# VRX Company Inc.

# Application Note:

## Dahua Generic IP Camera

### Setup for use with VR100IP Text Inserter

### Instructions and Examples.

**NOTICES**


Caution: The contents of this document are subject to change without notice. At VRX Company Inc., we have made every effort to ensure the accuracy of the contents of this document. However, we reserve the right to change this document for improvement and to correct errors without notice. If you find errors, please bring them to our attention. Our contact information is located at the bottom of this page.

# Table of Contents

# 1.Abbreviations and Phrases

| | |
|---|---|
| Ethernet | A type of network protocol. |
| GUI | Graphical User Interface. |
| H.264 | A video compression standard. |
| IP or IP Camera | Internet Protocol, or Internet Protocol Camera |
| JPEG | Joint Picture Experts Group, An image compression standard. |
| MJPG | Motion JPEG a compressed video format. |
| MPEG | Motion Picture Experts Group, A video compression standard. |
| NVR | Network Video Recorder, used to record digital video streams from IP Cameras. |
| PC | Personal Computer |
| Ping | An Ethernet message used to check if a device exists at a particular IP Address. |
| POS | Point of Sale Terminal |
| RTSP | Real Time Streaming Protocol |

**Table 1 Abbreviations used in this manual**

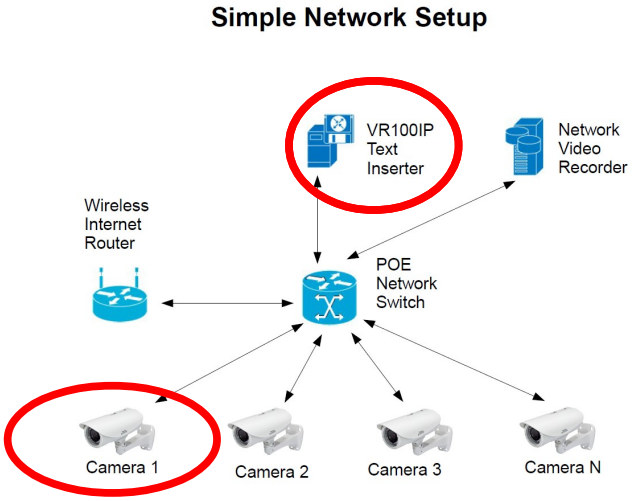
# 2.Objective

The objective of this document is to enable an installer to configure an IP Camera and the VR100IP Text Inserter so that the Text Inserter can stream video from the IP Camera. These devices are circled in red in the network diagram in Figure 1.

Configuration of the VR100IP and a Network Video Recorder will be covered in another document.

Please refer to Table 2 for a list of tested Compatible Cameras. If your camera is similar then it may also work, please check the URL needed to access the camera. If it is “cam/realmonitor?channel=1&subtype=0” then most likely it will work with these instructions.

**Figure 1: Simple Network Setup**



# 3.Compatible Cameras

Table 2 contains the model numbers of cameras known to be compatible with this Application Note. Other similar cameras may also be compatible as well.

| Brand | Model | Photo |
|---|---|---|
| Patriot by Dahua | IPC-HDB4300CN-0280B |  |
| Dahau | IPC-HDW2100 |  |

**Table 2: Tested Compatible Cameras**

# 4.Before You Begin

## *4.1.Setup Equipment*

The installer will need a computer on the IP video network with a browser. Use the browser to access the GUI (Graphical User Interface) of the camera the NVR and the VR100IP.

## *4.2.Start with Camera and NVR Working Together*

Before you try to install the VR100IP Text Inserter into a camera system, the IP Camera should already be configured on the network so that either the NVR can receive the IP video stream or a browser on the installer's computer can receive the IP video stream. This may require the installer to setup the networking equipment for their local network, including routers and switches with cabling need to make all of the components communicate properly. Once this is done, the VR100IP Text Inserter should be configured on the network so that the Web GUI interface is available in the installer's browser. Once all of the hardware is connected and configured on the local network, then the customer is ready to start configuration.

# 5.Configure Camera and VR100IP

Now we will configure both devices so that streaming can proceed from the camera to the VR100IP Text Inserter.

## *5.1.Configure Camera*

### 5.1.1.Log into the Camera Configuration GUI.

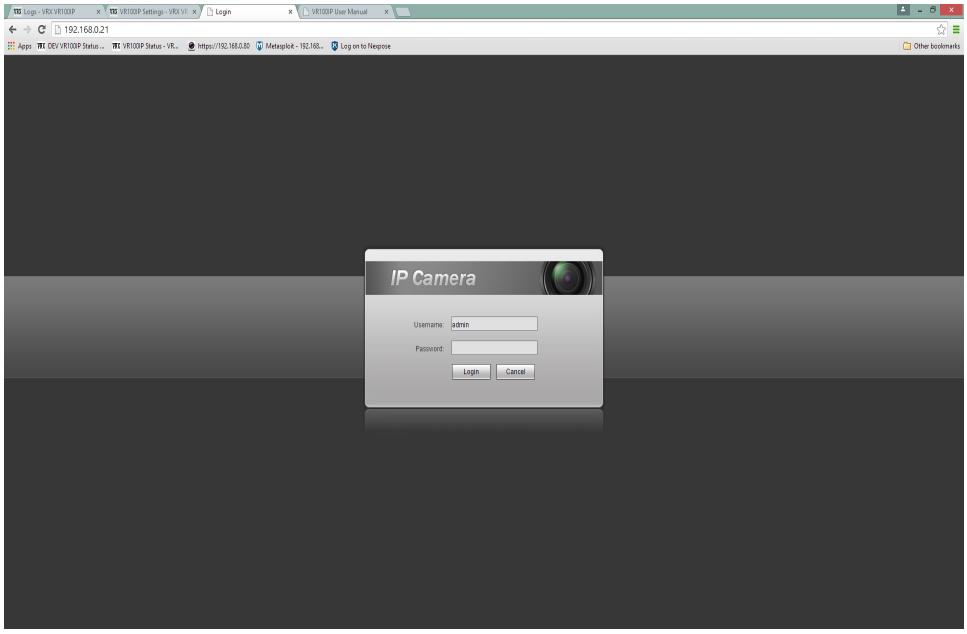



**Figure 2: IP Camera Login**

Using your login and password, or the default login and password for the camera, log in using the Internet Browser as shown in Figure 2. We have found the default user and password for these cameras to be “admin” and “admin”. It is recommended to to change them from the default once configured.

## 5.1.2.Check the IP Address Settings

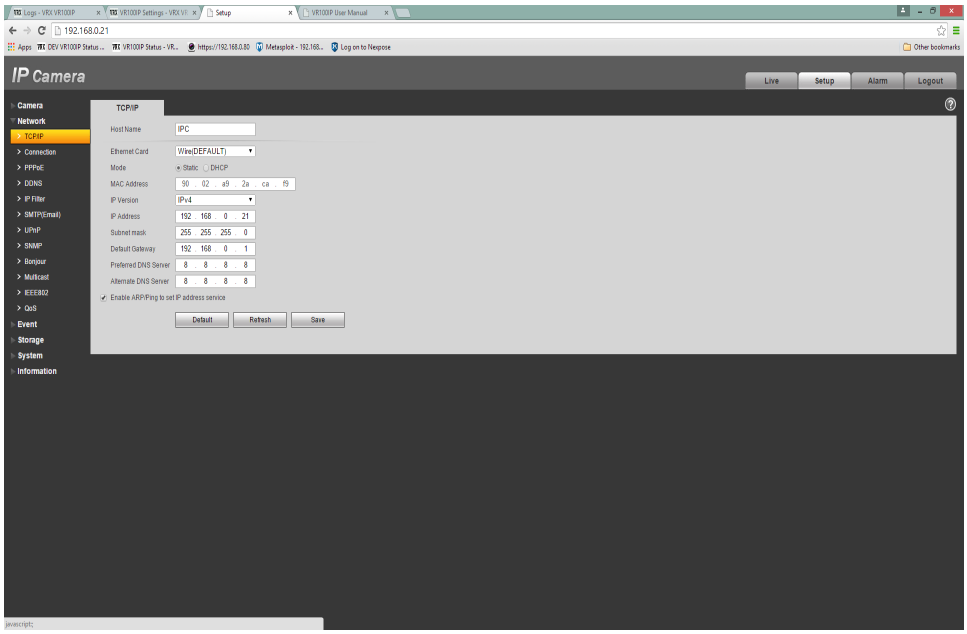



**Figure 3: IP Camera IP TCP/IP Setup**

Configure or check the IP Address of the Camera. Record this value later to use as input for the VR100IP configuration. As shown in Figure 3 the IP address of this camera is 192.168.0.21.

## 5.1.3.Configure the Connection Settings

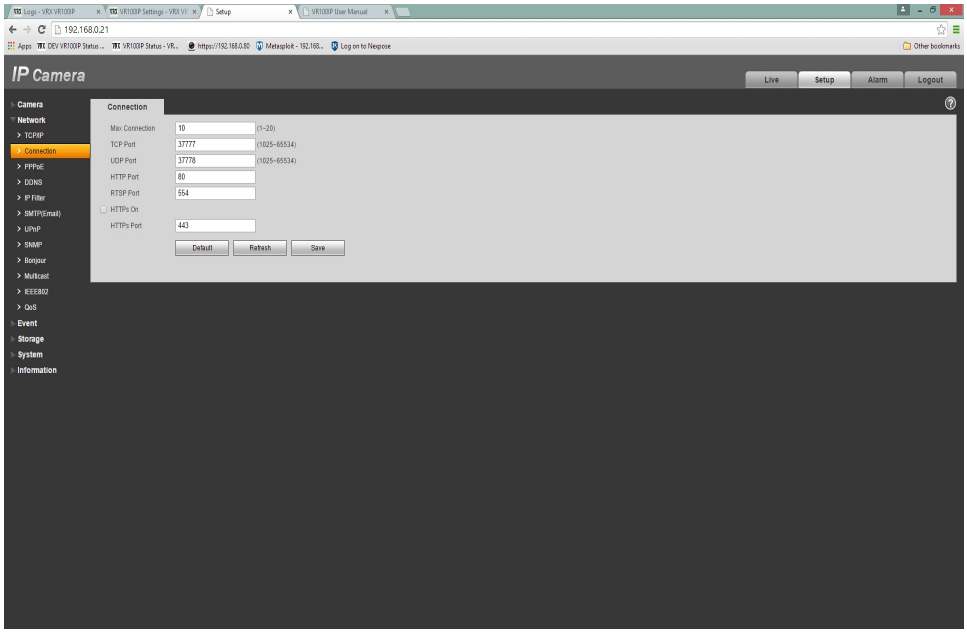



**Figure 4: IP Camera Connection Settings**

Check for the RTSP port that is configured in the IP Camera (default RTSP port is 554). Record the value from Figure 4 for later configuration of the VR100IP.

## 5.1.4.Configure the Video Settings

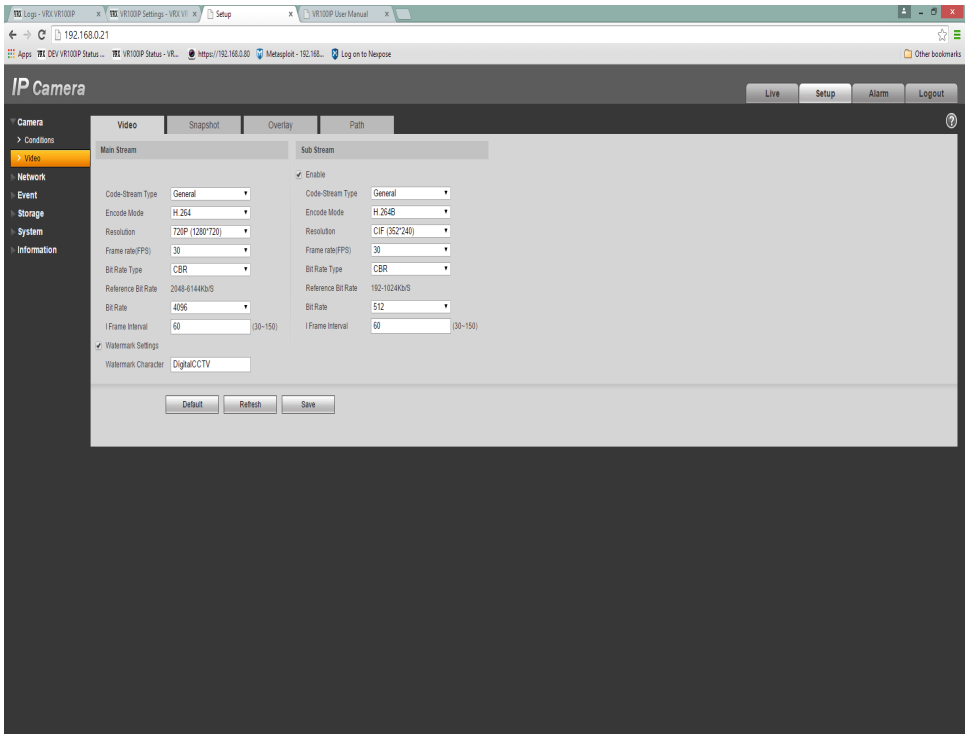



**Figure 5: IP Camera Video Settings**

Check and record the settings in the Main Stream column. These settings will be used later in the VR100IP setup. See Figure 5 for example of these values. The Sub Stream is not used by the VR100IP.

NOTE: Due to the way the VR100IP functions, the Watermark may not work after it has been processed by the VR100IP.

| Setting Name | Value | Notes |
|---|---|---|
| Code-Stream Type | General | Recommend to leave as General |
| Encode Mode | H.264 | Encode MUST match with VR100IP |
| Resolution | 720P (1280*720) | Up to 1080P supported by VR100IP |
| Frame rate(FPS) | 30 | Up to 30 FPS supported by VR100IP |
| Bit Rate Type | CBR | Either CBR or VBR are supported |
| Bit Rate | 4096 | Recommended that Bit Rate matches VR100IP |
| I Frame Interval | 60 | Recommend to leave as default |
| Watermark Settings | Checked | Don't Care |
| Watermark Character | DigitalCCTV | Don't Care |

**Table 3: Example Video Settings**

## 5.2. Configure VR100IP

Now we will configure the VR100IP settings. Log into the VR100IP webpage and select the Settings tab (see Figure 6 below).

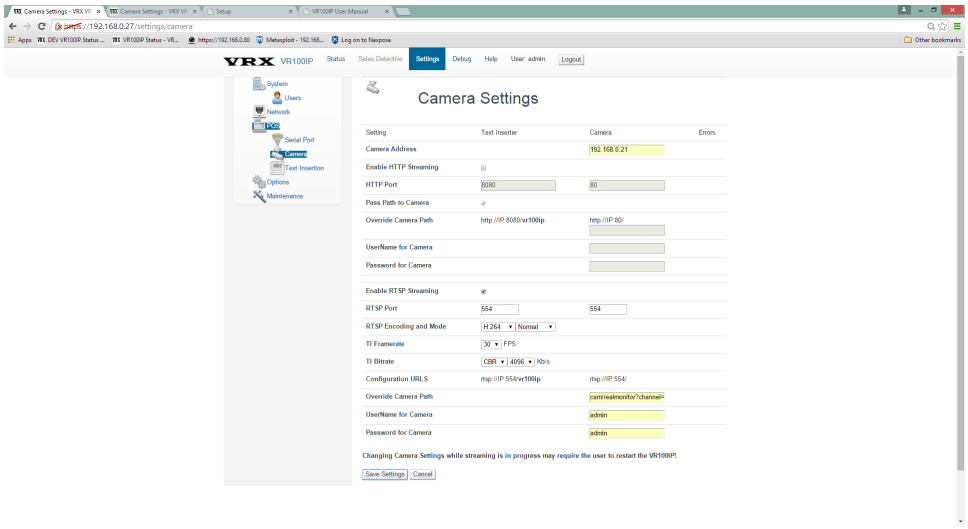



Figure 6: VR100IP Camera Settings

| Column | Setting | IP Camera Setting | Notes |
|---|---|---|---|
| Camera | Camera Address | Network<br>TCP/IP<br>IP Address | |
| Text Inserter | Enable RTSP Streaming | | Enabled |
| Camera | RTSP Port | Network<br>Connection<br>RTSP Port | |
| Text Inserter | RTSP Encoding | Camera<br>Video<br>Encode Mode | |
| Text Inserter | RTSP Mode | | Select Normal |
| Text Inserter | TI Framerate | Camera<br>Video<br>Frame rate(FPS) | |
| Text Inserter | TI Bitrate | Camera<br>Video<br>Bit Rate Type | CBR or VBR |
| Text Inserter | TI Bitrate | Camera<br>Video<br>Bit Rate | |
| Camera | Override Camera Path | | cam/realmonitor?channel=1&subtype=0 |
| Camera | UserName for Camera | System<br>Account | Use Appropriate User Name |

| Column | Setting | IP Camera Setting | Notes |
|---|---|---|---|
| Camera | Password for Camera | System Account | User Appropriate Password |

**Table 4: Text Inserter Settings Mapped to Camera Settings**

Use the information in Table 4 to configure the VR100IP. Configure the appropriate Username and Password to access the camera.

### 5.2.1.Configure IP Address to match IP Camera IP Address

As shown in Figure 6 the IP address is set to the same value as the IP Camera TCP/IP settings (in this example, the IP address is 192.168.0.21).

### 5.2.2.Configure RTSP settings to match IP Camera Video Settings

As shown in Figure 6 the RTSP settings should be configured based on the IP Camera Connection Settings and the IP Camera Video Settings. Enable the RTSP Streaming and set the Camera port to match the port configured in the Connection Settings. For RTST, port 554 is the default value.
Next, configure the RTSP Streaming settings based on the IP Camera Video Settings such as the example settings in Table 3.

# 6.Test Connections

Now we will test the camera and VR100IP connection settings.

After configuring the VR100IP with the camera settings, test the connection status by viewing the Camera Status page in the VR100IP webpage (select Status tab, then select the Camera icon on left). The page should be similar to Figure 7 below.

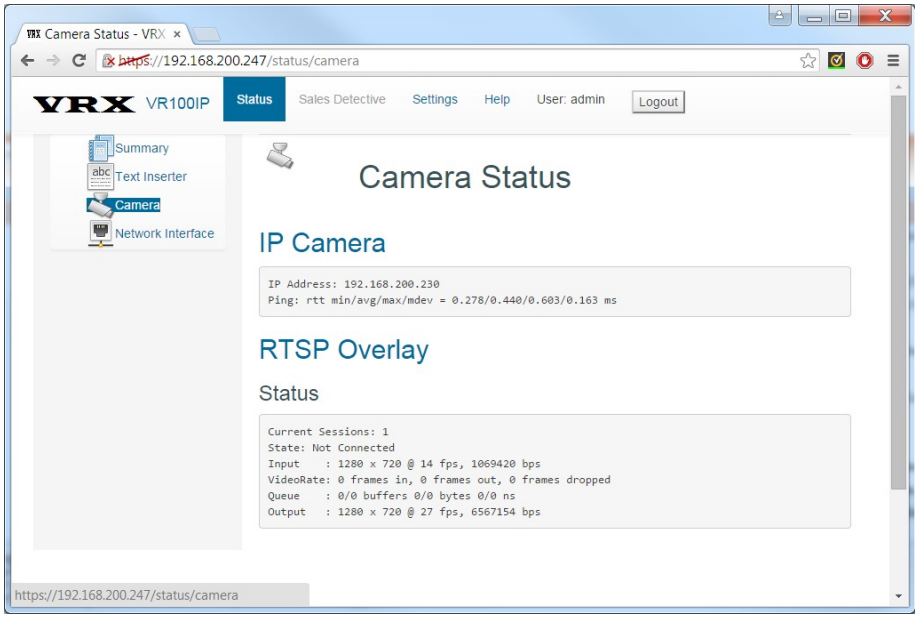



**Figure 7: VR100IP Camera Status Page**

## *6.1.IP Camera Ping Test*

If the settings in section 5 were configured correctly, the "IP Camera" section should display the camera IP address and a series of "Ping rrt" or Ping Round Trip Time values.

If the “Ping” values are empty, then the VR100IP cannot communicate with the camera. Recheck the IP address of the camera and the VR100IP Camera Settings and check the Camera Status page again. If there are still no Ping values, check all network connections between the camera and VR100IP (network cabling, switches, router, etc.).
If you still cannot get a camera connection to the VR100IP test the network connectivity independently with , for example, a Windows computer. Open a command window and Ping the camera and VR100IP to confirm they are on the same network.

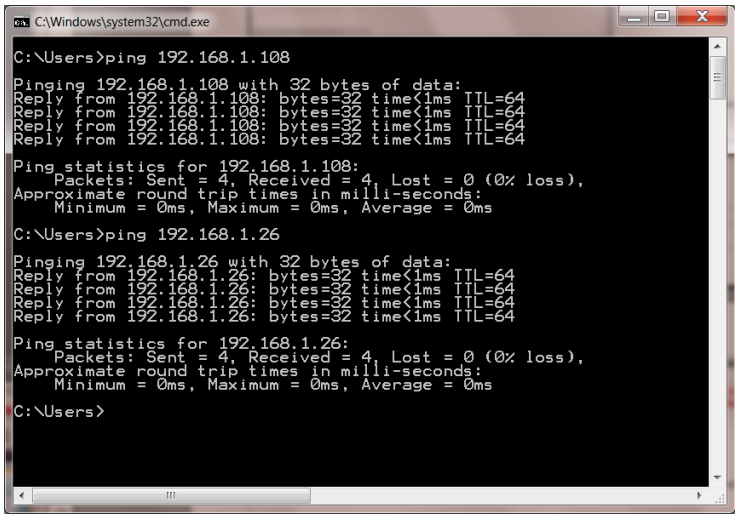



**Figure 8: Example on a command window of Ping a camera at 192.168.1.108 and VR100IP at 192.168.1.26**

## *6.2.RTSP Overlay Test*

Refer back to the RTSP Overlay status in Figure 7 above. If the VR100IP is already connected to a NVR, then the “State” field should show “Connected” status, or “Playing ” status , otherwise it will show “Not Connected”.

### 6.2.1.Using VLC to test RTSP Overlay

To test the video from the VR100IP, you can use a PC or laptop connected to the same network as the camera and VR100IP. Download and install the program VLC (this is a free download from www.videolan.org/vlc/index.html). This program can be used to check the RTSP connection.

Launch VLC and select Media - Open Network Stream. In the text field labeled “Please enter a network URL:”, input the following RTSP address:
*rtsp://<username>:<password>@<IP>:<port>/vr100ip*

<*username*> = The username of the VR100IP User
<*password*> = The password of the VR100IP User
<*IP*> = The IP address of the VR100IP
<*port*> = The RTSP port configured for both camera and VR100IP (default is 554)

Example: for the VR100IP address in Figure 6, the URL to enter in VLC would be:
**rtsp://admin:admin@192.168.200.247:554/vr100ip**

[note: in this example, the <username> and <password> are “admin”]

Press Play and wait a few seconds for video playback to begin. If connected properly, you will see video from the VR100IP (ie, the camera's video with text overlay).

If there is no video playback, recheck the RTSP settings in both the camera and VR100IP.

If video playback in VLC is working, return to the VR100IP Webpage and refresh the Camera Status page. In the State field, the value should now be "Playing".

# 7.Still having questions?

If you are having compatibility trouble with the POS system, your NVR or your Text Inserter, please look for updated information on our web site at www.vrxinc.com

Contact the VRX Company Inc at support@vrxinc.com or
by calling 1-866-543-8398 9-5 Eastern Time.
Snail Mail at: VRX Company Inc. PO Box 4663, Maryville, TN 37802-4663