

Eagle Eye Application Note – AN0029

Adjusting Camera Settings Through Camera Tunnels

2023-03-03 Revision 1.0

Target Audience

This Application Note is intended for administrators of the Eagle Eye Cloud VMS that have a need to adjust camera settings which aren't available directly from the browser interface of the VMS and want to learn how this is securely accomplished using camera tunneling.

Feature Overview

There may be the occasional need to modify camera level features directly in the camera browser. In order to do this securely - either locally or remotely - a direct tunnel into the camera is required. The Eagle Eye VMS has the ability to tunnel directly into a camera's web interface to make changes to the camera that may not currently be supported by the Eagle Eye Cloud VMS directly.

Theory of Operation

Use a VPN connection via SSH Tunneling to access your Camera Web interface in a secure way. SSH (Secure Shell) is a protocol that allows you to access a remote host. SSH is a cryptographic network protocol for operating network services securely over an unsecured network and one of its most notable applications is remotely logging in via secure method.

Independent of the Bridge, the Eagle Eye Web and Mobile Applications for PCs, tablets, and phones also need to connect to the cloud to retrieve video and configure settings.

The ports required for this are as follows:

- tcp/80 # HTTP -> SSL Redirect Only
- tcp/443 # Web user interface

tcp/50000-60000 # Secure video transfer

The IPs are generally the same as for the bridge; Tunneling a Camera will require tcp/50000-60000 to be allowed or opened on the local Firewall as outbound traffic. A random port within the 50000 to 60000 range will be opened upon initiation of the Camera Tunnel.

Functionality

The Bridge/CMVR will do auto-discovery for all the cameras connected to the CAMLAN port as this port serves as a DHCP server for the devices connected to it.

To open a VPN tunnel to the camera and to login to the Camera Web Interface, click on the Satellite icon under "Actions" and enter the associated credentials as shown below:

Available Cameras					
Status	Name	Bridge	Actions		
0	Eagle Eye Networks/EN-CDUD-008a/v3.5.0804.1004.88.1.33.7.32 (192.168.8.117)	Demo Bridge	+ 2		
Laun	ch Camera Connection // AXIS M1054		×		
We have created a tunnel that will open in a new window. If this does not appear, please check if your					
DIOV	wser is blocking popups, or click here to open.				
		c	ancel Close		
		_			

Clicking on the Satellite icon will pop-up the Launch Camera Connection window.

EAGLE EYE NETWORKS	Launch Camera Connection // CF1 Green Room (2MP)	▲ Demo User ▼ 🔎 13:27:06 🖉
Lill Dashboard Summary	We have created a tunnel that will open in a new window. If this does not appear, please check if your browser is blocking popups, or click here to open.	~
🕸 Dashboard 🛛 73 🗸	Notes:	
E Layouts	1080p, 12FPS, STD Preview	
Tags 25		IS
System Options/Users - AXIS M1054 Network Camera - Google Chrome		- 🗆 X
C000.eagleeyenetworks.com/camera_vpn_demo/index.html		م
	AXIS	
	Create Certificate	
	Secure configuration of the root password via HTTPS requires a self-signed certificate.	
	Create self-signed certificate	
	Configure Poot Password using HTTPS	
	User name: root	
	Password (max 64 characters):	
	Confirm password:	
	ок	
	The password for the pre-configured administrator root must be channed before the	
	product can be used.	
	If the password for root is lost, the product must be reset to the factory default settings, by pressing the button located in the product's casing. Please see the user documentation for more information.	
	ONVIF will be disabled. To enable ONVIF go to Setup > System Options > Security > ONVIF	

Example image of a camera manufacturer's camera configuration page.

Note that even after the camera has been added to the Bridge, the satellite icon will always be shown next to the Settings icon in the device tree and as can be seen below:

Status		Name	Tags	Location / Address	Actions
0	C.	CF1 - Capital Factory Austin Floor 8 CMVR (10 cameras)	EEN-BR320-31763		
	\odot	CF1 Green Room (2MP)	zz_2mp	CF Austin Office	0 🔹 💟 🔟 💼
	\odot	CF1 Lobby Center (2MP)	zz_2mp	CF Austin Office	0 * 2
	\odot	CF1 Lobby Fisheye (5MP)	zz_fisheye	CF Austin Office	0 🗱 💟 🖿

Administrators, as well as Operators with permissions enabled for "Admin of Bridges and Cameras", "Edit Cameras" and "Edit Cameras No Billing" are all able to tunnel into a camera.

To Disable the Satellite Icon on the Operator Page, go to the Users tab and Change User Settings. Under the Permission tab, make sure permissions are unselected as below:

All perm	issions are enabled: create, delete, edit, and view access to all accounts and user settings,	
bridges,	cameras, layouts, audit log and archive	
🗖 Bridge	es and Cameras	
A	dmin of Bridges and Cameras	
C b	reate, delete, edit, and view Bridges and Cameras. This is the only permission for a non-admin e able to add and view bridges in an end user account	to
(Edit Cameras	
	Editing all Camera Settings. Cannot add or delete cameras	
	Edit Cameras no Billing	
	Edit Camera Settings except for Cloud Retention and Full Video Resolution. Cannot ad or delete cameras. Edit existing Analytics. Cannot add or delete Analytics	d
	🔽 Turn Cameras On and Off	
	Turn Cameras on/off. Cameras off cannot be recorded	
	🔽 Edit Motion Areas and Analytics	
	Edit and view Motion under Camera Settings. Set object size and sensitivity, add/delete regions, add/delete alerts for regions. Edit and view existing Analytics Set object size and sensitivity, add/delete alerts	i.
	C Edit PTZ Stations	
	Edit and view PTZ tab under Camera Settings. Set PTZ mode and create, delete, e stations	dit
	PTZ Live	
	Control Pan, Tilt, Zoom, & recall stations while viewing a preview or live video PTZ cameras	ot
(🚽 Edit Map	
	Add and edit floors, lines, shapes, and cameras on the map	
🗸 Αссоι	ints and Users	
🔽 A	ccount Settings	
E D	dit and view Control, Days, Security, Camera, Alerts, Notifications, Privacy, Sharing, Responder: efault retentions, and camera resolution settings	s,
	Celit Sharing	
	Edit and view Sharing and Responders settings	
🔽 E	dit Users	
Ν	lanage users that are not administrators. Give access to bridges, cameras and layouts	
🔽 E	xport Users	
E	xport a list of account users in .csv format	
- View a	and Download Videos 🗸 🗸	•

This results in the disappearance of Satellite Icon on the Dashboard under Actions. This effectively disables accessing the Camera Web Interface page:

🖂 Bridges / 🖿 Camera	S			1-5of5 (K < > H
Status	Name	Tags	Location / Address	Actions
0	Car Park			
\odot	Car Park Yard			
0	Exit_Gate_PTZ			
\odot	Monitoring			
0	ServerRoom			
				1 - 5 of 5 (K < > H) Page size: 100 ∨

Application

Tunneling into the camera allows Administrators to remotely access a Camera Web Interface securely without the need of be on-site to perform advanced configuration on the camera web-page :

- Create an Onvif User
- Assign Cameras an IP address
- Check Camera Logs
- Adjust Camera Parameters and settings

Tunneling into Cameras is possible for linked Cameras to a Bridge/CMVR and even for auto-discovered Cameras within the VMS

Click on the satellite icon of the first camera to see a tunnel setup to the camera. Close the window after you see it and close the dialog box.