



# FortiRecorder - SD Branch Deployment Guide

Version 2.7.2



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# **Change Log**

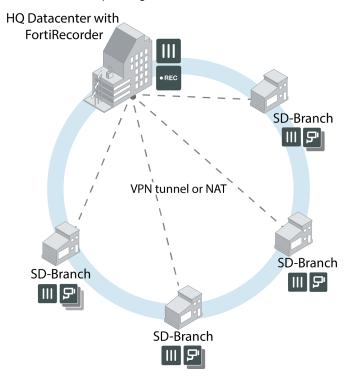
Date	Change Description
2019-10-23	Initial release.

Introduction 5

### Introduction

This deployment guide demonstrates how to configure your FortiRecorder and FortiCameras using edge recording in a typical SD-Branch scenario.

This setup is optimal when there are several branch offices with a small number of cameras connected to an HQ datacenter with a FortiRecorder. See the example diagram below.



SD-Branch edge recording allows you to manage cameras across multiple branches from a single HQ FortiRecorder through a VPN tunnel or NAT. In this configuration, only status information is exchanged between the camera and recorder, resulting in the use of less bandwidth than when transferring video.

Captured video is recorded onto the local SD card of the camera, and can be viewed from the HQ FortiRecorder after a short delay while the video downloads. FortiCameras set up in this way can be configured to record continuously or with motion detection only. When a live stream is required, the recorder establishes a streaming connection to the camera that stays active as long as the view is in use.

Edge recording in an SD branch scenario can be set up using one of two methods:

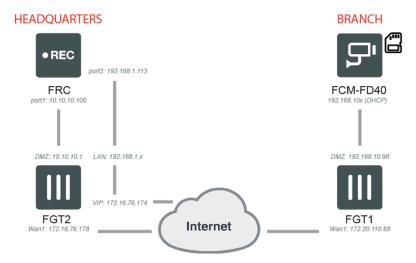
- SD-Branch configuration using VPN tunnels on page 6
- SD-Branch configuration using NAT on page 12

# SD-Branch configuration using VPN tunnels

In order to configure a FortiRecorder SD-Branch using VPN tunnels, complete the following steps:

- 1. Obtaining camera information on page 6
- 2. Establishing a tunnel on page 7
- 3. Configuring the HQ FortiGate tunnel on page 9
- 4. Configuring the cameras on page 9

The topology and example addresses used for these instructions are as follows:



# **Obtaining camera information**

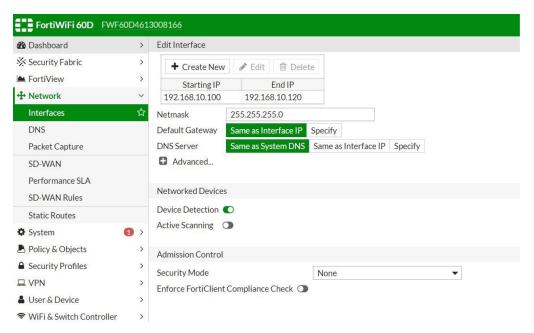
First you will need to obtain the IP address of your DHCP enabled camera in FortiGate. Make note of the MAC address of the camera before deployment.

#### To obtain the addresses of your cameras:

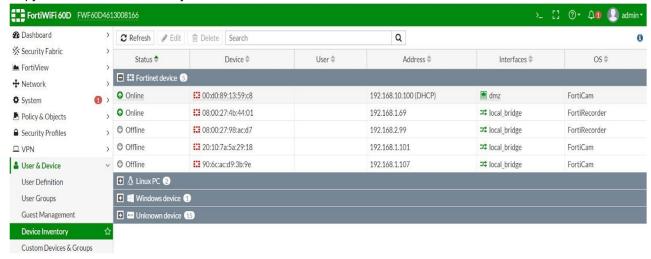
- 1. Go to Network > Interfaces.
- 2. Select the interface, and click Edit.
- 3. Enable Device Detection.



Device detection does not work with all camera models.



- 4. Go to User & Device > Device Inventory.
- **5.** Copy the Address numbers for your cameras.



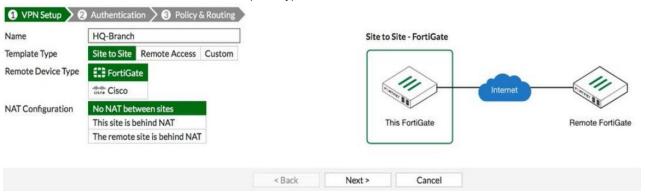
Alternatively, you can look at FGT1 Monitor-DHCP monitor.

### **Establishing a tunnel**

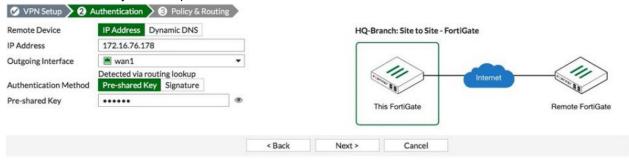
With the camera addresses obtained, you can now establish a tunnel between the HQ and the branch.

#### To establish a tunnel:

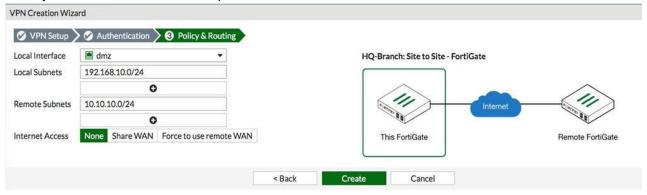
- **1.** In the FortiGate branch, go to *VPN > IPsec Wizard*.
- 2. Enter a name and select the Site to Site template type.



- 3. Select *FortiGate* for the Remote Device Type.
- **4.** For NAT Configuration, select *No NAT between sites*, then click *Next*.
- **5.** Enter the address of your headquarters FortiGate.



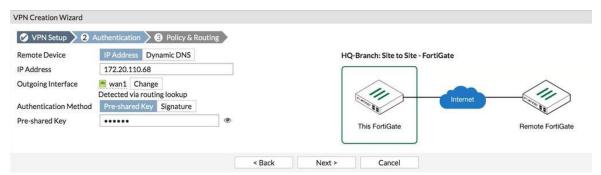
- 6. Enter the pre-shared key, and select Next.
- 7. Select your local interface from the dropdown menu.



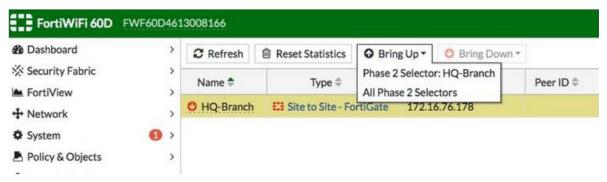
- 8. Enter the address where the cameras are located in the Local Subnets field.
- 9. Enter the address where your FortiRecorder is located in the Remote Subnets field, then select Create.

## Configuring the HQ FortiGate tunnel

You can now set up the HQ FortiGate tunnel following a similar procedure as before; however, in the Authentication portion of the VPN Creation Wizard, enter the WAN1 address for the branch where the cameras are located.



Once completed, bring up the tunnel.

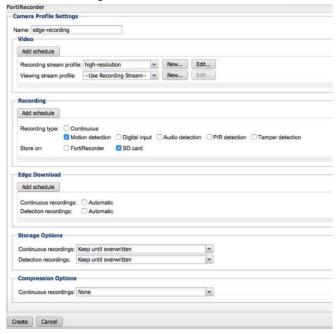


## **Configuring the cameras**

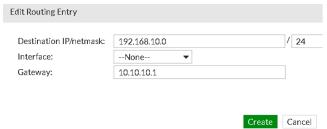
Cameras can now be configured in FortiRecorder, and routing can be established to the FortiGate HQ.

#### To set up a camera in FortiRecorder:

- 1. Go to Camera > Configuration > Camera Profile.
- 2. Select an existing camera and select *Edit* or select *New*.

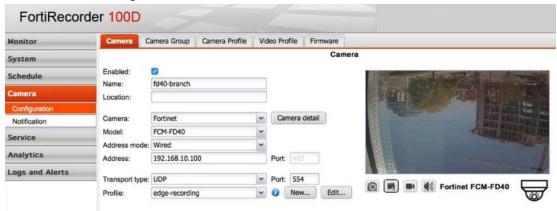


- Name the profile and edit the settings as desired.Edge recording works with either continuous or motion detection.
- 4. In the Recording section, enable SD card.
- 5. Select Create.
- 6. Go to System > Network > Routing.
- 7. Select New.



- 8. Enter the DMZ subnet of your branch location where the cameras are located in the Destination IP/netmask field.
- **9.** Select the desired interface and enter the gateway.
- 10. Select Create.
- **11.** Ping the camera from the recorder.

12. Go to Camera > Configuration > Camera.



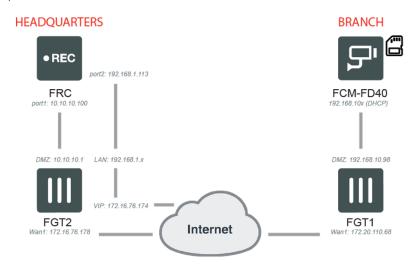
- 13. Enter the necessary details and select *Wired* from the address mode dropdown menu.
- **14.** Enter the address, select *edge-recording* from the Profile dropdown menu, and select *Create*.

# SD-Branch configuration using NAT

In order to configure a FortiRecorder SD-Branch using NAT, complete the following steps:

- 1. Configuring port forwarding and routing on page 12
- 2. Creating a policy on page 14
- 3. Setting up RTSP on FortiGate on page 15
- 4. Configuring the cameras on page 16
- 5. Real-Time Streaming Protocol (RTSP) session helper on page 17

The topology and example addresses used for these instructions are as follows:

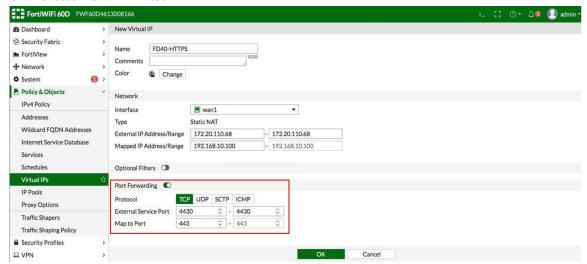


## Configuring port forwarding and routing

You will first need to port forward the WAN1 camera in the FortiGate branch.

#### To configure forwarding and routing:

- 1. Go to Policy & Objects > Virtual IPs.
- 2. Click Create New and Virtual IP.



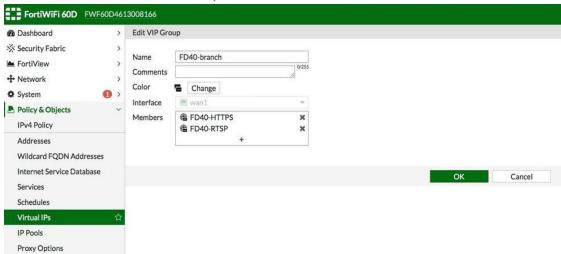
- 3. Enter a name for the Virtual IP.
- 4. Select the WAN1 interface from the dropdown interface menu.
- 5. Enable Port Forwarding and select OK.



The External Service Port range is required during camera configuration. See Configuring the cameras on page 16.

You can now make a virtual IP group to apply the policy to the entire group, rather than individual VIPs.

- 1. Go to Policy & Objects > Virtual IPs.
- 2. Click Create New and Virtual IP Group.



3. Enter a name for the group.

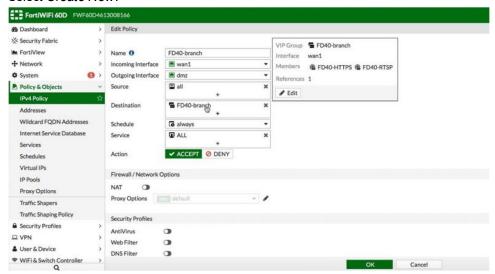
- **4.** Select the cameras in the group from the Members section.
- 5. Select OK.

### **Creating a policy**

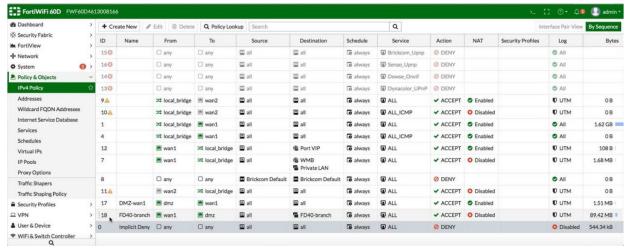
You will now need to create a policy to route.

#### To create a policy to route:

- 1. Go to Policy & Objects > IPv4 Policy.
- 2. Select Create New.



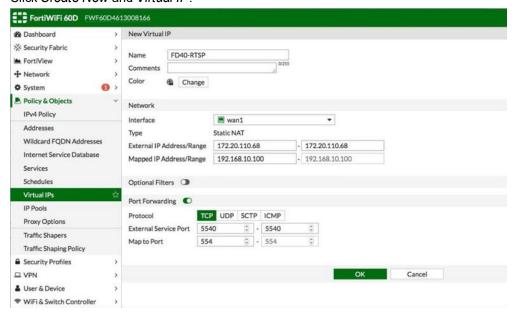
- 3. Enter a name for the policy.
- **4.** Select *wan1* for the incoming interface and *dmz* for the outgoing interface.
- 5. Select the VIP group for the Destination.
- **6.** Enter the rest of the options as desired, and click *OK*. The camera will now be available under 172.20.110.68:4430.



### Setting up RTSP on FortiGate

#### To set up the RTSP:

- 1. Go to Policy & Objects > Virtual IPs.
- 2. Click Create New and Virtual IP.

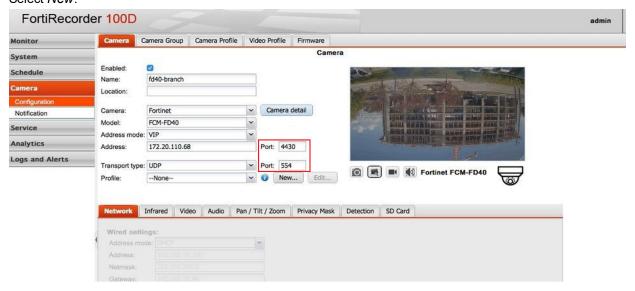


- 3. Enter the addresses.
- 4. Enter a name for the virtual IP and select wan1 from the Interface dropdown menu.
- **5.** Select TCP as the desired protocol and enter *5540-5540* for the External Service Port range, and *554* for the Map to Port.

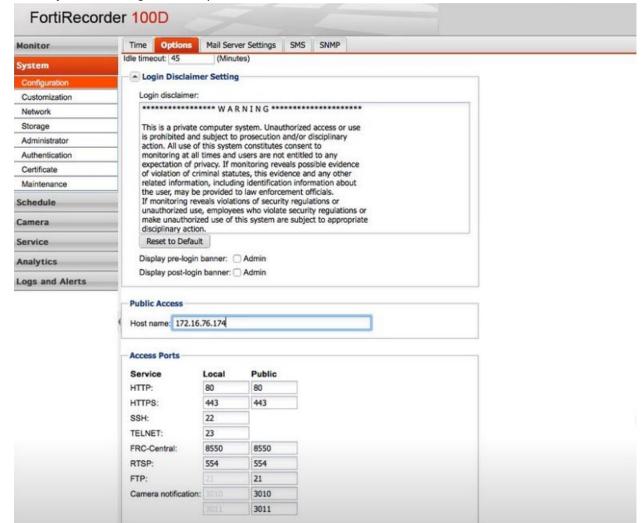
# **Configuring the cameras**

#### To add your cameras in FortiRecorder:

- 1. Go to Camera > Configuration > Camera.
- 2. Select New.



- 3. Enter the name of the camera.
- **4.** Select *VIP* from the Address mode dropdown menu, and enter the address and port.
- 5. Select the SD Card tab and enable SD Storage.
- 6. Enter the rest of the options as desired, and click Create.



7. Go to System > Configuration > Options and enter a Public Access address.

The example screenshots of the setup work because the recorder is using a VIP, which puts the FortiRecorder basically directly on the internet. In a NAT translated situation on the recorder side, you may require a session helper to get RTSP/RTP live streaming operational. See Real-Time Streaming Protocol (RTSP) session helper on page 17.

### Real-Time Streaming Protocol (RTSP) session helper

The Real-Time Streaming Protocol (RTSP) is an application layer protocol often used by SIP to control the delivery of multiple synchronized multimedia streams, for example, related audio and video streams. Although RTSP is capable of delivering the data streams itself it is usually used like a network remote control for multimedia servers. The protocol is intended for selecting delivery channels (like UDP, multicast UDP, and TCP) and for selecting a delivery mechanism based on the Real-Time Protocol (RTP). RTSP may also use the SIP Session Description Protocol (SDP) as a means of providing information to clients for aggregate control of a presentation consisting of streams from one or more servers, and non-aggregate control of a presentation consisting of multiple streams from a single server.

To accept RTSP sessions you must add a security policy with service set to any or to the RTSP pre-defined service (which listens on TCP ports 554, 770, and 8554 and on UDP port 554). The RTSP session helper listens on TCP ports 554, 770, and 8554.

The RTSP session help is required because RTSP uses dynamically assigned port numbers that are communicated in the packet body when end points establish a control connection. The session helper keeps track of the port numbers and opens pinholes as required. In Network Address Translation (NAT) mode, the session helper translates IP addresses and port numbers as necessary.

In a typical RTSP session the client starts the session (for example, when the user selects the Play button on a media player application) and establishes a TCP connection to the RTSP server on port 554. The client then sends an OPTIONS message to find out what audio and video features the server supports. The server responds to the OPTIONS message by specifying the name and version of the server, and a session identifier, for example, 24256-1.

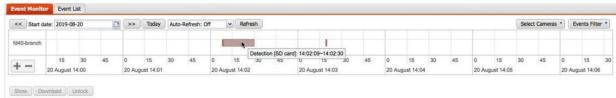
The client then sends the DESCRIBE message with the URL of the actual media file the client wants to play. The server responds to the DESCRIBE message with a description of the media in the form of SDP code. The client then sends the SETUP message, which specifies the transport mechanisms acceptable to the client for streamed media, for example RTP/RTCP or RDT, and the ports on which it receives the media.

In a NAT configuration the RTSP session helper keeps track of these ports and addresses translates them as necessary. The server responds to the SETUP message and selects one of the transport protocols. When both client and server agree on a mechanism for media transport the client sends the PLAY message, and the server begins streaming the media.

# Monitoring SD-Branch recordings on the HQ FortiRecorder

When everything has been properly configured, recordings from SD-Branch cameras can be viewed through the HQ FortiRecorder.

Motion events are viewable by going to Monitor > Event > Event.



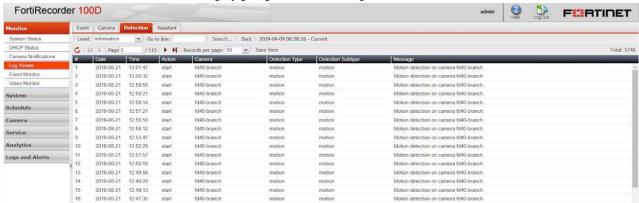
- You can select the desired clip and then click *Show*. After a few moments the clip has been downloaded and playback begins.
- Downloaded clips appear as bright-red bars to indicate that they are available on the local recorder storage.



- Most clips begin with an event marker. If the motion is extended and triggers multiple clips nearly consecutively, a
  marker is generated every minute.
- When viewing video through a live feed, temporary recordings display in your timeline as blue bars.



View motion events in the detection log by going to Monitor > Log Viewer > Detection.







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