

IMPORTANT: Refer to www.extron.com for the complete user guide and installation instructions before connecting the product to the power source.

The Extron VNM Enterprise Controller 200 is a dedicated control device for managing large VN-Matrix systems. The controller allows users to view, manage, and dynamically control multiple VN-Matrix systems and networked VN-Matrix domains from a single user interface.

This guide provides basic instructions for an experienced installer to configure and operate a single VNM Enterprise Controller 200 in a basic VN-Matrix system.

**NOTE:** See the VNM Enterprise Controller 200 User Guide, VN-Matrix 200 Series User Guide, VN-Matrix 225 Series User Guide, VN-Matrix 250 User Guide, VN-Matrix 300 User Guide, and the VN-Matrix 325 User Guide for complete installation, network configuration, and mounting information.

# Step 1 — Mount the VNM Enterprise Controller 200

Disconnect power to the VNM Enterprise Controller 200 and turn off all devices that will be connected to it. The controller is housed in a half rack wide, 11.5 inches deep, 1U high metal enclosure that can be rack mounted or placed on a table (with the provided rubber feet attached). Select a suitable mounting option and location, and follow the instructions provided with the mounting kit.

# Step 2 – Cable the Controller



Figure 1. VN Matrix Enterprise Controller 200, Rear Panel

- AC power IEC connector. Standard AC power: 100 to 240 VAC, at 50 to 60 Hz.
- **DisplayPort video output** Connect a compatible DisplayPort display for troubleshooting.
- HDMI video output Connect a compatible HDMI display for troubleshooting.
- **USB ports** Two USB port connections for one mouse and one keyboard.
- **Ethernet connector** LAN A for connection to a standard LAN.
- Ethernet connector LAN B for connection to a second VNM Enterprise Controller 200 (redundant operation only).
- **G** VGA Connector One configurable analog output 15-pin HD (VGA) connector for use in troubleshooting.
- Serial Connector Provides remote control using RS-232 and the High Level Interface (HLI) command control protocol that allows users to interface a third party control system with the devices on a VN-Matrix network.
- Reset button and LED The VNM Enterprise Controller 200 has two reset modes to restore configuration settings or all settings back to factory defaults. The LED indicates the desired reset mode, and provides the reset status during the reset operation. For information on using the reset mode, see the VN Matrix Enterprise Controller 200 User Guide.
- **Recessed power button** Press once to initiate a safe shutdown of the system.



#### Figure 2. VN Matrix Enterprise Controller 200, Front Panel

- **USB mini-B config port** Connect to a PC for Simple Instruction Set (SIS<sup>™</sup>) control.
- Status LEDs Four LEDs provide the status of the VNM EC 200.
  - Network Activity LED (A) Lights steadily when a network link is established. Blinks to indicate activity.
  - Network Activity LED (B) Lights steadily when a network link is established. Blinks to indicate activity.
  - Drive Activity LED Blinks to indicate drive activity.
  - **Power LED** Lights when the controller is powered.
- Solid State Drive (SSD) This removable drive holds the operating system (OS) and software required for operation.

# **Initial EC 200 Installation and Configuration**

### Step 1 - Determine the Network Settings

Before any device is connected to a network, the default network settings of each device must be changed. On an existing network, check with the network administrator for a range of available IP addresses.

On a closed network used exclusively for VN-Matrix devices, it is recommended to use addresses within the range of 192.168.254.1 through 192.168.254.253 with a subnet mask of 255.255.255.0.

Figure 3 shows an addressing scheme for a simple system containing a VNM Enterprise Controller, an encoder, and a decoder.



#### Figure 3. VN Matrix System

Map your system IP addresses for all connected devices and write them down.

#### Step 2 — Install and Configure the VN-Matrix Devices

See the setup guide included with each device. Connect each VN-Matrix device to the control PC, one at a time, and power the device on. Configure the network settings according to your IP address map. DO NOT use 192.168.254.254. The system above can be used as a guide for configuring network settings.

Once the new IP address for a device is entered, it can remain connected to the LAN and powered on.

### Step 3 — Connect the VNM Enterprise Controller 200 to the VN-Matrix Network

On the rear panel of the EC 200, connect the network to LAN A (see figure 1, ) on the previous page) using a Category (CAT) 6 twisted pair cable.

**NOTE:** The LAN B Ethernet connector is used only if a secondary (redundant) VNM Enterprise Controller 200 is installed. For information on how to set up a secondary controller, see the *VNM Enterprise Controller 200 User Guide*.

#### Step 4 – Power on the VNM Enterprise Controller 200

Connect a standard IEC power cord to the controller and to a 100 to 240 VAC, 50 Hz or 60 Hz power source. The controller powers up when an AC source is connected.

#### Step 5 — Configure the Network Settings of the VNM Enterprise Controller 200

The VNM Enterprise Controller 200 is preconfigured with the following network settings:

IP address:	192.168.254.254
Subnet mask:	255.255.255.0

**NOTE:** With these settings, the VN-Matrix devices must use IP addresses within the range of 192.168.254.1 through 192.168.254.253 and the same subnet mask. The example in figure 3 (above) uses the default settings of the VNM EC 200.

Use the following procedure to change the network settings of the VNM Enterprise Controller 200, if necessary.

- 1. Configure the network settings of a control PC to use an IP address within 192.168.254.1 to 192.168.254.253 and a subnet mask of 255.255.255.0. Connect the control PC to the VN-Matrix network.
- 2. Open a web browser on the control PC and enter the IP address of the VNM Enterprise Controller 200 in the address bar (for example, http://192.168.254.254). The login screen opens (see figure 4).

Extron Elec	tronics	s Matrix	Enterpris	e Controller
	Username: Password:		Login	

#### Figure 4. Enterprise Controller Login Page

3. Enter the appropriate username and password.

NOTE: The default user name is admin. The default password is admin. Entries are case sensitive.

4. Click Login or press the <Enter> key. The Web-based User Interface defaults to the Devices page (see figure 5, ①).

	Exti	on.	Electi	ronics 🗇							
-	Alarms	Configu	Iration Device	es Preset Manager	Forma	at Editor	System	n Info	a harder and		
									Logged on:ad	lmin switcher	logout
	Status	Mode	Device Id 🔺	Device Name		IP Addres	35	Controller	Device Type	Version	
•	Controlle	r: 192.168	.254.254 (2 Items	5)							
		?	11211569	device11211569		192.168.	254.68	192.168.254.254	VNC 200 DVI-A	ver3.12.0	
		?	620091	device620091		192.168.	254.30	192.168.254.254	VNC 200 DVI-AD	ver3.12.0	

#### Figure 5. Devices Page

5. On the default Devices page, click the **Configuration** tab (see figure 6, **①**).

The Configuration page opens.

Extron. Ele	ectro	nics ③					
Alarms Configuration	Devices	Preset Manager	Format Editor	System Info			
					Logged on:admir	n switcher	logout
<ul> <li>Device Properties</li> <li>Network</li> <li>Password</li> <li>Role</li> <li>Time</li> <li>Upgrade</li> <li>Version</li> <li>System Properties</li> <li>System config</li> <li>Certificates</li> </ul>	Netwo	IP Address: IP Address: Sateway: MTU: HTTPS/SSL: HLI(SSH): ernet	192.168.254.254 255.255.255.0 192.168.254.1 1500 443 9996				(?)
		eth0 MAC address: eth1 MAC address:	C:C4:7A:53:D1:42		<b>A</b>		
					Apply Changes	Cancel Cha	nges

# VN Matrix EC 200 • Setup Guide (Continued)

- 6. On the Configuration page, click the **Network** link (see figure 6, **2** on the previous page).
- 7. Change the **IP Address**, **Netmask**, and **Gateway** fields (③) as necessary.

NOTE: The MTU field does not require changing.

- 8. Click Apply Changes (④) to save the configuration. The controller restarts. After the restart, the network settings are properly configured.
- 9. On the control PC, configure the IP address so that it is within the address range of the VNM Enterprise Controller 200.

**NOTE:** Perform this step only if the IP address of the controller uses a network prefix or subnet other than **192.168.254**.*xxx*.

**10.** If necessary, restart the control PC to save the configuration.

### Step 6 — Configure the VNM EC 200 as the System Controller

 Log in to the controller and click the Configuration tab (see figure 7, ●). The Configuration page opens.

Extron. Ele	ectronics	3			
Alarms Configuration	Devices Preset Mar	nager Format Editor	System Info		a cara that
				Logged on:admin	switcher logout
Device Properties Network	Configuration				?
Password ERole	3 'rotocol:	unicast	~		
\Xi Time 🔁 Upgrade	Multicast Address Scheme:	default	*		
Version System Properties	Clean Switch: Secure Mode:	☑ 4			
2 System config Certificates	Controllers:	192.168.254.254			
		🔁 Add 🤤 Delete Migi Lic	ense		
	Backup Data Restore	Data		Apply Changes	ancel Changes

#### Figure 7. System Configuration Page

- 2. On the Configuration page, click the System config link (see figure 7, 2).
- 3. From the **Protocol** drop-down list (③), select the transport protocol for the VN-Matrix system.

#### **NOTES:**

- The default transport protocol is unicast.
- Unicast supports up to four simultaneous streams from a single encoder.
- **Multicast** supports a single stream that can be used by multiple decoders. This protocol requires a network that supports Internet Group Management Protocol (IGMP) snooping for correct operation.
- **TCP** supports a single stream from a single encoder.
- 4. Ensure that the **Clean Switch** option (④) is enabled (checked) to smooth transitions when switching between VN-Matrix 200/225/250 device streams.

NOTE: VN-Matrix 300 / 325 devices do not support Clean Switch and ignore this setting.

- 5. If necessary, highlight all IP addresses and click **Delete** (**5**) to clear the **Controllers**: field.
- Click Add (③) and enter the correct IP address of the VNM EC 200 previously created (see Step 5 Configure the Network Settings of the VNM Enterprise Controller 200 on page 2) into the window that opens and click 0K.
- 7. Click Apply Changes (1) to save the configuration. The VNM Enterprise Controller 200 restarts and is assigned as the system controller.

- 8. Refresh the browser to activate and view the changes.
- **9.** If necessary, log in, then click the **Configuration** tab (see figure 8, **1**). The Configuration page opens.

Extron. Ele	ectronics 🕄	
Alarms Configuration	Devices Preset Manager Format Editor System Info	
	Logged on:admin_switcher_li	ogout
4 🔂 Device Properties	Device Mode	?
Password	Device Mode: singleton 3	
Role		
Upgrade		
System Properties System config		
E Certificates		
	Apply Changes Cancel Change	es

#### Figure 8. Role Configuration Page

- 10. On the Configuration page, click **Role** (2).
- 11. From the **Device Mode** drop-down list, select **singleton** (③).

**NOTE:** This guide details how to set up a VN-Matrix system using a single VNM EC 200. For information on how to set up a secondary controller, see the VNM Enterprise Controller 200 User Guide.

- **12.** Click **Apply Changes** (**4**) to save the configuration.
- **13.** Refresh the browser to activate and view the changes.

### Step 7 – Assign VN-Matrix 200 / 225 / 300 / 325 Devices as Encoders and Decoders

 If necessary, log in, then click the **Devices** tab (see figure 9, **1**). The Devices page opens.

Ext	ron.	Elect	ronics ③							
Alarms	Config	uration Devic	es Preset Manager	Form	at Editor	System	n Info		Sector Sector	1
								Logged on:ac	lmin switche	r logout
Status	Mode	Device Id 🔺	Device Name		IP Addre	ss	Controller	Device Type	Version	
	r: 192.168	.254.254 (2 Items	s)							
	2 ?	11211569	device11211569		192.168.	254.68	192.168.254.254	VNC 200 DVI-A	ver3.12.0	
	?	620091	device620091		192.168.	254.30	192.168.254.254	VNC 200 DVI-AD	ver3.12.0	
		配 Encoder 壁 Decoder	4							
Actions:	Upgrade	Mode Misc -	]						Gro	up By 🗸

#### Figure 9. Devices Page – Mode Selection Menu

- 2. Click the box in the same row as the desired device. The row highlights and the box is checked (see figure 9, 2).
- 3. Select Mode (③) from the menu at the bottom of the page. The Device Mode dialog opens (④).
- 4. Determine the functionality of the device and choose **Encoder** or **Decoder** (4) as appropriate.

**NOTE:** Choosing a mode or toggling a device between an encoder and a decoder can take a few seconds after the selection is made.

5. Repeat this procedure for other devices as necessary.

# VN Matrix EC 200 • Setup Guide (Continued)

# **Configure the Connected VN-Matrix Devices**

Once the VN-Matrix devices are assigned as encoders and decoders in the VN-Matrix network, no further configuration is required. However, the individual devices on a VN-Matrix network can be further configured using the controller Web-based user interface.

The following sections summarize how to configure devices using the VNM Enterprise Controller 200. For detailed information

click on the question mark icon (see figure at right, **1**) located on each of the menu pop-up pages, or see the *VNM Enterprise Controller 200 User Guide* and the

VN-Matrix 225/250/300/325 User Guides.

Configure Device Settings (720193)

### **Encoder Configuration**

- 1. Log in to the controller, then click the **Devices** tab (see **figure 9**, **1** on the previous page). The Devices page opens.
- 2. Select an encoder (see figure 9, 2). At the bottom of the page, several menus are now available (see figure 10).

Actions:	Info       Connections       Configure       Format       Compression       Peripherals       License       Upgrade       Mode •       Misc •	Group 🔻
Figure 10	Encoder Devices Configuration Menu	
NOTE:	The menu options change depending on the device selected for configuration.	

- 4. Select the following menus and configure the settings as necessary to allow for optimal encoder streaming.
  - **Configure** Sets global parameters specific to selected VN-Matrix units. Use this window to change the device name and configure the operating mode of the device.
  - Format Use this window to view information about the incoming source, make adjustments to the signal, and set EDID options.
  - Compression Use this window to adjust the amount of compression that is applied to the stream.
- 5. Repeat this procedure for other encoders as necessary.

#### **Decoder Configuration**

- 1. Click the **Devices** tab (see **figure 9**, **1** on the previous page). The Devices page opens.
- 2. Select a decoder (see figure 9, 2). At the bottom of the page, several menus are now available (see figure 11).

Actions:	Info Connections	Configure	Format	Peripherals	License Upgrade	Mode <b>v</b>	Misc <b>v</b>	]	Group <b>v</b>	
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#### Figure 11. Decoder Devices Configuration Menu

**NOTE:** The menu options change depending on the device selected for configuration.

- 3. Select the following menus and configure the settings as necessary to allow for optimal decoder streaming.
  - Configure Sets global parameters specific to selected VN-Matrix units. Use this window to change the device name
    and configure the operating mode of the device.
  - Format Use this window to adjust the format of the signal being output to a display.
- 4. Repeat this procedure for other decoders as necessary.

# **Web-based User Interface Control Options**

This section details control options that are available using the Web-based user interface. For more information on all available control options, see the VNM Enterprise Controller 200 User Guide.

### **Using the Switcher Page**

The Switcher page assigns encoders (sources) to decoders (displays). This allows the user to control streaming throughout the entire system using a single page. Use the following procedure to configure the Switcher page.

1. Click on the Switcher link located at the top right of the web page. The Switcher page opens (see figure 12).

Extron. Electronics 🕄 🛛 🖪 edit					
Sources	Displays		Connec	tions	
Encoder1	- Decoder	1 🔹			
Encoder2	- Decoder	2 🚽	Take		
Encoder3	Decoder	3 2 -	3 Encod	er1 🔹	

#### Figure 12. Switcher Page

- 2. From the **Sources** column, click on an encoder (see figure 12, **①**).
- **3.** From the **Displays** column, click on a decoder (**2**).
- Click Take (③). A connection is created between the selected encoder and decoder. Figure 12 shows that Encoder1 is streaming media to Decoder3.
- 5. Repeat this procedure to create other connections as necessary.

**NOTE:** To remove a connection, select a connection (from the **Connections** column) and click **Break Connection**. To remove all connections, select a connection and click **Break All Connections**.

6. If audio data is present within the stream, click on the edit link located at the top right of the Switcher page (see figure 12, ④) and select the Switch audio with video option (see figure at right, ①). This keeps the audio and video data together when you are creating connections.



### Updating the VNM Enterprise Controller 200 License

Updating the license of the VNM Enterprise Controller 200 is sometimes necessary to enable certain features of the system. Use the following procedure to update the license.

1. Click the **Configuration** tab (see figure 13, **1**). The Configuration page opens (you may need to log in).

Extron. Ele	ectronics	3					
Alarms Configuration	Devices Preset Ma	nager Format Edit	or System Info				
					Logged on:admin s	witcher	logout
4 🔄 Device Properties	Configuration						?
Network							
Password	Protocol:	unicast		~			
E Role Time Dpgrade	Multicast Address Scheme:	default		~			
E Version	Clean Switch:	<b>V</b>					
4 🔄 System Properties	Secure Mode:						
<ul> <li>System config</li> <li>Certificates</li> </ul>	Controllers:	₹ 192.168.254.	254 🕑				
		O Add	Sticens 4		•		
	Backup Data Restore	Data		-6	Apply Changes Car	icel Chan	ges

Figure 13. System Configuration Page

- 2. On the Configuration page, click the System config link (see figure 13, 29, on the previous page).
- 3. In the **Controllers:** field (③), select the IP address of the controller that requires a new license.
- 4. Click License (4).

The Controller License Management dialog opens (see figure 14). Keep this window open.

Controller License I	ontroller License Management			
Options:	0			
Checksum:	2			
Serial Number:				
	3 Update License			

#### Figure 14. Controller License Management Window

- Contact Extron Sales Support and provide the following information (contact information is available at the bottom of this page):
  - The **serial number** of the VNM Enterprise Controller 200. This can be obtained from the Controller License Management window or from the side of the controller.
  - The order number of the VNM Enterprise Controller 200 from your purchase invoice.
- 6. Extron Sales Support provides a structure key and a license key.
  - Enter the structure key into the **Options** field (see figure 14, **1**).
  - Enter the license key into the Checksum field (2).
- 7. Click Update License (③) to assign the new license settings.
- 8. Close the Controller License Management dialog.

### **Logging Out**

To log out, click the **logout** link located at the top right of the web page or close the browser.

Extron Headquarters		Extron Europe	Extron Asia	Extron Japan	Extron China	Extron Middle East	Extron Australia	Extron India
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		Inside Europe Only	+65.6383.4664 FAX	+81.3.3511.7656 FAX	+86.21.3760.1566 FAX	+971.4.299.1880 FAX		(Inside India Only)
Extron USA - West	Extron USA - East							
+1.714.491.1500	+1.919.850.1000	+31.33.453.4040						+91.80.3055.3777
+1.714.491.1517 FAX	+1.919.850.1001 FAX	+31.33.453.4050 FAX						+91.80.3055.3737 FAX