



Camera Validation Tool for IP Gateway User Guide

Introduction

The CheckVideo IP Gateway can be used to connect third-party IP cameras to CheckVideo’s cloud services. The IP Gateway serves as an NVR, a firewall and analytics server. Cameras that connect to the gateway must support H.264 and ONVIF. The Camera Validation Tool is a Windows application that checks IP cameras for compatibility with the CheckVideo IP Gateways and can be used to configure IP cameras quickly. The Tool will allow the user to:

- Configure multiple camera models at the same time
- Find a camera by IP using ONVIF or RTSP URL
- Validate cameras are compatible with the CV4IP
- Automatically update camera settings that work best with the gateway
- Restore to last camera setting
- Export camera credentials and settings to a .csv file
- Capture video for CheckVideo Support analysis

Install the tool

The tool can be found at www.checkvideo.com/Support under Camera Validation Tool for IP Gateway. Click on the link to download the tool and run “CheckVideo_Camera_ValidationTool.msi” file for installation.

How to Find Cameras on the Network

The tool allows the user to enter the ONVIF user name and password for multiple cameras on the network. Connect your computer to the same network as the IP cameras. Once connected to the camera network, launch the tool. It prompts for a user name and password, defaulting to User Name: admin and Password: admin.

The screenshot shows the 'IP Camera Tool by CheckVideo' window. At the top is a 'File' menu. Below it, a message reads: 'Enter the user name and password for your cameras. You can repeat this with different user names to find additional cameras.' There are two input fields: 'User Name:' with 'admin' entered, and 'Password:' with five dots. To the right of the password field is an orange 'Find Cameras' button. To the right of the button, it says '0 camera(s) Found'. At the bottom left, there is a circular button with a plus sign (+).

To discover cameras, enter the correct ONVIF user name and password for cameras on your network and click “Find Cameras”. If there are different username/password combinations enter each in turn and click Find Cameras to discover additional cameras. If the camera does not support ONVIF or if ONVIF discovery is blocked by the network, you can use the + icon to add cameras by IP address or RTSP URL.

A Table with a list of discovered cameras will appear (see below). The Table can be sorted by IP Address and camera’s Make and Model. Just click on the column heading to sort in ascending or descending order.



For those cameras where the ONVIF credentials have been entered, the Tool will download video and attempt to verify it for compatibility with the gateway. you may see the settings and a grade of in the Streaming, Frames and GOVSize columns. If these columns show a Pass grade in all three categories, it means that these cameras are ready to be added to the Gateway.

Cameras found on network that do not match the ONVIF credentials provided will appear in the table with their IP Address populated and their Make Model displayed as 'Test Camera'. If you see this, it means that the camera supports ONVIF but the username and password are incorrect so a connection cannot be established. Try again with the correct ONVIF username and password. Note that in some cases, the camera's web interface has a different password than the ONVIF password. In this case, connect to the camera IP address using a web address and try to log into the camera itself. Follow camera manufacturer guidelines to change the ONVIF credentials once you are logged in.

Enter the user name and password for your cameras. You can repeat this with different user names to find additional cameras.

User Name: Password: 13 camera(s) Found

UserName	IP Address	Make Model	Streaming	Video	Resolution	Frames	GOVSize	AverageBitRate	Actions
Unknown	10.2.1.11	CheckVideo_CheckVideo_CV181-N							None
admin	10.2.1.31	IPCamera_IPV57_04EEDR_Z2.7-13.5_23	Pass	H264	2592 X 1520	10 FPS (Pass)	20 Frames (Pass)	2.016 Mbps	None
Unknown	10.2.1.32	Brand2_NV103							ViewStream for IPCamera_IPV57_04EEDR_Z2.7-13.5_23
Unknown	10.2.1.39	Brand_U25F-8							RTSP URL*: <input type="text" value="rtsp://10.2.1.31:554/sn/1/live"/> <input type="button" value="Edit"/>
Unknown	10.2.1.44	Test_camera							<input type="button" value="Submit"/>
admin	10.2.1.62	AXIS_AXIS M3058-PLVE	Pass	H264	2992 X 2992	10 FPS (Pass)	20 Frames (Pass)	1.060 Mbps	None

If ONVIF does not succeed, and the camera does not show up in a row, it may have ONVIF disabled or may not support ONVIF. In this case, an IP camera can be added to the List by entering the camera's IP Address or RTSP URL and credentials. Click the + icon at the top left of the table. A popup window will be displayed as shown in the picture. Pick the tab at the top for either RTSP UPL or IP Address, enter the camera details and click Submit. The camera will now appear on the table.

Add Camera

IP Address :

User name :

Password :

Add Camera

RTSP URL* :

User name :

Password :



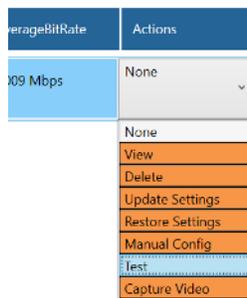
Configuring Camera Settings

Once the cameras have been identified, the Tool will display the settings found during the initial discovery. If the camera's current settings are compatible with the CV4IP, you will see Pass under the Streaming, Frames and GOV/Size columns. All three must show Pass before you attempt to add the camera via the Portal's Configure IP Gateway page.

For those cameras where the settings must be changed, the IP Camera Tool will allow you to update camera settings without using having to log into the camera's native web interface. Options available via the Action column include:

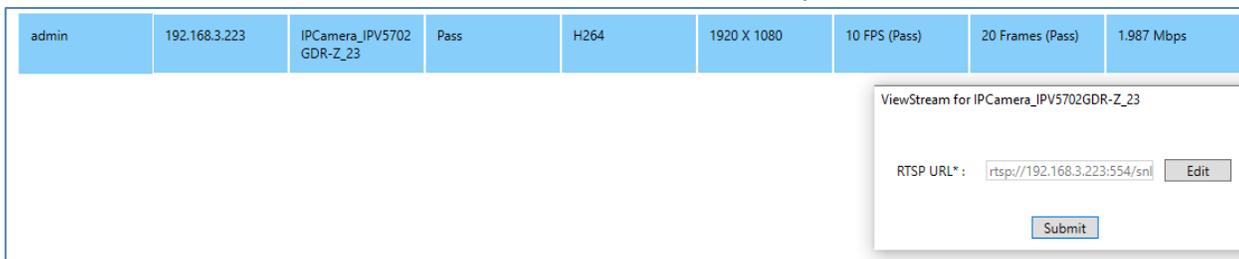
- View
- Delete
- Update Settings
- Restore Settings
- Manual Configuration
- Test
- Capture Video

When you select the desired Action from the dropdown, the choice will be highlighted in blue



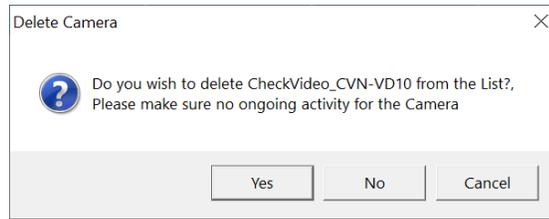
We will review each Action in greater detail below:

- View – This Action allows the user to view a live stream of the IP camera without having to login to the CheckVideo portal. If the ONVIF login credentials are correct, the RTSP URL should populate. Click submit and there should be a pop-up window that displays the live video.



- If the camera was not authenticated via the ONVIF credentials, you will need to enter the RTSP URL. You may also need to enter the RTSP username and password for devices where the ONVIF credentials entered were invalid. If you do not know the RTSP URL, it is best to contact the camera manufacturer or search for this information online.

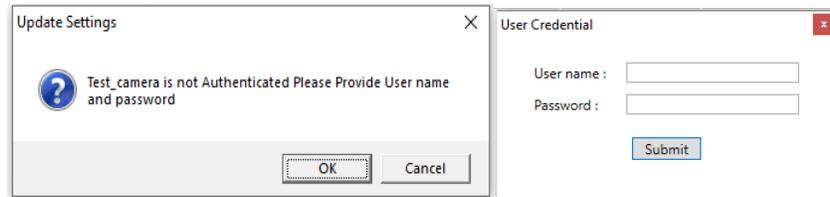
- Delete – If select delete it will remove that camera from the list.



- Update Settings - This Action automatically updates the Camera settings to be compatible with the CV4IP. The default values are 10 FPS, 20 GOV and bitrate of 2000kbps ~ 2Mbps. When this option is selected, you will must approve the Action via a pop-up.

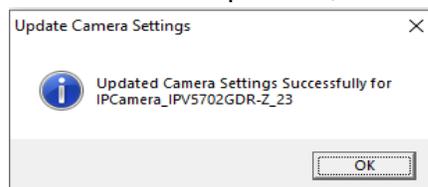


If the selected camera is not Authenticated (displays with the name Test_Camera), you must provide the ONVIF username and password to continue.



The Tool will update the camera configuration. Next choose the Test option under Actions to run the compatibility test between the Camera and CV4IP.

- Restore Settings – This Action will revert the camera to the settings captured as part of the initial discovery. Use Restore when you manually configured the camera settings but wish to change them back to the settings found during the initial discover process, for example to stream to an existing NVR



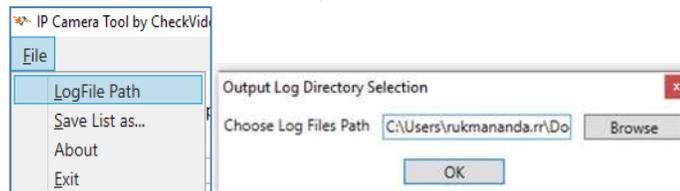
- Manual Config – This Action allows you to enter the camera settings manually. Once entered, click Submit to continue. The Tool will update the camera configuration and run the compatibility test between the Camera and CV4IP. The data entry block provides minimum and maximum values. Rules of thumb include:
 - FPS (frames per second) should be entered in increments of 5. 10 is the recommended setting.
 - GOV Length (number of frames from one I frame to the next I frame) should be 2 times the FPS value, so 10 frames per second will use 20 for GOV Length.
 - The recommended Bit Rate is 1500 Kbps for cameras up to 4 megapixels, or 2500 kbps for cameras over 4 megapixels. If 16 cameras are associated to the CV4IP and the Bit Rate is too high, you may see network drop outs resulting in gaps in recorded video.

- Test - This Action allows the user to validate the camera settings. You would use this option when you have changed the settings from an interface which is not the CheckVideo IP Camera tool (e.g. the camera web interface; ONVIF Device Manager). You may also wish to run a Test for a device currently having issues communicating to the CV4IP to determine if its settings have changed.
 - Note: While testing, it will say “Test in Progress” under the username. After the test is complete the results (Pass) or (Fail) will show in the Frames and GOVSize sections.

admin	192.168.3.223	IPCamera_IPV5702 GDR-Z_23	Pass	H264	1920 X 1080	10 FPS (Pass)	20 Frames (Pass)	1.990 Mbps	None
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- Capture Video – This Action allows you to pull a video sample from the camera. This sample can be sent to CheckVideo Support for analysis. Do this when you update the camera settings and the camera does not Pass all the Streaming, Frames and GOVSize tests.

Before beginning, make sure that you have defined where the video will be stored on the local computer. To do this, click the File option in the upper left-hand corner of the Tool and choose Log File Path. The default path is the Documents directory of the computer.



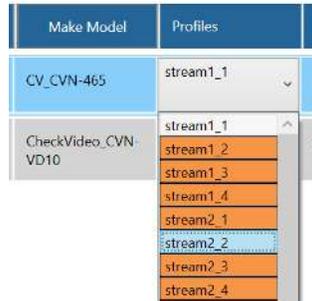
Once the file path is established, Capture the video sample by choosing Capture Video from the Actions column on the Table. Enter the RTSP URL, RTSP User Name and Password and click Submit.

Once the data is captured, contact support@checkvideo.com to submit the video for analysis.



Profile - Multi-Lens Cameras and Sub-streams:

For cameras with multiple lens / sensors, if discovered by using the ONVIF credentials, the other lens / views will be displayed as dropdown in the profile section. The profile section will also display any sub-streams available.



Error Messages

As you use the Tool, you may encounter error messages. Use the information below to troubleshoot the errors related to View, Test and Capture Stream:

Error Message	Reason	Next Steps
"Unable to create log files"	Invalid Log Path or Invalid LogFile Name	Click on File, choose LogFile Path from the menu, click Browse and select the new path.
"Failed to go play state"	Application Error	Delete application and reinstall. If this fails to resolve the issue, contact CheckVideo Support.
"Failed to launch pipeline"	Application Error	Delete application and reinstall. If this fails to resolve the issue, contact CheckVideo Support.
"Invalid RTSP URL"	RTSP URL is not Valid	Confirm the RTSP URL with the camera manufacturer. Update the RTSP URL, User Name and Password.
"Gstreamer runtime error occurred"	Error related to camera settings	Change settings to increase FPS, GOV and bitrate. GOV must be double the FPS selected. In the Actions column, select Test to reverify settings. If this problem persists, find the maximum number of simultaneous streaming sessions the camera can support and make sure you are not close to the limit.

Use the information below to troubleshoot errors related for Update Settings, Manual Settings and Restore Settings:

Error Message	Reason	Comments
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<p>"Failed to get current Encoder configurations"</p>	<p>ONVIF Credentials Error</p>	<p>Confirm the ONVIF User Name and Password and try again. If it fails, you must configure the settings via the Camera's native interface.</p>
<p>"Set Encoder configurations Failed!"</p>	<p>ONVIF Credentials Error</p>	<p>Confirm the ONVIF User Name and Password and try again. If it fails, you must configure the settings via the Camera's native interface.</p>
<p>"createlogfileFailed"</p>	<p>Invalid Log Path or Invalid LogFile Name</p>	<p>Click on File, choose LogFile Path from the menu, click Browse and select the new path.</p>
<p>"Invalid Resolution/FPS/GOV Please Provide Valid Resolution"</p>	<p>Settings not compatible with camera specifications. This may occur if cameras settings changed post camera discovery.</p>	<p>Close the IP Camera Tool and re-open it. This will clear the cached settings which may not match the current camera requirements.</p>
<p>"Invalid Credentials, Please Enter Valid Credentials"</p>	<p>The Credentials Provided for IP Camera are invalid.</p>	<p>Check with the camera manufacturer for the default user name and password. If the default does not work, you may need to factory reset the camera to return to default user name and password settings. Also be aware that some cameras require creation of a user in the camera's native interface. Refer to manufacturer documentation for more details.</p>