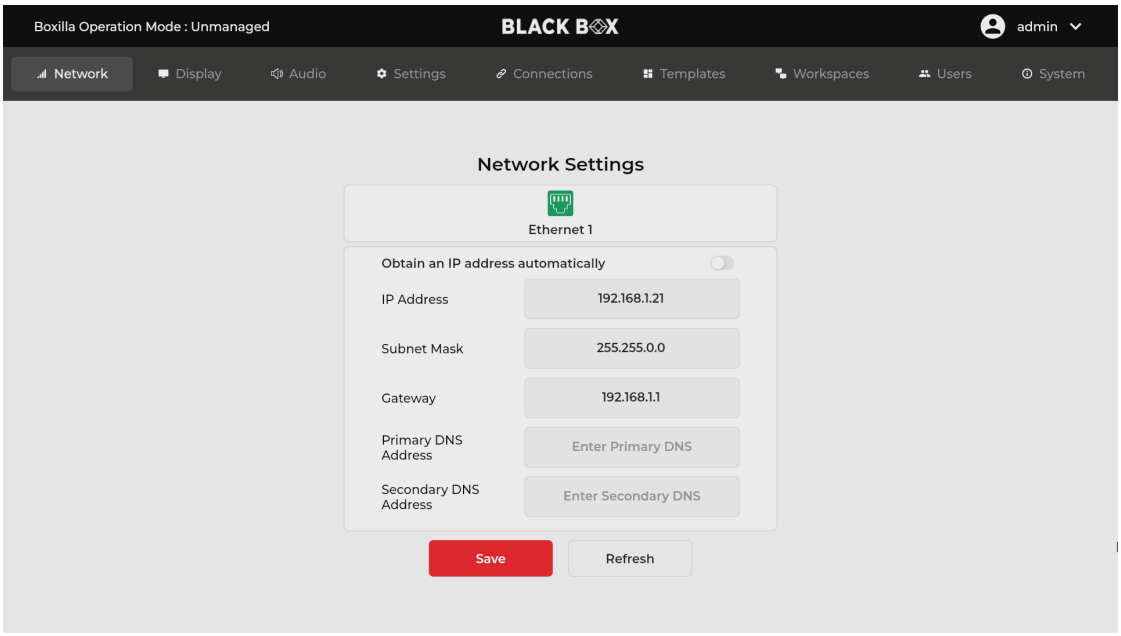
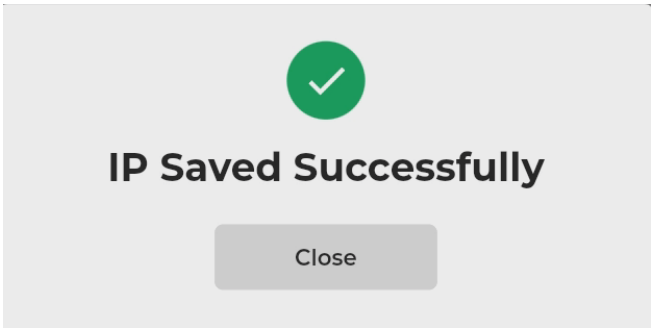


FIGURE 3-8: NETWORK SETTINGS SCREEN

NOTE: Use the network port closest to the power connector (left side) when interfacing with Boxilla or target connections. This may change in future firmware versions.

Table 3-3 explains the options on the "Network Settings" screen.

TABLE 3-3. NETWORK SETTINGS

ITEM	DESCRIPTION
Obtain an IP address automatically (DHCP Slider Bar)	When you set this DHCP Slider Bar to the "ON" position by dragging it to the right and then click on the "Save" button, the system tries to obtain an IP address automatically. If successful, it displays a message stating that the IP address was saved successfully, as shown in Figure 3-9 below:  FIGURE 3-9: SUCCESSFUL IP SAVE MESSAGE Click on the message's "Close" button to exit the message screen.
IP Address	By default, the IP address is set to 192.168.1.21. You can keep this IP address, edit it, or use the DHCP slider bar to obtain an IP address automatically.
Subnet Mask	Configure the Subnet Mask to meet your network requirements.
Gateway	By default, the Gateway address is 192.168.1.1. Configure the Gateway to meet your network requirements.
Primary DNS Address	(optional) You can enter the Primary DNS address in this field.
Secondary DNS Address	(optional) You can enter the Secondary IP address in this field.
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-10 below:  FIGURE 3-10: SAVE AND CANCEL BUTTONS After you click on the "Save" button, the system shows the message shown in Figure 3-9 after it successfully saves the IP address.

3.4 DISPLAY TAB

When the "Display" tab is selected, the system displays the details and configuration options for the monitors actively attached to the DESKVUE unit, as shown in Figure 3-11 below:

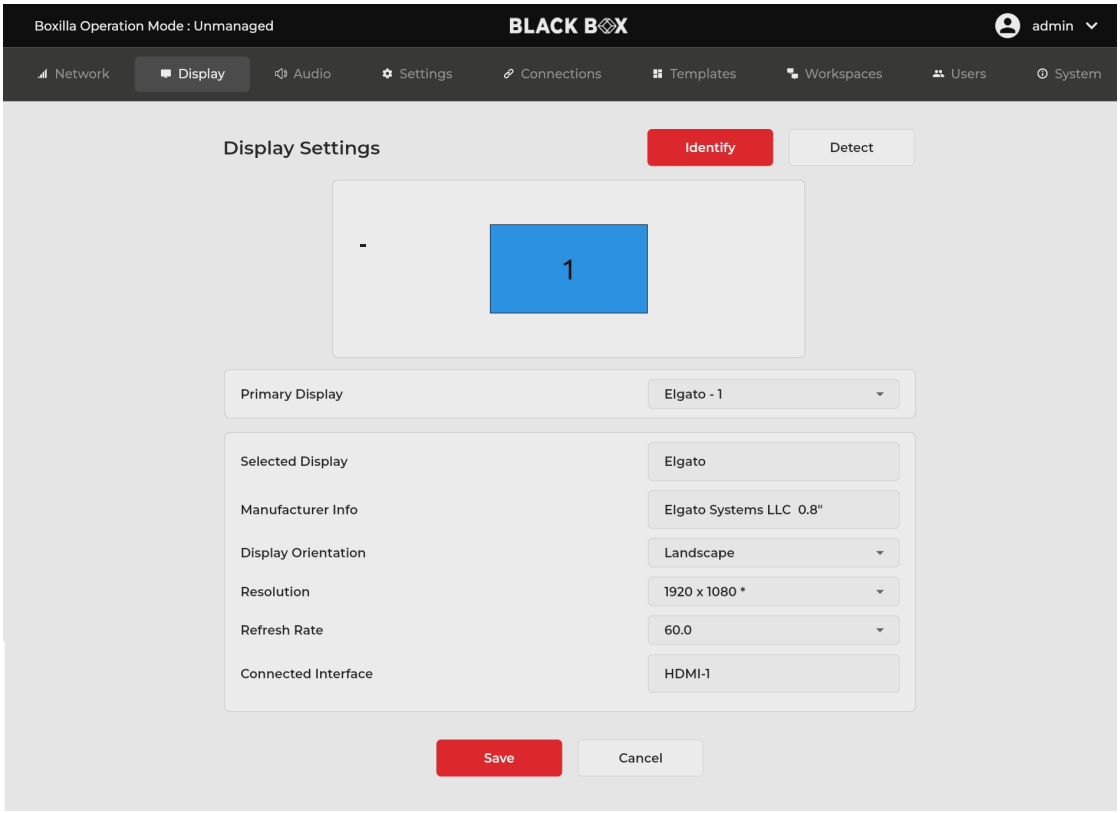


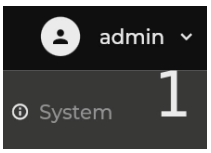
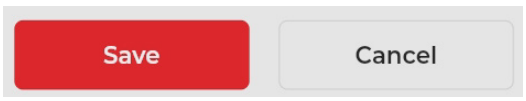
FIGURE 3-11: DISPLAY SETTINGS SCREEN

This screen shows the monitor(s) that are connected to the DESKVUE unit along with the settings for the selected monitor.

NOTE: The system displays a number on each monitor icon to identify it within the DESKVUE system.

Table 3-4 explains the options on the "Display Settings" screen.

TABLE 3-4. DISPLAY SETTINGS

ITEM	DESCRIPTION
Identify	The "Identify" function places numbers on each connected display to show the orientation/order that the system is using. An example is shown in Figure 3-12 below:  FIGURE 3-12: SCREEN NUMBER FROM IDENTIFY FUNCTION
Detect	Use the "Detect" button to determine what displays are connected to the DESKVUE unit. This function is best used when new displays were added or switched around after the unit has been powered on. There will not be a confirmation message,
Primary Display	Choose the primary display from the option(s) in the drop-down list box.
Selected Display	This is a read-only field that shows which monitor is currently selected, and the settings below this relate to this monitor only.
Manufacturer Info	This is the name of attached display provided by its EDID table.
Display Orientation	Use this option to choose the selected display's orientation to best fit the application.
Resolution	Choose the desired screen resolution for the selected display from the drop-down list box. Resolutions that are displayed in the list are provided by the display's EDID table and can vary depending on the type of display used. The display's preferred resolution includes an asterisk to the right of the resolution name.
Refresh Rate	Choose the desired refresh rate for the selected display from the drop-down list box. Refresh rates are defined by the type of monitor that is used, and the information is derived from the attached display's EDID table.
Connected Interface	This is the label that DESKVUE applies to the display's physical interface. Figure 1-2 identifies the interfaces.
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-13 below:  FIGURE 3-13: SAVE AND CANCEL BUTTONS

3.5 AUDIO SETTINGS TAB

When the Audio" tab is selected, the administrator can configure the audio output as shown in Figure 3-14 below:

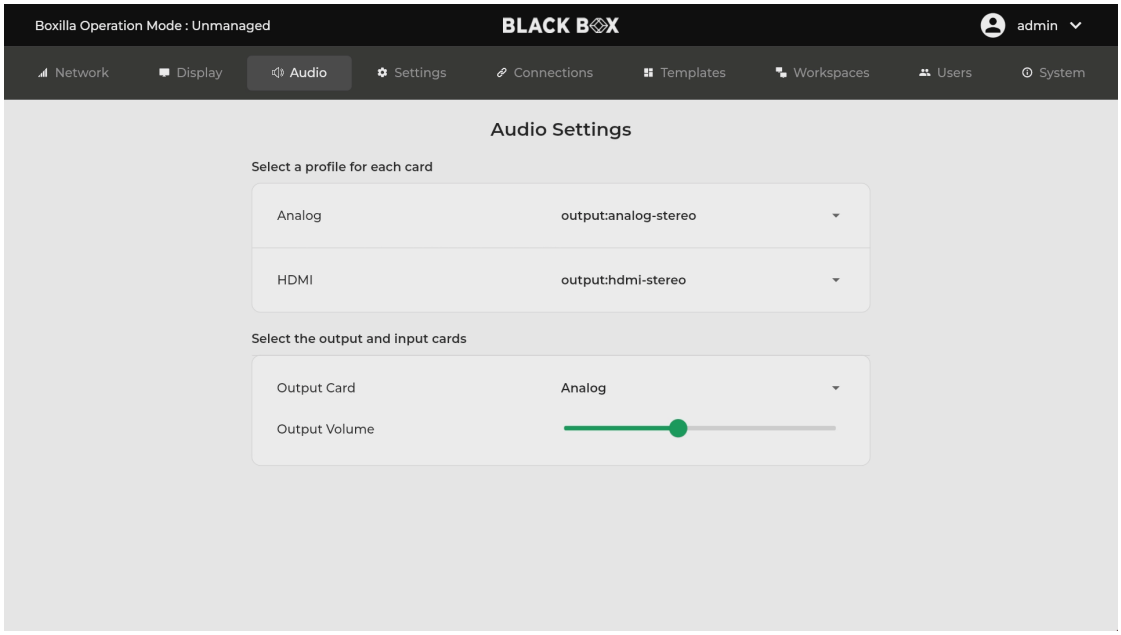
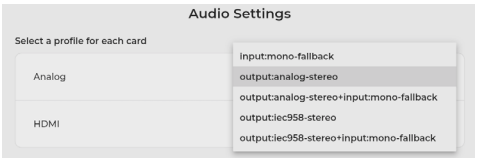


FIGURE 3-14: AUDIO SETTINGS PAGE

Table 3-5 explains the options on the "Audio Settings" page.

TABLE 3-5. AUDIO SETTINGS

ITEM	DESCRIPTION
Analog	Configure the analog audio output by choosing an option from the drop-down list box. The example in Figure 3-15, below, may differ from the options shown on your screen.  FIGURE 3-15: ANALOG AUDIO SETTINGS DROP-DOWN BOX
HDMI	Configure the embedded HDMI audio output.
Output Card	Configure the output audio channel that will be used.
Output Volume	Configure the volume of the audio output.

3.6 SETTINGS TAB

When the "Settings" tab is selected, the system displays the options to configure the hot keys, audio interface, system volume, and overlays, as shown in Figure 3-16 below:

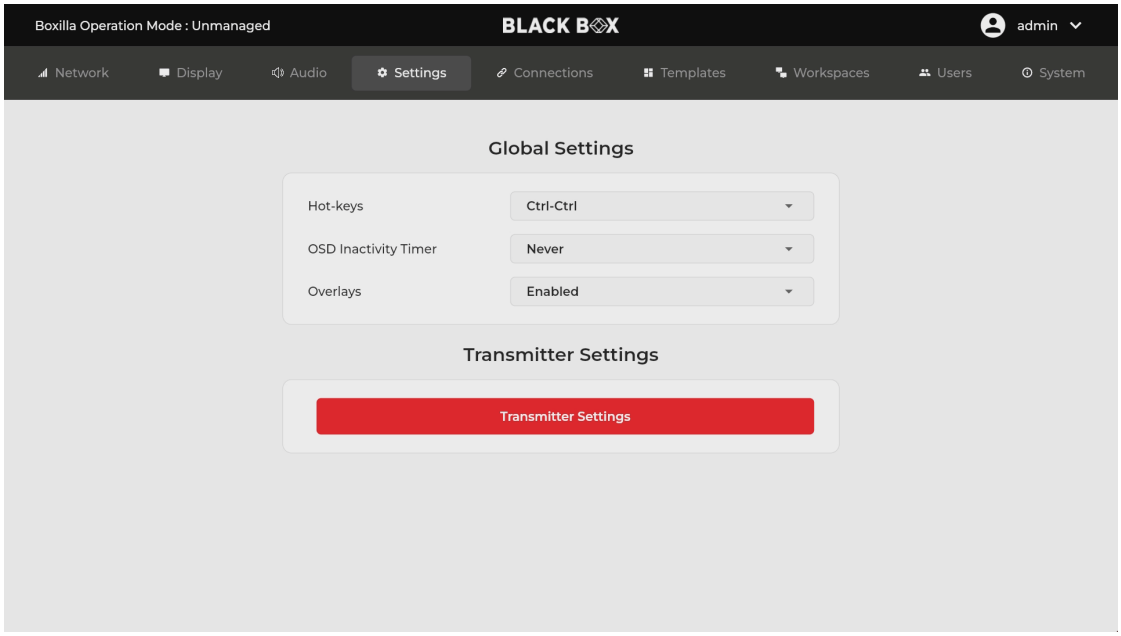


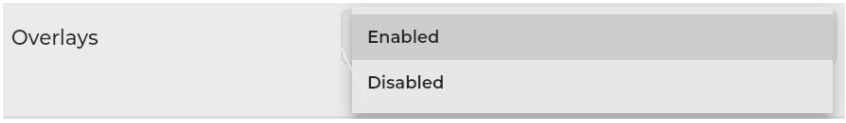
FIGURE 3-16: GLOBAL SETTINGS PAGE

Table 3-6 explains the options on the "Global Settings" page.

TABLE 3-6. GLOBAL SETTINGS

ITEM	DESCRIPTION
Hot keys	Select the desired hot key from the drop-down list box. When the DESKVUE is managed by Boxilla, the hot keys will be configured in the Boxilla web interface.
OSD Inactivity Timer	Set the connection inactivity timer. When no user activity has been executed in this amount of time, the connection will be disconnected, and the DESKVUE will show the On Screen Display. Setting to "Never" will not disconnect the sessions.

TABLE 3-6. GLOBAL SETTINGS (CONTINUED)

ITEM	DESCRIPTION
Overlays	Use this option to configure if the DESKVUE unit shows overlays by either enabling or disabling overlays via the drop-down menu. These options are shown in Figure 3-17 below: .  FIGURE 3-17: OVERLAY OPTIONS

3.6.1 TRANSMITTER SETTINGS

The DESKVUE unit is capable of discovering and configuring Emerald® transmitters when no Emerald receiver or Boxilla is being used. Enter the IP address of a known configured transmitter, or alternatively use the "Discover" button to find the device's IP address. If a transmitter is managed by Boxilla, the DESKVUE unit won't be able to configure or connect to it unless DESKVUE is part of the same Boxilla network. The transmitter can be in its default state or already have a configured IP address assigned to it. As long as it is not managed, the DESKVUE unit will be able to establish a connection to the transmitter and configure it.

The Transmitter Settings page, shown in Figure 3-18, allows the administrator to view and set configuration parameters for the transmitter. By default, this page shows most buttons grayed out, except for the "Discover" button. If you know the transmitter's IP address, enter it at the top of the screen, and then click "Apply." If the transmitter's IP address is unknown, use the Discover process and follow the on-screen instructions.

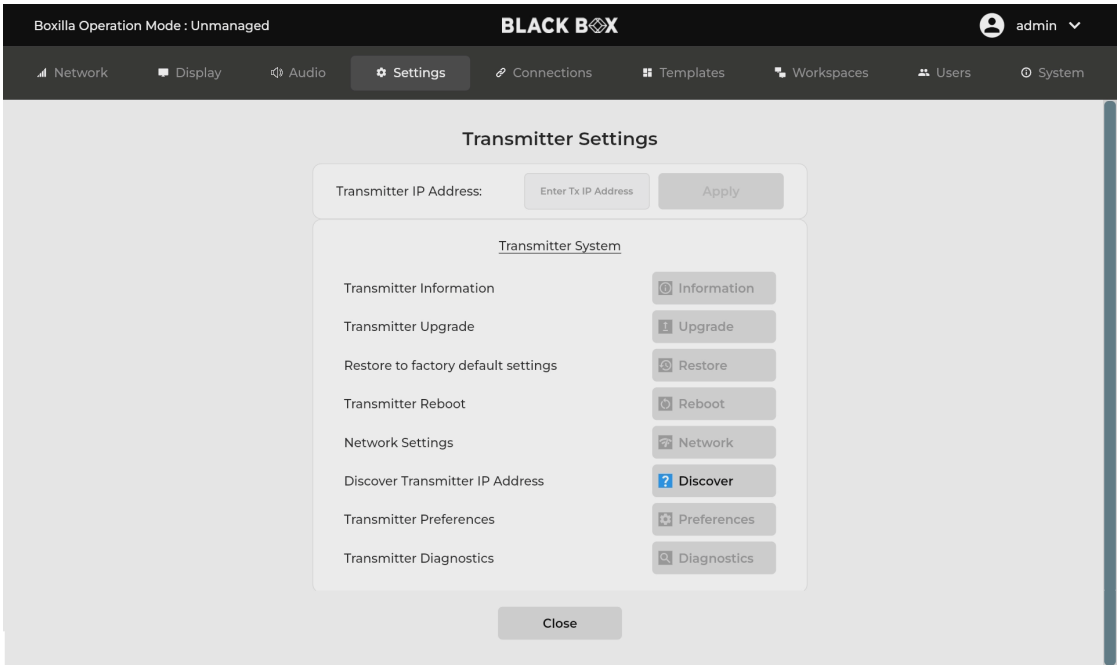


FIGURE 3-18: TRANSMITTER SETTINGS PAGE

The DESKVUE unit is capable of discovering any transmitter device even if it does not match the DESKVUE Network Subnet. The transmitter must be connected to the same physical network or directly connected to the DESKVUE in order to be discovered. Connecting directly to the DESKVUE may be required if it cannot be discovered over the network.

The DESKVUE will need to be on the same IP scheme and subnet as the transmitter before any configuration can be completed, so, once you discover a transmitter and know the IP address, verify that the DESKVUE IP schemes matches that of the transmitter.

NOTE: Make sure no device on the network is using 192.168.1.1 or Discovery will not work properly.

Table 3-7 explains the options on the "Transmitter Settings" page.

TABLE 3-7. TRANSMITTER SETTINGS

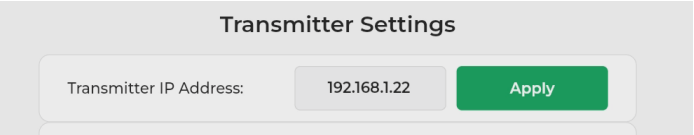
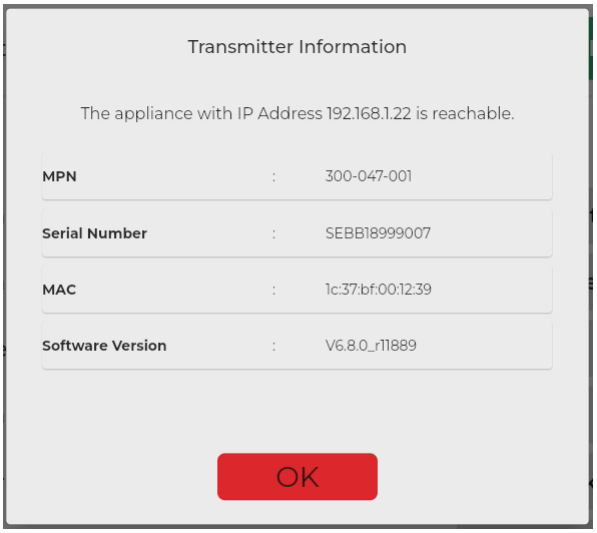
ITEM	DESCRIPTION
Transmitter IP Address	If the IP address is known for the transmitter that needs accessed/configured, enter it into this field and then press the "Apply" button to establish an initial connection. Once the connection is established, the remaining buttons on the page will be activated. If the IP address of the transmitter is not known, use the "Discover" button to detect it. Figure 3-19 below shows the transmitter settings field. .  FIGURE 3-19: TRANSMITTER IP ADDRESS SETTING
Transmitter Information	This page will display the transmitter's MPN (Manufacturing Part Number), serial number, MAC Address, and firmware version. An example is shown in Figure 3-20 below:  FIGURE 3-20: TRANSMITTER INFORMATION SCREEN

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

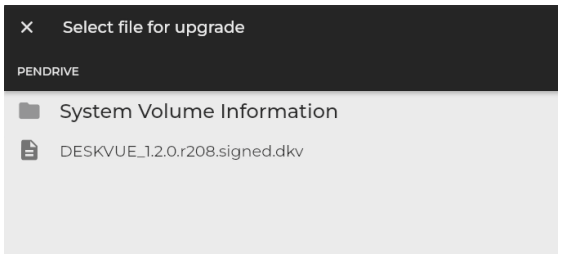
ITEM	DESCRIPTION
Transmitter Upgrade	Use this option to update the DESVKUE unit's firmware. Place the firmware file on a FAT- or FAT32-formatted flash drive, and then select the file to process the upgrade. An example containing a firmware file is shown in Figure 3-21 below:  FIGURE 3-21: TRANSMITTER UPGRADE SCREEN
Restore	Use this option to perform a factory reset to restore the transmitter back to its default state. The default IP for transmitters is 192.168.1.22. You will need to confirm the action by clicking on the "YES" button or cancel the action by clicking on the "NO" button.

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

ITEM	DESCRIPTION
Reboot	You can power cycle the transmitter by using the "Reboot" button. You will need to confirm the action by clicking on the "YES" button or cancel the action by clicking on the "NO" button, as shown in Figure 3-22 below:
Network	Use the options shown in Figure 3-23 below to change the transmitter's IP address, Network Mask, and/or Default Gateway and to configure LACP, if needed.

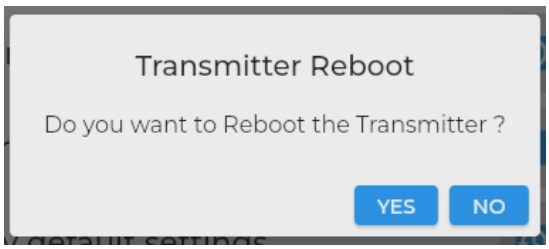


FIGURE 3-22: TRANSMITTER REBOOT SCREEN

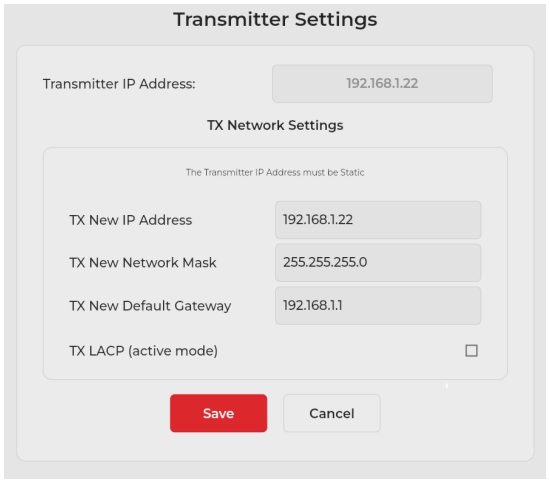


FIGURE 3-23: NETWORK SETTINGS OPTIONS

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

ITEM	DESCRIPTION
Discover	The DESKVUE can discover transmitters that are on the network when the IP address is not known. In order to discover a transmitter, first be sure that the transmitter is connected to the network or directly connected to the DESKVUE using the Ethernet port closest to the power input. Then click on the "Discover" button and follow the on-screen directions. If the transmitter IP address is unknown, use the Discover feature to find it. Connect the transmitter to the same network or directly to the DESKVUE, and, when prompted to reboot the transmitter, click on the "Next" button. Follow the on-screen instructions to find the device's IP address. Figures 3-24, 3-25, 3-26, and 3-27 below show the sequence of discovery.

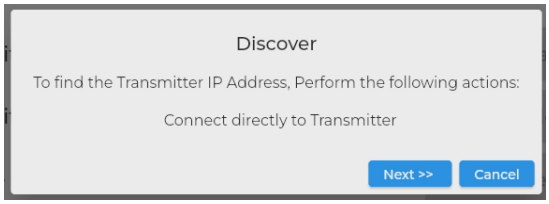


FIGURE 3-24: DISCOVERY STEP 1

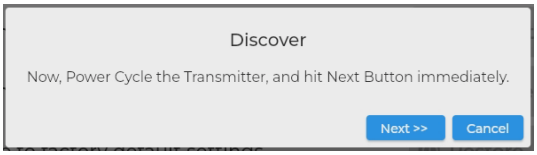


FIGURE 3-25: DISCOVERY STEP 2

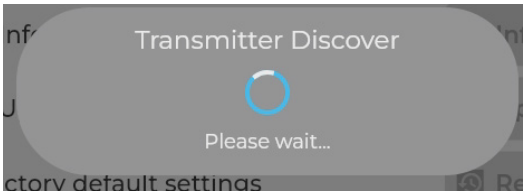


FIGURE 3-26: DISCOVERY IN PROCESS

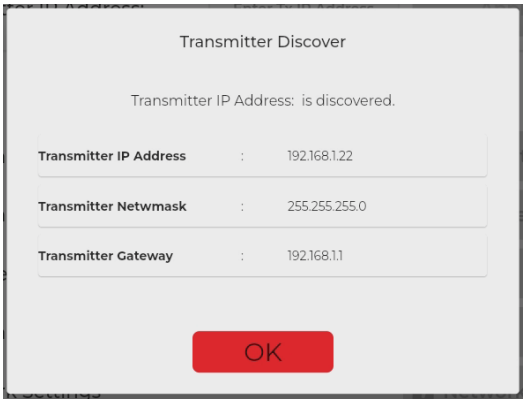


FIGURE 3-27: DISCOVERY RESULTS

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

ITEM	DESCRIPTION
Preferences	Configure the transmitter video and USB settings. Configure the video quality, video optimization, USB HID configuration, and EDID (video resolution) as shown below in Figure 3-28:

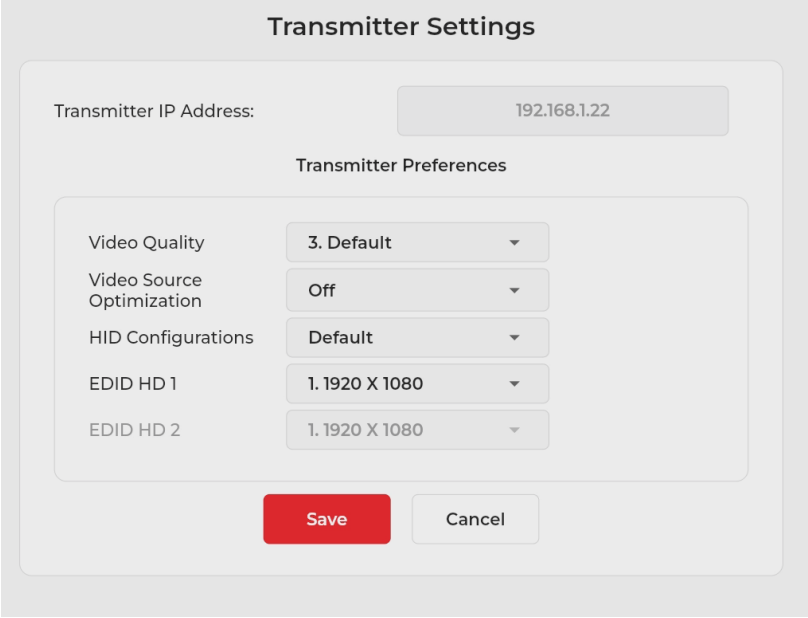


FIGURE 3-28: TRANSMITTER SETTINGS SCREEN

Video Quality:
Transmitter settings use a progressive compression algorithm with five stages to reduce the bandwidth and increase the frame rate while sacrificing quality. At stage five, which uses the best compression, you may achieve a higher frame rate and lower bandwidth, but the video output may show blocks of pixilation or screen artifacts as those parts of the screen are not being repainted because they didn't update. At the highest setting of stage one, which is best quality, you will not see these screen artifacts as much, but you will use a higher bandwidth with reduced frames potentially based upon your application. Frames are not always reduced; it just depends on the source and network.

Options:
1. Best Quality Video – lossless compression, pixel-perfect mode of operation. This generally needs a dedicated network to ensure no frame loss.

2. Visually Lossless Compression – high quality visual image. There is some compression on stream to reduce bandwidth to allow operation on standard corporate networks. Compression does not vary based on available network bandwidth, so it may lead to some dropped frames during network congestion periods.

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

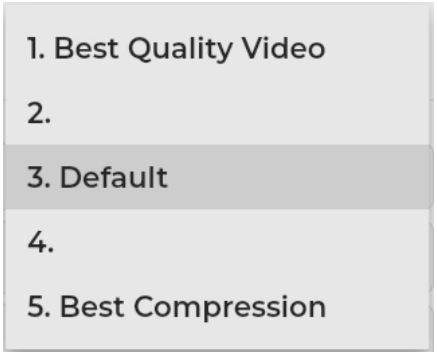
ITEM	DESCRIPTION
	3. Default – system tuned to maintain visually lossless compression while increasing the compression level during periods of network congestion to reduce frame loss. This balances visual quality with frame loss in periods of congestion (for example,. attempts to reduce/eliminate frame loss). 4. Optimized Bandwidth – system tuned to maintain visually lossless compression but increased levels of compression level during periods of network congestion to reduce frame loss. This is optimized towards lower bandwidth during congestion periods compared to level three. 5. Best Compression – high level of compression to minimize average network bandwidth. There is no dynamic change to compression levels – always seeking to reduce bandwidth. These options are shown below in Figure 3-29:  FIGURE 3-29: TRANSMITTER QUALITY OPTIONS

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

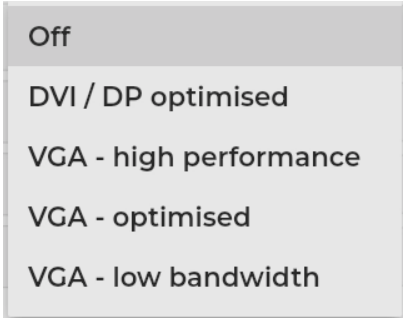
ITEM	DESCRIPTION
	This is a progressive algorithm which helps to reduce unwanted noise coming from a GPU or video converters. The transmitter can be configured to handle different applications by changing the way it handles the video signal if it natively has embedded noise, such as from a VGA to DVI converter. You can choose to use "DVI optimized," "VGA high performance," "VGA optimized," or "VGA low bandwidth" settings. You may change these options to get the best performance out of the transmitter. When the option is "OFF," no dithering/noise techniques are enabled. **DVI optimized:** This is the least aggressive technique, and it uses a digital anti-dithering/anti-noise technique to reduce the extra noise, which will allow the transmitter to operate at a normal pace and have better network performance. **High performance:** This is best used when there is an analog-to-digital video converter between the GPU and transmitter. It uses a low-level technique. **VGA optimized:** This is best used when there is an analog-to-digital video converter between the GPU and transmitter. It uses a medium-level technique.
Video Source Optimization	**VGA low bandwidth:** This is best used when there is an analog-to-digital video converter between the GPU and transmitter. It uses a high-level technique. This would be considered the most aggressive technique to handle video dithering/noise. NOTE: VGA Optimization is only supported on single-head transmitters; the dual-head transmitters and Emerald® 4K do not support it. The dual-head Emerald SE/PE may not be the best option for sources that use video dithering technology. Video Source Optimization options are shown below in Figure 3-30:  FIGURE 3-30: VIDEO SOURCE OPTIMIZATION OPTIONS

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

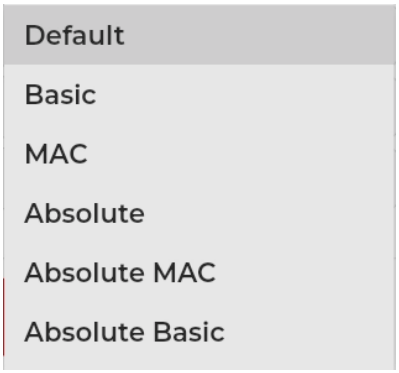
ITEM	DESCRIPTION
HID Configurations	This setting applies to all transmitters. It changes the USB communication between the Emerald® transmitter and the target computer/device. **Default:** This will pass all available signals, including audio, USB-R, and USB HID, as well as keyboard and mouse connections. **Basic:** This will pass USB HID only. It provides compatibility with DKM, DCX and older servers that require a keyboard and mouse HID only. Basic HID is also required to access any computer's BIOS menus. **MAC:** This supports MacOS® users. **Absolute:** will be used with Windows®/Linux when RemoteApp, DESKVUE, or Freedom are being used in the setup. For normal usage, where the mouse is directly connected to a receiver, the "Default" or "Basic" options should be used. **Absolute MAC:** This will be used with MacOS® when used with Remote App, DESKVUE, or Freedom. Absolute Basic allows you to set the mouse to absolute while disabling the emulated audio device. This setting will typically be used where you wish to use the Remote App or DESKVUE, or when integrating the Emerald system with DKM and other systems that may be disrupted with audio enabled. HID configuration options are shown below in Figure 3-31:  FIGURE 3-31: HD CONFIGURATION OPTIONS

TABLE 3-7. TRANSMITTER SETTINGS (CONTINUED)

ITEM	DESCRIPTION
EDID HD1/EDID HD2	The transmitter can support native EDID options, including 1920x1080, 1920x1200, 1680x1050, 1280x1024, or 1024x768. This information is then shared with the computer's GPU so that it sends the correct resolution and refresh rate. NOTE: The computer may need to be restarted in order for the settings to work. If you find that changing the EDID settings makes the monitor blank out, you may need to select a different option to correct the issue. EDID options are shown below in Figure 3-32:  FIGURE 3-32: EDID OPTIONS
Diagnostics	When issues arise or support asks for additional information, running this diagnostics function allows the DESKVUE to save all the log information onto a flash drive that is connected to the unit. Plug a FAT- or FAT-32-formatted flash drive into the DESKVUE, and run diagnostics to save all the information. The diagnostics file is encrypted to protect your information, and only authorized Black Box personnel are able to view the log file. An example containing a diagnostic file is shown in Figure 3-33 below:  FIGURE 3-33: DIAGNOSTIC FILE EXAMPLE

3.7 CONNECTIONS TAB

When the "Connections" tab is selected, the system displays the "Connections List" screen, as shown in Figure 3-34 below:

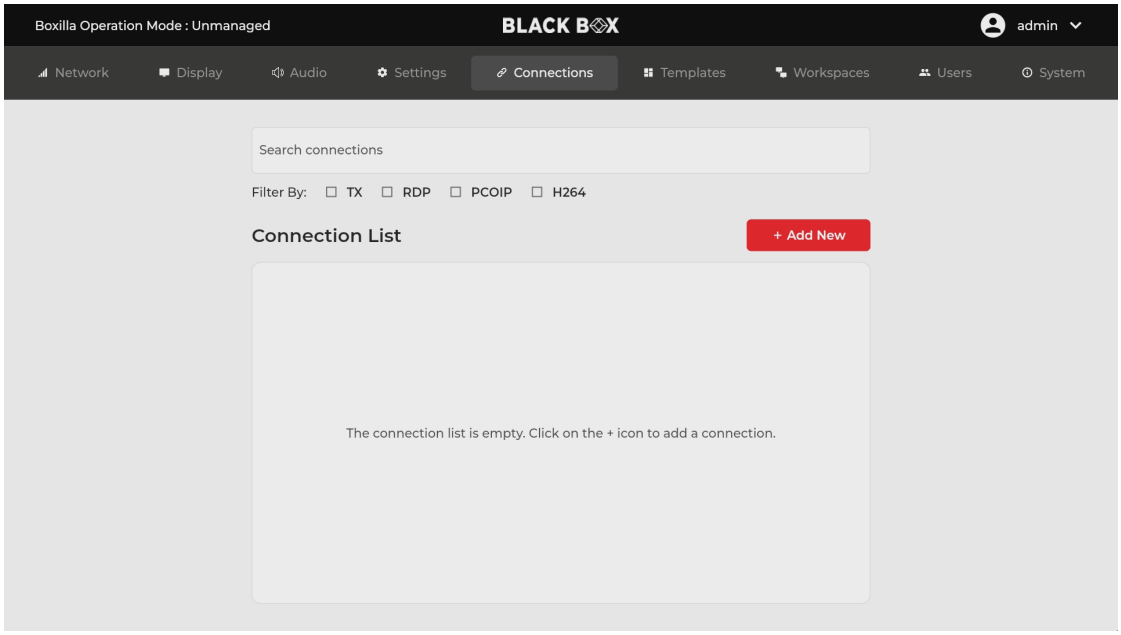


FIGURE 3-34: CONNECTIONS LIST SCREEN

When at least one connection has been added, the page will show the available connection(s), as shown in Figure 3-35 below:

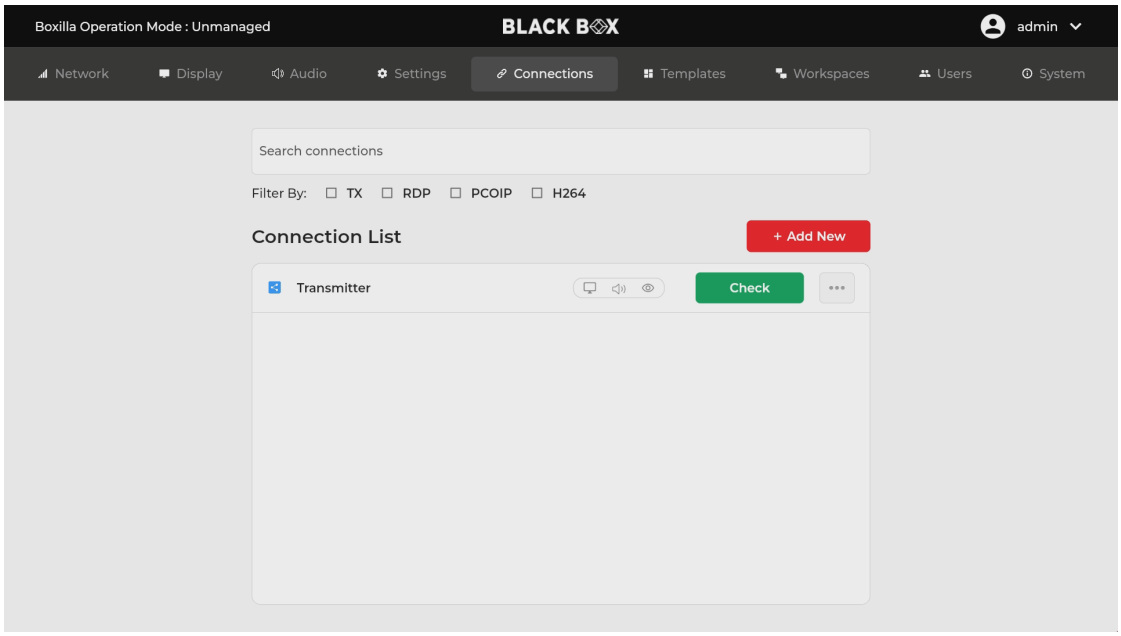
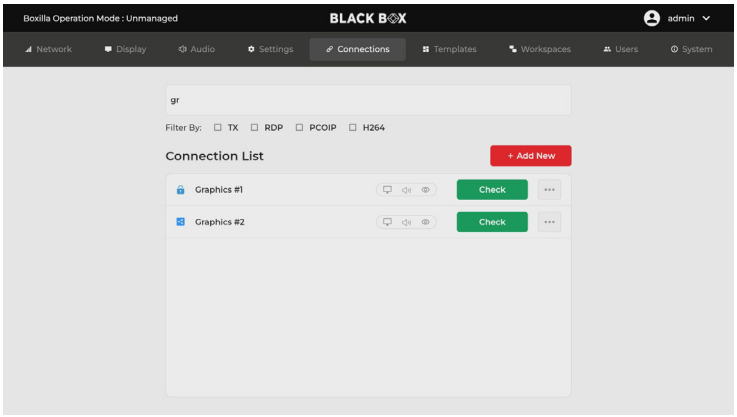
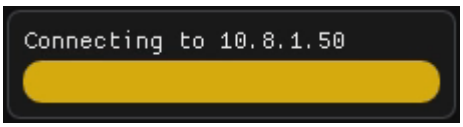


FIGURE 3-35: AVAILABLE CONNECTIONS EXAMPLE

NOTE: The items shown in the connection list are provided for example only; the list shown on your screen is dependent upon connections made with your DESKVUE unit or connections configured in Boxilla if the DESKVUE unit is managed. When DESKVUE is not managed and is in a factory default state, no connections will be shown by default.

Table 3-8 explains the options on the "Connections List" screen.

TABLE 3-8. CONNECTION LIST OPTIONS

ITEM	DESCRIPTION
Search connections box	Type in this search box to customize the items shown in the connection list. When you type in this box, all connections containing that search term will be displayed, as shown in the example in Figure 3-36 below:  FIGURE 3-36: CONNECTION SEARCH BOX RESULTS
Filter By	Click in the appropriate check box(es) if you want to filter your results by a specific connection type: transmitter, RDP, PCoIP, or H.264.
Add New	Click on this button to manually add a new transmitter, RDP, PCoIP, or H.264 Stream Connection connection.
Check Button	Click on the "Check" button to test the connection. When you click on this button, the system attempts to reach the connection and displays a connection status message, as shown in Figure 3-37 below:  FIGURE 3-37: CONNECTION STATUS SCREEN. NOTE: When using the "Check" button, press the default hot keys + X to close the window and return to the Connections tab. If the connection window is closed using the "x" button in the top right of view, the hot key + X still needs to be used to return to the Connections tab on the OSD. By default, the hot keys are CTRL, CTRL, so using CTRL, CTRL, X would break this connection.

Each connection type is indicated by an icon, as shown in Figure 3-38 below:

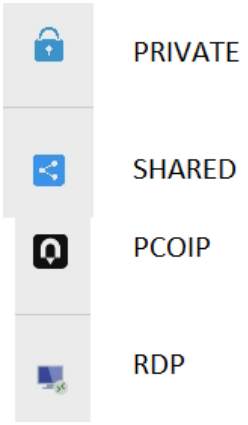


FIGURE 3-38: ICONS FOR DIFFERENT CONNECTION TYPES

3.7.1 ADD NEW CONNECTION

After you click on the "Add New" button, the system displays a configuration screen. The configuration screen shown will depend upon the connection type selected, as shown in Figures 3-39, 3-40, 3-41, 3-42 starting below:

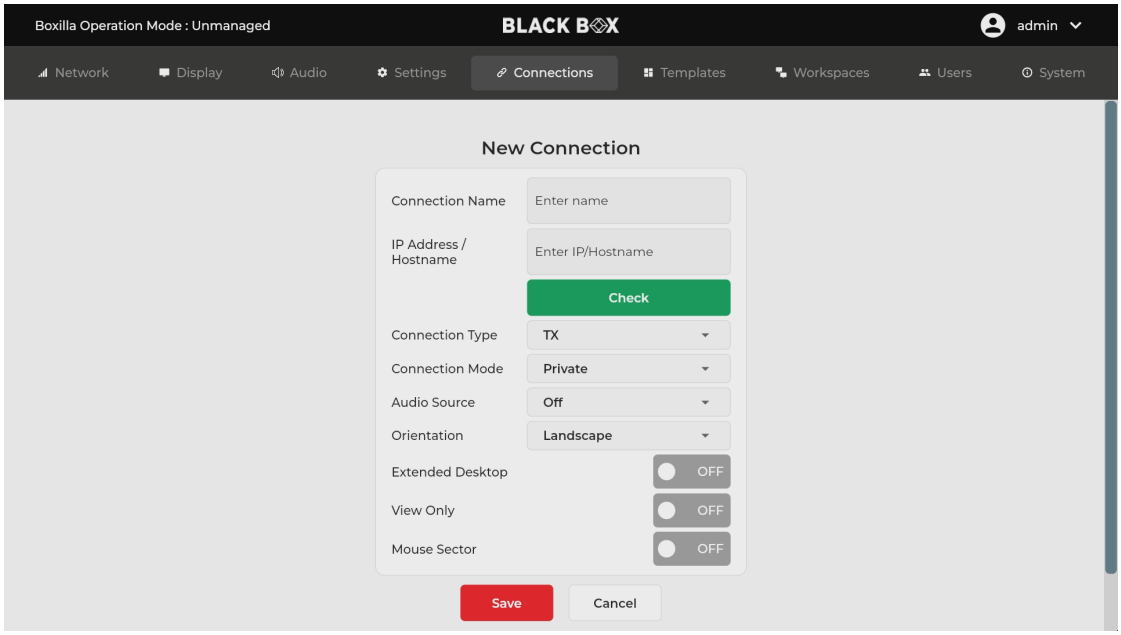


FIGURE 3-39: NEW CONNECTION SCREEN FOR TX (TRANSMITTER) CONNECTION TYPE

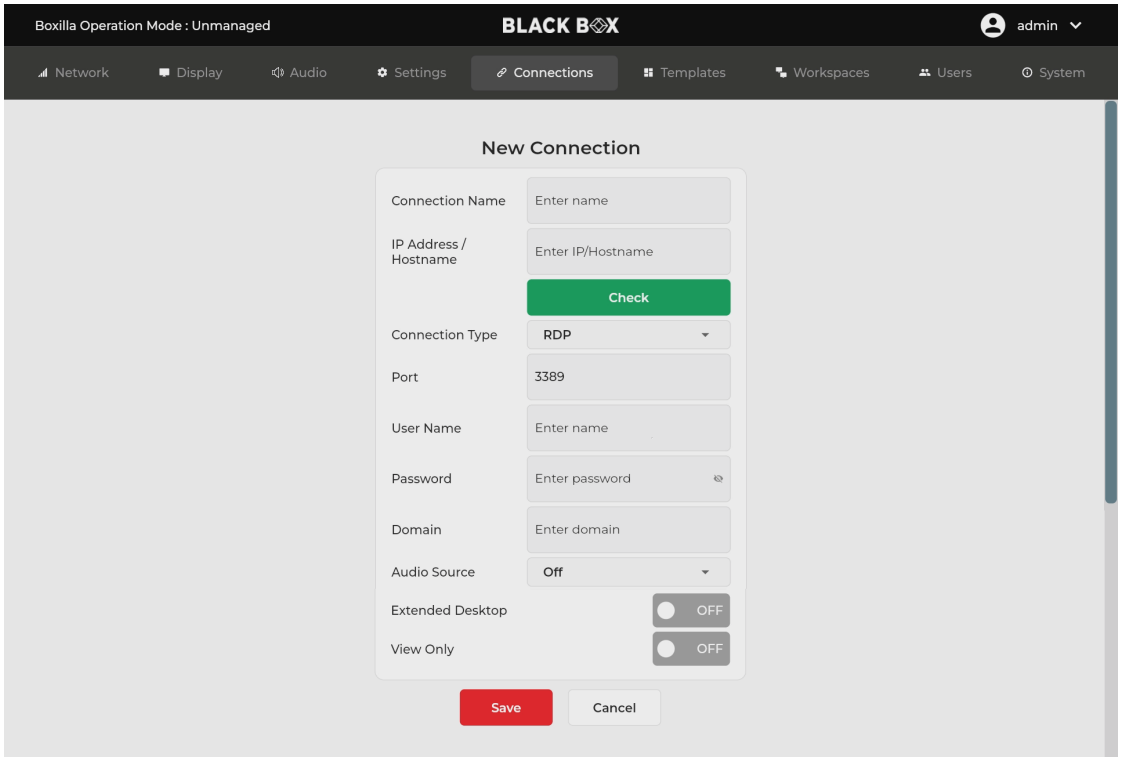


FIGURE 3-40: NEW CONNECTION SCREEN FOR RDP CONNECTION TYPE

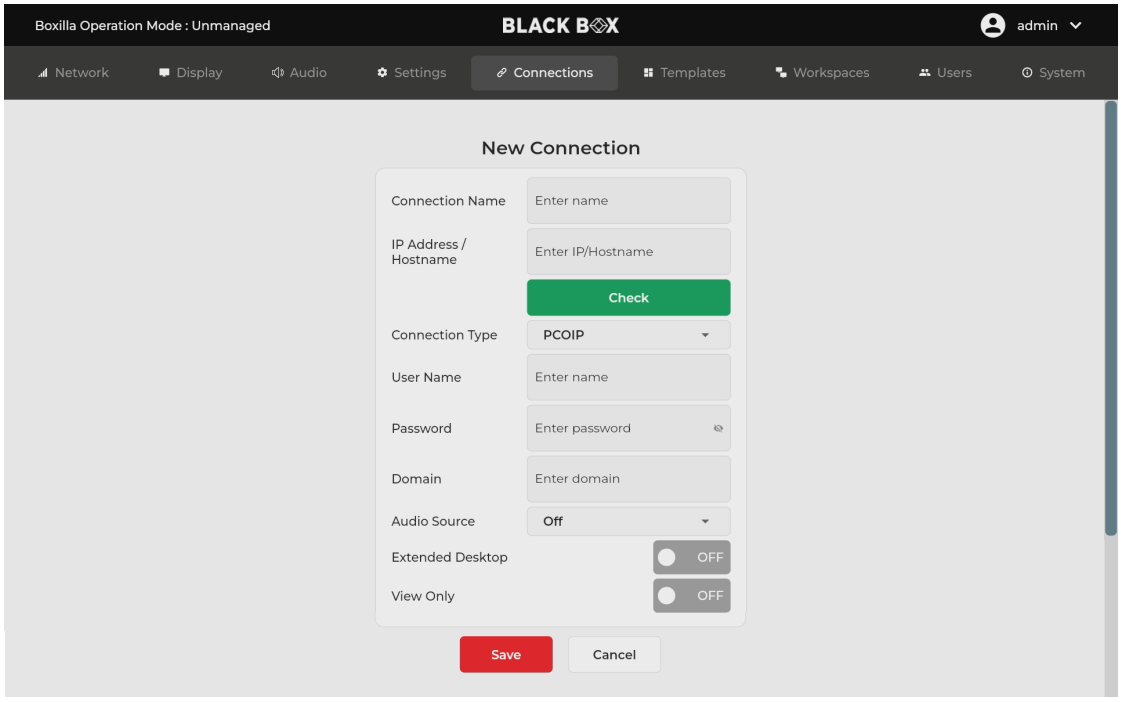


FIGURE 3-41: NEW CONNECTION SCREEN FOR PCOIP CONNECTION TYPE

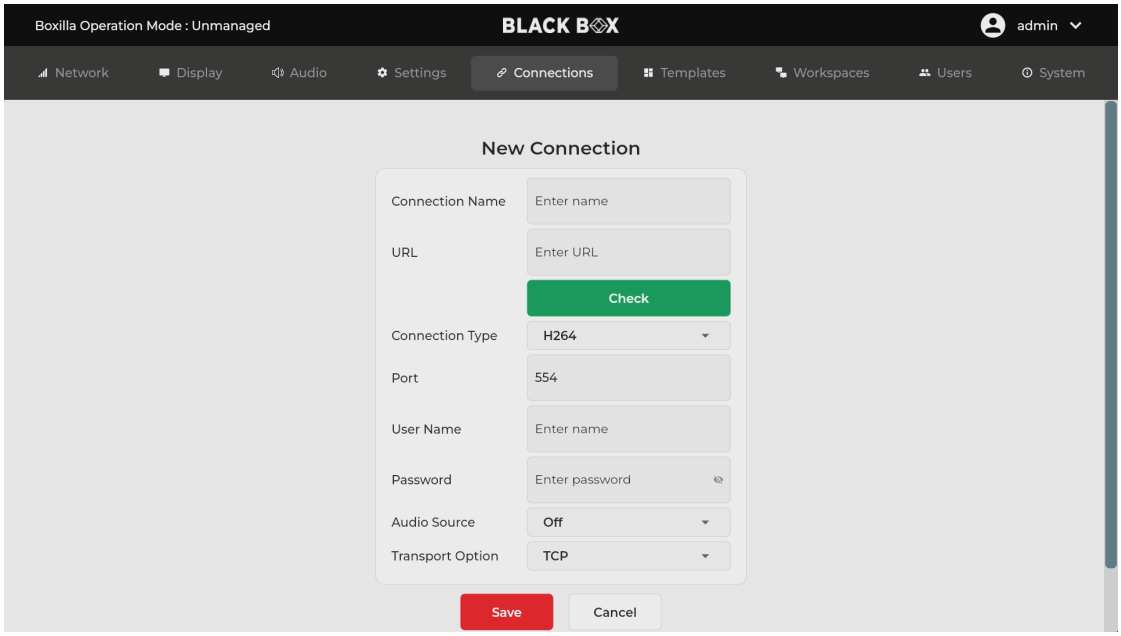


FIGURE 3-42: NEW CONNECTION SCREEN FOR H.264 CONNECTION TYPE

Table 3-9 explains the options on the "New Connection" screen.

TABLE 3-9. NEW CONNECTION OPTIONS

ITEM	DESCRIPTION
Connection Name	Enter a name for the connection. The Emerald® DESKVUE unit will use this connection name on all screens that show the connection.
IP Address	Enter the IP address for the connection. You can click on the "Check" button to verify that the IP address entered is valid. After DESKVUE uses this check to verify the validity of the connection, it displays the message shown in Figure 3-43 when the IP address is able to be reached or the message shown in Figure 3-44 when the IP address is not able to be reached.
URL (H.264 Option)	Enter the URL or hyperlink of the H.264 stream.
Connection Type	Choose the connection type from the drop-down list box. You can choose TX (for transmitter), RDP, PCOIP, or H.264, as shown in Figure 3-45 below:
Connection Mode (TX option)	Choose the connection type from the drop-down list box. You can choose "private" or "shared," as shown in Figure 3-46 below. If set to "private," only one person can be connected to the transmitter. If set to "shared," multiple people can connect to the same transmitter.

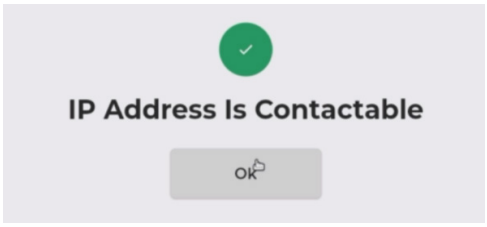


FIGURE 3-43: IP ADDRESS VERIFICATION MESSAGE WHEN CONTACTABLE

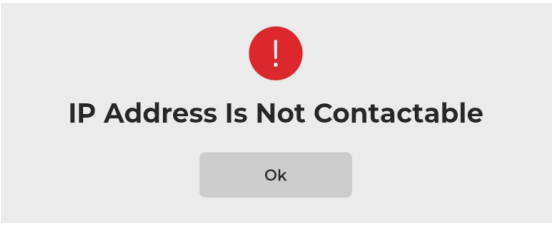


FIGURE 3-44: IP ADDRESS VERIFICATION MESSAGE WHEN NOT CONTACTABLE

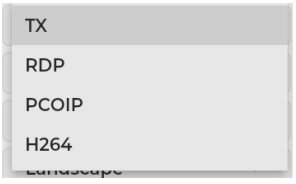


FIGURE 3-45: CONNECTION TYPE OPTIONS

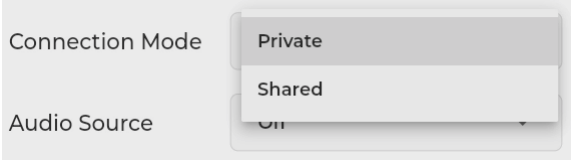


FIGURE 3-46: CONNECTION MODE OPTIONS

TABLE 3-9. NEW CONNECTION OPTIONS (CONTINUED)

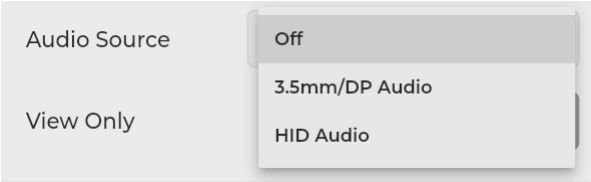
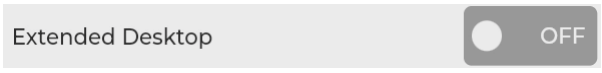
ITEM	DESCRIPTION
Audio Source	Use this drop-down list box to select the audio source. You can choose "OFF," "3.5mm/DP Audio," or "HID Audio" from the list, as shown in Figure 3-47 below. "OFF" disables audio for the device. and "3.5MM/DP audio" enables audio. HID Audio is model dependent. When supported, it enables audio to be sent over the USB channel to a USB speaker.  FIGURE 3-47: AUDIO SOURCE OPTIONS
Orientation (Transmitter option)	Set the video orientation for the connection. You can select between landscape and portrait modes, as shown in Figure 3-48 below:  FIGURE 3-48: ORIENTATION OPTIONS
Port (RDP and H.264 options)	Enter the port for the RDP or H.264 target device. 3389 is the standard RDP protocol, while port 554 is the default H.264 port.
User Name (RDP, PCoIP, and H.264 options)	Enter the user name for the connection.
Password (RDP, PCoIP, and H.264 options)	Enter the password for the desired RDP user that was entered in the previous section. If you leave the password field blank, the Emerald® DESKVUE unit will not be able to automatically log in, and it will display the login screen.
Domain (RDP and PCoIP options)	Enter the device's domain, if applicable.
Extended Desktop (Transmitter, RDP, and PCoIP options)	When the target has two video heads or extended desktop, set the Extended Desktop option to "ON," as shown in Figure 3-49 below. If using single monitors/single video head, leave this setting "OFF," as shown in Figure 3-50 below:  FIGURE 3-49: EXTENDED DESKTOP ON  FIGURE 3-50: EXTENDED DESKTOP OFF

TABLE 3-9. NEW CONNECTION OPTIONS (CONTINUED)

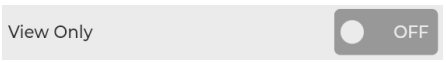
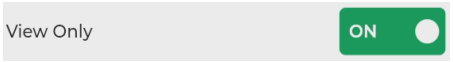
ITEM	DESCRIPTION
View Only	When the slider bar is in the "ON" position, the connection will be in view only mode, which means that keyboard and mouse activity will not be passed to the target device. The end user can only see the video and hear the audio (when audio is enabled).. When the slider bar is in the "OFF" position, the connection will connect the keyboard and mouse, and the end user can control the remote target. Click on the right side of the slider bar to turn it "ON," and click on the left side of the slider bar to turn it off. The slider is shown below in the "OFF" position in Figure 3-51 and in the "ON" position in Figure 3-52:  FIGURE 3-51: ON/OFF SLIDER WITH OPTION OFF  FIGURE 3-52: ON/OFF SLIDER WITH OPTION ON
Mouse Sector (Transmitter Options)	The Mouse Sector can be configured when using multi-head setups to determine what order the mouse is configured. **Mode:** Choose either "Vertical" or "Matrix" to determine how the tiles are aligned. Vertical will show tiles/viewports on top of each other while Matrix allows for a 2x2 setup. **Number of Sectors:** A value between 1 and 8 can be used for this field. If using a quad-head layout, you would have 4 sectors. If using a dual-head layout, you would have 2 sectors. **Sector Map Y Position:** Choose between 0, 1, or 2. This is the X and Y for each location for each sector. Example: | 0,1 | 1,1 | | 0,0 | 1,0 |

TABLE 3-9. NEW CONNECTION OPTIONS (CONTINUED)

ITEM	DESCRIPTION
Mouse Sector (Transmitter Options) (Continued)	The slider is shown below in the "ON" position in Figure 3-53 and in the "OFF" position in Figure 3-54:
Transport Option (H.264 option)	Choose the transport layer for the H.264 stream between TCP and UDP.
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-55 below:

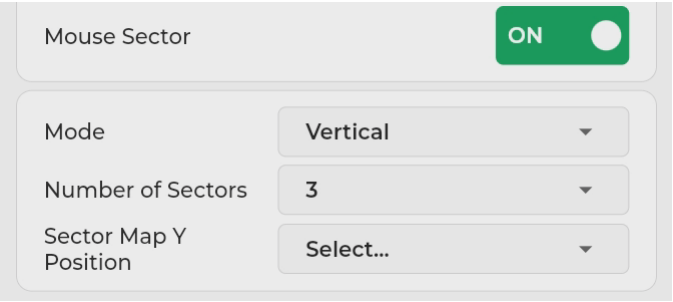


FIGURE 3-53: ON/OFF SLIDER WITH OPTION ON AND OTHER OPTIONS DISPLAYED

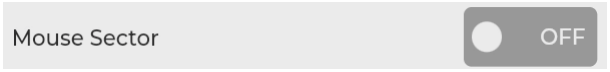


FIGURE 3-54: ON/OFF SLIDER WITH OPTION OFF

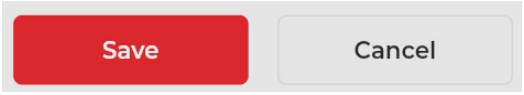


FIGURE 3-55: SAVE AND CANCEL BUTTONS

After you click on the "Save" button to save the new connection, the connection appears in the connection list.

Once you add a connection, use the "Check" button to verify the connection by attempting to connect to it.

3.8 TEMPLATES TAB

When the “Templates” tab is selected, the system displays the “Templates List” screen, as shown in Figure 3-56 below:

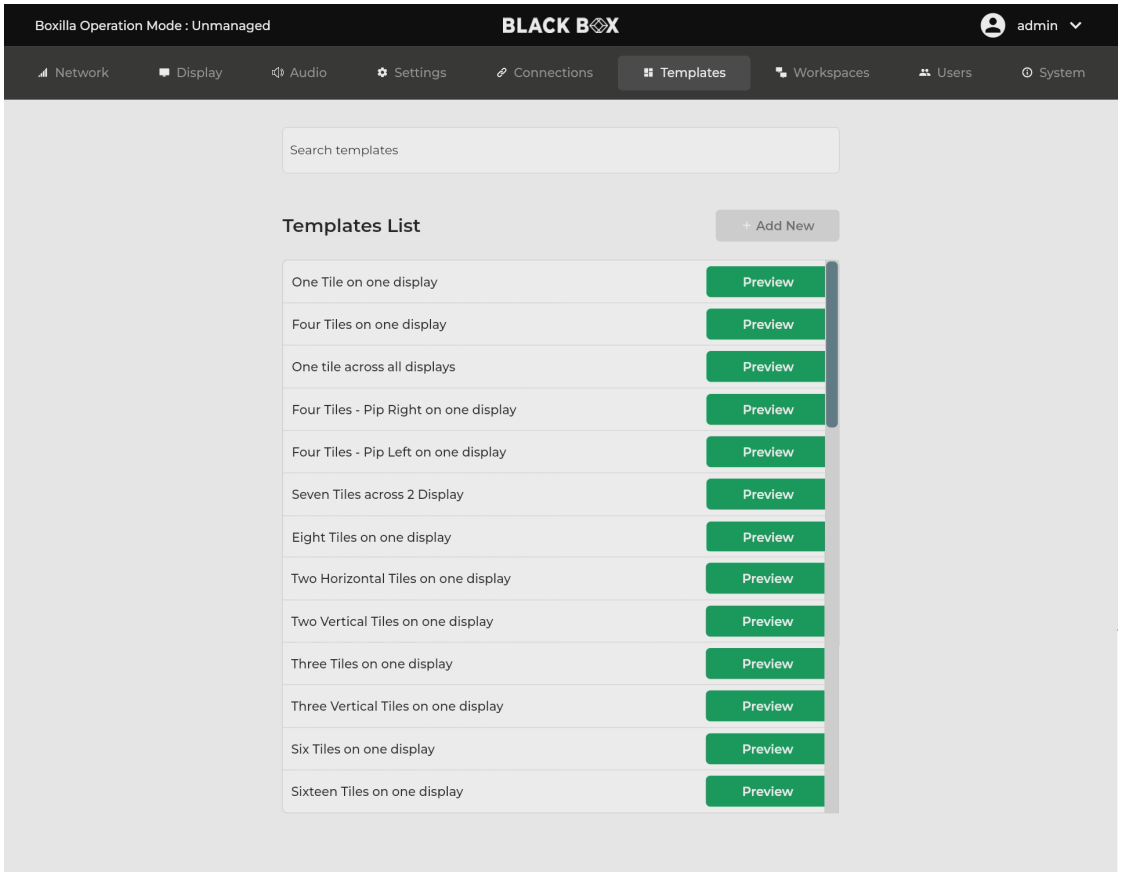


FIGURE 3-56: TEMPLATES LIST SCREEN

This screen displays 13 predefined layout templates. Custom templates can be used when DESKVUE is managed by a Boxilla manager.

3.8.1 ONE TILE ON ONE DISPLAY

The “One Tile on one display” template contains one tile, which represents one connection, on one display unit. That connection uses the entire screen. When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-57 below:

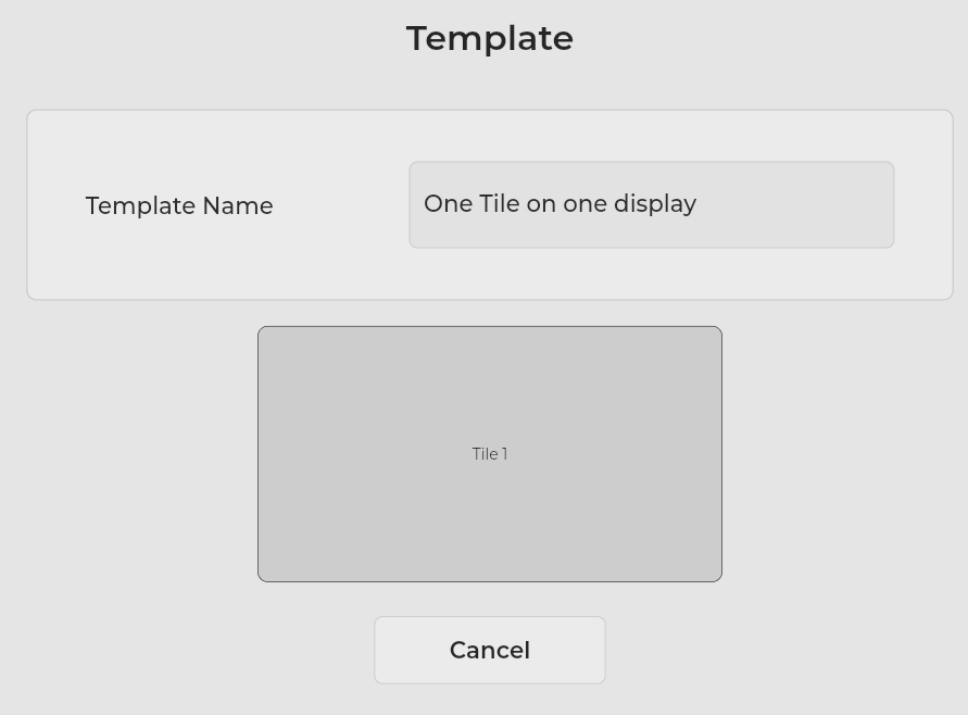


FIGURE 3-57: ONE TILE ON ONE DISPLAY TEMPLATE

NOTE: If you have a multi-head device, you can map the assignment of the tile to a specific display.

3.8.2 FOUR TILES ON ONE DISPLAY

The “Four Tiles on one display” template contains four tiles, which each represent one connection, on one display unit. Each tile fills 1/4 of the screen.

NOTE: The tile numbers shown in the template are important, since you map a connection to a specific tile location when you create a workspace.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-58 below:

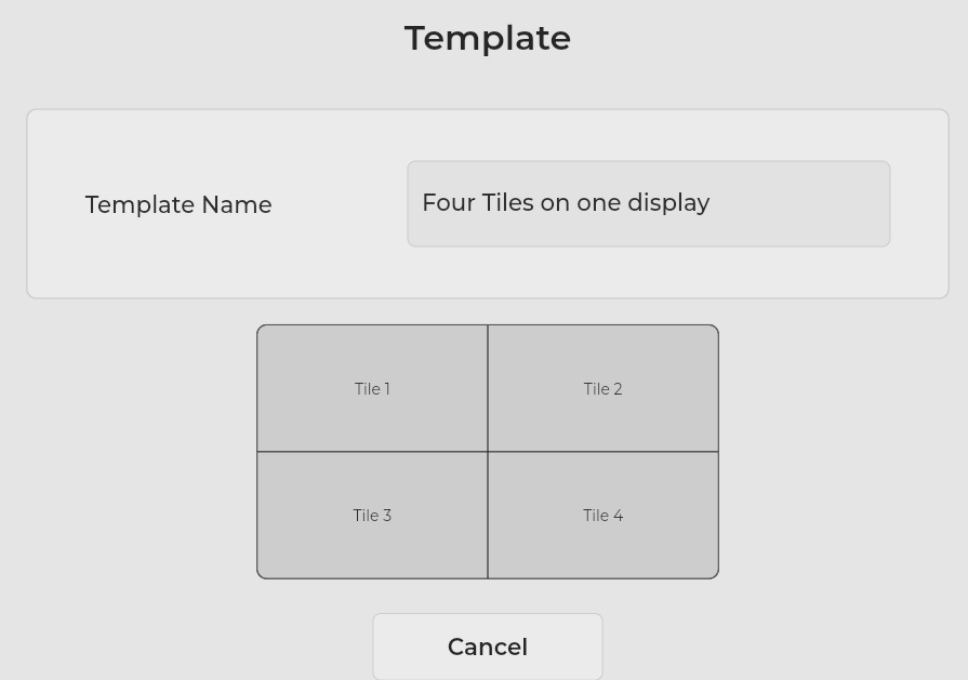


FIGURE 3-58: FOUR TILES ON ONE DISPLAY TEMPLATE

3.8.3 ONE TILE ACROSS ALL DISPLAYS

The “One Tile across all displays” template displays a single target across all screens of the DESKVUE output.

This mode is similar to the AV video wall functions when using the Boxilla manager. This template will take a single video signal and stretch/scale it across all connected displays.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-59 below:

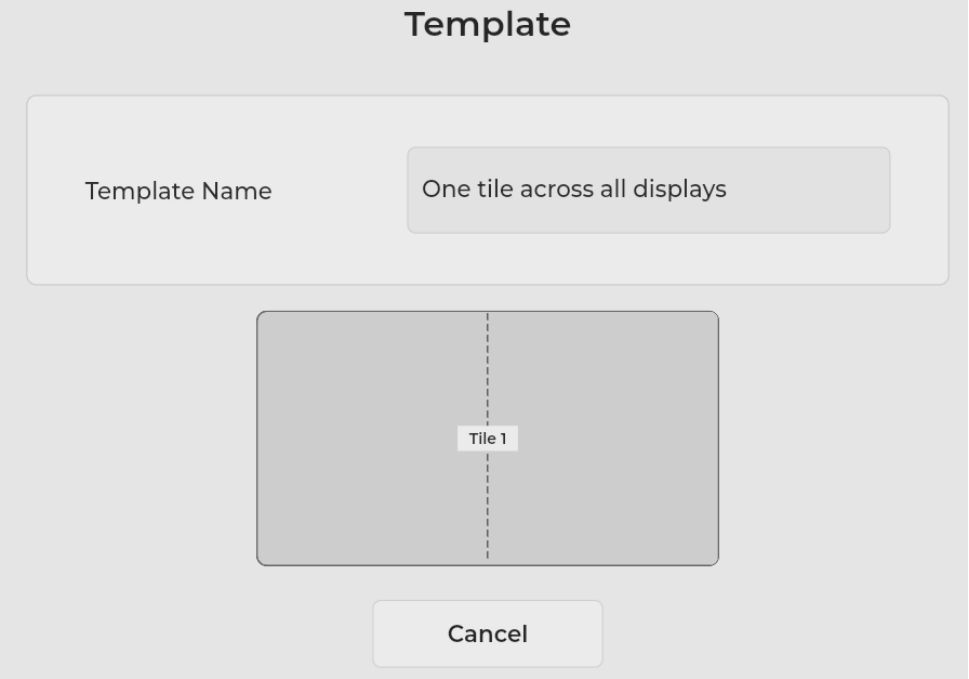


FIGURE 3-59: ONE TILE ACROSS ALL DISPLAYS TEMPLATE

3.8.4 FOUR TILES - PIP RIGHT ON ONE DISPLAY

The “four Tiles - Pip Right on one display” template contains four tiles, which each represent one connection, on one display unit. There is one large tile, which occupies 2/3 of the screen distance, and three smaller Picture-in-Picture (PiP) tiles to the right of that tile, each of which occupies 1/3 of the remaining screen area.

NOTE: The tile numbers shown in the template are important, since you map a connection to a specific tile location when you create a workspace.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-60 below:

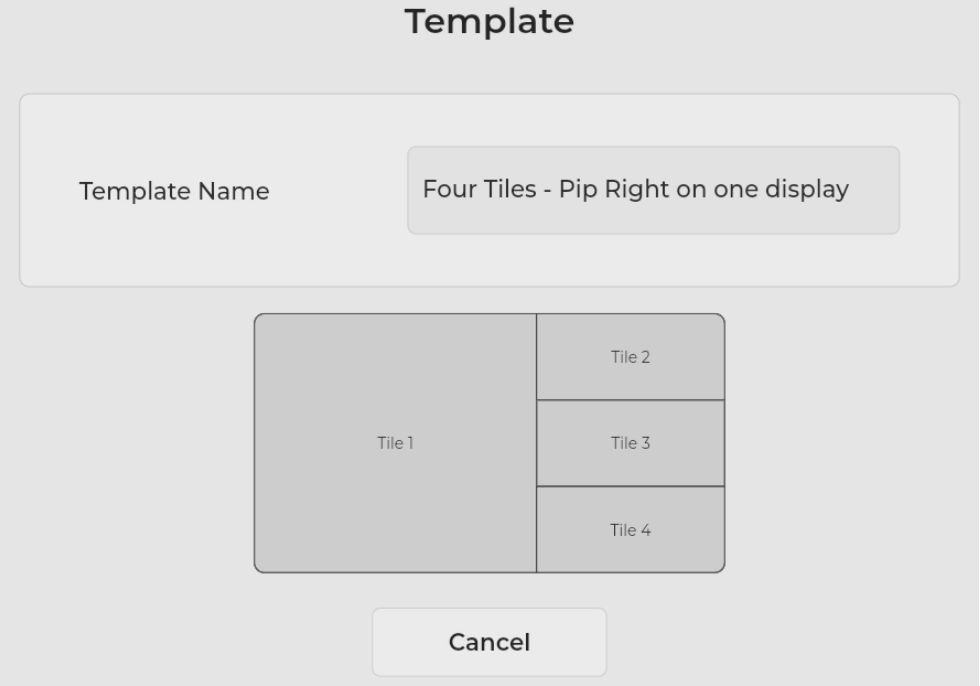


FIGURE 3-60: FOUR TILES - PiP RIGHT ON ONE DISPLAY TEMPLATE

3.8.5 FOUR TILES - PIP LEFT ON ONE DISPLAY

The “Four Tiles - Pip Left on one display” template contains four tiles, which each represent one connection, on one display unit. There is one large tile, which occupies 2/3 of the screen distance, and three smaller Picture-in-Picture (PiP) tiles to the left of that tile, each of which occupies 1/3 of the remaining screen area.

NOTE: The tile numbers shown in the template are important, since you map a connection to a specific tile location when you create a workspace.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-61 below:

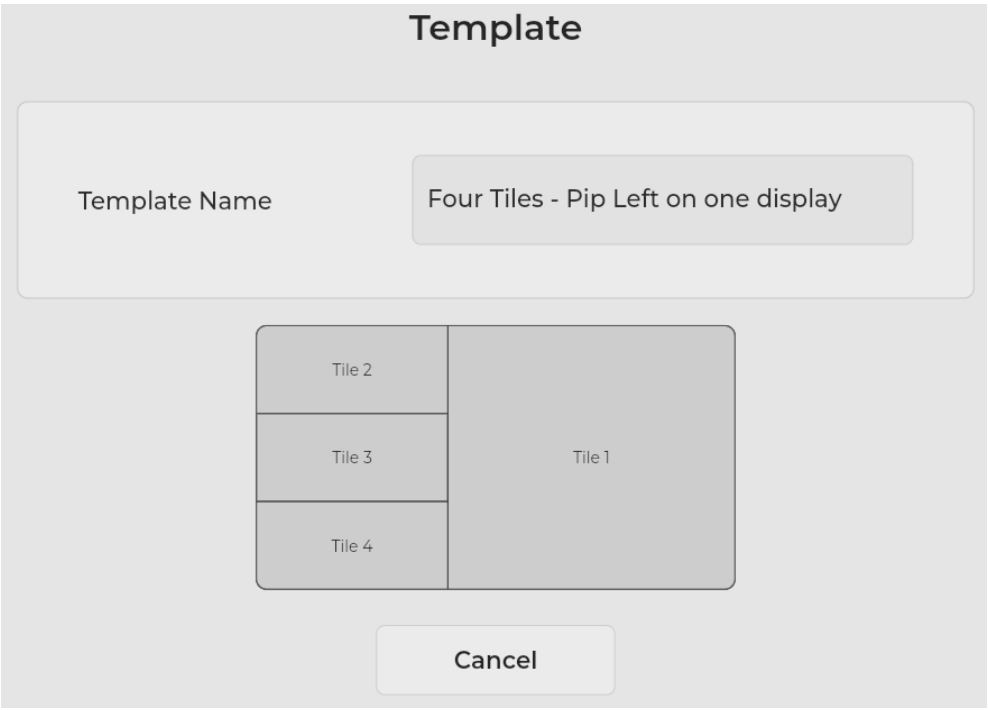


FIGURE 3-61: FOUR TILES - PiP LEFT ON ONE DISPLAY TEMPLATE

3.8.6 SEVEN TILES ACROSS 2 DISPLAYS

The “Seven Tiles Across 2 Displays” template enables you to use multiple screens with Picture-in-Picture options spread across two displays.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-62 below:

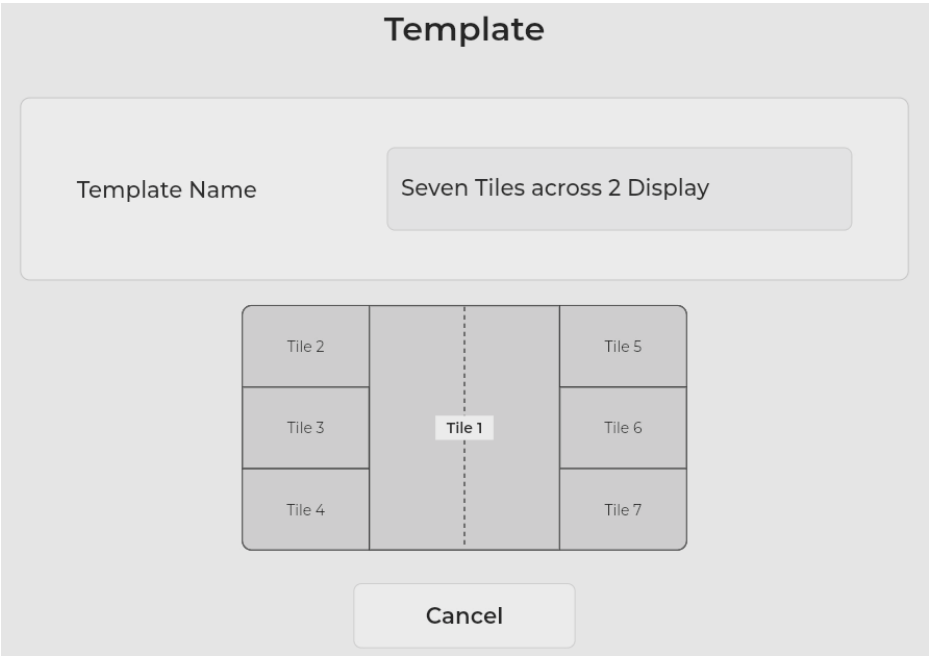


FIGURE 3-62: SEVEN TILES ACROSS 2 DISPLAYS TEMPLATE

3.8.7 EIGHT TILES ON ONE DISPLAY

The “Eight Tiles on one display” template contains eight tiles, which each represent one connection, on one display unit. Each tile fills 1/8 of the screen.

NOTE: The tile numbers shown in the template are important, since you map a connection to a specific tile location when you create a workspace.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-63 below:

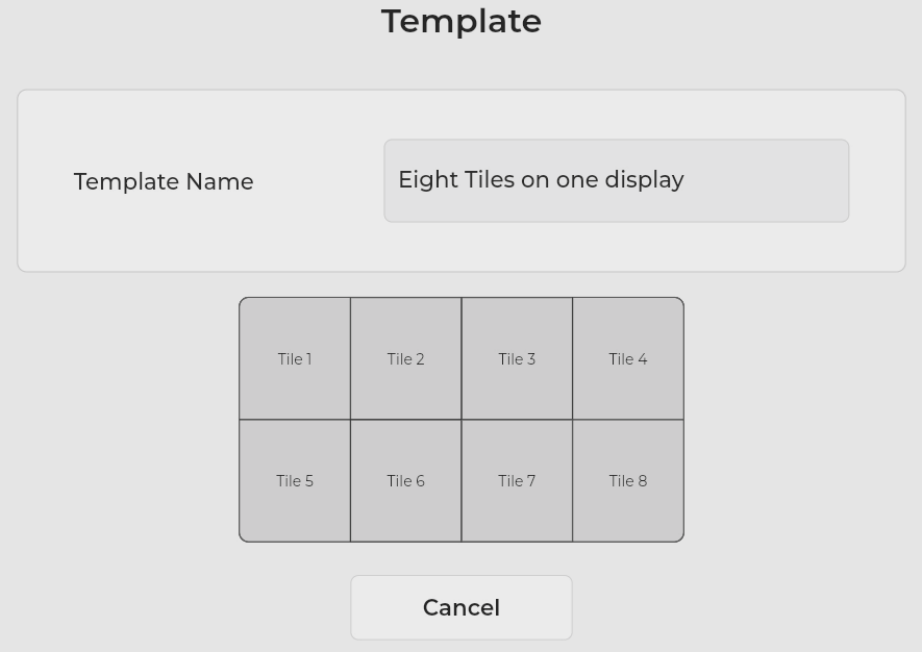


FIGURE 3-63: EIGHT TILES ON ONE DISPLAY TEMPLATE

3.8.8 TWO HORIZONTAL TILES ON ONE DISPLAY

The “Two Horizontal Tiles on one display” template takes two targets and stacks them on top of each other.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-64 below:

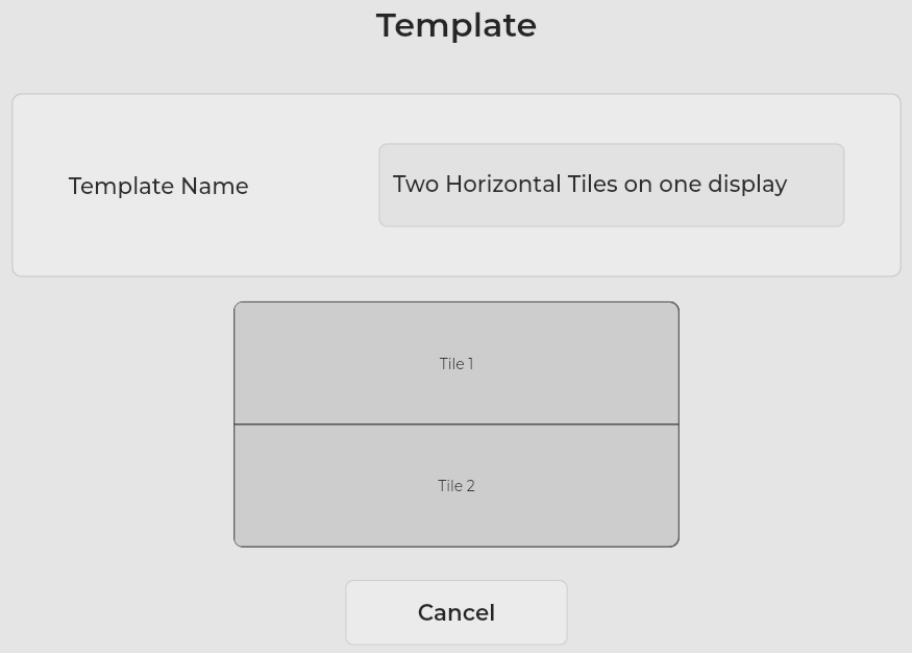


FIGURE 3-64: TWO HORIZONTAL TILES ON ONE DISPLAY TEMPLATE

3.8.9 TWO VERTICAL TILES ON ONE DISPLAY

The “Two Vertical Tiles on one display” template takes two targets and places them side-by-side on one screen.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-65 below:

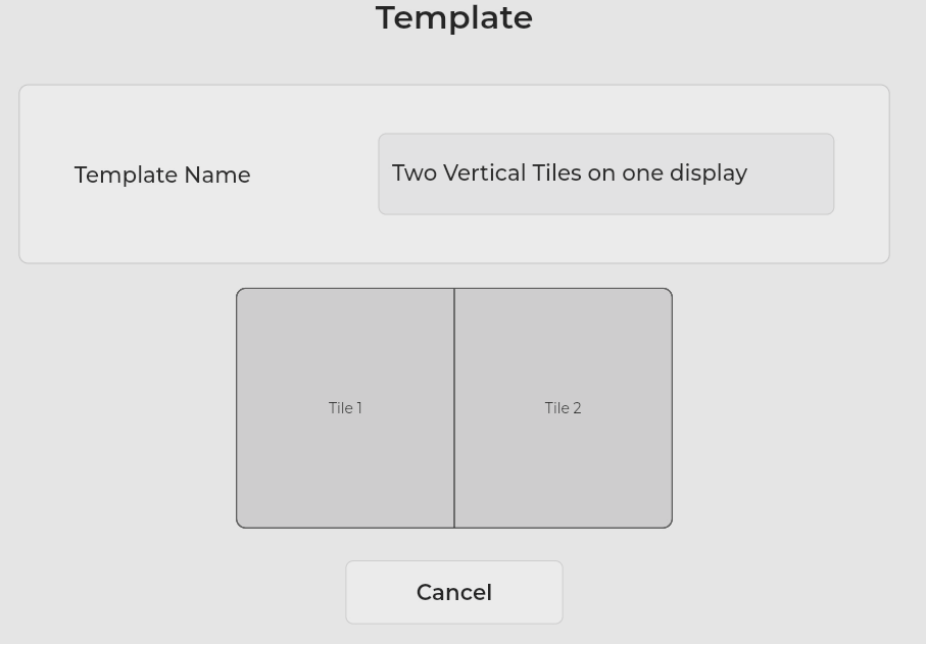


FIGURE 3-65: TWO VERTICAL TILES ON ONE DISPLAY TEMPLATE

3.8.10 THREE TILES ON ONE DISPLAY

The “Three Tiles on one display” template shows three targets on a single screens using the layout displayed in the template.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-66 below:

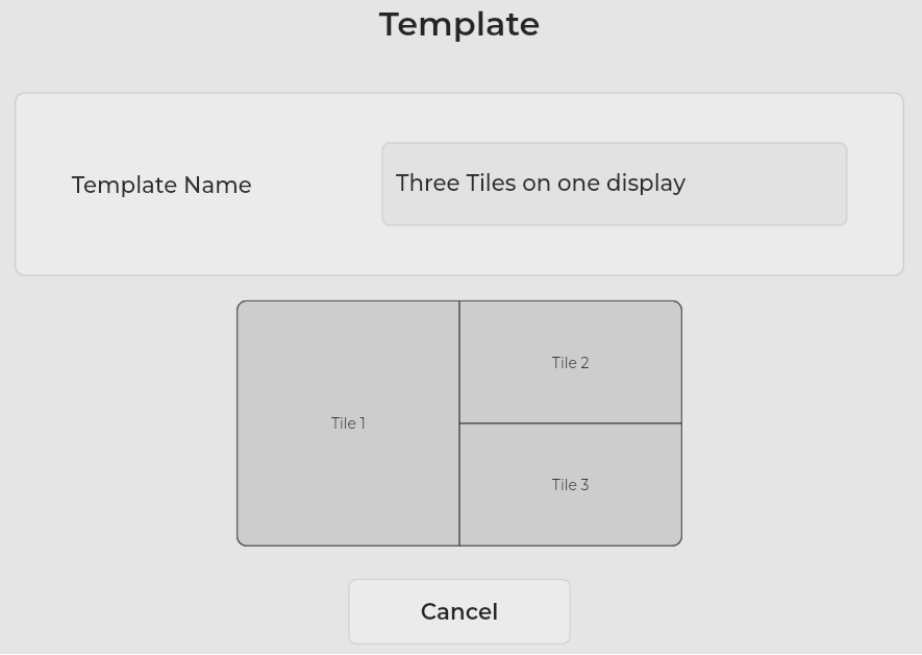


FIGURE 3-66: THREE TILES ON ONE DISPLAY TEMPLATE

3.8.11 THREE VERTICAL TILES ON ONE DISPLAY

The “Three Vertical Tiles on one display” template shows three targets on a single display in a vertical view.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-67 below:

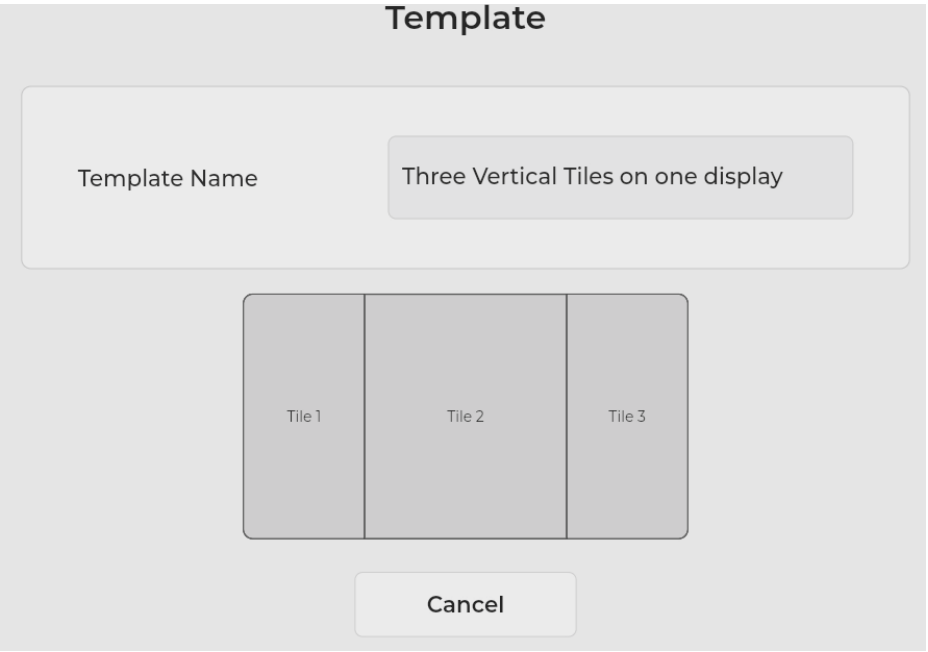


FIGURE 3-67: THREE VERTICAL TILES ON ONE DISPLAY TEMPLATE

3.8.12 SIX TILES ON ONE DISPLAY

The “Six Tiles on one display” template shows up to six targets on a single display with two rows and three columns..

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-68 below:

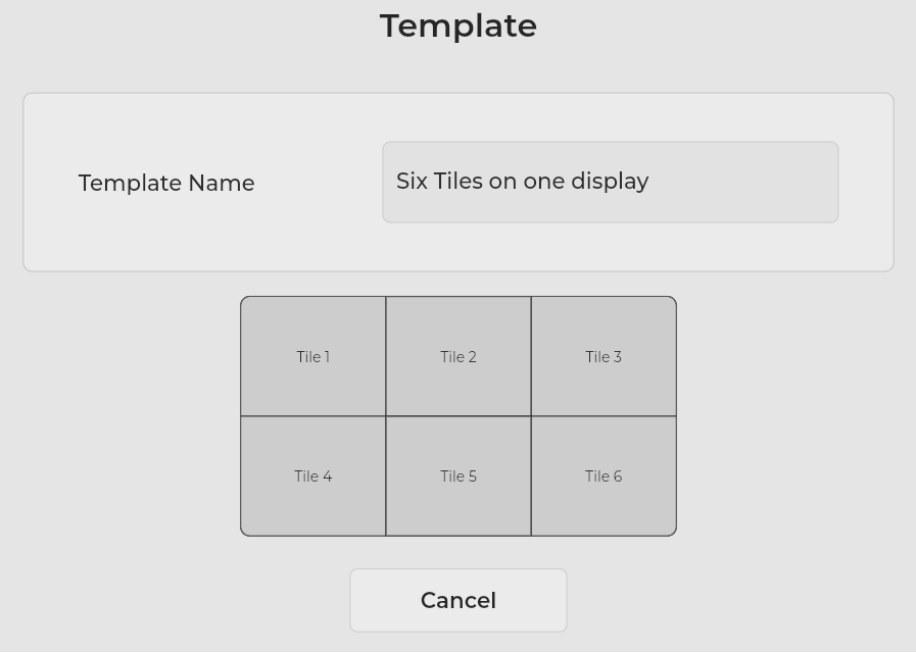


FIGURE 3-68: SIX TILES ON ONE DISPLAY TEMPLATE

3.8.13 SIXTEEN TILES ON ONE DISPLAY

The “Sixteen Tiles on one display” template shows up to 16 targets on a single display with 4 rows and 4 columns.

When you click on the “Preview” button for this option, the system displays an example of the template, as shown in Figure 3-69 below:

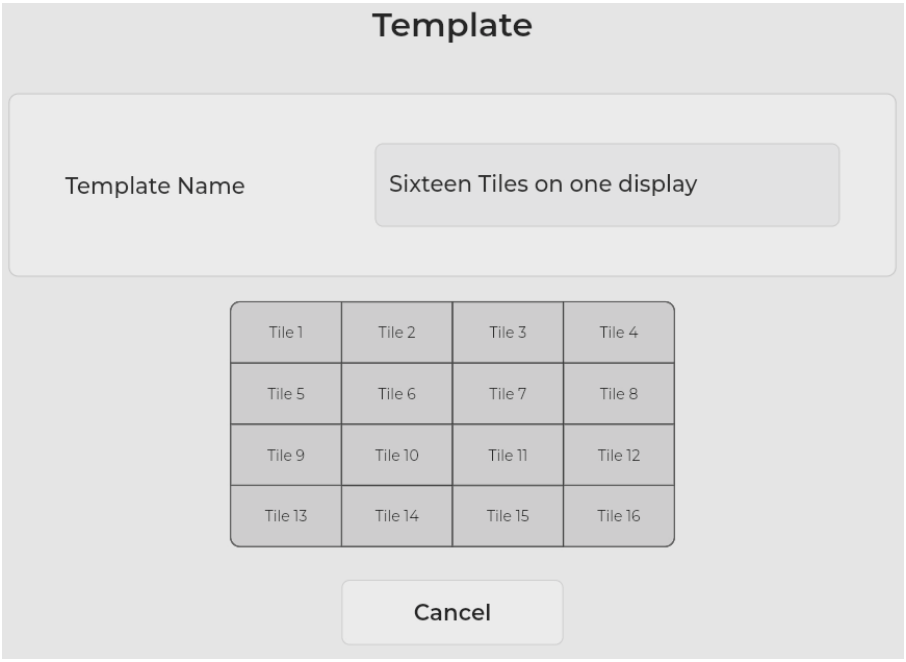


FIGURE 3-69: SIXTEEN TILES ON ONE DISPLAY TEMPLATE

3.9 WORKSPACES TAB

When the "Workspaces" tab is selected, the system displays the "Workspace List" screen, as shown in Figure 3-70 below:

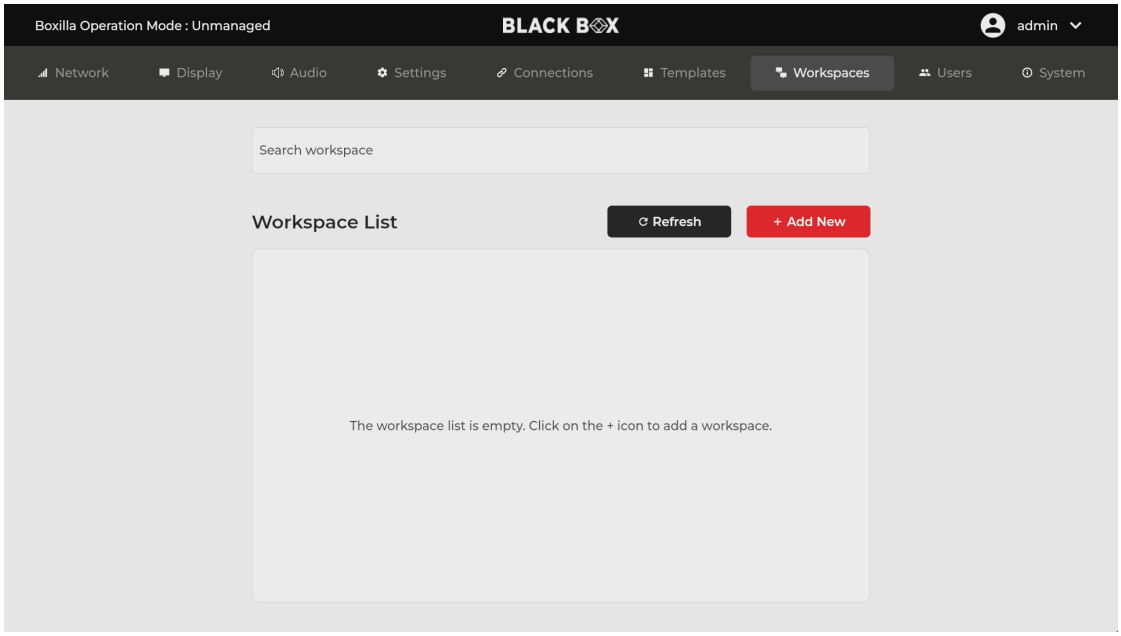


FIGURE 3-70: WORKSPACES TAB

Table 3-10 explains the initial options on the "Workspaces" tab.

TABLE 3-10. WORKSPACES TAB OPTIONS

ITEM	DESCRIPTION
Search workspace box	Type in this search box to customize the items shown in the workspace list. When you type in this box, all workspaces containing that search term will be displayed, In the example in Figure 3-71 below, "ws" was typed in the search box, so the only workspaces that appear in the workspace list contain those series of letters.

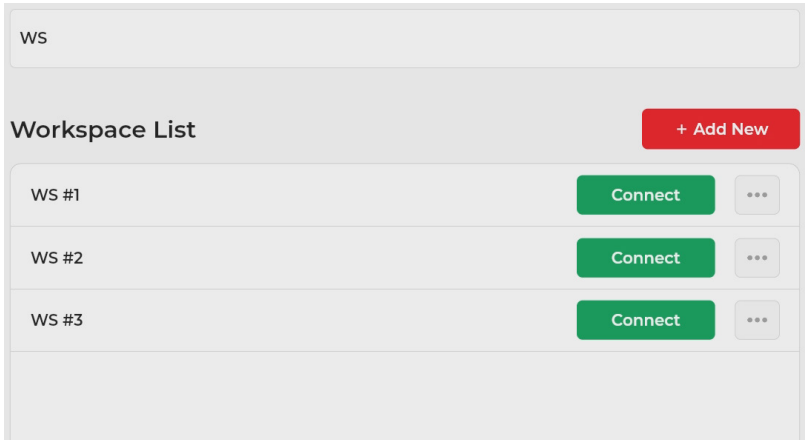


FIGURE 3-71: WORKSPACE SEARCH BOX RESULTS

TABLE 3-10. WORKSPACES TAB OPTIONS (CONTINUED)

ITEM	DESCRIPTION
Add New button	Click on this button to define and configure a new workspace.

Each workspace has additional options to edit, clone, or remove that instance. To access these options, click on the ellipsis (...) button next to the workspace.

3.9.1 ADD NEW WORKSPACE

After you click on the "Add New" button, the system displays a configuration screen, as shown in Figure 3-72 below:

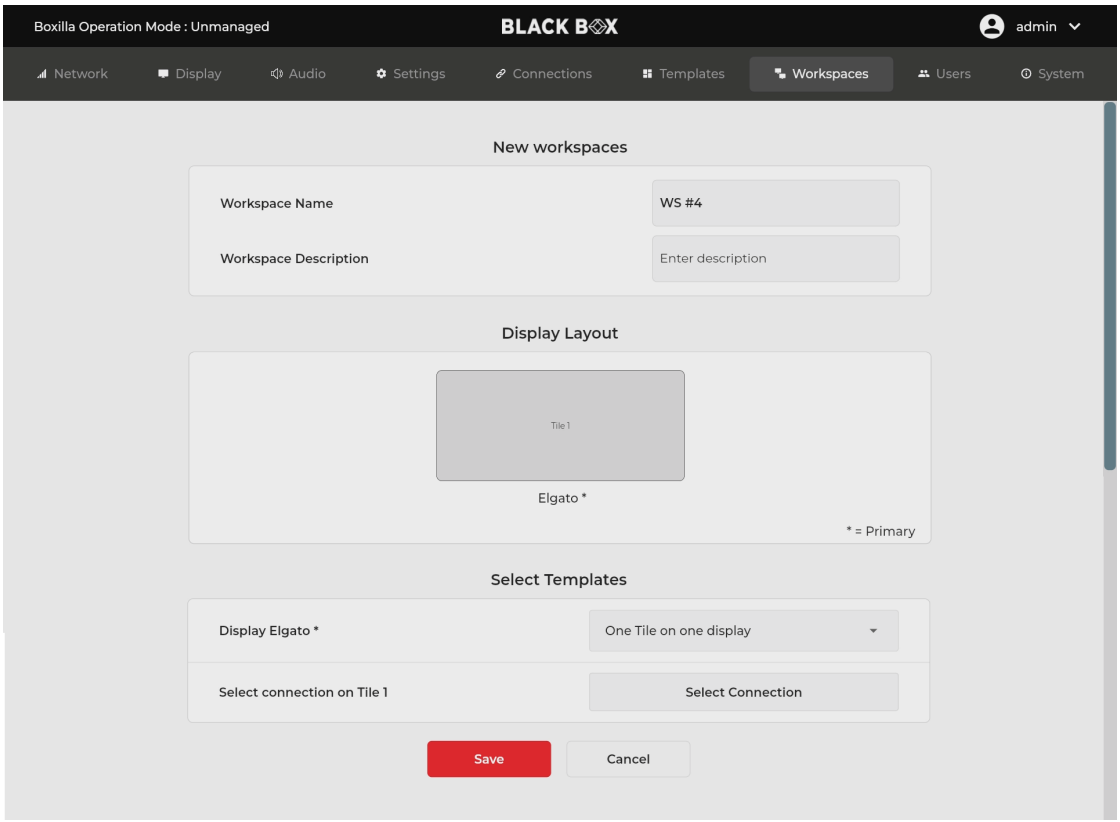
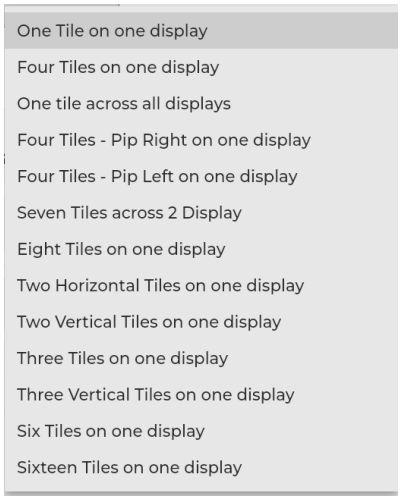


FIGURE 3-72: ADD NEW WORKSPACE SCREEN

Table 3-11 explains the options on the "New workspace" screen.

TABLE 3.11. ADD NEW WORKSPACE SCREEN OPTIONS

ITEM	DESCRIPTION
Workspace Name	Enter a name for the workspace. The Emerald® DESKVUE unit will use this name to identify the workspace.
Workspace Description	Enter a description for the workspace.
Display Layout	This area shows the detected displays.
Select templates	Select the templates for the display(s) and connection(s) using the drop-down list boxes provided. Use the drop-down list box selections to map the desired connection to the tile(s). You can map the same connection to multiple tiles, if desired, assuming that the connection is set to "shared" mode. **NOTE:** Templates created on the Templates tab appear in the drop-down list box. An example appears in Figure 3-73 below:  FIGURE 3-73: EXAMPLE OF A TEMPLATE SELECTION DROP-DOWN LIST BOX **NOTE:** Since virtual machines don't have a set display resolution, you can choose any of the options from the drop-down list box..
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-74 below:  FIGURE 3-74: SAVE AND CANCEL BUTTON

Every connection under Workspace will have additional options to manipulate the video signal, as shown in Figure 3-75 below:

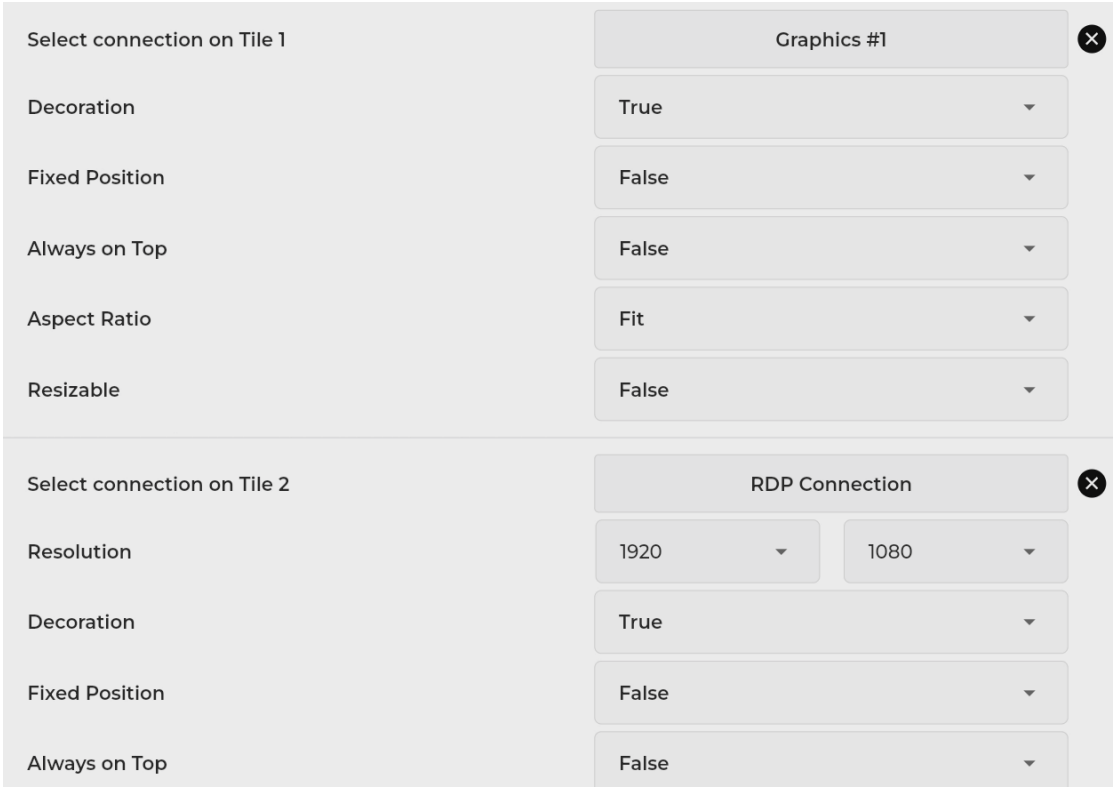


FIGURE 3-75: WORKSPACE CONNECTION OPTIONS

Table 3-12 explains the workspace connection options.

TABLE 3-12. TARGET PROPERTIES

ITEM	DESCRIPTION
Resolution (RDP and PCoiP options)	Choose the resolution that the target should use.
Decoration	Options are “True” or “False.” If set to “True,” the tile/viewport options will be displayed. If set to “False,” the tile/viewport options will not be visible.
Fixed Position	Options are “True” or “False.” If set to “True,” the tile/viewport cannot be moved or resized. If set to “False,” the tile can be freely moved around and scaled.
Always on Top	Options are “True” or “False.” If set to “True,” the connection window will always appear on top. If set to “False,” the connection window will not always appear on top.
Aspect Ratio	Options are “Fit” or “Maintain.” If set to “Fit,” the input is stretched to fit the viewable window. If set to “Maintain,” the original aspect ratio is maintained, which may cause blank borders.
Resizable	Options are “True” or “False.” If set to “True,” the viewable window can be scaled and resized. If set to “False,” the viewable window cannot be scaled and resized.

When the “Save” button is pressed, the newly added workspace appears in the workspace List. Figure 3-76 shows an example where there was only one created workspace. In this example, the workspace was named “#1 - 1 Tile,” as shown in Figure 3-76 below:

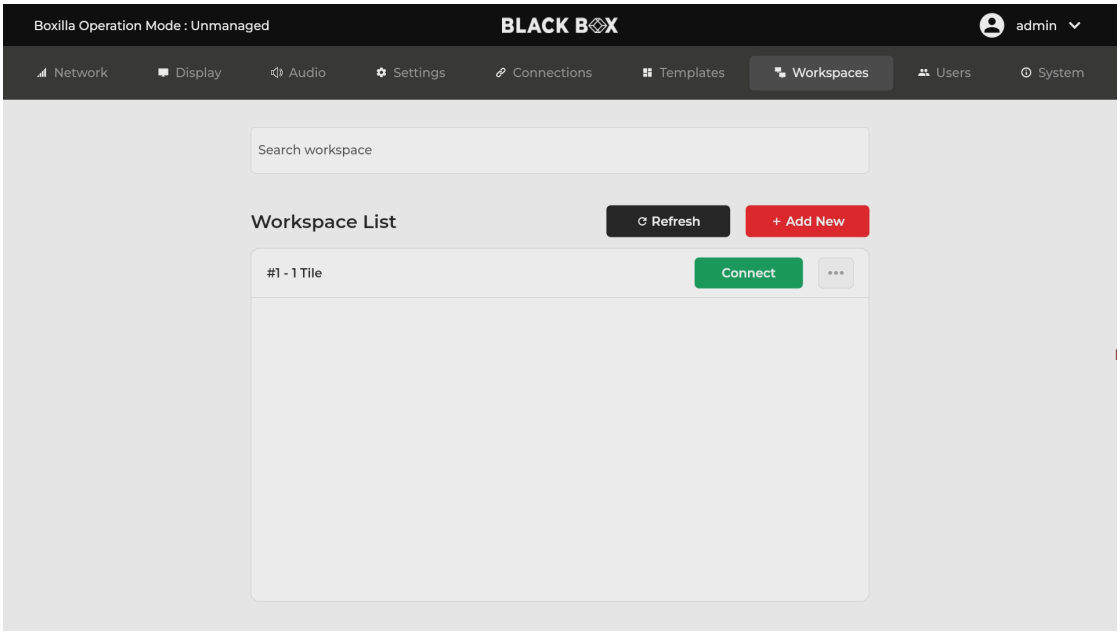


FIGURE 3-76: SAMPLE UPDATED WORKSPACE LIST SCREEN

Table 3-13 explains options for items in the Workspace List.

TABLE 3-13. UPDATED WORKSPACE SCREEN OPTIONS

ITEM	DESCRIPTION
Add New button	Click on this button to define and configure a new workspace. This button was explained in "3.9.1: Add New Workspace."
Connect/Terminate button	Click on the "Connect" button to connect to the workspace. The "Connect" button changes to a "Terminate" button after the connection is established. Click on the "Terminate" button to end the established connection. NOTE: In newer firmware, the "Terminate" button cannot be easily seen as it is behind the top level window. Using hot key, X will disconnect the workspace and display the workspace page once again.

NOTE: After you connect to the workspace, when you hover over a tile, a thin green border appears around the tile to show that the tile is active.

You can also hover the mouse pointer over the top right corner of a tile right below the close button to obtain access to additional options, shown in Figure 3-77 below:

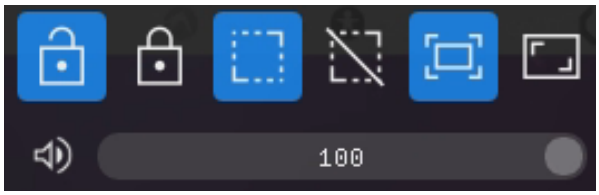


FIGURE 3-77: ADDITIONAL TILE OPTIONS

NOTE: Active options are shaded in blue. If an option is not active, click on the button to make it active.

Table 3-14 explains these additional options:

TABLE 3-14. ADDITIONAL TILE OPTIONS

ITEM	DESCRIPTION
Unlock button	When this option is active, the tile is unlocked and a user can change it by using a keyboard and/or mouse.
Lock button	When this option is active, the tile is locked from user input. Therefore, the user's keyboard and mouse cannot be used to change the tile. This is useful to prevent accidental changes to a tile.
Resize button	When this option is active, the tile can be moved and resized.
Resizing restricted button	When this option is active, the tile cannot be moved or resized.
Snap Video Aspect button	When this option is active, the Emerald® DESKVUE unit adjusts a modified screen to the appropriate aspect ratio so the video doesn't appear to be modified in the horizontal/vertical directions.
Make full screen button	This option makes the connection fill the entire screen.
Audio button	You can click on the audio button to mute or unmute sound for the tile. A diagonal line appears across the audio icon when the audio is muted.
Audio slider bar	You can drag the slider to the desired audio volume.
CAPS LOCK	This option shows if the CAPS LOCK is ON or OFF for the target.
NUM LOCK	This options shows if the NUM LOCK is ON or OFF for the target.

TIPS:

- To make a tile full screen, double click on the label on the top of the tile. To return it to its previous size, double click on the label again.
- Use hot keys to increase your workspace efficiency. For more information about hotkeys, see "Hot Key Actions" under the user's setting options.

3.10 USERS TAB

When the “Users” tab is selected, the system displays the “User List” screen, as shown in Figure 3-78 below:

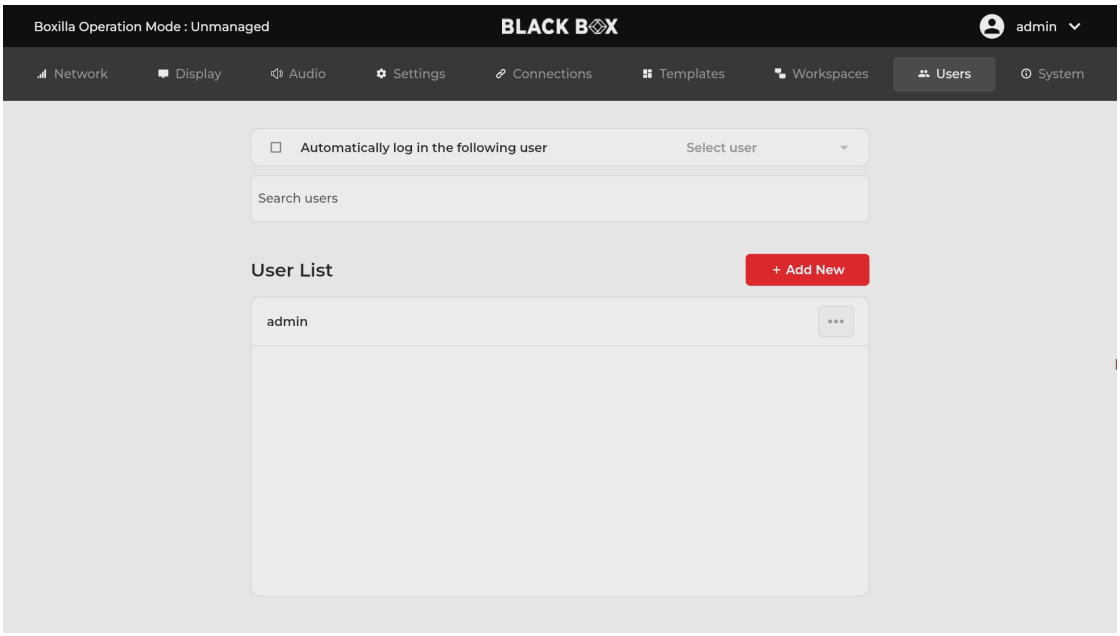


FIGURE 3-78: USERS TAB

NOTE: If the DESKVUE unit is managed by Boxilla, the “Add New” button is not displayed. In this case, any new user must be configured within Boxilla.

NOTE: When DESKVUE is managed by Boxilla, Active Directory users may log into the DESKVUE if LDAP is properly configured.

3.10.1 ADD NEW USER

When you click on the "Add New" button, the system displays the "New User" screen, as shown in Figure 3-79 below:

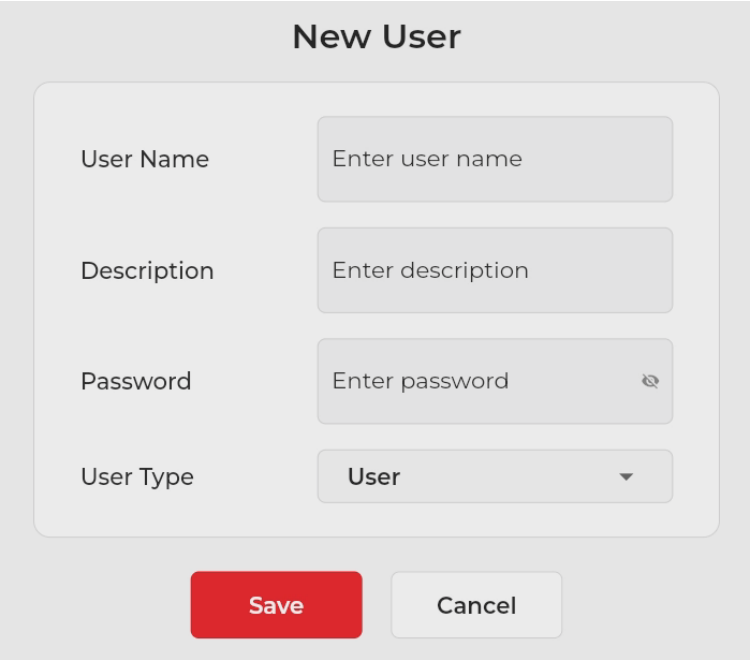
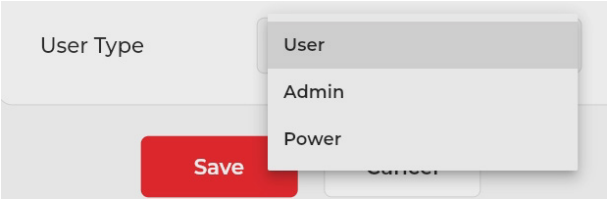


FIGURE 3-79: NEW USER SCREEN

Table 3-15 explains the options on the "New User" screen.

TABLE 3-15. NEW USER OPTIONS

ITEM	DESCRIPTION
User Name	Enter the name for the user. It should be between 1 and 32 characters and can be any valid username for a Microsoft O/S. This means the username MAY NOT contain "/ \ [ ] | = , + * ? < > `".
Description	Enter a description for the user.
Password	Enter a password for the user, up to 32 characters. It can be any valid password for a Microsoft O/S. The password MAY contain , ~ : ; ! @ # $ % ^ & ' { } but MAY NOT contain " "/ \ [ ] | = , + * ? < > `"
User Type	Select the user type from the drop-down list. You can choose "User," "Admin," or "Power," as shown in Figure 3-80 below:  FIGURE 3-80: USER TYPE OPTIONS **User:** Users of this class can only select from a list of pre-defined connections to access and view system information. They cannot change any configuration settings. They can change their password. A standard user can only view the network address for the Emerald® DESKVUE unit being used, the workspace(s) allocated to the user by the admin, and the system firmware version. **Admin:** Admins of this class have full rights to configure the system, including creating/modifying/deleting new users and connections, changing network settings, and adjusting system settings. **Power:** Power users of this class can modify connection resolutions and change their password.
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-81 below:  FIGURE 3-81: SAVE AND CANCEL BUTTONS

To add connections to a new user, use the elipsis button (...) next to the user and select "Connections and Workspaces." On this page, which is shown in Figure 3-82 below, add the targets to the right side window to add that connection to the user list. Targets on the left side window will not be able to be accessed by this user.

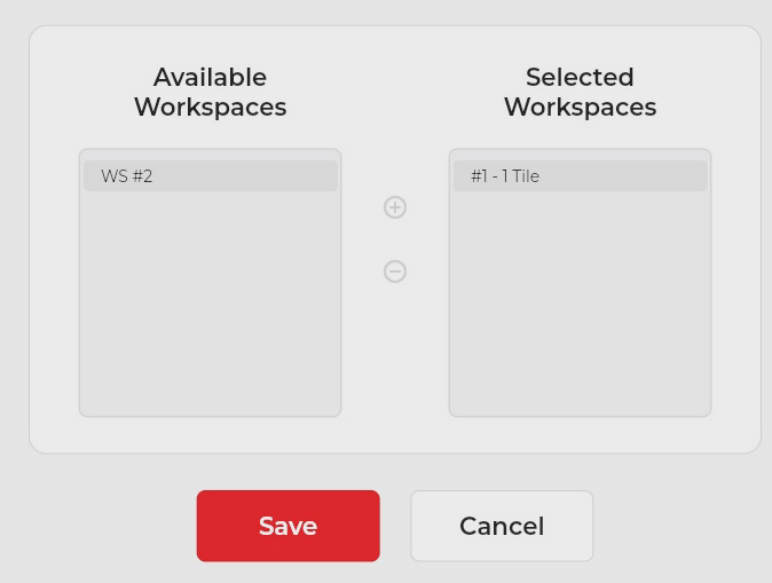


FIGURE 3-82: AVAILABLE AND SELECTED WORKSPACES SCREEN

3.10.2 USER MENU OPTIONS

When you click on the three dots to the right of a user name, another menu appears, as shown in Figure 3-83 below:

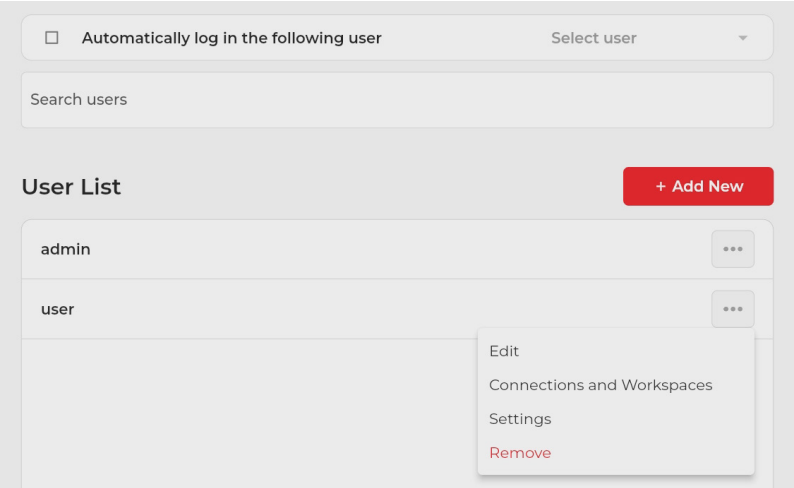


FIGURE 3-83: USER LIST ADMIN MENU OPTIONS

NOTE: When there is only one user with admin access, the system will not allow you to delete that user. The system requires at least one admin user.

3.10.2.1 EDIT OPTIONS

When you choose the "Edit" option for a user, the system displays the "Edit User" screen, as shown in Figure 3-84 below. This screen enables you to edit information associated with the user, including changing the user's password and changing a user's description.

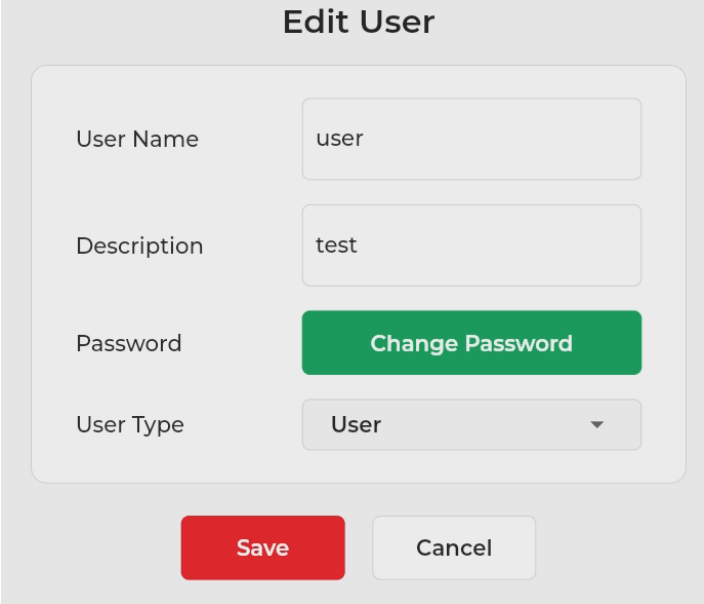
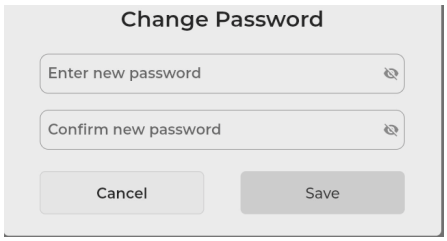


FIGURE 3-84: EDIT USER OPTIONS

Table 3-16 explains the options on the "Edit User" screen.

TABLE 3-16. EDIT USER OPTIONS

ITEM	DESCRIPTION
Change Password button	Click on the "Change Password" button to change the user's password. The system will then display the "Change Password" screen, as shown in Figure 3-85 below:  FIGURE 3-85: CHANGE PASSWORD SCREEN The new password needs to be entered twice to confirm it. Then click on the "Authenticate" button to change the password or the "Cancel" button to discard information that you entered.
User Type	This field displays the account type.
Save/Cancel buttons	Click on the "Save" button to save information that you entered. Click on the "Cancel" button to discard information that you entered. The "Save" and "Cancel" buttons are shown in Figure 3-86 below:  FIGURE 3-86: SAVE AND CANCEL BUTTONS

After saving the user account, the hot keys can be configured by clicking on the elipsis (...) button next to the user account and selecting “Settings.” When the “Settings” page is displayed, several hot key options will be available to view and edit, as shown in Figure 3-87 below:

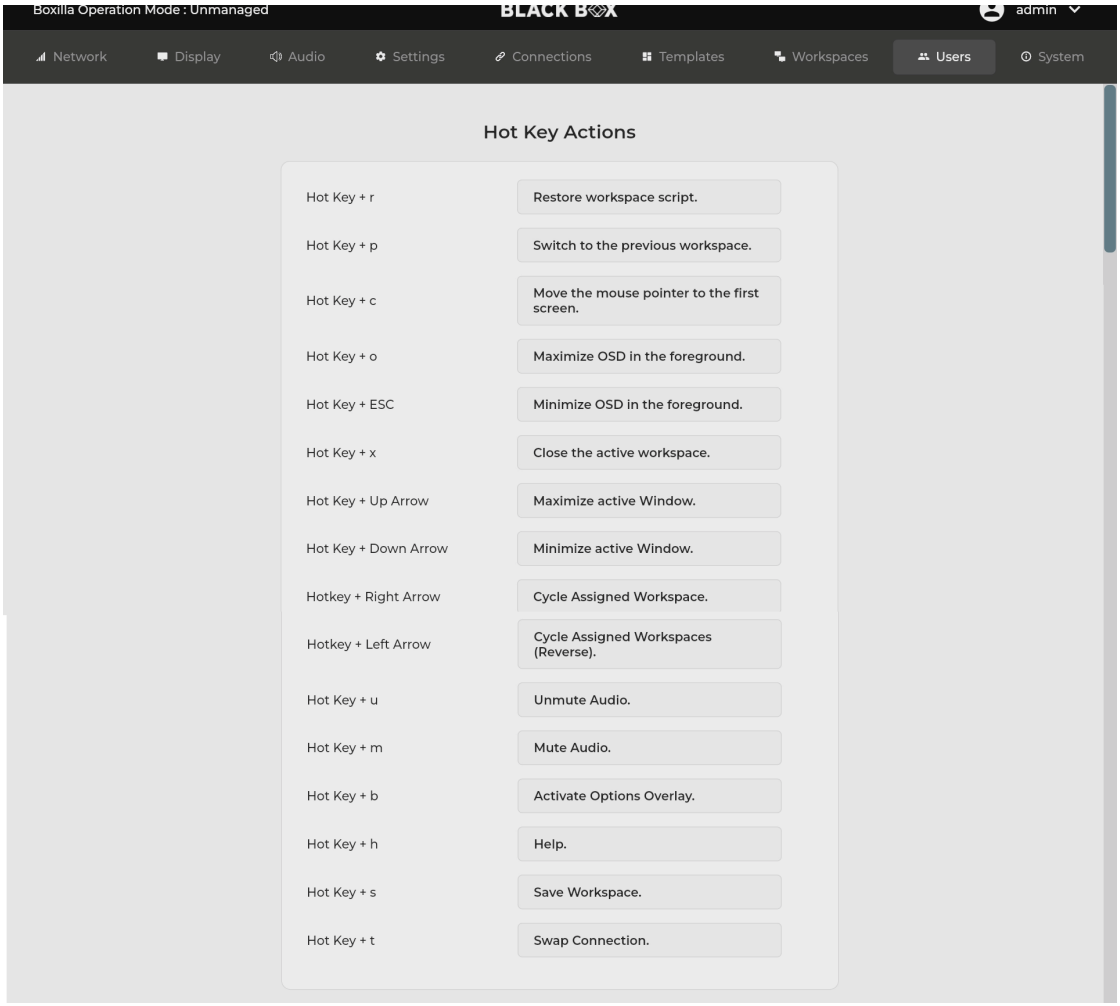


FIGURE 3-87: USER WORKSPACE AND HOT KEY SELECTION SCREEN

NOTE: If DESKVUE is managed by Boxilla and the global hot key of Mouse Left+Right is set for active hot key, the DESKVUE user must use CTRL-CTRL instead.

Use the drop-down list boxes to assign hot keys to tiles.

There are also predefined hot keys built into the Emerald® DESKVUE system, as shown in Figure 3-88 below:

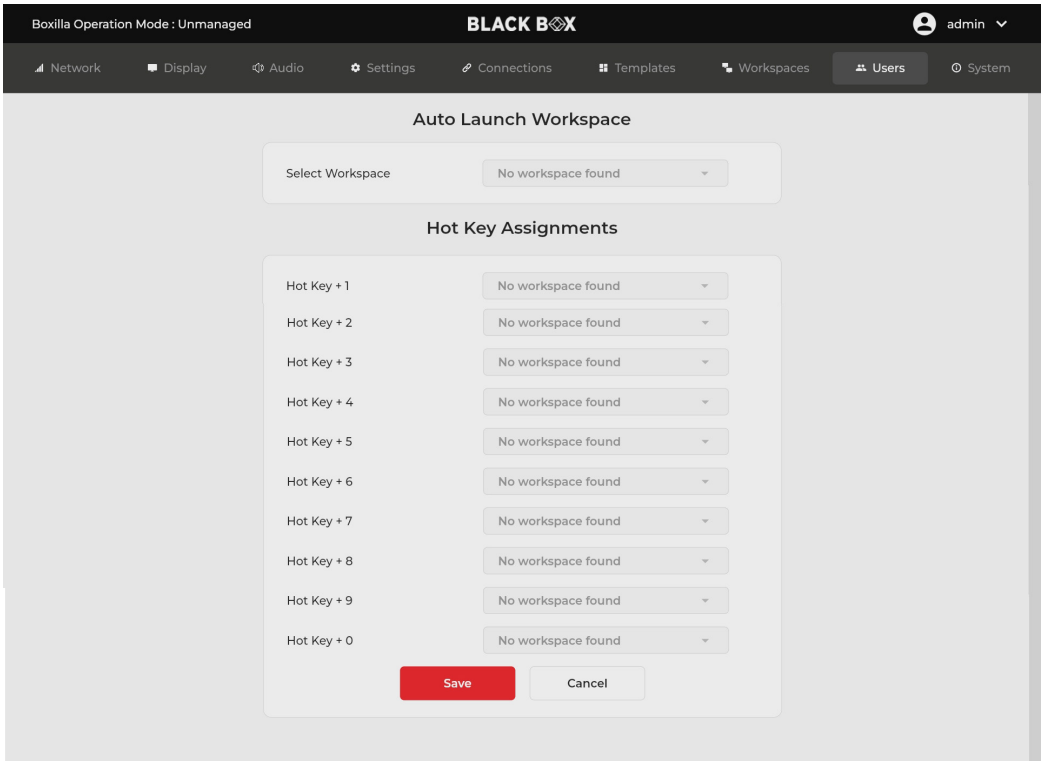


FIGURE 3-88: PREDEFINED HOT KEY SCREEN

3.11 SYSTEM TAB

When the “System” tab is selected by a user classified as admin, the system displays the “System Settings” screen, as shown in Figure 3-89 below:

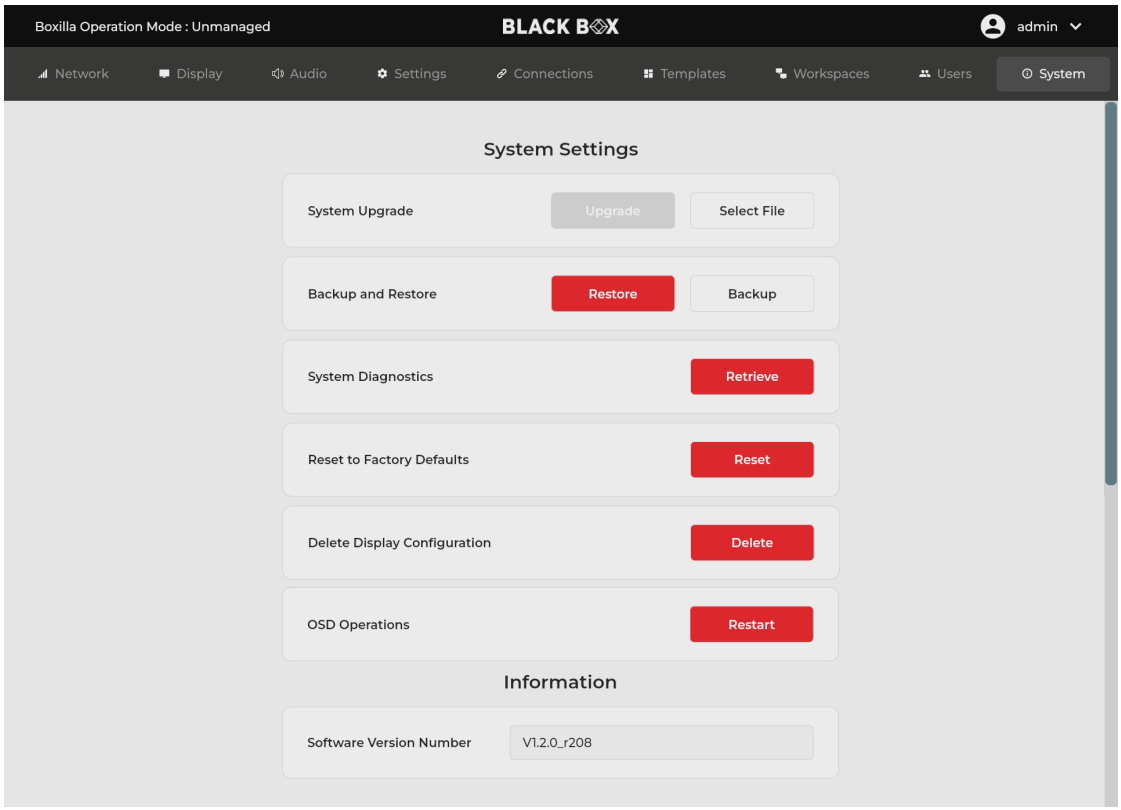


FIGURE 3-89: SYSTEM SETTINGS SCREEN

Table 3-17 explains the options on the "System Settings" screen.

TABLE 3-17. SYSTEM SETTING OPTIONS

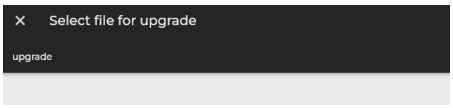
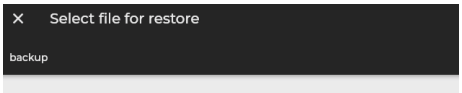
ITEM	DESCRIPTION
System Upgrade	When a system update is available, click on the "Select File" button and follow the on-screen directions to complete the update using a file stored on a removable USB drive using a FAT/FAT32 format. Available upgrade files will appear in a pop-up window, as shown in Figure 3-90 below:  FIGURE 3-90: UPGRADE FILE SELECTION SCREEN
Backup and Restore	**Backup:** Click on this button to back up system settings to a removable drive, such as a USB flash drive. When you choose this option, the system will display a screen showing the backup name and offering you the option to save the file by clicking on the "Save" button or cancelling the backup by clicking on the "Cancel" button. The backup confirmation screen is shown in Figure 3-91 below:  FIGURE 3-91: BACKUP CONFIRMATION SCREEN **Restore:** Click on this button to restore system settings from the backup that you previously saved to a removable USB drive. The saved settings can be used to restore multiple DESKVUE units. When you click on this option, you will be prompted to choose the file to use for the restore, as shown in Figure 3-92 below:  FIGURE 3-92: FILE RESTORE SELECTION SCREEN

TABLE 3-17. SYSTEM SETTING OPTIONS (CONTINUED)

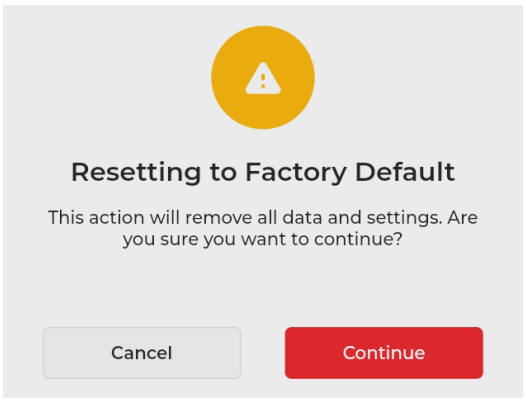
ITEM	DESCRIPTION
System Diagnostics	Click on this button to perform system diagnostics to help troubleshoot a system problem. You typically use this option when working with a technical support team member to resolve an issue. It will export log files to an attached USB drive. When you choose this option, the system will display a screen showing the filename for the system diagnostics log file and offering you the option to save the file by clicking on the "Save" button or cancel the file save by clicking on the "Cancel" button. The diagnostic log confirmation screen is shown in Figure 3-93 below:  FIGURE 3-93: SYSTEM DIAGNOSTICS CONFIRMATION SCREEN
Reset to factory defaults	Click on the "Reset" button to reset the system to the settings that shipped with the product. When you click on this button, the system will display a confirmation message as shown in Figure 3-94 below:  FIGURE 3-94: RESET TO FACTORY DEFAULT CONFIRMATION MESSAGE To reset to factory defaults, click on the "Continue" button. This removes the unit configuration, and makes it an unmanaged unit. All settings are restored to the settings supplied with the shipped DESKVUE unit. To cancel the action, click on the "Cancel" button.
Delete Display Configuration	Use this option to remove any preconfigured monitor layouts.
OSD Operations	When clicked, this option will restart the GUI, log out the user, and display the login screen.
Software Version Number	The Emerald® DESKVUE unit displays its software version in this area.

TABLE 4-1. TROUBLESHOOTING

ISSUE	RESOLUTION
The network cable is attached to a non-supported interface port. Please switch connections.	To resolve this issue: 1. Remove the network cable and attach it to a different network switch. 2. Refresh the page to remove the error message. 3. Hot plug the network cable back to the original switch. 4. Update your network settings. 5. Apply. Alternatively, you can perform a factory reset on the DESKVUE unit immediately after configuring the network port.
Unable to connect to <network address> Please confirm connection details and target is powered up and connected to the network.	Using a different system, use the PING function to verify that the network address is responding. If the target is responding to PING requests, check the connection parameters and firmware.
The mouse left+right hot key combination doesn't work on DESKVUE.	Use the Ctrl-Ctrl hot keys instead.

APPENDIX A: BOXILLA DISCOVERY

A.1 BOXILLA DISCOVERY

The Emerald® DESKVUE unit can be discovered and managed by the Boxilla® manager as long as it is using the DESKVUE firmware version 1.1.0.r94 or later **and** the Boxilla unit is using firmware version 4.7.0 or later. Older firmware versions do not support integrating DESKVUE and Boxilla.

NOTE: If the DESKVUE unit is managed by another Boxilla Manager, it will need to be factory reset prior to performing the Boxilla Discovery process.

A.1.1 DISCOVERING AND MANAGING THE DESKVUE UNIT

To discover and manage the DESKVUE unit through the Boxilla Manager:

1. Verify that the DESKVUE unit is turned on.
2. Verify that the the DESKVUE unit is connected to the network so that Boxilla can detect it.
3. Verify that the IP Address (192.168.1.1) is not in use. Otherwise, the Boxilla discovery process will not work.
4. In the Boxilla administrative interface, go to Discovery and press the “Discovery” button. The DESKVUE unit should then be discovered and show as Unmanaged under model EMD5004-R, as shown in Figure A-1 below:

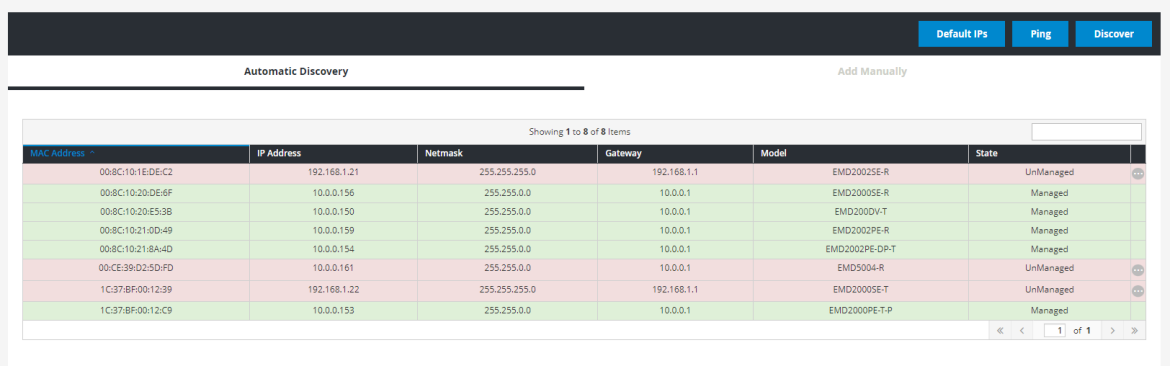


FIGURE A-1: DETECTED DESKVUE UNIT SHOWING AS UNMANAGED

5. Change the Emerald® DESKVUE network settings, if necessary, through the Boxilla® web interface by selecting "Edit" from the drop-down menu shown in Figure A-2 below:

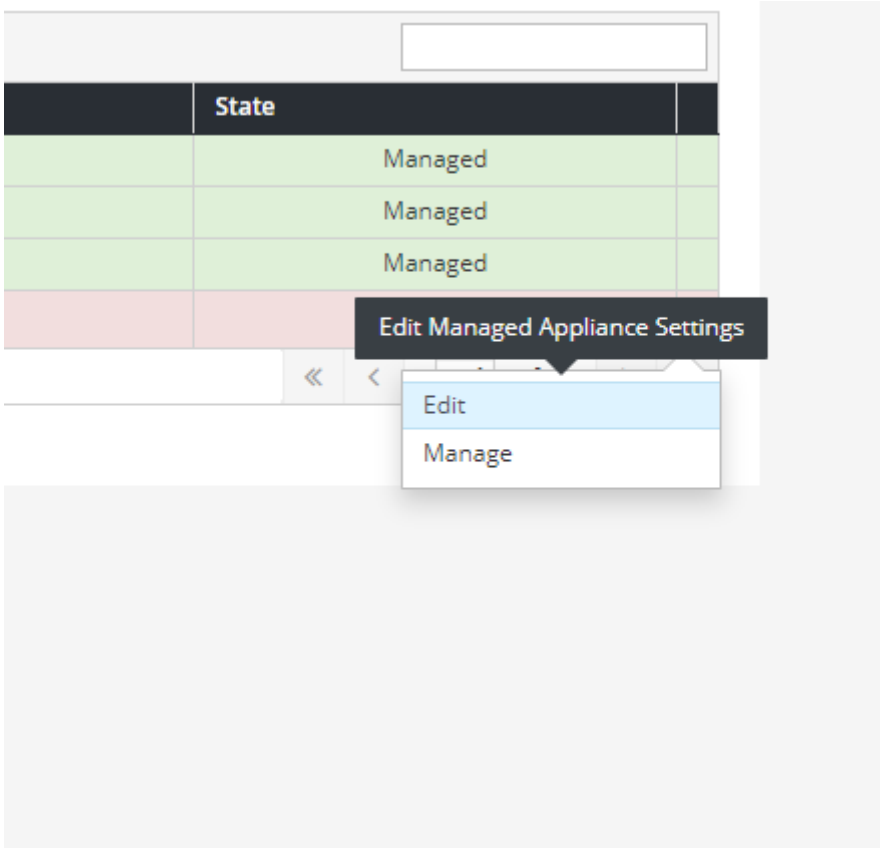


FIGURE A-2: EDIT OPTION

6. Configure the network settings for the Emerald® DESKVUE unit using the "Edit Device" screen, shown in Figure A-3 below:

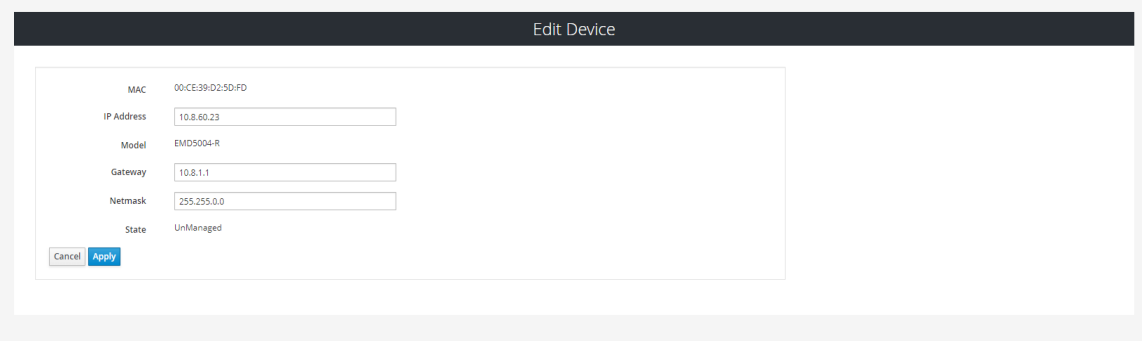


FIGURE A-3: EDIT DEVICE SCREEN

NOTE: Use network settings that allow the DESKVUE unit and Boxilla® Manager to be on the same subnet/network.

7. Click on the "Apply" button to accept your changes.

8. After the system returns to the Discovery page in the Boxilla® Manager, manage the Emerald® DESKVUE unit by using the "Manage" option in the drop-down menu, as shown in Figure A-4 below:

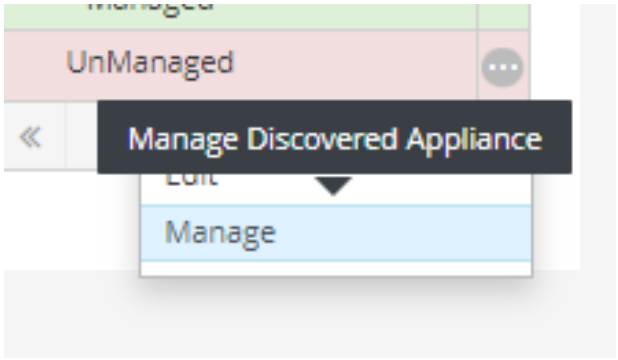


FIGURE A-4: EDIT AND MANAGE OPTIONS ON DROP-DOWN MENU

Before the DESKVUE can be managed, a managed name must be assigned to it so it can be referenced. This name is visible in the Boxilla interface only, and it is not the name of the connection. Optionally, the zone can be configured if the application requires it. Once done configuring the zone and managed name, click on the "Apply" button, as shown in Figure A-5 below:

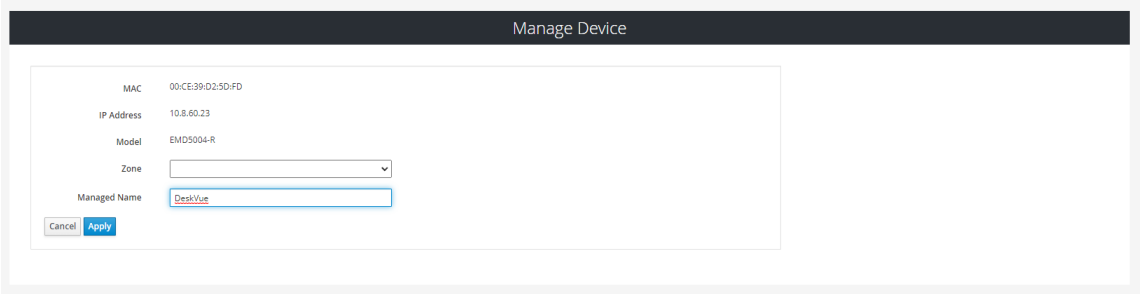


FIGURE A-5: APPLY BUTTON

After you click on the Apply button, the system may display a confirmation message, as shown in Figure A-6 below:

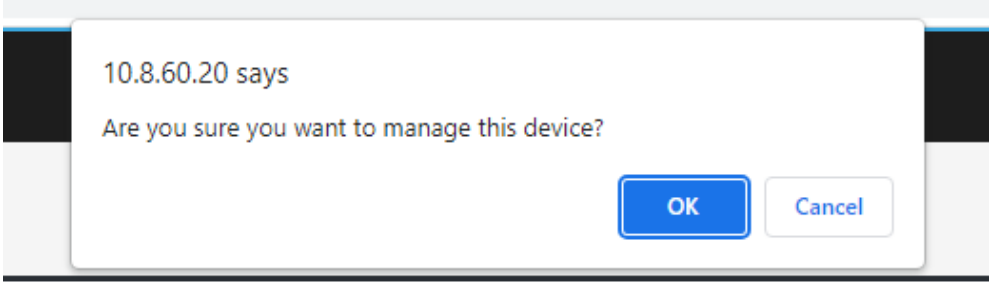


FIGURE A-6: DEVICE MANAGEMENT CONFIRMATION MESSAGE

APPENDIX A: BOXILLA DISCOVERY

9. Click on the "OK" button shown in Figure A-6 above to enable Boxilla® to manage the Emerald® DESKVUE unit. The system should display a confirmation message stating that the operation was successful, as shown in Figure A-7 below:

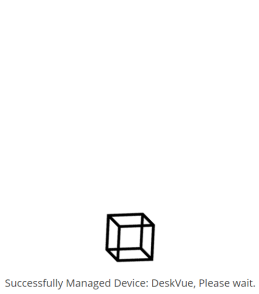


FIGURE A-7: OPERATION SUCCESSFUL CONFIRMATION MESSAGE

NOTE: When the DESKVUE unit is on the same network/subnet as the Boxilla Manager, the operation should be successful. If the operation fails, verify that the DESKVUE unit and the Boxilla Manager are on the same network/subnet and that supported firmware is being used, per information specified in "A1: Boxilla Discovery."

APPENDIX A: BOXILLA DISCOVERY

The Emerald® DESKVUE unit will initially show up in the device list as “Offline” with a “Waiting” status, as shown in Figure A-8 below;

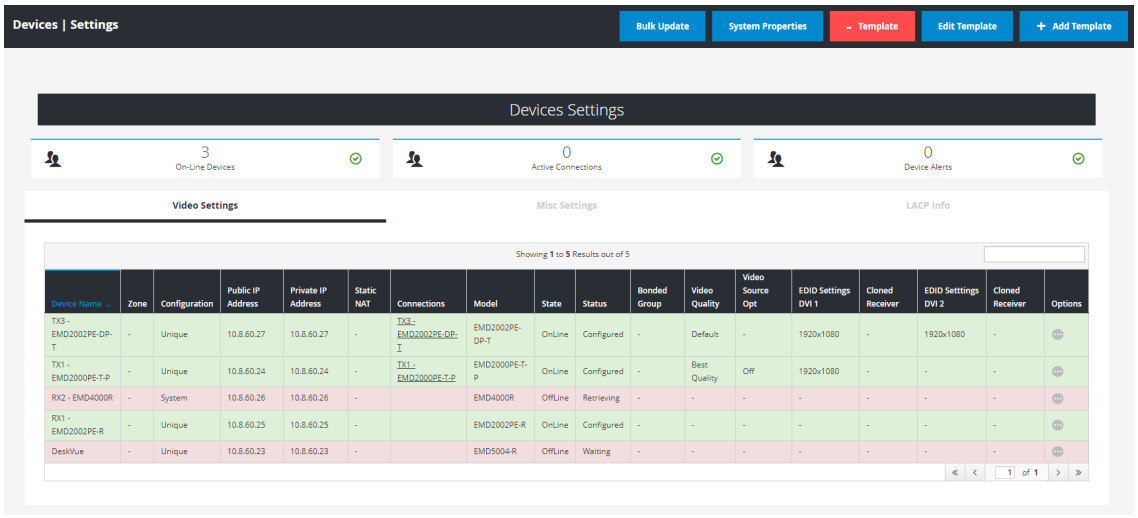


FIGURE A-8: DESKVUE UNIT SHOWN AS OFFLINE WITH WAITING STATUS

The operation will finish in a few minutes, and the system will update the status to “Online” as shown in Figure A-9 below:

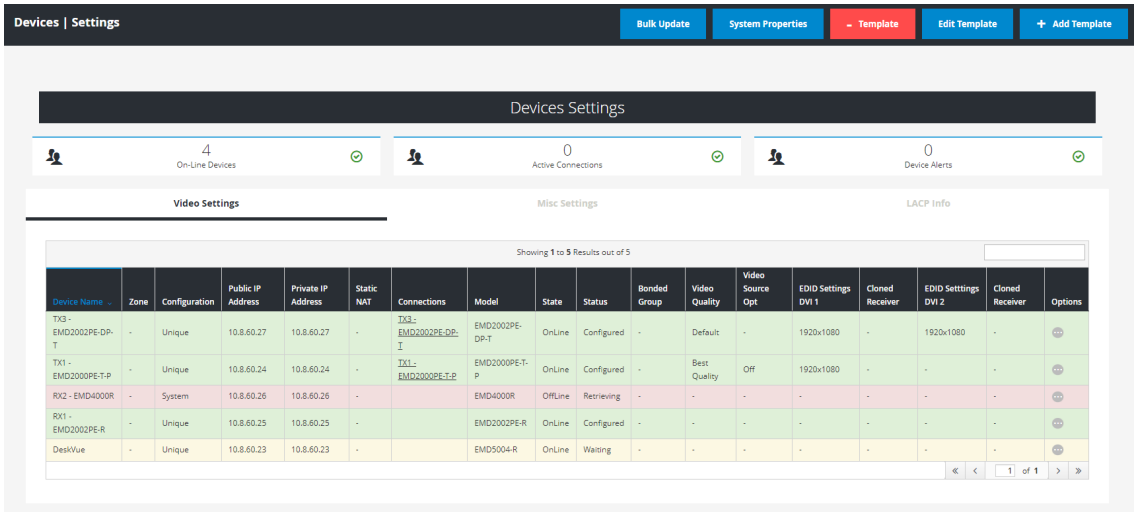


FIGURE A-9: STATUS CHANGED TO ONLINE

Although the status is updated to online, the system is still updating. Once the operation is complete, the unit's status will be updated to "Online" and "Configured," as shown in Figure A-10 below:

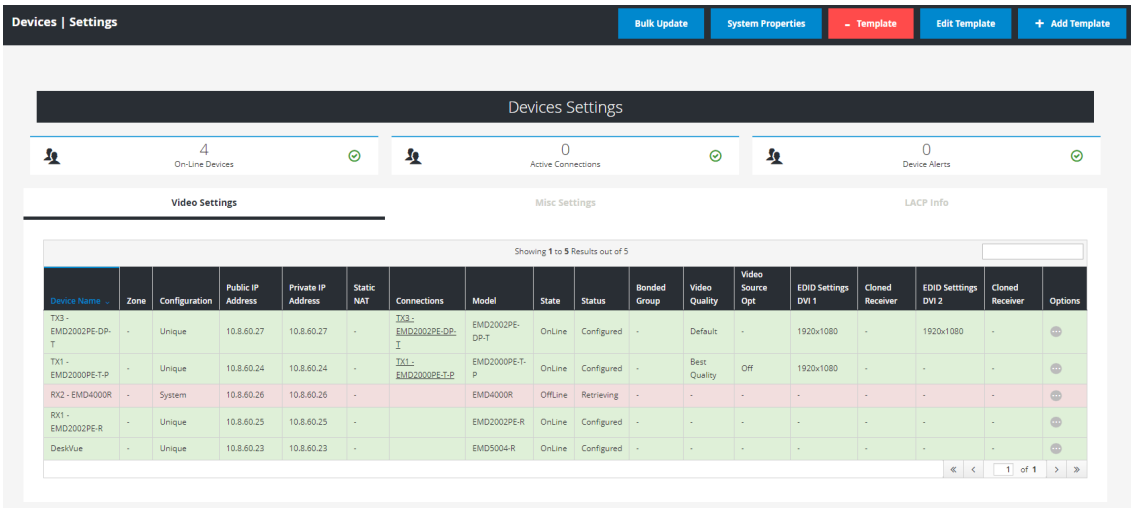


FIGURE A-10: STATUS UPDATED TO ONLINE AND CONFIGURED

APPENDIX B: WORKSPACE CONFIGURATION

B.1 WORKSPACE CREATION/ASSIGNMENT

When the Emerald® DESKVUE unit is managed by a Boxilla® Manager, a workspace can be created and assigned to one or multiple users.

B.1.1 CREATING A WORKSPACE

To create a workspace:

1. In the Boxilla web interface, navigate to Workspaces --> Manage. The workspace screen is shown in Figure B-1 below:

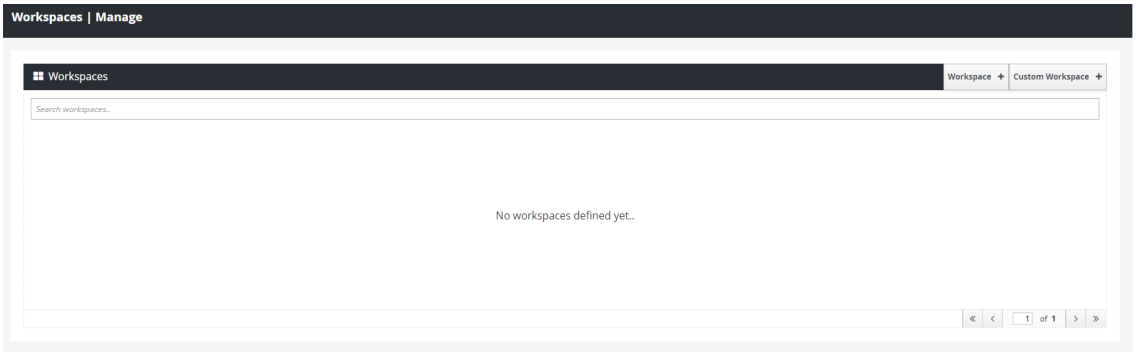


FIGURE B-1: WORKSPACE SCREEN

2. Click on the “Add Workspace” button and enter both a name and description for the workspace in the appropriate fields shown in Figure B-2 below:

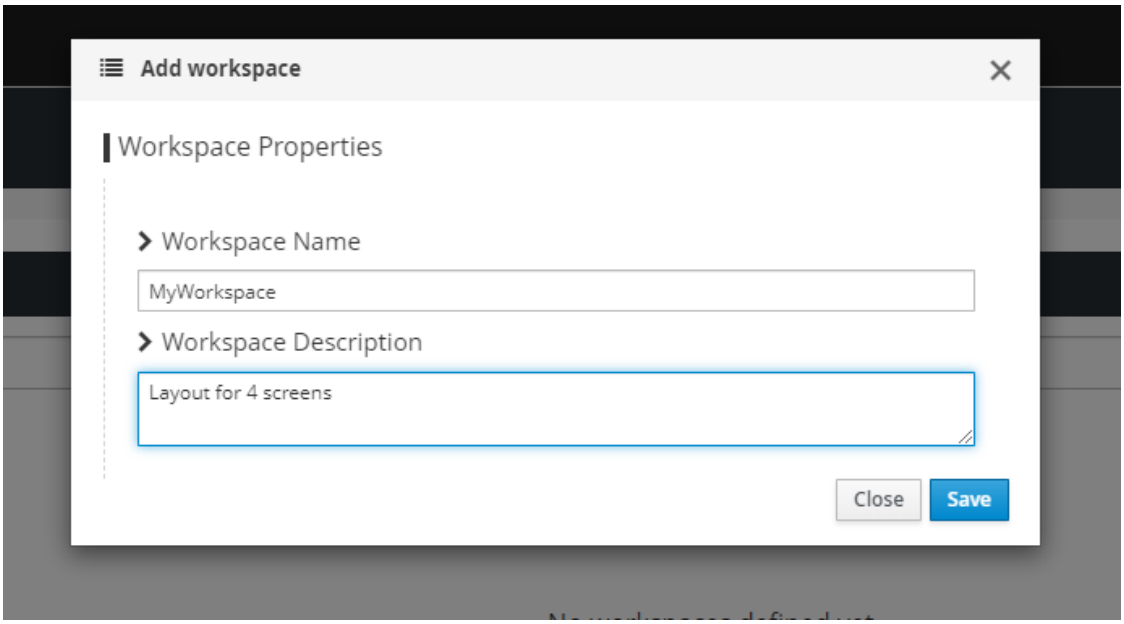


FIGURE B-2: ADD WORKSPACE SCREEN

3. Click on the “Save” button shown in Figure B-2 above.

If the workspace was configured properly, the system will display a success notification in the top right corner of the screen, as shown in Figure B-3 below:

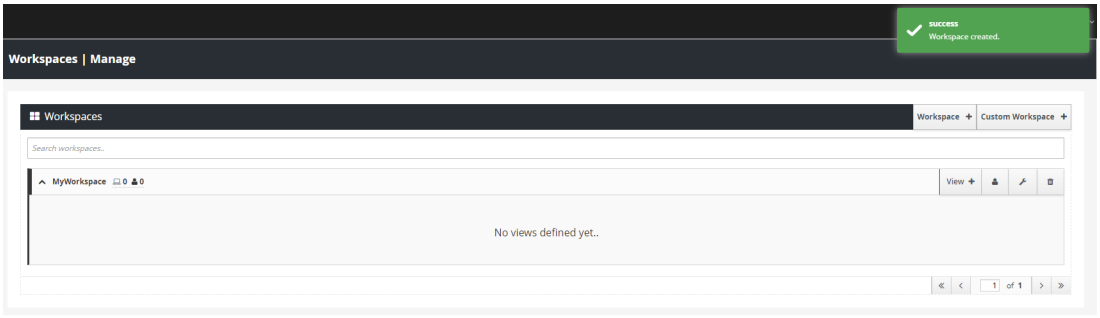


FIGURE B-3: SUCCESS MESSAGE

NOTE: If an error occurs, review the error message for information about the problem.

4. Add a View by clicking on the "View +" button next to the workspace that was just created. The "Add View" screen will appear, as shown in Figure B-4 below:

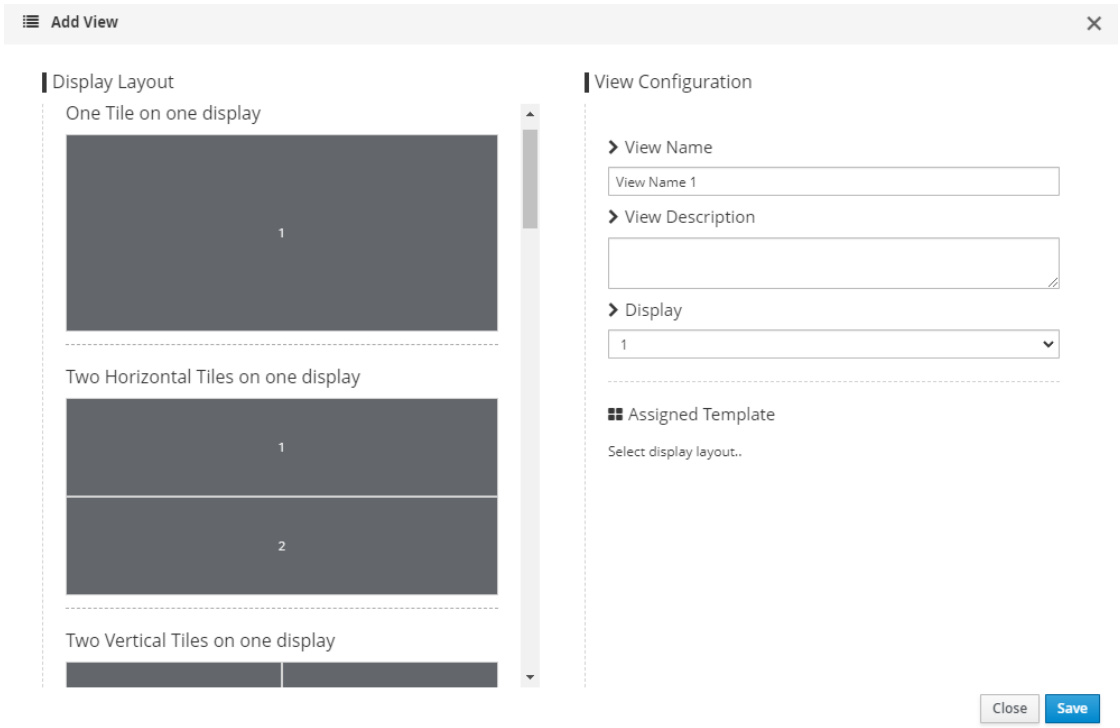


FIGURE B-4: ADD VIEW SCREEN

5. Select a Display Layout Format. Choose from these options:
   - One Tile on one display
   - Two Horizontal Tiles on one display
   - Two Vertical Tiles on one display
   - Three Tiles on one display
   - Three Vertical Tiles on one display
   - Four Tiles on one display
   - Four Tiles - PIP Right on one display
   - Four Tiles - PIP Left on one display
   - Six Tiles on one display
   - Eight Tiles on one display
   - One Tile on 4 - displays 2x2 (This template can be used for 2x2 video walls.)
   - Sixteen Tiles on one display

   Figure B-5 shows available display layout options:

FIGURE B-5: DISPLAY LAYOUT OPTIONS

APPENDIX B: WORKSPACE CONFIGURATION

6. Enter a Name for the View in the appropriate field.
7. Enter a Description for the View in the appropriate field.
8. Select which display should be used.

An example using “Four Tiles on One Display” with completed fields appears in Figure B-6 below:

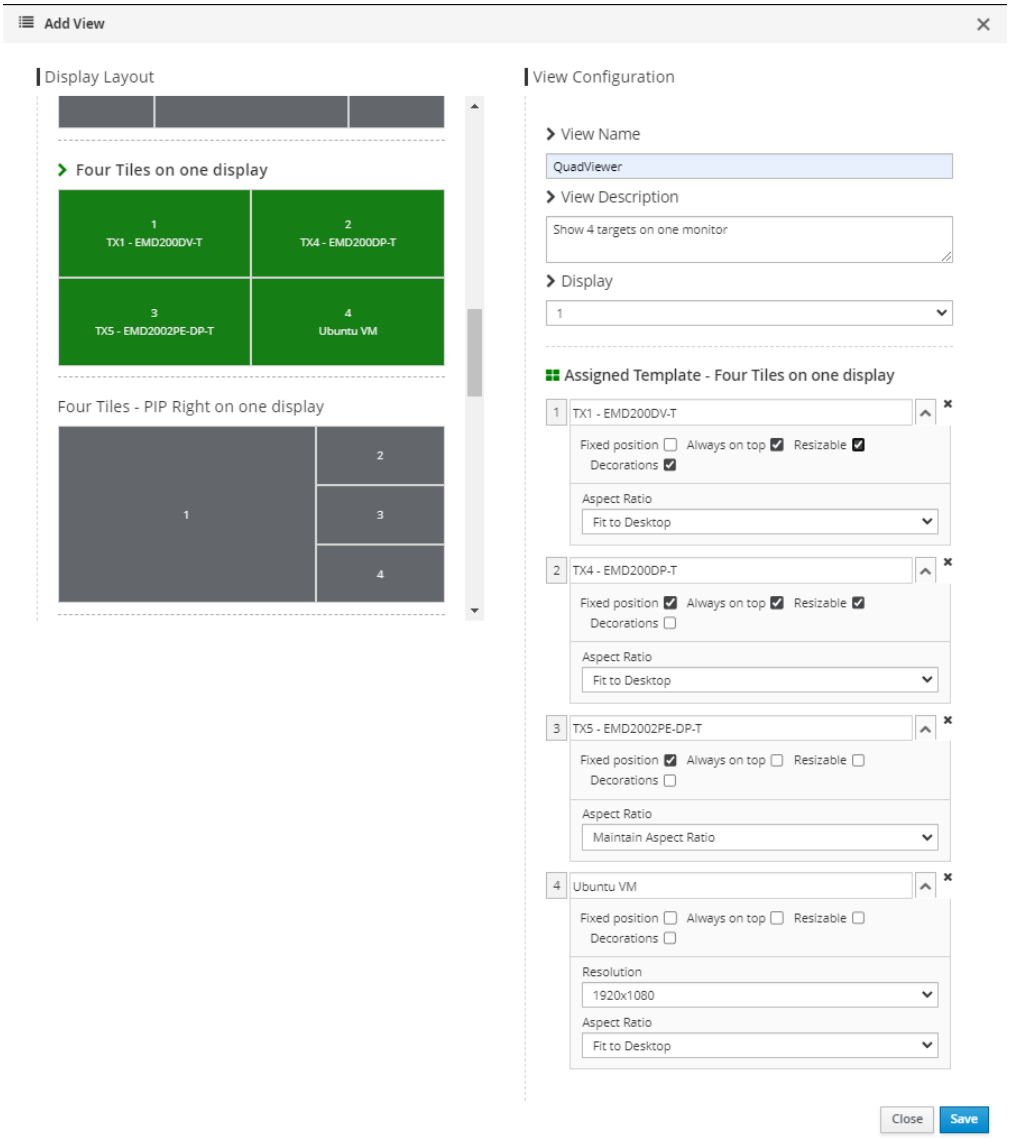


FIGURE B-6: EXAMPLE WITH DISPLAY SELECTED AND COMPLETED FIELDS

9. Click on the “Save” button.

   If the workspace and view were configured properly without any errors, the system will display a success notification in the top right corner of the screen, as shown in Figure B-7 below:

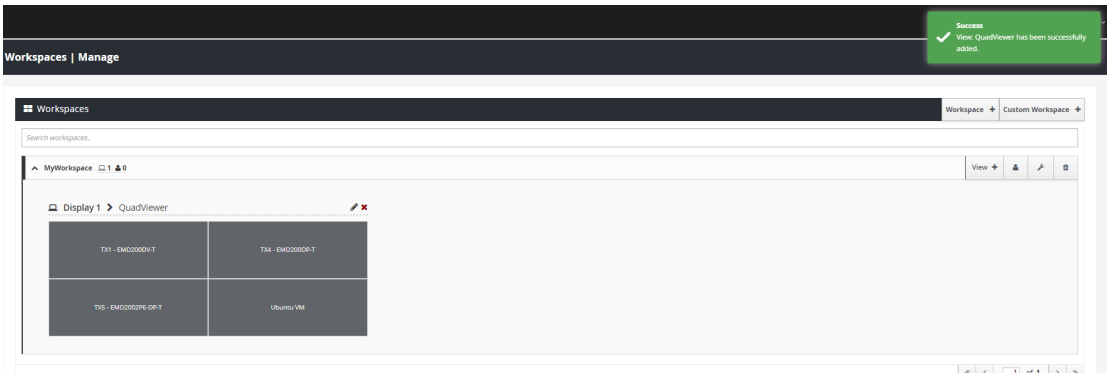


FIGURE B-7: SUCCESS MESSAGE

NOTE: If there was an error, such as a missing view name, it will be displayed in the top right corner of the screen.

Each target in the workspace will have additional parameters to configure as seen in Figure B-8 below.

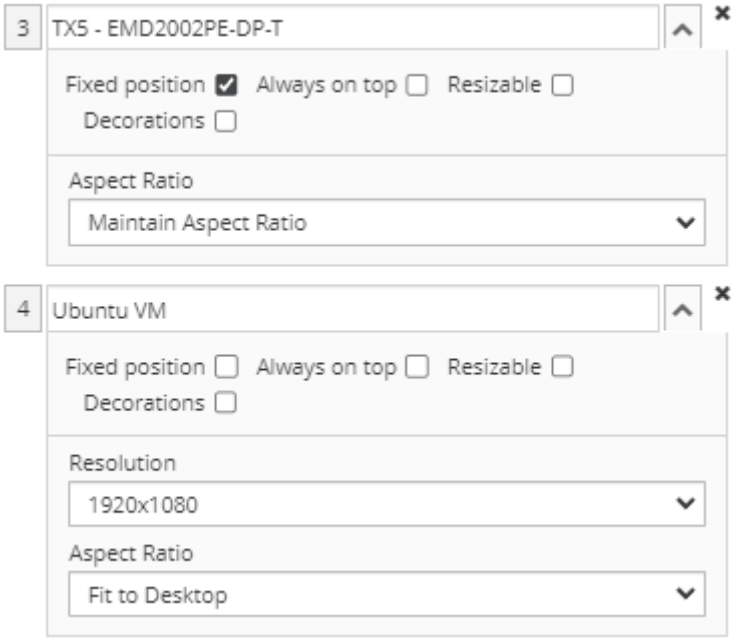


FIGURE B-8: CONFIGURATION SCREEN

APPENDIX B: WORKSPACE CONFIGURATION

Every connection under Workspace will have additional options to manipulate the video signal, as shown in Table B-1 below.

TABLE B-1. TARGET PROPERTIES

ITEM	DESCRIPTION
Resolution (RDP and PCoiP options)	Choose the resolution that the target should use.
Decoration	Options are “True” or “False.” If set to “True,” the tile/viewport options will be displayed. If set to “False,” the tile/viewport options will not be visible.
Fixed Position	Options are “True” or “False.” If set to “True,” the tile/viewport cannot be moved or resized,. If set to “False,” the tile can be freely moved around and scaled.
Always on Top	Options are “True” or “False.” If set to “True,” the connection window will always appear on top. If set to “False,” the connection window will not always appear on top.
Aspect Ratio	Options are “Fit” or “Maintain.” If set to “Fit,” the input is stretched to fit the viewable window. If set to “Maintain,” the original aspect ratio is maintained, which may cause blank borders.
Resizable	Options are “True” or “False.” If set to “True,” the viewable window can be scaled and resized. If set to “False,” the viewable window cannot be scaled and resized.

If DESKVUE has more than one monitor, simply edit the workspace again and configure the next monitor. When done configuring, save the workspace. Then reopen it and edit it to add the third monitor. Each new monitor will require the workspace to be opened again for edits.

B.2 CUSTOM WORKSPACE

Custom workspaces can be configured by clicking on the “Custom Workspace” button located on the workspaces main page, as shown in Figure B-9 below.. Custom workspaces are user generated templates that can be configured. Since most of the options for custom templates are explained in the previous steps, only the additional buttons are described in this section.

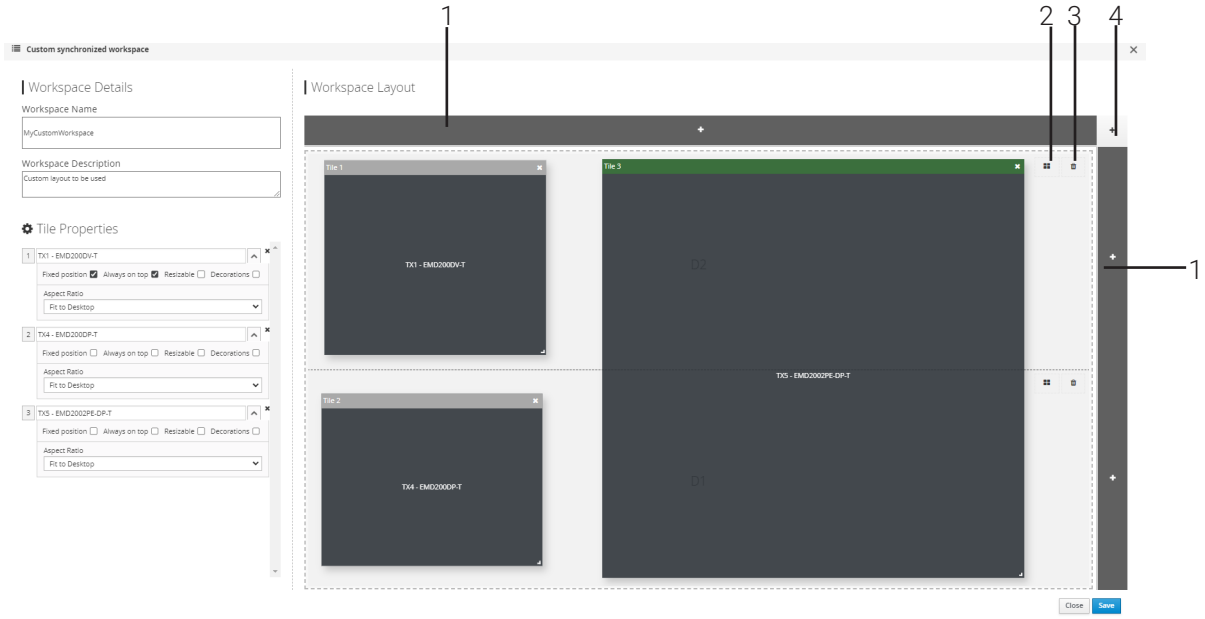


FIGURE B-9: CUSTOM WORKSPACE SCREEN

TABLE B-2. CUSTOM WORKSPACE SCREEN COMPONENTS

NUMBER IN FIGURE B-8	COMPONENT	DESCRIPTION
1	Add new monitor	Use this option to add an additional display to the vertical or horizontal viewing plane.
2	Start with template	Use this option to create a custom workspaced based upon an existing template. When you click on this button, use the additional options displayed to select the desired template.
3	Delete current workspace	Use the trash can icon to delete the current display layout. NOTE: When you only have one display layout, it cannot be deleted.
4	Add New Title/View	Use this option to create a new window in which to view a target. When adding a new tile, it can be moved or resized, as needed.

B.2.1 ASSIGNING A USER TO A WORKSPACE

After the workspace and views are configured, a user must be assigned so that the user can access the workspace and views when logging into the Emerald® DESKVUE unit.

To assign users to a workspace:

1. Click on the user icon.
2. Assign which users have access to the workspace using the "Manage Workspace Users" screen, as shown in Figure B-10 below:

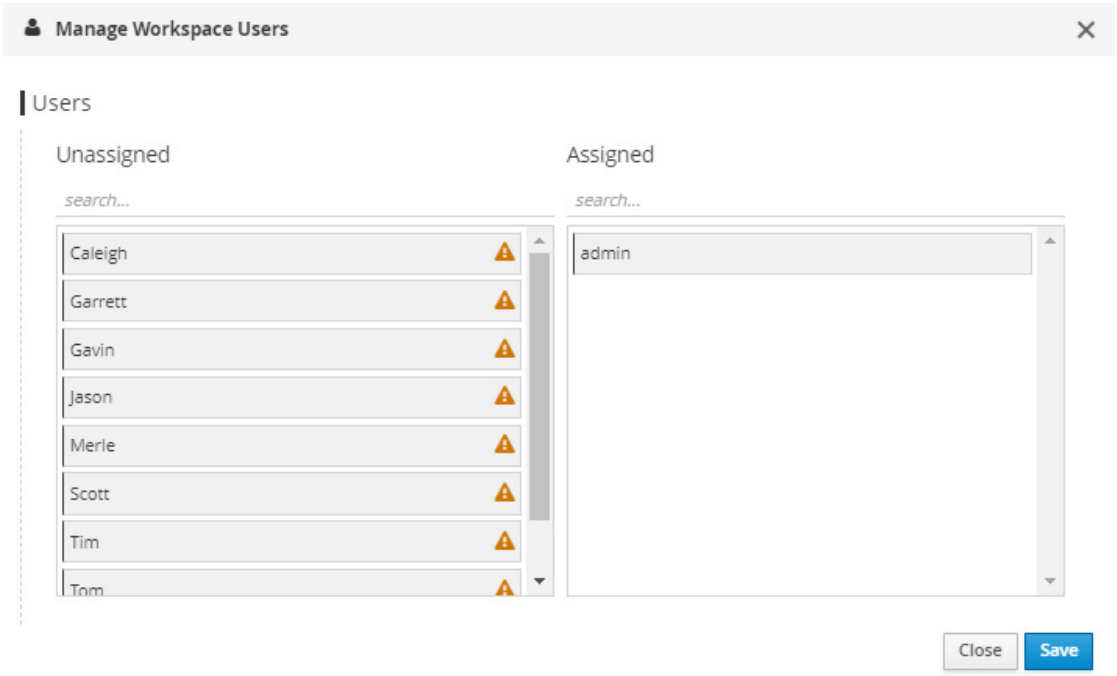


FIGURE B-10: MANAGE WORKSPACE USERS SCREEN

NOTE: Unassigned and assigned targets that have the warning icon next to them confirms what connections are not yet assigned to a user account. In order for a workspace to work properly, the user must have access to all connections that are part of that workspace.

3. Click on the "Save" button to save the assignments.

B.2.2 EDITING A WORKSPACE

Once the workspace is created, the Boxilla® administrator can edit it at any time by using the edit (wrench) icon. The "Edit Workspace" screen is shown in Figure B-11 below:

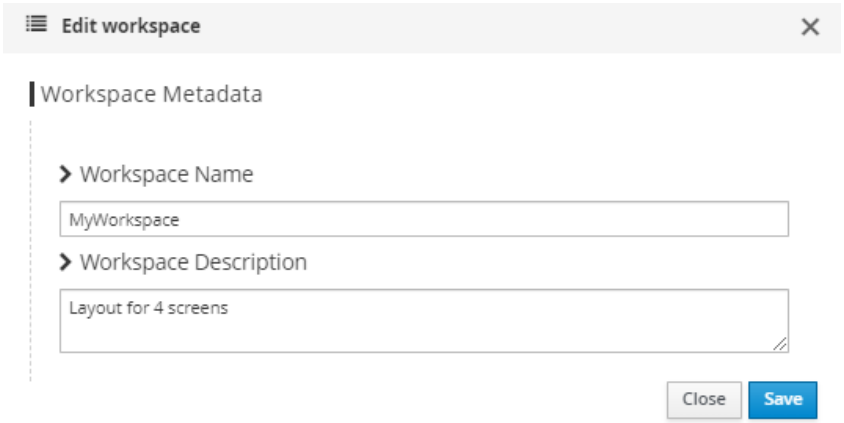


FIGURE B-11: EDIT WORKSPACE SCREEN

B.2.3 DELETING A WORKSPACE

To delete a workspace, click on the delete workspace icon (trash can), as shown in Figure B-12 below:

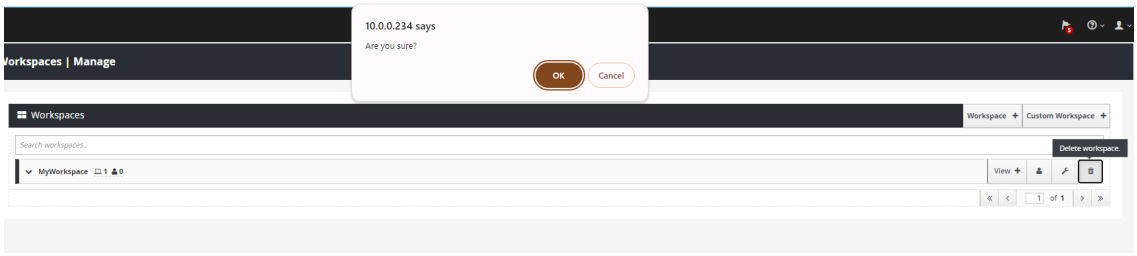


FIGURE B-12: WORKSPACE SHOWING DELETE WORKSPACE

B.2.4 ADDITIONAL CONFIGURATION OPTIONS

Within the Boxilla® web interface in the “Users” section, additional parameters can be configured for each user. “Manage Workspace Favorites” and “Manage Workspaces” are available through the ellipsis icon next to a user name, and these options can be used to adjust user configurations. Configuration options can be accessed through the resulting drop-down menu shown in Figure B-13 below:

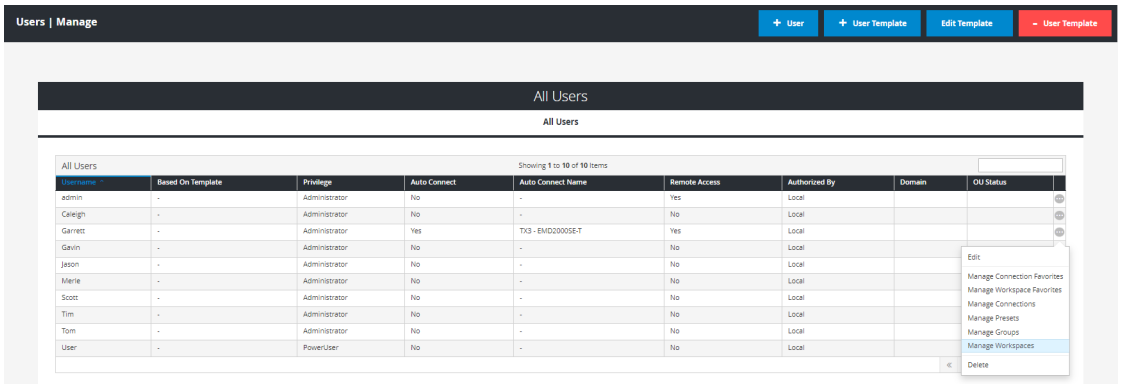


FIGURE B-13: DROP-DOWN MENU LIST

APPENDIX B: WORKSPACE CONFIGURATION

To change Workspace favorites, click in the empty text box for a hotkey that needs to be configured and link the workspace to the corresponding hotkey using the screen shown in Figure B-14 below:

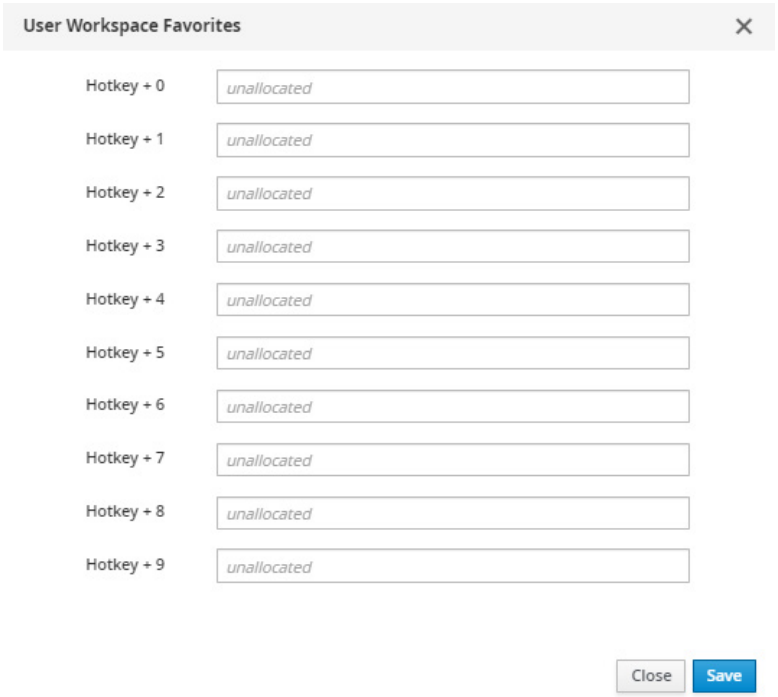


FIGURE B-14: HOTKEY CONFIGURATION SCREEN

TIP: When configuring user workspace favorites, use the “User Manage Workspaces” option to verity that the user has access to the workspace.

Click on the “Save” button when finished.

APPENDIX B: WORKSPACE CONFIGURATION

An example of assigning the first hotkey to a workspace appears in Figure B-15 below:

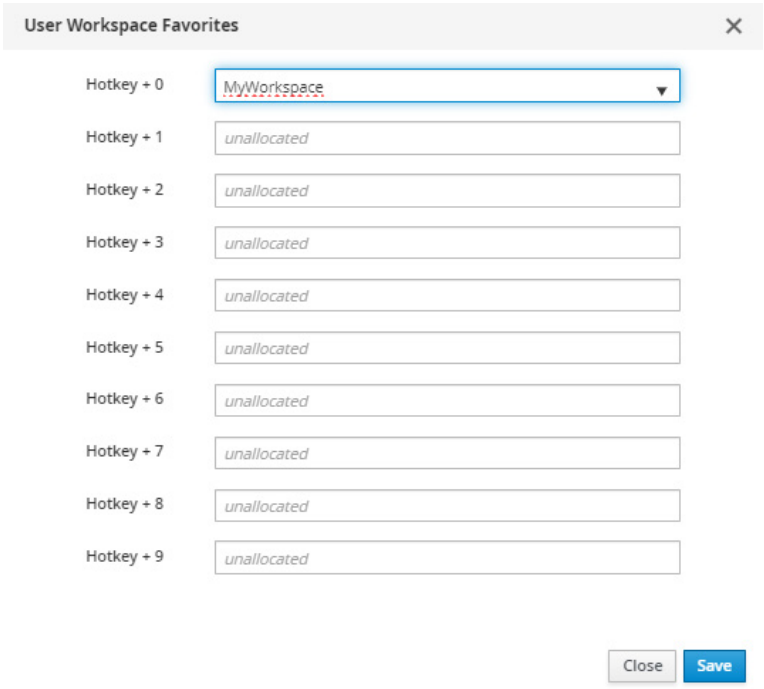


FIGURE B-15: EXAMPLE OF HOTKEY ASSIGNMENT

B.2.5. CONFIGURATING USER ACCESS THROUGH BOXILLA

User access to a Workspace can also be configured under the Boxilla® Users Management page by selecting “Manage Workspaces” from the drop-down list. The Boxilla “Manage Workspaces” screen appears in Figure B-16 below:

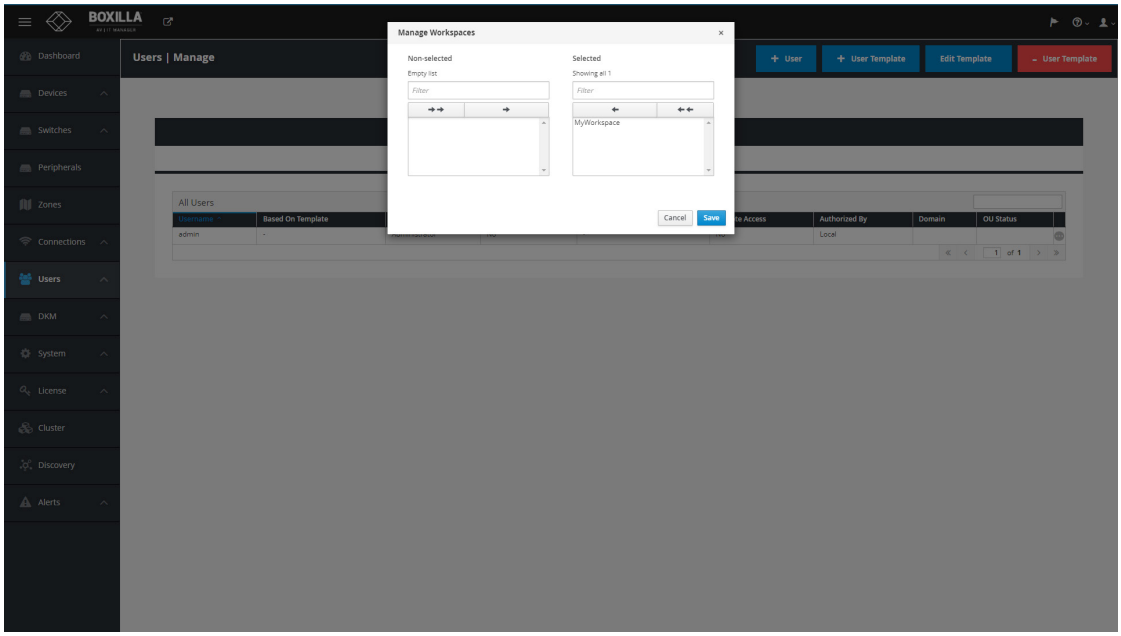


FIGURE B-16: BOXILLA MANAGE WORKSPACES SCREEN

APPENDIX C: REGULATORY INFORMATION

C.1 FCC STATEMENT

This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this Quick Installation Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case, the user will be required to correct the interference at his/her own expense.

C.2 CE STATEMENT

This is a Class B product in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

C.3 TSCA STATEMENT

This product is in compliance with the TSCA Toxic Substances Control Act.

C.4 ROHS

This product is RoHS compliant.

C.5 REACH

This product is in compliance with the Reach / SCIP Regulations.

APPENDIX C: REGULATORY INFORMATION

C.6 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
    A: El cable de poder o el contacto ha sido dañado; u
    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
    C: El aparato ha sido expuesto a la lluvia; o
    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
    E: El aparato ha sido tirado o su cubierta ha sido dañada.

APPENDIX D: DISCLAIMER/TRADEMARKS

D.1 DISCLAIMERS

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Corporation may revise this document at any time without notice.

Images contained in this document are included solely to illustrate how to use the product. Since the product can be customized and/or undergo periodic updates, images in this manual will be representative of, although not necessary identical to, the ones displayed on your screen.

D.2 TRADEMARKS USED IN THIS MANUAL

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Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

NOTES

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