

User Manual

2MP IP Camera

O2VLB7 / O2VLB8 / O2VLD7 / O2VLD7J/ O2VLD8

Important Safeguards and Warnings

1 . Electrical safety

All installation and operation here should conform to local electrical safety codes.

Use a certified/listed 12VDC Class 2 power supply only.

Please note: Do not connect two power supplying sources to the device at the same time; it may result in device damage! The product must be grounded to reduce the risk of electric shock.

Improper handling and/or installation could run the risk of fire or electrical shock.

2 . Environment

Heavy stress, violent vibration or exposure to water is not allowed during transportation, storage and installation.

This product should be installed in a cool, dry place away from direct sunlight and heat sources.

Do not install the product in extreme temperature conditions.

Do not expose the camera to electromagnetic radiation. Otherwise it may result in CMOS sensor failure.

Do not block any ventilation openings.

Do not allow water and liquid intrusion into the camera.

3. Operation and Daily Maintenance

Please shut down the device and then unplug the power cable before you begin any maintenance work.

Do not touch the CMOS sensor optic component. You can use a blower to clean the dust on the lens surface.

Always use the dry soft cloth to clean the device. If there is too much dust, use a cloth dampened with a small quantity of neutral detergent. Finally use the dry cloth to clean the device.

Please use a professional optical cleaning method to clean the enclosure. Improper enclosure cleaning (such as using cloth) may result in poor IR functionality and/or IR reflection.

The grounding holes of the product are recommended to be grounded to further enhance the reliability of the camera.

Dome cover is an optical device, please don't touch or wipe cover surface directly during installation and use, please refer to the following methods if dirt is found:

Stained with dirt

Use oil-free soft brush or hair dryer to remove it gently.

Stained with grease or fingerprint

Use oil-free cotton cloth or paper soaked with alcohol or detergent to wipe from the lens center outward. Change the cloth and wipe several times if it is not clean enough.

Warning

This camera should be installed by qualified personnel only.
 All the examination and repair work should be done by qualified personnel.
 Any unauthorized changes or modifications could void the warranty.

Statement

This guide is for reference only.
 Product, manuals and specifications may be modified without prior notice. Speco Technologies reserves the right to modify these without notice and without incurring any obligation.
 Speco Technologies is not liable for any loss caused by improper operation.

Regulatory Information

1.1 FCC conditions:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

1.2 FCC compliance:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Note:

Before installation, check the package and make sure that all components are included.
 Contact your rep or Speco customer service department immediately if something is broken or missing in the package.

Accessory Name	Amount
Network Camera Unit	1
Quick Start Guide	1
Installation Accessories Bag	1
CD	1

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1 Introduction

Welcome

Thank you for purchasing this network camera!

Please read this manual carefully before operating the unit and retain it for future reference.

Should you require any technical assistance, please contact Speco Technologies Technical Support.

Main Features

- Built-in PoE (Power over Ethernet)
- Integrated IR LEDs for clear vision in low light
- IP66 rated for outdoor installations
- Remote viewing support via web browser, mobile app, and VMS

2 Web Access and Login

The IP camera settings can be accessed via a web browser through the LAN.

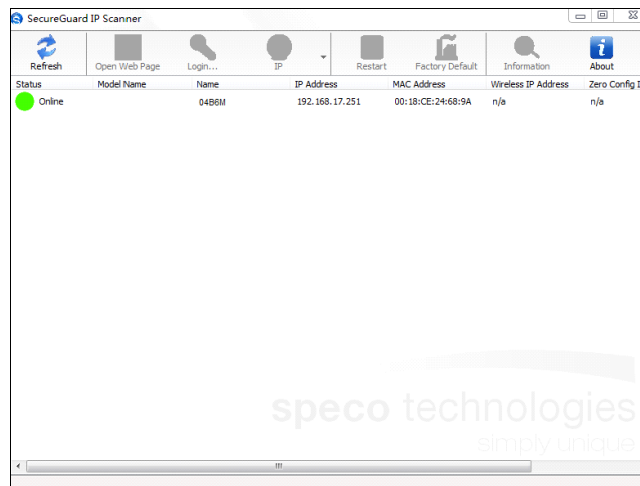
2.1 LAN

- Access through IP Scanner

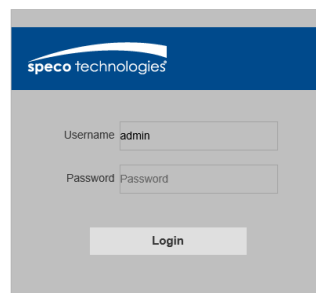
Network connection:



- ① Make sure that the camera and the PC are connected on the same local network. The camera is set to DHCP by default and will be assigned an IP address by the DHCP server. Make sure that the local network has a DHCP server. Routers typically have a DHCP server built in.
- ② Install IP Scanner from the CD and run it after installation. IP Scanner is the tool for discovering the IP cameras on the local network.



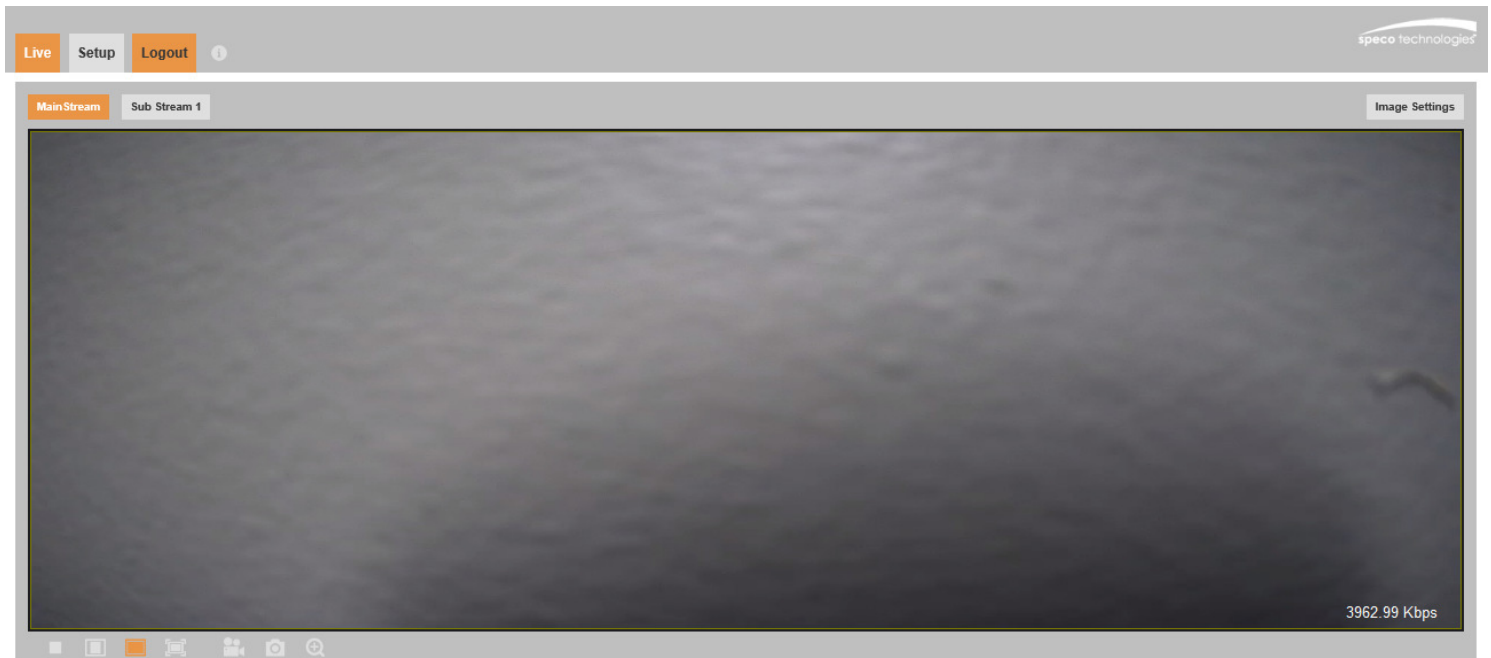
- ③ In the device list, the IP address, model number, and MAC address of each device will be listed. Select the applicable device and double click to open up the web viewer. You can also manually enter the IP address in the address bar of the web browser.












The login interface is shown above. Default user name is admin and password is 1234. After logging in, follow directions to install applicable plug-ins for viewing video.

3 Live View

The window below will be shown after logging in.



The following table describes the icons on the live view interface.

Icon	Description	Icon	Description
	Go to camera setup		Adjust image settings
	Stop/Start live view		View in original aspect ratio
	View in stretched format		View in full screen
	Start local recording		Generate snapshot
	Digital zoom		

- In full screen mode, to exit, double click on the mouse or press the ESC key on the keyboard.

4 Camera Configuration

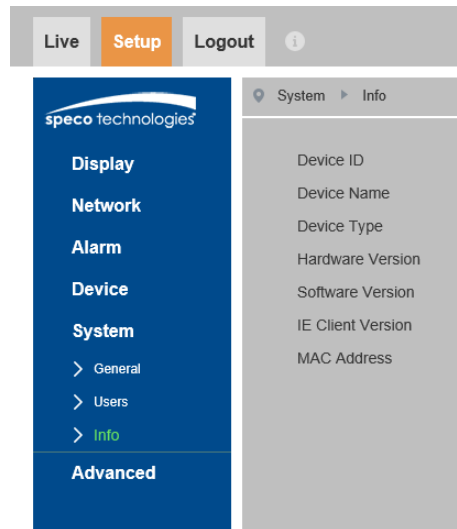
Press the “Setup” button to go to the configuration interface.

Note: Wherever applicable, press the “Save” button to save the settings.

4.1 System Configuration

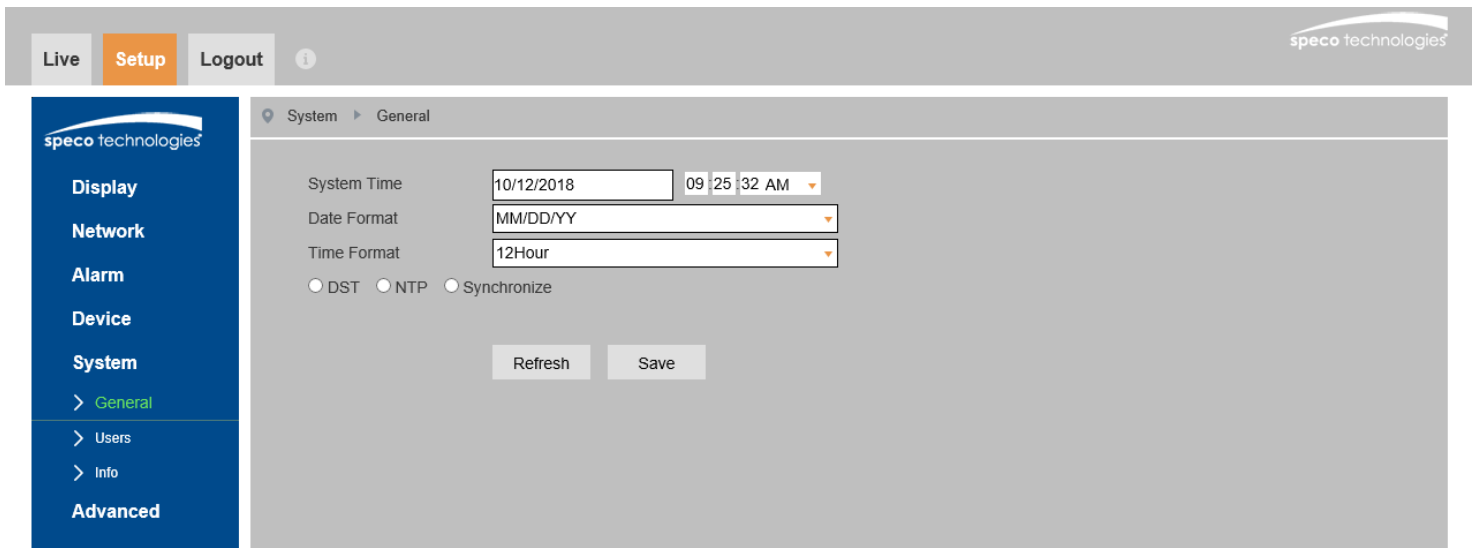
4.1.1 System Information

In the “System Information” interface, the system information of the device is listed.



4.1.2 Date and Time

To set the time and date, go to System → General. Please refer to the following interface.



Select an option to set the time and date.

DST: If daylight saving time is utilized in the current time zone, use this option to set the parameters.

NTP: If enabled, the device will synchronize the time with a time server. Select the applicable time zone before synchronization.

Synchronize: Sets the device time same as the PC.

4.1.3 Users

To configure users, go to System -> Users. Other than admin, up to 6 additional users can be configured, with customizable access levels.

NO.	User Name	Password	Active
1	admin	Enable	Enable
2	user1	Disable	Disable
3	user2	Disable	Disable
4	user3	Disable	Disable
5	user4	Disable	Disable
6	user5	Disable	Disable
7	user6	Disable	Disable

4.2 Display Configuration

Display Configuration includes Image settings, Stream Setup, OSD, Privacy Mask, and local recording path setup.

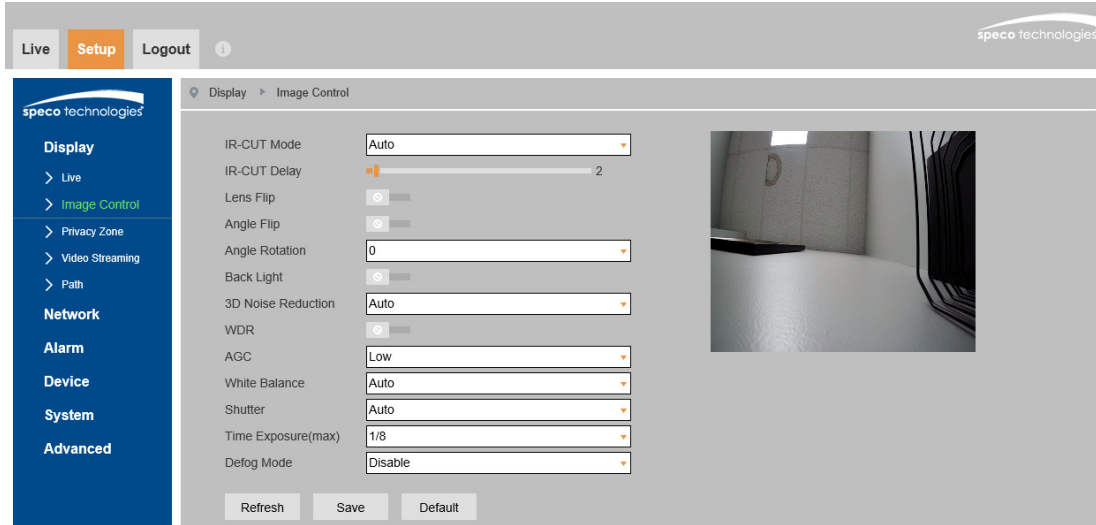
4.2.1 OSD

Go to Display -> Live as shown below.

North America uses 60Hz for flicker control. Enable Name and Time to show the camera name and time on the screen. Click the "Save" button to save the settings.

4.2.2 Image Configuration

In the Image Control interface shown below, various settings can be adjusted such as brightness, contrast, hue, saturation, etc.



IR-Cut Mode: Choose between Auto, Color Mode, and monochrome Mode.

IR-Cut Delay: Sets the delay in how long the camera waits before switching to color or monochrome when light level changes. This applies when the mode is set to Auto.

Lens Flip / Angle Flip: Horizontal and vertical flip.

Backlight Compensation (BLC): if enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.

3D Noise Reduction: Digital noise reduction.

WDR: Compensates for a contrast in the scene between light and dark areas. Typically used in a lobby where the camera is pointing towards the entrance.

AGC: Gain control.

White Balance: Adjust the color temperature according to the environment.

Shutter: Choose between auto shutter speed and manual.

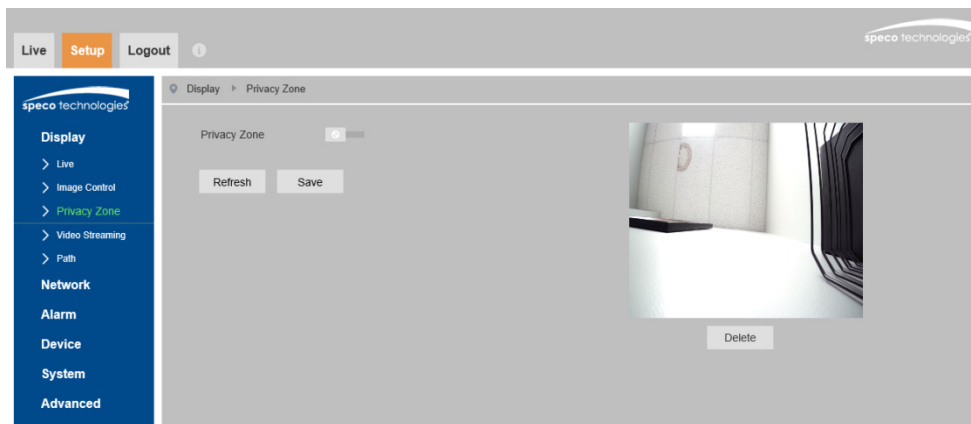
Time Exposure: Use for manual shutter speed adjustment.

Infrared Mode: Choose "ON", "OFF" or "Auto".

Defog Mode: Digital defog. Used to try to clear up a foggy image.

4.2.3 Privacy Mask

Go to the Display→Privacy Zone interface shown below. A maximum of 4 zones can be set up.



To set up privacy mask zones:

1. Click Enable.
2. Within the image window, drag the mouse to draw the zones.
3. Click the "Save" button to save the settings.

To clear the privacy mask zones, click to choose each zone and click the "Delete" button.

4.2.4 Video Stream Setup

Go to Display→Video Streaming as shown below. Resolution, frame rate, etc. can be adjusted in this section.

The screenshot shows the 'Video Streaming' configuration page. On the left is a navigation menu with options: Live, Image Control, Privacy Zone, Video Streaming (selected), Path, Network, Alarm, Device, System, and Advanced. The main content area is titled 'Display > Video Streaming' and has two tabs: 'Main Stream' (active) and 'Sub Stream 1'. The 'Main Stream' settings are as follows:

Parameter	Value	Unit/Range
Resolution	1920x1080	
FPS	30	
Video Code Type	H.264	
Video Code Level	Main Profile	
Bitrate Control	CBR	
Bitrate Mode	Predefined	
Bitrate	4096	Kbps
I Frame Interval	60	(1~120)

Buttons: Refresh, Save

Two video streams can be adjustable.

Resolution: The size of the image.

FPS (frame rate): The higher the frame rate, the video is smoother.

Video Code Type: Choose between H.264 and H.265. If H.265 is chosen, make sure the client system is able to decode H.265.

Video Code Level (Profile): For H.264. Choose between baseline, main, and high profiles.

Bitrate Control: Options are CBR (constant) and VBR (variable). Bitrate is related to the image quality. CBR means that no matter how much change is seen in the video scene, the compression bitrate will be kept constant. VBR means that the compression bitrate will be adjusted according to scene changes. For example, for scenes that do not have much movement, the bitrate will be kept at a lower value. This can help optimize the network bandwidth usage.

Bitrate Mode: If Predefined is chosen, the bitrate value is set to a reference value based on the resolution.

Bitrate: The higher the bitrate, the better the image quality will be.

I Frame Interval: Group of pictures. Determines how many frames are allowed between a “group of pictures”. When a new scene begins in a video, until that scene ends, the entire group of frames (or pictures) can be considered a GOP. If there is not much movement in the scene, setting a GOP value higher than the frame rate is fine, potentially resulting in less bandwidth usage. However, if the value is set too high, and there is a high frequency of movement in the video, there is a risk of frame skipping.

4.2.5 Path (Local Recording)

Go to Display→Path to set up the storage path of captured images and recorded video on the local PC.

The screenshot shows the 'Path' configuration page. The main content area is titled 'Display > Path' and contains the following settings:

Record Path	E:\Device\Record	Scan
Snapshot Path	E:\Device\Capture	Scan
File type	MP4	
Interval	10	Min
Capture Type	BMP	

Buttons: Save

4.3 Network Setup

4.3.1 Network

Go to the Network → Network interface shown below.

The screenshot shows the 'Network' configuration page. The sidebar on the left has 'Network' highlighted. The main content area is titled 'Network' and contains the following fields:

- Type: DHCP (dropdown)
- Client Port: 554
- HTTP Port: 80
- IP Address: 192.168.56.115
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.1.1
- DNS 1: 192.168.1.1
- DNS 2: 0.0.0.0
- UPNP:

Port Range: 1024~65535 (Client Port , HTTP Port)

Buttons: Refresh, Save

Type: Choose between DHCP and Static. The device will be configured to DHCP by default. If set to static, enter the network info values in the fields.

Ports: Choose port values as desired.

UPNP: If UPnP is allowed and enabled in the network, enable this option to try to open the ports automatically.

4.3.2 Email

In order to have an email be sent when an event occurs, the email section must be configured first.

Go to Network → Email.

The screenshot shows the 'Email' configuration page. The sidebar on the left has 'Email' highlighted. The main content area is titled 'Email' and contains the following fields:

- Email:
- Encryption: Disable (dropdown)
- SMTP Port: 25
- SMTP Server: [empty]
- User Name: [empty]
- Password: [empty]
- Sender: [empty]
- Receiver1: [empty]
- Receiver2: [empty]
- Receiver3: [empty]
- Interval: 3Min (dropdown)

Buttons: Refresh, Save, Test Email, Cancel

Encryption: Choose between Disable, SSL, TLS, or Auto based on the encryption method used by the email service provider.

SMTP Port: Enter the SMTP port used by the email provider.

SMTP Server: Enter the SMTP server address.

User Name: Enter the user name of the sender's email account.

Password: Enter the password of the sender's email account.

Sender: Enter the sender's email address as it would appear in the email.

Receiver 1/2/3: Enter up to 3 receiving email addresses.

Interval: Time interval between sending emails. For example, if the interval is set to 3 minutes, but there are multiple motion events that occur within the 3 minutes, the device will still wait the 3 minutes before sending another email.

4.3.3 DDNS

DDNS can be set for accessing the camera from the internet.

1. Go to Network->DDNS.
2. Enable DDNS.
3. Select SPECO as the server.
4. The hostname will be in this format, SPECOxyyz, where xyyz is the last 6 digits of the device Mac address.
5. Click Save. This must be done before testing the DDNS connection.
6. Click Test DDNS to make sure that the connection was established properly.

4.3.4 IP Filter

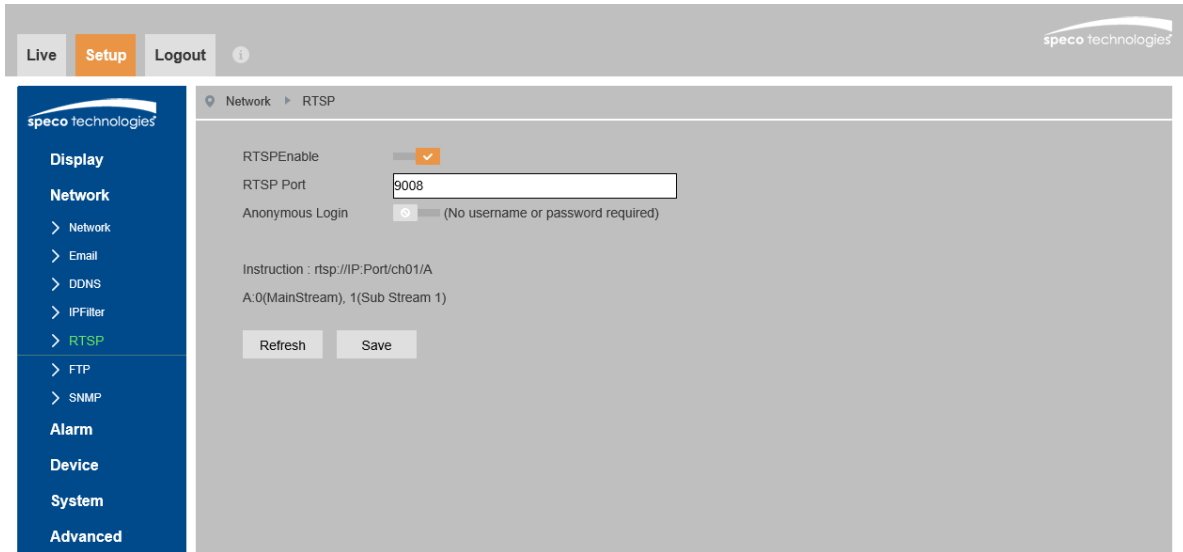
Go to Network->IP Filter as shown below.

NO.	IP Address	Enable

Filtering mode: Three modes are available – allow all connection, allow only IP connections that are set up, and deny IP connections that are set up. After choosing the mode, add or remove IP addresses.

4.3.5 RTSP

Go to Network->RTSP as shown below.



Select "Enable" to enable the RTSP function. Note that RTSP streaming is used to stream the video to the NVR, so it is highly recommended to leave this enabled.

Port: Access port of the streaming media. The default port is 9008.

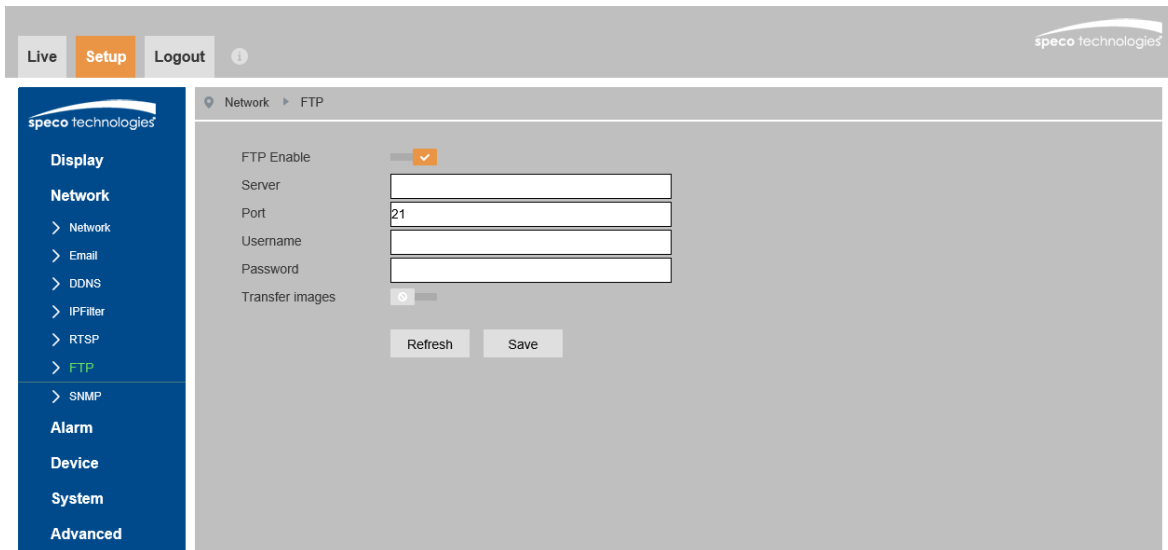
RTSP URL: The RTSP address format that can be used to play the stream in a media player.

If "Allow anonymous login" is checked, there is no need to enter the username and password to view the video.

4.3.6 FTP

After an FTP server is set up, captured images from events will be uploaded to the FTP server.

Go to the Network->FTP.



Server: The IP address or domain name of the FTP.

Port: Port of the FTP server.


User Name and Password: The username and password that are used to login to the FTP server.

Transfer Images: Check this option to transfer images to the FTP server.

4.3.7 SNMP

To get camera status, parameters and alarm information and remotely manage the camera, the SNMP function can be used. Before using SNMP, please install an SNMP management tool and set the parameters of SNMP, such as SNMP port, trap address.

1. Go to the SNMP section.
2. Select the appropriate version (v1, v2c, v3) according to the version of the SNMP software that will be used.
3. Set the values for “Read SNMP Community”, “Write SNMP Community”, “Trap Address”, “Trap Port” and so on. Please make sure the settings are the same as that of the SNMP software.



The screenshot displays the web interface for configuring SNMP. At the top, there are navigation tabs: "Live", "Setup" (highlighted in orange), and "Logout". The "speco technologies" logo is in the top right corner. A left sidebar menu contains categories: "Display", "Network" (with sub-items: Network, Email, DDNS, IPFilter, RTSP, FTP, and SNMP), "Alarm", "Device", "System", and "Advanced". The main content area is titled "Network > SNMP". It features a configuration table with the following fields and values:

SNMP Version	OFF
SNMP Port	161
Read Community	public
Write Community	private
Trap IP Address	127.0.0.1
Trap Port	162
IP Address	192.168.56.115
MAC Address	00:23:63:4f:db:df

Below the table are two buttons: "Refresh" and "Save".

4.4 Motion Setup

4.4.1 Motion Detection

Go to Alarm→Motion to set up motion detection.

Check “Enable” to activate motion based alarms. If unchecked, the camera will not send out any signals to trigger motion-based recording to the NVR or the VMS, even if there is motion in the video.

Sensitivity: Higher sensitivity value means that motion will be triggered more easily.

Send Email: If selected, the system will capture images on motion detection and email the images to the email address(es) that were set up in the Email section.

To set the motion detection area, click and drag the mouse to define the region as desired in the image window.

4.5 Device Log

4.5.1 Log

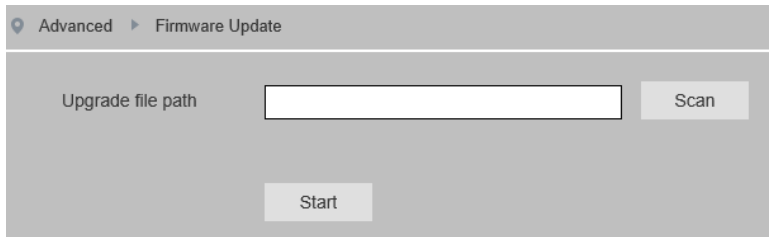
Go to Device→Log. There are 6 different log options available: System, Config, Alarm, User, Network, and All. Choose the log type, the starting time, and the end time for log retrieval. Click on Search to retrieve the list of logs.

No.	Time	Operation	Log Info
1	2018-10-12 21:26:53	System Time Modify	i
2	2018-10-12 21:26:37	System Time Modify	i
3	2018-10-12 21:26:36	System Time Modify	i
4	2018-10-12 21:07:06	admin Login Success	i
5	2018-10-12 20:31:18	Motion End	i
6	2018-10-12 20:31:08	Motion Begin	i
7	2018-10-12 20:31:08	System Setup	i
8	2018-10-12 20:31:04	Network Up	i
9	2018-10-12 14:54:07	System Time Modify	i
10	2018-10-12 14:54:04	Motion Begin	i

4.6 Advanced Configuration

4.6.1 Firmware Update

Go to Advanced→Firmware Update. In this interface, the camera firmware can be updated.

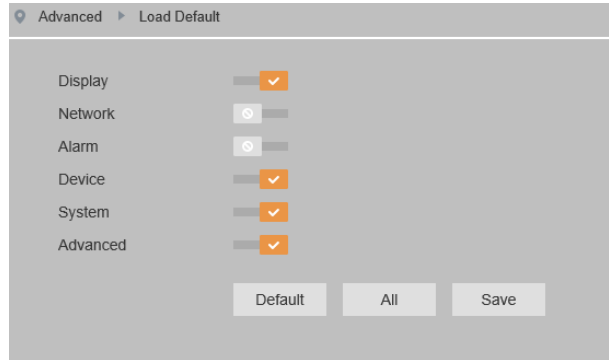


1. Click the “Scan” button to select the location of the firmware file.
2. Click the “Start” button to start upgrading the firmware.
3. The device will restart automatically.

Caution! Do not close the browser or disconnect the camera from the network during the upgrade.

4.6.2 Factory Default

Go to Advanced→Load Default.



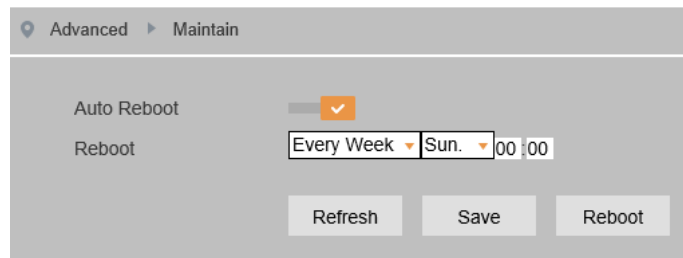
- **Factory Default**

Check the relevant options and click Save to restore the device settings to factory default.

4.6.3 Auto Reboot

Go to Advanced→Maintain.

Click the “Reboot” button to manually reboot the device.



Timed Reboot Setting:

If desired, the camera can be set up to reboot on a time interval. Enabled “Auto Reboot” and then set the interval and time. Click the “Save” button to save the settings.

Appendix 1 Troubleshooting

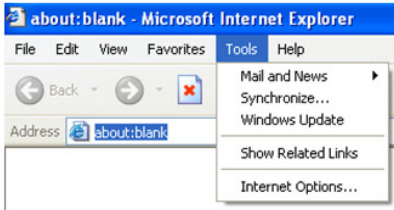
IP Scanner does not show any device.

Make sure that the PC that's running IP Scanner is on the same local network as the devices.

Internet Explorer cannot download ActiveX control.

IE browser may be set up to block ActiveX. Follow the steps below.

1. Open IE browser and then click Tools->Internet Options



2. Select Security and then Custom Level
3. Enable all the options under "ActiveX controls and plug-ins".
4. Click OK to finish setup.

