Troubleshoot DFS Event Log and Alert in Meraki Wireless Access Point

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Introduction

This document describes how to resolve the Dynamic Frequency Selection (DFS) Event Log and Alert in the Meraki Wireless Access Point.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Understand basic Meraki Software-Defined Wide Area Network (SD-WAN) solution
- Understand basic Wireless Technology

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Problem

DFS uses 5 GHz Wi-Fi frequencies generally reserved for radar, such as military radar, satellite communication, and weather radar. The DFS channels vary from country to country. The main benefit to use DFS channels is to increase the number of Wi-Fi channels.

Any Meraki Access point utilises the DFS channel it triggers an alert DFS Event Log and Alert on Meraki MR Access Point. Refer to the screenshot of the alert seen on the device:

Radar event pattern detected on channel 116

This AP recorded 11 radar events across 1 channel between Jan 12 00:40 and Jan 13 00:40 CST:

• Ch. 116: 11 events

Please refer to the <u>event log</u> for more details.

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DFS pattern Event



Network Diagram



Network Diagram

Verify and Troubleshoot

1. DFS Channel Setting Verification

DFS Channel Setting can be verified in the path shown that depends on the Meraki Access point Configuration.

Navigate to Meraki Dashboard > Meraki (select any Site Network with Wireless Access Point or Configuration Template in which Wireless access point configuration is done) and then navigate to Wireless > Radio Setting > RF Profile (select the profile which is attached to the Wireless access point or Network). Navigate to 5 GHz Radio Setting > Channel Assignment Method as shown in the image.

diala Meraki						Q Search Dashboard	19)
e ⁰ e MSD Dortal	This network is acting as the co	onfiguration template for <u>196 networks</u> .						
Crganization	Radio settings						View old vers	ion
			Basic Indoor Profile	DE	FAULT INDOOR			
· the Network				2.4 GHZ	5 GHZ			
Small_Site V			Channel assignment	Auto	Auto			
Network-wide		New Profile	AutoPower max	30	30			
Security & SD-WAN			AutoPower min	5	8			
ill security a sp main			Min. bitrate	12	12			
Switching			Channel width		Auto			
🗢 Wireless	Configure SSIDs		CHANGE DEFAULT PROFILE	Сору	✓ EDIT			
,, Organization	Access control Firewall & traffic shaping	DEFAULT OUTDOOR	Profile_18Mbps_40MHz					
	Splash page	2.4 GHZ 5 GHZ		2.4 GHZ	5 GHZ			
	SSID availability	Auto Auto	Channel assignment	Auto	Auto			
	Padio settings	30 30	AutoPower max	30	30			
	Hotspot 2.0	5 8	AutoPower min	5	8			
	Air Marshal	12 12	Min. bitrate	18	18			
	STREET THAT	Auto	Channel width		40			
	CHANGE DEFAULT PROFILE	COPY FDIT	DELETE	COPY	EDIT			alat 2 De

Verify DFS Setting 1

cisco Meraki										O Sear	h Dashboard	0	۰
ቀ⁰ቀ MSP Portal	General									×			
		20 MHz	38 40	44 48	UNI-2	UNI-2-Extended	116 120 124 128	132 136 140 144	UNII-3	ISM			
Organization		40 MHz	38	46	54 62	102 110	118 126	134 142	151 159				
Network			4	42	58	108 DFS channels D	122 eselect DFS channels	138	155				
Small_Site ~]	Cano	Done			
Network-wide		_	-	-					Curre	Cone			
Switching	Channel a	ssignment	t method	Unless	manually overridden, A	utoChannel will assign rac	lios to channels with low i	nterference.					
🗇 Wireless	Radio tran	ismit powe	er range	Access in									
. Organization	(dBm)			2 3	4 5 6 7 8 9 10	1 11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30					FARTER

Verify DFS Setting 2

2. DFS Event Pattern Alert Verification

DFS Event Pattern Alert can be verified in the path shown. Navigate to Meraki Dashboard > Network (select any Site Network with Wireless Access Point). Navigate to Wireless > Access Points.

🗆 # Name		Connectivity	Alerts	Channels	Configuration status	Model	Status 🖯 🔻	×
□1	AP3		DFS event pattern	1, 128	Up to date	MR56	•	
□ 2	AP4		DFS event pattern	11, 116	Up to date	MR56	•	
□3	- <u>AP1</u>		DFS event pattern	6, 116	Up to date	MR56	•	Paint I Um

DFS Event Pattern Dashboard Alert

3. DFS Event Detected Log Verification

DFS Event Detected Log can be verified in the path shown Meraki Dashboard > Network (select any Site Network with Wireless Access Point) and then Network-Wide > Event Log.

						Q Search Dashboard	1 8	
This ne	network is bound to the configu	uration template Small_Site						
Eve	for access points							
Acc	cess point: Any	Client: Any	Before: 01/19/2023	01:53	(CST)			
Eve	ent type include: DFS event Gearch Reset filters	detected x	Event type ignore: None					
je Down	vnload as •	A	110	Client	Eventhene	Dublic	<u>« newer</u>	r ol
Down Time (vnload as • (CST) •	Access point	SSID	Client	Event type	Details cheenel 116 coder 1	<u>« newe</u> r	r 9
Down Time (Jan 19	vnload as ▼ (CST) ▼ 9 0149:54 9 01:49:54 9 01:29:37	Access point	SSID	Client	Event type DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1	<u>« newe</u>	r s
Down Time (Jan 19 Jan 20	vnload as • (CST) • 9 01:45:54 9 01:28:37 9 01:28:37	Access point - <u>AP1</u> - <u>AP3</u> - AP4	550	Client	Event type DFS event detected DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1	<u>« newe</u>	E 9
Down Time (Jan 19 Jan 19 Jan 19 Jan 19	vnload as • (CST) • 9 01:45:54 9 01:21:55 9 01:21:55 9 01:21:55	Access point - AP1 - AP3 - AP3 - AP1 - AP1	\$30	Client	Event type DFS event detected DFS event detected DFS event detected DFS event detected	Details channel: 118, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1 channel: 116, radio: 1	<u>« newe</u>	E S
Down Time (Jan 19 Jan 19 Jan 19 Jan 10	vnload as + (CST) + 9 014554 9 012455 9 012155 9 011535 9 013535 9 053618	Access point -AP1 -AP3 -AP4 -AP1 -AP3 -AP3	590	Client	Event type DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1 channel: 116, radio: 1 channel: 116, radio: 1	<u>« newer</u>	E I
de Time (Jan 19 Jan 19 Jan 19 Jan 19 Jan 10 Jan 10 Jan 10	vnload as - (CST) + 9 01:45:54 9 01:24:55 9 01:21:55 9 01:51:35 9 00:56:18 9 00:56:18	Access point - AP1 - AP3 - AP4 - AP1 - AP3 - AP3 - AP4	SSID	Client	Event type DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1 channel: 126, radio: 1 channel: 126, radio: 1 channel: 126, radio: 1	<u>« newe</u>	ſ
ide Down Jan 19 Jan 19 Jan 20 Jan 19 Jan 19 Jan 19 Jan 19 Jan 19	wnload as + (CS1) + 8 012454 8 012453 9 012453 9 015135 9 005418 9 005137 9 005137 9 004017	Access point - AP1 - AP3 - AP4 - AP1 - AP3 - AP3 - AP3 - AP1 - AP1	\$\$B	Client	Event type DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1 channel: 116, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1 channel: 116, radio: 1	<u>« newe</u>	r (
de Down Jan 19 Jan 20 Jan 20 J	wnload as • (CST) • 9 014-554 9 0126-37 9 02155 9 0015-35 9 0015-35 9 0015-35 9 000-617 9 000-017 9 000-017	Access point - AP3	\$50	Client	Event type DFS event detected DFS event detected	Details channel: 118, radio: 1 channel: 128, radio: 1 channel: 116, radio: 1 channel: 118, radio: 1	<u>« newe</u>	ſ
wide Down Time (g Jan 19 Jan 19 Jan 19 Jan 19 Jan 19 Jan 19 Jan 30 Jan 19 Jan	vnload as + (CST) + 8 01:45:54 9 01:28:37 9 01:21:55 9 00:51:37 9 00:40:17 9 00:40:17 9 00:40:17 9 00:40:17	Access point -AP1 -AP3 -AP3 -AP4 -AP1 -AP3 -AP4 -AP1 -AP3 -AP4 -AP1 -AP2 -AP4 -AP4 -AP4 -AP4 -AP4 -AP4 -AP4 -AP4	550	Client	Event type DFS event detected DFS event detected	Details channel: 116, radio: 1 channel: 128, radio: 1 channel: 128, radio: 1 channel: 16, radio: 1 channel: 16, radio: 1 channel: 16, radio: 1 channel: 18, radio: 1 channel: 18, radio: 1	<u>« newer</u>	ſ

4. DFS Event Troubleshoot

DFS Pattern Detected Alert and DFS Event Detected Log is troubleshot with configuration change in Radio Profile on Wireless Access Point. Refer to the path shown.

Navigate to Meraki Dashboard > Network (select any Site Network with Wireless Access Point or Configuration Template in which Wireless access point configuration is done) and then Wireless > Radio Setting > RF Profile (select profile which is attached to Wireless access point or Network) > 5 GHz Radio Setting > Channel Assignment Method.

eisco Meraki						Q Search Dashboard	1 9 🌲
** MSP Portal	This network is acting as the co	onfiguration template for <u>196 networks</u>	E				
Organization	Radio settings						View old version
			Basic Indoor Profile	D	EFAULT INDOOR		
Network				2.4 GHZ	5 GHZ		
Small_Site V			Channel assignment	Auto	Auto		
Network-wide		New Profile	AutoPower max	30	30		
Convity & CD-WAN			AutoPower min	5	8		
Security & SD-WAN			Min. bitrate	12	12		
Switching			Channel width		Auto		
🔶 Wireless	Configure		CHANGE DEFAULT PROFILE	COPY	✓ EDIT		
Organization	Access control Firewall & traffic shaping	DEFAULT OUTDO	OR Profile_18Mbps_40MHz				
	Splash page	2.4 GHZ 5 GHZ	Ζ	2.4 GHZ	5 GHZ		
	SSID availability	Auto Auto	Channel assignment	Auto	Auto		
	Radio settings	30 30	0 AutoPower max	30	30		
	Hotspot 2.0	5 8	8 AutoPower min	5	8		
	Air Marshal	12 13	2 Min. bitrate	18	18		
	STREET, TRACT	Auto	D Channel width		40		
	CHANGE DEFAULT PROFILE	COPY / ED	DELETE	COPY	EDIT		

DFS DeSelect Setting 1

cisco Meraki		O. Search Dashboard	1 0 A
	General	×	
•oortal MSP Portal	UNI-1 UNI-2 UNI-5-Extended Weather Radar	UNE-3 ISM	
Organization	20 MHz 38 40 44 48 52 56 60 64 100 104 108 112 116 120 124 128 132 136 140 144	4 149 153 157 161 165	
	40 MHz	151 159	
	42 58 106 122 138	155	
Network Small_Site ~	DFS channels Select DFS channels		
Network-wide		Cancel Done	
Converter & CD-WAN			
Security & SD-WAN	Channel assignment method Unless manually overridden, AutoChannel will assign radios to channels with low interference.		
Switching	Change channels used by AutoChannel		
🔶 Wireless	Radio transmit power range (ritim) Transmit shorter distance Transmit further		
. Organization	0 1 3 4 5 6 7 6 6 9 11 2 13 4 13 8 7 14 19 20 20 20 20 20 20 20 20 20 20 20 20 20		Print 1 Ve

DFS DeSelect Setting 2

Related Information

- Meraki Wireless Dynamic Frequency Selection (DFS)
- <u>Technical Support & Documentation Cisco Systems</u>