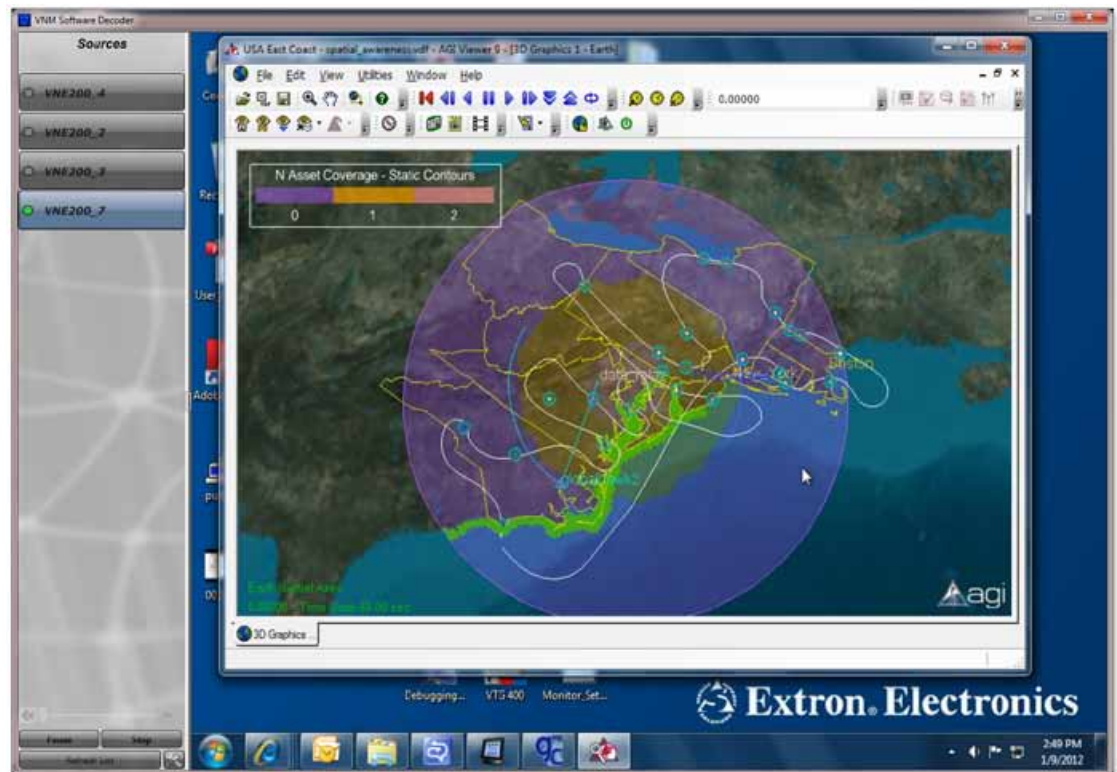## Streaming AV Products

VNM Software Decoder

Software Decoder for VN-Matrix® 200 Series and 225 Series

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Conventions Used in this Guide

In this user guide, the following are used:

> **NOTE:** A note draws attention to important information.

Commands are written in the fonts shown here:

```
^AR Merge Scene,,Op1 scene 1,1 ^B 51 ^W^C
```

```
[Ø1] R ØØØ4 ØØ3ØØ ØØ4ØØ ØØ8ØØ ØØ6ØØ [Ø2] 35 [17] [Ø3]
```

Esc X1 * X17 * X20 * X23 * X21 CE ←

> **NOTE:** For commands and examples of computer or device responses mentioned in this guide, the character "Ø" is used for the number zero and "O" represents the capital letter "o."

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 2Ø8.132.18Ø.48: bytes=32 times=2ms TTL=32
```

```
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx –t
```

```
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

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Contents

Introduction and Installation

This section gives an overview of the guide and features of the Extron VNM Software Decoder. It also describes the prerequisites for using the application. Topics that are covered include:

- **About this Guide**
- **Overview of the VNM Software Decoder**
- **System Requirements**
- **Software Installation**
- **Licensing**

About this Guide

This guide provides detailed information on how to install and use the VNM Software Decoder.

Refer to **www.extron.com** for the latest information.

Overview of the VNM Software Decoder

The VNM Software Decoder is an application that lets you view live PURE3 video streams from VN-Matrix® 200 Series and VN-Matrix 225 Series encoders and PURE3 recorded streams in active playback on the network. PURE3 streams contain video information that has been compressed by the PURE3 codec. In addition, a PURE3 stream may contain associated audio content. PURE3 streams are used to transport media signals in real time over an Ethernet network.

> **NOTE:** The VNM Software Decoder will not correctly display interlaced source images.

The PURE3 codec preserves three performance factors that impact the delivery of video over a network:

- Low latency
- Low bandwidth
- High image quality

The VNM Software Decoder is a single application that uses Windows Media® Player and a PURE3 SW decoder plugin to enable the display of PURE3 images on a Microsoft® Windows® -based PC. The application finds available encoders on the network and active recorder channels, then populates buttons that are used to select a PURE3 stream for viewing.

You can install the VNM Software Decoder on as many computers as desired that may need to access PURE3 streams. A system license, stored on the VN-Matrix system controller, manages the number of connections that can be made simultaneously. The software decoder is ideal for use in monitoring, remote presentation viewing, collaboration, or data visualization. It is also useful in an application where an alternative to hardware-based PURE3 decoding is desired.

See the user guides and supporting documentation associated with the VN-Matrix 200 and 225 Series encoders, VN-Matrix system controller, and VNM Recorder for more detailed information about these devices. This documentation can be found at **www.extron.com**.
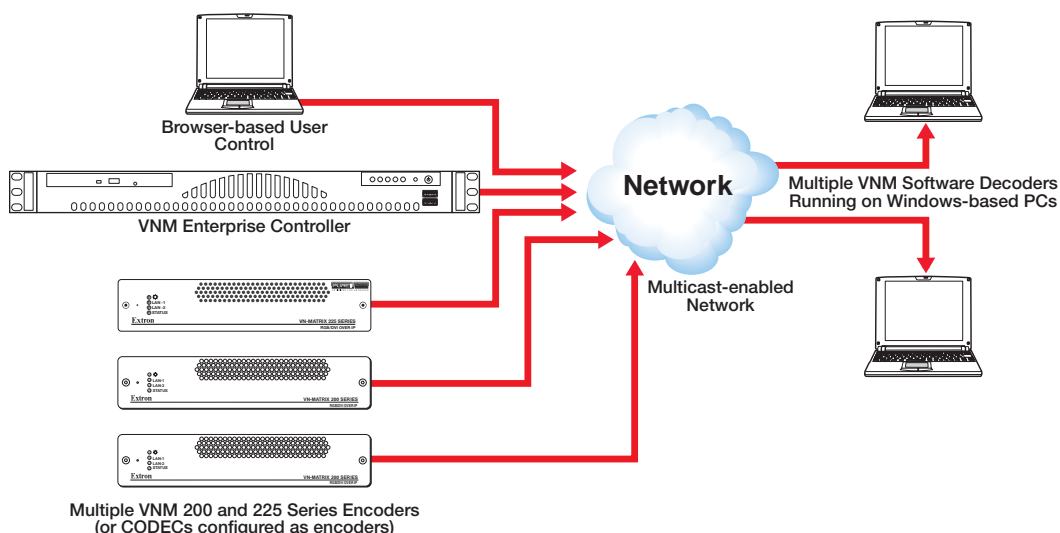
Figure 1. **Application Diagram**

Compatibility

The following table addresses the firmware versions running on VN-Matrix 200 and 225 Series encoders that are compatible with the associated application version. The VNM Software Decoder is compatible with PURE3 streams that originate from encoders running the specified firmware versions.

Application Version	Minimum Firmware Version for VN-Matrix 200 and 225 Series
1.0.9	3.8i
1.1	3.10 or later

System Requirements

The system requirements for the PC running the VNM Software Decoder are:

- Intel® Pentium® IV, 2 GHz or equivalent processor
- Microsoft Windows XP Service Pack 3, Windows Vista®, or Windows 7
- Microsoft .NET Framework 4.0
- 2 GB of RAM or greater
- 3 MB of hard disk space or greater
- Windows Media Player 10 or later
- 1 Gbps network interface card (NIC)

> **NOTE:** The network requires multicast support for "one-to-many" applications.

Software Installation

The VNM Software Decoder requires Microsoft .NET Framework 4.0 in order to function. Ensure that the PC using the VNM Software Decoder is equipped with this version of .NET Framework before installing the VNM Software Decoder.

The application also requires Windows Media Player 10 or later. Ensure that the latest version of Media Player is installed on your PC.

> **NOTE:** If you are installing the VNM Software Decoder on a PC using Windows 7, check that Windows Media features are turned on. To check that Windows Media features are on, go to **Control Panel > Programs > Turn Windows features on or off** and, in the Windows Features dialog that opens, verify that the **Media Features** check box is selected.

To verify or install .NET Framework:

1. Verify the presence (or absence) of Microsoft .NET Framework 4.0.

   For Windows XP:

   From the desktop, navigate to **Start > Control Panel > Add or Remove Programs**.

   For Windows Vista:

   From the desktop, navigate to **Start > Settings > Control Panel > Programs and Features**.

   For Windows 7:

   From the desktop, navigate to **Start > Control Panel > Programs and Features**.

2. If it is present, exit the Add or Remove Programs screen and continue to the VNM Software Decoder installation steps.
   - or -
   If it is not present or if an earlier version of .NET (versions 1 through 3.5) is installed, open the web browser and, in the **Address** field of the browser, enter **www.microsoft.com**.

   a. Download the .NET Framework 4.0 from the Microsoft website.

   b. Install the downloaded application on the PC running the VNM Software Decoder application.

> **NOTE:** If you are installing a new version of the VNM Software Decoder, you must first uninstall any pre-existing installation of the application. The current (last known) application configuration will be maintained.

To install the VNM Software Decoder application:

1. Ensure the PC that will run the VNM Software Decoder is connected to a network.
2. Insert the application disc into the disk drive of your PC.
3. Load the VNM Software Decoder installation file on the PC.
4. On-screen instructions appear, starting the installation setup of the application. Click **Next**.
5. On the Select Installation Folder screen, click **Browse** to navigate to a different folder in which to install the application and click **Disk Cost** to check available disk space. This is optional.
6. Select whether to install the VNM Software Decoder for yourself or for everyone using this computer.
7. Click **Next**.
8. On the Confirm Installation screen, click **Next** to start the installation.
9. When installation is complete, click **Close**.

Licensing

The VN-Matrix system controller must be licensed to allow software decoders to connect. The license sets the maximum number of simultaneous software decoders that may run on a Matrix system. The system controller limits the number of software decoders to the maximum that is set by the license. There is no limit to the number of computers that have the software installed, but only the licensed number of connections are allowed simultaneously.

See the relevant VN-Matrix device user guide for information about adding and managing the controller license.

Decoding Procedure

This section describes the process for decoding content using the VNM Software Decoder. Topics that are covered include:

- **Configuring the VNM Software Decoder**
- **Using the Channel List**
- **Viewing PURE3 Streams**
- **Command Line Switches**

Configuring the VNM Software Decoder

The VNM Software Decoder lets you view live PURE3 streams from VN-Matrix 200 and 225 Series encoders that are on the same network. You can also view PURE3 recorded streams that are in active playback on the network. Before you can view content from the encoders, you need to configure the VNM Software Decoder and connect to the VN-Matrix system controller that is controlling the other devices on the network.
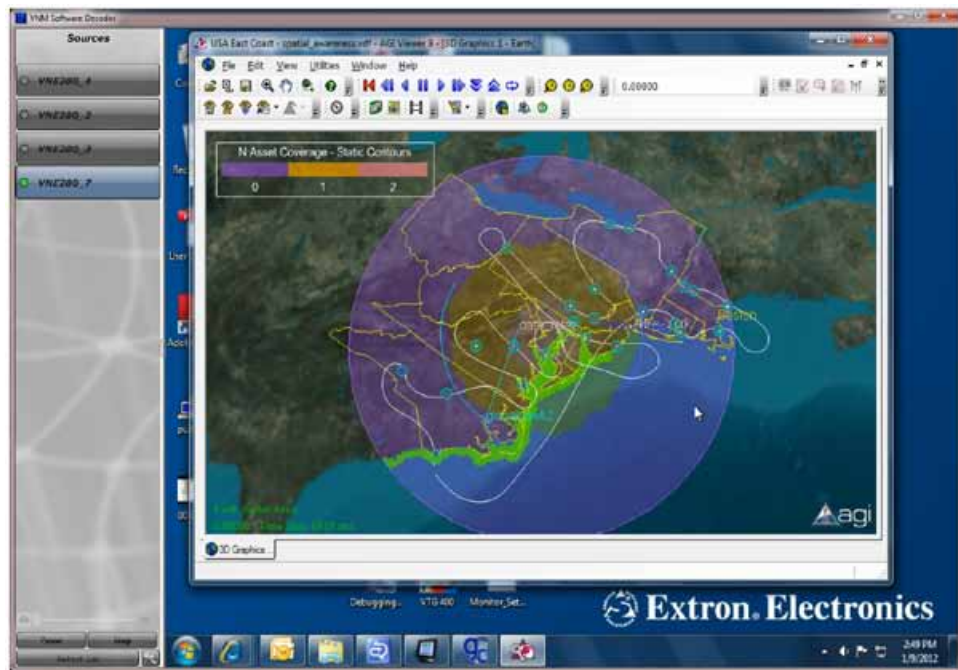

Figure 2. VNM Software Decoder Main Screen

Connecting to a VN-Matrix System Controller

> **NOTE:** Ensure that the computer using the application, the controller, and all sources are connected to the same network.

To connect to a controller and access the content of the available sources:

1. Open the VNM Software Decoder application. To do so:

Double-click the icon on your desktop.
- or -
From the desktop, click **Start > All Programs > Extron Electronics > VN Matrix > VNM Software Decoder > VNM Software Decoder**.

The main screen of the application (**figure 2**) opens.

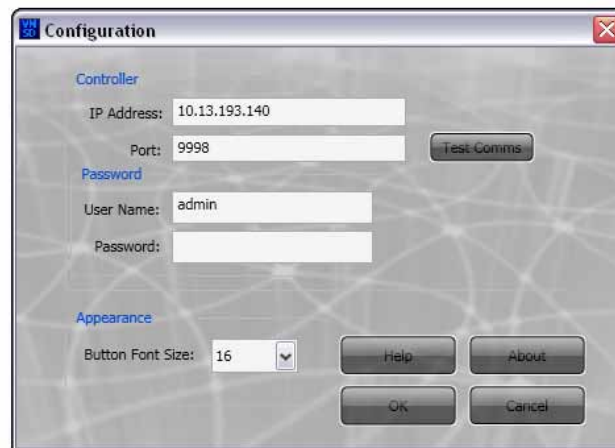**2.** Click the button in the Sources panel of the main screen. The Configuration dialog box opens.

Figure 3. **Configuration Dialog Box**

3. In the **IP Address** field of the Controller section, enter the IP address of the VN-Matrix system controller.

4. In the **Port** field, enter the communication port of the controller. The default port is 9998 and is set on the controller. You can change the port number on the controller if needed. If the connection test (see step **5**) fails, check the settings of the IP address and the port number. See the relevant VN-Matrix device user guide for more information.

5. Click **Test Comms** to test the connection between the application and the controller. The Test Connection dialog box opens and states whether the connection was successful.

Figure 4. **Test Connection Dialog Box**

6. Click **OK** in the dialog box. This returns you to the Configuration dialog box.

7. In the **User Name** field of the Password section, enter the user name for logging into the controller, if needed. The default user name for the VN-Matrix system controller is "admin."

8. In the **Password** field, enter the password associated with the user name. The default password for the VN-Matrix system controller is "admin." You can change the password on the controller. If there are login issues, check the login credentials for the controller. See the relevant VN-Matrix device user guide for more information.

9. Click **OK** to save the settings and close the Configuration dialog box.

10. Click **Refresh List** in the Sources panel of the main screen to communicate with the controller and populate the channel list buttons. A button appears for each available source in the Sources panel of the screen.

The label that appears on a button is the name of the unit and the recorder channel from which the stream originates. The recorder channel range is 0 through 4. Button labels cannot be changed in the application. This is essentially a channel list (see "**Using the Channel List**").

If the channel list fails to populate, check the user name and password entries for accuracy.

Configuring the Appearance of the VNM Software Decoder

You can adjust the size of the font used on the channel buttons through the Configuration dialog box.

To adjust the button font size:

1. Click the button in the Sources panel of the main screen. The Configuration dialog box (**figure 3**) opens.

2. In the Appearance section, select a font size for the source button from the **Button Font Size** drop-down list.

3. Click **OK** to save the settings and close the Configuration dialog box.

To adjust the width of the Sources panel:

Click and drag the splitter bar. The splitter bar is the right-side border of the Sources panel that divides the channel list from the viewing area of the main screen (**figure 2**).

To close the Sources panel:

Click the button in the center of the splitter bar. The splitter bar shifts to the left of the main screen. You can open the Sources panel by clicking the button on the splitter bar again.

Each time you start the VNM Software Decoder, the application opens in the last known state (the last position, size, and splitter bar settings). However, the application will <u>not</u> automatically connect to the last source unless you use the appropriate command line switch (see "**Command Line Switches**").

Using the Channel List

Each button in the channel list has an indicator to show the status of the corresponding source. A channel button shows the current status only when you select the channel for viewing. Otherwise, the button is gray if it is not selected.

A circle with a green fill indicates:

- The selected stream is available.
- A source is connected and available from a hardware encoder.
- A recorder is playing content from a previously recorded stream.

A circle with a red fill indicates:

- No stream is available for the selected channel.
- There is no source connected to the encoder.
- There is no content playing from a recorder channel.

The channel list is refreshed on the following occasions:

- Each time the application launches.
- Each time a change is made to the port number or IP address in the Configuration dialog box.
- Each time the **Refresh List** button is pressed.

After the channel list populates, the buttons in the list are always visible, regardless of whether or not a device is present in the system. For instance, the button for a device that was present, but has subsequently gone offline, remains in the channel list.

- The channel buttons of devices that are online (active) are blue when you hover the mouse cursor over the buttons.
- The channel buttons for devices that are no longer online (inactive) remain gray when you hover the mouse cursor over the buttons.

Sorting the Channel List

You can reorder the channel list in the Sources panel of the VNM Software Decoder. The list is stored and recalled each time a connection is made to the same controller. New devices that are added to the system are placed at the bottom of the list.

To place a channel button at the top of the list:

Right-click the channel button and select **Send To Top**. When a channel is sent to the top, all of the other channel buttons shift down the list by one place.

To place a channel button at the bottom of the list:

Right-click the channel button and select **Send To Bottom**. When a channel is sent to the bottom, all of the other channel buttons shift up the list by one place.

To move a channel button up one place in the list:

Right-click the channel button and select **Move Up**.

To move a channel button down one place in the list:

Right-click the channel button and select **Move Down**.

Changes to the channel order are maintained when you close the application. Any new devices that are added to the system are added to the bottom of the channel list.

Viewing PURE3® Streams

In the VNM Software Decoder, you can view live PURE3 streams from VN-Matrix 200 and 225 Series encoders that are on the network. You can also view PURE3 recorded streams that are in active playback on the network. Each source that is connected to the VN-Matrix system controller appears in the Sources panel of the application.

To view content from a source:

1. Connect to the VN-Matrix system controller (see "**Connecting to a VN-Matrix System Controller**").

2. Click the `Refresh List` button in the Sources panel of the main screen. A button appears for each available source (such as an encoder) in this panel.

3. Click the desired source button to view the content of the source.

To pause the PURE3 stream:

Click the **Pause** button in the Sources panel of the main screen. This freezes the current frame and maintains the stream connection.

To stop the stream:

Click the **Stop** button in the Sources panel. This clears the stream image and breaks the connection. The splash screen is displayed in the viewing area.

To resume the stream:

Click the **Play** button in the Sources panel. The image from a recorded stream will be decoded from the current stream location.

To adjust the volume of the audio in the stream:

Click and drag the volume slider in the Sources panel.

You can also mute the audio by clicking the icon located on the left side of the volume slider.

> **NOTE:** The volume slider is disabled if no audio is present on the selected stream.

Full Screen Mode

When you are decoding and viewing a PURE3 stream, you can switch between full screen mode and non-full screen mode.

When the VNM Software Decoder is not in full screen mode, the channel list and window borders are visible. In full screen mode, only the decoded stream is displayed. For both non-full screen mode and full screen mode, the size of the available viewing area determines the scaling of the decoded stream. In both modes, you have the option to maintain the aspect ratio (see "**Maintain Aspect Ratio Mode**").

You can view the PURE3 stream in full screen mode using any of the following methods:

● Right-click the viewing area and select `FullScreen` from the menu. A check mark appears beside the option on the menu.

● Double-click in the viewing area.

● Use the `-F` or `-f` command line switch (see "**Command Line Switches**").

To return to the previous view, use any of the following methods:

- Right-click the viewing area and select **FullScreen** again from the menu. The check mark is removed from the option on the menu.
- Double-click in the viewing area.
- Press the <Esc> key on your keyboard.

Unity Mode

In unity mode, the decoded stream is displayed at its native resolution and aspect ratio, regardless of the size of the viewing area. No scaling occurs.

Enable unity mode using any of the following methods:

- Right-click the viewing area and select **Unity Mode** from the menu. A check mark appears beside the option on the drop-down menu.
- Use the `-U` or `-u` command line switch (see "**Command Line Switches**").

To disable unity mode:

Right-click the viewing area and select **Unity Mode** again from the menu. The check mark is removed from the option on the menu.

If the resolution of the display or viewing area is less than the resolution of the source, a viewport of the image is shown. You can use the vertical and horizontal scrollbars in the viewing area to view the rest of the image

If the resolution of the display or viewing area is equal to the resolution of the source, the full image is shown at its native resolution.

If the resolution of the display or viewing area is greater than the resolution of the source, the full image is shown in the center of the display.

When unity mode is applied, you also have the option to view the PURE3 stream in full screen mode (see "**Full Screen Mode**").

> **NOTES:** • Unity mode maintains the aspect ratio of the decoded image.
>
> • Changes in the resolution of the source image are ignored after establishing a connection and viewing a stream.

Maintain Aspect Ratio Mode

You can choose to maintain the aspect ratio when viewing a PURE3 stream in full screen mode or non-full screen mode.

Enable the Maintain Aspect Ratio mode using any of the following methods:

- Right-click the viewing area and select **Maintain Aspect Ratio** from the menu. A check mark appears beside the option on the drop-down menu.
- Use the `-A` or `-a` command line switch (see "**Command Line Switches**").

To disable the maintain aspect ratio mode:

Right-click the viewing area and select **Maintain Aspect Ratio** again from the menu. The check mark is removed from the option on the menu.

Command Line Switches

Command line switches allow you to launch the VNM Software Decoder in certain modes. You can use command line switches to:

- Connect to a stream on startup based on device name or serial number
- Start the application in full screen mode
- Start the application in maintain aspect ratio mode
- Start the application in unity mode
- Show command line options

Command line switches can be used in:

- A shortcut (**figure 5**)
- The **Start** menu
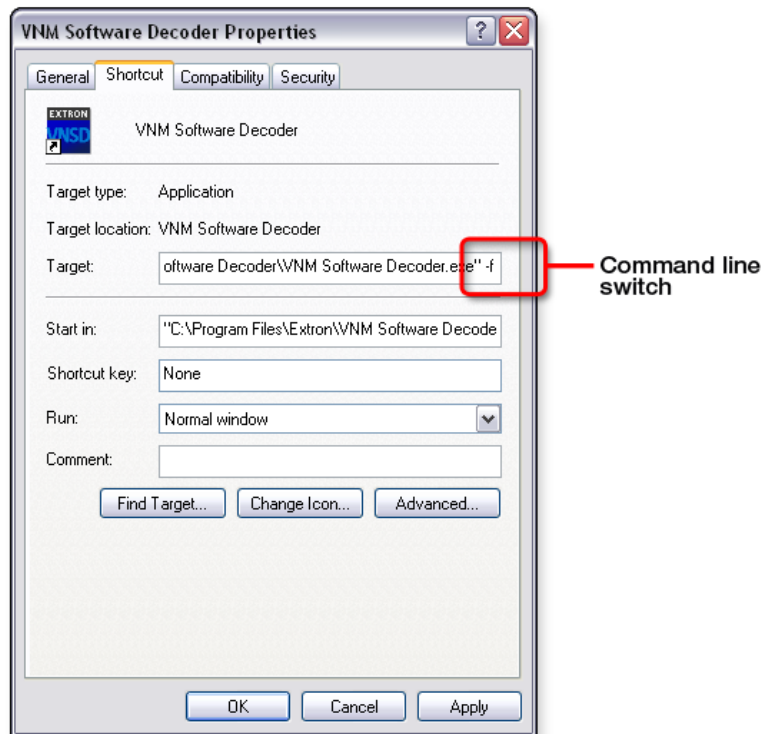- An application launcher

Figure 5.   Example of a Command Line Switch in a Shortcut

Command line switches are not case-sensitive. The following table details the possible command line switches for the VNM Software Decoder. To perform a command line switch, append the switch that is written in column 2 of the table to the target path of the application.

Command	Command Line Switch
Connect by name	`-CN` or `-cn`
Connect by serial number	`-CS` or `-cs`
Open in full screen mode	`-F` or `-f`
Open in maintain aspect ratio mode	`-A` or `-a`
Open in unity mode	`-U` or `-u`
Show command line options	`-?`

To add a command line switch in a VNM Software Decoder shortcut on the desktop:

1. Right-click the **VNM Software Decoder** icon on the desktop and select **Properties** from the drop-down list. The **Shortcut** tab of the Properties dialog box opens.

2. In the **Target** field, add the desired command line switch to the end of the application target path (**figure 5**).

> **NOTE:** Ensure that there is a space between the end quote (") of the path and the hyphen (-) of the command line switch as shown in the **Target** field of **figure 5**.

3. Click **Apply** to save the changes, without exiting the Properties dialog box.
   - or -
   Click **OK** to save the changes and exit the dialog box.

Examples

The following are examples of command line switches that can be used for the VNM Software Decoder. When connecting to a device using a device name or device serial number, you can select a specific recorder channel (range is 0 through 4). If no recorder channel is specified, the default is channel 0. The command line switches in the examples are shown in bold.

● Connect by serial number to a VN-Matrix recorder, channel 2, that has a serial number of "60032":
   "C:\Program Files\Extron\VNM Software Decoder.exe" **-CS:60032:2**

● Connect by name to a VN-Matrix recorder, channel 0, that has a name of "Unit2":
   "C:\Program Files\Extron\VNM Software Decoder.exe" **-CN:Unit2**

> **NOTE:** If the device name contains spaces (such as "Unit 2" as opposed to "Unit2"), the name must be enclosed by parentheses. For example:
>
> "C:\Program Files\Extron\VNM Software Decoder.exe" **-CN:"Unit 2"**

● Connect by serial number, maintaining the aspect ratio, to a VN-Matrix encoder that has a serial number of "60032":
   "C:\Program Files\Extron\VNM Software Decoder.exe" **-CS:60032 -A**

● Connect by serial number, in unity mode, to a VN-Matrix encoder that has a serial number of "60032":
   "C:\Program Files\Extron\VNM Software Decoder.exe" **-CS:60032 -U**

- Connect by serial number, in full screen mode, to a VN-Matrix encoder that has a serial number of "60032":

  "C:\Program Files\Extron\VNM Software Decoder.exe" **-CS:60032 -F**

- Connect by name, in full screen mode, to a VN-Matrix encoder that has a name of "Unit2":

  "C:\Program Files\Extron\VNM Software Decoder.exe" **-CN:Unit2 -F**

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