

USER MANUAL

EMDRM SERIES

EMERALD[®] REMOTE APP

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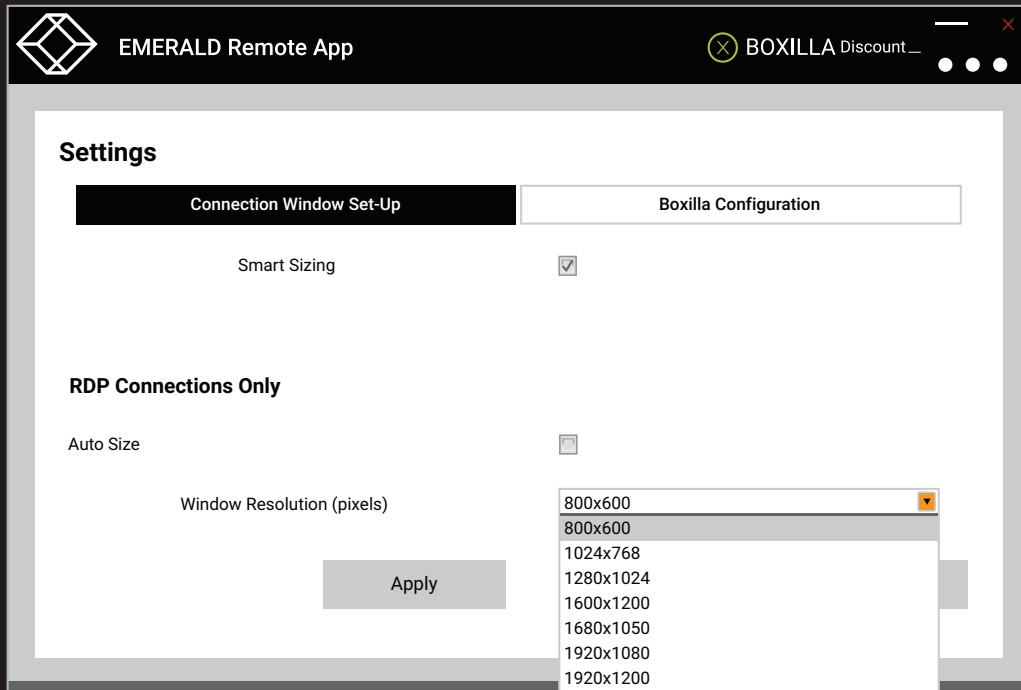


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CHAPTERS 1 AND 2: SPECIFICATIONS/OVERVIEW

HARDWARE/SOFTWARE REQUIREMENTS

Hardware/Software: PC, laptop, tablet or other user station running Windows® 10 software

Operating System: Windows 10 OS 64-bit

Memory: 4 GB RAM

Free disk space: 1 GB

NIC Speed: 1 Gbps

Targets Supported: The following target OS and monitor count are supported when using the Remote App. To support more than one monitor/screen, the OS must be capable of supporting Absolute Mouse Mode. This also covers Virtual Machines that use the following OS:

- ♦ Windows® OS max 2 monitors/screens
- ♦ Mac OS max 1 monitor/screen
- ♦ Linux dependent on distro

2.1 INTRODUCTION

The Emerald system provides users with a seamless desktop experience anywhere on a TCP/IP network, while allowing the actual hardware to be securely housed in a corporate data center or in the cloud.

The remote desktops may be hosted on a physical PC / workstation or may be a virtual desktop hosted on a private server or in the cloud. The Emerald system provides its users with Receivers that communicate with target computer nodes (whether physical PC or virtual desktop) over a standard TCP/IP network. The receivers can be either a hardware box or the Emerald Remote App software.

Emerald® Remote App is new software from Black Box that allows users to access their Emerald connections, both physical and virtual, from any Windows 10 device. This increases mobility and device access and monitoring in full HD video on the Emerald System. Multiple connections can be launched simultaneously to facilitate multiple device management.

Several licenses are available:

- ♦ EMDRMDEMO-LIC: Emerald Remote Access, 30-day Trial (4 Connections)
- ♦ EMDRM1-LIC: Emerald Remote Access, 1 Connection
- ♦ EMDRM5-LIC: Emerald Remote Access, 5 Connections
- ♦ EMDRM10-LIC: Emerald Remote Access, 10 Connections
- ♦ EMDRM20-LIC: Emerald Remote Access, 20 Connections

Physical PCs/Workstations/Servers have an Emerald SE Transmitter unit or Emerald ZeroU DVI Transmitter unit physically connected to provide communication over the TCP/IP network. The performance of Emerald allows them to be deployed on standard corporate networks and even across Wide-Area-Networks (WANs).

Desktop or mobile users can access remote keyboard and mouse signals from the Receiver box or Remote App software to the remote PC/workstations or Virtual Desktop via the Emerald system.

CHAPTER 2: OVERVIEW

2.2 REMOTE APP FEATURES

- ◆ High-Quality User Experience: Supports HD video up to 1920 x 1200 with access to both physical machines and virtual machines.
- ◆ No hardware is required at the user's laptop, tablet, or desktop device running the Windows 10 App.
NOTE: To use the Remote App in practice, a Boxilla is required to manage the entire system.
- ◆ Multiple Connections: Open connections to multiple devices simultaneously. This allows you to interact or monitor many systems from your own device. Purchase the appropriate number of simultaneous connection licenses.
- ◆ Security: All access is authenticated by Boxilla in real time, ensuring that the Emerald Administrator has full control and can define only the users required to have remote access.
- ◆ WAN Support: Users can connect from anywhere with access to all connected resources, once they can authenticate via Boxilla.



CHAPTER 3: CONFIGURATION

3.1 CONFIGURATION OF EMERALD REMOTE APP

The Remote App is software that acts as a receiver in the Emerald system. The software loads on your Windows 10 PC to connect to a TCP/IP network and decrypts and decompresses the streams to provide video, keyboard, and mouse connections to a user.

The Remote App is configured using an On-Screen Display (OSD) or using the Boxilla Manager. The network settings and unit name among others can be configured for a Remote App. The target connections are defined by their target name or IP address, log-in username/password, and TCP port number to be used. Users can be created and specific connections may be allocated to the different users.

A Remote App user profile is protected by username and password to permit different users to access the same unit securely.

3.2 CONFIGURATION OF TRANSMITTER

The Emerald SE/PE Transmitter or ZeroU Transmitter converts the video and USB connections of a PC or workstation to a format that can be connected and controlled over a TCP/IP network.

The Transmitter controls the connection to a remote Emerald Remote App Windows 10 workstation and manages the flow of information to it. It converts and compresses video and peripheral information for transmission over standard TCP/IP networks.

The Transmitter is configured from Boxilla Manager. The network settings, unit name, and video quality are among the parameters that can be configured on the transmitter. The transmitter HID setting must be in absolute, otherwise the mouse performance will be impacted.

NOTE: The Emerald 4K EMD4000T is currently not supported today when using the Remote App; only the Emerald SE/PE and Zero U Transmitters are supported.

3.3 CONFIGURATION OF BOXILLA MANAGER

The License file for Remote App must be installed on Boxilla.

For more information on Boxilla, refer to the Boxilla user manual.

CHAPTER 4: APPLICATION EXAMPLES

The Emerald system is built to be flexible so that it can be deployed in many different types of applications such as basic extension, switching applications (sometimes called matrix), cloud-based desktops, control rooms, digital signage, and kiosk applications and other applications in banking, financial services, broadcast, network operations, industrial, government and enterprise computing sectors. Emerald provides the state-of-the-art performance by:

- using digital sources for video and peripheral control, hence removing analog noise issues or other potential environmental issues
- using advanced optimized compression to enable visually lossless video over standard low-bandwidth networks rather than a proprietary connection or dedicated gigabit networks of many systems

4.1 VIDEO AND PERIPHERAL EXTENSION

Many applications require video and peripheral extension such as PC back-racking, board-room fit-out, remote monitoring, and digital signage.

The Emerald system is set up to connect the Transmitter to the Emerald Remote App PC straight out of the box on a point-to-point network.

The Transmitter and Remote App PC can be attached to standard Ethernet IP networks to increase the distance between units – within a building, between buildings, or across a country. Only standard Ethernet/IP rules and the maximum latency the application can tolerate need to be considered. If video extension only is being used, latency rarely is a consideration as the traffic is typically one-way. When USB-based HID peripheral devices are also required, a network latency of <50 ms is recommended to avoid user issues with “poor mouse response”, etc. For some applications, such as graphic design network latency, <20 ms may be required to ensure user satisfaction. Latency normally is only an issue when extending across a WAN, because latency inside modern buildings or on dedicated networks is much less than 1 ms.

NOTE: Emerald SE supports latency of <20 ms.

In Figure 4-1, a typical deployment is shown in a basic extender application. In this deployment, only one Transmitter and Emerald Remote App PC are used to allow remote access to a single workstation.

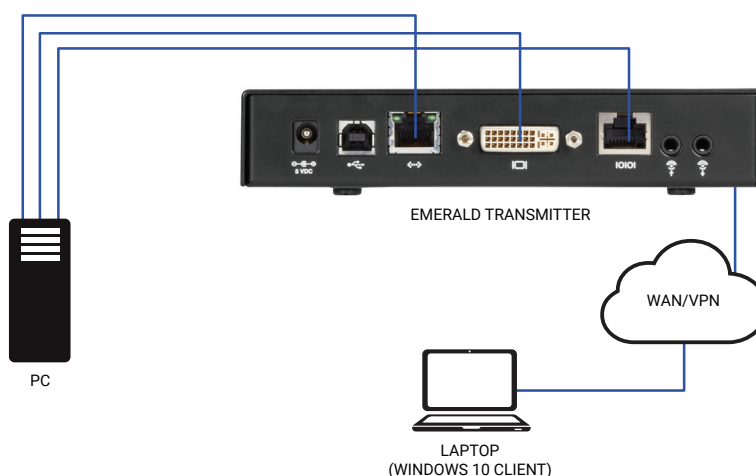


FIGURE 4-1. BASIC EXTENDER APPLICATION

CHAPTER 4: APPLICATION EXAMPLES

4.2 VIDEO AND USB SWITCHING

Numerous applications require being able to switch between different target PCs or Virtual Desktops. The user wants to be able to change the source of Video or USB extension (or both of them together).

Connections can be made to a target using the Emerald intuitive On-Screen-Display (OSD). In Figure 3-2, a larger scale system is shown. This is referred to as a switching or matrix type of deployment. In this deployment, there are several Receivers or Remote App PCs and Transmitters and a manager, as well as virtual desktops.

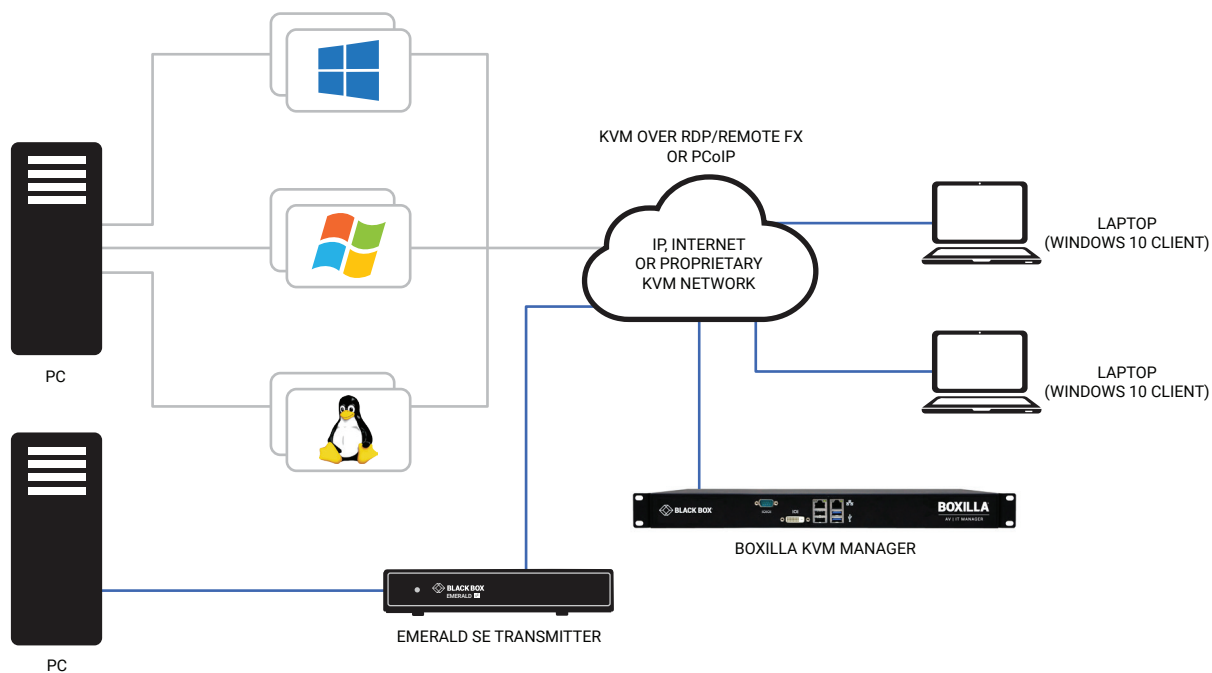


FIGURE 4-2. SWITCHING OR MATRIX APPLICATION

CHAPTER 5: OSD FOR REMOTE APP

5.1 EMERALD REMOTE APP SETUP WIZARD

To install Emerald Remote App on your computer, follow the steps below.

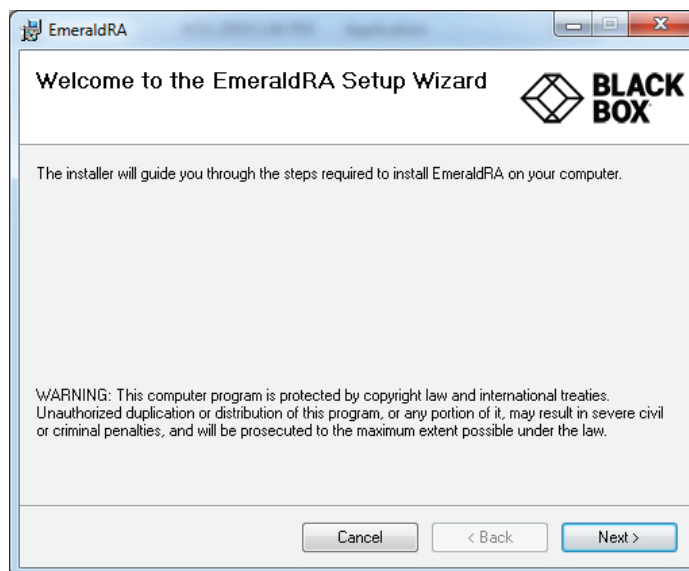


FIGURE 5-1. WELCOME SCREEN

From the Welcome screen, click on Next. The License Agreement screen appears.

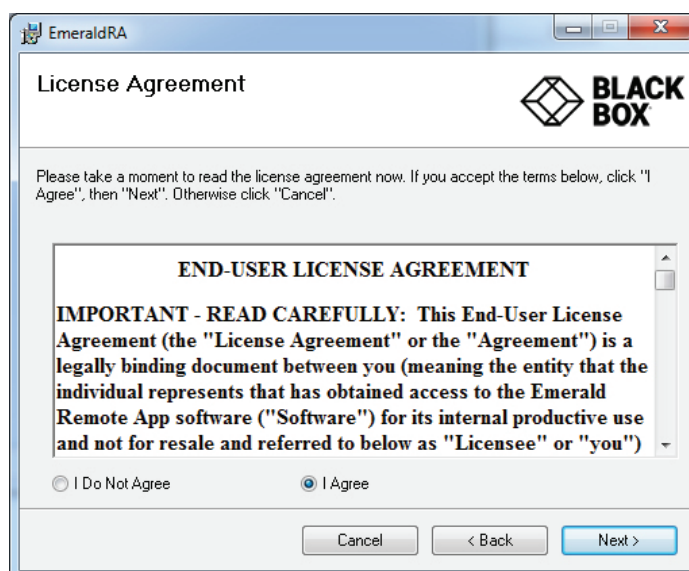


FIGURE 5-2. END-USER LICENSE AGREEMENT SCREEN

Click Next.

CHAPTER 5: OSD FOR REMOTE APP

The Select Installation Folder screen appears.

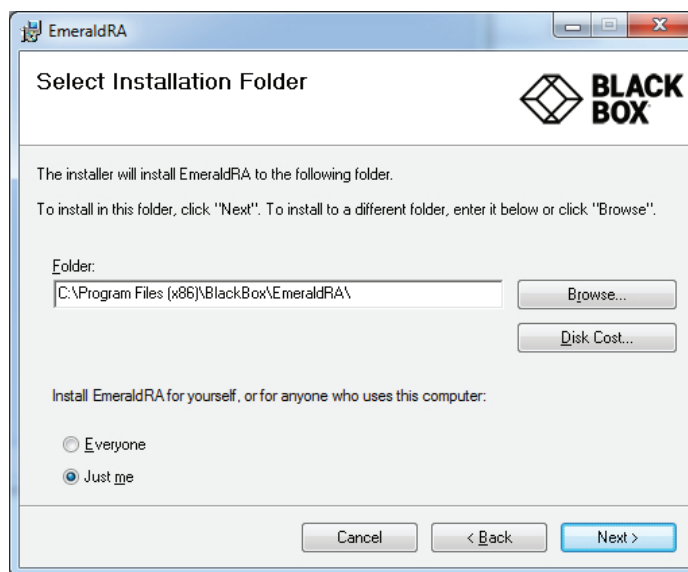


FIGURE 5-3. SELECT INSTALLATION FOLDER SCREEN

Click Next. To install Emerald Remote App in the folder shown in the screen above, click Next. To install it in a different folder, enter it in the screen or click Browse to select another folder. Then click Next.

The Confirm Installation screen appears.

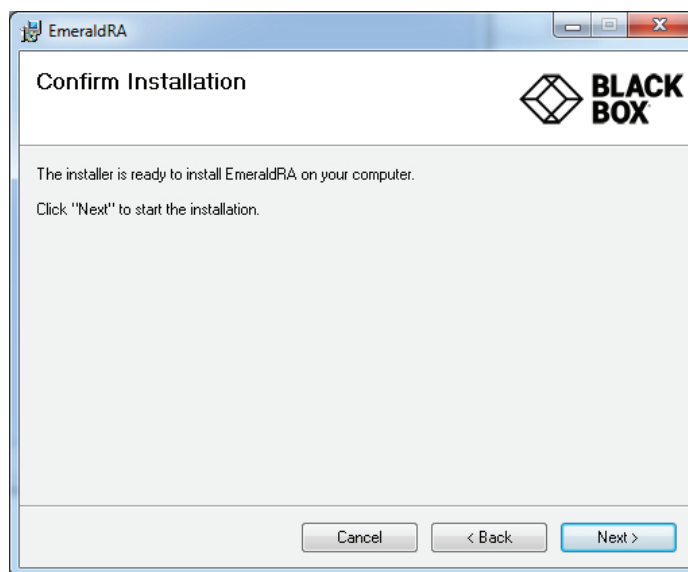


FIGURE 5-4. CONFIRM INSTALLATION SCREEN

Click Next to confirm.

CHAPTER 5: OSD FOR REMOTE APP

The Installing EmeraldRA screen appears.

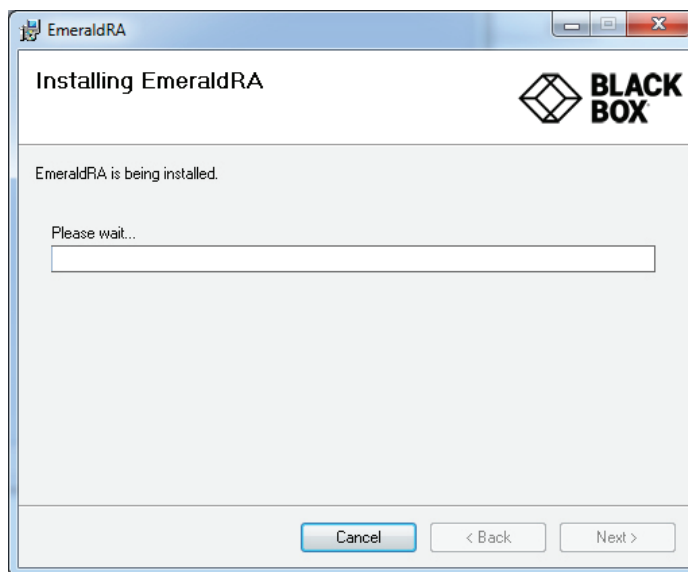


FIGURE 5-5. INSTALLING EMERALD RA SCREEN

When the installation completes, click Next.

The Installation Complete screen appears.

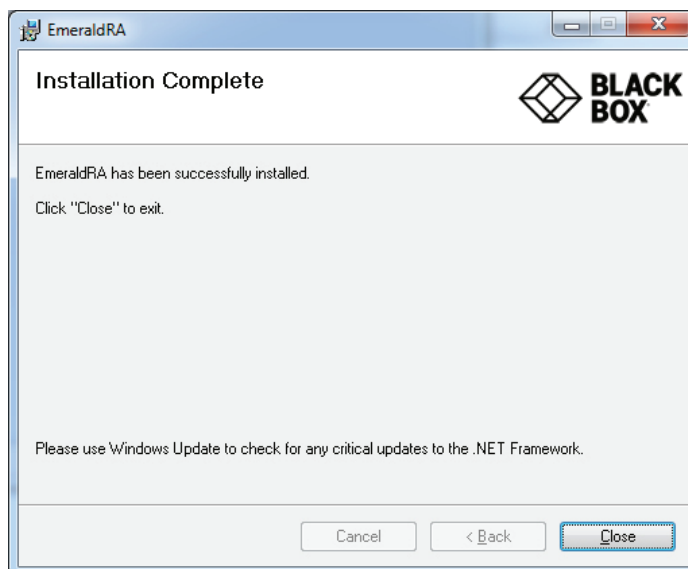


FIGURE 5-6. INSTALLATION COMPLETE SCREEN

Click Close.

CHAPTER 5: OSD FOR REMOTE APP

If OpenSSL is not installed, this screen appears.

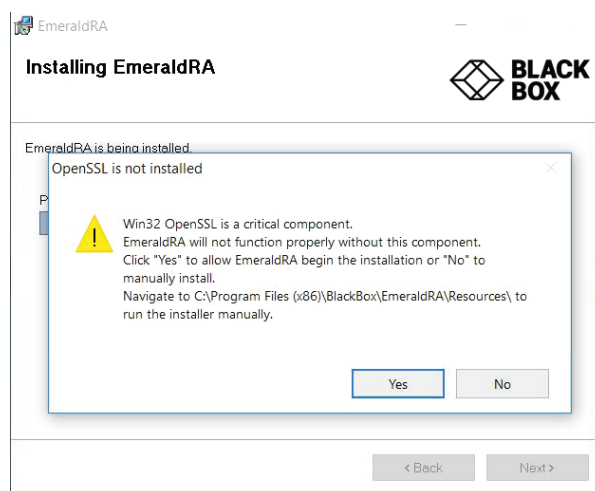


FIGURE 5-7. OPENSLL IS NOT INSTALLED SCREEN

Click Yes to install OpenSSL automatically.

After the software installs, you are ready to configure your Remote App.

5.2 CONFIGURING AND USING EMERALD REMOTE APP

When you launch Emerald Remote App, the Boxilla Configuration screen appears first.

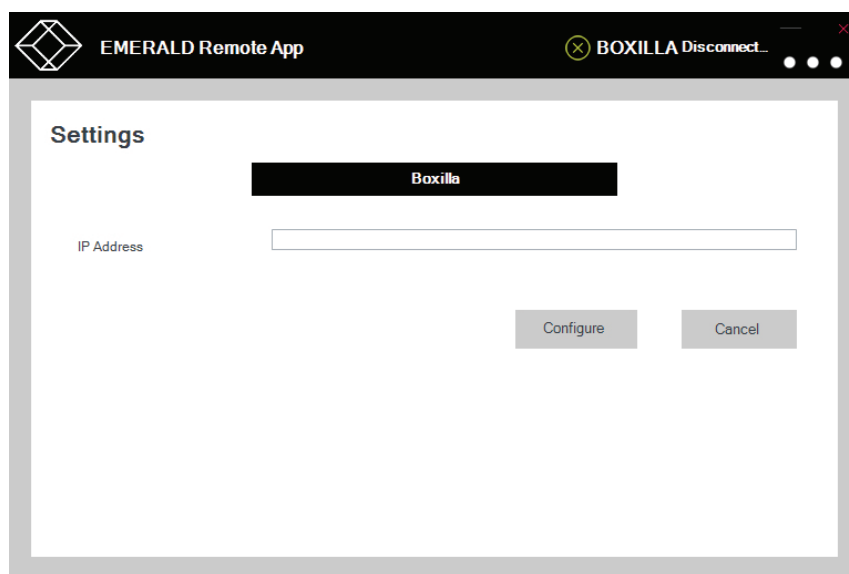


FIGURE 5-8. SETTINGS/CONFIGURATION SCREEN

Enter the IP address of the Boxilla you want to use to manage your Remote App connection.

You can choose from the Options drop-down menu. Select Connections, Settings, Information, Log Out, or Close.

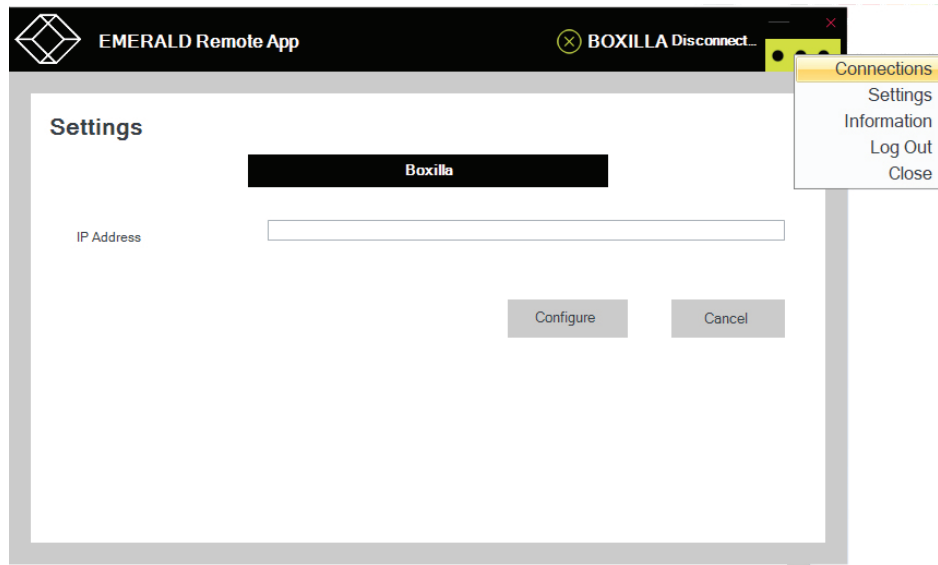


FIGURE 5-9. CONNECTIONS OPTION

The login screen appears next.

Enter your username and password. This can be any user who has "Remote Access" enabled within Boxilla, but the user must have this flag set before logging in.

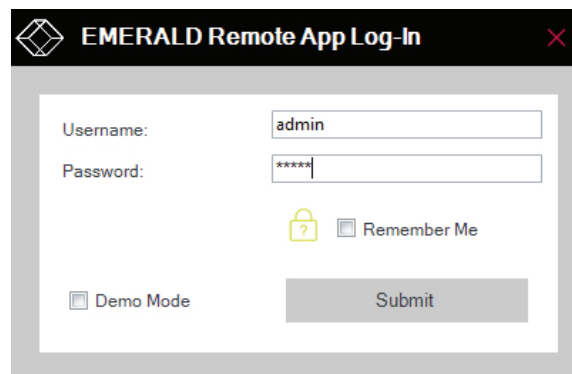


FIGURE 5-10. LOGIN SCREEN

Click Submit.

CHAPTER 5: OSD FOR REMOTE APP

When you login as user, you get a screen of connections available. Click on any connection and press Connect. The connection screen where a user can make a connection appears.

If the list is already pre-populated with connections, click on the desired TX or VM in the Available column and click on the Connect button or double-click to select it.

NOTE: If you cannot see any target connections, verify that the Boxilla>>Connections "Connection Mode" are set to "Optimized" and not "Lossless." If you set your connections for "Lossless," the Remote App will not show these connections with this flag because they are only used for the Emerald 4K Transmitters.

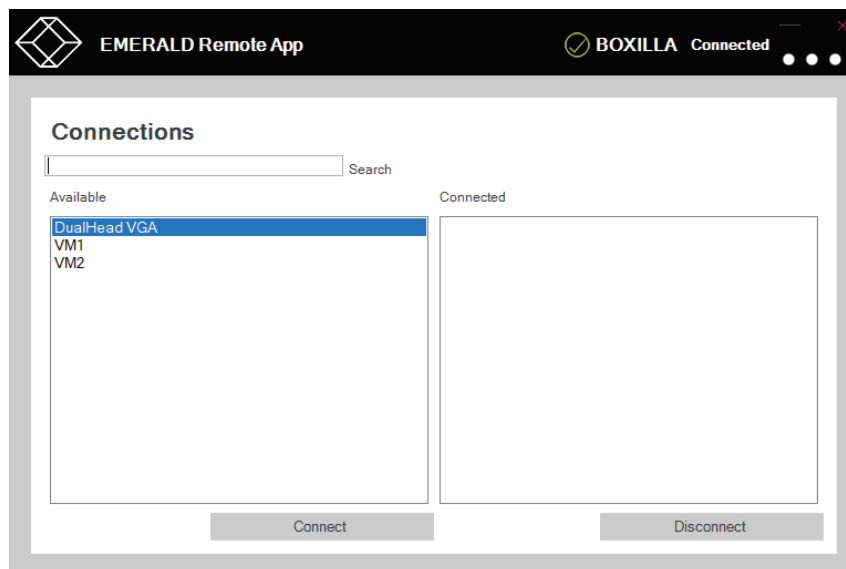


FIGURE 5-11. CONNECTIONS WINDOW, AVAILABLE CONNECTIONS

The following message is displayed between clicking on a target to connect to it and when the target is shown. The popup showing the user is connecting quickly disappears and goes to the connection window.

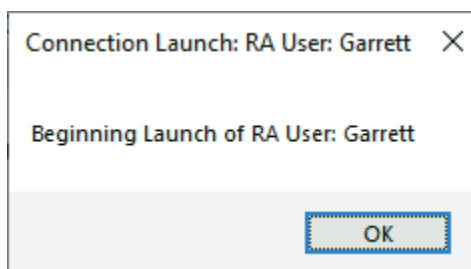


FIGURE 5-12. CONNECTION LAUNCH SCREEN

If you have problems during this process like no video, or the device is offline, you will see it show as well after you see the message of connecting to the user.

CHAPTER 5: OSD FOR REMOTE APP

If a connection is already established in private mode and the RemoteApp attempts to connect to it, you will receive a warning message that the connection is in Private mode.

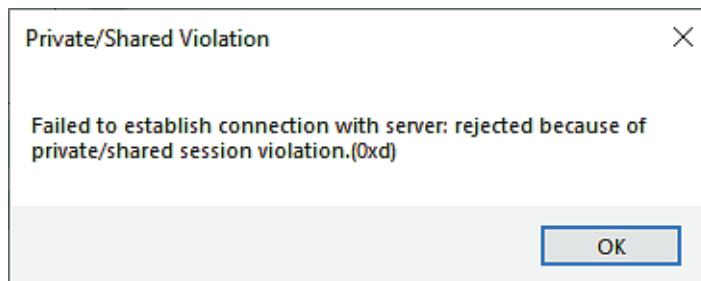


FIGURE 5-13. CONNECTION IN PRIVATE MODE WARNING

If you connect to a target and the transmitter does not see a video sync, you will be notified via an onscreen message.

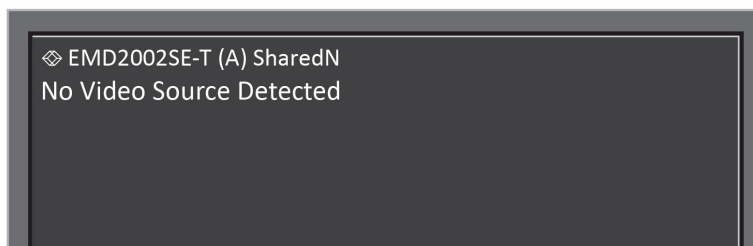


FIGURE 5-14. NO VIDEO SOURCE DETECTED MESSAGE

The settings offer different connection parameters which will be explained below.

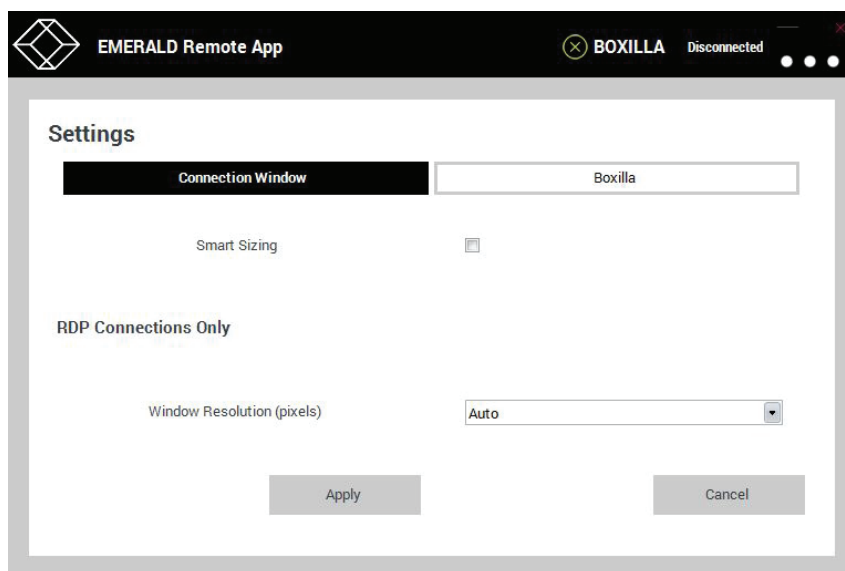


FIGURE 5-15. CONNECTIONS SETTINGS SCREEN

CHAPTER 5: OSD FOR REMOTE APP

Click on Connection Window. Click on Smart Sizing to size the screen automatically. This will ensure that the video resolution is correct to the aspect of the detected video. When it is disabled, the video may appear to be stretched.

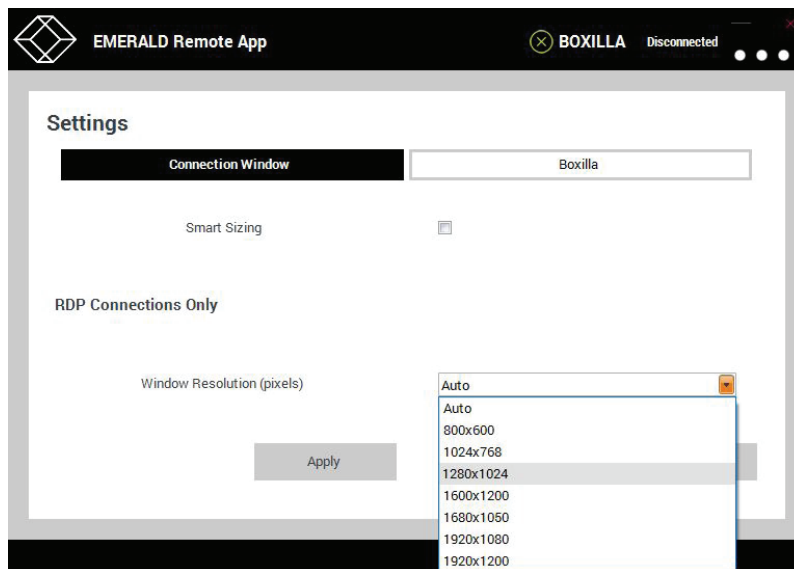


FIGURE 5-16. RESOLUTIONS DROP-DOWN MENU

For any Virtual Machines, you can select the RDP resolution that will be used with the RemoteApp. Click on Apply to save your settings.

To abort/disconnect a connection, click on the TX in the Connected column, then click on the Disconnect button to disconnect it.

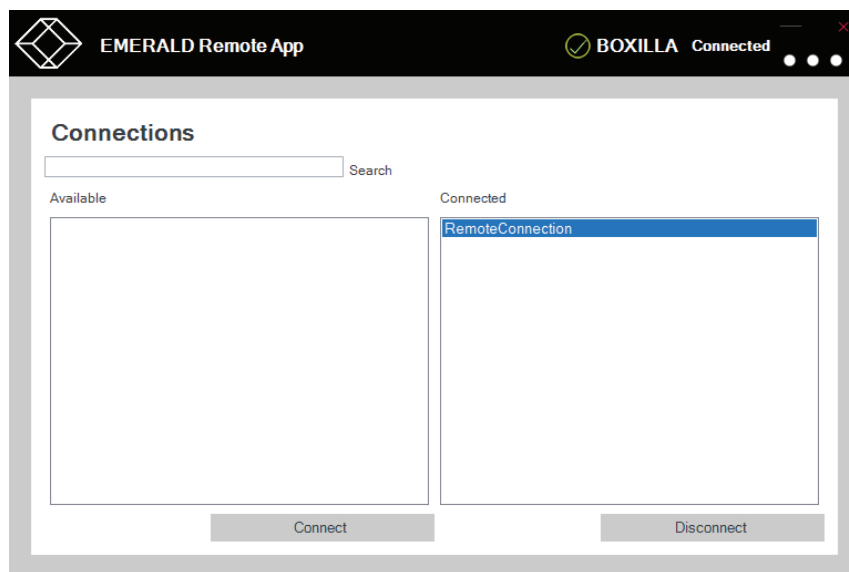


FIGURE 5-17. CONNECTIONS WINDOW, CONNECTED SELECTED

CHAPTER 5: OSD FOR REMOTE APP

If the network connection is dropped (or severely impaired) on the Windows 10 client running RemoteApp, you will see several messages relating to the disconnection of Boxilla, and the increased latency of the connection which means either the network is suffering from heavy traffic or you were disconnected. The RemoteApp will gracefully terminate any connection when it encounters an insufficient CPU resource or latency.

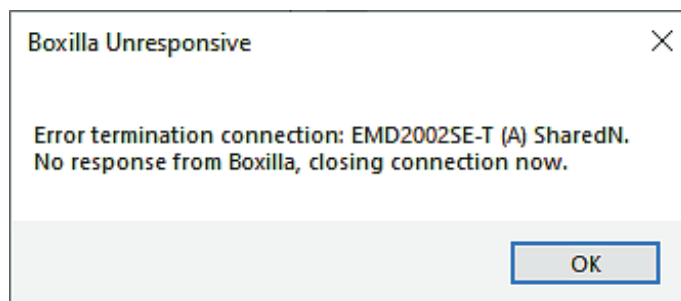


FIGURE 5-18. BOXILLA CONNECTION DISRUPTED MESSAGE

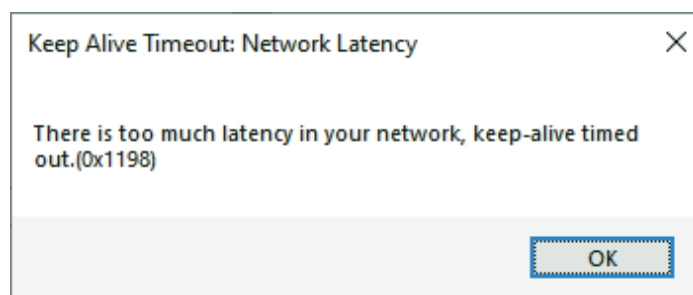


FIGURE 5-19. TOO MUCH LATENCY MESSAGE

CHAPTER 5: OSD FOR REMOTE APP

Emerald Remote App 2.x supports the following additional connection types:

- View-only, where keyboard and mouse activity are deactivated in the connection.
- Dual Head, where the target device head1 and head2 are displayed side by side within the Remote App window and the user can move the mouse across the target's extended desktop.

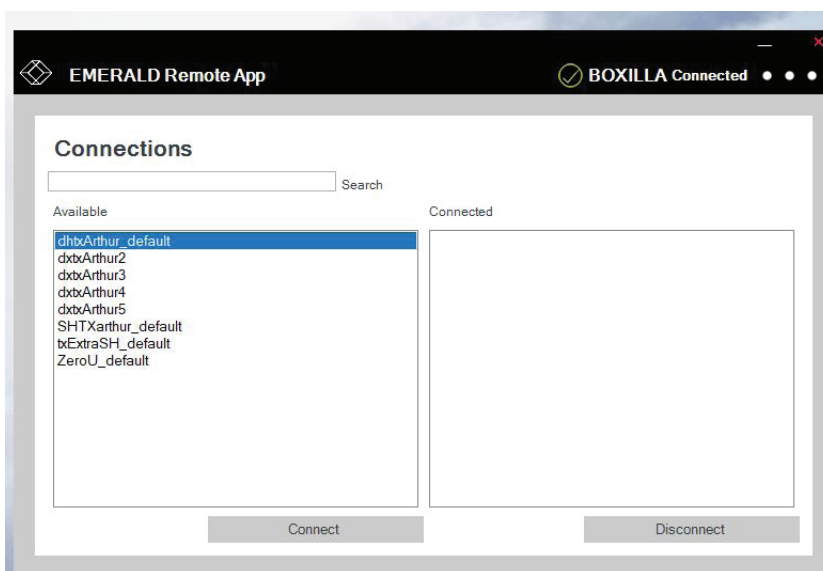


FIGURE 5-20. DUAL-HEAD OPTION SELECTED

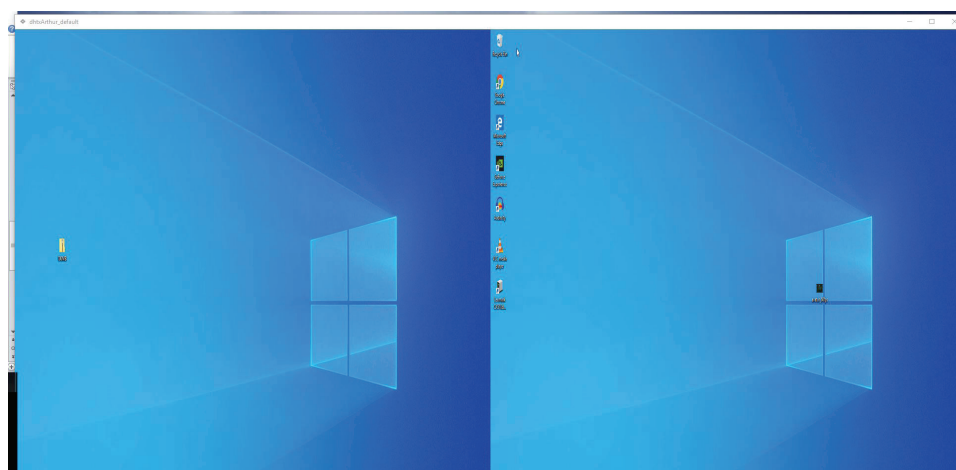


FIGURE 5-21. SPLIT SCREEN FOR DUAL-HEAD CONNECTION

NOTE: To call the Remote Task Manager, or to login with ALT+CTRL+DEL, use the keys ALT+CTRL+END instead. Using ALT+CTRL+DEL will initiate your local Task Manager and not the remote target's.

CHAPTER 5: OSD FOR REMOTE APP

5.3 CLIPBOARD COPYING AND PASTING TO A TRANSMITTER

Users can copy small bits of text from their client computer and paste into the target for easier data transfer options.

NOTE: The client computer is the Windows 10 computer/laptop. The target is the VM/TX in the viewer window that the user is controlling remotely.

The Remote App installed on your Windows 10 PC or laptop can copy the clipboard data to the target device connected to the Transmitter. The Remote App can NOT take the remote clipboard data from the target device connected to the Transmitter and then write that data to the client Windows PC or laptop clipboard.

To paste the clipboard data to the remote target, copy the text from the client, then open your RemoteApp connection and place the cursor where you choose to paste the info and use the F8 function key to paste the clipboard data to the target. F8 can be disabled as paste if this needs to be used by the user in an application. To disable the F8 Paste hotkey, right-click on the top border and left-click on the menu option "Disable F8 Paste hotkey." Copy and paste a maximum of 255 ASCII characters for the Transmitter.

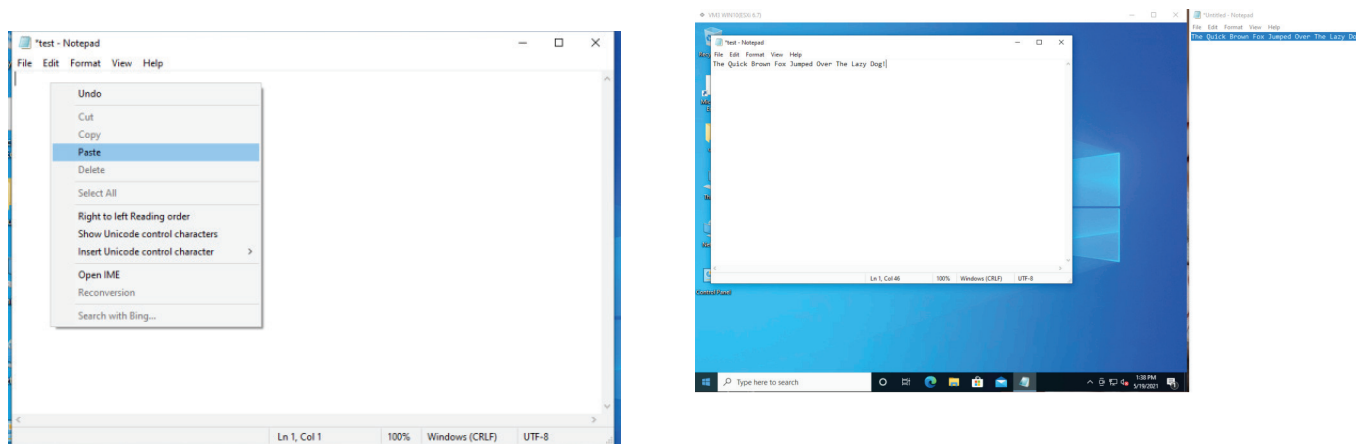


FIGURE 5-22. COPY/PASTE OPTION

NOTE: The Clipboard Copying and Pasting function is on by default for Transmitter connections and cannot be turned off.

The RemoteApp can copy the clipboard data to the Transmitter device when its input method supports these language packs: English (UK), English (USA), French, German, Spanish, or Italian.

5.4 CLIPBOARD COPYING AND PASTING TO AND FROM A VM

The RemoteApp can copy the clipboard data on the client Windows PC or laptop to a Microsoft Windows Virtual Machine target device.

The RemoteApp can take the Microsoft Windows Virtual Machine target clipboard data and then copy the data to the client Windows PC clipboard.

NOTE: The Clipboard Copying and Pasting character set is OS-defined for Microsoft Windows Virtual Machine. The Clipboard Copying and Pasting maximum size (number of characters) is OS-defined for the Microsoft Windows Virtual Machine.

The RemoteApp can paste the client Windows PC clipboard data to the target Microsoft Windows Virtual Machine using the CTRL-V keys.

NOTE: The Clipboard Copying and Pasting function is on by default and cannot be turned off for the Microsoft Windows Virtual Machine.

CHAPTER 5: OSD FOR REMOTE APP

5.5 GRACEFUL SHUTDOWN REQUIREMENTS

The RemoteApp will gracefully terminate any connection when it encounters an insufficient CPU resource or latency.

The following message will be displayed:

“Connection Timed Out: There may be too much latency in your network or the host machine may have insufficient CPU resources to maintain operation.”

To view information about your Emerald Remote App, click on the Information option from the drop-down menu. The Information screen appears.

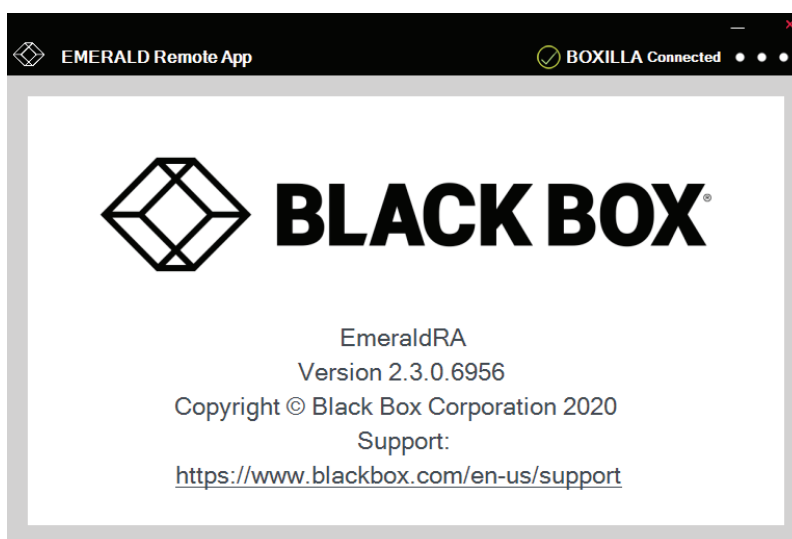


FIGURE 5-23. INFORMATION WINDOW.

To log out of the Emerald Remote App, click on Log Out from the drop-down menu.

CHAPTER 5: OSD FOR REMOTE APP

5.6 DEMO MODE

Demo mode is for users who want to use Emerald Remote App without having a configured or licensed Boxilla.

Demo mode provides the user with two hardcoded connections, one to a TX with default IP Address 192.168.1.22 and the second to a VM with default IP Address 192.168.1.40. The Remote App PC and target TX or VM must be on a private subnet.

To access demo mode, enter DEMO into the Boxilla configuration window.

You can do this the first time the Remote App is launched after the initial install or you can change it via the Settings option.

Once the Boxilla Settings are set, the login screen will be presented and you can select the "Demo Mode" checkbox, and press "Submit."

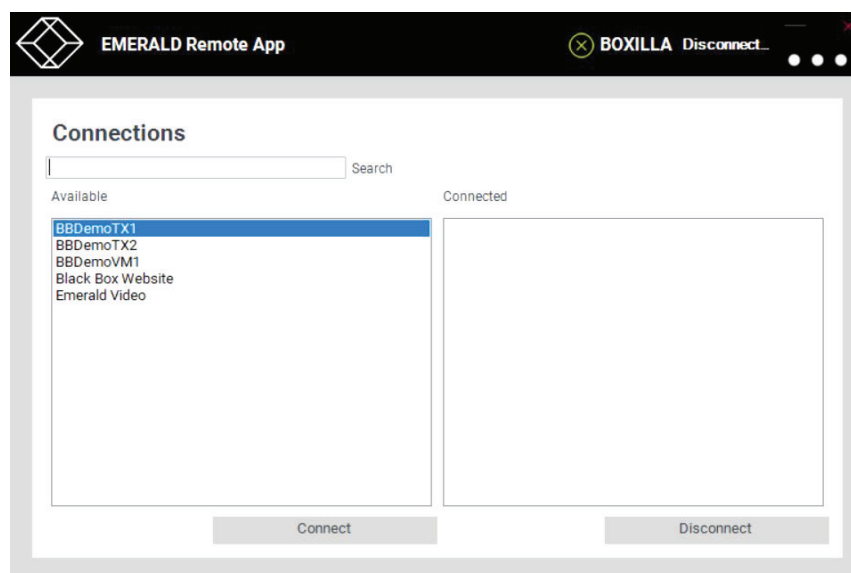


FIGURE 5-24. DEMO MODE SCREEN

The Emerald solution uses standard IP protocols for communication between Remote App, Boxilla, and Transmitters.

TABLE A-1. PORT USAGE PER APPLIANCE

COMPONENT	APPLICATION	PORT	EMERALD 4K	EMERALD PE/ZU
Appliance	Video EMDSE	TCP: 16384	Yes	Yes (5.3x onwards)
	TX connections	TCP: 3389	Yes	Yes
Boxilla	Boxilla REST HTTPS	TCP: 443	—	—

NOTE: Firewalls on the WAN may cause audio to fail due to a protocol issue that prevents it traversing some firewalls. The audio channel does not perform the SYN/SYNACK sequence which leads to some of these streams being blocked.

APPENDIX B: DISCLAIMER/TRADEMARKS

B.1 DISCLAIMER

Black Box Network Services 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 Network Services may revise this document at any time without notice.

B.2 TRADEMARKS USED IN THIS MANUAL

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NOTES

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