



# SpeedFusion Engine Camera-Dockable

## Quick Start Guide

January 2023

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# Table of Contents

<b>Specifications</b>	<b>3</b>
<b>Panel Appearance</b>	<b>4</b>
<b>LED Indicators</b>	<b>5</b>
<b>Package Contents</b>	<b>6</b>
<b>Getting Started</b>	<b>6</b>
<b>Connecting to the SFE Cam Web Admin Interface</b>	<b>8</b>
Using InControl	8
Using the Web admin Interface	9
<b>SFE Cam Security</b>	<b>10</b>
<b>Configuring SpeedFusion VPN</b>	<b>11</b>
<b>Advanced SpeedFusion Options</b>	<b>20</b>
<b>WAN Smoothing</b>	<b>21</b>
<b>Forward Error Correction</b>	<b>22</b>
<b>Advanced Cellular WAN Options</b>	<b>23</b>
<b>Testing Efficiency</b>	<b>24</b>
<b>Mobile Wireless Hub</b>	<b>28</b>
<b>Additional Resources</b>	<b>32</b>

## Specifications

Specifications	
Cellular WAN Interfaces	Dual LTE-A Modems
SpeedFusion Hot Failover	●
SpeedFusion WAN Smoothing	●
SpeedFusion Bandwidth Bonding	●
WAN Interface	1x GE, 1x Wi-Fi WAN*
LAN Interface	1x GE, 1x USB
Load Balancing/Failover	●
Router Throughput	400Mbps
SpeedFusion Throughput (No Encryption)	100Mbps
SpeedFusion Throughput (256-bit AES)	60Mbps
Recommended Users	150
LTE-A Modem	Downlink/Uplink Data Rate: 300Mbps/50Mbps
Wi-Fi Standard	802.11ac
2.4GHz / 5GHz	300Mbps / 866Mbps
Simultaneous Wi-Fi WAN & AP	●
Antennas	Internal
Power Input	DC Adapter: 12 - 24V DC V-Mount or AntonBauer Battery* rated at: 12.4 - 16.8V DC (max)
Power Consumption	18W (max)
Dimensions (H x W x D)	10.6 x 5.5 x 4.3 inches 270 x140 x110 mm



## Panel Appearance



## LED Indicators

Status Indicators		
Status	OFF	System Initializing
	RED	Booting up or Busy
	Blinking Red	Boot up Error
	Green	Ready

Cellular Indicators		
Cellular 1	OFF	Disabled or No SIM card detected
	ON	Connected or connecting to a cellular network

LAN and WAN Ports		
Green LED	ON	Connected
	OFF	Disconnected
Orange LED	ON	Connected
	FLASHING	Data being transferred
	OFF	No connectivity
Port Type	Auto MIDI/MIDI-X ports	

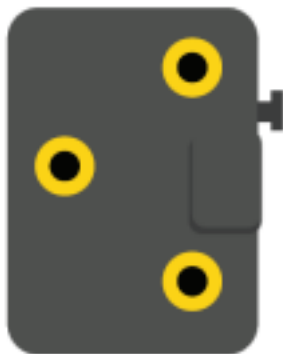
## Package Contents

- 1 x SFE Cam
- 1 x USB Male (HR12) - Male (USB A) Connector cable, 300mm
- 1x 12V2A Power Supply (ACW-601)

## Getting Started

Before connecting the Camera-Dockable SFE to the camera, make sure the camera is switched off. The unit docks directly to camcorders with an Anton Bauer Gold-Mount or V-Mount plate-connectors. The Camera-Dockable SFE is positioned between the camera body and the battery.

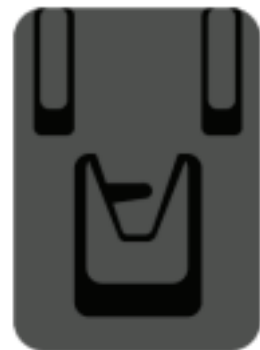
### Attaching the SFE Cam



#### Gold Mount

Align the guide pins (x3) with the camera adapter guide hole, and insert them directly.

Slide the SFE Cam until a “click” sound is heard.



#### V Mount

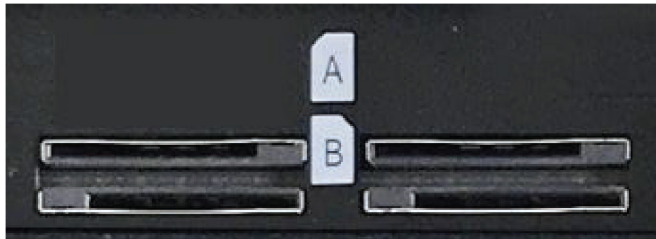
Align the V shape with the camera adapter.

Slide the SFE cam until a “click” sound is heard.

## Detaching the SFE Cam

Press down the release-lever and slide the SFE Cam toward you to detach it from the camera recorder.

## Inserting SIM cards



There are a total of 4 SIM slots in the SFE.  
SIM slots A1, A2, B1 and B2.

The SFE cam contains 2 cellular SIM modules, each capable of having 1 active SIM and 1 redundant SIM. This means that 2 of the 4 SIMs can be active at the same time.

By default SIM slots A1 and A2 will be used, SIM slots B1 and B2 contain backup SIMs that will be used when there is no connection on SIM A1 and A2.

Standard SIM cards size is supported is (15 x 25mm) and inserted according to the icons shown on the camera.

## Connecting the LAN Cable

The SFE plugs into the camera's USB or LAN port from the matching ports on the SFE using an RJ45 ethernet cable or Mini-DIN jack to USB cable respectively.

The Mini-DIN Jack to USB cable is included with the SFE Cam.

## Connecting the WAN cable

The WAN port can be connected to any RJ45 ethernet port to connect to the internet.

## Connecting to the SFE Cam Web Admin Interface

There are 2 methods to configure and monitor your Peplink appliances once they have a WAN connectivity.

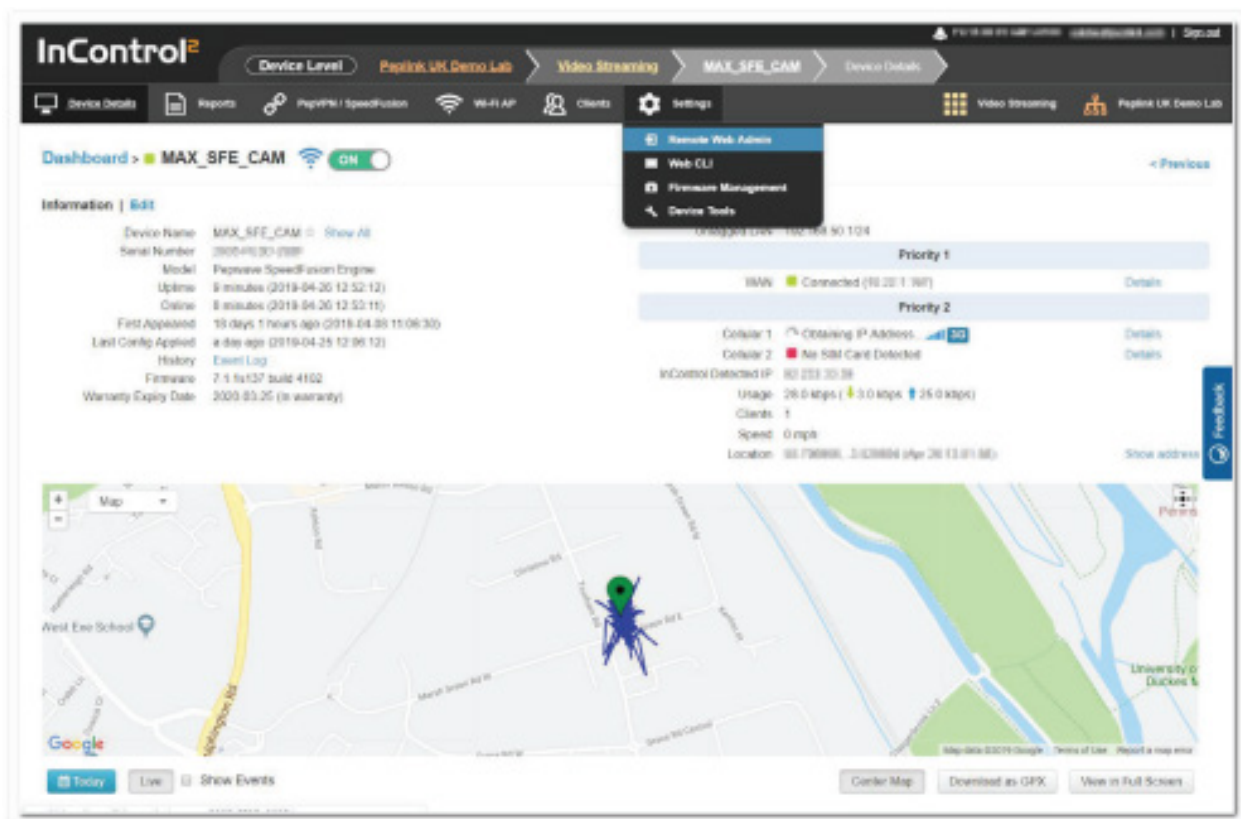
- InControl2, Peplink's cloud based device management, monitoring, and reporting tool.
- The local web interface

### Using InControl

After logging on to <https://incontrol2.peplink.com/> select the desired organization and group and add your device.

The device is now configurable from InControl2.

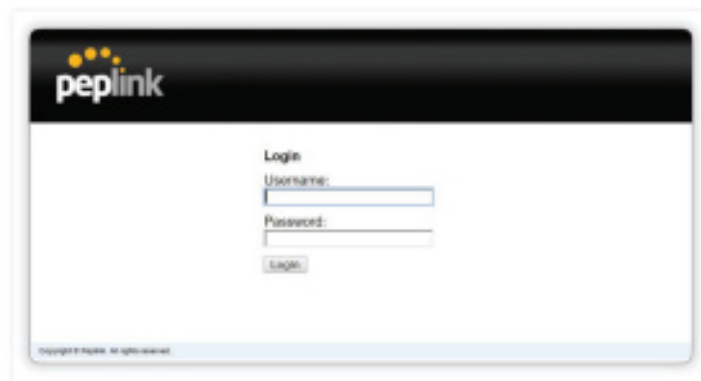
Use the **Device > Settings > Remote Admin** option to connect to the SFE Cam web admin interface. For more information on InControl2, please download the [InControl 2 User guide](#).



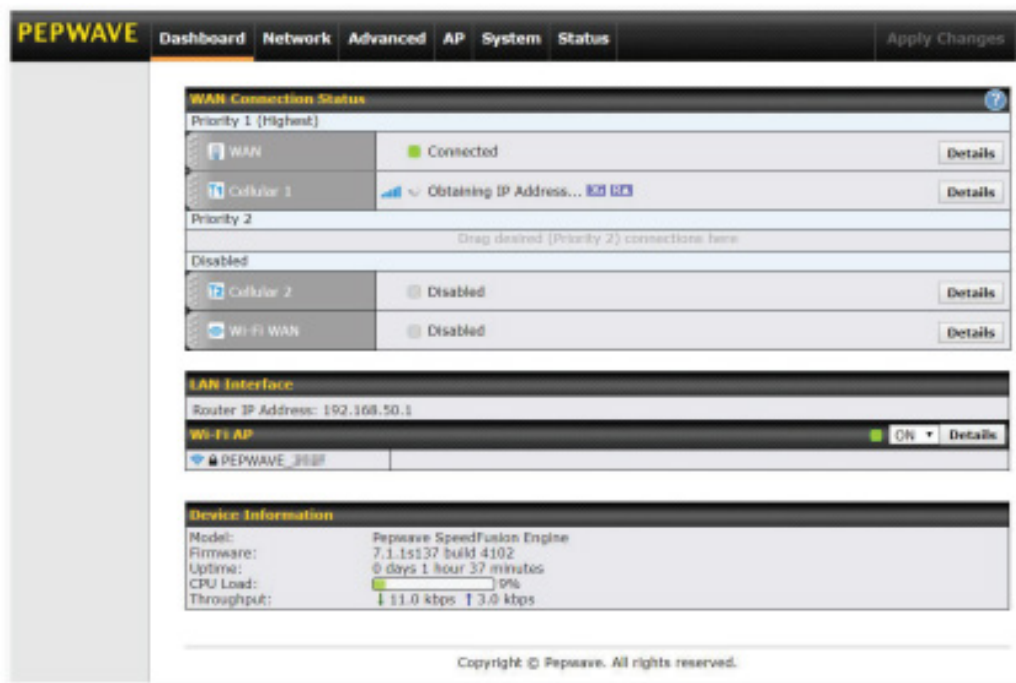


## Using the Web admin Interface

- Start a web browser on a computer that is connected with the SFE Cam through the LAN port.
- To initially connect to the SFE Cam's web admin interface, enter the following LAN IP address in the address field of the web browser: <http://192.168.50.1>



- Enter the following to access the web admin interface.
  - **Username:** admin
  - **Password:** admin
- After successful login, the **Dashboard** will be displayed



## SFE Cam Security

There are several options to secure your SFE Cam, all of which are accessible by navigating to the **System > Admin Security** page of the web interface.

**Admin Settings**

Router Name	MAX-SFE-CAM	hostname: max-sfe-cam
This configuration is being managed by InControl.		
Admin User Name	admin	
Admin Password	*****	
Confirm Admin Password	*****	
Read-only User Name	user	
User Password		
Confirm User Password		
Web Session Timeout	4 Hours 0 Minutes	
Authentication by RADIUS	<input type="checkbox"/> Enable	
CLI SSH & Console	<input type="checkbox"/> Enable	
Security	HTTPS	
Web Admin Access	LAN / WAN	
Web Admin Port	443	Default

**WAN Connection Access Settings**

Allowed Source IP Subnets	<input checked="" type="radio"/> Any <input type="radio"/> Allow access from the following IP subnets only									
Allowed WAN IP Address(es)	<table border="1"> <thead> <tr> <th>Connection / IP Address(es)</th> <th>All</th> <th>Clear</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> WAN</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Interface IP</td> <td></td> <td></td> </tr> </tbody> </table>	Connection / IP Address(es)	All	Clear	<input checked="" type="checkbox"/> WAN			<input checked="" type="checkbox"/> Interface IP		
Connection / IP Address(es)	All	Clear								
<input checked="" type="checkbox"/> WAN										
<input checked="" type="checkbox"/> Interface IP										

### 1. Change Your Admin Password

For security reasons, after logging in to the web admin Interface for the first time, it is recommended to change the administrator password.

### 2. Change protocol and port

Change security to HTTPS only, and change Web Admin Access to restrict access from the LAN only. The Web Admin Port can be changed to a non-default port.

### 3. WAN connection Access settings

If WAN access is required this option allows you to access the web admin interface from certain IP subnets only.

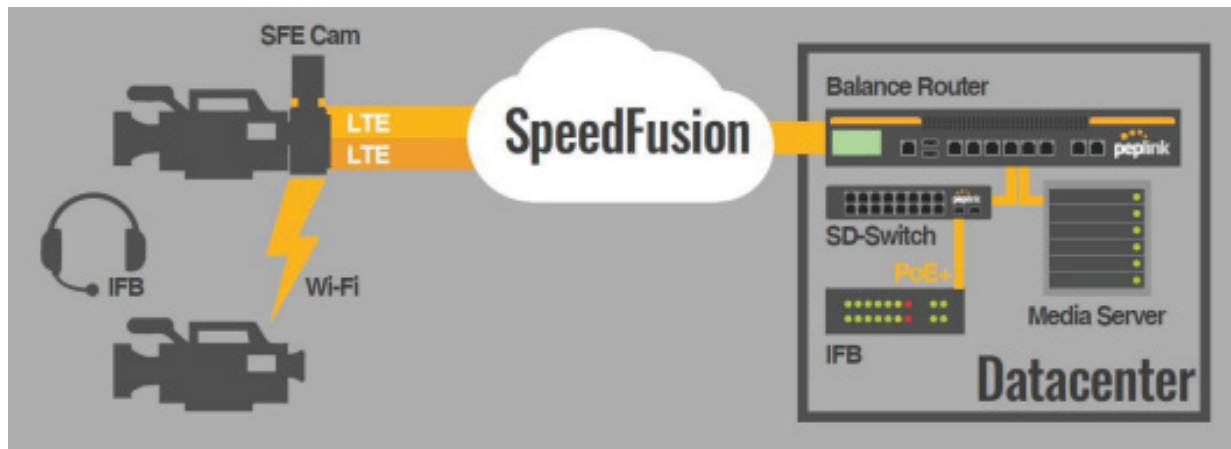
Note: Be aware that once you "Apply Changes" you might lose access to the Web Interface. And you will need to login again using the allowed protocol, port and admin credentials.

For further information on securing your SFE Cam, please read this [knowledge base article](#).

## Configuring SpeedFusion VPN

The SpeedFusion Engine Cam (SFE Cam) uses SpeedFusion bandwidth bonding technology to combine several WAN connections.

SpeedFusion technology needs at least two SpeedFusion devices/peers to work. This can be another physical Peplink router or a Fusionhub virtual router.



The following example shows how to set up a speedfusion connection between a SFE Cam and a Fusionhub. This process is the same for any Peplink router. SpeedFusion profiles can be configured using [InControl](#) or the local web admin interface.

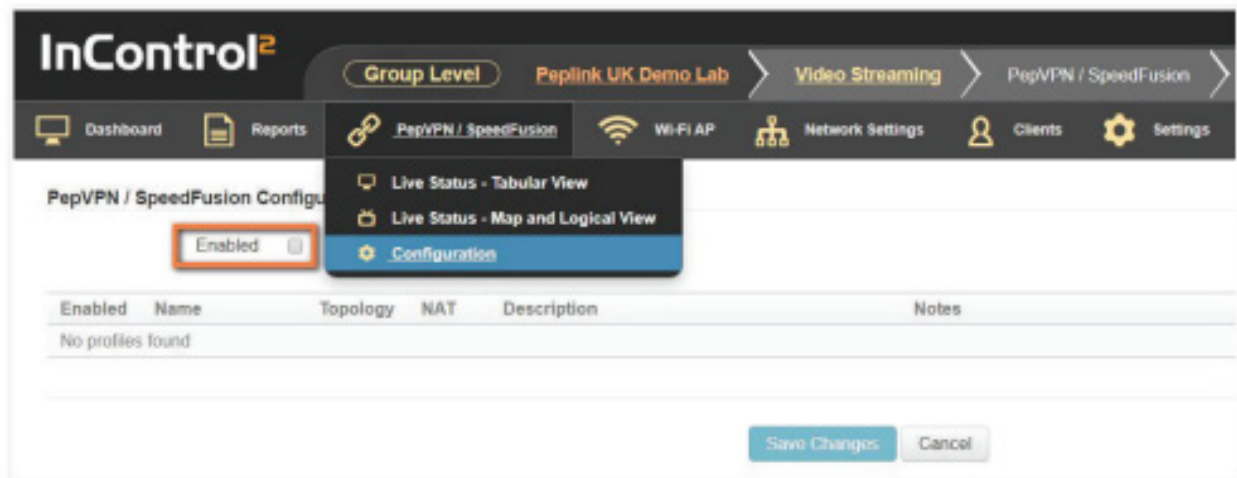
Before you can configure a SpeedFusion profile, one of the routers needs to have at least 1 static public ip address.

The LAN subnet of the connected devices should not overlap. If the same IP range is used reconfigure the LAN settings on one of the devices.

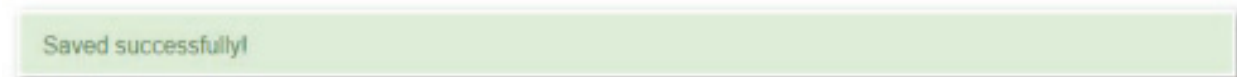
There are too many different options to discuss in this quick start manual; for additional information follow the links in the **Additional Resources** section at the end of this manual.

### Configuring a SpeedFusion profile using InControl

Navigate to the InControl Organization and Group containing your SFE Cam.  
Make sure PepVPN /SpeedFusion configuration is enabled in the group settings.



If not enabled already, tick the checkbox and s Save any Changes you make in the process.



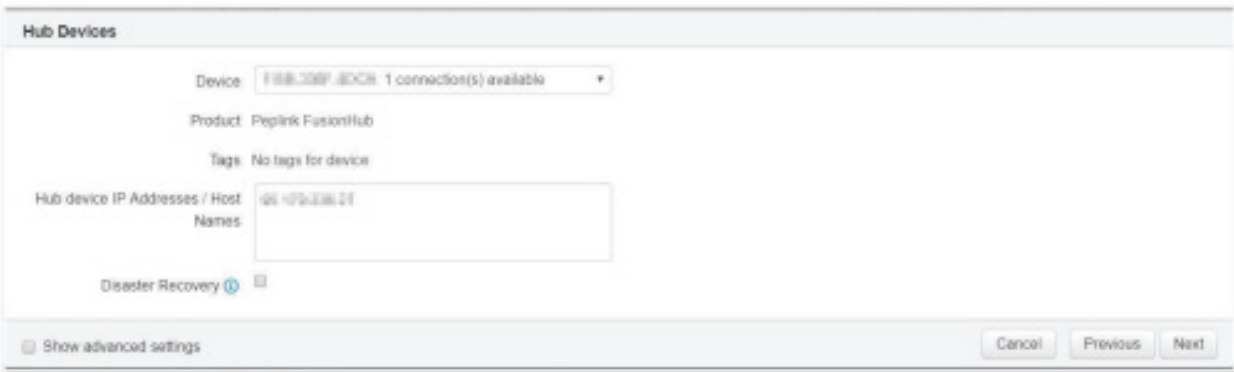
Add Profile.  
Choose **Star** Topology

### Topology

Please choose the topology you want to create:

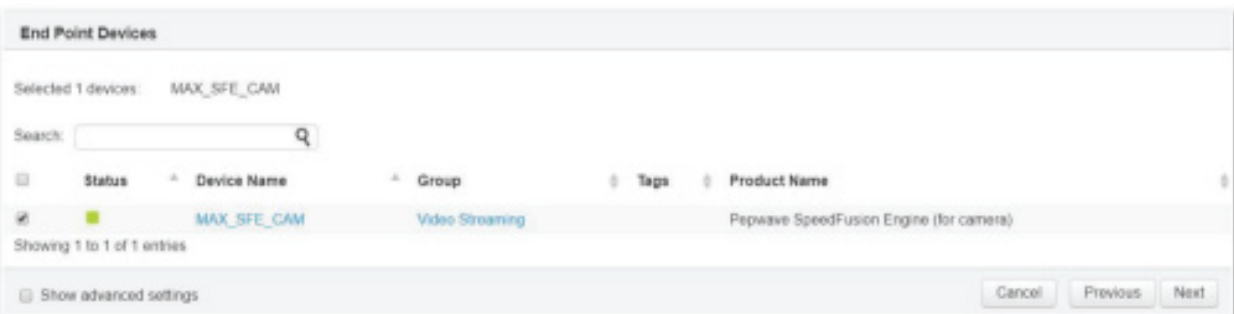
- ☒ Star
- ☐ Fully Meshed
- ☐ Point-To-Point

Select the Hub Device included in this VPN tunnel (this is the remote Peplink, NOT the SFE Cam) and click **next**.



The 'Hub Devices' window shows a dropdown menu for 'Device' with 'F88L308P-JEXC8' selected, indicating '1 connection(s) available'. Below this, the 'Product' is 'Peplink FusionHub' and 'Tags' are 'No tags for device'. A text box for 'Hub device IP Addresses / Host Names' contains '192.168.1.1'. A 'Disaster Recovery' checkbox is present. At the bottom, there is a 'Show advanced settings' checkbox and 'Cancel', 'Previous', and 'Next' buttons.

Select the SFE Cam as the End Point device and click **next**.



The 'End Point Devices' window shows 'Selected 1 devices: MAX\_SFE\_CAM'. Below is a search bar and a table with columns: Status, Device Name, Group, Tags, and Product Name. The table contains one entry: MAX\_SFE\_CAM (Video Streaming) with product name 'Peplink SpeedFusion Engine (for camera)'. At the bottom, there is a 'Show advanced settings' checkbox and 'Cancel', 'Previous', and 'Next' buttons.

Give the profile an identifiable name, tick the check box with the “**Send all Traffic to Remote Hub**”, tick the check box for the Advanced settings click **next**.

Note: The “Send all traffic to Remote Hub” option forces all the data from the SFE Cam to be sent through the SpeedFusion tunnel.

If the traffic would have a local breakout to the internet (ie, not through the SpeedFusion tunnel) cellular bonding would not be effective.

**Profile Options**

Profile Name

Dynamic Links ☐

Encryption ☒ 256-bit AES ☐ Off

Suppress Endpoint IPs ☒
  
Filter endpoint IP's from being entered in the hub site configuration. It will prevent unnecessary configuration updates to the hub site because endpoints' public IPs often changes and are not forwarded to the endpoints. PepVPN connections will drop upon configuration updates. Unless PepVPN connections have to be initiated from the hub site, otherwise select this checkbox. NOTE: after making change to this option, existing connections in this profile will disconnect and reconnect once.

NAT Mode ☐

Data Port ☒ Default ☐ Custom

Send All Traffic To Remote Hub ☐

Link Failure Detection Time ☒ Recommended (Approx. 15 secs)
  
☐ Fast (Approx. 6 secs)
  
☐ Faster (Approx. 2 secs)
  
☐ Extreme (Approx. 1 sec)
  
Shorter detection time incurs more health checks and higher bandwidth overhead

WAN Smoothing ☒ Off - Disable WAN Smoothing
  
☐ Normal - The total bandwidth consumption will be at most 2x of the original data traffic.
  
☐ Medium - The total bandwidth consumption will be at most 3x of the original data traffic.
  
☐ High - The total bandwidth consumption depends on the number of connected active tunnels.

Path Cost 
  
OSPF will determine the best route through the network using the assigned cost.

Link Settings [Advanced Link Settings](#)

WAN Settings [Advanced WAN Settings](#)

☒ Show advanced settings

Cancel Previous Next

The profile summary shows the configured settings; if these settings are correct click **Finish**.

Profile Summary

Profile Name

SF-CAM1

Topology

Star

Dynamic Links

Disabled

End Points

1

Hub

115B-336F-4DCA

Encryption

256-bit AES

NAT Mode

Disabled

Send All Traffic To Remote Hub

Disabled

Path Cost

10

Data Port

Default

Link Failure Detection Time

Recommended (Approx. 15 secs)

WAN Smoothing

Off - Disable WAN Smoothing

Graph

[Show graph](#)

Note

Cancel

Previous

Finish

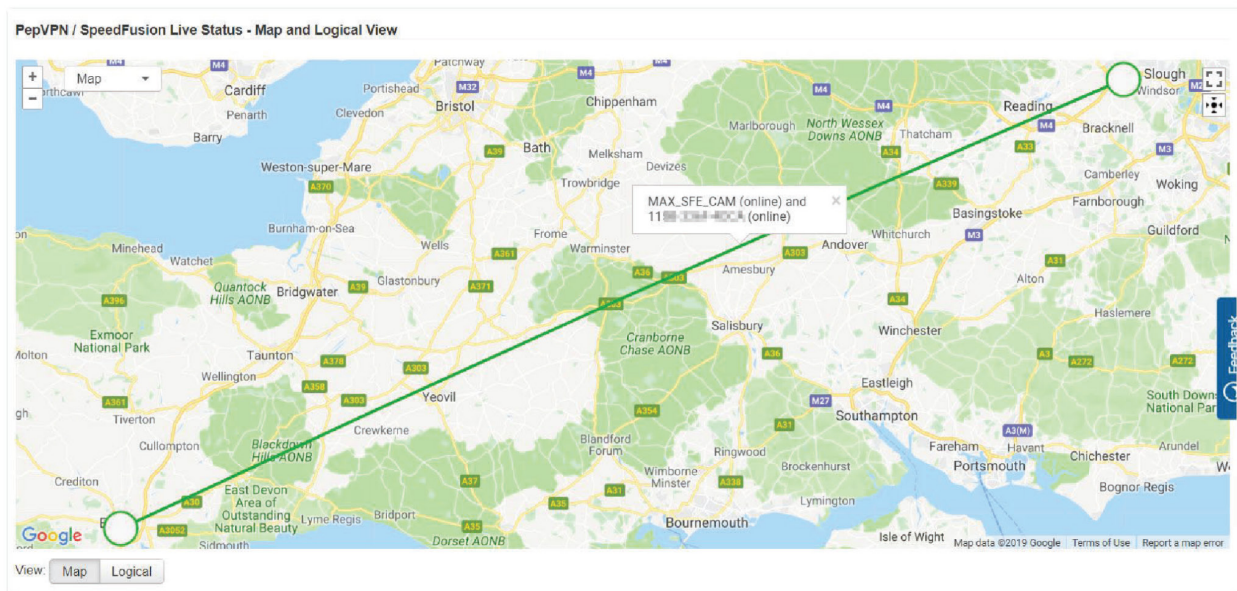
Select **Save Changes** to make the changes permanent.

Save Changes

Cancel

After a short time the SpeedFusion tunnel should be established.



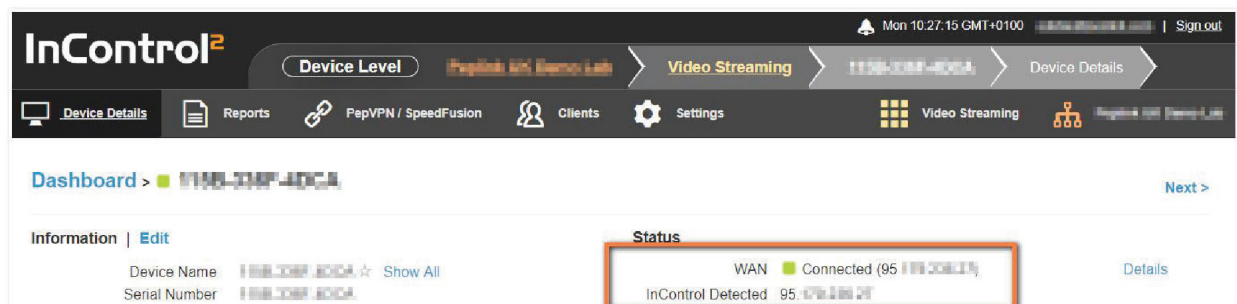


The SFE Cam is now ready to start streaming video from the connected camera to the data centre.

## Configuring a SpeedFusion profile using the web admin Interface

Take note of the external IP addresses used for both devices (this is the IP address of your WAN connection).

The easiest way to find this is by verifying the **InControl detected** IP address in **Device Details** using **InControl**.



Open the local web admin interface of both Peplink devices in your internet browser. Select **Advanced >SpeedFusion** on you SFE Cam (**Network >SpeedFusion** on Peplink devices).



**PEPWAVE** Dashboard Network **Advanced** AP System Status 3 Apply Changes

**Advanced**

- SpeedFusion
- IPsec VPN
- Outbound Policy
- Port Forwarding

**NAT Mappings**

**QoS**

- Bandwidth Control
- Application

**Firewall**

- Access Rules
- Content Blocking

**Routing Protocols**

- OSPF & RIPv2
- BGP

**Remote User Access**

**Misc. Settings**

- Certificate Manager
- Service Forwarding
- Service Passthrough
- GPS Forwarding

**PepVPN with SpeedFusion** AES 256 PW

⚙️ InControl management enabled. Settings can now be configured on [InControl](#).

Profile	Remote ID	4 Remote Address(es)	
		No VPN Connection Defined	<a href="#">New Profile</a>

**Send All Traffic To**

No PepVPN profile selected [✎](#)

**PepVPN Local ID**

Local ID 1 MAX\_SFE\_CAM1 [✎](#)

**PepVPN Settings**

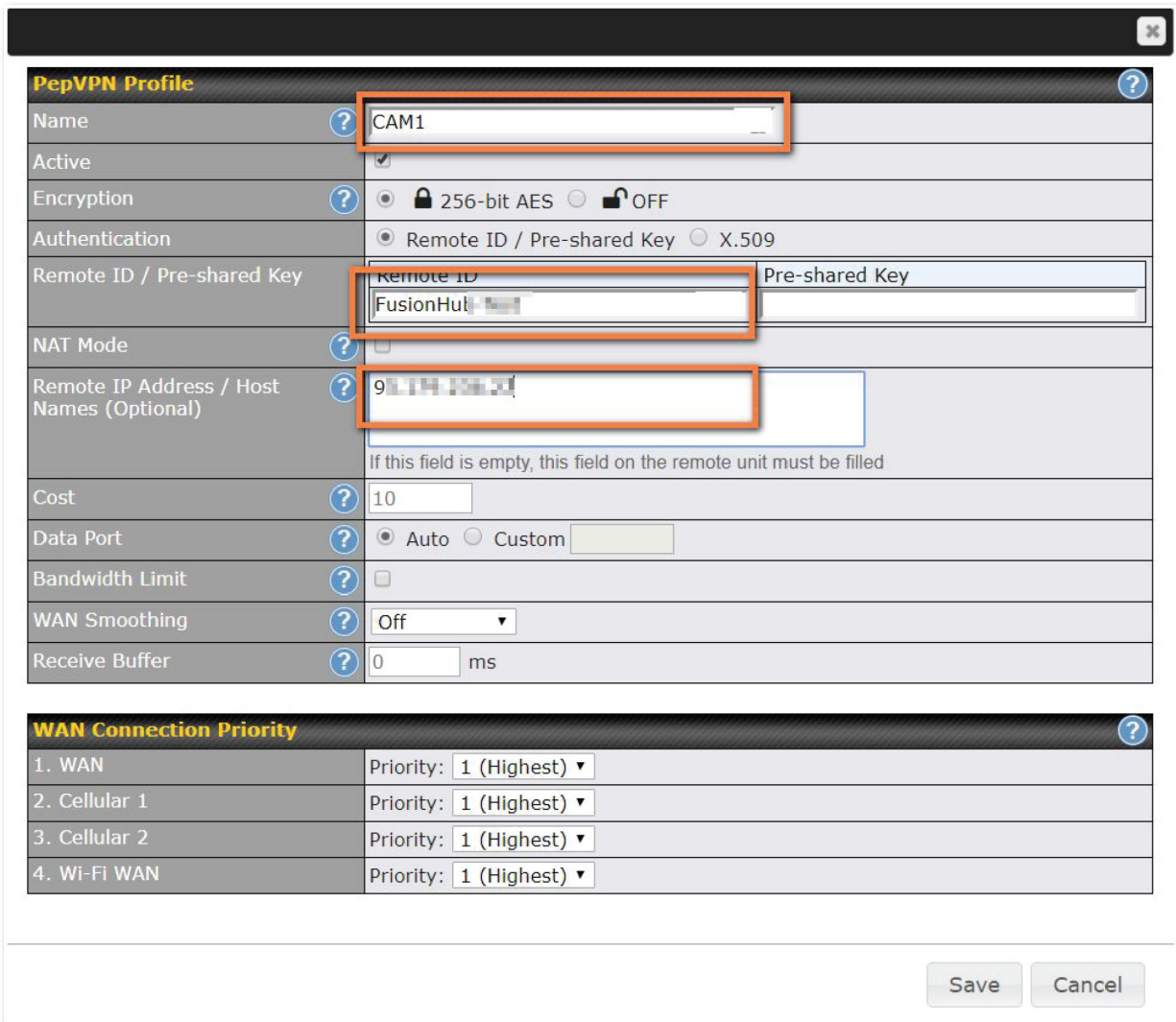
Link Failure Detection Time ?

- ☒ Recommended (Approx. 15 secs)
- ☐ Fast (Approx. 6 secs)
- ☐ Faster (Approx. 2 secs)
- ☐ Extreme (Under 1 sec)

Shorter detection time incurs more health checks and higher bandwidth overhead

2 [Save](#)

1. Edit the PepVPN Local ID to a recognizable, unique Local ID in your network.
2. Save the changes.
3. Apply the change (Changes will be effective after clicking the 'Apply Changes' button).
4. After the above changes have been applied on both devices select **New Profile** on the local web admin interface of the SFE Cam.



PepVPN Profile	
Name	CAM1
Active	<input checked="" type="checkbox"/>
Encryption	<input checked="" type="radio"/> 256-bit AES <input type="radio"/> OFF
Authentication	<input checked="" type="radio"/> Remote ID / Pre-shared Key <input type="radio"/> X.509
Remote ID / Pre-shared Key	<div>Remote ID</div> <div>FusionHub</div> <div>Pre-shared Key</div> <div>[redacted]</div>
NAT Mode	<input type="checkbox"/>
Remote IP Address / Host Names (Optional)	98.174.124.1
If this field is empty, this field on the remote unit must be filled	
Cost	10
Data Port	<input checked="" type="radio"/> Auto <input type="radio"/> Custom
Bandwidth Limit	<input type="checkbox"/>
WAN Smoothing	Off
Receive Buffer	0 ms

WAN Connection Priority	
1. WAN	Priority: 1 (Highest)
2. Cellular 1	Priority: 1 (Highest)
3. Cellular 2	Priority: 1 (Highest)
4. Wi-Fi WAN	Priority: 1 (Highest)

Save Cancel

In the PepVPN Profile window that appears complete the following details:

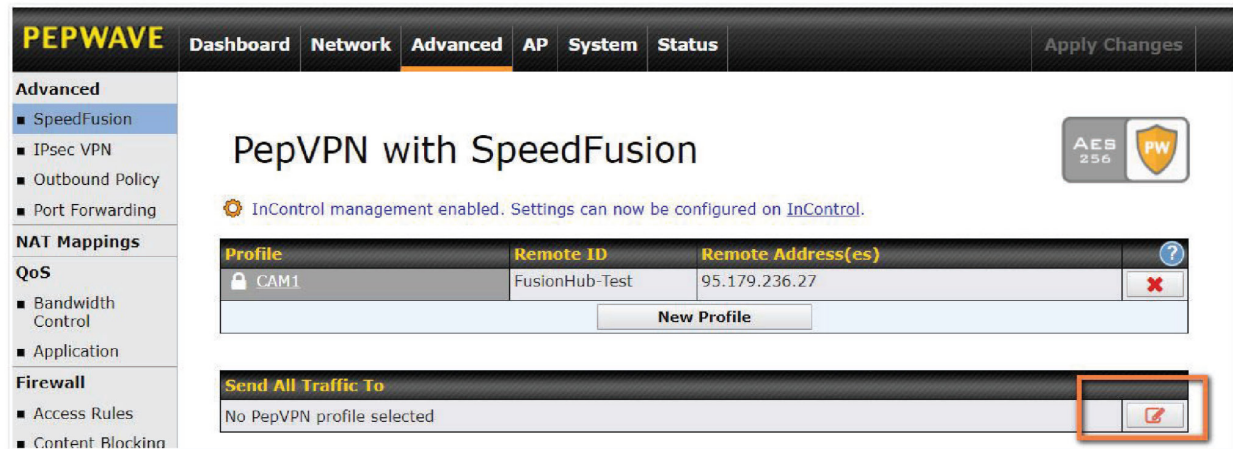
1. Name (This can be any chosen Name)
2. Remote ID (The Local ID of the router that you are connecting to)
3. The WAN IP address of the remote router

Select **Save** and **Apply changes**.

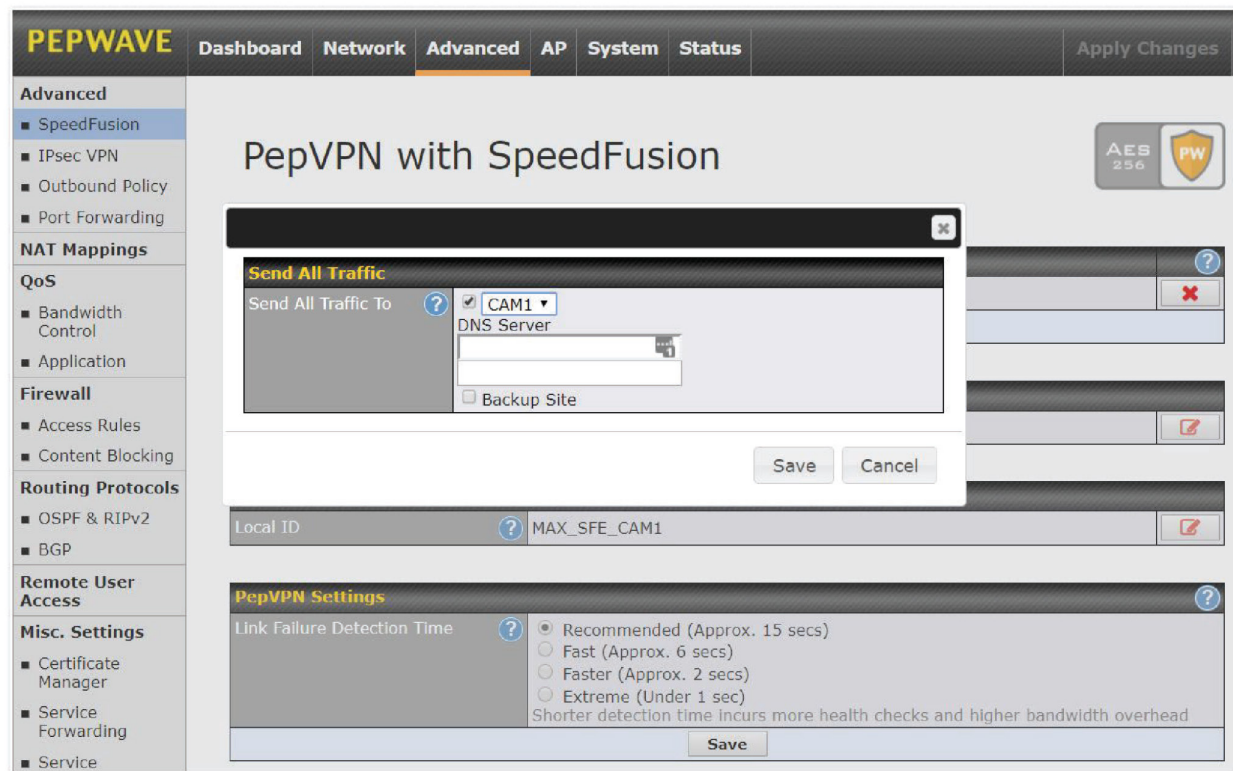
Follow the same steps on the remote router (the Remote IP address is required to establish the SpeedFusion VPN tunnel).

The SpeedFusion Status on the dashboard will change from Starting > Establishing Tunnel > Updating routes to Established.

Finally, make sure all the traffic from the SFE Cam will be sent through the SpeedFusion VPN tunnel by selecting “Send all traffic to” in **Advanced > SpeedFusion**



Select the correct SpeedFusion profile in the window that pops up and Save and Apply the changes.



## Advanced SpeedFusion Options

There are many different advanced SpeedFusion features, to overcome problems and /or improve the connection quality and speed of a SpeedFusion tunnel.

When using multiple bonded cellular connections on the SFE Cam we advise to configure the following settings which will improve the connection in most situations.

Use these options after the initial configuration

### Latency Difference Cutoff

This option can be enabled in the Help section of the SpeedFusion profile (the question mark). This adds another field to the PepVPN profile when enabled.

Traffic will be stopped briefly for WAN connections that exceed the specified millisecond value with respect to the lowest latency link.

For example: If the Lowest latency is 100ms, a value of 150 ms means links with latency 250 ms or more will not be used).

Start with setting this to 150ms; change the setting depending on measured latency of the WAN connections.

The screenshot shows the 'PepVPN Profile' configuration window. The 'Latency Difference Cutoff' field is set to 500 ms and is highlighted with a red box and a blue circle containing the number 2. A help popup is visible on the right side of the interface, containing the following text:

**Help** Close

These settings define a layer-3 IP routing based PepVPN profile.

Click [here](#) to use the IP ToS field on outgoing PepVPN traffic. If *Use IP ToS* is enabled, the ToS value of the data packets will be copied to the PepVPN header during encapsulation.

Click [here](#) if you want to configure Latency Difference Cutoff.

To convert a layer-3 profile into a layer-2 bridging based VPN, please go to the LAN settings page and enable multiple VLANs.

To create multiple tunnels for this profile, click [here](#). Each tunnel contains its own settings like WAN Connection Priority and Bandwidth Limit. Outbound Policy rule can then be used to redirect particular traffic to specific profile's tunnel.

### Suspension Time after Packet Loss (ms)

A common issue when using cellular WAN is packet loss.

In most WAN connections we want to stop using this particular WAN connection when there is Packet loss. The default setting to suspend the WAN connection on pepwave routers is 50 ms. To avoid suspending the cellular connection at all set the value in this field to 0 ms.

### Receive Buffer

While the first option should be configured on the SpeedFusion profile of the SFE Cam, the receive buffer should be configured on the remote Speedfusion profile (the “receiving” end). Receive Buffer can help to reduce out-of-order packets and minimize jitter, but will introduce extra latency to the tunnel.

The buffer size is 0 ms by default, which disables the buffer, and the maximum buffer size is 2000 ms

Note: Disable this option when running PepVPN tests; the receive buffer will make the PepVPN test speeds inaccurate by buffering the data for up to 2 seconds.

### WAN Smoothing

WAN smoothing is useful for situations where improving consistency is more important than improving bandwidth. WAN Smoothing is only needed when there are problems with video streaming (packet drop, jitter).

This feature will assign traffic to the WAN connection with the lowest latency.

Instead of using 1 packet, it will send packets over 2 or more WAN connections and only the packets that arrive first will be used (other packets get discarded).

Thus, the latency of the SpeedFusion tunnel becomes the latency of the most responsive WAN connection.

Useful for deployments where improving consistency is more important than improving bandwidth. WAN smoothing has an overhead of at least 50%.

WAN Smoothing	
OFF	1 packet will be transferred using 1 tunnel.
Normal	2 duplicate packets will be transferred using 2 different tunnels.
Medium	3 duplicate packets will be carried using 3 different tunnels.
High	The amount of duplicate packets used is based on the available tunnels.



## Forward Error Correction

When there isn't enough bandwidth available WAN smoothing can't be used because of the overhead of at least 50%.

Peplink has therefore introduced Forward Error Correction.

The effect of Forward Error Correction is similar to WAN smoothing but it consumes less data.

Forward error correction (FEC) is a digital signal processing technique used to enhance data reliability. It does this by introducing redundant data, called error correcting code, prior to data transmission or storage. FEC provides the receiver with the ability to correct errors without a reverse channel to request the retransmission of data. It is required that the peer router is using.

In the web admin interface go to **Advanced > SpeedFusion** on your SFE Cam.

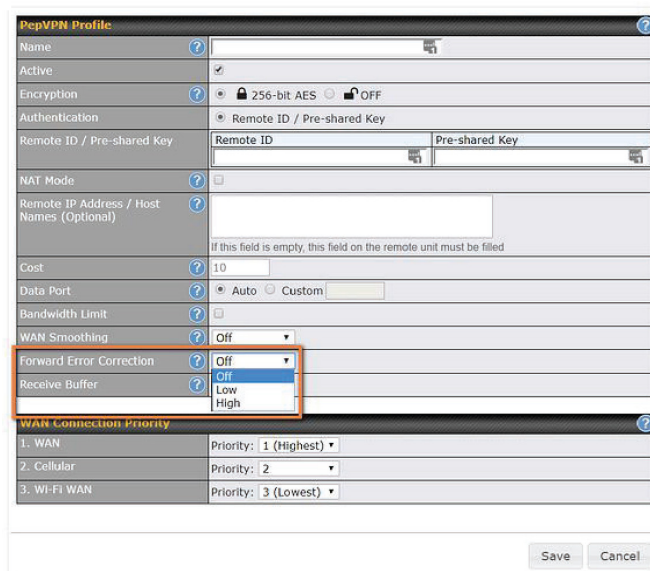
Select a "New Profile" or open an existing PepVPN profile.

Select the option of choice on the Forward Error Correction drop-down list.

Save and Apply the changes.

The options are:

Forward Error Correction	
Off	Default
Low	Expected Overhead 13.3%
High	Expected Overhead 26.7%



The screenshot shows the 'PepVPN Profile' configuration window. The 'Forward Error Correction' dropdown menu is open, showing three options: 'Off' (selected), 'Low', and 'High'. The 'WAN Connection Priority' section below shows three entries: '1. WAN' with priority '1 (Highest)', '2. Cellular' with priority '2', and '3. Wi-Fi WAN' with priority '3 (Lowest)'. The 'Save' and 'Cancel' buttons are at the bottom right.

## Advanced Cellular WAN Options

To avoid problems with using Cellular WAN connections we recommend the following.

- If possible, use SIMs from different cellular providers for greater redundancy
- When using SIMs from the same provider, configure the Cellular WAN to use different bands (frequencies) by selecting the bands manually.

Cellular Settings	
SIM Card	<input checked="" type="radio"/> Both SIMs <input type="radio"/> SIM A Only <input type="radio"/> SIM B
Preferred SIM Card	<input checked="" type="radio"/> No Preference <input type="radio"/> SIM A <input type="radio"/> SIM B
	SIM Card A
Network Selection	<input checked="" type="radio"/> Auto
LTE/3G	Auto
Band Selection	Custom... <input checked="" type="checkbox"/> LTE (Band 1) <input type="checkbox"/> LTE (Band 2) <input checked="" type="checkbox"/> LTE (Band 3) <input type="checkbox"/> LTE (Band 4) <input checked="" type="checkbox"/> LTE (Band 5) <input checked="" type="checkbox"/> LTE (Band 7) <input checked="" type="checkbox"/> LTE (Band 8) <input checked="" type="checkbox"/> LTE (Band 12) <input checked="" type="checkbox"/> LTE (Band 13) <input checked="" type="checkbox"/> LTE (Band 20) <input checked="" type="checkbox"/> LTE (Band 25) <input checked="" type="checkbox"/> LTE (Band 26) <input checked="" type="checkbox"/> LTE (Band 29) <input checked="" type="checkbox"/> LTE (Band 30) <input checked="" type="checkbox"/> LTE (Band 41) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (850 MHz) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (900 MHz) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (1700 MHz) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (1800 MHz) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (1900 MHz) <input checked="" type="checkbox"/> WCDMA / HSDPA / HSUPA / HSPA+ (2100 MHz)
Data Roaming	<input type="checkbox"/>
Authentication	Auto
Operator Settings	<input checked="" type="radio"/> Auto <input type="radio"/> Custom
APN	<input type="text"/>
Username	<input type="text"/>
Password	<input type="password"/>
Confirm Password	<input type="password"/>
SIM PIN (Optional)	<input type="text"/> (Confirm)
Bandwidth Allowance Monitor	<input type="checkbox"/> Enable

## Testing Efficiency

The SFE Cam has several tools built-in to test the throughput of your WAN connection and SpeedFusion VPN.

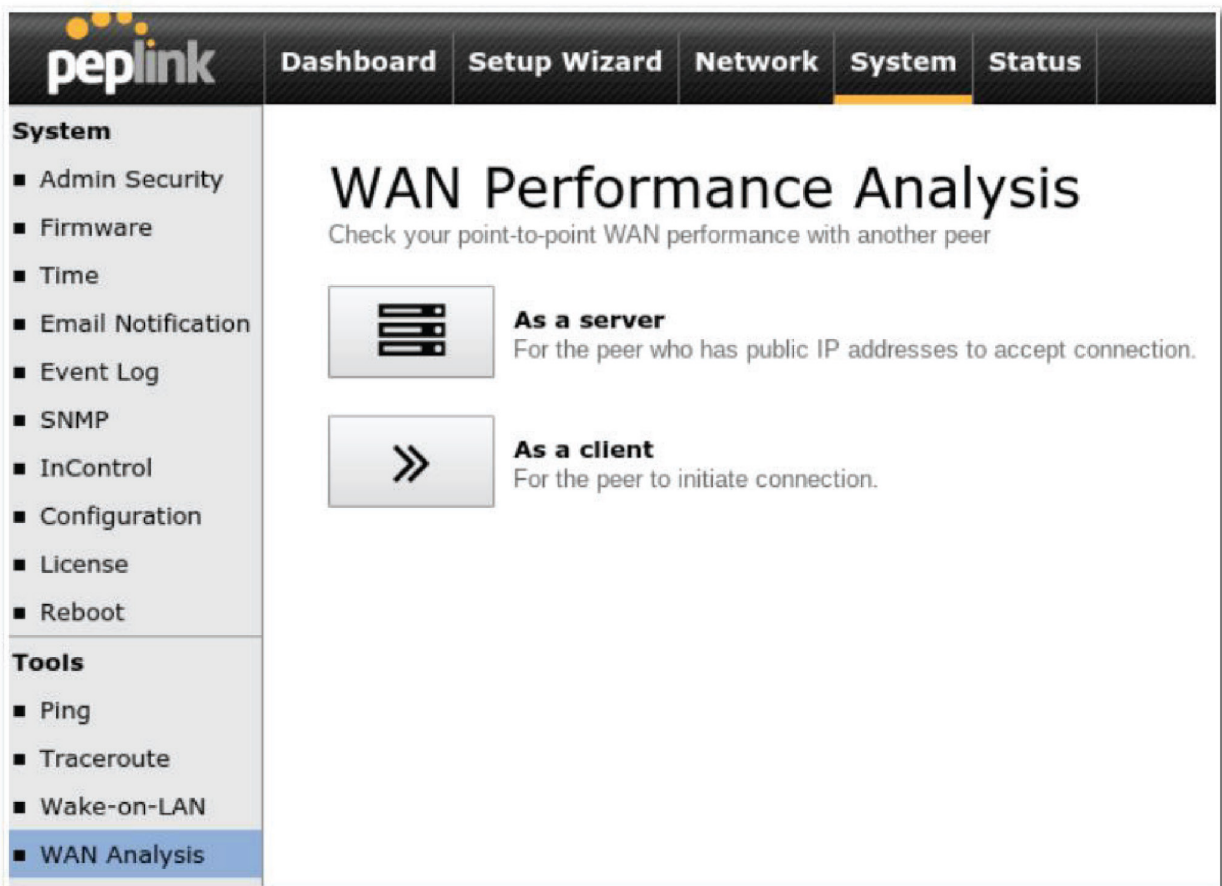
### Wan Performance Analysis

WAN Analysis allows you to run a WAN to WAN speed test.

You need 2 Peplink devices.

You'll have the option of setting a device up as a Server or a Client and therefore need 2 Peplink devices to do this.

One device must be set up as a server to run the tests and the server must have a public IP address. This is done from the UI under the **System > WAN Analysis** tab.



The default port is 6000 and can be changed if required.

The IP address of the WAN interface will be shown in the WAN Connection Status section.



**System**

- Admin Security
- Firmware
- Time
- Schedule
- Email Notification
- Event Log
- SNMP
- InControl
- Configuration
- Feature Add-ons
- Reboot

**Tools**

- Ping
- Traceroute
- Wake-on-LAN
- WAN Analysis

**Logout**

## WAN Performance Analysis

Check your point-to-point WAN performance with another peer

**Server Settings**

Status	<input checked="" type="checkbox"/> Listening (Control Port: 6000)
Control Port	6000

**Apply** **Stop**

**WAN Connection Status**

1	<input checked="" type="checkbox"/> WAN 1
2	<input type="checkbox"/> Disabled
3	<input checked="" type="checkbox"/> WAN 3
4	<input type="checkbox"/> WAN 4
5	<input type="checkbox"/> WAN 5
6	<input type="checkbox"/> WAN 6
7	<input type="checkbox"/> WAN 7
8	<input type="checkbox"/> Mobile Internet

The client side has a few more settings that can be changed. Make sure that the Control Port matches what's been entered on the server side. Select the WAN(s) that will be used for testing and enter the Servers WAN IP address. Once all of the options have been set, click the **Start Test** button.

**System**

- Admin Security
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- Feature Add-ons
- Reboot

**Tools**

- Ping
- Traceroute
- Wake-on-LAN
- WAN Analysis

**Logout**

## WAN Performance Analysis

Check your point-to-point WAN performance with another peer

**Client Settings**

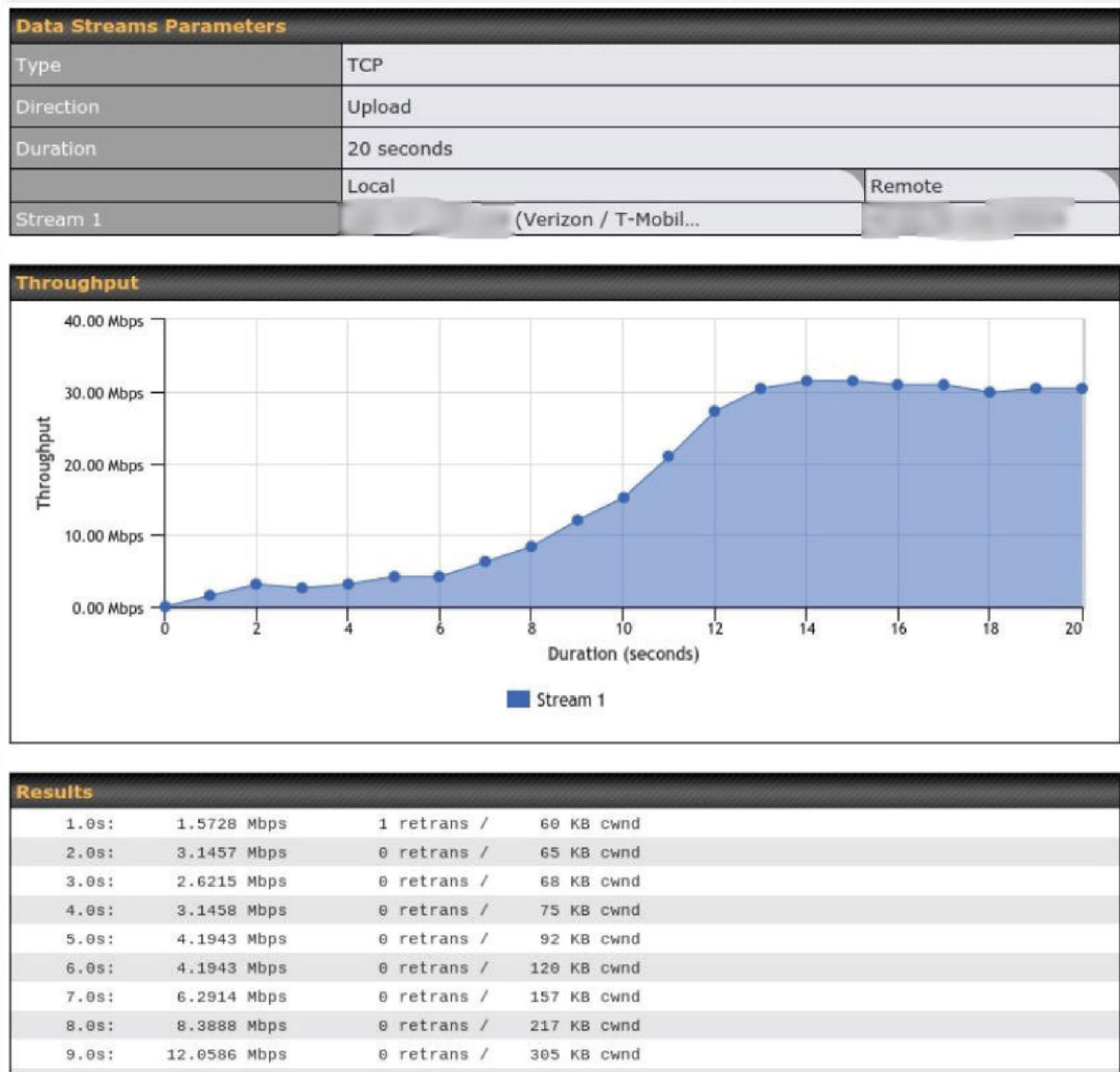
Control Port	6000
Data Port	6001 - 6004
Type	<input checked="" type="radio"/> TCP <input type="radio"/> UDP
Direction	<input type="radio"/> Upload <input checked="" type="radio"/> Download
Duration	20 seconds (5 - 600)

**Data Streams**

Local WAN Connection	Remote IP Address
1. <input type="text"/>	<input type="text"/>
2. <input type="text"/>	<input type="text"/>
3. -- Not Used --	<input type="text"/>
4. -- Not Used --	<input type="text"/>
5. -- Not Used --	<input type="text"/>
6. -- Not Used --	<input type="text"/>
7. -- Not Used --	<input type="text"/>
8. -- Not Used --	<input type="text"/>

**Start Test**

The test output will show the Data Streams Parameters, the Throughput as a graph, and the Results.



The test can be run again once it's complete by clicking the Start button or you can click Close and change the parameters for another test.

The PepVPN test is completely rewritten since firmware 7.1. making it far more versatile than it was. You can now show remote connections, and enable and disable these connections to run different tests to see which combinations of connections are the ideal combination for the SpeedFusion tunnel. This shows the real point to point speed from one end of the tunnel to the other, unlike regular speed test which shows the speed from your router to a Speedtest server in a location near you.

Once we established which WAN connections perform best (up- and download speed) we'll have a look at the Advanced Settings in the Speedfusion profile that can be enabled when selecting the question marks.

## PepVPN Test

The PepVPN Tests allow you to check the general TCP/UDP throughput within the SpeedFusion VPN tunnel.

Open **Status > Speedfusion** in the web interface.

Select the button net to a PepVPN profile to test the PepVPN connection.

Remote Peer	Profile	Information
Balance	Rx: 9.0 kbps Tx: 57.2 kbps	Loss rate: 0.0 pkt/s Latency: 28 ms
	Rx: 7.9 kbps Tx: 47.0 kbps	Loss rate: 0.0 pkt/s Latency: 42 ms
Total	Rx: 16.9 kbps Tx: 104.2 kbps	Loss rate: 0.0 pkt/s
MAX-BR1		
BT		Standby - in lower priority

A new window showing the PepVPN Connection information will pop up.

When the check box is selected Remote connections are shown as well as the local WAN connections. A slider allows you to temporary disable a WAN connection to run tests on individual links and easily assist in finding the best performing combination of WAN connections.

WAN Label	WAN Name	IP Address and Port	Rx	Tx	Loss rate	Latency
WAN			< 1 kbps	< 1 kbps	0.0 pkt/s	35 ms
Cellular						
WAN						
Cellular						

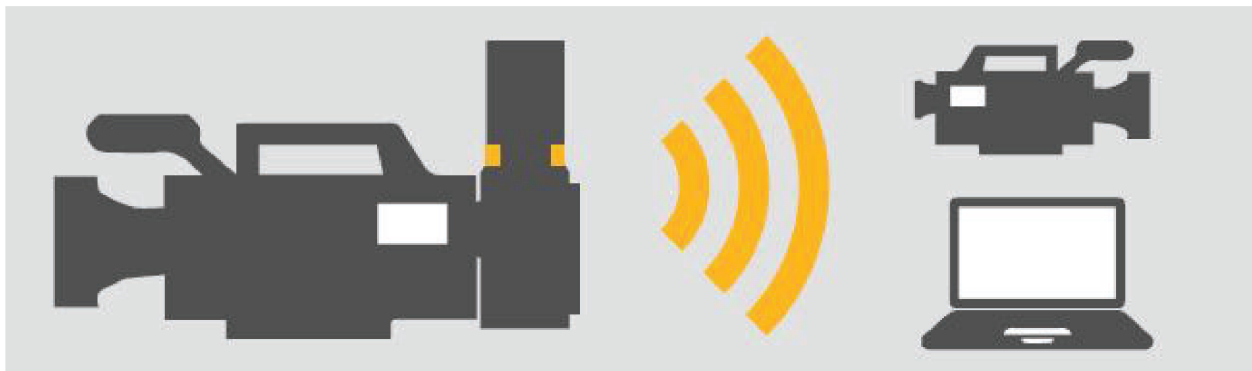
Run a test and see the test result after configuring the desired options.

PepVPN Test Configuration		
Type	<input checked="" type="radio"/> TCP <input type="radio"/> UDP	
Streams	4 ▼	
Direction	<input checked="" type="radio"/> Upload <input type="radio"/> Download	
Duration	20 seconds (5 - 600)	
		<b>Start</b>

PepVPN Test Results	
No information	

## Mobile Wireless Hub

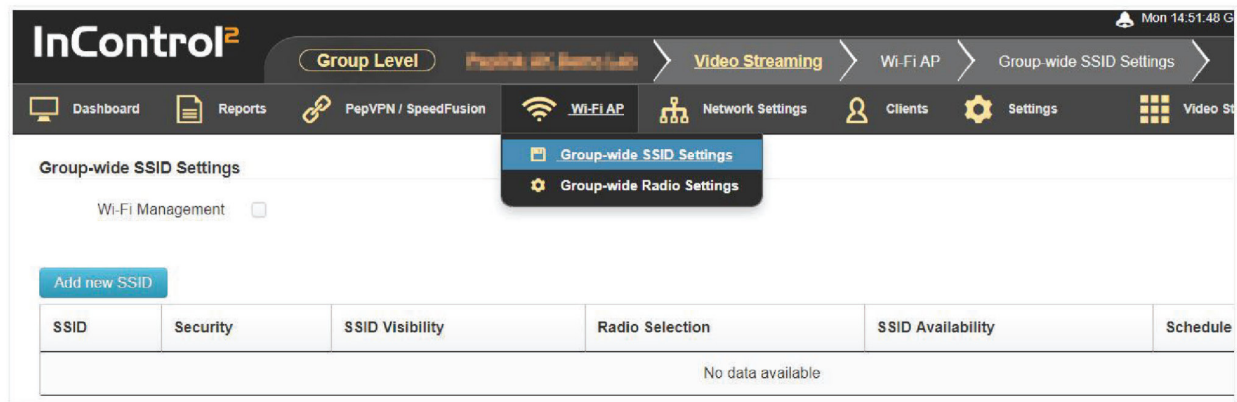


With its Wi-Fi radio, the SFE Cam can turn your IP camera into a portable hotspot with VPN access to headquarters.

You can use this hotspot to connect laptops to begin post-processing, or even connect another IP camera for video streaming.

The options to configure a wireless hotspot can be found in InControl or on the local Web Admin Interface in the **AP** section.

### Configure Wi-Fi AP in InControl



Open the Wi-Fi AP group settings and select Group-wide SSID settings.  
Make sure the Wi-Fi Management Check box is ticked and select **Add New SSID**.

InControl is built to be self intuitive, complete the empty fields and save the settings.

### SSID Settings

**SSID** ⓘ

**Enable** ☒

**SSID Availability**

Device Selection

**Security Settings**

Security Policy

Layer 2 Isolation ☐ Enable

**SSID Discovery**

SSID Visibility

**VLAN Settings**

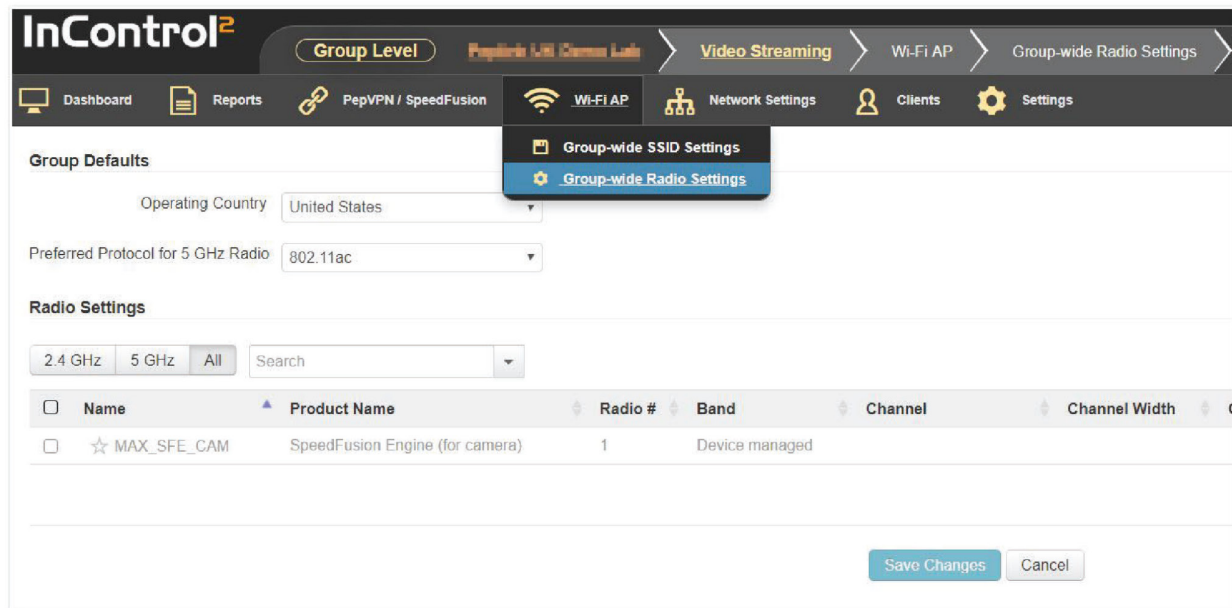
VLAN Tagging ☐

**MAC Filter**

Restriction Mode



Select Group-wide Radio Settings to configure the required settings for the 2.4 radios and 5 GHz radios.



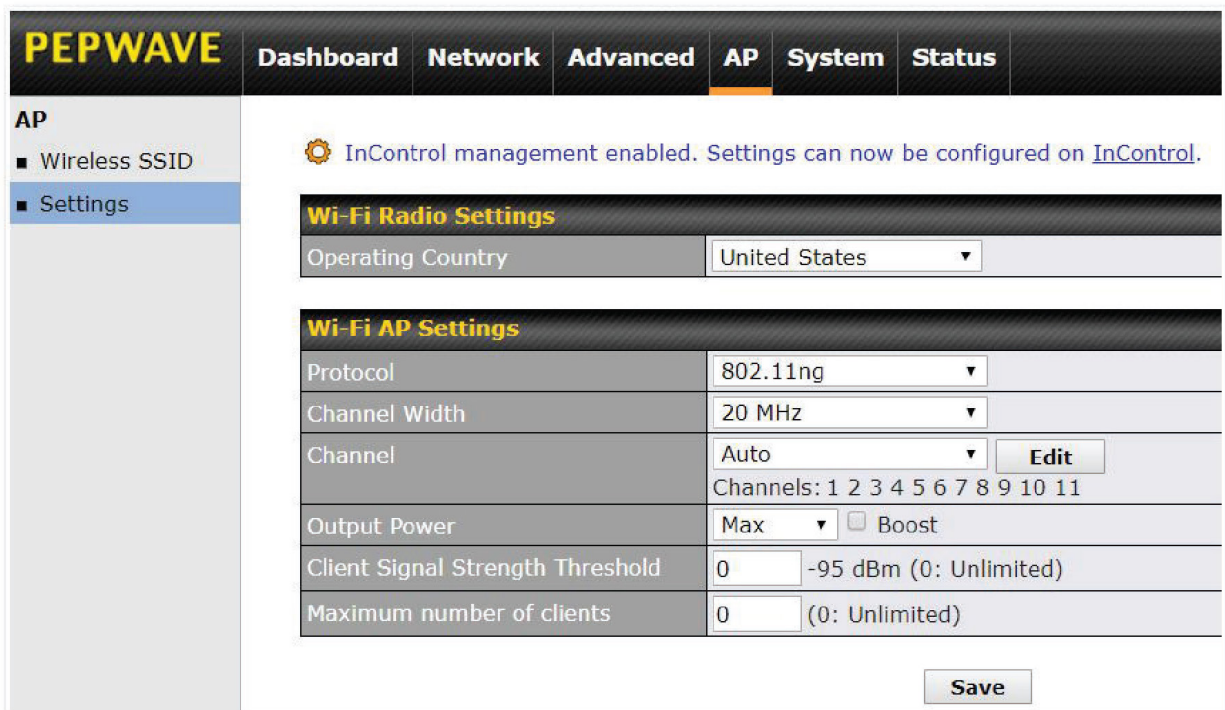
The InControl2 interface shows the 'Group-wide Radio Settings' configuration page. The top navigation bar includes 'Group Level', 'Peplink Wi-Fi Camera Link', 'Video Streaming', 'Wi-Fi AP', and 'Group-wide Radio Settings'. The left sidebar contains 'Dashboard', 'Reports', 'PepVPN / SpeedFusion', 'Wi-Fi AP', 'Network Settings', 'Clients', and 'Settings'. The main content area is titled 'Group Defaults' and includes 'Operating Country' (United States) and 'Preferred Protocol for 5 GHz Radio' (802.11ac). Below this is the 'Radio Settings' section with tabs for '2.4 GHz', '5 GHz', and 'All'. A table lists radio configurations:

Name	Product Name	Radio #	Band	Channel	Channel Width
MAX_SFE_CAM	SpeedFusion Engine (for camera)	1	Device managed		

Buttons for 'Save Changes' and 'Cancel' are at the bottom right.

## Configure Wi-Fi AP using the local web admin interface

In the web admin interface select **AP > Settings**



The PEPWAVE web admin interface shows the 'AP > Settings' configuration page. The top navigation bar includes 'Dashboard', 'Network', 'Advanced', 'AP', 'System', and 'Status'. The left sidebar contains 'AP', 'Wireless SSID', and 'Settings'. The main content area is titled 'Wi-Fi Radio Settings' and includes 'Operating Country' (United States). Below this is the 'Wi-Fi AP Settings' section with the following configuration options:

Protocol	802.11ng
Channel Width	20 MHz
Channel	Auto (Channels: 1 2 3 4 5 6 7 8 9 10 11)
Output Power	Max (Boost checkbox)
Client Signal Strength Threshold	0 -95 dBm (0: Unlimited)
Maximum number of clients	0 (0: Unlimited)

A 'Save' button is located at the bottom right.

Choose the Operating country, other options may be changed when required, but the default options will suffice for most configurations.  
Don't forget to save and apply the changes.

Additionally, configure a Wireless SSID.  
A SSID already exists in the default configuration.

SSID

SSID Settings

SSID	CAM1 WIFI
Enable	<input checked="" type="checkbox"/>
VLAN	Untagged LAN ▼
Broadcast SSID	<input checked="" type="checkbox"/>

Security Settings

Security Policy	WPA/WPA2 - Personal ▼
Encryption	TKIP/AES:CCMP
Shared Key	<input type="password"/> <input checked="" type="checkbox"/> Hide Characters

Access Control Settings

Restricted Mode	None ▼
-----------------	--------

Save

Cancel

Open that SSID profile by selecting it and change the required parameters.  
Save and Apply the changes.

Other devices can now establish a secure connection to the main datacenter by connecting to the SSID that is published from the SFE Cam.

## Additional Resources

### [Pepwave MAX User manual](#)

More detailed instructions for Pepwave devices can be found in the Pepwave Max User Manual

### [Peplink forum](#)

Peplink has an active forum where Peplink Users discuss deployments and problems. Experienced Peplink users are on hand to answer any questions.

### [Peplink website](#)

The Peplink website contains general information about Peplink SD-WAN routers and provides links to Peplin partners and distributors and contact details in case you have a problem with your device.



## **FCC Requirements for Operation in the United States**

### **Federal Communications Commission (FCC) Compliance Notice:**

#### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

#### **Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

#### **Battery Caution Statement**

Risk of explosion if the battery replaced by an incorrect type, place the battery into fire, a hot oven, extremely high temperature or low air pressure surrounding environment, the leakage of flammable liquid or gas, and mechanically crushing or cutting of the battery.

## CE Statement for Pepwave Routers ( SpeedFusion Engine )

### DECLARATION OF CONFORMITY

We affirm the electrical equipment manufactured by us fulfils the requirements of the Radio Equipment Directive 2014/53/EU.

Name of manufacturer	Pismo Labs Technology Limited
Contact information of the manufacturer	Unit A5, 5/F, HK Spinners Ind. Bldg., Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong tel. (852) 2990 7600, fax. (852) 3007 0588 e-mail: cs@peplink.com
Description of the appliance	Pepwave / Peplink / Pismo Wireless Product
Model name of the appliance	SpeedFusion Engine SFE-CAM-AB-LTEA-W SFE-CAM-VM-LTEA-W SFE-CAM-AB-LTEA-P SFE-CAM-VM-LTEA-P SFE-CAM Pismo827 Pismo 827
Trade name of the appliance	Pepwave / Peplink / Pismo

The construction of the appliance is in accordance with the following standards:

EN 300 328 V2.1.1  
 EN 301 893 V2.1.1  
 EN 301908-1 V11.1.1  
 EN 303 413 V1.1.1  
 EN 301 489-1 V2.2.0  
 EN 301 489-19 V2.1.0  
 EN 301 489-17 V3.2.0  
 EN 301 489-52 V1.1.0  
 EN 55032: 2015 + AC:2016-07  
 EN 61000-3-2: 2014  
 EN 61000-3-3: 2013  
 EN 55024: 2010 + A1 :2015  
 EN 62311 : 2008  
 EN 60950-1:2006+A11: 2009+A1:2010+A12:2011+A2:2013

Yours sincerely,




Antony Chong  
 Director of Hardware Engineering  
 Peplink International Limited

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK(NI)

**2.4GHz ( 2412 - 2472 MHz ) : 19.93 dBm**

**5GHz ( 5150 - 5250 MHz ) : 22.78 dBm**

**WWAN : Refer 3GPP TS 36.521 -1 ( UE Power class )**

**MC7455 module:**

**Table 4-6: Conducted Tx (Transmit) Power Tolerances**

Parameter	Conducted transmit power	Notes
<b>LTE</b>		
LTE Band 1,3,8,20	+23 dBm $\pm$ 1 dB	
LTE Band 7	+22 dBm $\pm$ 1 dB	
<b>UMTS</b>		
Band 1 (IMT 2100 12.2 kbps) Band 3 (UMTS 1800 12.2 kbps) Band 8 (UMTS 900 12.2 kbps)	+23 dBm $\pm$ 1 dB	Connectorized (Class 3)

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

This equipment is restricted to indoor use only when operating in the 5150 to 5250 MHz frequency range in above countries.

contact as: <https://www.peplink.com/>