Configure and Verify Wi-Fi 6E WLAN Layer 2 Security

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Introduction

This document describes how to configure Wi-Fi 6E WLAN Layer 2 security and what to expect on different clients.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Wireless Lan Controllers (WLC) 9800
- Cisco Access Points (APs) that support Wi-Fi 6E.

- IEEE Standard 802.11ax.
- Tools: Wireshark v4.0.6

Components Used

The information in this document is based on these software and hardware versions:

- WLC 9800-CL with IOS® XE 17.9.3.
- APs C9136, CW9162, CW9164 and CW9166.
- Wi-Fi 6E Clients:
 - Lenovo X1 Carbon Gen11 with Intel AX211 Wi-Fi 6 and 6E Adapter with driver version 22.200.2(1).
 - Netgear A8000 Wi-Fi 6 and 6E Adapter with driver v1(0.0.108);
 - Mobile Phone Pixel 6a with Android 13;
 - Mobile Phone Samsung S23 with Android 13.

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.

Background Information

The key thing to know is that Wi-Fi 6E is not an entirely new standard, but an extension. At its base, Wi-Fi 6E is an extension of the Wi-Fi 6 (802.11ax) wireless standard into the 6-GHz radio-frequency band.

Wi-Fi 6E builds on Wi-Fi 6, which is the latest generation of the Wi-Fi standard, but only Wi-Fi 6E devices and applications can operate in the 6-GHz band.

Wi-Fi 6E Security

Wi-Fi 6E uplevels security with Wi-Fi Protected Access 3 (WPA3) and Opportunistic Wireless Encryption (OWE) and there is no backward compatibility with Open and WPA2 security.

WPA3 and Enhanced Open Security are now mandatory for Wi-Fi 6E certification and Wi-Fi 6E also requires Protected Management Frame (PMF) in both AP and Clients.

When configuring a 6GHz SSID there are certain security requirements that must be met:

- WPA3 L2 security with OWE, SAE or 802.1x-SHA256
- Protected Management Frame Enabled;
- Any other L2 security method is not allowed, that is, no mixed mode possible.

WPA3

WPA3 is designed to improve Wi-Fi security by enabling better authentication over WPA2, providing expanded cryptographic strength and increasing the resiliency of critical networks.

Key features of WPA3 include:

- **Protected Management Frame (PMF)**protects unicast and broadcast management frames and encrypts unicast management frames. This means wireless intrusion detection and wireless intrusion prevention systemsnow have fewer brute-force ways to enforce client policies.
- Simultaneous Authentication of Equals (SAE) enables password-based authentication and a key

agreement mechanism. This protects against brute-force attacks.

• **Transition mode** is a mixed mode that enables the use of WPA2 to connect clients that do not support WPA3.

WPA3 is about continuous security development and conformance as well as interoperability. There is no Information Element that designates WPA3 (same as WPA2). WPA3 is defined by AKM/Cipher Suite/PMF combinations.

On the 9800 WLAN configuration, you have 4 different WPA3 encryption algorithms you can use.

They are based on Galois/Counter Mode Protocol (GCMP) and Counter Mode with Cipher Block Chaining Message Authentication Code Protocol (CCMP): AES (CCMP128), CCMP256, GCMP128 and GCMP256:

WPA2/WPA3 Encryption -		
AES(CCMP128)	CCMP256	
GCMP128	GCMP256	

WPA2/3 Encryption options

PMF

PMF is activated on a WLAN when you enable PMF.

By default, 802.11 management frames are unauthenticated and hence not protected against spoofing. Infrastructure Management Protection Frame (MFP) and 802.11w protected management frames (PMF) provide protection against such attacks.

 Protected Management Frame – 	
PMF	Required 🔻
Association Comeback Timer*	1
SA Query Time*	200

Authentication Key Management

These are the AKM options available in the 17.9.x version:

Auth Key Mgmt	
SAE O	FT + SAE
OWE 🖸	FT + 802.1x
802.1x- SHA256	
Anti Clogging Threshold*	1500
Max Retries*	5
Retransmit Timeout*	400
PSK Format	ASCII
PSK Type	Unencrypted -
Pre-Shared Key*	
SAE Password Element	Both H2E and HnP ▼

AKM Options

OWE

Opportunistic Wireless Encryption (OWE) is an extension to IEEE 802.11 that provides encryption of the wireless medium (<u>IETF RFC 8110</u>). The purpose of OWE based authentication is avoid open unsecured wireless connectivity between the AP's and clients. The OWE uses the Diffie-Hellman algorithms based

Cryptography to setup the wireless encryption. With OWE, the client and AP perform a Diffie-Hellman key exchange during the access procedure and use the resulting pairwise master key (PMK) secret with the 4-way handshake. The use of OWE enhances wireless network security for deployments where Open or shared PSK based networks are deployed.



OWE frame exchange

SAE

WPA3 use a new authentication and key management mechanism called Simultaneous Authentication of Equals. This mechanism is further enhanced through the use of SAE Hash-to-Element (H2E).

SAE with H2E is mandatory for WPA3 and Wi-Fi 6E.

SAE employs a discrete logarithm cryptography to perform an efficient exchange in a way that performs mutual authentication using a password that is probably resistant to an offline dictionary attack.

An offline dictionary attack is where an adversary attempts to determine a network password by trying possible passwords without further network interaction.

When the client connects to the access point, they perform an SAE exchange. If successful, they create each a cryptographically strong key, from which the session key is derived. Basically a client and access point goes into phases of commit and then confirm.

Once there is a commitment, the client and access point can then go into the confirm states each time there is a session key to be generated. The method uses forward secrecy, where an intruder could crack a single key, but not all of the other keys.



SAE frame exchange

Hash-to-Element (H2E)

Hash-to-Element (H2E) is a new SAE Password Element (PWE) method. In this method, the secret PWE used in the SAE protocol is generated from a password.

When a station (STA) that supports H2E initiates SAE with an AP, it checks whether AP supports H2E. If yes, the AP uses the H2E to derive the PWE by using a newly defined Status Code value in the SAE Commit message.

If STA uses Hunting-and-Pecking (HnP), the entire SAE exchange remains unchanged.

While using the H2E, the PWE derivation is divided into these components:

- Derivation of a secret intermediary element (PT) from the password. This can be performed offline when the password is initially configured on the device for each supported group.
- Derivation of the PWE from the stored PT. This depends on the negotiated group and MAC addresses of peers. This is performed in real-time during the SAE exchange.



Note: 6-GHz supports only Hash-to-Element SAE PWE method.

WPA-Enterprise aka 802.1x

WPA3-Enterprise is the most secure version of WPA3 and uses a username plus password combination with 802.1X for user authentication with a RADIUS server. By default, WPA3 uses 128-bit encryption, but it also introduces an optionally configurable 192-bit cryptographic strength encryption, which gives additional protection to any network transmitting sensitive data.



WPA3 Enterprise diagram flow

Level Set: WPA3 Modes

- WPA3-Personal
 - WPA3-Personal only mode
 - PMF Required
 - WPA3-Personal Transition mode
 - Configuration rules: On an AP, whenever WPA2-Personal is enabled, the WPA3-Personal Transition mode must also be enabled by default, unless explicitly overridden by the administrator to operate in WPA2-Personal only mode
- WPA3-Enterprise
 - WPA3-Enterprise only mode
 - PMF shall be negotiated for all WPA3 connections
 - WPA3-Enterprise Transition mode
 - PMF shall be negotiated for a WPA3 connection
 - PMF optional for a WPA2 connection
 - WPA3-Enterprise suite-B "192-bit" mode aligned with Commercial National Security Algorithm (CNSA)
 - More than just for the federal government
 - Consistent cryptographic cipher suites to avoid misconfiguration
 - Addition of GCMP & ECCP for crypto and better hash functions (SHA384)
 - PMF Required
 - WPA3 192-bit security shall be exclusive for EAP-TLS, which shall require certificates on both the supplicant and RADIUS server.

• To use WPA3 192-bit enterprise, the RADIUS servers must use one of the permitted EAP ciphers:

TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 TLS_DHE_RSA_WITH_AES_256_GCM_SHA384

To know more about detailed information about WPA3 implementation in Cisco WLANs, including client security compatibility matrix, please feel free to check the <u>WPA3 Deployment Guide</u>.



Cisco Catalyst Wi-Fi 6E APs

Wi-Fi 6E Access Points

Clients Supported Security Settings

You can find which product support WPA3-Enterprise using WiFi Alliance webpage product finder.

On windows devices you can verify what are the security settings supported by the adapter using the command "netsh wlan show drivers".

Here you can see the output of Intel AX211:

C:\Users\tantunes>netsh wlan show drive	ers
---	-----

Driver	: Intel(R) Wi-Fi 6	E AX211 160MHz
Vendor	: Intel Corporatio	n
Provider	: Intel	
Date	: 3/9/2023	
Version	: 22.200.2.1	
INF file	: oem151.inf	
Type	: Native Wi-Fi Dri	ver
Radio types supported	: 802.11b 802.11g	802.11n 802.11a 802.11ac 802.11ax
FIPS 140-2 mode supported	d : Yes	
802.11w Management Frame	Protection supporte	d : Yes
Hosted network supported	: No	
Authentication and cipher	supported in infra	structure mode:
	Open	None
	Open	WEP-40bit
	Open	WEP-104bit
	Open	WEP
	WPA-Enterprise	TKIP
	WPA-Enterprise	CCMP
	WPA-Personal	TKIP
	WPA-Personal	CCMP
	WPA2-Enterprise	TKIP
	WPA2-Enterprise	CCMP
	WPA2-Personal	TKIP
	WPA2-Personal	CCMP
	Open	Vendor defined
	WPA3-Personal	CCMP
	Vendor defined	Vendor defined
	WPA3-Enterprise	192 Bits GCMP-256
	OWE	CCMP
	WPA3-Enterprise	CCMP
	WPA3-Enterprise	TKIP
Number of supported bands	5:3	
	2.4 GHz [0 MHz	- 0 MHz]
	5 GHz [0 MHz	- 0 MHz]
	6 GHz [0 MHz	- 0 MHz]
IHV service present	: Yes	
IHV adapter OUI	: [00 00 00], type	: [00]
IHV extensibility DLL pat	th: C:\WINDOWS\Syste	m32\DriverStore\FileRepository\netwtw6e.inf_amd64_eda979fbded

a064\IntelIHVRouter12.dll

Windows output of _netsh wlan show driver_for client AX211

Netgear A8000:

Interface name: A8000_NETGEAR

Driver :	NETGEAR A8000 Wil	Fi 6 & 6E Adapter
Vendor :	NETGEAR Inc.	
Provider :	MediaTek, Inc.	
Date :	11/25/2022	
Version :	1.0.0.108	
INF file :	oem9.inf	
Type :	Native Wi-Fi Driv	ver
Radio types supported :	802.11b 802.11a 8	802.11g 802.11n 802.11ac 802.11ax
FIPS 140-2 mode supported :	Yes	
802.11w Management Frame Pr	otection supported	d : Yes
Hosted network supported :	No	
Authentication and cipher s	upported in infra	structure mode:
	Open	None
	Open	WEP-40bit
	Open	WEP-104bit
	Open	WEP
	WPA-Enterprise	TKIP
	WPA-Enterprise	CCMP
	WPA3-Personal	CCMP
	OWE	CCMP
	WPA-Personal	TKIP
	WPA-Personal	CCMP
	WPA2-Enterprise	TKIP
	WPA2-Enterprise	CCMP
	WPA2-Personal	TKIP
	WPA2-Personal	CCMP
Number of supported bands :	3	
	2.4 GHz [0 MHz ·	- 0 MHz]
	5 GHz [0 MHz·	- 0 MHz]
	6 GHz [0 MHz ·	- 0 MHz]
IHV service present :	Yes	
IHV adapter OUI :	[00 00 00], type:	: [88]
IHV extensibility DLL path:	C:\WINDOWS\system	n32\mtkihvux.dll
IHV UI extensibility ClSID:	{0000000-0000-00	999-9996-999899999999999999999999999999
IHV diagnostics CLSID :	{0000000-0000-00	966-6966-696666666666666666666666666666
Wireless Display Supported:	Yes (Graphics Dr:	iver: Yes, Wi-Fi Driver: Yes)

Windows output of _netsh wlan show driver_for client Netgear A8000s

Android Pixel 6a:

None.

WEP

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WPA/WPA2-Personal

WPA/WPA2-Enterprise

WPA3-Enterprise 192-bit

GIE

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WPA3-Personal

WPA3-Enterprise

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Enhanced Open

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: Even though there are no clients supporting GCMP128 cipher + SUITEB-1X as of writting this document, it was tested to observe it being broadcasted and check the RSN info in the beacons.

WPA3 - AES(CCPM128) + OWE

This is the WLAN Security configuration:

Q. Search Menu Items	Configuration * > Tags & Profiles * > WLAN	S	EOILWEAN			
Dashboard	+ Add × Deleter Change	Enable WLAN Disable WLAN	A Changing WLAN parameters wh	le it is enabled will result in toss of c	connectivity for clients conne	rcted to it.
- Monitorina	Selected WLANs : 0		General Security Advanced Ad	d To Policy Tags		
) manual mag	Status Y Name	T ID				
Configuration	MacFilter	 1 	Layers Poor	\square		
Administration	o o dot1x	• 2	O WPA + WPA2 O WPA2 + WPA3	WPA3	O Static WEP	O None
	O Wilh6E_test	 5 	MAC Electron D	-		
) Licensing	H K 1 H H 10 V		novo saturang			
Troubleshooting			Lobby Admin Access			
			WPA Parameters	Fast Tra	insition	
			Policy Policy Policy	U Status		LASabiet
			GTK U WPA3 Randomize Policy	Over the	e DS	0
Walk Me Through 3			Transition O L	Reassor	ciation Timeout *	20
			WDA20WDA2 Examples			
			AES(CCMP128) CCMP256	O Auth Ke	ry Mgmt	
			GCMP128 O GCMP256	O SAE		T + SAE U T + 802.1x 0
			Protected Management Frame	802.1	1x- O	
				Trans	sition Mode WLAN ID	0
			PMF Requir	ed 🔹	L.	
			Association Comeback Timer* 1	Transi	ition Mode WLAN	ID = 0 means
			S& Orieny Time* 200	there	is no transition V	VLAN
			200			

OWE Security Settings

View on WLC GUI of the WLAN Security settings:



- -

Here we can observe Wi-Fi 6E clients connection process:

Intel AX211

Here we show the complete connection process of client Intel AX211.

OWE Discovery

Here you can see the beacons OTA. The AP advertises support for OWE using AKM suite selector for OWE under RSN information element.

You can see AKM suite type value 18 (00-0F-AC:18) that indicates OWE support.

R	wan.bssid == 00x	df: 5d:dd:7d:38 or w	Wan.fc.type_s	ubtype == 0x00	td					Ø□•+
No	Time	Delta Source	e	Destination	Protocol	Length Char	nnei Signalistre	Info		> Freme 158: 355 bytes on wire (2840 bits), 355 bytes captured (2840 bits) on interface \Device\NFF_(D4578005-2998-4456-8C33-C343166
	158 2.334878	0.020504 C15C0	dd:7d:38	Broadcast	882.11	355	\$3 -36 dam	Beacon frame, SN+1850, FN+0, Flags+C, 81+100, SSID+"wif16E_test"		Ethernet II, Src: Clsco_62197147 (7411102162197147), Dst: Universa_D71cf106 (0813a1881071cf106)
	159 2.336797	0.001919 Intel	Cor_98:58:	Broadcast	802.11	168	53 -38 d8m	Probe Request, SN=203, FN=0, Flags=C, SSID=Wildcard (Broadcast)		> Internet Protocol version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	168 2.337912	0.001115 Cisco	dd:7d:38	Broadcast	602.11	332	\$3 -37 dbm	Probe Response, 5N+13, FN+0, Flags+C, 01+100, SSID+"wifi66_test"		> User Datagram Protocol, Src Port: 5855, Dst Port: 5000
	161 2.357771	0.019059 Cisco	_dd:7d:38	Broadcast	802.11	312	53 -36 d8m	Probe Response, SN+1852, FN+0, Flags+C, 81+100, SSID+"wif166_test"		> Alropeek/DMTIPeek encapsulated IEEE BW2.11
	162 2.377743	0.019972 Cisco	dd:7d:38	Broadcast	802.11	312	53 -34 d8m	Probe Response, SN+1853, FN+0, Flags+C, 81+100, SSID+"wifi68_test"		> 302.11 radio information
	164 2.397549	0.019006 Cisco	dd:7d:30	Broadcast	802.11	312	53 -37 ditt	Probe Response, SN+1054, FN+0, Flags+C, BI+100, SSID+"wifi64_test"		> IEEE BR2.11 BEACON Trame, Flags:
	220 2.419342	0.021793 Cisco	60170138	Broadcast	002.11	312	53 -36 088	Probe Response, SN+1855, FN+0, Flags+C, BI+100, SSID+"wifi68_test"		 If E B02.11 stretess Margament
	221 2.435846	0.015704 Intel	Cor_981581_	C15C0_0017d_	802.11	96	53 -42 dBH	Authentication, SN+24, FN+0, Flags+C		> Fixed parameters (12 dytes)
	222 2.435846	0.000000 192.1	68.1.15	192.168.1.1.	882.11	76	53 -36 dbH	Acknowledgement, Flags+C		 ragged parameters (25) bytes)
	223 2.437126	0.002000 Cisco	_66176138	Broadcast	002.11	355	53 -35 dim	Beacon frame, SN+1856, FN+0, Flags+C, 81+100, SSID="wif16E_test"		/ teg: salo permetter set: surtas_test
	226 2.438813	0.001687 Cisco	_dd:7d:38	IntelCor_98_	802.11	96	53 -36 dim	Authentication, SN+11, FN+0, Flags+C		/ reg: supported match e(d), 3, 12(d), 10, 44(d), 49, 44, 54, [Hott/Sec]
	227 2.438813	0.000000 192.1	60.1.15	192.168.1.1.	802.11	76	53 -39 dim	Acknowledgement, Flags+C		 Test frontier for an information for the for information of the langest in the second s
	228 2.439674	0.000061 Intel	Cor_98:58:	Cisco_dd:7d_	802.11	284	53 -44 d8m	Association Request, SN+25, FN+0, Flags+C, SSID+"Hifi6E_test"		5 Year toward portraint d
	229 2.439727	0.000053 192.1	60.1.15	192.168.1.1.	992.11	76	53 -36 d8m	Acknowledgement, Flags+C		> Tas: The Report Frances Power: 16, 116 Margin: 8
	238 2.458667	0.010940 C15C0	_dd:7d:34	IntelCor_98.	992.11	275	53 -36 d8m	Association Response, Shue, FlagsC		v Tas: His Information
	231 2.458667	0.000000 192.1	68.1.15	192.160.1.1.	992.11	76	53 -39 d8m	Acknowledgement, Flags+C		Tar humar: BN Information (all)
	232 2.452486	e.eeeuis intel	COP_981581_	C15c0_00:70_	002.11	93	53 -43 CBR	Action, SNe2e, FNe9, Figge		Tag length: 26
	233 2.451486	0.000000 192.1	88.1.15	192.168.1.1.	842.11	76	53 -36 den	ACKNOWLEDGEMENT, Flags+C		RSN Version: 1
	239 2.451874	0.000300 01500	00:/0136	intercor_sa.	EAPLE.		53 - 26 000	key (Hessage 1 of 4)		> Group Cipher Suite: 40:0f:ac (Ieee 802.11) AFS (CCM)
	237 2,453874	0.000000 192.1	60.1.17	192.194.1.1.	002.11		53 -40 008	Acknowledgement, Flagswithing		Fairwise Cipher Suite Count: 1
	230 21405234	0.0003000 10101	207_201501.	101 100 001/0.	BATUE .	24	53 -16 008	Actional advantation of		> Pairwise Cipher Suite List 00:0fiac (leee 802.11) AES (CCM)
	348 3 466789	a anisia ciaca	44-34-30	Intalfor 68	EXECUTE I	100	51 -15 484	Yau (Marrana 3 of 4)		Auth Key Management (AOM) Suite Count: 1
	141 1 455700	0.0003004 187 1	20 1 15	102 108 1 1	002.11	277	53 - 47 484	Actional advanant flam.		✓ Auth Key Management (AON) List 00:0fiac (Ieee 802.11) Opportunistic wireless Encryption
	242 2,452540	0.000042 (1547)		Broadrast	002.11	357	53 -15 din	Probe Response OK-1857 EN-0 Flags. C B1-100 SSTD_"ulfics test"		✓ Auth Key Management (ADM) Suite: 00:0f:ac (Ieee 802.11) Opportunistic wireless Encryption
	242 2 457715	0.000075 1ntel	for 98-58-	Fisco dd-7d	EARCH	199	53 -47 /88	Tev (Nessage 4 of 4)		Auth Key Management (AON) OUI: 00:0f:ac (Ieee 802.11)
	744 7 457941	0.000776 197 1	20 1 15	192 168 1 1	887.11	76	\$3 .16 /88	Arbouladoenert Elasta /		Auth Key Management (AOM) type: Opportunistic Wireless Encryption (18)
	252 2.463554	0.005611 Cisco	Sc: 15:24	IntelCor 98	LLC	183	\$3 -47 dim	I. N(8)=62. N(5)=42: DSAP Exte Individual. SSAP Exde Command		✓ RSN Capabilities: 0x00e8
	253 2,463554	0.000000 192.1	68.1.15	192.168.1.1.	992.11	76	53 -47 dam	Acknowledgement, flagivC		
	254 2,463554	e.eeeeee cisco	Scifs:24	IntelCor 95.	LLC	111	53 -46 d8m	U.F. func+SABME: DSAP ExdB Individual, SSAP Ex64 Response		
	255 2.463554	0.000000 192.1	68.1.15	192.168.1.1.	802.11	76	53 -47 dBm	Acknowledgement, flags+C		
	259 2.478196	0.014642 Cisco	dd:7d:38	Broadcast	802.11	312	53 -35 dbm	Probe Response, SN=1858, FN=0, Flags=C, 81=100, SSID="wifi66_test"		
	263 2.490618	0.020414 Cisco	66176138	Broadcast	842.11	312	53 -35 d8m	Probe Response, SN+1859, FN+0, Flags+C, #1+100, SSID+"wifi68_test"		+
	266 2.519007	0.020397 Cisco	dd:7d:38	Broadcast	002.11	312	53 -35 d8m	Probe Response, SN+1860, FN+0, Flags+C, BI+100, SSID+"wifi6E_test"		# Hanagement Frame Protection Capable: True
	267 2.541553	0.022546 Cisco	_dd:7d:38	Broadcast	802.11	355	53 -35 dam	Beacon frame, SN+1861, FN+0, Flags+C, 81+100, SSID+"wifi6E_test"		
	268 2.541553	0.000000 Intel	Cor_981581	Broadcast	LLC	334	53 -35 d8m	I P, N(R)=25, N(S)=115; OSAP @xd6 Group, SSAP SNA Path Control Command		
	278 2.568899	0.018546 Cisco	_dd:7d:38	Broadcast	802.11	352	53 -35 dem	Probe Response, SN-1862, FN+0, Flags=C, BI=100, SSID="wif16E_test"		Extended Key ID for Individually Addressed Frames: Not supported
	271 2.561746	0.001647 192.1	68.1.15	192.168.1.1.	802.11	76	53 -35 d8m	Acknowledgement, Flags+C		PRED COUNT 0
	272 2.500532	0.018786 Cisco	_dd:7d:38	Broadcast	802.11	312	53 -35 dêm	Probe Response, SN+1863, FN+0, Flags+C, #I+100, SSID+"wif16E_test"		PYKID LIST
	273 2.601003	0.020471 Cisco	_dd:7d:38	Broadcast	\$82.11	312	53 -35 d8m	Probe Response, SN+1864, FN+0, Flags+C, #I+100, SSID="wif16E_test") group management ciprer swite: weightac (ieee ang.ii) air (iza)
	274 2.610168	0.009165 192.1	68.1.15	192.168.1.1.	802.11	76	53 -35 dem	Acknowledgement, Flags+C		> Teg: QSS Load Laterit seciliar (A version
	276 2.623696	0.013528 Cisco	_dd:7d:38	eroadcast	002.11	312	53 -36 dem	Probe Response, SN+1865, FN+0, Flags+C, #I+100, SSID+"wif166_test"		/ Tag. M Denote Conversion (5 Sectory)
	277 2.632344	0.000648 192.1	68.1.15	192.168.1.1.	842.11	76	53 -35 dem	Acknowledgement, Flags+C		> Tag. Extended Charlands (14 Vices)
	278 2.642863	0.009719 Cisco	_00:70:38	Broadcast	802.11	355	53 -36 dem	Beacon frame, SNx1866, FNx0, Flags+C, 81x100, SSID+"wifi68_test"		5 Tast To David Strategy
	279 2.662429	0.020366 Cisco	_00170138	eroadcast	002.11	312	53 -36 d8m	Probe Response, SN+1867, FN+0, Flags+C, BI+100, SSID="wifi68_test") Byt Tay: Hultinke BSSTD Configuration
	200 2.662513	e.eeee64 192.1	68.1.15	192.168.1.1.	882.11	76	53 -34 088	Acknowledgement, Flags+C		> EVE TAP: HE CANAMILITIAN
	338 2.682866	0.020353 Cisco	00170138	Broadcast	882.11	312	53 -34 088	Probe Response, SN+1868, FN+0, F18gs+C, #I+100, SSID+"Wif16E_test"		> EXT Tet: HE Operation
	339 2.684793	0.001927 192.1	150.1.15	192.168.1.1.	882.11	76	52 -36 088	Acknowledgement, Flagswitting		
	1945 2.78146B	#.#18662 /16/0	100:nd:88	ALCONOLAGE.	287,11	112	AL	Frome Reconner, Inclard, Fland, Flance	-	PL

OWE beacon frame

If you look at RSN capabilities field, you can see AP is advertising both Management Frame Protection (MFP) capabilities and MFP required bit set to 1.

OWE Association

You can see the UPR sent in broadcast mode and then the association itself.

The OWE starts with the OPEN authentication request and response:

PR CANE	90.0590 == 000	01130:00170138) ala (wantador -	== 2836013519813	SECUT) OF WR	sn.tc.type_sub	rype == 0x00 st		
No.	Time	Delta Source	Destination	Pentocol	Length Cha	onel Sonalstre	Info	> Frame 8: 96 bytes on wire (768 bits), 96 bytes captured (768 bits) on interface \Device\NPF_(D4578905-2998-4456-8C33-C34316643498), 1
1990	3 8 831818		Beenderse B		Longer Cro	23 30 dia	and an and the second strength of the second s	Ethernet II, Src: Cisco d2:97:47 (74:11:b2:d2:97:47), Dst: Universa b7:cf:06 (08:3a:88:b7:cf:06)
	2 0.001919	e.eeeeee intercor_varsar.	. Broadcast	892.11	168	53 -38 den	Probe Request, SNADE, Piegs+	> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	8 0.100168	e.eysivy intercor_ysissi.	. cisco_do:/d.	842.11	76	53 -42 GBM	Autoentication, SNA24, FRAME, Fingsanning	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	9 0.100168	0.000000 192.160.1.15	192.168.1.1.	002.11	76	23 - 36 GBW	Acknowledgement, Flags	AiroPeek/OmiPeek encapsulated IEEE 802.11
	11 0.103935	0.003767 C1sco_dd:7d:38	IntelCor_98.	002.11	96	53 -36 dBm	Authentication, SN+11, FN+0, Flags+C	1 B2.11 ratio information
	12 0.103935	0.000000 192.168.1.15	192.168.1.1.	802.11	76	53 -39 dbm	Acknowledgement, Flags+C	TTEE BAD 11 Authentication Plants C
1	13 0.104796	0.000061 IntelCor_98:58:.	. Cisco_dd:7d_	802.11	284	53 -44 dBm	Association Request, SN+25, FN+0, Flags+C, SSID+"wifi6E_test"	Y THE BALL MUCHAELEN AND FARMEN
1	14 0.104849	0.000053 152.168.1.15	192.168.1.1.	802.11	76	53 -36 dBm	Acknowledgement, #lags+C	And the start of t
1	15 0.115789	0.010940 Cisco_dd:7d:38	IntelCor_98_	802.11	275	53 -36 dBm	Association Response, SN+0, FN+0, Flags+C	 Lite practice of educes
1	16 0.115789	0.000000 192.168.1.15	192.168.1.1.	802.11	76	53 -39 d8m	Acknowledgement, Flags=C	Authentication Algorithm: Open System (0)
1	17 0.116608	0.000019 IntelCor_98:58:.	Cisco_dd:7d_	802.11	93	53 -43 d8m	Action, SN+26, FN+0, Flags+C	Authentication SEQ: exempt
1	18 0.116608	0.000000 192.168.1.15	192.168.1.1.	802.11	76	53 -36 d8m	Acknowledgement, FlagsC	Status code: Successful (ex0000)
	19 0.116996	e.eee388 Cisco dd:7d:38	IntelCor_98_	EAPOL	221	\$3 -36 d8m	Key (Hessage 1 of 4)	
	20 0.116996	0.000000 192.168.1.15	192.168.1.1.	592.11	76	53 -40 d8m	Acknowledgement, Flags+C	
	21 0.120356	0.001160 IntelCor 98:58:	Cisco dd:7d	EAPOL	227	\$3 -40 dbm	Key (Message 2 of 4)	
	22 0.120356	0.000000 192.168.1.15	192,168,1.1	882.11	76	\$3 .15 dbm	Arknowledgement, Flagta	
	21 0.121620	0 001554 Cisco 44:74:38	Tetelfor 65	64804	295	51 -15 dbs	Yeu (Meccane 3 of 4)	
	24 0 121020	0.0001004 0100_00.10100	100 100 10		24	53 - 53 dan	Active and the second sec	
1 1	24 0.121920	0.000000 192.100.1.15	192.100.1.1.	61801		53 -47 GBM	Acknowledgement, Fingswitting	
	26 0.12283/	0.00091/ Intelcor_991501.	. C15C0_00170	EAPUL	199	53 -47 008	key (nessage + or +)	
	27 0.123063	0.000226 192.168.1.15	192.168.1.1.	802.11	76	53 -36 GBM	Acknowledgement, Flags+C	
	28 0.128676	0.005613 C15C0_5C195124	Intercol."as"	LLC	183	53 -47 dBM	I, N(R)=62, N(S)=42] DSAP Exse Individual, SSAP exde Command	
	29 0.128676	0.000000 192.168.1.15	192.168.1.1_	802.11	76	53 -47 d8m	Acknowledgement, Flags+C	
	30 0.128676	0.000000 C1sco_5c:f5:24	IntelCor_98.	LLC	183	53 -46 dêm	U F, func+SABHE; DSAP 0xd8 Individual, SSAP 0x64 Response	
	31 0.128676	0.000000 192.168.1.15	192.168.1.1.	802.11	76	53 -47 dêm	Acknowledgement, Flags+C	
📕 (ula	an.bssid == 00:0	dfi 1d:dd:7d:38) && (wlan.addr -	== 28:6b:35:98:5	58:0f) or we	n.fc.type_sub	type == 0x001a		Ø
No.	Time		-					
		Delta Source	Destination	Protocol	Length Cha	nnel Signal stre	2010	> Frame 11: 96 bytes on wire (768 bits), 96 bytes captured (768 bits) on interface \Device\NFF_{04578905-2998-4456-8C33-C34316643498},
	2 0.001919	Delta Source e.eeeeee IntelCor 98:58:	Destination	Protocol BR2,11	Length Cha	nnel Signal stre	Probe Request, SN+203, FN+0, Flags+C. SSID=wildcard (Broadcast)	> Frame 11: 96 bytes on wire (768 bits), 96 bytes captured (768 bits) on interface \Device\WFF_(D4578905-2998-4456-8C33-C343166A3498), > Ethernet II, Src: Cisco_d2:97:47 (74:11:b2:d2:97:47), Dst: Universa_b7:cf:06 (08:3a:88:b7:cf:06)
	2 0.001919	e.eeeeee IntelCor_98:58:. e.eeeeee IntelCor_98:58:.	Destination Broadcast Cisco dd:7d	Protocol 802.11 802.11	Length Cha 168 96	53 -38 d8m 53 -42 d8m	2010 Probe Request, SN=203, FN=0, Flags=C, SSID=wildcard (Broadcast) Authentication, SN=24, FN=0, FlagsC	> Frame 11: 96 bytes on wire (768 bits), 96 bytes captured (768 bits) on interface \Device\WF_[D473098-2998-4456-BC33-C343166A3496}, > 8thermet II, Src: Cisco_d2:9747 (74:11b2:d2:19747), Dst: Universa_b7:cf:06 (08:18:18:107:cf:06) > Interref Yotocol version 4, Src: 392-181, Dst: 315.08:1122
	2 0.001919 8 0.100168	Delta Source e.0000000 IntelCor_98:58:. e.098249 IntelCor_98:58:. a.0000000 102 168 1 15	Destnation Broadcast Cisco_dd:7d.	Protocol 802.11 802.11	Length Cha 168 96 76	nnel Signal stre 53 -38 d8m 53 -42 d8m 53 -36 d8m	2010 Probe Request, SN=200, FN=0, Flags=C, SSID=wildcard (Broadcast) Authentication, SN=24, FN=0, Flags=C) Frome III 96 lytes on wire (NB bits), 86 lytes captured (NB bits) on Interface Verice(VWF_(D437898-298-4456-4C3)-C4A1664A08),) Etherent IF, Src: (Lisco, 2017) (VAIIII)02102747), 0st III01243716766 (NE:1a:IB:1b7:cf:86)) Internet Protocol version 4, Src: 383.484.135, 0st: 383.484.1321
	2 0.001919 8 0.100168 9 0.100168	Delta Source 0.000000 IntelCor_98:58:. 0.098249 IntelCor_98:58:. 0.000000 192.168.1.15 0.000000 192.168.1.15	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. TetalCor 48	Protocol 802.11 802.11 802.11	Length Cha 168 96 76	nnel Signal stre 53 -38 d0m 53 -42 d0m 53 -36 d0m	2000 Probe Request, SH=203, FH=0, FlagsC, SSID=Hildcard (Broadcast) Authentication, SH=24, FH=0, FlagsC Acknowledgement, FlagsC	> Preme 11: 96 Types on wire (THE BITS), Ho Types captured (THE BITS) on Interface Verice(VM*_[OHT3986-4288-4233-CH4164AAM8), > Utherent IF, Serc (Lisco_21972) (VH11101201977), Set (UHT494-21976-846 (HE)18188107(cF466)) > Disterent Protocol wrv100+4, Set (195.1461.142) > Attravet, Northern Response (HE RE9.14) > Attravet, Northern Response (HE RE9.14)
	2 0.001919 8 0.100168 9 0.100168 11 0.103935	Defa Source 0.000000 IntelCor_98:58:. 0.098249 IntelCor_98:58:. 0.000000 192.168.1.15 0.003767 Cisc_dd:7d:38 0.003767 Lisc_dd:7d:38	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98.	Protocol 802.11 802.11 802.11 802.11	Length Cha 168 96 76 96 76	mel Signal stre 53 -38 d0m 53 -42 d0m 53 -36 d0m 53 -36 d0m 53 -36 d0m	2000 Probe Request, SN=200, FN=0, FlagtsC, SSIDwildcard (Broadcast) Authentication, SN=39, FN=0, FlagtsC Authentication, SN=33, FN=0, FlagtsC Authentication, SN=33, FN=0, FlagtsC) Frome III 96 bytes on wire (NB bits), 86 bytes captured (NB bits) on Interface Verice(VMF_(D457898-2986-4658-4513-C481664A08),) Ethernet IF, Src: (Lisco, 20757) (VH.III) bits)/20747), 051 UNIVERS. Direction (WH.III) Ethernet Protocol Version 4, Src: 193.164.1.15, 051 193.1464.1.121) Universe Protocol, Version 4, Src: 193.164.1.15, 051 193.1464.1.121) User Datagene Protocol, Src Prot: 5555, 051 Fert: 5600) AirPretex/Dem/Prete messalahed IIE B02.13
1	2 0.001919 8 0.100168 9 0.100168 11 0.103935 12 0.103935	Deta Source 0.000000 IntelCor_90:58: 0.000000 IntelCor_90:58: 0.000000 192.160.1.15 0.000000 192.160.1.15 0.000000 192.160.1.15 0.000000 192.160.1.15	Destination Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d	Protocol 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 96 76 76	nnel Signal stre 53 -38 d8n 53 -42 d8n 53 -36 d8n 53 -36 d8n 53 -39 d8n 53 -39 d8n	000 rode Repert, SN-303, Flueb, FlagsC, SSID-Kildcard (Broadcast) Authentication, SN-30, FlagsC Authentication, SN-30, FlagsC Authentication, SN-30, FlagsC Automodegement, JagsC) Frome 111 56 Types on size (TAB DIS), No Types captured (TAB DIS) on Interface Verice(VMF_(DASTROM-ASSA-ACI)-CAA166AA00),) Etherent IF, Serc (Lisco_2177) (VAIII1012012774), Dist UNIVERS_DIFFCH6 (Mills)BillD17cfH6)) Etherent Protocol, Perroit 556, Dist Proto 1464.121) Derb Disgram Protocol, Perroit 556, Dist Proto 1564) Bill 1 relia Information) Bill 1 relia Information) Bill 1 relia Information
1	2 0.001919 8 0.100168 9 0.100168 11 0.103935 12 0.103935 13 0.104796	Deta Source 0.000000 IntelCor_90:58: 0.000000 IntelCor_90:58: 0.000000 192.160.1.15 0.000000 192.160.1.15 0.000000 192.160.1.15 0.000000 192.160.1.15 0.000001 IntelCor_90:58: 0.000001 101.100.15	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 96 76 284 76	Signal stre 53 -38 dBn 53 -42 dBn 53 -42 dBn 53 -36 dBn 53 -36 dBn 53 -36 dBn 53 -36 dBn 53 -44 dBn 53 -44 dBn	200 200 Authorization, Socie, Foignan,) Frome III 98 bytes on wire (NB bits), 86 bytes captured (NB bits) on Interface Verice(VMF_(D457898-498-4456-4C1)-CA81664A08),) Ethernet IF, Src: (1sc., 287797) (NH11105219774), 051 UNIVERS. Differiol (NH1161818776748)) Internet Protocol service A, Src: 193.164.1.15, 051 193.1464.1.121) User Datagene Protocol, Ser Cort 5555, 051 EP1415 5800) Michreix/DmiPlek messpalated IEE B02.1) 082.11 reisd information) 082.11 reisd information) 082.11 reisd information) 082.11 reisd information) 082.11 reisd information
1	2 0.001919 8 0.100168 9 0.100168 11 0.10035 12 0.10035 13 0.104796 14 0.104849 14 0.104849	Defa Source 0.000000 IntelCor_90:58: 0.000200 IntelCor_90:58: 0.000000 192.168.1.15 0.000001 192.168.1.15 0.000051 192.168.1.15 0.000053 192.168.1.15	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. YatalCor_88	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 98 76 284 76 284	nnel Signal stre 53 -38 d0m 53 -42 d0m 53 -36 d0m 53 -36 d0m 53 -39 d0m 53 -44 d0m 53 -36 d0m 53 -36 d0m	200 Profe Reguest, SN-201, Findy, FlagsC., SSIDwilldcard (Broadcast) Authentication, SN-2, Findy, FlagsC Authentication, SN-11, Findy, FlagsC Authentication, SpaceC Association Reguest, SN-27, Findy, FlagsC Association Reguest, SN-27, Findy, FlagsC Association Reguest, SN-27, Findy, FlagsC Association Reguest, SN-27, Findy, FlagsC Association Reguest, SN-27, Findy, FlagsC	<pre>> Prome 111 56 Types on wire (THE DIST), No Types captured (THE DIST) on Interface Verice(VMF_(DASTROM-ASSA-ACI)-CHAIG6AJA08), > Ethernet IF, Sirc (Lisco_LIVIC) (VIIIIIDUSTORY), Dist UNIVERS_DIFFCF06 (MillarEdDYCF06)) > Disternet Protocol, service 1555, Dist Factor, 1564.1121 > User Datagene Protocol, service 1555, Dist Factor, 1564, 1564, 1564, 1575, 1564, 1564, 1575, 1</pre>
	2 0.001919 8 0.100168 9 0.100168 11 0.103935 12 0.103935 13 0.204796 14 0.104849 15 0.115709 15 0.115709	Dels Source 0.000000 IntelCor_98:58: 0.000000 IntelCor_98:58: 0.000000 192.168.1.15 0.000000 192.168.1.15 0.000001 192.168.1.15 0.000005 192.168.1.15 0.000005 192.168.1.15 0.000051 32.168.1.5	Destruction Broadcast Cisco_dd:7d. 192.168.1.1. Intelcor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. Intelcor_98.	Protocol 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11	Length Cha 168 96 76 98 76 284 76 284 76 275	Signal stre 53 -38 dom 53 -42 dom 53 -42 dom 53 -36 dom 53 -36 dom 53 -36 dom 53 -44 dom 53 -46 dom 53 -46 dom 53 -36 dom 53 -36 dom	200 200 201 201 201 201 201 201	<pre>> /reme 11: 54 Tytes on wire (T48 bits), hb tytes captured (T48 bits) on interface Unrice(MFT_C0473986-4230-C4811643A485), > Utternet Tytescal wersite 4, Src: 135.146.1.55, Oct: 135.146.1.52 > Diternet Tytescal wersite 4, Src: 135.146.1.55, Oct: 135.146.1.52 > Microsectomyotes exceptible 500 Bits 883.13 > Microsectomyotes exceptible 500 Bits 883.13 > Diter 882.11 ardio Information > Diter 882.11 a</pre>
	2 0.001919 8 0.100168 9 0.100168 11 0.103935 12 0.103935 13 0.104796 14 0.104849 15 0.115709 16 0.115709	Dels Source 0.000000 IntelCor_S0:58: 0.00249 IntelCor_S0:58: 0.002000 192.168.1.15 0.002000 192.168.1.15 0.000000 192.168.1.15 0.000001 IntelCor_S0:58: 0.000001 IntelCor_S0:58: 0.000001 IntelCor_S0:58: 0.010000 192.168.1.15 0.000000 192.168.1.15	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 284 76 275 76 275 76	Signal stre 53 -38 dbm 53 -42 dbm 53 -42 dbm 53 -36 dbm	UPD Probe Request, SN-201, Findy, FlagsC. Authentication, SN-2, Findy, FlagsC Authentication, SN-12, Findy, FlagsC Authentication, SN-12, Findy, FlagsC Association Request, SN-2, Findy, FlagsC Autonolegement, FlagsC Autonolegement, FlagsC Autonolegement, FlagsC	<pre>> Prome 111 56 Types on wire (THE DISL), No Types captured (THE DISL) on Interface Verice(VMF_(DASTROM-ASSA-ACI)-CHAIAGAJANS), > Ethernet IF, Src: (Isco_2177) (741110):0217747), Dot: UNIVERS.DFTCF06 (0811a):81107(cf-08) > Internet Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, Dot Frances, DFTCF06 (0811a):81107(cf-08) > User Datagram Protocol, service 7555, DFTCF06 (0811a):81107(cf-08); DFTCF06 (0811a); DFTCF06 (</pre>
	2 0.001919 8 0.100168 9 0.100168 11 0.103935 12 0.103935 13 0.104796 14 0.1045796 14 0.1045799 15 0.115789 17 0.116608	Deta Source 0.000000 frielCor_50:56:. 0.000204 frielCor_50:56:. 0.000204 finitelCor_50:56:. 0.000205 finiteCor_50:56:. 0.000005 finiteCor_50:56:. 0.000005 finiteCor_50:56:. 0.000005 finiteCor_50:56:.	Destnation Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 96 76 284 76 224 76 275 76 93	Signal stre 53 -38 dbm 53 -36 dbm 53 -42 dbm 53 -36 dbm 53 -39 dbm 53 -43 dbm	UPD Profe Reguest, SH-201, Find, FlagsC, SSIDHildcard (Broadcast) Authentication, SH-2, Find, FlagsC Authentication, SH-2, Find, FlagsC Astronologement, FlagsC Astronologement, FlagsC Astronologement, FlagsC Astronologement, FlagsC Astronologement, FlagsC Astronologement, FlagsC	<pre>> /reme 111 5% tytes on wire (TW Bits), hb tytes captured (TW Bits) on interface Verice(VM*_COATMENG-2986-4456-4213-CHAI664AM8), > Utterent Try, for (Lisco_21977) (VIIIID1021977), pst (UNIVERS_DFFC164 (WIIIIB187))(F164) > interent Protocol verice 4, psc : 351.464.131, pst 132.464.1321 > Univer Subgrave Workshop, for VI SSS, Olf F4741 (SAR4.132) > Univer Subgrave Workshop, for VI SSS, Olf F4741 (SAR4.132) > Univer Subgrave Workshop, for VI SSS, Olf F4741 (SAR4.132) > Univer Subgrave Workshop, for VI SSS, Olf F4741 (SAR4.132) > Univer Subgrave Workshop, for VI SSS, Olf F4741 (SAR4.132) > Univer Subgrave Workshop, flags:C * Univer Subgrave Workshop, flags:C * Univer Subgrave VI SSS, Olf F4741 (SAR4.132) Authoritization Algorithm (SAR4.134, SAR4.134) * Univer Subgrave Workshop, flags:C * Univer Subgrave Workshop, flags: Non-Subgrave State (SAR4.134) * Univer Subgrave State (SAR4.134, SAR4.134) * Univer Subgrave State (SAR4.134, SAR4, SAR4.134) * Univer Subgrave State (SAR4.134, SAR4.</pre>
	2 0.001919 8 0.100168 9 0.100168 11 0.100355 12 0.104796 14 0.204849 15 0.115789 17 0.115608 18 0.116608	Deta Source 0.000000 TrielCor_301581. 0.000000 TrielCor_301581. 0.000000 122.168.1.15 0.000000 122.168.1.15 0.000000 122.168.1.15 0.000000 122.168.1.15 0.000000 122.168.1.15 0.000000 122.168.1.15	Destnation Broadcast Cisco_dd:7d. 192.160.1.1. Intelcor_98. 192.160.1.1. Cisco_dd:7d. 192.168.1.1. Intelcor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. Cisco_dd:7d.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 164 96 76 98 76 284 76 275 76 93 76 93 76	nnel Signal stre 53 -38 dim 53 -36 dim 53 -39 dim 53 -39 dim 53 -39 dim 53 -39 dim 53 -36 dim 53 -39 dim 53 -39 dim 53 -36 dim 53 -39 dim 53 -36 dim	2000 2001 2002 2002 2004	<pre>> Prome 111 56 Types on wire (TMB DIS), No Types captured (TMB DIS) on Interface Verice(VMF(DASTROM-2998-4456-4CL)-CHAI664JA08), > Itterent Try Ser: (Isso, 1977) (Y4111012037747), DST UNIVERSALTIFCT66 (MH1161811077CF68) > Disterent Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 555, DST Parts), DST 193.154.1121 > User Distgrame Protocol, ser (Y475 1957), DST 193.154.1121 > User Distgrame Protocol, serversite(Y47 1957), DST 193.154.1121 > User Distgrame Protocol, serversite(Y47 1957), DST 193.154.1121 > DST 193.1121, DST 193.154.1121 > DST 193.154.1121, DST 193.154.1121 > DST 193.154.1</pre>
	2 0.001919 8 0.100168 9 0.200168 11 0.103935 12 0.103935 13 0.104796 14 0.104849 15 0.115789 17 0.116608 18 0.116608 19 0.116996	Deta Source 0.000000 TrielCor_3051581 0.000000 TrielCor_3051581 0.000000 TrielCor_3051581 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151	Destnation Broadcast Cisce_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 284 76 275 76 93 76 93 76 221	nnel Signal stre 51 -38 dim 53 -36 dim	200 Profe Reguest, SN-200, Find, FlagsC Subballication, SN-2, Find, FlagsC Muchandigument, FlagsC Actionalizament, FlagsC	<pre>> /reme 111 56 lytes on wire (T48 bits), hb lytes captured (T48 bits) on interface Verice(VMF(D457898-4288-4213-C481643A08),) Etherent IF, sec (Lsco_2M72/C4811b)(201747), bst (UMF2842), fort(UMF2842), better) other batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484.1121) obse batgrame Protocol, per cort 5556, bst French 1484, bst French 14</pre>
	2 0.001919 8 0.100160 9 0.100160 10 0.100160 11 0.1003935 12 0.103935 12 0.103935 13 0.104849 16 0.115789 16 0.115789 17 0.116608 18 0.116608 19 0.116996	Deta Source 0.000000 IntelCor_90:54: 0.000000 IntelCor_90:54: 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15 0.000000 ID:164.1.15	Destnation Broadcast Cisce_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisce_dd:7d. 192.168.1.1. Cisce_dd:7d. 192.168.1.1. Cisce_dd:7d. 192.168.1.1. Cisce_dd:7d. 192.168.1.1.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 163 96 76 284 76 275 76 93 76 93 76 221 76 221 76	Signal stre S3 -38 dim S3 -42 dim S3 -36 dim S3 -40 dim	200 200 201 201 201 201 201 201	<pre>> /reme 11: 54 bytes on wire (T48 bits), 86 bytes captured (T48 bits) on interface Unrice(MFWC0473988-4283-4283-6483.4483), thermet fronced write 4, Src: 135.148.1.151 bytes 121.248.1.121 thermet fronced write 4, Src: 135.148.1.151 bits thermet fronced write 4, Src: 135.148.148.151 bits thermet fronced write 4, Src: 135.148.148.151 bits thermet fronced write 4, Src: 135.148.151 bits thermet fronced write 4, Src: 135.148.148.151 bits thermet fronced write 4, Src: 135.148.151 bits thermet fr</pre>
	2 0.001919 8 0.200168 9 0.200168 11 0.103935 12 0.103935 13 0.104796 14 0.204509 15 0.115789 16 0.115789 16 0.115789 18 0.116608 19 0.116608 19 0.116996 21 0.120356	Deta Source 0.000000 TriclCor_3051581. 0.000000 TriclCor_3051581. 0.000000 TriclCor_3051581. 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 1201681.151 0.000005 11012/cr_3051581. 0.000005 11012/cr_3051581. 0.000005 11012/cr_3051581.	Destruction Broadcast Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. Cisco_dd:7d.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 284 76 227 93 76 93 76 221 76 227	Signal stre S1 -38 dim S3 -36 dim S3 -48 dim	John Sougert, Sinaly, FrageC Attrobuilden: Sougert, FagesC Attrobuilden: Sougert, FragesC Attrobuilden: Sougert, FragesC Attrobuilden: Sougert, FragesC Attrobuilden: Sougert, Sougert, FragesC Attrobuilden: Sougert, FragesC Association tespong, Sougert, FragesC Attrobuilden: FragesC Attrobuilden: C Attrobuilden: Attrobuilden: A	<pre>> Prome 111 56 Types on wire (THB DIS), No Types captured (THB DIS) on Interface Verice(VMF_(DASTMENG-2986-4456-4C13-CHAI664JA08), > Etherent IF, Src (Lisco_2M770 (YALIBUDES)YAPP), Dot UNIVERSAL DIFFCF06 (MELIBUDEC)(FA66) > Distret Hypererbotcol, provide USSS, Dot France, Verice Verice (MELIBUDEC)(FA66) > User Datagene Protocol, src (YALIBUDES), DIS (UNIVERSAL DIFFCF06 (MELIBUDEC)(FA66) > UserDatagene Protocol, provide USSS, DIS (FA64-1121 > User Datagene Protocol, src (YALIBUDES), DISTRET, DISTRE</pre>
	2 0.001919 8 0.100168 9 0.100168 11 0.1003935 12 0.1003935 12 0.1003935 12 0.1003935 13 0.104796 0.115789 16 0.115789 16 0.115789 16 0.116608 18 0.116608 19 0.116996 20 0.116996 21 0.120356	Deta Source 0.000000 IntelCor_98:58:. 0.000000 IntelCor_98:58:. 0.000000 IntelCor_98:58:. 0.000000 ISC INTELCOR_98:58:. 0.00000000 ISC INTELCOR_98:58:. 0.00000 ISC INTELCOR_98:58:.	Destnation Broadcast (isco_dd:7d_ 192.168.1.1. D1telCor_98. 192.168.1.1. (isco_dd:7d_ 192.168.1.1. (isco_dd:7d_ 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. (isco_dd:7d_ 192.168.1.1.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 284 76 275 76 221 76 221 76 227 76	Signal stre S3 -316 dillin S3 -42 dillin S3 -36 dillin	200 2010 2010 2011 Listin, parkstrong, riggersammer, c., SSIDwildcard (Broadcast) Actionalegement, riggersammer, c. Actionalegement, riggersammer, c.	<pre>> /reme 111 5% tytes on wire (TVB bits), b% tytes captured (TVB bits) on interface Verice(VMFCOATMENG-2598-4456-42(3)-CI4316643A08), > Utterent TV; fxrc(Liso_21:7)/2 (V11110242774), pst (UIVESAE_DIFFCH6 (ME:1a:18:10)*(CF46)) > pitterent Protocol verice a, psc : 351.461.412 > pst (V11104) (V11104) (V11104) (V11104) > pst (V11104) (V11104) (V11104) (V11104) (V11104) > pst (V11104) (V11104) (V11104) (V11104) (V11104) > pst (V11104) (V11104) (V11104) (V11104) (V11104) (V11104) > pst (V11104) (V1110</pre>
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Deta Source 0.000000 Intelcor_981581. 0.000000 Intelcor_981581. 0.000000 Intelcor_981581. 0.000000 IS2.061.15 0.000000 IS2.061.15 0.00000 IS2.061.15 0.000000 IS2.061.15 0.000000000000 IS2.061.15 0.00000000	Destruction Broadcast Cisco_dd:7d. 192.168.1.1. ThtelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. Cisco_dd:7d. 192.168.1.1.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 EAPOL 802.11 EAPOL	Length Cha 168 96 76 284 76 284 76 284 76 93 76 221 76 221 76 227 76 2295	Signal stre 53 -38 dim 53 -42 dim 53 -36 dim 53 -35 dim 53 -35 dim	200 200 2015 Actional States, Flags	<pre>> /reme 111 56 Types on wire (TVB DITS), hb Types captured (TVB DITS) on Interface Unrice(NVF(DAT3988-4283-4283-4283-4283-4283-4283-4283-42</pre>
	2 0.001919 2 0.200168 9 0.200168 11 0.20395 12 0.103935 12 0.204595 14 0.204595 15 0.115789 15 0.115789 16 0.115789 16 0.116996 19 0.116996 10 0.21595 22 0.220356 23 0.21928 24 0.21928	Deta Source 0.000000 Dirtelor-Jsisten 0.000000 Dirtelor-Jsisten 0.00000 Dirtelor-Jsisten 0.000000 Dirtelor-Jsisten 0.00000 Dirtelor-Jsiste	Destruction Broadcast Cisco_dd:7d. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. Cisco_dd:7d. 192.168.1.1. IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 284 76 225 76 235 76 231 76 221 76 221 76 221 76 225 76 235 76	Signal stre 53 -38 dim 53 -42 dim 53 -36 dim 53 -46 dim 53 -36 dim 53 -36 dim 53 -35 dim 53 -47 dim	UPD The Reguest, SH-201, Find, FlagsC. SSIDwildcard (Broadcast) Authentication, SH-2, Find, FlagsC Authentication, SH-2, Find, FlagsC Astronoldgement, FlagsC	<pre>> /reme 111 56 lytes on wire (T48 bits), 86 lytes captured (T48 bits) on interface Verice(VMF_(D437898-4386-4213-C481643A08), > Utterent Tyristion 4, Src: 135.146.1.35, D51: 132.146.1.121 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 556, D5 Trev15 600 > Dere Matgare motocol, Src (vort 566, D5 Trev15 600 > Dere Matgare motocol, Src (vort 566, D5 Trev15 600 > Dere Matgare motocol, Src (vort 566, D5 Trev15 600 > Mathematication 500; Dese System (0) Authematication 500; Dese System (0) Authematication 500; Dese System (0) Status code; Successful (dem000)</pre>
	2 0.001919 2 0.200168 9 0.200168 11 0.103935 12 0.204796 14 0.104049 15 0.115789 17 0.116608 18 0.116608 19 0.116608 19 0.116696 20 0.116996 21 0.120356 22 0.220356 23 0.221920 24 0.121920 24 0.121920 24 0.22837	Deta Source 0.00000 Dritelor_91:51. 0.00000 Dritelor_91:51. 0.00000 Dritelor_91:51. 0.00000 Dritelor_91:51. 0.00000 Dritel.15 0.00000 Dritel	Destanation Broadcast (1500, d6/764, 192,168,1.1, IntelCor_98, 192,168,1.1, (1500, d6/76, 192,168,1.1, IntelCor_98, 192,168,1.1, IntelCor_98, 192,168,1.1, (1500, d6/76, 192,168,1.1, IntelCor_98, 192,168,1.1, (1500, d6/76, 192,168,1.1, (1500, d6/76, 192,168,1.1, (1500, d6/76, 192,168,1.1, (1500, d6/76, 192,168,1.1, (1500, d6/76, (1500, d6/7	Protocol 802.11	Length Cha 168 168 76 76 284 76 284 76 93 76 93 76 221 76 221 76 221 76 221 76 225 76 235 76 76 76 76 76 76 76 76 76 76	Signal stre 53 -38 dim 53 -42 dim 53 -36 dim 53 -46 dim 53 -46 dim 53 -46 dim 53 -47 dim 53 -47 dim	UND UND Security Succession, FagesC. Storentizetien, Socks, Food, FagesC. Accountingement, FagesC Accountingement, FagesC Accountingement, FagesC Accountingement, FagesC Accountingement, Sucs, Food, FagesC Accountingement, FagesC	<pre>> /reme 111 56 Types on wire (T48 Dits), hb Types captured (T48 Dits) on Interface Unrice(MFF_C0473986-4230-C4813643A08), > Utternet Types (C1600_01977(041131023977), pst Universal) > Diternet Protocol writing 4, psc 135.1481.151, pst 132.148.1121 > Diternet Protocol writing 4, psc 135.1481.151, pst 132.148.1121 > Diternet Protocol writing 4, psc 135.1481.351, pst 132.1481.121 > Diternet Protocol writing 4, pst 135.1481.351, pst 132.1481.121 > Diternet Protocol writing 4, pst 135.1481.351, pst 132.1481.351 > Diternet Protocol writing 4, pst 135.1481, pst 132.1481.351 > Diternet Protocol writing 4, pst 135.1481, pst 135.1</pre>
	2 0.001919 2 0.100168 9 0.100168 11 0.10335 12 0.10335 12 0.10335 13 0.104395 14 0.104395 16 0.115789 17 0.116098 19 0.116098 19 0.116096 10 0.120356 22 0.120356 22 0.121920 24 0.121920 24 0.121920 25 0.122837 27 0.123063	Deta Source 0.000000 Dirtelcor_98181. 0.000000 Dirtelcor_98181. 0.00000000000 Dirtelcor_98181. 0.00000000Dirtelcor_98181. 0.	Destruction Broadcast C1500_d617d. 192.168.1.1 C1500_d617d. 192.168.1.1 C1500_d617d. 192.168.1.1 C1500_d617d. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 C1500_d617d. 192.168.1.1 C1500_d617d.	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 169 76 284 76 225 76 225 76 221 76 227 76 227 76 229 76 229 76 229 76 229 76 221 76 225 76 25 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 76 25 25 76 25 76 25 76 25 25 76 25 76 25 76 25 76 25 76 25 25 76 76 25 76 25 76 76 76 76 76 76 76 76 76 76	Signal stre 53 -38 dim 53 -42 dim 51 -36 dim 52 -36 dim 53 -36 dim	000 001 002 003 004 004 004 004 004 004 004	<pre>> /reme 111 56 lytes on wire (T48 bits), 86 lytes captured (T48 bits) on interface Verice(VMF_(D457898-4386-4213-C4816643A08), > Itterent frontcol version 4, Src: 192.146.1.151, 051 192.146.1.121 > loser batgrame Protocol, sc Provi 5585, 051 Frest 580 > loser batgrame Protocol, sc Provi 5585, 051 Frest 580 > loser batgrame Protocol, sc Provi 5585, 051 Frest 580 > loser batgrame Protocol, sc Provi 5585, 051 Frest 580 > loser batgrame Protocol, sc Provi 5585, 051 Frest 580 > loser batgrame Protocol, sc Provide Stef 882.11 > loser batgrame Protocol, sc Provide Stef 882.11 > 115 Bits 111 WorkerStem Rangement * field Batterlinetton, Figs:C # field Batterlinetton, Figs: compact (0) authentication sign Stef 0) authentication sign Stef 0) authentication sign Stef 0) stef 82.11 WorkerStef (0) authentication sign Stef 0) stefus code: Successful (000000)</pre>
	2 0.001519 8 0.100148 9 0.200148 11 0.200355 12 0.100355 13 0.104396 14 0.104399 15 0.115789 16 0.115789 16 0.115789 16 0.116096 12 0.120156 12 0.120156 12 0.121920 14 0.11292 14 0.11292 15 0.121920 15 0.121920 15 0.121920 15 0.122837 17 0.120856 10 0.12085	Deta Source Source 0.000000 Dirticlor 301181. 0.000200 Dirticlor 301181. 0.000200 Dirticlor 301181. 0.000200 102.108.1.35 0.000000 102.108.1.35 0.00000000000000000000000000000000000	Destanation Broadcast (1500_d61.1.1 IntelCor_98. 192.168.1.1. IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98. 192.168.1.1 IntelCor_98.	Protocol 802.11	Length Cha 168 96 76 264 275 76 225 76 221 76 221 76 225 76 225 76 221 76 225 76 221 76 225 76 221 76 225 76 235 76 235 244 76 255 255 255 255 255 255 255 25	Sould be 5 3-02 Glas 51 -24 Glas 53 -26 Glas 53 -26 Glas 53 -30 Glas 53 -37 Glas 53 -47 Glas 53 -47 Glas	200 2010 2010 2010 Listin, 2010 [mst flggr6 Actionalegement, Flggr6 Actionalegement, Flggr6 Actionalegement, Flggr6 Sociation Response, Sues, Fues, Flggr6 Actionalegement, Flggr	<pre>> /reme 111 56 Types on wire (T48 Dits), hb types captured (T48 Dits) on Interface Verice(VMF_(D437898-4386-423)-C4813643A08), > Utterent Types (C1602,07377 (V11110)202777), pst (U10478-235767646 (M1318)810776766)) > interent Protocol version 4, Src: 193.146.1.151 (V1110) > Diterent Types (V1110) (V1110) (V1110) (V1110) > Diterent Types (V1110) (V1110) (V1110) (V1110) > Diterent Types (V1110) (V1110) (V1110) (V1110) > Diterent Types (V1110) (V1110) (V1110) (V1110) > Diterent Types (V1110) (V1110) (V1110) (V1110) (V1110) > Diterent Types (V1110) (V</pre>
	2 0.00113 2 0.01015 0.10015 0.10015 0.10015 10.100305 10.104305 10.104305 10.104795 10.115789 10.115	Deta Source Sour	Destanation Broadcast (1500_d61) 192_168_11.1 IntelCor_98. 192_168_1.1 IntelCor_98. 192_168_1.1 (1500_d61) 192_168_1.1 IntelCor_98. IntelCor_98. IntelCor_98. IntelCor_98. IntelCor_98. IntelCor_98. IntelCor_98. IntelCor_9	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11	Length Cha 168 96 76 264 275 76 225 76 93 221 76 221 76 225 76 221 76 225 76 225 76 225 76 225 76 235 76 235 76 235 76 245 255 76 255 76 255 265 265 275 265 265 275 265 275 265 275 265 275 265 275 265 275 265 275 265 275 265 275 265 275 275 265 275 275 275 275 275 275 275 27	Square Square 5 -21 Obs 5 -22 Obs 53 -26 Obs 53 -36 Obs 53 -46 Obs 53 -46 Obs 53 -47 Obs 54 -47 Obs	200 200 200 200 200 200 200 200 200 200	<pre>> /reme 111 56 Types on wire (TVB DIS), hb types captured (TVB DIS) on interface Unrice(NVF(DV3T998-298-4484-862)-CI4110423/VF), but Universal_DTCr646 (Millia)BiBIT(rf46) > Disterent Protocol writin 4, Src1 35.146.1.51, fort 19.146.1.121 > Disterent Protocol writin 4, Src1 35.146.1.51, fort 19.146.1.121 > Disterent Protocol writin 4, Src1 35.146.1.52, fort 19.146.1.121 > Disterent Protocol writin 4, Src1 35.146.1.52, fort 19.146.1.121 > Disterent Protocol writin 4, Src1 35.146.1.52, fort 19.146.1.121 > Disterent Protocol writin 4, Src1 35.146.1.52, fort 19.146.1.52 > Disterent Protocol writin 4, Src1 35.146, fort 19.146.1.52 > Disterent Protocol writin 4, Src1 35.146, fort 19.146.1.52 > Disterent Protocol writin 4, Src1 35.146, fort 19.146.1.52 > Disterent Protocol writin 4, Src2 35.146, fort 19.146, fort</pre>
	2 0.00113 2 0.00113 0.10016 0.10016 10.10016 10.10035 10.10175 10.115	Deta Source Source 0.000000 Dirteloc-351581 0.002200 Dirteloc-351581 0.002200 Dirteloc-351581 0.002000 122,102,112 0.000000 122,112,112 0.000000 122,112 0.000000 122,112 0.00000000000000000000000000000000000	Destruction Invadiants (1500, 687:86, 1920, 1847, 1920, 1847, 1920, 1847, 11, 1920, 1920, 1920	Protocol 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 802.11 EAPOL 802.11 EAPOL 802.11 LLC 802.11 LLC	Length Cha 168 96 76 264 76 275 76 275 93 76 227 76 227 76 227 76 227 76 227 76 229 183 76 183 76	No. Spand Stet S1 -38 68 S1 -36 68 S1 -37 68 S1 -37 58 S1 -37 68 S1 -47 68 S1 -47 68 S1 -47 68 S1 -47	<pre>000 000 000 000 0000 0000 0000 0000 0</pre>	<pre>> /reme 111 56 lytes on wire (T48 bits), 86 lytes captured (T48 bits) on interface Verice(VMF_(D437898-4386-421)-C481643A08), > Utterent Tyristion 4, Src: 135.146.1.15, 151 132.446.1.121 > Once "Dispare wrotocol, Kerving 1555, 051 Fresh 148.1.121 > Once "Dispare wrotocol, Kerving 155, 051 Fresh 148.1.121 > Wissel gameeters (Kerving 155, 051 Fresh 148, 051 Fresh</pre>
	2 0.00113 2 0.00153 9 0.100164 9 0.100164 9 0.100164 10 0.10035 10 0.10035 10 0.10035 10 0.10035 10 0.10035 10 0.10035 10 0.115709 10 0.	Deta Source Sour	Destruction Destruction (readcast (readcast (readcast) (readc	Protocol 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 002.11 EAPOL 002.11 EAPOL 002.11 ULC 002.11 ULC	Length Cha 168 96 76 76 284 284 275 76 221 76 222 76 222 76 223 76 225 76 225 76 199 199 199 199 199 199 193 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 183 76 195 195 195 195 195 195 195 195	No. Spall Stee S1 -3.8 3.9 S1 -3.6 ditts S1 -4.7 ditts S1 -3.5 ditts S1 -3.6 ditts S1 -4.7 ditts S1 -4.7 ditts S1 -4.7 ditts S1 -4.6<	Job Job Sciences, Sucala, Ined, FagesC. Activational science of the scien	<pre>> /reme 111 56 Types on wire (T48 Dits), 86 Types captured (T48 Dits) on Interface Unrice(MFF_C0473986-2398-4486-420)-C14810643/M480), > Itternet Troiscol writin 4, Srci 352.1481.141, 545 Tit 32.1481.121 > Diternet Troiscol writin 4, Srci 352.1481.145, 154 Tit 32.1481.121 > Diternet Troiscol writin 4, Srci 352.1481.145, 154 > Diternet Troiscol writin 4, Srci 352.1481, 155, 154 > Diternet Troiscol writin 4, Srci 352.1481, 155, 154 > Diternet Troiscol writin 4, Srci 352.1481, 155, 154 > Diternet Troiscol writin 4, Srci 352, 154 > Diternet Troiscol writin 4, Srci 352, 154 > Diternet Troiscol writin 4, Srci 352, 154 > Diternet Troiscol writin 4, Srci 4, Srci</pre>

Then, a client that wants to do OWE must indicate OWE AKM in the RSN IE of Association Request frame and include Diffie Helman (DH) parameter element:



OWE Association response

After the association response we can see the 4-way handshake and client moves to connected state.

Here you can see the client details on the WLC GUI:

Cisco Catal	yst 980	0-CL Wireless (Con	troller			W	Velcome	admin	* *	A (9 0	0	C Search APs and Cl	ents Q	edback 🦨 Թ
O. Search More herrs	Monitor	ing • > Wireless •	> (Clients			Client	t								×
C. Object were reens	Clients	Sleeping Client	8	Excluded Client	ts		360 V	Лew	General	QOS S	tatistics	ATF	Statistics	Mobility History	Call Statistics	
Dashboard	_						Client	t Propert	ties /	AP Propertie:	s Se	ecurity In	formation	Client Statistics	QOS Properties	EoGRE
Monitoring >	×	Delete C					Clie	ent State !	Servers			No	ne			
2 Configuration	Select	ted 0 out of 12 Clients					Clie	ent ACLs				No	None			
all counigoration ,	0	Cleant MAC Address	-	IDud Address	IDu6 Address	AD Name	Client Entry Create Time					43 WF	43 Seconds			
Administration	0	2865 2598 5801		102 168 1 150	feR0::ac5h:e1e1:67harc353	AD5849 9253 CA50	Enc	cryption C	lipher			cc	MP (AES)			
A	0	50th 008h 0e55	, ,	N/A	N/A	AP01 RC 9135 E80C	Aut	thenticatio	on Key Ma	nagement		OV	VE			
C Licensing	6016.0086.0e66 N/A N/A AP0_3KC_9136_F80C 34ea.e702.6240 > 192.168.1.70 N/A AP6849.9253.CA50							EAP Type Session Timeruit				No	Not Applicable 86400			

NetGear A8000

Connection OTA with focus on the RSN information from client:

	(man.ao	3 == 34(1	91621481 \01A2) OL (man.tc.type	e_subcype == 0x00 sd	1								
	ia. Te	ie.		Delta	Source	Destination	Protocol	Lengt (Channel Se	nal stre	Info			> Frame 1039: 250 bytes on wire (2000 bits), 250 bytes captured (2000 bits) on interface \Device\NPF_[04578905-2998-4456-8C33
	938 28	21-06-12	14:03:07.117065	0.000000	Netgear 48:70:55	Broadcast	882.11	166	5.5	1 dite	Probe Request, SNa1530, FNa0, FlagtaC. SSIDa"blittard"		Ш	> Ethernet II, Src: Cisco_dd:7d:37 (00:df:1d:dd:7d:37), Dst: Universa_b7:cf:06 (00:3a:80:b7:cf:06)
	931 26	23-06-12	14:03:07.117986	0.000921	Netgear 48:70:95	Broadcast	882.11	166	5.5	1 dbs	Probe Request, SNa1531, Fluid, Flags,C. SSIDa"blizzard"		11	> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	932 26	23.06.12	14:03:07.110792	0.000000	Netgear 48:20:95	Broadcast	882.11	166	5.5	1 dbs	Probe Request, SNa1512, Fluid, Flags,			> User Datagram Protocol, Src Port: 5555, Ost Port: 5000
	933 24	23.06.12	14:03:07.119655	0.000163	Netgear 48:78:95	Broadcast	882.11	166	5.5	1 dila	Probe Request, SN-1511, FN-0, Flags, C. SSTD, "blirrard"			> AiroPeek/OmniPeek encapsulated IEEE 802.11
	1013 20	23.46.12	14:03:08.485478	1.365823	Netgear 48:78:55	Cisco 11:00:	882.11	168	6.6	1 (84	Probe Request, Skat. ENab. Elasta			> B02.11 radio information
	1014 20	21.06.12	14-01-08.485478	0.000000	192,168,1.15	192.168.1.121	882.11	76	5.1	6 (84	Acknulatement, Elasta			> IEEE 802.11 Association Request, Flags:C
	1015 20	21-06-12	14-01-08-455548	0.000470	Netwar 41:20:55	Cisco 11:00:	882.11	168	5.5	2 (88	Probe Desuect, Sky2, Ehud, Elarsa			✓ IEEE 802.11 Wireless Management
	1016 20	23-06-12	14103108-485989	0.000041	192,168,1,15	192.168.1.121	882.11	26	5.0	6 dbs	Acknowledgement, flags			> Fixed parameters (4 bytes)
	1019 20	23.06.12	14:03:08.504575	0.012524	Netgear 48:20:05	Cisco 13:88:	882.11	368	5.5	1 dite	Probe Request, SNal, Flags,			✓ Tagged parameters (156 bytes)
	1010 10	13.06.13	14-83-88 684575	0.000000	193 168 1 16	103 160 1 131	887 11	34		6 100	icknowladement flast.			> Tag: SSID parameter set: "wifi68_test"
	1014 10	23.46.12	14-03-00 210003	0.011600	Listear 48-38-65	Cisco 11:00:	007 11			1.004	Authority ation Skut Eken Elant. /			> Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [Molt/sec]
	1015 20	21.06.12	14-01-08.718083	0.000000	192.168.1.16	192.168.1.121	882.11	76		£ (0a	Liknuladement flass.			> Ext Tag: HE Capabilities
	1036 20	23.46.12	14103108.724481	0.006150	Cisco 13:88:47	Netgear 4817	882.11			6 (84	Authentication (N.64 FN-8 Flags- 7			> Ext Tag: HE 6 GHz Band Capabilities
	1037 20	23.66.12	14183188.724481	0.000000	197.168.1.15	102.168.1.121	882.11	24		a daa	Acknowladement flags.			> Tag: Vendor Specific: Ralink Technology, Corp.
	1030 20	12.04.12	14-03-00 330164	0.003673	Laterar dirbitie	Circo thinks		264		1.000	interfaction Research Co. 1 En.A. Class. / CCD. Suffice Party			> Tag: Extended Capabilities (10 octets)
	1040 10	23.46.13	14:03:00.720154	0.000000	103 108 1 10	103 100 1 131	004188	499	5 - 5	A LOPE	ASSOCIATION ADDRESS, SHEE, FIRE, FIRESSTITTING, SSLOW WITHOUTEN			> Tag: vendor Specific: Microsoft Corp.; WMM/WME: Information Element
	1044 24	23.46.13	14-03-00.720454	0.000100	Laborat di-Th-M	Readents	110			6 484	11 5 Augusting Pargottering			 Tag: KSN Information
	1045 30	23.06.33	14.43.46.734339	0.000209	Cisco 13100107	Netwood dist	000 00	200		6 000	tractation factories files files files.			Tag Number: RSN Information (48)
	1049 20	13.04.13	14183188 738318	0.002700	103.168.1.16	103 168 1 131	883.55	24		a dite	tripped at the second state of the second stat			Tag length: 22
	1047 10	12.06.12	14183188 738481	0.000000	Listease 40-70-66	Broadcast	110			6 (84	T R N/R1-ER N/E1-11: PEAR BURK COMM. EEAR Burk Records			RSN Version: 1
	1040 10	12.06.12	14-83-88 347359	0.007465	Circo 13:08:47	Natasan 4017	EADON	224		6 484	I ry n(n/+30) n(s/+1) user enue broupy same ence nesponse			> Group Cipher Suite: 00:0fiac (Ieee 802.11) AES (CCH)
	1050 10	23.46.12	14-03-00 740347	0.0001990	103 108 1 10	103 108 1 131	002.11	26		a dan	Acy (ressingt a vr w)			Pairwise Cipher Suite Count: 1
	1051 10	23.46.12	14-03-08.748342	0.000000	Laterat 45-78-65	Cisco 11:00:	54801	222		1.000	Yes (Message 2 of 4)			> Pairwise Cipher Suite List 00:0f:ac (Ieee 802.11) AES (CCM)
	1053 30	23.46.12	14103108.748342	0.000000	107.168.1.16	102.168.1.121	882.11	76		ditte	Actional advantation of			Auth Key Hanagement (AKH) Suite Count: 1
	1053.34	13.44.13	14183188.751341	0.001000	Circo 13:08:e7	Netgear dit?	EARCH	784		é dès	Yau (Massana) of A)			> Auth Key Management (AKH) List 00:0f:ac (Ieee 802.11) Opportunistic Wireless Encryption
	1053 20	23-00-12	14:03:00.751342	0.000000	100_1510010/	Netgeer_4017_	EAPUL III		2 - 1	e com	key (ressage 3 or 4)			> RSN Cepebilities: ex0000
	1055 10	12.06.12	14-83-88 251342	0.000000	Natesar 48-38-65	Circo 11:00:	EARCY	199	5.5	5 (10.0	Yes (Message 4 of 4)			PHKID Count: 0
	- A455 44	23 46 23	14103100.751342	0.000000	r weigeer warren ys	103 100 1 131	EAP VL	499		3 404	Lebourdedeenet flam.			PORIDLIST
	1057 20	21.06.12	14-01-08.757481	0.006115	Ciscoller Slicate	Netgear 41:7	110	187		3 (0.0	T. N(R)-68. N(S)-61: DS1P dvet Tedividual. SS1P dvet compand			> Ext Tag: GuE Diffie-Hellman Parameter
	1058 20	23.06.12	14103108.757481	0.000000	192.168.1.15	192.168.1.121	882.11	26		5 dba	Likowledgement flagt.			Tag: RH Enabled Capabilities (5 octets)
	1059 20	23.04.12	14183188.757481	0.000000	192.168.1.15	192.168.1.121	882.11	110		3 dite	Trigger Buffer Status Report Boll (BSRR), Flags,			Tag Number: RH Enabled Capabilities (70)
	1063 20	23.46.12	14183188.798868	0.041107	192.168.1.15	192.168.1.121	882.11	110		a dite	Trigger Buffer Status Report Poll (BSRP), Flags-			Tag length: S
	1101 10	23.46.12	14-03-08.880363	0.001455	Neteear 48-78-95	Thuismant 16	110	222	5.4	1.084	T. N(R)=40. N(S)=75: DSAP PD/WAY (TE/955) Artive Station List Haintena			 WM Capabilities: 0x42 (octet 1)
	1102.20	21-06-12	14:01:00.000161	0.000000	192,168,1.15	192, 168, 1, 121	882.11	76		3 (84	Acknuladement. Elasta	1		0 = Link Measurement: Disabled
	1104 20	21-06-12	14:01:05.550363	0.000000	192.168.1.15	192.168.1.121	882.11	119		2 (84	Tripper Buffer Status Benurt Ball (BSBP), Elapsa			
	1105 20	23.06.12	14103108.880363	0.000000	Netgear 48120195	TPuterast 16	110	198	5.3	a dan	5. funralls, h(8)+951 DSAP dwar drown, SSAP dwdd Compand			
	1126 26	23.06.12	14:03:08.889249	0.001114	192,168,1,15	192.168.1.121	882.11	26	5.4	2 dite	Acknowledgement, Flagt,			0 = Repeated Measurements: Disabled
	1138 20	23.06.12	14:03:08.889249	0.000000	Netgear 48:78:95	Broadcast	LLC	444	5.5	6 dile	U.P. func_FRMR: DSAR divis Group. SSAR divis Compand			@ = Beacon Passive Measurement: Disabled
	1131 24	21.06.12	14:03:00.009249	0.000000	192,168,1,15	192.168.1.121	882.11	76		2 (0.0	Acknowledgement, Flags,C			= Beacon Active Measurement: Disabled
	11122 24	21.46.12	14-03-08.889249	0.000000	Laterar 48-78-65	TRucerast 01	110	105		7 (84	T. N(R)-115. N(S)-40: DELE Bybl Conus. SELE By14 Beconese			.1 = Beacon Table Measurement: Supported
	1115 20	23.06.12	14103108-050825	0.001570	Netgear 48:20:55	Broadcast	110	447	5.1	6 (84	T P. N(B)+118, N(S)+104: DEAP dwad Individual, SEAP dwid Becomme			0 = Beacon Heasurement Reporting Conditions: Disabled
1	1143 20	23.04.12	14103108-917921	0.022056	Netgear 48120195	TPvincast 01	110	345	5.4	1 dite	U.F. funculnimoun: DEAP ducc Individual. SEAP ducc Response			> RH Capabilities: 0x00 (octet 2)
1	1144 20	23-06-12	14:03:08.917921	0.000000	192,168,1,15	192,168,1,121	882.11	26	5.4	1 dite	Acknowledgement, Flags			> RH Capabilities: 0x00 (octet 3)
1	1146 24	23-06-12	14:03:08.917921	0.000000	Netgear 48:78:95	IPvéncast es	LLC	268	5 -1	7 dilm	I, N(R)+86, N(S)+58; DSAP EIA RS-511 Hanufacturing Message Service Ind			> RM Capabilities: 0x00 (octet 4)
1	1148 28	23-06-12	14:03:08.921977	0.004050	Cisco 13:00:07	Netgear 48:7-	802.11	118	5 -1	6 d8n	Action, SN+1, FN+0, Flag1+.0C			> RM Copabilities: 0x00 (octet 5)
1	1149 28	23-06-12	14:03:08.921977	0.000000	192.168.1.15	192,168,1,121	882.11	76	5.5	1 dbm	Acknowledgement, FlagsC			

Client details in WLC:

Cisco Cata	lyst 980	0-CL Wireless (Con	troller				Welcome admin	1	ar 16	▲	8 0	0	Search APs and Cl	ants Q	eedback 🛃 🗭
Q. Search Manu Items	Monitor	ing • > Wireless •	> (Clients			С	Client								×
	Clients	Sleeping Client	s	Excluded Client	15		3	360 View Gener	ral	QOS St	atistics	ATI	F Statistics	Mobility History	Call Statistics	
Dashboard							1	Client Properties	AP P	Properties	5	Security I	Information	Client Statistics	QOS Properties	EoGRE
Monitoring		Deleto						Client State Servers	1			N	lone			
N) or frankrig	Select	ted 0 out of 11 Clients						Client ACLs				N	lone			
Configuration >	-		_	_				Client Entry Create	Time			2	5 seconds			
Co Administration	0	Client MAC Address	T	IPv4 Address Y	IPv6 Address	AP Name Y	1	Policy Type				W	VPA3			
XO Administration	0	9418.6548.7095	×	192.168.1.163	fe80::ce19:6f16:279d:515f	AP6849.9253.CA50	1	Encryption Cipher				C	CMP (AES)			
	0	60fb.008b.0e66	×	192.168.1.155	N/A	AP04_OutdoorF_3DC8		Authentication Key I	Manage	ement		0	WE			
Country Country	0	34ea.e702.6240	×	192,168,1.70	N/A	AP6849.9253.CA50		EAP Type				N	lot Applicable			
	0		÷.	100 100 1 01		1000 0 0510		Session Timeout				8	6400			
A mousicanobility	0	a810.8765.5833	1	192.168.1.94	te80::aa10;87#:febb:b833	AP03_S000_9548	1	Session Manager								

Pixel 6a

Connection OTA with focus on the RSN information from client:

T	((peekremote) && (vian.addr == 24:95:	2f:72:8a:66)) (vian.fc.type_s	ubtype == 0x001d	0				X - • +
No.	Time	Delta Source	Destination	Destared	Lenni Channel	Consideration	1464	> Frame 589: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NFF (D4578905-2998-4456
140	Time	Deta Source	Deschaport	PTOSOCO	Lerge Charnes	Signal see	and the second of the first first of the build build build	Sthernet II, Src: Cisco dd:7d:37 (00:df:1d:dd:7d:37), Dst: Universa b7:cf:06 (00:3a:80:b7:cf:06)
	574 2023-00-12 15:53:27.505005	A 100043 Coopie_72108100	Cisco 131841	002.11	100	5 .42 .68	inthestication (h.160) (h.6 Chart, (> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	565 2025 00 22 25 55 27 075720	0.100045 000g10_72.08.00	103.108.1.131		24	5 .36 .488	Acceleration, parager, range ranges.	> User Catagram Protocol, Src Port: 5555, Dst Port: 5000
	107 2023 00 12 13:53:27 075720	0.000000 194.100.1.19	Coople Think	004.44	100	5 36 688	Addressing Photo Photo Charles C	> AiroPeek/OmniPeek encapsulated IEEE 802.11
	507 2023-00-12 19:53:27.725009	0.001001 (100.0_10.00.07	163 168 1 133	883.11	24	5 . 45 . 684	According to the second states of the second states	> 802.11 radio information
	500 2023-00-12 15:53:27:725005	a addeed footly Thereid	Circo 13:88:	002.11	202	5 -44 000	Accordance property respectively and share of stre-builded tasts	> IEEE 802.11 Association Request, Flags:C
-P	505 2023-00-22 151551271720570 508 5051 02 15 15-53-55 552500	0.000000 101 1/0 1 10	163 168 1 131	002133	275	5 -36 488	Association request, sectors, respectively, solve error_test	✓ IEEE 802.11 wireless Management
1	590 2023-00-22 23:53:27:720390 E08 3031-02-15 15-53-57 301012	0.000000 A74.100.4.45	Coogle 72:04	002.11	200	5 - 36 dam	Accordance general Child Plant.	> Fixed parameters (4 bytes)
1	599 2021-06-12 15:51:27.291916	0.000000 192.168.1.15	192,168,1,121	882.11	76	5 .45 /08	Acknowledgement, Elasta	 Tagged parameters (199 bytes)
1 i	600 2021-06-12 15:51:27.794168	0.002252 (15/0 13:00:47	Google 72:84	EARCH	221	5 . 16 .000	Xev (Nessage 1 of 4)	> Tag: SSID parameter set: "wifi66_test"
	681 2823-86-12 15:53:27.794168	0.000000 192.168.1.15	192,168,1,121	882.11	76	5 -46 cm	Acknowledgement, flags,	> Tag: Supported Rates 6(0), 9, 12(0), 10, 24(0), 36, 40, 54, [Mbit/sec]
1	684 2823-86-12 15:53:27.832152	0.017954 Google 72:8a:66	Cisco 13:80:	EAPOL	227	5 -46 dim	Key (Heccase 2 of 4)	> Tag: Power Capability Hin: -7, Hax: 19
	685 2821-86-12 15:53:27.832152	0.000000 192.168.1.15	192,168,1,121	882.11	76	5 -17 dim	Acknowledgement, Flagt,	> Tag: Supported Channels
1	686 2021-06-12 15:51:27.834424	0.002272 Cisco 13:00:#7	Google 72:84	EAPOL	295	5 -36 dam	Key (Hessage 3 of 4)	 Tag: RSN Information
	687 2821-86-12 15:51:27.834424	0.000000 192.168.1.15	192,168,1,121	882.11	76	5 .46 .000	Acknowledgement, flagsC	Tag Number: #SN Information (48)
i.	688 2823-86-12 15:53:27.848723	0.006299 Google 72:8a:66	Cisco 13(88)	EAPOL	199	5 .46 088	Key (Nessage 4 of 4)	Tag length: 26
	689 2823-86-12 15:53:27.848723	0.000000 192,168,1.15	192,168,1,121	882.11	76	5 -17 dbs	Acknowledgement, flags,	RSN Version: 1
	611 2023-06-12 15:53:27.860914	0.020191 Ciscover Slica:50	Google 72:8a	LLC	187	5 -46 dim	I P. N(R)+17, N(S)+3: DSAP dxcc Group, SSAP dxee Command	> Group Cipher Suite: 00:0f:ac (Ieee 802.11) AES (CCM)
	612 2023-06-12 15:53:27.060914	0.000000 192.168.1.15	192,168,1,121	802.11	76	5 -53 dim	Acknowledgement, FlagtsC	Pairwise Cipher Suite Count: 1
	613 2023-06-12 15:53:27.060914	0.000000 192.168.1.15	192.168.1.121	882.11	76	5 -17 dbm	Acknowledgement, Flags,C	> Painvise Cipher Suite List 00:0f:ac (Ieee 802.11) AES (CCH)
	614 2023-06-12 15:53:27.864106	0.003192 192.168.1.15	192.168.1.121	882.11	76	5 -36 088	Acknowledgement, flagsC	Auth Key Hanagement (ARH) Suite Count: 1
	616 2023-06-12 15:53:27.875667	0.011561 192.168.1.15	192,168,1,121	882.11	76	5 .36 dbm	Acknowledgement, flags,C	> Auth Key Hanagement (ARH) List 00:0f:ac (Ieee 802.11) Opportunistic wireless Encryption
	617 2023-06-12 15:53:27.882101	0.006434 192.168.1.15	192,168,1,121	882.11	76	5 -45 dim	Acknowledgement, Flagt,C	> RSN Capabilities: 0x00c0
	618 2023-06-12 15:53:27.884153	0.002052 Google 72:8a:66	Cisco 11:80:	802.11	122	5 -46 d8m	Action, SN+1703, FN+0, Flagt+.0C	PHKID Count: 0
	619 2023-06-12 15:53:27.004153	0.000000 192.168.1.15	192,168,1,121	002.11	76	5 -36 d8m	Acknowledgement, Flags,C	PikiD List
	623 2023-06-12 15:53:27.933491	0.049338 Cisco 13:80:e7	Google 72:8a	882.11	124	5 -37 dbm	Action, SNw1, FNw0, Flagsw.0C[Malformed Packet]	> Group Management Cipher Suite: 00:0f:ac (Ieee 802.11) 8IP (128)
	624 2023-06-12 15:53:27.933491	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -47 dbm	Acknowledgement, flagsC	Tag: RH Enabled Capabilities (\$ octets)
	629 2023-06-12 15:53:28.018696	0.005205 Google 72:8a:66	Cisco 13:80:	802.11	115	5 -48 d8m	Action, SN+1704, FN+0, Flags+.pC	Tag Number: RH Enabled Capabilities (70)
	630 2023-06-12 15:53:28.018696	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -36 d8m	Acknowledgement, Flagt+C	Tag length: 5
	631 2023-06-12 15:53:28.018750	0.000054 Google 72:88:66	IPvGmcast ff.	LLC	227	5 -55 d8m	I. N(R)+37, N(S)+11: DSAP exec Individual, SSAP ex4a Command	 RM Capabilities: 0x73 (octet 1)
	632 2023-06-12 15:53:28.018864	0.000114 192.168.1.15	192,168,1,121	002.11	76	5 -46 dbm	Acknowledgement, Flags,C	1 = Link Measurement: Enabled
	634 2023-06-12 15:53:28.020947	0.002003 Cisco 13:00:e7	Google 72:88	802.11	115	5 -37 dbm	Action, SN+2, FN+0, Flags+,0,C	
	635 2023-06-12 15:53:28.020947	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -48 d8m	Acknowledgement, FlagsC	
	636 2023-06-12 15:53:28.021574	0.000627 192.168.1.15	192.168.1.121	802.11	86	5 -48 d8m	802.11 Block Ack Reg, Flags+C	0 = Repeated Heasurements: Disabled
	637 2023-06-12 15:53:28.021574	0.000000 192.168.1.15	192.168.1.121	802.11	94	5 -37 d8m	802.11 Block Ack, Flags+C	1 = Beacon Passive Measurement: Enabled
	638 2023-06-12 15:53:28.026616	0.005042 192.168.1.15	192.168.1.121	802.11	82	5 -55 dbm	Request-to-send, Flags+C	= Beacon Active Heasurement: Enabled
	639 2023-06-12 15:53:28.026616	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -46 00m	clear-to-send, FlagsC	.1 = Beacon Table Heasurement: Supported
	640 2023-06-12 15:53:28.026661	0.000045 192.168.1.15	192.168.1.121	802.11	94	5 -46 dbm	802.11 Block Ack, Flags+C	e = Beacon Measurement Reporting Conditions: Disabled
	652 2023-06-12 15:53:28.206666	0.180005 Google_72:8a:66	Broadcast	LLC	448	5 -51 d8m	I, N(R)=122, N(S)=124; DSAP ExSc Individual, SSAP Ex9e Command	> Av Capabilities: 0x00 (octet 2)
	653 2023-06-12 15:53:28.206666	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, FlagsC	An Capabilities: 0x01 (octet 3)
	657 2023-06-12 15:53:28.241617	0.034951 Cisco_13:00:e7	Google_72:88.	802.11	110	5 -37 dön	Action, SN+3, FN+0, Flags+.pC	1 = AP Channel Report capability: Enabled
	658 2023-06-12 15:53:28.241617	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -51 d8m	Acknowledgement, Flags+C	e. = RH HIB capability: Disabled
	659 2023-06-12 15:53:28.241976	0.000359 Google_72:8a:66	Cisco_13:801.	802.11	115	5 -49 dbm	Action, SN+1705, FN+0, Flags+.pC[Malformed Packet]	0 00 = Operating Channel Max Measurement Duration: 0
	668 2023-06-12 15:53:28.241976	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, Flags+C	000 = Nonoperating Channel Max Measurement Duration: 0
	661 2023-06-12 15:53:28.243742	0.001766 AlticeLa_9e:59:a/	Google_72:88.	LLC	459	5 -47 d8m	5, func+RNR, N(R)+85; DSAP ex96 Individual, SSAP ex9a Command	> RH Capabilities: ENRE (octet 4)
	662 2023-06-12 15:53:28.243742	0.000000 192.168.1.15	192.168.1.121	802.11	94	5 -56 dem	B02.11 Block Ack, Flags+C	> NT CADADILITES: 0x00 (OCTET 5)
	667 2023-06-12 15:53:28.328207	0.054465 Google_72:88:66	Cisco_13:00:.	002.11	115	5 -50 dbm	Action, SN+1706, FN+0, Flags+.pC[Malformed Packet: length of contained iter	> rag: supported operAting Classes
	668 2023-06-12 15:53:28.328207	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -37 dbm	Acknowledgement, flags=C	> rag: axteneor LapedLittes (10 octets)
	669 2023-06-12 15:53:28.328254	0.000047 Google_72:8a:66	Broadcast	LLC	144	5 -50 dbm	I P, N(R)=19, N(S)=114; DSAP Exem Individual, SSAP Ex48 Command	> Ext rag: HE Capabilities
	670 2023-06-12 15:53:28.328372	0.000118 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, Flags=C	2 Ext reg: mc o un: dend Cepablilities
	672 2023-06-12 15:53:28.330678	0.002306 Cisco_13:80:e7	Google_72:8a.	802.11	115	5 -37 d8m	Action, SNu4, FNu0, Flags=.pC[Malformed Packet]	> ext ragi one ustrie-heilman Parameter
	673 2023-06-12 15:53:28.330678	0.000000 192.168.1.15	192.168.1.121	802.11	76	5 -49 dön	Acknowledgement, Flags+C	> reg: venour specific: Broaccon
	674 2023-06-12 15:53:28.330957	0.000279 192.168.1.15	192.168.1.121	802.11	86	5 -49 dbm	802.11 Block Ack Req, Flags+C	> ieg: vendor specific: Microsoft Corp.: WMVAME: information Element

Client details in WLC:

Cisco Cata	alyst 980	0-CL Wireless C	Controlle	r			Welcome ad	tmin	* • A	8 (\$ 0\$ O	Search APs and Cli	eres Q EFe	sedback 🦨 Թ
O. Search Magu Itoms	Monitor	ing • > Wireless •	Clients				Client							×
Dachboard	Clients	Sleeping Clients	Excl	uded Client	s		360 View	eneral	QOS Statisti	ics A	TF Statistics	Mobility History	Call Statistics	
Dashodaru		0.000					Client Properties	s AF	P Properties	Security	Information	Client Statistics	QOS Properties	EoGRE
Monitoring >		2					Client State Ser	rvers			None			
Configuration	Select	ted 0 out of 13 Clients					Client ACLs Client Entry Cre	ate Time			None 135 seconds			
	0	Client MAC Address	T IPv4 A	Address 📍	IPv6 Address	AP Name	Policy Type				WPA3			
Of Administration	0	2495.2f72.8a66	/ 192.1	68.1.162	fe80::b13:f107:7c5f:a7e0	AP6849.9253.CA50	Encryption Ciph	her			CCMP (AES)			
C Licensing	0	0429.2ec9.e371	۶ 192.1	68.1.160	fe80::6a20:34e8:ab1b:6332	AP6849.9253.CA50	Authentication H	Key Mana	agement		OWE			
	0	60fb.008b.0e66	🖌 N/A		N/A	AP01_RC_9136_F800	Session Timeou	ut			Not Applicable 86400			
💥 Troubleshooting	0	34ea.e702.6240	▶ 192.1	68.1.70	N/A	AP6849.9253.CA50	Session Manana	0.0						

Samsung S23

Connection OTA with focus on the RSN information from client:

	been enough and White cape		Concert of 11 (1	and the proving	, 0.00 10, j							(a) (a) (b) (b) (b) (b) (b) (b) (b) (b) (b) (b
No.	Time	Del	ita Sourc	e C	Destination	Protocol	Lengt Channel	Signal stre	Info			> Frame 2387: 388 bytes on wire (3104 bits), 388 bytes captured (3104 bits) on interface \Device\NFF_(D4578905-2998-445
	2383 2023-06-12 15:38:	49,938966 8.	.419828 Samou	unel (9:e]:71 (isco 11:00:-	882.11	96	5 -45 dim	Authentication, SN#2164, FN#0, FlagtsC			Ethernet II, Srci Cisco_ddi7di37 (00:df:1d:ddi7d:37), Ost: Universa_b7:cf:06 (00:3a:88:b7:cf:06)
	1384 2023-06-12 15-38-	49 938966 8	000000 192.1	168 1 15 1	92.168.1.121	882.11	76	5 .37 dbm	Arknowledgement Elapta C			> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	1000 1001 of 15 17-38-	40 037384 0	ADDITE CIACO	11100147	and up at the	883.11		F 37 dim	Authentication (m.110 (m.0 flass-			> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	2303 2023-00-12 13:30:	49.937354 0.		2,2,2,1,0,0,1,0,1,1,2,1,2,1,2,1,2,1,2,1,	interestings_core	002.11		5 - 37 - 664	Address address and a first fi			> AiroPeek/OmniPeek encapsulated IEEE 802.11
	2300 2023-00-12 15:301	*7.73/354 0.	.000000 192.1	160.1.15 1	192.100.1.121	002.11	76	5 -47 008	Acknowledgement, Fings+			102.11 ratio information
100	2387 2023-06-12 15:381	49.941841 0.	1004487 58851	unge_cole3171 C	1500_131801	802.11	144	5 -47 088	ASSOCIATION Request, SN+2165, PN+0, Plags+C, SSID+"W1Plot_test"			THE BAT 11 Accordation Banact, Flats: C
1.1	2388 2023-06-12 15:38:	49.941841 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	\$ -37 d8m	Acknowledgement, Flags=C			/ and while newspapers registry regist internet
1.8	2393 2023-06-12 15:38:	49.956542 0.	.014701 Cisco	0_13:00:e7 5	lamsungE_c9:_	802.11	273	5 -37 d8m	Association Response, SN+0, FN+0, Flagi+C			A det orcita mireado rengemente
	2394 2023-06-12 15:38:	49.956542 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -46 dbm	Acknowledgement, Flags+C			> Fixed parameters (4 bytes)
	2395 2023-06-12 15:38:	49.958831 0.	.002289 Cisco	0_13:80:e7 5	lansungt_c91	EAPOL	221	5 -37 dbm	Key (Message 1 of 4)			 Tagged parameters (294 bytes)
1.1	2396 2023-06-12 15:38:	49.952231 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -45 d8m	Acknowledgement, Flags+C		TH	> Tag: SSID parameter set: "wifi66_test"
	2398 2023-06-12 15:38:	49.924449 0.	.025618 Samtu	ungE c9:e3:71 0	isco 13:80:_	EAPOL	227	5 -46 d8m	Key (Hessage 2 of 4)		111	> Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [Mbit/sec]
1.1	2399 2023-06-12 15:38:	49,954521 0.	.000172 192.1	168.1.15 1	92.168.1.121	882.11	76	5 -37 dim	Arknowledgement, flagtsC			> Tag: Power Capability Min: 8, Max: 16
	2400 2023-06-12 15:38:	49.905901 0.	entire cisco	h 13:00:e7 5	Lancungt (9)	EAPOL.	295	5 .37 dbm	Key (Message 3 of 4)			> Tag: Supported Channels
	1481 2023.04.12 15:38:	49.925921 0	.000000 197.1	168.1.16	62.168.1.121	882.11	76	5 .44 .484	Arknowledgement, flags,			Tag: RSN Information
1.1	1483 1813 ac 11 15-38-	CA AA7374 A	ditted Cant	and chief-71 /	tirre thinks	5100	100	5 .47 484	Var (Marrana A of A)			Tag Number: RSN Information (48)
~	CHED 2023-00-12 151301	50.007376 0.	022375 58850	wige_corepi/x c	1910_191001	EAPVL	199	5 -47 000	Ney (ressage + or +)			Tag length: 26
	2404 2023-06-12 15:38:	50.007376 0.	.000000 192.1	168.1.15 1	192.168.1.121	882.11	76	5 -37 Gen	Acknowledgement, Flags+			MN Version: 3
	2410 2023-06-12 15:38:	50.093619 0.	.006243 Samsu	ungs_c9:e3:71 0	:15C0_13:80:_	802.11	118	5 -47 dem	Action, SN+2, FN+0, Flags+.pC[Halformed Packet: length of contained in	1		Group / Johan Sulta: Ab-Ad-ar / Fasa 841 111 LES ///W1
	2411 2023-06-12 15:38:	50.093619 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -37 dbm	Acknowledgement, Flags+C			Prior and a state of the first state of the
	2412 2023-06-12 15:38:	50.096846 0.	.002427 Cisco	0_13:80:e7 5	Lamsungt_c91	802.11	118	5 -37 dbm	Action, SN+1, FN+0, Flags+.pC			rearrange capiter source counts a
	2413 2023-06-12 15:38:	50.096046 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -45 dbm	Acknowledgement, #lags=C			> Pairwise ciprer suite List excertise (leee Be2.11) Ass (CON)
	2414 2023-06-12 15:38:	50.101726 0.	.005600 Samsu	ungE_c9:e3:71 1	Pvincast_ff_	LLC	227	5 -59 d8m	I, N(R)=54, N(S)=52; DSAP @xce Group, SSAP SNA Command			Auth Key Management (ARM) Suite Count: 1
	2415 2023-06-12 15:38:	50.101726 0.	.000000 Samsu	ung8_c9:e3:71 1	Pv6mcast_16	LLC	251	5 -59 d8m	I, N(R)=47, N(S)=43; DSAP @xKe Group, SSAP @xc0 Response			> Auth Key Management (AKM) List 00:0f:ac (Ieee 802.11) Opportunistic Wireless Encryption
	2416 2023-06-12 15:30:	50.101726 0.	.000000 192.1	168.1.15 1	192.168.1.121	002.11	110	5 -46 dBm	002.11 Block Ack, Flags,C			> RSN Capabilities: 0x00c0
	419 2023-06-12 15:38	50.100529 0.	ODCERT CARGO	unet (1)(4)(7) E	Innadrast	110	450	5 .46 /88	IL P. FUNCHIT: DSAP Byta Todividual, SSAP Byte Company			PHOLD Count: @
	AND 1011-04-11 16-18-1	50 100510 O	000000 101 1	148 1 16 1	82 148 1 121	883 11	74	6 .37 dis	Arknowladesmant flags, f			PHOLD List
	1410 1013-00-11 15-30-	50 103/63 O	Alasta Cisco		Contract chi			5 . 33 dim	icking (b.) (b.) (last, a (fieldamed Backst)			> Group Hanagement Cipher Suite: 00:0f:ac (Ieee 802.11) 8IP (128)
	2427 2023-00-12 15:30:	50.102052 0.	10/4123 C1500	0_AD100107 3	rear number of the	002.44	440	5 -37 468	Accash, Sanz, Fine, Faegor, p			Y Tag: BN Enabled Canabilities (5 octets)
	2430 2023-06-12 15:38:	50.182652 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -45 CER	Acknowledgement, Flags+C			Tag Number: RN Enabled Cacabilities (20)
	2431 2023-06-12 15:38:	50.188281 0.	10059539 29850	nulle"caseasive c	1100_13:00:_	002.11	118	5 -46 CER	Action, SN#2160, FN#0, Flags*.pC[Maiformed Facket: length of contained	19		Tag length: 6
	2432 2023-06-12 15:38:	se.188586 e.	.000305 192.1	168.1.15 1	192.168.1.121	002.11	76	5 -37 dbm	Acknowledgement, Flags+C			Di Canabilitian avia (aviat 1)
	2433 2023-06-12 15:38:	50.189704 0.	.001118 Altic	ceLa_9e1591af 5	Lansungt_C91_	LLC	429	5 -47 dbm	U P, func+RESET; DSAP 0x46 Group, SSAP 0x6e Command			- No opposite the opposite of
	2434 2023-06-12 15:38:	50.189704 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	118	5 -58 d8m	802.11 Block Ack, Flags+C			= Link Medar Gment: Endaded
	2436 2023-06-12 15:38:	50.197365 0.	.007661 Samsu	ungE_c9:e3:71 8	Iroadcast	LLC	446	5 -47 dêm	S P, func+RR, N(R)+17; DSAP PROWAY (IEC955) Active Station List Maintenance			1. + Neighbor Report: Enabled
	2437 2023-06-12 15:38:	50.197365 O.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, Flags+C			
	2441 2023-06-12 15:38:	50.239457 0.	.042092 Altic	ceLa perspraf s	LamsungE_c9:_	LLC	459	5 -47 dbm	I, N(R)+54, N(S)+28; DSAP ex58 Group, SSAP ex84 Response			0 = Repeated Measurements: Oisabled
	2442 2023-06-12 15:38:	50.239457 0.	.000000 192.1	168.1.15 1	92.168.1.121	882.11	118	5 .55 dbm	802.11 Block Ack, Flags,C			1 = Beacon Passive Heasurement: Enabled
	2443 2023-04-12 15:38:	50.248619 0.	.009167 Same	unel chielit71 E	inoadcast	110	456	5 -44 dbs	T.P. N(R)-75, N(S)-42: DEAP Lingermann-Rass drown, SEAP PROMEY (TECHES) Netwo			= Beacon Active Heasurement: Enabled
	1444 1011.0C.11 1C-10-1	CA 148619 A	000000 101 1	100 1 10 1	69 128 1 191	003 11	24	5 -37 dim	icknowladesmant flags. /	n		.1 = Beacon Table Measurement: Supported
	100 101 00 11 17 100	10 101017 U.	orners since	and a contract of		11.0	100	5 47 484	C. B. Auge (563) B(3) A. D(10 Auge Comp. (710 Aug) Company			0 = Beacon Heasurement Reporting Conditions: Disabled
		10.307004 0.						F FR dim	a ry renewatery monthly water where where where comments			> RH Capabilities: #xi@ (octet 2)
	2450 2023-06-12 15:38:	50.307062 0.	.000000 192.1	160.1.15	192.190.1.121	002.11	110	5 -58 GBM	bezili Block Ack, Fingstrining			Ri Capabilities: 8x81 (octet 3)
	2453 2023-06-12 15:38:	50.344977 0.	.037915 58850	ungs_cole3171 E	roadcast	LLC	144	5 -45 dbm	I, N(R)+9, N(S)+42; USAP 0846 Individual, SSAP 0836 Response			1 - IP Channel Deput (anability: Enabled
	2454 2023-06-12 15:38:	50.344977 0.	.000000 192.1	168.1.15 1	192.168.1.121	882.11	76	5 -37 dbm	Acknowledgement, Flags+C			a - bu uta cashilitu nichlad
	2456 2023-06-12 15:38:	50.340061 0.	.003004 Altic	ceLa_9e:59:af 5	LansungE_c9:_	LLC	197	5 -46 d8m	I, N(R)=10, N(S)=37; DSAP @x6e Individual, SSAP @x4a Response			the description description intervieweek functions of
	2457 2023-06-12 15:38:	50.340061 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	118	5 -57 dêm	802.11 Block Ack, Flags+C			the over a operating trained has reasonable towardown a
	2458 2023-06-12 15:38:	50.350349 0.	.002288 Samsu	ungE_c9:e3:71 #	lticeLa_9e:_	LLC	219	5 -59 dbm	I, N(R)+68, N(S)+77; DSAP @x1e Group, SSAP @xca Response			100 = Nonoperating channel Max Measurement Duration: *
	2459 2023-06-12 15:38:	50.350349 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	118	5 -46 dbm	B02.11 Block Ack, Flags+C			> Hot Capabilities: except (ottet +)
	2460 2023-06-12 15:38:	50.358338 0.	.007909 Altic	ceLa_9e:59:af 5	lansungt_c91_	LLC	191	5 -46 dbm	I, N(R)=67, N(S)=94; DSAP @x4a Group, SSAP @x6a Response			> RM Capabilities: 0x04 (octet 5)
	2461 2023-06-12 15:38:	50.358569 0.	.000231 192.1	168.1.15 1	192.168.1.121	882.11	118	5 -58 d8m	802.11 Block Ack, FlagsC			> Tag: Supported Operating Classes
	2463 2023-06-12 15:38:	50.174150 0.	.015581 Samtu	unel c9:e3:71 /	iticels Set-	LLC	230	5 -60 dim	I P. N(R)+97, N(S)+23: DSAP PROMAY (IEC955) Active Station List Maintenance			> Tag: Extended Capabilities (11 octets)
	A64 1071-06-12 15-18-1	58 174158 8	000000 197.1	168 1 15 1	92 168 1 121	882.11	110	5 .47 dan	BRT 11 Block Jok, Elasta			> Ext Tag: HE Capabilities
	2465 2023-06-12 15:38	58.391157 8.	017007 Altie	rela del solaf s	LANGUARE (9)	110	242	5 .46 day	5. Funcastell, N(8)+12: DEAR diver Group, SEAR divid Command			> Ext Tag: HE 6 GHz Band Capabilities
	MAGE 1011-04-11 18-18-1	EA 3411E7 A	000000 101 1	148 1 16 1	103 148 1 131	883 11	110	E	sat th Black tek filante			> Ext Tag: OuE Diffic-Hellman Parameter
	avas	PR. 27245/ 0.		and advaluable in	Thissis for		110	5 55 685	the state with this with former fills and a horsester			> Tag: Vendor Specific: Qualcomm Inc.
	cvee cvcs-v6-12 15:38:	39.371157 0.	recerced 3-8850	wige_c7103171 /	attrets"ac!"		415	5 - 57 GBM	U, TUTLEALU, USAF ERME UTUAD, SSAF EALE RESPONSE			> Tag: vendor Specific: Samsung Electronics CoLtd
1	2467 2023-06-12 15:38:	10.J91157 0.	.000000 192.1	100.1.15 1	174.108.1.121	082.11	418	5 147 088	BRAILE BLOCK ACK, PIRESHILLING			> Tag: Wendor Specific: Samsung Electronics Cotd
	2470 2023-06-12 15:38:	50.391157 0.	.eeeeee Samsu	ungE_c9:e3:71 A	lticeLa_9e:_	LLC	217	5 -58 d8m	U, funcwünknown; DSAP exic Group, SSAP exi2 Response			 and the second se
	2471 2023-06-12 15:38:	50.391157 0.	.000000 192.1	168.1.15 1	192.168.1.121	802.11	118	5 -47 dbm	B02.11 Block Ack, Flags+C			

Client details in WLC:

¢	cisco Cisco	o Cataly	st 9800)-CL Wireless C	on	troller					Welcome admin	1	* *	•		¢ (3	0	Search APs and Clie		eedback 🦨	•
	earch Menu Items		Monitori	ng • > Wireless •)	> C	Clients				С	lient										×
	earch mend henra		Clients	Sleeping Clients	1	Excluded Clie	ents			3	360 View Gene	ral	QOS	Statistic	8	ATF Sta	atistics	Mobility History	Call Statistics		_
	ashboard		_							0	Client Properties	AP	Properti	es	Securi	ity Infor	mation	Client Statistics	QOS Properties	EoGRE	
3		>	×	Delete C							Client State Server	s				None					
20	Configuration		Select	ed 0 out of 13 Clients							Client ACLs	Time				None 569 et	aconde				
~		ĺ.	0	Client MAC Address	Ŧ	IPv4 Address	Ŧ	IPv6 Address	AP Name		Policy Type	Time				WPA3	Conus				
567 v	volministration	*	Ο	0012.17e1.dd57	×	192.168.1.33		fe80::212:17ff:fee1:dd57	AP03_Sotao_9548		Encryption Cipher					CCMP	(AES)				
Ωι	icensing		0	0012.17e2.4856	×	192.168.1.37		fe80::212:17ff:fee2:4856	AP05_Outdoor8_220		Authentication Key	Manag	gement			OWE					
			0	0012.17e2.4b40	×	192.168.1.31		fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3D0		Session Timeout					NOT Ap 86400	ppiidabk)				
X 1	roubleshooting		0	0429.2ec9.e371	×	192.168.1.160		fe80::6a20:34e8:ab1b:6332	AP6849.9253.CA56		Session Manager					55400					
				0c8b.9509.3518	×	192,168,1,129		N/A	AP03 Sotao 9548												

WPA3 - AES(CCPM128) + OWE with Transition Mode

Detailed configuration and troubleshooting of OWE Transition Mode available in this document: <u>Configure</u> <u>Enhanced Open SSID with Transition Mode - OWE</u>.

WPA3-Personal - AES(CCMP128) + SAE

WLAN Security configuration:

Edit WLAN

eral decarray Havanced Had to	Policy Tags		
er2 Layer3 AAA			
O WPA + WPA2 O WPA2 + WPA3	WPA3	O Static WEP	O None
MAC Filtering			
Lobby Admin Access			
VPA Parameters	Fast	fransition	
WPA O WPA2 O Policy Policy	Stati	6	Disabled •
GTK O WPA3 O	Over	the DS	0
Transition O	Read	sociation Timeout*	20
unandume			-
VPA2/WPA3 Encryption			
	Auth	Key Mgmt	
AES(CCMP128) C CCMP256 C	Auth	Key Mgmt	FT + SAE 0
AES(CCMP128) C CCMP256 C GCMP256 C C	Auth	Key Mgmt 4: 0 VE 0 2 1 vi 0	FT + SAE 0 FT + 802.1x 0
AES(CCMP128) C CCMP256 C GCMP256 C GCMP256 C CMP256 C CMP	Auth S/ S/ S/	Key Mgmt 4 0 VE 0 2.1x+ VA256	FT + SAE 0 FT + 802.1x 0
AES(CCMP128) C CCMP256 C GCMP256 C GCMP256 C CMP256 C CMP	Auth 5/ 0/ 8/ 9/	Key Mgmt 4 O VE O 2.1x- VA256 6 Clogging Threshold*	FT - SAE 0 FT - 802.1x 0
AES(CCMP128) C CCMP256 C GCMP256 C G	Auth 5/ 0 85 4/ M	Key Mgmt 4 O VE O 2.1x- V256 6 Clogging Threshold* ax Retries*	FT + SAE 0 FT + 802.1x 0
AES(CCMP128) CCMP256 CCMP256 CCMP256 CCMP128 CCMP256 C	Auth 5/ 0 85 A/ M	Key Mgmt	FT • SAE 0 FT • 802.1x 0
AES(CCMP128) CCMP258 CCMP258 CCMP128 CCMP258 C	Auth 54 00 00 00 00 00 00 00 00 00 00 00 00 00	Key Mgmt	FT - SAE 0 FT - 802.1x 0
AES(CCMP128) CCMP258 C	Auth 5/ 07 53 4/ M R	Key Mgmt 4 VE 2.1x- 1A255 6 Clogging Threshold* ax Retries* transmit Timeout* K Format	FT + SAE 0 FT + 802.1x 0
AES(CCMP128) CCMP258 C	Auth S/ 0' S/ A/ M R/ R/ R/ R/ R/	Key Mgmt	FT • SAE 0 FT • 802.1x 0

WPA3 SAE Configuration



Note: Keep in mind that Hunting and Pecking is not allowed with 6 GHz radio policy. When you configure a 6GHz only WLAN, you must select H2E SAE Password Element.

wifi6E_test

[WPA3][SAE][AES]

View on WLC GUI of the WLAN Security settings:

5

O O wifi6E_test

Verification of beacons OTA:

No.	Time	Deita	Source	Destination	Protocol	Lengtl Channel	Signal stre	bifo .	> Frame 6: 500 bytes on wire (4064 bits), 500 bytes captured (4064 bits) on interface \Device\NFF_(D4578905-2998-4456-1
	2 2023-06-12 17:12:24.650110	0.0000	00 Cisco_13:80:ed	Broadcast	802.11	463	5 -36 dbm	Probe Response, SN+717, FN+0, Flags+C, N1+100, SSID+"wifike_test_02", SS	Sthernet II, Src: CLSco_dd:7d:37 (00:df:1d:dd:7d:37), Dst: Universa_b7:cf:06 (00:3a:00:b7:cf:06)
	4 2023-06-12 17:12:24.670646	0.0205	36 Cisco_13:80:ed	Broadcast	\$92.11	461	5 -36 d8m	Probe Response, SN=718, FN=0, Flags=C, #1=100, SSID="wif166_test_02", SS	Internet Protocol version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	5 2023-06-12 17:12:24.691121	0.0204	75 Cisco 13:80:ed	Broadcast	802.11	461	5 -36 dam	Probe Reiponse, SN+719, FN+0, Flags+C. #I+100, SSID+"wified test 02", SS	> User Datagram Protocol, Src Port: SSSS, Dst Port: 5000
	6 2023-06-12 17:12:24.711672	0.0205	51 Cisco 11:00:ed	Broadcast	802.11	505	5 -37 dbm	Beacon frame, SNe728, FNe8, FlagsC. 81+100, SSIDe"wifild test 02", SSID	> AiroPeek/OmiPeek encapsulated IEEE 802.11
_	7 2021-06-12 17:12:24 212106	8.8764	14 C1500 13188164	Ecoadrast	882.11	441	5 .16 dile	Prohe Becomes Charlt Due Flags, C States Struggified test pr. 55	> \$82.11 radio information
	18 2023-06-12 12:12:24.752541	8.8284	beiddigt over 13:00:00	Broadcast	882.11	441	5 .36 dam	Probe Becomese, Sha722, Flues, Flags,	> IEEE 802.11 Beacon frame, Flags:C
	11 2021-06-12 17:12:24.773001	8.0205	48 Cisco Slighted	Broadcast	882.11	445	5 -37 dim	Probe Response, Shu721, Flugs, Flags,	✓ IEEE D02.11 wireless Management
	12 1012-06-11 17-11-14 702000	8 4164	on Firro Shide ad	Broadcast	887.11	441	5 .17 dis	Probe Barroonse Chu-Tha Dhub Ellarry / BT-108 SCTA_"ulfigE tast 81" SS	> Fixed parameters (12 bytes)
	14 1011-06-11 17-11-14 014001	0.0104	63 /11/2 13-80-e4	Broadcast	487.11	644	5 .16 .004	Data frame Ch. 755 Dive Class. / St. tan SCID	 Tagged parameters (406 bytes)
	10 3031-00-13 13-13-34 434073	0.0105	75 Cites 11-10-ed	Broadrast	885.11	44.5	5 .16 dbs	Doube Decourse ChuTh Elland, / Studio CCTL "widics tact at at	> Tag: SSID parameter set: "wifidE_test_02"
	16 3033-06-13 17:15:34 855065	0.0764	82 C1620 13:80:64	Broadcast	882.11	443	5 .15 404	Probe Decomes Ch. 777 File Flags. C ST. 100 CCTL."vidics tact D" CC	> Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [NDit/sec]
	17 3033.00.13 17:15:34 876478	0.0104	at (16/0 13/88/64	Broadcact	887.11	445	5 -16 084	Prohe Reconce CL.778 Flags. / 87-100 CTTL-"vidize tect of" 15	> Tag: Traffic Indication Nap (TIN): DTIN 2 of 3 bitmap
	18 1811-86.11 17:11:14 886818	0.0301	the clarge thinking	Ecoadract	102.11	443	5 - 16 dia	Probe Reconce, Du-776, Flags. C. 87-100, 6570-"vidide tert 07" 55	> Tag: Country Information: Country Code na, Environment Global operating classes
	an basy of the shift has shored	4 4343	the direct blocker	Readcash	443 44	100	5 . 14 dia	Particle draws dr. 754 dr. 2 dr. 1 d	> Tag: Power Constraint: 6
	17 2023-00-22 17:12:24.710550 58 5855 86 15 17:15:51 857855	0.0207	of Class Bland	Erondrast			5 . 12 dis	Broke Service, Start, Flags Charles, Sales Refield Arch ave ave	> Tag: TPC Report Transmit Power: 17, Link Hargin: 0
	20 2023 00 12 17-12-20-55/743	8.8317	to case as being	Er vesses s	004.15		5 33 684	From Response, Sector, File, Files, C. St. 10, 1120	 Teg: HSV Information
	21 2023-00-12 17:12:24.909625	0.031/	W2 C15C0_13:80:00	arcadcast	002.11		5 -17 CER	Probe Response, Sha/J2, File, Filegs	Tag number: RSN Information (48)
	22 2023-06-12 17:12:24.990372	0.0287	47 C15CO_13:50:00	Broadcast	102.11	49.2	5 -37 000	Probe Response, Smalle, Hang, Hangsa, Bialde, SSIDe Hirled_test_ez, SS	Tag length: 26
	23 2023-06-12 17:12:25.010011	0.0204	39 C15C0_13:00:00	Broadcast	002.11	500	2 -10 008	Bedon frame, Smiras, Five, Flags, Bisine, Sside Hirine_test_er, SSide	PON Version: 1
	24 2023-06-12 17:12:25.039348	0.0205	37 C15C0_13:80:ed	Broadcast	302.11	461	5 -36 088	Probe Response, SNx736, FNx0, FL8gs+C, BIx100, SSID+"W1F16E_test_02", SS	> Group Clober Suite: 00:0Fiar (Tees 507.13) 455 (200)
	25 2023-06-12 17:12:25.059012	0.0204	64 C15C0_13180160	Broadcast	302.11	461	5 -36 088	Probe Response, SN#737, FN#0, F18gs+C, 81+100, SSID+"H1F16E_test_02", SS	Balavise Claber Suite Count: 1
	26 2023-06-12 17:12:25.000400	4.4285	88 C15CO_13:80:60	Broadcast	102.11	461	5 -36 088	Probe Response, 55x730, Fixed, Filegs*C, 81+100, 551D+*N1F166_test_02*, 55	> Balandra Clober Suite List Balafiar (Teas Bat 11) 485 (200)
	27 2023-06-12 17:12:25.100854	0.0204	84 Cisco_13:80:ed	Broadcast	802.11	461	5 -36 d8m	Probe Response, Shu729, Fhu0, Flags+C, 81+100, SSID+"Hifi66_test_02", SS	Lith Yay harananati (Lith Guita August 1
	28 2023-06-12 17:12:25.121559	0.0286	75 Clsco_13:80:ed	Eroadcast	802.11	546	5 -36 dbs	Beacon frame, Shk740, Flags+C, BI+100, SSID="Wif166_test_02", SSID	Auth Fax Management (JAW) 194 dividiar (Tana 601 11) 542 (Sub162)
	31 2023-06-12 17:12:25.141678	0.0201	19 Clsco_13:80:ed	Broadcast	102.11	461	5 -36 dbm	Probe Response, SN+741, FN+0, Flags+C, BI+100, SSID+"wifi6E_test_02", SS	> And for the provided that the second case and the control of the control of
	34 2023-06-12 17:12:25.162724	0.0210	46 Cisco_13:80:ed	Broadcast	102.11	461	5 -36 dbm	Probe Response, SN+742, FN+0, Flags+C, NI+100, SSID+"wifi66_test_02", SS	Part uppossible a
	35 2023-06-12 17:12:25.182664	0.0159	40 C15C0_131801ed	Broadcast	102.11	461	5 -36 dbm	Probe Response, SN=743, FN=0, Flags=C, 81=100, SSID="wifi66_test_02", SS	Burrs (Lat
	37 2023-06-12 17:12:25.203001	0.0204	17 Cisco_13:80:ed	#roadcast	882.11	461	5 -36 d8m	Probe Response, Stu744, Fiu0, FlagsC, 81-100, SSID="wif166_test_02", SS	
	38 2023-06-12 17:12:25.223702	0.0206	21 Cisco_13:80:ed	Broadcast	882.11	588	5 -36 d8m	Beacon frame, SN+745, FN+0, Flags+C, 81+100, SSID+"Wif166_test_01", SSID	J stroug Heragement Ciprer Suite: excerise (Seee Sec.11) 817 (128)
	39 2023-06-12 17:12:25.244147	0.0204	45 Cisco_13:80:ed	Broadcast	802.11	461	5 -16 d8m	Probe Response, SNu746, FNu0, FlagsC, BIx100, SSIDu"wifi6E_test_02", SS	> Tagi Qos Long Length Bel.ise CCA Version
	40 2023-06-12 17:12:25.264534	0.0203	87 Cisco_13:00:ed	Broadcast	802.11	463	5 -36 d8m	Probe Response, SN+747, FN+0, Flags+C, BI+100, SSID+"wifi68_test_02", SS	> Tag: Multiple #5500
	41 2023-06-12 17:12:25.285014	0.0204	d@ Cisco_13:00:ed	Broadcast	802.11	461	5 -36 dbm	Probe Response, SN+748, FN+8, Flags+C, 81+100, SSID+"wifi68_test_02", SS	> Tag: RH Enabled Capabilities (5 octets)
	42 2023-06-12 17:12:25.305513	0.0204	09 Cisco_13:80:ed	Broadcast	802.11	461	5 -36 d8m	Probe Response, SNx749, FNx8, FlagsxC, 81x100, SSIDx"wifi66_test_02", SS	> Tag: Extended Capabilities (11 octets)
	44 2023-06-12 17:12:25.326072	0.0205	59 Cisco_13:80:ed	Broadcast	802.11	588	5 -36 d8m	Beacon frame, SN+750, FN+0, Flags+C, 01+100, SSID+"Wifi6E_test_01", SSID	> Tag: TX Power Envelope
	45 2023-06-12 17:12:25.346502	0.0204	30 Cisco_13:80:ed	Broadcast	802.11	461	5 -36 d8m	Probe Response, SN=751, FN=0, Flags=C, 81=100, SSID="wifi66_test_02", SS	> Tagi Tx Power Envelope
	46 2023-06-12 17:12:25.367033	0.0205	31 Cisco_13:80:ed	Broadcast	802.11	461	5 -36 d8m	Probe Response, SN=752, FN=0, Flags=C, 81=100, SSID="wifi6E_test_02", SS	> Ext Tag: Pultiple BSSID Configuration
	47 2023-06-12 17:12:25.387452	0.0204	19 Cisco_13:80:ed	Broadcast	802.11	463	5 -36 dbm	Probe Response, Sha753, Fha0, Flags	> Ext Tag: +E Capabilities
	48 2023-06-12 17:12:25.407958	0.0204	05 Cisco_13:80:ed	Broadcast	802.11	461	5 -37 dbm	Probe Response, SN+754, FN+0, Flags+C, BI+100, SSID+"wifi68_test_02", SS	> Ext Tag: +E Operation
	49 2023-06-12 17:12:25.428554	8.4286	04 Cisco_13:80:ed	Broadcast	802.11	500	5 -36 dbm	Beacon frame, SN+755, FN+0, Flags+C, 81+100, SSID+"wifi68_test_02", SSID	> Ext Tag: Spatial Reuse Parameter Set
	50 2023-06-12 17:12:25.449029	0.0204	75 Cisco_13:80:ed	Broadcast	882.13	461	5 -37 d8m	Probe Response, SN+756, FN+0, Flags+C, 81+100, SSID+"wif166_test_02", SS	> Ext Tag: AU EDCA Parameter Set
	51 2023-06-12 17:12:25.469415	0.0203	B6 Cisco 13:80:ed	Broadcast	882.11	461	5 -37 d8m	Probe Response, SN+757, FN+8, Flags+C. Bl+180, SSID+"wifi68 test 82", SS	Ext Tag: WE 6 GH2 Band Capabilities
	52 2023-06-12 17:12:25.489898	0.0204	75 Cisco 13:80:ed	Broadcast	802.11	461	5 -37 d8m	Probe Response, SN+758, FN+0, Flags+C. 81+100, SSID+"wif168 test 02", SS	 Tagi RSW extension (1 octet)
	53 2023-06-12 17:12:25.510333	0.0204	43 Cisco 13:80:ed	Broadcast	002.11	461	5 -36 d8m	Probe Reiponse, Shu759, FNue, FlagiaC. 81+100, SSIDe"wifi65 test 02", SS	Tag number: RSN extension (244)
	\$4 3023-06-12 17:12:25.530937	0.0205	As Cisco 13:80:ed	Broadcast	582.11	6.85	5 .16 dbm	Bearon frame Shu760, Fluid, Flamts, C. BTu100, SSID, "wifice test 07", SSID	Tag length: 1
	55 2023-06-12 12:12:25.551260	0.0201	23 Cisco 13:88:ed	Broadcast	882.11	441	5 .16 dile	Probe Recourse, 55x761, FileR, Flags,C. 87x100, 5510x"wiffics tect 02", 55	 RSNX: 8x20 (octet 1)
	56. 2023-06-12 17/12/25-571762	0.0205	82 Cisco 13:88:ed	Broadcast	882.11	445	5 -36 dile	Probe Bessonse, Stu-762, Flug, Flags,C. 87+100, SSIDs"wified test 02", SS	0000 + RSNX Length: 0
	ET 1011.06.11 17-11-16 E01105	0.0105	at clinco thisbard	Broadcast	447.11	444	6 .16 dile	Probe Records Shatt Black Flatt, / Blatte SSTA-widite tert BY SS	
	60 1011_06_11 17-11-16 210736	0.0104	ba fires 11-80-ed	Broadcast	441 11	441	5 -16 dim	Probe Response Ou-764 Elanta / B1-100 SSTU-"ulfild tert 01" SS	= SAE wash to element: 1
	50 1011_06_11 17-11-16 £33373	0.0105	47 (1520 11-50-ed	Econdrast	887.11	540	5 .16 dbs	Bearon frame Shull Elanta / BT_100 SSTD_"uffile Past AV" SSTD	00 Reserved: 0x0
	£3 3033_06_13 17-13-35 £51036	8.8764	44 Citro 11-10-04	Broadrast	885.11	465	5 .17 /08	Probe Designed Static Elasta / Elasta / Elasta SCIDA "utilize test do" SS	> Tag: Vendor Specific: Atheros Communications, Inc.: Unknown
	43 3833 AC 13 37:12:13 43:03:03	0.0303	CI CI CO 13/10/00	Econderect.		444	1 17 088	Books Barness First, First, First, C. St. 100, Fritz, S. St. St. 100, Fritz, S. St. 10, 17, 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	> Tag: Vendor Specific: Hicrosoft Corp.: WHV/WE: Parameter Element
	44 1013 AC 11 17112125-0/4130	0.0101	A CICCO 13180100	Readcast		444	a 34 das	Books Barroars IN-NET FL-A Flag	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet Unknown (44)
	10 1011 40 11 17112125-054500	0.0203	a circo thisead	Econdract	BW2.11	44.5	2 -26 00R	Probe Response, Sm. No. 51. A Flags. C. St. 100, 55104 H17106_UESL_02 , 55	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet Unknown (11) (11)
	42 3033 60 13 13-13-15 712316	0.0111	42 41440_13100100	Broadcast	000.11	544	2 -26 088	Rearran drama the The Died Classes / BT-100 SCID- Sold's Barton and State	> Tag: Vendor Specific: clsco Systems, Inc: Aironet Client NFP Disabled
	··· ··································	0.0211	Rx %4350_13180:60	er caucast.	002.13	500	2 12 084	scoute trans, seered, rise, risesetting, state, some sified test_ed", SSID	> Test vendor Specific: Cisco Systems, Inc: Airpret CCK version = 5
	07 2023-00-12 17:12:25.756092	8.0192	73 £15C0_13:80:00	arosocast.	392.11	493	3 126 088	Prope Mesponse, 30#7/1, Pawe, PingseC, Bi+100, 331D+"N19166_test_02", 55	

WPA3 SAE Beacons

Here we can observe Wi-Fi 6E clients associating:

Intel AX211

Connection OTA with focus on the RSN information from client:



Client details in WLC:

¢	Cisco Catal	yst 980	0-CL Wireless (Con	troller			Welcome admin 🛛 🎓 🎕 🟝 🏟 👰 🤣 Search APs and Clients 📿 🗎 🕿 Feedback 🖍
0	Search Menu Items	Monitor	ing • > Wireless •	> c	Clients			Client
		Clients	Sleeping Client	s	Excluded Clients	5		360 View General QOS Statistics ATF Statistics Mobility History Call Statistics
100	Dashboard	_						Client Properties AP Properties Security Information Client Statistics QOS Properties EoGRE
\odot	Monitoring >	×	Delete					Client State Servers None
2	Configuration	Select	ted 0 out of 12 Clients					Client ACLs None
~	oorniguruuon y	ο	Client MAC Address	Ŧ	IPv4 Address	IPv6 Address	AP Name	Policy Type WPA3
<u></u>	Administration >	ο	0012.17e1.dd57	×	192.168.1.33	fe80::212:17ff:fee1:dd57	AP03_Sotao_9548	Encryption Cipher CCMP (AES)
C	Licensing	0	0012.17e2.4856	×	192.168.1.37	fe80::212:17ff:fee2:4856	AP05_Outdoor8_2200	Authentication Key Management SAE
		0	0012.17e2.4b40	×	192.168.1.31	fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3DCI	Session Timeout 86400
×	Troubleshooting	0	0c8b.9509.3518	×	192.168.1.129	N/A	AP03_Sotao_9548	Session Manager
		0	286b.3598.580f	×	192.168.1.159	fe80::ac5b:e1e1:67ba:c353	AP6849.9253.CA50	
		0	34ea.e702.6240	×	192.168.1.70	N/A	AP6849.9253.CA50	Point of Attachment capwap_90000010
		0	60fb.008b.0e66	×	N/A	N/A	AP01_RC_9136_F800	IIF ID 0x90000010
	Mails Mar Thomas a	0	84d8.1b0f.294f	×	192.168.1.91	N/A	AP03_Sotao_9548	Authorized TRUE
	Har at Integral	0	9669.5a28.a115	×	192.168.1.138	fe80::9469:5aff:fe28:a115	AP02_Suite_1084	Common Session ID 00000000000000000000000000000000000
		0	a810.87bb.b833	×	192.168.1.94	fe80::aa10:87ff:febb:b833	AP03_Sotao_9548	Auth Method Status List
		н	< 1 2 ×	н	10 🔻			Method SAE
								Local Policies

NetGear A8000

Connection OTA with focus on the RSN information from client:

	A ((peekremo	te)) 88 ((vlan.addr == 94)	8.6548.70	195)) (wian.fc.type_sul	btype == 0x001d)							
N	sp. Time		Delta	Source	Destination	Protocol	Lengt Channe	Signal stre	onfo .			> Frame 757: 216 bytes on wire (1728 bits), 216 bytes captured (1728 bits) on interface \Device\NPF_(D4578985-2998-4456
	322 2022	-06-12 17:22:13.919268	0,0000	00 Netgear 48170195	Broadcast	802.11	166	5 -48 d8m	Probe Request.	SN+1739, FN+0, Flags+C. SSID+"Blizzard"		> Ethernet II, Src: Cisco_dd:7d:37 (00:df:1d:dd:7d:37), Ost: Universa_b7:cf:06 (00:3a:00:b7:cf:06)
	323 2023	-06-12 17:22:13.920174	0.0009	14 Netgear_48:70:95	Broadcast	802.11	166	5 -48 d8m	Probe Request,	SN+1740, FN+0, Flags+C, SSID+"blizzard"		> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121
	324 2027	-06-12 17:22:13.921093	0.0009	19 Netgear_48:70:95	Broadcast	802.11	166	5 -48 d8m	Probe Request,	SN+1741, FN+0, Flags+C, SSID+"blizzard"		> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	326 2023	-06-12 17:22:13.921977	0.0001	84 Netgear_48:70:95	Broadcast	802.11	166	5 -48 d8m	Probe Request,	SN+1742, FN+0, Flags+C, SSID+"blizzard"		> AiroPeek/OmniPeek encapsulated IEEE 802.11
	733 2023	-06-12 17:22:21.416940	7,4949	63 Netgear_48:70:95	Cisco 13:00:	802.11	360	5 -49 dbm	Probe Request,	SNe4, FNe0, FlagseC. SSIDe"wified test"		> 802.11 radio information
	734 2023	-06-12 17:22:21.416940	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -36 dbm	Acknowledgement	t, flags+C		> IEEE B02.11 Association Request, Flags:C
	736 2023	-06-12 17:22:21.419412	0.0024	72 Netgear_48:70:95	Cisco_13:80:	802.11	360	5 -49 d8m	Probe Request,	SN+5, FN+0, Flags=C, SSID="wifi6E_test"		✓ IEEE D02.11 wireless Management
	737 2023	-06-12 17:22:21.419412	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement	, Flags+C		> Fixed parameters (4 bytes)
	748 2823	-06-12 17:22:21.444035	0.0246	23 Netgear_48:70:95	Cisco_13:00:	802.11	360	5 -49 dbm	Probe Request,	SN+6, FN+0, Flags+C, SSID+"wifieE_test"		 Tagged parameters (122 bytes)
	741 2023	-06-12 17:22:21.444035	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -37 dbm	Acknowledgement	t, Flags+C		> Tag: SSID parameter set: "wifi66_test"
	746 2822	-06-12 17:22:21.490056	0.0540	21 Netgear 48:70:95	Cisco 13:80:	802.11	194	5 -50 dbm	Authentication.	SN+2, FN+0, Flags+C		> Tag: Supported Rates 6(0), 9, 12(0), 10, 24(0), 36, 40, 54, [Mbit/sec]
	747 2827	-06-12 17:22:21.498856	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -36 d8m	Acknowledgement	Flags+C		> Ext Tag: HE Capabilities
	750 2027	-06-12 17:22:21.546544	0.0424	88 Cisco 13:80:e7	Netgear 48:7.	802.11	294	5 -37 d8m	Authentication.	SNe123, FNe0, FlagteC		> Ext Tag: HE 6 GHz Band Capabilities
	751 2027	-06-12 17:22:21.546544	0,0000	00 192,168,1,15	192,168,1,121	802.11	76	5 -48 d8m	Acknowledgement	Flags+C		> Tag: Vendor Specific: Ralink Technology, Corp.
	753 2022	-06-12 17:22:21.550097	0,0043	53 Netgear 48:70:95	Cisco 13:00:	092.11	130	5 -49 dbm	Authentication.	SN+3, FN+0, Flags+C		> Tag: Extended Capabilities (10 octets)
	754 2023	-06-12 17:22:21.550097	0,0000	00 192,168,1,15	192.168.1.121	892.11	76	5 -37 dbm	Acknowledgement	, Flags+C		> Tag: Vendor Specific: Hicrosoft Corp.: WHY/WHE: Information Element
	755 2023	-06-12 17:22:21.553602	0.0027	05 Cisco 13:80:e7	Netgear_48:7.	802.11	130	5 -37 d8m	Authentication,	SN=124, FN=0, Flags=C		 Tag: RSN Information
	756 2027	-06-12 17:22:21.553602	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -49 d8m	Acknowledgement	Flags+C		Tag Number: RSN Information (48)
12	- 757 2023	-06-12 17:22:21.557006	0.0034	04 Netgear_48:70:95	Cisco_13:00:	802.11	216	5 -49 d8m	Association Reg	puest, SN+4, FN+0, Flags+C, SSID+"wifi66_te	est"	Tag length: 22
12	758 2023	-06-12 17:22:21.557006	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -37 dbm	Acknowledgement	, Flags+C		RSN Version: 1
12	768 2823	-06-12 17:22:21.560605	0.0035	99 Netgear_48:70:95	Broadcast	LLC	114	5 -37 d8m	U, func+Unknown	1) DSAP Excc Group, SSAP SNAP Command		> Group Cipher Suite: 00:0f:ac (Ieee 802.11) AES (CCH)
	763 2023	-06-12 17:22:21.567111	0.0065	06 Cisco_13:80:e7	Netgear_48:7_	802.11	262	5 -37 d8m	Association Res	sponse, SN=0, FN=0, Flags=C		Pairwise Cipher Suite Count: 1
	764 2027	-06-12 17:22:21.567111	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -49 d8m	Acknowledgement	, Flags=C		> Pairwise Cipher Suite List 00:0f1ac (leee 802.11) AES (CCM)
12	765 2023	-06-12 17:22:21.567168	0.0000	49 Netgear_48:70:95	Broadcast	LLC	114	5 -37 d8m	I P, N(R)=63, N	I(S)+9; DSAP ex9c Group, SSAP ex56 Response		Auth Key Hanagement (AAH) Suite Count: 1
	766 2023	-06-12 17:22:21.568723	0.0015	63 Cisco_13:80:e7	Netgear_48:7_	EAPOL	221	5 -37 dbm	Key (Message 1	of 4)		> Auth Key Hanagement (AAH) List 00:0f:ac (Ieee 802.11) SAE (SHA256)
12	767 2023	-06-12 17:22:21.568723	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -48 d8m	Acknowledgement	t, flags+C		> RSN Capabilities: 0x00c0
	782 2023	-06-12 17:22:21.742256	0.1735	33 Netgear_48:70:95	Cisco_13:80:	EAPOL	226	5 -55 d8m	Key (Hessage 2	of 4)		PHED Count: 0
12	783 2023	-06-12 17:22:21.742256	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -44 d8m	Acknowledgement	t, Flags+C		PHKID LIST
	785 2023	-06-12 17:22:21.743972	0.0017	16 Cisco_13:80:e7	Netgear_48:7.	EAPOL	295	5 -37 d8m	Key (Hessage 3	of 4)		 Tag: #Sw extension (1 octet)
12	786 2023	-06-12 17:22:21.743972	0.0000	00 192.168.1.15	192.168.1.121	002.11	76	5 -50 dbm	Acknowledgement	t, Flags+C		Tag Number: HSN extension (244)
11	- 787 2023	-06-12 17:22:21.744676	0.0007	04 Netgear_48:70:95	Cisco_13:001	EAPOL	199	5 -55 dbm	Key (Message 4	of 4)		Tag length: 1
	788 2023	-06-12 17:22:21.744676	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -44 d8m	Acknowledgement	t, FlagsC		RSDA: 0x20 (octet 1)
I.	789 2023	-06-12 17:22:21.752542	0.0078	66 CiscoMer_53:ca:50	Netgear_48:7.	LLC	187	5 -44 d8m	U, func-Unknown	n; DSAP @xc6 Group, SSAP @x30 Response		0000 + RSAX Length: 0
I.	790 2023	-06-12 17:22:21.752542	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -55 dBm	Acknowledgement	, Flags+C		
н	791 2023	-06-12 17:22:21.754271	0.0017	29 192.168.1.15	192.168.1.121	802.11	119	5 -43 dbm	Trigger Buffer	Status Report Poll (BSRP), Flags=C		= SAE HASH to element: a
н	793 2023	-06-12 17:22:21.754647	0.0003	76 Netgear_48:70:95	Broadcast	LLC	144	5 -55 dbm	I P, N(R)=81, N	i(5)=32; DSAP Banyan Vines Group, SSAP LLC Sub-Laye	er Hanagenei	ep = Reserved: exe
I.	794 2023	-06-12 17:22:21.754647	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -44 d8m	Acknowledgement	t, Flags+C		> Tag: RH Enabled Capacilities (5 octets)

Client details in WLC:

Cisco Catal	st 9800-CL Wireless Controller	Welcome admin 🛛 🐐 🦚 🛕 🖹 🌞 🦉 🥥 🗭 Search APs and Clients 🔍 🗍 🖀 Feedback 🧨 🕪
O Search Mary Isams	Monitoring * > Wireless * > Clients	Client *
C Search wond nems	Clients Sleeping Clients Excluded Clients	360 View General QOS Statistics ATF Statistics Mobility History Call Statistics
Dashboard		Client Properties AP Properties Security Information Client Statistics QOS Properties EoGRE
Monitoring >	× Deere C	Client State Servers None
S. Configuration	Selected 0 out of 12 Clients	Client ACLs None
- Company	Client MAC Address Y IPv4 Address Y IPv6 Address AP Name	Policy Type WPA3
O Administration	0012.17e1.dd57 / 192.168.1.33 fe80::212:17ff:fee1:dd57 AP03_Sotao_954	8 Encryption Cipher CCMP (AES)
A Licensing	0012.17e2.4856 / 192.168.1.37 fe80::212:17ff.fee2:4856 AP05_Outdoor8_:	Authentication Key Management SAE
Counting	0012.17e2.4b40 / 192.168.1.31 fe80::212:17ff.fee2:4b40 AP04_OutdoorF_3	EAP Type Not Applicable
X Troubleshooting	O 0c8b.9509.3518 / 192.168.1.129 N/A AP03_Sotao_954	B Session Manager
	O 34ea.e702.6240 ≯ 192.168.1.70 N/A AP6849.9253.CA3	50
	☐ 60fb.008b.0e66	BOC Point of Attachment capwap_90000010
	84d8.1b0f.294f / 192.168.1.91 N/A AP03_Sotao_954	8 IIF ID 0x90000010
Well-Ma Thomas a	■ 9418.6548.7095 # 192.168.1.163 fe80::ce19.6f16:279d:515f AP6849.9253.CA	Authorized TRUE
Marchee Incougn P	☐ 9669.5a28.a115 ≠ 192.168.1.138 fe80::9469:5aff:fe28:a115 AP02_Suite_1084	Common Session ID 000000000004AF80A160F3
	a810.87bb.b833 / 192.168.1.94 fe80::aa10:87ff.febb:b833 AP03_Sotao_954	β Auth Method Status List
	H H 1 2 H 10 V	Method SAE

Pixel 6a

Connection OTA with focus on the RSN information from client:

	((peed en	orey aa	(warrador == 240):	Cat: / 2.08:	see)) [] (wartiettype]	ubcype == 0x0010	,						
N	b. Tm			Delta	Source	Destination	Protocol	Lengti C	hannel Sign	al stre	Info		Frame 1255: 262 bytes on wire (2096 bits), 262 bytes captured (2096 bits) on interface \Device\WPF_(D4570905-2998-445
	1235 202	3-06-1	2 17:37:02.730333	0.0000	00 Google 72:88:66	Broadcast	802.11	343	5 -42	dên	Probe Request, SN+2096, FN+0, Flags+C, SSID+"wifi6E test"		<pre>#thernet II, Src: Cisco_6d:7d:37 (00:df:1d:dd:7d:37), Dst: Universa_b7:cf:06 (00:3a:80:b7:cf:06)</pre>
	1243 202	3-86-1	2 17:37:02.051631	0.12121	98 Google 72:8a:66	Cisco 13:80:_	\$82.11	194	5 -42	dilm	Authentication, SN+2097, FN+0, Flagt+C		Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	1244 202	3-06-1	2 17:37:02.051631	0.0000	80 192.168.1.15	192.168.1.121	802.11	76	5 -37	den	Acknowledgement, FlagsC	>	User Datagram Protocol, Src Port: 5555, Ost Port: 5000
	1246 202	3-06-1	2 17:37:02.858984	0.00735	53 Cisco 13:80:e7	Google 72:8a	882.11	194	5 .37	dan	Authentication, SNo141, FNo0, FlagtsC	>	AiroPeek/OmniPeek encapsulated IEEE 802.11
	1247 202	3-06-1	2 17:37:02.858984	0.0000	00 192.168.1.15	192,168,1,121	882.11	76	5 .43	dan	Acknowledgement, flagsC		882.11 radio information
	1248 202	3-06-1	2 17:37:02.868831	0.0015	47 Google 72:8a:66	Cisco 13:80:-	882.11	130	5 -41	dite	Authentication, SN=2098, FN=0, FlagtsC	>	IEEE 802.11 Association Request, Flags:C
	1249 202	1-06-1	2 17:37:02.868831	0.0000	00 192,168,1,15	192,168,1,121	802.11	76	5 -17	dila	Acknowledgement, Flags,C	~	IEEE 002.11 Wireless Management
	1252 202	1.06.1	2 17:17:02.984126	0.0154	15 Cisco 11:00:07	Google 72:8a	882.11	110	5 .17	100	Authentication, Shalah, Elapia		> Fixed parameters (4 bytes)
	1253 202	1-06-1	2 17:17:02.904126	0.0000	00 192.168.1.15	192.168.1.121	882.11	76	5 -41	100	Arknuledrement, Elars,		 Tagged parameters (168 bytes)
	1255 202	1-06-1	2 17:17:02.920913	0.0166	87 Google 72188166	Cisco 13(88)	882.11	262	5 -41	da	accordation Benest, Studiel, Flags		> Tag: SSID parameter set: "wifi66_test"
12	1256 202	3-06-1	2 17:17:02.920933	0.0000	00 192,168,1,15	192,168,1,121	882.11	26	5 .17	dite	Acknowledgement. Flags		> Tag: Supported Rates 6(0), 9, 12(0), 10, 24(0), 36, 40, 54, [Hbit/sec]
13	1259 202	3-06-1	2 17:17:02.930350	0.0094	17 Google 72:8a:66	Broadcast	LLC	114	5 -17	dila	T.P. N(R)+52, N(S)+7: DSAP dyte Individual, SSAP dyse Command		> Tag: Extended Supported Rates SAE wash to Element Only, [Wbit/sec]
13	1361 303	3.06.1	2 17-37-02 934179	0.0017	79 Cisco 13:00-47	Coople 72.6a	682.11	262	5 . 37	10.0	interiation Decenter Ch.d. Elapt.		> Tag: Power Capability Min: -7, Max: 19
13	1262 202	1.06.1	2 17-17-02 934129	0.0000	NO 192 128 1.15	192,168,1,121	882.11	26	5 .41	10.0	Advocation response, and, range range		> Tag: Supported Channels
13	1263 202	1.06.1	2 17:17:02.934129	0.0000	to coogle 72:8a:66	Broadcast	110	114	5 . 17	dan	E E. Europhile, N/B1-831 DELB duba denue. EELB du'té Baconeca		Tag: RSN Information
11	1265 241		* **->*-+*	0.0000	il fires thightal	doogle 21/8s	ELECT	224	5 . 37	dillo	You (Marrana & of A)		Tag Number: RSN Information (48)
11	1265 202	3-00-1	£ 17:37:02:742074	0.0003	65 CESCO_ESTOPTE/	100 160 1 101	EAPUL II	26	5 - 37	dila	Acy (ressent a un 4)		Tag length: 26
11	1222 202	3.46.1	2 17-37-02 003347	0.0000	00 474-400-4-45	Cisco 13:00:	54000	224	5	dia.	Annual Section 2 of 4)		RSN Version: 1
11	1274 204		a ar-sr-ba-speak	0.0000	55 000gat_72.08.00	103 168 1 131	000.00	24		100	Actional Advanced Flags.		> Group Cipher Suite: 00:0f:ac (Seee 802.11) AES (CCM)
11	1274 202			0.0000	to first there?	foodle Think				-	Accounting and a		Pairwise Cipher Suite Count: 1
11	1279 202			0.0031		000g10_/1.00.				100	Adv (versege s or 4)		> Pairwise Cipher Suite List 00:0f:ac (Ieee 802.11) AES (CCM)
11	1276 202	3-06-1	2 1/13/102.995369	0.0000	00 172.100.1.15	192.100.1.121	002.11		5 -51	upm.	Acknowledgement, Flags+		Auth Key Management (AKM) Suite Count: 1
L.	- 12/8 202	3-00-1	2 17137103.000159	0.004/1	P0 000g10_72108100	C1500_131001_	EAPUL	177	5 -40	upm.	Acy (ressage a ur a)		> Auth Key Management (AKM) List 00:0f(ac (Ieee 002.11) SAE (SHA256)
	1279 202	3-00-1	2 17:37:03.000159	0.0000	00 192.100.1.15	192.168.1.121	002.11	76	5 - 57	dine .	Acknowledgement, Flags		> RSN Capabilities: exempt
	1281 202	3-06-1	2 17:37:03.023390	0.0232	31 192.168.1.15	192.168.1.121	802.11	76	5 -46	cen	Acknowledgement, Flags*C		Prexip Count: 0
	1282 202	3-06-1	2 17:37:03.025924	0.0025	34 G00g18_72:88:66	C15C0_13:80:_	802.11	122	5 -49	con	Action, SN#2101, FN#0, Flags*.pC[Malformed Packet]		POKID List
	1283 202	3-06-1	2 17:37:03.025924	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -37	con	Acknowledgement, Flags*		> Group Hanagement Cipher Suite: 00:0f:ac (Ieee 802.11) 8IP (128)
	1285 202	3-06-1	2 17137103.043013	0.0170	19 192.168.1.15	192.168.1.121	802.11	76	5 -37	con	Acknowledgement, Flags*		> Tag: BN (nabled Capabilities (5 octets)
	1286 202	3-06-1	2 17:37:03.050766	0.00775	53 192.168.1.15	192.168.1.121	802.11	76	5 -37	cen	Acknowledgement, Flags*		> Tag: Supported Operating Classes
	1290 202	3-06-1	2 17:37:03.078167	0.0274	#1 C15C0_13:8#:@7	Goog16_72:88.	802.11	124	5 -37	cen	ACTION, SNal, FREW, FLWESSER, DC		> Tag: Extended Canabilities (10 octets)
	1291 202	3-06-1	2 1/13/103.0/816/	0.0000	00 192.168.1.15	192.168.1.121	002.11	76	5 -49	oun	Acknowledgement, Flags*		> Ext Tar: HE Canabilities
	1297 202	3-06-1	2 1/13/103.106223	0.0000	se upogre_/2:sa:ee	C1500_131801_	002.11	115	5 -40	con	Action, Smelles, Fine, Fiegle.pC		Y Tag: ESN extension (1 octat)
	1298 202	3-06-1	2 17137103.166223	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 - 37	con	Acknowledgement, Flags+C		Tap humber: Bix extension (244)
	1299 202	3-06-1	2 17137103.166299	0.0000	76 G00g1e_72188166	IPV68C8ST_FF_	LLC	227	5 -57	CEA	U P, func+xiD; DSAP exiz eroup, SSAP exist command		Tap length: 1
	1300 202	3-06-1	2 17:37:03.166299	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -46	cen	Acknowledgement, Flags*C		#SDA: 8x28 (octet 1)
	1302 202	3-06-1	2 17:37:03.167999	0.00176	00 C15C0_13:00:07	G00g1e_72:88_	802.11	115	5 -37	cen	Action, SN+2, FN+0, Flags+.pC[Maiformed Facket]		Abbd - SCV Length: A
	1303 202	3-86-1	2 17:37:03.167999	0.0000	80 192.168.1.15	192.168.1.121	802.11	76	5 -49	den	Acknowledgement, Flags+C		a protected TuT (nerations Science) a
L	1364 202	3-06-1	2 17:37:03.168296	0.0002	97 192.166.1.15	192.168.1.121	802.11	86	5 -49	cont	B02.11 Block Ack Reg, Fings+C		.1 = Saf Hath to element: 1
L	1305 202	3-06-1	2 17:37:03.168396	0.0001	00 192.168.1.15	192.168.1.121	802.11	94	5 -37	CBR	802.11 810CK ACK, Flags+C		
L	1306 202	3-06-1	2 17:37:03.168543	0.0001	47 Google_72:88:66	IPv6mcast_ff_	LLC	186	5 -38	dan	I P, N(R)=5, N(S)=45; DSAP exce Individual, SSAP ex4a Response		> Ext Tap: wild dur Rand Canabilities
L	1307 202	3-06-1	2 17:37:03.177442	0.00001	99 192.168.1.15	192.168.1.121	802.11	82	\$ -55	den	Request-to-send, Flags+C		> Test Vender Careffer Branden
1	1308 202	3-06-1	2 17:37:03.177442	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	5 -46	den	Clear-to-send, Flags+C		 Tage thread operations a supervised form - LABIANE: Information Element
1	1309 202	3-06-1	2 17:37:03.177515	0.0000	73 Google_72:8a:66	IPv6mcast_16	LLC	271	5 -56	den	I, N(R)=7, N(S)=34; DSAP exb6 Group, SSAP exe6 Response		A rate stream shorters under sould strands muchanity straightfor fideric

Client details in WLC:

Cisco Cataly	/st 980	0-CL Wireless (Con	troller			Welcome admin # 🕫 🛕 🖺 🏟 🔞 🤣 🕄 Search APs and Cleriss Q 🖀 Feedback 🖉
O. Search Mercy Items	Monitor	ing * > Wireless *	> (Clients			Client
CC Deproi meno meno	Clients	Sleeping Client	s	Excluded Clien	5		360 View General QOS Statistics ATF Statistics Mobility History Call Statistics
Dashboard	_						Client Properties AP Properties Security Information Client Statistics QOS Properties EoGRE
Monitoring >	×	Delete 2					Cilent State Servers None
Configuration	Selec	ted 0 out of 12 Clients					Client ACLs None Client Entry Create Time 83 seconds
	Ο	Client MAC Address	Ŧ	IPv4 Address	IPv6 Address	AP Name	Policy Type WPA3
203 Administration	0	2495.2172.8a66	×	192.168.1.162	fe80::b13:f107:7c5f:a7e0	AP6849.9253.CA50	Encryption Cipher CCMP (AES)
C Licensing	Ο	60fb.008b.0e66	×	N/A	N/A	AP01_RC_9136_F80C	Authentication Key Management SAE
	0	34ea.e702.6240	×	192.168.1.70	N/A	AP6849.9253.CA50	EAP Type Not Applicable
1 Troubleshooting	0	a810.87bb.b833	×	192.168.1.94	fe80::aa10:87ff:febb:b833	AP03_Sotao_9548	Session Manager
	0	9669.5a28.a115	×	192.168.1.138	fe80::9469:5aff:fe28:a115	AP02_Suite_1084	George Hanneger
	0	84d8.1b0f.294f	×	192.168.1.91	N/A	AP03_Sotao_9548	Point of Attachment capwap_90000010
	0	0c8b.9509.3518	×	192.168.1.129	N/A	AP03_Sotao_9548	IF ID 0x90000010
	0	0012.17e2.4b40	×	192.168.1.31	fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3DC8	Authorized TRUE
Walk Me Through 2	0	0012.17e2.4856	×	192.168.1.37	fe80::212:17ff:fee2:4856	AP05_Outdoor8_2200	Common Session ID 0000000000FB5B0AED363
	0	0012.17e1.dd57	×	192.168.1.33	fe80::212:17ff:fee1:dd57	AP03_Sotao_9548	Acct Session ID UX0000000
		1 2 1 1		10 .			Method Satus Los
							I oral Policies

Samsung S23

Connection OTA with focus on the RSN information from client:

0	🛛 (predimente) 84 ((nlan.addr == 04-29-2ercite2:7:) (nlan.ft:type_subtype == 0x001d))													
N	s.	Time	Delta	Source	Destination	Protocol	Lengti Channel	Signal stre	Info		> Frame 773: 194 bytes on wire (1552 bits), 194 bytes captured (1552 bits) on interface \Device\WPF_(04578905-2998-4456			
	773	2023-06-12 17:26:55.727215	0.00000	SansungE_c9:e3:71	C15C0_13:80:_	802.11	194	5 -45 d8n	Authentication, SN=2176, FN=0, Flags=C	1113	> Ethernet II, Src: Cisco_dd:7d:37 (00:dfild:dd:7d:37), Dst: Universa_b7:cf:06 (00:3a:80:b7:cf:06)			
	774	2023-06-12 17:26:55.727215	0.00000	192.168.1.15	192.168.1.121	802.11	76	5 -38 d8m	Acknowledgement, Flags=C		> Internet Protocol Version 4, SrC: 192.168.1.15, DST: 192.168.1.121			
	775	2023-06-12 17:26:55.734153	0.006933	<pre>Cisco_13:00:e7</pre>	SamsungE_c9:_	802.11	194	5 -37 dên	Authentication, SN+126, FN+0, Flags+C		> User Datagram Protocol, Src Port: 5555, Dit Port: 5860			
	776	2023-06-12 17:26:55.734153	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	5 -45 dbm	Acknowledgement, Flags+C		> Alropeek/OmilPeek encepsulated IEEE 802.11			
	777	2023-06-12 17:26:55.741065	0.00691	Sansungt_c9:e3:71	Cisco_13:80:	802.11	130	5 -43 dbm	Authentication, SN+2177, FN+0, Flags+C		> B02.11 redio information			
	778	2023-06-12 17:26:55.741065	0.00000	9 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, Flags+C		> IEE B02.11 Automnication, Flags:C			
	788	2023-06-12 17:26:55.743197	0.002121	E Cisco_13:80:e7	SamsungE_c91	802.11	130	5 -36 d8m	Authentication, SN=127, FN=0, Flags=C		 Ittl 002.11 wireless Hanagement 			
	781	2023-06-12 17:26:55.743197	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	5 -43 dên	Acknowledgement, Flags+C		 Fixed parameters (104 Bytes) 			
	782	2023-06-12 17:26:55.740041	0.00484	SansungE_c9:e3:71	Cisco_13:00:_	802.11	354	5 -45 d0n	Association Request, SN+2178, FN+0, Flags+C, SSID+"wifi66_test"		Authentication Algorithm: Simultaneous Authentication of Equals (SAE) (3)			
	783	2023-06-12 17:26:55.740041	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	5 -36 dbn	Acknowledgement, flags+C		Authentication SEQ: example			
	787	2023-06-12 17:26:55.758316	0.010275	SansungE_c9:e3:71	Broadcast	LLC	114	5 -37 d8m	I, N(R)=3, N(S)=23; DSAP ISO Network Layer (unofficial?) Group, SSAP Banyan Vine		status code: Swe authentication uses direct mashing, instead of looping, to obtain the PWE (exempt)			
	788	2023-06-12 17:26:55.758316	0.00000	SansungE_c9:e3:71	Broadcast	LLC	114	5 -36 dên	S F, func=RR, N(R)=63; DSAP HP JetDirect Printer Individual, SSAP XNS Response		ska Message Type: Commit (1)			
	789	2023-06-12 17:26:55.761193	0.00287	6 Cisco_13:80:e7	SampungE_c9:_	802.11	236	5 -36 dên	Association Response, SNw0, FNw0, Flags+C		Group Iol 254-bit rendom ECP group (13)			
	790	2023-06-12 17:26:55.761193	0.00000	9 192.168.1.15	192.168.1.121	802.11	76	5 -45 d0m	Acknowledgement, Flags+C		Scalar: 0fd2a189906336b2200c34630cda446ea73063F8cb00fdF26080905001729500			
	792	2023-06-12 17:26:55.762290	0.00110	4 Cisco_13:00:e7	Samsungt_c9:_	EAPOL	221	5 -36 dbm	Key (Message 1 of 4)		Finite Field Element: 063455abdb20b463Fbc73b8731ea1401e3afb0330ea77bc9820f323781774a48b022bc01c			
	793	2023-06-12 17:26:55.762290	0.00000	9 192.168.1.15	192.168.1.121	802.11	76	5 -44 dbm	Acknowledgement, Flags+C					
	795	2023-06-12 17:26:55.791215	0.02892	SansungE_c9:e3:71	Cisco_13:80:_	EAPOL	230	5 -43 d8m	Key (Message 2 of 4)					
	796	2023-06-12 17:26:55.791215	0.00000	9 192.168.1.15	192.168.1.121	802.11	76	5 -37 d8m	Acknowledgement, Flags=C					
	797	2023-06-12 17:26:55.793000	0.00178	1 Cisco_13:00:e7	SamsungE_c9:_	EAPOL	295	5 -37 dên	Key (Message 3 of 4)					
	798	2023-06-12 17:26:55.793000	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	5 -44 dön	Acknowledgement, Flags+C					
	299	2023-06-12 17:26:66.298403	0.00548	Cancungt (9143171	Cisco 13:80:	EARCH	199	5 .44 day	Key (Nessage 4 of 4)					

Client details in WLC:

Cisco Cataly	/st 980	0-CL Wireless (Con	troller				W	elcome ad	tmin	*	♠ ♠	8	¢ % 0	Search APs and C	lients Q	edback 🖉 🗭
O. Search Marcularms	Monitor	ing * > Wireless *	> (Clients				Client									×
Clients Steeping Clients Excluded Clients Clie								360 Vi	sw G	eneral	QC	S Statisti	cs	ATF Statistics	Mobility History	Call Statistics	
								Client Properties AP Properties Security Information Client Statistics QOS Properties Eod Client State Servers None						EoGRE			
Configuration	Select	ted 0 out of 12 Clients						Clier	it ACLS it Entry Cre	ate Tin	ne			None 78 seconds			
~	0	Client MAC Address	Ŧ	IPv4 Address	т	IPv6 Address	AP Name	Polic	y Type					WPA3			
Of Administration	Ο	0012.17e1.dd57	×	192.168.1.33		fe80::212:17ff:fee1:dd57	AP03_Sotao_9548	Encr	yption Clipt	her				CCMP (AES)			
	0	0012.17e2.4856	1	192.168.1.37		fe80::212:17ff:fee2:4856	AP05_OutdoorB_220	Auth	entication	Key Ma	nageme	nt		SAE			
	Ο	0012.17e2.4b40	×	192.168.1.31		fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3D0	EAP	Type ion Timori					Not Applicable 86400			
X Troubleshooting	0	0429.2ec9.e371	×	192.168.1.160		fe80::6a20:34e8:ab1b:6332	AP6849.9253.CA50	Sessio	n Manage	er				00400			
	Ο	0c8b.9509.3518	×	192.168.1.129		N/A	AP03_Sotao_9548										
	Ο	34ea.e702.6240	1	192.168.1.70		N/A	AP6849.9253.CA50	Point	t of Attacht	ment				capwap_9000	0010		
	Ο	60fb.008b.0e66	×	N/A		N/A	AP01_RC_9136_F80	IIF ID						0x90000010			
Well Ma Thomas a	0	84d8.1b0f.294f	×	192.168.1.91		N/A	AP03_Sotao_9548	Auth	orized					TRUE			
Walk Me Through) 9669.5a28.a115 / 192		192.168.1.138		fe80::9469:5aff:fe28:a115	AP02_Suite_1084	Common Session ID		000000000000B1B0A58F78									
	0	a810.87bb.b833	×	192.168.1.94		fe80::aa10:87ff:febb:b833	AP03_Sotao_9548	Auth	Method S	r tatus Li	st			**********			
	н	< 1 2 +)	н	10 🔻				Meth	od					SAE			

WPA3-Personal - AES(CCMP128) + SAE + FT

WLAN Security configuration:

Edit WLAN

March Compage Compage Compage Compage MAC Filtering Image: Compage Image: Compage Image: Compage Image: Compage MAC Filtering Image: Compage Image: Compage Image: Compage Image: Compage MPA Parameters Image: Compage Image: Compage Image: Compage Image: Compage WPA Image: Compage Image: Compage Image: Compage Image: Compage MPA2/WPA3 Image: Compage Image: Compage Image: Compage Image: Compage Max Image: Compage Image: Compage Image: Compage Image: Compage MPA2/WPA3 Image: Compage Image: Compage Image: Compage Image: Compage MPA2/WPA3 Image: Compage Image: Compage Image: Compage Image: Compage MPA2/WPA3 Image: Compage Image: Compage Image: Compage Image: Compage MPA2/WPA3 Image: Compage Image: Compage Image: Compage Image: Compage MPA2 Image: Compage Image: Compage Image: Compage Image: Compage MPA2 Image: Compage Image: Compage Image: Compage Image: Compage Main Image: Compage Image: Compage Image: Compage Image: Compage <th>eral Security Advanced Add To Policy</th> <th>Tags</th> <th></th> <th></th>	eral Security Advanced Add To Policy	Tags		
O WPA + WPA2 O WPA2 + WPA3 Image: WPA3 O Static WEP O None MAC Filtering Image: WPA3 Image: WPA33 Image: WPA33 <th>er2 Layer3 AAA</th> <th></th> <th></th> <th></th>	er2 Layer3 AAA			
MAC Filtering	O WPA + WPA2 O WPA2 + WPA3	• WPA3	O Static WEP	O None
Lobby Admin Access WPA Parameters Transition Transition Parameters MAR Parameters PMF Required PMF Required Association Comeback Time* 1 SA Query Time* 200 PSK Format PSK Type Unencrypted	MAC Filtering O			
WPA Parameters VPA2 Pastey VPA WPA2 Pastey OTK WPA3 Over the DS Randomize Policy Over the DS Transition Over the DS Reassociation Timeout * MPA2/WPA3 Encryption COMP256 Over the DS Association Comp256 Ocemp256 Over the DS Protected Management Frame SAE FT + SAE Over the Os PMF Required Status FT + 802.1x Over the Os Association Comeback Time* 1 Status FT + 802.1x Over the Os SA Query Time* 200 FT + 802.1x Over the Os Status Status PAF Required Imagement Frame Status FT + 802.1x Over the Os PAF Required Imagement Imagement Imagement Too Status Required Imagement Post Post Post Status Required Imagement Post Post Post Status Imagement Post Post Post Post Post	Lobby Admin Access			
WPA WPA2 Policy Policy GTX WPA3 Transition WPA3 Transition Over the DS PA2/WPA3 Encryption Reassociation Timeout * AES(CCMP128) CCMP256 GCMP128 CCMP256 OCMP256 OVE PMF Required Association Comebook Timer* 1 SA Query Time* 200 PMF Required Association Comebook Timer* SA Query Time* 200 PK Format ASCI PK Format ASCI PK Format ASCI PK Pre-Shared Kay* Pre-Shared Kay*	NPA Parameters	- Fest Tr	ansition	
GTK WPA3 Pandomize Policy Transition Disable Over the DS PMA2/WPA3 Encryption AES(OCMP128) CCMP256 GCMP258 CCMP258 CCMP258 <td>WPA O WPA2 O Policy Policy</td> <td>Status</td> <td></td> <td>Erabled •</td>	WPA O WPA2 O Policy Policy	Status		Erabled •
Transition Disable WPA2/WPA3 Encryption AES(OCMP128) OCMP256 OCMP256 Photected Management Frame PMF Association Comeback: Time* SA Query Time* 200 PK Required Association Comeback: Time* PX PK Required PMF Association Comeback: Time* 1 SA Query Time* 200 PK Type Unencrypted PK Type	GTK WPA3 C Randomize Policy	Over th	te DS	0
MPA2/WPA3 Encryption AESICCMP128 CCMP256 GCMP128 CCMP256 CCMP256 Protected Management Frame PMF Required Association Comeback Timer* 1 SA Query Time* 200 PSK Format ASSCI PSK Type Unencrypted	Transition O Disable	Reaso	ociation Timeout *	20
AES(OCMP128) CCMP258 C	WPA2/WPA3 Encryption	- Auth Kr	ey Mamt	
OCMP128 OCMP258 Protected Management Frame PMF Association Comeback Timer* SA Query Time* 200 FT + 802.1x O SHA256 Arti Clogging Threshold* ISO Nax Retries* S Retransmit Timeout* 400 PSK Format ASCI PSK Type Unencrypted Pre-Shared Key*	AES(CCMP128) COMP256	545	0	ET + SAE
Protected Management Frame PMF Association Comeback Timer* SA Query Time* 200 Max Retries* SK Format ASSOCIATION PSK Format ASSOCIATION PSK Type Unencrypted • Pre-Shared Key*	GCMP128 C GCMP256 C	OW	ō	FT + 802.1x O
PMF Required Arti Clogging Threshold* 1500 Association Comeback Timer* 1 Max Retries* 5 SA Query Time* 200 Retransmit Timeout* 400 PSK Format ASCI • PSK Type Unencrypted • Pre-Shared Key*	Protected Management Frame	802 SHA	1x- O	_
Association Cometack Timer* Association Cometack Timer* Association Cometack Timer* Max Retries* Retransmit Timeout* 400 PSX Format Assci PSX Type Unencrypted Pre-Shared Key*	PMF Required •	Arti	Clogging Threshold*	1500
SA Query Time* 200 Retransmit Timeout* 400 PSK Format ASCI • PSK Type Unencrypted • Pre-Shared Key*	Association Comeback Timer* 1	Max	Retries*	5
PSK Format ASCI PSK Type Unencrypted Pre-Shared Key*	SA Query Time* 200	Retri	ansmit Timeout*	400
PSX Type Unencrypted Pre-Shared Key*		PSK	Format	ASCI •
Pre-Shared Key*		PSK	Туре	Unencrypted •
		Pre-	Shared Key*	

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Caution: In the Authentication Key Management, the WLC allows to select FT+SAE without SAE enabled, however it was observed the clients were not able to connect. Always enable both check boxes SAE and FT+SAE if you want to use SAE with Fast Transition.

wifi6E_test

[WPA3][SAE][FT + SAE][AES].[FT Enabled]

View on WLC GUI of the WLAN Security settings:

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Verification of beacons OTA:

wif6E_test

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1 3073 OF 13 18:34:46 385337 & AAAAAA Fice 31:80:ad Broadcadt 803.11 Eds E. M. dis Baaras feams C	
a starting as an other transfer to the starting and the starting of the starti	<pre>s422, Fixe0, FlagsC, BIx100, SSID="wifies" > Ethernet II, Src: Clsco_dd17d137 (0010F11d1dd17d137), DSt: Universa_D71CF106 (0013a1881D71CF106)</pre>
2 2823-06-12 18:34:49.487544 0.182287 Cisco_13:80:ed Broadcast 802.11 508 5 -36 dBm Beacon frame, 5	+427, FM+0, Flags+C, BI+100, SSID+"wified > Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
3 2023-06-12 10:34:49.509067 0.102323 Cisco_13:00:ed Broadcast 802.11 500 5 -37 dbm Beacon frame, 5	+432, FN+0, Flags+C, BI+100, SSID+*wifi6E > User Datagram Protocol, Src Port: 5555, Dst Port: 5000
4 2023-06-12 10:34:49.692332 0.102465 Cisco_13:00:ed Broadcast 002.11 500 5 -37 dbm Beacon frame, 5	+437, FN+0, Flags+C, BI=100, SSID="wifile] > AirOPeek/OmniPeek encapsulated IEEE 802.11
5 2023-06-12 18:34:49.791004 0.090672 Netgear_48:70:95 Cisco_13:00:. 002.11 360 5 -49 dBm Probe Request,	N=10, FN=0, FlagsC, SSID="wifide_test" > B02.11 radio information
6 2023-06-12 18:34:49.791004 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -37 dBm Acknowledgement	FlagsC > IEEE 002.11 Beacon frame, FlagsC
7 2023-06-12 10:34:49.791356 0.000352 Netgear_40:70:95 Cisco_13:00:_ 802.11 360 5 -49 dBm Probe Request,	Nall, FNe0, FlagsC, SSID="wifi66_test" Y IREE W02.11 Wireless Paragement
8 2023-06-12 18:34:49.791427 0.000071 192.168.1.15 192.168.1.121 802.11 76 5 -37 dBm Acknowledgement	Flags=C > Fixed parameters (12 bytes)
9 2023-06-12 10:34:49.794493 0.003066 Cisco_13:00:ed Broadcast 802.11 500 5 -37 dBm Beacon frame, 5	****2, fN=0, flags=C, BI=100, SSID="wifile" (we bytes)
10 2023-06-12 10:34:49.010202 0.015709 Netgear_40:70:95 Cisco_13:00:_ 002.11 360 5 -49 d0m Probe Request,	N=12, FN=0, Flags=C, SSID="wifide_test" / Tag: SDD parameter set: wirther_test_et
11 2023-06-12 10:34:49.010202 0.000000 192.168.1.15 192.168.1.121 002.11 76 5 -37 dbm Acknowledgement	FlagsC
12 2023-06-12 10:34:49.074951 0.064669 Netgeor_40:70:95 Cisco_13:00:_ 002.11 194 5 -49 d0m Authentication,	Study Flug) FlugsC
13 2823-06-12 18:34:49.874951 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -37 dBm Acknowledgement	FlagsC
14 2023-06-12 18:34:49.896563 0.021612 Cisco_13:80:07 Netgear_48:7. 802.11 194 5 -37 dbm Authentication,	Shulde, FlugsC Figs round for the first statist Power: 17. Link Margin: 0
15 2023-06-12 18/34/49.896563 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -49 080 ACKYOwledgenent	FlagsC V Tar BN Information
16 2023-06-12 18:34:49.904966 0.005403 C13C0_13:301ed Broadcast 802.11 508 5 -37 dBM Beacon Frame, 5	the suberi station (48)
17 2023-06-12 10:34:49.994966 0.000000 Adtgear_40:70:95 C15C0_13:30:_ 002.11 130 5 -49 dBM Authentication,	Stab, Flag. FlagsC Tar length: 24
18 2022-06-12 18:34-09.904966 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -37 dm Acknowledgement	Fight Sky Version: 1
19 2023-06-12 10:34:49,399996 0.000000 ClicC_13:00:07 hetges_40/7_ 00/11 100 5 -37 000 Advertication,	> Group Cipher Suite: 00:0f:ac (Ieee 802.11) AES (CCN)
20 2023-06-12 10:391-06-200000 132.100.1115 132.100.11121 002.111 /6 5 -40 000 ACKNOWLOGODOT	Pairwise Cloter Suite Court: 1
21 2023-06-12 1019-149-29496 - 4-000000 MELEOR - 401/0175 - L15/0_131001_ 002/11 226 5 -49 000 ASSOCIATION RO	> Pairwise Cloter Suite List 00:0fiac (Ieee 802.11) AES (CON)
22 2022-09-12 1019/19/19/19/19/19/19/10 11/11 0 2010/01/15 12/100-11/12 00/11 70 5 10 00 ALMONGSUGGEDED	Auth Key Management (AUN) Suite Count: 1
14 2010 101 101 101 101 101 101 101 101 10	> Auth Key Management (AUH) List 00:0fiac (Ieee 802.11) SAE (SHA256)
The second secon	> KSN Capabilities: 0x0000
16 2213 doi:10.1017/01/2017/17 Victorial Victoria Victorial Victorial Victorial Victor	PARE data Individual State and Records PHKID Count: 0
22 2021.06.12 10.164.06 022146 0.010627 United to the second state of the second state	F a) PRED LIST
12 2021-0-12 12:14:49 022146 0.00000 010:58:1.15 192.162.117 102.11 76 6 -49 dis acknowledgement	> Group Hanagement Cipher Suite: 00:0fiac (Ieee 802.11) 8IP (128)
29 2023-06-12 10:34:49.999511 0.077215 (iso 11:00:ed Broadcast 002.11 500 5.16 dbm Beacon Frame, f	-452 FileB. Flatte
10 2023-06-12 10:34:50 104510 0.104920 (iso 11:00:ed Broadcast 002.11 500 5.36 dbm Beacon frame, f	+67. Flue. Flatta
11 2023-06-12 18:34:50,204600 0.100090 Cisco 13:80:ed Broadcast 802.11 508 5 -37 dm Beacon frame, f	++62. FN=0. Flatt=C. BI=100. SSID="wifice > Tag: RH Enabled Capabilities (S octets)
32 2023-06-12 10:34:50,211615 0.007015 Netzear 40:70:55 Cisco 13:00: EAPOL 226 5 -55 dbm Key (Message 2	f 4) > Tag: Extended Capabilities (11 octets)
33 2023-06-12 18:34:50.211615 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -42 dbm Acknowledgement	Flags+C > Tag: TX Power Envelope
34 2023-06-12 10:34:50.213376 0.001761 Cisco_13:00:e7 Netgear_40:7. EAPOL 295 5 -36 dBm Key (Message 3	f 4) > Tag: TX Power Envelope
35 2023-06-12 10:34:50.213376 0.000000 192.160.1.15 192.160.1.121 002.11 76 5 -50 dBm Acknowledgement	Flags=C > Ext Tag: Multiple BSSID Configuration
36 2023-06-12 18:34:50.214354 0.000978 Netgear_48:70:95 Cisco_13:00:_ EAPOL 199 5 -56 d0m Key (Hessage 4	(4) > Ext Tag: HE Capabilities
37 2023-06-12 10:34:50.214354 0.000000 192.160.1.15 192.160.1.121 002.11 76 5 -42 dbm Acknowledgement	Flags+C > Ext Tag: HE Operation
38 2023-06-12 18:34:50.220721 0.006367 192.168.1.15 192.168.1.121 802.11 76 5 -42 dbm Acknowledgement	FlagsC > Ext Tag: Spatial Rouse Parameter Set
39 2823-06-12 18134150.224049 0.003328 192.168.1.15 192.168.1.121 802.11 119 5 -44 d8m Trigger Buffer	tatus Report Poll (85RP), Flags=C > Ext Tag: HU EDCA Parameter Set
40 2023-06-12 10:34:50.224049 0.000000 AlticeLa_9e:59:af Netgear_40:7_ LLC 223 5 -44 dbm U, func+Unknown	DSAP exb Group, SSAP exds Response / Ext rag: He 6 GH2 eard capacitities
41 2023-06-12 10:34:50.224049 0.000000 192.168.1.15 192.168.1.121 802.11 76 5 -54 dBm Acknowledgement	FlagsC Tag: KN extension (1 occes)
	Teg Namer: Ask extension (244)
	Tag sengtri a
	A DATE (VALUE A)
	a - Bosterland that Generations Function
	ab
	> Tag: Vendor Specific: Athron Communications, Inc.: Unknown
	> Tag: Vendor Specific: Microsoft Corp.: WMV/ME: Parameter Element
	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet Unknown (44)
	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet Unknown (11) (11)
	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet Client N/P Disabled
	> Tag: Vendor Specific: Cisco Systems, Inc: Aironet CCK version = 5

WPA3 SAE + FT Beacons

Here we can observe Wi-Fi 6E clients associating:

Intel AX211

Connection OTA with focus on the RSN information from client:

	(((peekre	mote) &&	(vlan.addr == 286b	.3598.580f)) (wlan.fc.type_subt	ype == 0x001d) o	or wlan.fc.t	ype_subtype	== 0x0008)		
No	Te	ne		Delta	Source	Destination	Protocol	Lengti Char	nnel Signa	i stre Info	> Frame 1019: 250 bytes on wire (2000 bits), 250 bytes captured (2000 bits) on interface \Device\NPF_(D4578905-2998-4
	1011 20	23-06-12	18:51:35.249793	0.017337	IntelCor_98:58:ef	Cisco_13:00:	802.11	194	5 -42	dom Authentication, SNw0, FNw0, Flags+C	> Ethernet II, Src: Cisco_dd:7d:37 (00:df:1d:dd:7d:37), Ost: Universa_b7:cf:06 (08:3a:88:b7:cf:06)
	1012 20	23-06-12	18:51:35.249793	0.000000	192.168.1.15	192.168.1.121	882.11	76	5 -36	dom Acknowledgement, Flags+C	> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	1013 20	23-06-12	18151135.256827	0.007034	Cisco 13:80:e7	IntelCor 981.	882.11	194	5 -36	dam Authentication, SN=159, FN=0, Flags=C	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	1014 20	23-06-12	18:51:35.256827	0.000000	192.168.1.15	192.168.1.121	882.11	76	5 -42	dan Acknowledgement, Flags+C	> AiroPeek/OmniPeek encapsulated IEEE 802.11
	1015 20	23-06-12	18:51:35.259394	0.002563	IntelCor_98:58:0f	Cisco_13:80:	882.11	130	5 -45	dBm Authentication, SN=1, FN=0, Flags=C	> 802.11 radio information
	1016 20	23-06-12	18:51:35.259394	0.000000	192.168.1.15	192.168.1.121	802.11	76	5 -36	dBm Acknowledgement, Flags+C	> IEEE 802.11 Association Request, Flags:C
	1017 20	23-06-12	18:51:35.263679	0.004215	Cisco_13:00:e7	IntelCor_98:_	882.11	130	5 -36	dom Authentication, SN+160, FN+0, Flags+C	✓ IEEE 802.11 Wireless Management
	1018 20	23-06-12	18:51:35.263679	0.000000	192.168.1.15	192.168.1.121	882.11	76	5 -42	dom Acknowledgement, Flags+C	> Fixed parameters (4 bytes)
100	1019 20	23-06-12	18:51:35,263679	0,000000	IntelCor_98:58:0f	Cisco 13:80:_	882.11	250	5 -46	dom Association Request, SN+2, FN+0, Flags+C, SSID+"wifi6E test"	 Tagged parameters (156 bytes)
17	1020 20	23-06-12	18151135.263679	0.000000	192.168.1.15	192.168.1.121	882.11	76	5 -36	dan Acknowledgement, Flags+C	> Tag: SSID parameter set: "wifi64_test"
	1026 20	23-06-12	18:51:35.274142	0.010463	IntelCor_98:58:0f	Broadcast	LLC	114	5 -36	dBm I, N(R)=98, N(S)=63; DSAP @x84 Group, SSAP @xa0 Response	> Tag: Supported Rates 6(0), 9, 12(0), 10, 24(0), 36, 48, 54, [Mbit/sec]
	1027 20	23-06-12	18:51:35.274142	0.000000	IntelCor 98:58:0f	Broadcast	LLC	114	5 .36	dim I, N(R)=67, N(S)=122: DSAP ex58 Group, SSAP Spanning Tree BPDU Response	> Tag: Power Capability Min: 0, Max: 9
	1028 20	23-06-12	18:51:35.277402	0.001266	Cisco 13:80:e7	IntelCor 98:-	882.11	262	5 -16	den Association Response, SN+0, FN+0, Flags+C	✓ Tag: RSN Information
	1029 28	23-06-12	18:51:35.277402	0.000000	192.168.1.15	192,168,1,121	002.11	76	5 -43	din Acknowledgement, FlagsC	Tag Number: RSN Information (48)
	1030 20	23-06-12	18:51:35.286107	0.001705	Cisco 13:00:ed	Broadcast	882.11	517	5 -36	don Beacon frame, SN+371, FN+0, Flags+C. BI+100, SSID+"wifi68 test 02".	Tag length: 26
	1034 20	23-06-12	18:51:35.311349	0.025242	192.168.1.15	192.168.1.121	882.11	76	5 -36	dbn Acknowledgement, flagsC	RSN Version: 1
	1035 20	23-06-12	18:51:35.316198	0.004541	192.168.1.15	192.168.1.121	882.11	76	5 .52	dan Clear-to-send, FlagsC	> Group Cipher Suite: 00:0f:ac (Ieee D02.11) AES (CON)
	1037 20	23-06-12	18:51:35.333425	0.017223	192,168,1,15	192.168.1.121	882.11	76	5 .36	din Acknowledgement, FlagtsC	Pairwise Cipher Suite Count: 1
	1041 28	23.06.12	10-51-15, 100440	0.055015	Cisco 13:88:ed	Broadcast	882.11	517	5 .17	the Bearon frame, Studie, Flags,	> Pairwise Cipher Suite List 00:0fiac (Ieee 002.11) AES (CCH)
	1042.20	23.06.12	10-51-15, 101000	0.001140	192.168.1.15	192,168,1,121	882.11	76	5 . 53	the Clear.to.tend Elasta	Auth Key Hanagement (AWH) Suite Count: 1
	1044 20	23-06-12	18-51-15.197941	0.000110	192.168.1.15	192,168,1,121	882.11	82	5 . 10	the Decuest. to send. Elasta	> Auth Key Hanagement (AKH) List 00:0f:ac (Ieee 802.11) SAE (SHA256)
	1045 28	23-06-12	18-51-35.398982	0.001015	192.168.1.15	192.168.1.121	882.11	82	5 . 16	the Dequest.to.send. Elarca	> RSV Capabilities: 0x00fc
	1046.28	23.06.12	18:51:35.399812	0.000510	192.168.1.15	192.168.1.121	882.11	82	5 . 36	the Request.to.send Flars,	PMCID Count: 0
	1047 28	23.06.12	18151135.400524	0.000712	192.168.1.15	192,168,1,121	882.11	82	5 . 36	the Request.to.send Flags	PMCD List
	1048 28	23.06.12	18:51:35.401191	0.000667	192.168.1.15	192,168,1,121	882.11	82	5 . 16	din Request.to.send. Flagsf	> Group Management Cipher Suite: 00:0f:ac (Ieee 802.11) 8IP (128)
	1049 28	23.06.12	10:51:15.402015	0.000144	192.168.1.15	192,168,1,121	882.11	82	5 . 16	tim Request.to.send. Flags	> Tag: Supported Operating Classes
	1050 20	23-06-12	18:51:15.402617	0.000501	192.168.1.15	192,168,1,121	002.11	82	5 . 16	the Request to send, Elasta	> Tag: RM Enabled Capabilities (5 octets)
	1051 20	23-06-12	18-51-15-401751	0.000610	192.168.1.15	192,168,1,121	882.11	82	5 . 16	the Decuest.to.send. Elasta	> Tag: Extended Capabilities (10 octets)
	1052 20	23.06.12	18:51:35.484574	0.001121	192.168.1.15	192.168.1.121	882.11	82	5 . 16	the permestato-send flags-	> Tag: Vendor Specific: Hicrosoft Corp.: WHV/WHE: Information Element
	1053 20	23.06.12	18151135.485386	0.000713	192.168.1.15	192.168.1.121	882.11	82	5 . 36	the Request.to.send Flars,	> Tag: Vendor Specific: Intel Wireless Network Group
	1054 20	23.06.13	10.01.35.400300	0.000772	192.169.1.15	102.100.1.111	002.11		5 . 34	the Request to send flags.	 Tag: RSN extension (1 octet)
	1055 30	23.06.17	10-51-35 486637	0.0007/2	192.100.1115	192.100.1.121	002.11		5 . 36	the Result to send Class.	Tag Number: RSN extension (244)
	1054 10	23.06.12	10-51-35 486201	0.000014	100 100 1 10	100 100 1 101	002.11	26	5 . 36	den inknowladaement Elant.	Tag length: 1
	1057 30	23.06.12	10-51-15 407744	0.000000	103 108 1 10	102 108 1 121	002.11		5 . 16	the Deniet to Land Flags.	✓ RSNX: 0x20 (octet 1)
	1050 30	23-06-12	18-51-15 487517	0.000303	Cicco 13:58:47	Tetalfor St.	5400	222	5 . 36	the Yey (Beccase 1 of 4)	0000 = RSAX Length: 0
	10/0 30	23.06.12	10.01.30.407017	0.000000	103.168.1.16	183 168 1 131	883.11	74		the science advance flags.	
	1042 24	23-06-12	10.01.30.458713	0.000000	Tetalfor Atland	Circo 13:88:	61804	220	1 .12	the Ver (Berran 1 of 4)	= SAE Hash to element: 1
	1042 20	22-06-12	10-01-30 410/12	0.000101	102 168 1 15	100 100 1 100	003.11	24	5 . 32	the acknowladeaeast flags.	00 = Reserved: 0x0
	1044 28	22-06-12	10-51-15 419712	0.001500	192.100.1.15	100 100 1 101	002.11		5 . 37	the basiset to rand flags.	> Ext Tag: HE Capabilities
	1044 20	23.06.12	10-51-16 411224	0.000431	Cisco 13-88-67	Tetal/or 98:	54000	141	5 . 17	Adm Var (Marsana 3 of 4)	> Ext Tag: HE 6 GHz Band Capabilities
	1067 20	23.06.12	18-51-15 411651	0.000433	103.168.1.16	102 168 1 121	002.11	74	5 .40	the intermediateset flags.	
	1007 28	23-06-12	10:91:39.412651	0.000000	192.100.1.15	192.100.1.121	002.11	76	3 -40	den Acknowledgement, Fingla	
15	1008 28	23-96-12	10:51:35.413651	0.001000	inceicor_98:58:84	C15C0_13:80:_	EAPLE.	179	5 -53	den schamiligen of e)	
1	1009 28	22-06-12	10:51:35.413651	0.000000	192.100.1.15	192.100.1.121	002.11	16	5 -37	Acknowledgement, Flagswitting	

Roaming event where you can see the PMKID:

No. The field Data Source Detainsion Periodical Sophistra Info 282, 2621-06-12 1815111-188615 600420 Field Source Field Sour	ured (2276 bits) on isterface \Device\WF_(D4578985-2998-4 Universa_b7:cf:06 (00:10:00:b7:cf:06) 66.1.121
228. 303-06-12 18:51:11.488815 0.00029 IntelCor_98:584 IntelCor_98:5 12 23 5-75 dim 5, force#, N(1)+0; 05# NGL LS# Endividual, SS# NGL LS# Commed 228. 3021-06-12 18:51:11.48881 0.000065 IntelCor_98:584 IntelCor_98:5 12 23 23 24 25 25 25 25 25 25 25 25 25 25 25 25 25	universa_b7:cf:06 (08:3a:88:b7:cf:06) 68.1.121
28. 3021-06-12 11:51:11.400000 executed private privat	68.1.121
Les Res	
220. de2/de/12 lets/11/de/10 theter_minuter anterer_minuter anterer_minuter and an anterer_minuter and an anterer_minuter and an anterer_minuter and an anterer and and anterer antere	
220. 2021-06-12 18:52:11.48910 0.000000 IntelCor_98:540 VICE 125 5-09 COM 5, TURCHON, N(R)+0 DSAP NULL LSAP Common	
220. 2021-06-12 10:53:11.49359 0.000049 IntelCor_98:SI:07 IntelCor_98: Si:07 IntelCor_98: LLC 325 5 -74 dbm 5, func-88, h(t)=0 DSAP NULL LSAP Individual, SSAP NULL LSAP Command TEEE NO. 11 Desson at the second state of the sec	
220. 2023-06-12 18153111.489462 0.000105 IntelCor_9815810F IntelCor_981. LLC 325 5 -74 dBm 5, func-MR, N(R)+0] DSAP MULL LSAP Command	
220. 2023-06-12 18:53:11.489504 0.000042 IntelCor_98:58:0F IntelCor_98:: LLC 325 5 -74 dBm 5, func+88, N(8)+0; DSAP NULL LSAP Command	
220. 2023-06-12 18:53:11:409639 0.000135 IntelCor_98:58:04 IntelCor_98:: LLC 325 5 -74 dBm S, func+RR, N(N)+0; DSAP NULL LSAP Individual, SSAP NULL LSAP Command PLACE (BV CS)	
220. 203-06-12 18:53:11.490161 0.000522 IntelCor_98:58:04 IntelCor_98:. LLC 245 5 -74 dbm S, func+RR, N(R)=0; 05AP NULL LSAP Individual, SSAP NULL LSAP Command	
220. 2023-06-12 18:53:11.400363 0.000202 IntelCor_98:58:04 IntelCor_98:: LLC 325 5 -00 dbm 5, func+RR, N(R)+0; DSAP NULL LSAP Individual, SSAP NULL LSAP Command > Tag: 3310 parameter set: "Hirse_test"	and the second second
220. 2023-06-12 10:53:11.491197 0.000034 IntelCor_90:50:04 IntelCor_90:: LLC 325 5 -77 dbm 5, func+08, N(k)+0; DSAP NULL LSAP Individual, SSAP NULL LSAP Command > Tag: Supported Rates 6(0), 9, 12(0), 10, 24(0), 10	48, 54, [MD11/sec]
220. 2023-06-12 18:53:11,491197 0.000000 IntelCor_98:58:06 IntelCor_98:58:06 IntelCor_98:58:06 No.L LSAP Individual, SSAP NULL LSAP Command >> Tag: Power Capability Min: 0, Max: 9	
220. 2023-06-12 18:53:11.491242 0.000045 IntelCor 98:58:0F IntelCor 98:15:20 5-77 dBm 5, func-RR, N(K)-0: DSAP NULL LSAP Individual, SSAP NULL LSAP Command	
220. 2023-26-12 18:51:11-00155 0.000111 Totel/or 98:58:00 Totel/or	
220. 2023-06-22 18:53:13.401300 0.000064 IntelCor 98: 53:00 IntelCor 98: 51:00 IntelCor 98: 51:00 IntelCor 98: 52:00 IntelCor 9	
The Setting of the set	
Strong of the intervent	(01)
The dependence in Section Particle Particle Control Particle Control Particle Control Particle Control Particle Control Contro	
22. 201-00-11 Bischingweise Commercial Stationard Stati) AES (CCH)
220. 201-00-12 18 55:11:515940 0.000914 (1500_15100107) INTERCO_15100107 50-101; THE COURT 1	1.44 (14)
220. 2023-00-12 10/53/11.513546 0.000000 192.165.1.121 002.11 76 5 -62 000 ACKYONLEOGENET, FlagsC	0.11) Saf (Gia266)
220. 2023-06-22 18:53:11.514178 0.000632 IntelCor_90:58:00 Cisco_13:80: 002-11 272 5 -66 dBm Reguest, SN=17, FN=0, FlagsC, SSID="wiffide_test"	and an (analy)
220_2023-06-12 18:53:11.514170 0.000000 192.160.1.121 002.11 76 5 -36 dBm Acknowledgement, FlagsC	
220. 2023-06-12 18:53:11.527665 0.013407 Cisco_13:00:e7 IntelCor_98: 002.11 262 5 -36 dBm Reassociation Response, Shu0, Flue, FlagsC	
220. 2023-06-12 18:53:11.527665 0.000000 192.168.1.15 192.168.1.121 002.11 76 5 -62 dbm Acknowledgement, Flags+C	
220. 2023-06-12 18:53:11.528405 0.000740 IntelCor_98:58:06 Broadcast LLC 114 5 -36 dbm I P, N(R)=54, N(5)=122; DSAP XX5 Group, SSAP Netware Response PMCDI 6642/3181996629C19217308276625	
220. 2023-06-12 18:53:11.528445 0.000040 IntelCor_98:58:06 Broadcast LLC 114 5 -36 dBm I, N(R)+77, N(S)+271 DSAP 0x1e Individual, SSAP XXS Command Science Sci	(2.11) BIP (128)
220. 2023-06-12 18:53:11.530430 0.001905 192.160.1.15 192.160.1.121 002.11 02 5 -36 dbm Request-to-send, Flags=C > Tag: Supported Operating Classes	
220. 2023-06-12 18:53:11.530638 0.000208 Cisco 13:00:e7 IntelCor_98:, EAPOL 221 5 -36 dBm Key (Nessage 1 of 4) > Tag: RM Enabled Capabilities (S octets)	
220. 2023-06-12 18:53:11.530638 0.000000 192.168.1.15 192.168.1.15 192.168.1.115 192.168.1.121 802.11 76 5 -67 dBm acknowledgement, Flagt+C	
220. 2023-06-12 18:53:11.533368 0.002530 IntelCor 98:58:04 (isco 13:00: 547 dbm Key (Nessane 2 of 4) > Tag: Vendor Specific: Microsoft Corp.: W0V/WE: In	ormation Element
220 2021 AC.12 18:51:11 513168 0.000000 192.168.1.15 192.168.1.121 002.11 76 5.36 domest flags	
230 2031.04.12 18(5)(11.5)4700 0.001091 192.108.1.15 192.108.108.108.108.108.108.108.108.108.108	
Tag Number: RSN extension (244)	
The length 1	
V ISNI 628 (octet 1)	
- 220, 2021-06-12 18:51:11:53907 0.000835 IntelCor_98:58:07 C3C0_11:00. EMOC 199 5 -70 C00 Key (MESSage 4 Ch 4)	
220, 2023-06-12 18:53:11.535907 0.000000 192.168.1.121 D02.11 76 5-36 dBm Acknowledgement, FlagsC	
220. 2023-06-12 18:53:11.545206 0.009299 Cisco_13:00:ed Broadcast D02.11 517 5 -36 dBm Beacon frame, SSN074, FNN0, FlagsC, B1x1000, SSID0"Hif16E_test_02",	
228. 2022-06-12 10:53:11.545206 0.000000 192.168.1.121 102.11 102 5 -46 00m Request-to-send, FlagsC	
220. 2021-06-12 18153111.545206 0.000000 Ciscover_531ca150 IntelCor_501. LLC 107 5 -46 dbm I, N(R)+16, N(S)+2) DSAP NULL LSAP Group, SSAP 0x6e Command	
220. 2023-06-12 10:53:11.545206 0.000000 192.160.1.15 192.160.1.121 002.11 76 5 -72 d0m Acknowledgement, Flags+C	
220. 2023-06-12 10:53:11.556775 0.011560 192.160.1.15 192.160.1.121 002.11 02 5 -72 dbm Request-to-send, Flags+C	
220. 2022-06-12 10:53:11.556775 0.000000 192.160.1.15 192.160.1.121 002.11 76 5 -36 dBm Clear-to-send, Flags+C	
220_2023-06-12 18:53:11.556977 0.000202 IntelCor_98:58:0f Broadcast LLC 515 5 -75 dBm I P, N(R)+67, N(S)+77; DSAP Ex48 Individual, SSAP Banyan Vines Command	
228. 2021-06-12 10:55:11.556077 0.000000 192.160.1.15 192.160.1.121 002.11 76 5 -36 dom Acknowledgement, FlagsC	

WPA3 SAE + FT Reassociation Request

Client details in WLC:

Cisco Cisco Catal	yst 980	0-CL Wireless (Cor	troller			Welcome admin 🛛 🏘 📭 🋕 🖺 🏟 🔞 🕢 🎜 Search APs and Clients 🔍 🗍 🖀 Feedback 🖉							
Q. Search Menu Items	Monito	ring • > Wireless •	> (Clients			Client *							
Dashboard	Clients	Sleeping Client	s	Excluded Clien	ts	360 View General QOS Statistics ATF Statistics Mobility History Call Statistics								
Monitoring >	×	Delete 2					Client State Servers None Client State Servers None							
Configuration	Selec	ted 0 out of 12 Clients					Client ACLs None Client Entry Create Time 380 seconds							
	0	Client MAC Address	٣	IPv4 Address	IPv6 Address	AP Name	Policy Type WPA3							
203 Administration	0	286b.3598.580f	×	192.168.1.159	fe80::ac5b:e1e1:67ba:c353	AP6849.9253.CA50	Encryption Cipher CCMP (AES)							
C Licensing	0	60fb.008b.0e66	×	N/A	N/A	AP01_RC_9136_F80C	Authentication Key Management SAE							
	0	34ea.e702.6240	×	192.168.1.70	N/A	AP6849.9253.CA50	Sestion Timeout 86400							
Y Troubleshooting	0	a810.87bb.b833	×	192.168.1.94	fe80::aa10:87ff:febb:b833	AP03_Sotao_9548	Session Manager							
	Ο	9669.5a28.a115	×	192.168.1.138	fe80::9469:5aff:fe28:a115	AP01_RC_9136_F80C								
	0	84d8.1b0f.294f	×	192.168.1.91	N/A	AP03_Sotao_9548	Point of Attachment capwap_90000010							
	0	0c8b.9509.3518	×	192.168.1.129	N/A	AP03_Sotao_9548	IIF ID 0x9000010							
Well's Mar Through 1	0	0012.17e2.4b40	×	192.168.1.31	fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3DC8	Authorized TRUE							
	0	0012.17e2.4856	×	192.168.1.37	fe80::212:17ff:fee2:4856	AP05_Outdoor8_2200	Act Settion ID 00000000000000000000000000000000000							
	Ο	0012.17e1.dd57	×	192.168.1.33	fe80::212:17ff:fee1:dd57	AP03_Sotao_9548	Auth Method Status List							
	14	1 2 • H 10 •					Method SAE							
							Local Balleton							

NetGear A8000

Connection OTA with focus on the RSN information from client. Initial connection:

Time	Delta Source	Destination	Protocol	Length O	annel Sonal strength	BSS Id	Info	> Frame 21: 256 bytes on wire (1728 bits), 256 bytes captured (1728 bits) on Interface Upevice/NPF_(04578985-2008-400
1 18:54:49, 385337	0.000000 (iscs 17:00:ed	Broadcast	892.11	500	5 -36 die	38191-371151801ed	Beacon frame, She422, Field, Flagse,	> Ethernet II, Srci Cisco_dd:7d:37 (00:df:Ld:dd:7d:37), Dxt: Universa_D7:cf:06 (00:ld:00:b7:06:06)
2 18:34:49.487544	0.502207 Cisco 13:00:ed	Briadcast	882.11	5496	5 -36 dbs	38:91:57:13:80:ed	Beacon Frame, Sh-427, FN-0, FlagsvC, 81+100, 5520+"wdf046 tast 82", 5520+"wdf	3 Internet Protocol Version 4, Src: 192.168.1.15, Dot: 102.368.3.125
3 18-34-49.589867	0.382323 Cisco 13:80:ed	Broadcast	862.11	509	5 -37 dbr	38:91:57:13:80:ed	Beacon frame, 59x432, 19x4, FlagssC. 80x308, 5530x"xdf568 test 82", 5530x"xdf) User Detagram Protocol, Src Port: 5555, Ost Port: 5660
4 18:14:49.892312	8.582465 Claro 131801ed	Broadcast	862.11	5498	5 -17 dile	08/95/b7/53/08/ref	Beacon frame, 90-417, F0-0, FlagsC, 81+100, 5510+"w1f14E tast 80", 5520+"w1f	> AiroPeek/OmiPeek encapsulated IEEE 802.11
5 18:34-49,79384	0.000672 Setzear 48:70:05	Cisco 13:88:47	882.11	368	5 -49 dim	38-91-57:13:88:47	Probe Request, Skybe, Flags,	> 882.11 radio information
6 18:34:49.793884	0.000000 102.158.2.15	192.168.1.121	862.11	26	5 -37 dlas		Acknowledgement, Flagss	> IEEE 802.11 Association Request, Flags:C
7 18:34:49,795356	0.000352 Setzeur 48:70:05	Cisco 15:80:e7	982.11	168	5 -49 dbs	38-81-57-13:80:47	Probe Request, Shvil, Field, FlagssC. SSIDe"wifiel test"	V IEEE 802.11 kireless Hanagement
8 18/34/49.701827	0.000071 192,348,1.35	192, 168, 1, 121	802.11	26	5 117 484		Arionaladonant, Flamef	 Fixed parameters (d bytes)
9 18:14-49,794493	0.001066 Cisco 11:02:ed	Broadcast	882.11	548	5 -37 dbr	18:31:57:11:80:ed	Beacon frame, Sheld2, File8, Flams,) Capabilities Information: 0x1513
10 18:14:49.81000	8.405789 Settemp 48129195	Ciaro 10.80.w7	882.11	344	5 - 49 - 694	08-01-h7/11/081-#7	Probe Respect, 90x12, Flad, Flags,	Listen Interval: 0x0000
11 18:14:49.838280	0.000000 192.168.1.15	192.168.1.121	802.11	26	5 -17 dbs		Acknowledgement, Flags	 Tagged parameters (122 bytes)
12 18/34/49 874951	9.04440 Networ 48:20:25	Cisco 10:00:u2	882.11	194	5 - 43 - 694	10111-107-101001-07	Adherication, Old. Holl, Flats) fag: SSID parameter set: "wified_text"
NS 18-34-49 #74951	8 898800 107 108 1 15	192 168 1 121	602 11		5 -17 -00		Administration of	> Tag: Supported Rates 6(0), 9, 12(0), 18, 24(0), 36, 48, 54, [Mbit/sec]
14 TRUNE OF BRIDE	a state fine to share	National distant	and 11	104	8 - 17 dia	in a second second	Adhestication (b) the flame /) Drt Tag: HE Capabilities
15 18-34-49 896563	0.000000 152 168 1 15	197 168 1 171	1002 33	26	5 -45 day	The rest of the second second	kingeletingert flame /) Ext Tag: HE 6 GHz Band Capabilities
be the latent contains	A BRARL Class Ticking	Receiver	Apr. 11	100	8 - 17 dis	incirculation and	Bases from Didd? Had Plans. / Blate SUD-Addie test 87" 1005-544) fag: Vendor Specific: Ralink Technology, Corp.
17 18-14-10 Obties	a append between 42-32-35	Class Multi-all	1007 11	1.14	A	10-51-57-11-80-eff	Adhestication (b), the fine f	> Tag: Extended Capabilities (10 octets)
17 18-14-00 (MARKS	0.000000 101.168.1.15	102 168 1 125	Mar. 11		5 - 17 dia	38-98-981 + 80-980 / 81	Action Indiana Plann F	> fag: Vendor Specific: Microsoft Corp.; WM/WME: Information Element
to tartar an one for	a analogo firms themes?	Sectores 44-10-05	mail IX		A	Sector Adventure of	Advantagements (Bold) Bod Clama /	✓ Tag: RN Information
The second an observed	0.000000 107 100 1 10	and the states	1000 111	12	1	Sector Canada and	house adverse frame, range range range	Tag Number: HSN Information (48)
20 30.34.47.304000	0.000000 192.100.1.15	ENG. HOLL, MA		100	5 -40 000	-	According to a second the first of the second second	Tag length: 22
The second second	0.000000 101 100 1 10	200 200 2 200			1 11 10 10 10 10 10 10 10 10 10 10 10 10	decercaneer.	historial and the second states of the second secon	RSN Version: 1
22 28:34049.984966	0.000000 192.200.2.15	179.100.1.121			5 - 30 000		According to the second state of the second st	> Group Cipher Sulte: 00:0fiac (leve N02.11) ALS (COM)
AS 10.00.00 01070	0.000000 101 100 1 10	and the particular		-	A	Server and server.	Advantation response, away rare, rangar	Patricise Cipher Solite Court: 1
74 18:34049-919474	0.000000 192.198.1.15	197.188.1.121	002.115		5 -87 008	and the second second second	Accessing of the set o	> Paindise Cipher Suite List 00:07:ac (Jeee M02.33) MIS (COM)
25 18:36:69.911719	a analysis surgear_as:raiss	proaxiast	110		5 137 088	08/01/07/110/08/07	U, Furchury, USW Bills Distributed, SSW Bills Company	Auth Key Ranagement (AVR) Subte Count: 1
10 10:04049-011/19	e.condee arcgesr_astretas	Broadcast	CLC.	124	3 - 30 000	38.913071133380367	o, the whenever, town the increasing law when methods	Auth Kay Hanagement (800) List 00:0Fisc (Leve 802.11) 5AE (598256)
27 38 34 49 92 92 94	warping? Cases_animow?	nergear_kattretus	Larce		5 - 39 - 000	Second Second Second	try (recode 1 or a)	 Auth Key Management (A0N) Suite: 00:0Fist (Jeee 882.11) SAE (SHR256)
28 10:34:49.922340	0.000000 192.108.1.15	197.168.1.1/1	002.11		5 -49 000		Accession of the state of the state of the budget and the budget	Auth Key Management (ABM) GUI: 00:04:ac (leve 000.11)
29 10:04:49-099581	WARANTES CINCO_LINNOCES	prosocast		100	5 - 25 000	10.91.07 11.000 ed	Beacon trane, Stock, root, riagon, Bandon, Shale wirthe test na , Shale wir	Auth Key Management (AAN) type: SAE (SHA256) (8)
30 18:34:50.104510	0.304029 (15c0_13:80:40	Broadcast	862.11	508	5 - 35 008	38191307113380360	Beacon trane, See07, Fee0, flagsC, B1+100, 5510- 92/100_001_01, 5520+ 927	 May Capabilities: Bubbon
31 18154/50-204600	0.500000 Clsco_11080.ed	Broadcast	802.11	2488	5 -37 dae	38/91027(13)80(ed	Beacon vrame, 98-462, 99-69, FlagsC, 81-100, 5510-569404_test_92*, 5510-569	
12 18:34:50.212815	anasian wetten."estimite	C15C0_13:80:67	DAPOL	225	5 -55 088	38:32:01:12:00:67	key (Pessage 2 of 4)	
33 18:34/50.213815	0.000000 193,168.1.15	192.168.1.121	802.11	28	5 -42 (04	Sector Links	Acknowledgement, Flags+C	80 850 PINIA Realay Counter cambilities: 1 realay counter per PINIA/GINIA/NIAC
34 18:34:50.213376	0.001761 Cisco_11000007	Netgear_48:79:55	LAPOL	295	5 -36 dBH	38:91:57:13:80:67	Key (Nessage 3 of 4)	
35 18:34:50.213376	0.000000 102.158.1.15	152.168.1.121	882.11	78	5 -50 000		Acknowledgement, Flagse	1 Response frame Protection Resident: True
36 18:34:59.214354	0.000578 Netgear_68:70:95	C15c0_13:80:47	LAPOL	199	5 -56 dBt	38/91:57:13:80:47	Key (Message 4 of 4)	 Management frame Protection Camble: True
37.18(34)(58)(2143)4	0.000000 192.368.1.15	192.168.1.121	942.11	75	5 -42 (0)		Acknowledgement, FlagsC	
38 18:14:58.228721	0.006367 192.188.1.15	192.168.1.121	802.13	25	5 -42 din		Acknowledgement, Flags+C	e Pearting Inshield: False
39 18:34:58.224849	0.001328 192.168.1.15	192.168.1.121	882.11	119	5 -44 dbs		Trigger Buffer Status Report Pull (RSRP), Flags+C	
#0 18:34:50.224045	0.000000 AlticeLa_Se:59:a4	Netgeor_48:70:55	LLC	223	5 -44 dbs	38:91:07:13:80:47	U, Funckünisnawn; DSAP Bhde Group, SSAP Bhdli Response	PRID Court: 8
41 18(34/58.22444)	0.000000 192.158.1.15	192.168.1.121	882.13	26	5 -54 dite		Acknowledgement, FlagsC	PRID 114+
								 Tar: 40 attactor (1 orar).
								5. The IN Soldad Cambbilities (Constant)

SSSS

Client details in WLC:

Cisco Catal	/st 980	0-CL Wireless	Cor	ntroller				Welcome	admin	*	A	8	0 0 0	Search APs and Cl	ients Q	eedback 🦨 🕒			
O. Search Mercy Inems	O Search Many Iners										Client *								
Clients Sleeping Clients Excluded Clients								0 View	General	QO	S Statisti	28	ATF Statistics	Mobility History	Call Statistics				
Dashboard				Cli	ient Propert	ies A	AP Prope	rties	Securi	ty Information	Client Statistics	QOS Properties	EoGRE						
(2) Monitoring							0	Client State :	Servers				None						
Configuration	Selec	ted 0 out of 13 Clients						Client ACLs Client Entry Create Time					None 11 seconds						
~~~	Ο	Client MAC Address	Ŧ	IPv4 Address	IPv6 Address	AP Name		Policy Type					WPA3						
O Administration	0	9418.6548.7095	×	192.168.1.163	fe80::ce19:6f16:279d:515f	AP6849.9253.CA50	1	Encryption C	ipher				CCMP (AES)						
	0	286b.3598.580f	×	192.168.1.159	fe80::ac5b:e1e1:67ba:c353	AP6849.9253.CA50		Authenticatio	in Key Mar	nagement			SAE						
	0	60fb.008b.0e66	×	N/A	N/A	AP01_RC_9136_F80C		EAP Type Session Time	Nov it				Not Applicable 86400						
X Troubleshooting	Ο	34ea.e702.6240	×	192.168.1.70	N/A	AP6849.9253.CA50	Se	ession Mana	oer				00400						
	0	9669.5a28.a115	×	192.168.1.138	fe80::9469:5aff:fe28:a115	AP01_RC_9136_F80C													
	0	84d8.1b0f.294f	×	192.168.1.91	N/A	AP03_Sotao_9548	1	Point of Attai	chment				capwap_9000	0010					
	0	0c8b.9509.3518	×	192.168.1.129	N/A	AP03_Sotao_9548		IF ID					0x90000010						
	0	0012.17e2.4b40	×	192.168.1.31	fe80::212:17ff:fee2:4b40	AP04_OutdoorF_3DC8		Authorized					TRUE						
waik Me Through 7	0	0012.17e2.4856	×	192.168.1.37	fe80::212:17ff:fee2:4856	AP05_OutdoorB_2200		Common Se	ssion ID				00000000000	00FD2B11A5C86					
	0	0012.17e1.dd57	×	192.168.1.33	fe80::212:17ff:fee1:dd57	AP03_Sotao_9548		Auth Method	Status Lis	st			0000000000						
	н	< 1 2 ▶	н	10 💌			1	Method					SAE						

### Pixel 6a

Device was not able to roam when FT is enabled.

### Samsung S23

Device was not able to roam when FT is enabled.

### WPA3-Enterprise + AES(CCMP128) + 802.1x-SHA256 + FT

### WLAN Security configuration:

Cisco Cisco Ca	atalyst 9800-CL Wireless Controller	Welcome admin cense technicit name: 🖌 🕷 🖏 🖓 🕼 🖉 🖉 🗇 🗯 🐨 🗶 🕅 🖉 🖉 🖉
Q. Search Mercultums	Configuration * > Tags & Profiles * > WLANs	Edit WLAN
Dashboard	I ASC Shelve Core Trace WAAN District WAAN	Changing WLAN parameters while it is enabled will result in tons of connectivity for clinetic connected to it.
(2) Monitoring	Selected WLANs: 0	General Security Advanced Add To Policy Tags
	O Status T Name T D	Layer2 Layer3 AAA
Administration	O Macliker     1     0     dottx     2	O WPA + WPA2 O WPA2 + WPA3 WPA3 O Static WEP O None
C Licensing	OWL Transition     S     O     OWL Transition     S	MAC Fittering D
X Troubleshooting		WPA Parameters Fast Transition
(Walk Mr. Through 1)		WPA     Pholog     Status     Enubled       Officy     Pholog     Status     Enubled       Office     WPA3     Over the DS     Over the DS       Transition     Pholog     Reassociation Timeout *     20
		WPA2/WPA3 Encryption         Auth Key Mgmt           A5S(CCMP128)         CCMP256         SAE         FT + SAE         CMPC           GCMP128         GCMP256         SAE         FT + 8AE         CMPC
		Protected Management Frame PMF Adsociation Correbook Tarrer* SA Query Tarrer* 200

WPA3 Enterprise 802.1x-SHA256 + FTWLAN Security Configuration

#### View on WLC GUI of the WLAN Security settings:



Here we can see the ISE Live logs showing the authentications coming from each device:

	Time	Status	Details	Repeat	Identity	Endpoint ID	Endpoint Profile	Authenticat	Authorizati	Authorizati	IP Address		Network Device
×		1	~		Identity	Endpoint ID	Endpoint Profile	Authentication	Authorization	Authorization	IP Address	~	Network Device
	Jun 27, 2023 01:52:38.130 PM	•	a	0	tantunes	04:29:2E:C9:E3:71		WirelessDot	WirelessDot	PermitAccess			
	Jun 27, 2023 01:52:38.130 PM		a		tantunes	04:29:2E C9 E3:71		WirelessDot	WirelessDot	PermitAccess			eWLC-9800-01
	Jun 27, 2023 01:51:53 850 PM	0	a	0	tantunes	24:95:2F:72:8A:66	Unknown	WirelessDot	WirelessDot	PermitAccess			
	Jun 27, 2023 01:51:53.850 PM		.0		tantunes	24:95:2F:72:8A:66	Unknown	WirelessDot	WirelessDot	PermitAccess			eWLC-9800-01
	Jun 27, 2023 01:50:58.679 PM	0	a	0	tantunes	94:18:65:48:70.95	Netgear-Device	WirelessDot	WirelessDot	PermitAccess			
	Jun 27, 2023 01:50:58.679 PM				tantunes	94:18:65:48:70:95	Netgear-Device	WirelessDot	WirelessDot	PermitAccess			eWLC-9800-01
	Jun 27, 2023 01:50:43.883 PM		0		tantunes	94:18:65:48:70:95	Netgear-Device	WirelessDot	WirelessDot	PermitAccess			eWLC-9800-01
	Jun 27, 2023 01:50:42.877 PM	0	0	0	tantunes	28.68:35.98.58.0F	Intel-Device	WirelessDot	WirelessDot	PermitAccess			
	Jun 27, 2023 01:50:42.877 PM		9		tantunes	28.6B:35.98.58.0F	Intel-Device	WirelessDot	WirelessDot	PermitAccess			eWLC-9800-01

ISE Live Logs

### Beacons OTA look like this:

No.	Time	Delta Source	Destination	Protocol	Length Ch	annel Signal str	r Info	) Frame 327) 428 bytes on wire (3424 bits), 428 bytes captured (3424 bits) on interface 'Decice/WF*_[D4578085-2988-4656-8C13-C341166A3408], 1d 8
	124 3.4096821	#.011949 IntalCor 98:58:04	Broadcast	802.33	248	51 -40 dbs	Probe Report, Shobid, Phob. Flatty	) Ethernet II, Src: (Isos_62:07:47 (34:11:82:62:07:47), Det: Universa_07:07:06 (BE:1a:88:87:07:06)
	125 3.805602	#. PRODEC CLACO (MULTICIDE	Broadcast	892.11	3296	55 -12 dbs	Profe Patorne, Ook, Park, Flatte	> Internet Protocol Version 4, Src: 292.168.1.15, Dit: 292.168.1.121
	126. 1.753368	# PERMA Clark dd-701.08	Broadcast	892.11	374	\$1 -11 dis	Probe Records, Skolet, Flack, I. State, J. Silver, Miller Server, School Search (Receiver,	> User Datagram Protocol, Src Port: 5555, Dat Port: 5608
	107-1,727581	# #54342 Claro 44-74-18	Arcadrant	862.11	474	51 - 15 -000	Reserve frame Should Had Flame. / Stable SCH-Softal test" (Instituted Groatest)	> Abroheek/Omi/Peek encapsulated IEE W2.11
_	128 3.734811	8.007308 202 168 1.15	202.546.1.525	882.53	75	5.1 - 40 dite	Class VI-1007 T1201 F	> 882.11 ratio information
	178 3.247806	# #52005 Fiaco dd-2618	Breadcast	882.13	174	\$3 - 13 dist.	Probe Recorders On 2007 High Flams / Blatter Clinicaldia Assar Straditioned (Records)	> 1010 MR2.11 Beaton frame, Flags:C
	175 3 755384	a string heral/or is-th-of	Clarge Adv24-18	882.11		53 -30 dite	Arbertaring Guide (Bud Flams, r	✓ INE 80.11 Mireless Respont
	har a months.	a martin Place Advict 18	Taralitas Bartarial			\$1 -11 dis	Arthurtistication (See Class	) fixed parameters (12 bytes)
	THE R. P. LEWIS	a participation of the state	Cheve ddi 74/38	100.00	774	11 - 11 day	Anisotration and the supervision of the supervision	✓ Tagged parameters (106 hytes)
	Int a house	a contract printing of the second	Care Journey	And 12	100	11 - 11 day	Back Browner, Brown, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 199	> Tag: SSID parameter set: "wdfS6E_test"
	max a minant	a participation of the second	Brook and			12 - 14 - 100	The requires states, they requires the box states and	> Tag: Supported Rates 6(8), 9, 12(8), 18, 28(8), 36, 48, 54, (%), 55, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (%), 56, (
	and a charge	a marrie fines of the st	prosecution and blood	1445-		and the second	a r, tan and an and a star and a star and a star	> fag: traffic indication Rep (fIR): 0104 # of I bitsep
	367 3,776364	#.004255 £1500_00:/0.58	Tuckeren a size	992.23	343	53 - 33 000	Merroclation response, owe, reve, rage-	) Tag: Country Information: Country Code na, Environment Silobal operating classes
	389 3.777512	0.001111 101.108.1.15	192.198.1.111	862.11		53 -33 088	Request-to-temp, Faigue	1 ) Tag: Power Constraint: 6
	392 3.777572	#.000000 CLSCO_dd:TPLD8	Tupedron, herzeben		240	55 - 13 089	Negative participation of the second se	> Tag: TPC Report Transit Power: 56, Link Rengin: 0
	393 3,788848	#.#11276 CLSC0_MET7E138	Broadcast	882.11	374	53 -33 088	Prote Response, Second, Five, Fings	V Tag: RSN Information
	304 3.869467	#.#20819 L15C0_00:70:38	Broadcast	802.11	324	53 -35 (88)	Probe Response, SN-2016, Fire, FlagsC, ED-306, SLDV-SFIE_test", SLDVALDCArd (ProstCat.	Tag Number: ION Information (48)
	305 3.824287	Areadon SuperconTariation	C1400_00170138	100	117	53 -41 084	Response, Identity	Tag Sendthi 10
	307 3.829933	#1005646 Cisco_dd:70138	Broadcast.	882.53	428	53 -33 dBe	Bascon frame, SN-2011, FR-0, FlagsC, 81-100, 5533+"dflat_test", 5513+sLidcard (Broadcast)	NY DESCRIPTION T
	398 3.831248	#.001215 102.168.1.15	192.168.1.121	882.11	10	55 -33 dBe	Request-to-send, Flags+C	<ul> <li>Group Coher Sutte: 00:9Fac (See III), 11) AS (00)</li> </ul>
	409 3,833548	8.000000 CLuco_4d:7d:38	IntelCor_98:58:04	102	138	53 -33 (004	Request, Protected LDP (LDP-PLDP)	Group (Lither Suite 0.0) 00100/ar (Lines 802.13)
	482 3.835955	9.004887 232.168.1.15	192.168.1.121	862.11	28.	53 -45 dBe	Clear-to-send, Flags	Securit Cititar Sette Fore: 475 (CDI) (4)
	403 3.850236	0.054281 Cisco_dd:7d:38	Broadcast	892.11	374	53 -33 dBe	Probe Response, SM-DELL, FN-0, FlagsC, 81-500, SSID="ulfibL_test", SSID=Wildcard (Broadcas.	Balandia (Johan Sulta Jouetri 1)
	405 3.851338	0.003101 IntelCor_98:58:84	Clace_dd:7d:38	TL5v5.2	365	53 -42 dbs	Cibert Hello	W Indiana Coher Solta List modelse (Cons 80, 51) 45 (200)
	407 3.868553	0.007221 102.168.1.15	392.368.1.321	962.11	62	53 -33 dBm	Repet-to-sed, FlagsC	M India Chief and a line and a final factor for the second second
	400 3.862058	0.001409 Cisco_dd:7d:30	1nta0Cor_98:58:0f	EAP.	1116	53 -33 dBe	Request, Protected LAP (LAP-PLAP)	Particular Control Control Control Control Control
	411 3.363808	0.001750 intelCor_90:58:00	Cisco_dd:7d:88	ENP.	330	53 -43 dbt	Response, Protected LAP (LAP-PLAP)	Particular Laplace pairs (Section Control and Control
	413 3.866585	0.002377 192.168.1.15	192.568.1.121	882.11	82	53 -33 dile	Naquest-to-seed, Flags	The second second second spectra and spectra (second second
	415 3.896778	#.000503 Cisco_dd:7d:38	IntelCor_98:58:8f	1L5v1.2	374	53 -33 dBe	Ignored Unknown Record	the both way sumplement (bird) south clouds () and (0)
	417 3.878928	0.004002 Cisco_dd:76:38	Broadcast	882.11	374	53 -33 day	Probe Response, SN-DB13, FN-8, FlagsC, 80-000, SSID="wifile_test", SSID=wildcard (Broadcas.	<ul> <li>And they subspace (and) that moves (how marks) is over that when its (how marks) and (back).</li> </ul>
	418 3,877396	#.005586 IntelCor_98:58:84	Cisco_60170138	TL5v1.2	248	53 -42 dbr	Client Key Exchange, Change Clipher Spec, Encrypted Handshake Ressage	· And by hangement party solar (whereas parts of the second
	428 3.880926	8.005440 232.168.1.15	192.168.1.121	882.11	82	53 -33 dBe	Request-to-send, FlagsC	ACC My Angement (AN) OLI WORTH (Leve W2.11)
	422 3.880836	8.000000 Elsco_dd:7d:38	IntelCor_98:58:9F	TL5v5.2	263	51 -33 dbr	Change Lipher Spec, Encrypted Handshake Hessage	AUCH Key Handgement (AUR) Type: F1 Over 1111 HH2.1X (3)
	424 3,885572	0.004336 DVt#1Cor_98;58:04	C14(0_001761)8	1.00	338	53 -43 -004	Response, Protected EAP (EAP-PEAP)	<ul> <li>Auto key Panageent (and) Suite (w(e) at (see alc.1) and (secse)</li> </ul>
	425 3.887787	0.002615 192.168.1.15	192.168.1.121	882.11	82.	53 -33 dile	Request-to-send, Flags	Auto key Autopenent (Auto) 0021 (MCATING (Deve MG2.11)
	425 3.887989	0.000202 C1sco_dd:7d:38	IntelCor_98:58:04	TL5v5.2	140	53 -33 dBe	Application Data	Auth Key Ranagement (AWR) type: whi (SWUSe) (5)
	438.3.896302	0.002413 1vts1Cor_90:50.04	C\$809,48178198	TLSv5.2	248	53 -43 dBm	Application Data	V KSK Capabilities: exemes
	432 3,890177	0.000075 Cisco dd:7d:38	Broadcast	882.11	376	55 -35 dBe	Probe Response, Sk-3814, Fled, FlagsC. 81-300, SSID-"wif168 text", SSID-adlaterd (Broadcas,	<pre>iii iii iii iii e st&amp; Pre-Auth capabilities: Transitter does not support pre-authentication</pre>
	413 3.891289	0.002112 102.168.1.15	192.568.1.121	862.53	82	53 -33 dite	Request-to-send, Flags	
	415 3.895343	#.000054 CLoco dd:72:58	tenation server	11.5v1.2	367	53 -11 dile	Application Data	30., = RSK PTKSA Replay Counter capabilities: 4 replay counters per PTKSA/STKSA/STARAySA (RC2)
	437 3.500079	#.006756 IntelCor SE:SE:0f	Cinco dd:7d:38	11.5v1.2	282	53 -43 dBe	Application Data	10
	448 3,986685	0.006526 232.168.1.15	282.348.3.123	892.11	28	53 -46 dite	Clear-to-sent flams	
	443 3.954954	#.008MD CLaco dd:24:38	Broadcast	882.11	374	\$1 -11 dbs	Probe Resource, Michills, Flack, Flacks, C. Elshill, Villa-Velfiel text", Villadildrard (Broadcas,	Anagement Frame Protection Capable: True
	441 1.025584	# #106.W 102.168.1.15	192,566.1.125	882.11	80	51 - 13 dile	Repart to sent Flats. 6	the set of the set of the state of the set o
	AAN 3. SOSSEA	# 000000 Fiaro dd-76-38	Intellige Strikenid	T1.5a1.7	186	\$1 -14 dis	Application fara	
	447 3.938923	s. making intelline on same	Clara di 3118	11.5x5.2	343	\$1 -41 dis	Acalication Data	
	449 3.932992	0.002360 Claro dd:70:38	Broadcast	882.11	428	\$3 -11 dile	Beacon frame, 520-3016, Fluid, Flame,	PMKID Counti 0
	458 3.512998	0.000000. 222.168.1.15	192, 568, 1, 121	882.33	82	51 -11 dla	Repart-to-send. Flams	PMCD List
	452 3.933874	8.000826 (Laco dd: 20:38	Deta5Cor 98158194	71.547.7	150	All - M offer	Amplication data	A Grant Measurent Clober Solta: 00:06(ac Class 80:11).812 (118)
	ANA A ADDALL	a depair invalue or the	Class Ad-2d-18	Disel.7	154	51 -42 dist	And Gration Cotta	> Tag: Robility Domain
	and h manner	a success and and a st	AND NOT 8 414	contracta		11 11 10	And a set free a	> Tag: QBS Load Element MR2.11e CDA Version

WPA3 Enterprise 802.1x +FT Beacon

Here we can observe Wi-Fi 6E clients associating:

### Intel AX211

Connection OTA with focus on the RSN information from client on a roaming event:

No.	Time	Delta So	urce	Destination	Protocol	Length	Channel	Signal stre	Info	> Frame S7: 235 bytes on wire (1880 bits), 235 bytes captured (1880 bits) on interface \Device\NPF_(D4578085-2998-4456-BC33-C3431
	1 0.000000	0.000000 C1	sco_dd:a0:18	Broadcast	892.11	428	69	-36 dbt	Beacon frame, SN+220, FN+0, Flags+C, 81+100, SSID+"wifi6E_test"	> Ethernet II, Src: Cisco_d2:97:47 (74:11:52:d2:97:47), Ost: Universa_57:c7:06 (08:3a:08:57:c7:06)
	2 0.102260	0.102260 Cit	sco_dd:a0:18	Broadcast	882.11	428	69	-37 dBm	Beacon frame, SN+221, FN+0, Flags+C, BI+100, SSID+"wdfisE_test"	> Internet Protocol Version 4, Src: 192.168.1.15, Ost: 192.168.1.121
	3 0.204689	8.182429 Cit	sco_dd:a0:18	Broadcast	882.11	428	69	-36 dBt	Beacon frame, SN+222, FN+0, Flags+C, BI+100, SSID+"wifi66_test"	User Datagram Protocol, Src Port: 5555, Dit Port: 5888
	4 0.280665	0.075976 190	2.168.1.15	192.168.1.121	802.11	76	69	-56 dBt	Clear-to-send, Flags+C	> Alrovek/OmiPeek encapsulated IEEE 802.11
	57 0.384987	0.024322 IM	telCor_98:58:8f	Cisco_dd:s0:18	892.11	- 235	69	-57 dBR	Authentication, 99-23, HN+0, Flags+C	> W2.11 radio information
	58 0.305271	0.000284 192	2.168.1.15	192.168.1.121	802.11	75	60	-36 dim	Acknowledgement, Flags+C	> Ittl SEC.11 Arthentication, Flags:C
	59 0.307125	0.001855 Cir	sco_dd:a0:18	Broadcast	882.11	428	69	-36 dBe	Beacon frame, SN+223, FN+0, Flags+C, BI+100, SSID+"wifi6E_test"	V IIII 802.11 sireless Rangement
	58 0.308823	0.001697 Cit	sco_dd:a0:18	IntelCor_98:58:0f	892.11	247	60	-36 d8t	Authentication, SN+12, FN+0, Flags+C	> fixed parameters (6 bytes)
	61 0.308823	0.000000 192	2.168.1.15	192.168.1.121	882.11	76	69	-53 d8m	Acknowledgement, Flags+C	<ul> <li>tagged parameters (11) bytes)</li> </ul>
	62 0.320363	0.001540 Int	telCor_98:58:00f	Cisco_dd:a0:18	802.11	372	69	-60 dBt	Reassociation Request, SN+24, FN+0, Flags+C, SSID="wifife_test"	<ul> <li>Tag: Kos information</li> </ul>
	63 0.310363	0.000000 192	2.168.1.15	192.168.1.121	802.11	76	60	-35 dBt	Acknowledgement, Flags+C	Tag support for information (46)
	66 0.339277	0.028914 Cis	sco_dd:a0:18	IntelCor_98:58:0F	882.11	433	69	-36 dBn	Reassociation Response, SN+0, FN+0, Flags+C	Tag Length: 42
	67 0.339277	0.000000 192	2.168.1.15	192.168.1.121	892.11	76	69	-58 dBt	Acknowledgement, Flags+C	Kon version: 1
	68 0.346279	0.007002 192	2.168.1.15	192.168.1.121	892.11	82	60	-68 dbs	Request-to-send, Flags+C	) group clover succes deterise (lawe moz.11) als (con)
										Auth Key Management (AMO) List GLANT: 1 ) Anth Key Management (AMO) List GLANT: 1 ) FON Capabilities: BAMPE BAMPE Control (AMO) List Start(List (Hee HULL)) PT over LISE HULL) ) FON Capabilities: BAMPE ) Fong Management (Hee HULL) (Hee HULL)) BJP (128) ) Fage Manher: HOLING HOMES (List HULL) BJP (128) ) F1 Capability and Policy: HOME ) Fage Manher: Fige Mach Frankling (S) ) Fage Manher: Fig Mach Frankling (S) ) Fage Manher: Fig Mach Frankling (HULL) Fig. (HULL) BJP (128) ) Fage Manher: Fig Mach Frankling (HULL) BJP (128) ) Fage Macher: Fig Mach Fig Mach Fight (HULL) BJP (128) ) Fage Macher: Fig Mach Fig Macher: Fig Mach Fig Mach Fight (HULL) BJP (128

WPA3 Enterprise 802.1x + FT Roaming event

An interesting behavior happens if you manually delete the client from the WLAN (from WLC GUI for example). The client receives a disassociation frame but tries to reconnect to the same AP and uses a re-

association frame followed by a complete EAP exchange because the client details were deleted from the AP/WLC.

This is basically the same frame exchange as in a new Association process. Here you can see the frame exchange:



WPA3 Enterprise 802.1x + FT Ax211 Connection flow

### Client details in WLC:

Monitoria	ng * > Wireless * >	Clients				Client				×
Clients	Sleening Cliegts	Excluded Clients				360 View General QOS Statis	tics ATF Statistics	Mobility History	Call Statistics	
-	oreging onerte	Enclosed one in				Client Properties AP Properties	Security Information	Client Statistics	QOS Properties	EoGRE
× 4	0					Re-Authentication Timeout	1800 sec (Rema)	ning time: 462 sec)		
C						Client State Servers	None			
Selecte	id 0 out of 1 Clients					Client ACLs	None			
0	Client MAC Address	T IPv4 Address	T IPv6 Address	AP Name T	SSID	Client Entry Create Time	1338 seconds			
0	286b 3598 580f	▶ 192,168,1,159	2001-8a0-ft/91:1c00-c07a-1190-8069-7398	AP9136 5C F524	withEE	Policy Type	WPA3			
0		10 10 10 10 10 10 10 10 10 10 10 10 10 1			Children of	Encryption Cipher	OCMP (AES)			
1.11		10 🔻				Authentication Key Management	FT-802.1x			
						EAP Type	PEAP			
						Session Timeout	1800			

WPA3 Enterprise 802.1x + FT Client details

This client was also tested using FT over the DS and was able to roam using 802.11r:

NO.		Time	Delta	Source	Destination	Protocol	Length	Channel	Signal stre	Info		The select of option of and the
	3025	16,491589	0.102243	Cisco_dd:a0:18	Broadcast	882.11	364	62	-36 dbn	Beacon frame, SN+387, FN+0, Flags+C, 81+100, SSID+"wdf	183	Televise II, Sectors Linguise 4 feet
	3829	16.594273	0.102684	Cisco_dd:a0:18	Broadcast	892.11	364	69	+36 dBH	Beacon frame, SN=388, FN=0, Flags=C, BI=100, SSID="wdf	112	internet Protocol Version 6, SPC:
	3030	16.644794	0.050521	IntelCor_98:58:0f	Broadcast	882.11	268	62	-45 dite	Probe Request, SN+527, FN+0, Flags+C, SSID+Hildcard (B	12	Alexhed (DeciDeck access/ated 10)
	3831	16.644794	0.000000	Cisco_dd:a0:18	Broadcast	882.11	312	69	-38 d8t	Probe Response, SN+460, FN+0, Flags+C, B1+100, SSID+"w	12	Alroveek/UmilPeek encapsulated its
	3879	16.696429	0.051635	Cisco_dd:a0:18	Broadcast	802.11	364	69	-38 din	Beacon frame, Sk+390, FN+0, Flags+C, 81+100, SSID+"wdf	12	Bez.11 PADLO INFORMACION
	5898	16.701455	0.005825	IntelCor_98:58:0f	Cisco_dd:a0:18	882.11	235	69	~46 dbt	Authentication, S0x31, FNx0, Flags+C	12	ILLE MC.11 Meassoclation Request,
	3081	16,701542	0.000087	192.168.1.15	192.168.1.121	892.11	76	69	-39 dBm	Acknowledgement, Flags+C	v	LELE 882.11 Wireless Management
	3882	16.706278	0.004736	Cisco_dd:a0:18	IntelCor_98:58:0f	882.11	247	60	-38 dbt	Authentication, SW-119, FN+0, Flags+C		> Fixed parameters (s0 bytes)
	3083	16.706278	0.000000	192,168.1.15	192.168.1.121	882.11	-76	69	-39 (\$81	Acknowledgement, Flags+C		<ul> <li>Tagged parameters (272 bytes)</li> </ul>
	3064	16.708297	0.002019	IntelCor_98:58:64	Cisco_dd:a0:18	802.11	372	65	-48 dbs	Reassociation Request, SN+32, FH+0, Flags+C, SSID+"wdf		> Tag: SSID parameter set: "
	3085	16.788297	0.000000	192,168.1.15	192.168.1.121	892.11	76	69	-38 dBH	Acknowledgement, Flags+C		) Tag: Supported Rates 6(B),
Ed	3067	16.718126	0.009829	Cisco_dd:a0:18	IntelCor_98:58:0f	882.11	433	60	-39 dbs	Reassociation Response, SN+0, Flags+C		> Tag: Power Capability Min:
	3055	16.718126	0.000000	192.168.1.15	192.168.1.121	892.11	26	69	-41 dite	Acknowledgement, Flags+C		<ul> <li>Tag: RON Information</li> </ul>
	1091	16.727349	0.009223	IntelCor 98:58:04	IPvincast #F:9e:59:af	LLC	223	60	-59 d8m	1 P, N(R)+90, N(S)+582; DSAP SHAP Group, SSAP Ibide Response		Tag Number: #SN Inform
	3892	16.727457	0.000108	192.168.1.15	192.168.1.121	882.11	76	60	-47 dbm	Acknowledgement, FlagsvC		Tag length: 42
	3895	16.748833	0.013376	IntelCor 98:58:0F	Broadcast	LLC	525	69	-59 dBm	U.P., Func-Unknown; USAP Bx36 Individual, SSAP Bx62 Command		RSN Version: 1
	3296	16.748833	0.000000	192.168.1.15	192.168.1.121	882.11	76	60	-48 d8n	Acknowledgement, Flags+C		> Group Cipher Suite: 00
	3000	16,742904	0.002071	Cisco Scif8:0c	IntelCor 98:58:0F	LLC	183	60	-50 dbs	I P. N(R)=113, N(S)=72; OSAP Ungermann-Bass Individual, SSAP 8		Baladoo Liphon Luike
	1100	16.742984	0.000000	192.168.1.15	192.168.1.121	892.11	76	60	-53 dla	Acknowledgement, Flags,C		> Pairwise Cipher Suite
	1101	16.742984	0.000000	Cisco Setf8t8c	IntelCor 98:58:0f	LLC	283	65	-50 das	1. N(R)=16. N(S)=75: DSAP SNAP Individual, SSAP By7c Command		Auth Key Management (A
	1102	16.742984	0.000000	192.168.1.15	292.168.1.121	882.11	76	60	-53 dim	Acknowledgement, FlagueC		> Auth Key Management (A
	3286	16,768589	0.025525	IntelCor 98:58:64	Dytecast ff:9e:59:af	LLC	223	60	-59 dbs	I P. N(R)=16, N(S)=11: DSAP 0x48 Individual, SSAP 0x64 Respons		> Kok Capabilities: door
	3197	16.768633	0.000124	192,168,1.15	192.168.1.121	892.11	26	60	-48 dbs	Acknowledgement, FlagueC		PMKID Count: 1
	3189	16,772475	0.003842	Cisco dd:a0:18	IntelCor 98:58:0f	882.11	118	60	-40 dbs	Action, Siel, Flee, Flacts.cC		PHKID List
	1110	16.772425	0.000000	102, 168, 1, 15	192, 168, 1, 121	892.11	26	60	-52 (88)	Arknadednesent, Flame,		PMKID: 642cf85b48c
	1113	16.773542	0.00067	IntelCor 98-58-34	Broadcast	U.C.	179	40	.10 die	T.P. N/R1+59, N/S1+131 DSAP SHAP Group, SSAP 150 Network Lawer		) Groun Macanegert Clobe
	1114	16.773542	0.000000	192, 168, 1, 15	192, 168, 1, 121	882.11	26	40	-22 (0a)	Arknauledement, Flamef		✓ Tag: Nobility Domain
	1115	16.773436	0.000234	IntelCor Gi-Sk-M	Cisco dil all'18	802.11	118	60	-48 dis	Action, Skill, Hull, Flamure, Cliffalformed Packet1		Tag Number: Hobility D
	1116	16.773436	0.000000	192, 168, 1, 15	192, 168, 1, 121	882.11	26	60	41.000	Arknadedeepert, Flama,		Tag length: 3
	1130	16 775112	0.001676	Altical a Ga-KG-ad	Tetal/ne 09-59-04	110	223		-82 dbs	II. Encollationer: 0532 (kd) Encon. 5532 (kd) Encond		Mobility Domain Identi
	1177	16 7365.65	0.001473	Ciaco de al-18	Tetal/or 08:58:66	882.11	110	1.1	-10.00	Artice Dirl Dat Flam, o		✓ FT Capability and Poli
	1173	16 736645	0.000000	102 168 1 15	502 568 3 525	992 11			-53 dia	Acknowledgement Element F		1 = Fast 8
	1114	16 778300	0.001054	IntalCor GE-KE-M	Clare divertil	882.11	110		- 22 - 224	Action Shild Had Flame a Climiticened Darket: langth		
	2476	16 779200	0.000000	102 108 1 15	193 168 1 171	992.11			- 44 - 194	Arkna-Jedament Dates /		0000.00 - Recom
	1178	16 281449	0.000000	Altical a Gartin ad	TetalCor 08-58-04	110	197	40		U.P. Eurosidenti - DER dela Todividual - SER dela Comand		✓ Tag: Fast BSS Transition
	2122	16 791440	0.000000	Intal/on SR-SR-M	Altical a DarStraf	110	222		-59 dia	11 Euroditional DAR free from SLAb hold formed		Tag Number: Fast BSS T
		14 781440	0.000000	102 168 1 14	100 Mile 1 101	NO. 11			47.000	Ashan Andersont, Care once a copy and once comment		Tag length: 96
	14.14	16 200015	0.000000	Intelfor OR-IR-BI	ATRICAL BOARDING	110			- 59 - 600	T D M/DI-RA M/DI-RA PEAR DOAD AND GROUP CEAR TEA MAR-ONE FINISH		> MIC Control: 0x0300
	34.90	10.720015	0.000300	100 168 1 16	Matscela_pe.sp.ar	800 23			- 20 000	L P, N(K)+04, N(S)+30; LOAP 0000 Group, Sole 150 NETBORK Layer		MIC: 491209737c15a2675
	12.00	16. 203414	0.000000	Intelling Obstituted	ere.ess.ese	110				1 N/A)-AB N/C)-711 N/B M Estanded 117 Journ 1033 Notices		Mionce: d534fb37ab7fa8
	1240	16.203427	0.000399	100 108 1 15	AND AGE 3 AND	5000 FT	24.5		-38 088	Advanded advanced flam.		SNonce: 65c3778b523b83
		16.703774	0.000003	Intelfen Okstrohl	APR. 000.1.144	110				f. foreed 813 M(R)-331 (M)R (arX) Tedford and 1530 (arX) Research		> Subelement: PMK-R1 key
	19.00	16 203040	0.000277	100 160 1 15	NO NO TON	887 11	26		12.000	s, recorded, market, the one market, she one mapped		> Subelement: PMK-R0 key
	3145	10.793849	0.000075	192,158,1,15	192.108.1.121	862.11			145 000	Acknowledgement, Flags+		> Tag: Supported Operating C
	2250	16 304630	0.000714	101 162 1 15	100 100 1 100	997 11	101	00	10.000	Arken-Jadament Slama P		> Tag: RM Enabled Capabiliti
	28.20	10,124025	0.000053	196,100,1115	172.100.1.121	002.11	76	07		C. C. Annual March 1990 A. State Street State Budy Second		> Tag: Extended Capabilities
	3134	10.794925	0.000300	Intercor_98:58:04	Drvencast_/F:FF:Fa	LLL PRODUCT	203	69	-38 688	5 F, FUNCHORES, RURSHOP, COMP BOOR GROUP, SSAP BARE Response		> Tag: Vendor Specific: Micr
	2122	10.724998	0.000054	194.108.1.15	192.100.1.121	002.11	78	69		ACKNAMENDERHET, FLEDERLINGE SALE AND THE SAL		> Tag: Vendor Specific: Inte
	8448	10.779624	0.000624	intercor_98:58:09	Levencast_44:0a:c3:51	LLL.	215	60	-38 clim	U P, HURCHTROBER, USAP MALL USAP Individual, SSAP Banyan Vine		> Ext Tag: HE Capabilities
	3459	10.795699	0.000005	194.168.1.15	192.168.1.121	882.11	76	69	-45 038	Acknowledgement, FlagssC		> Ext Tag: HE 6 GHz Band Cap
	1268	10.795785	8.00085	IntelCor_98:58:64	DPV94Cast_ff(7910513b	rrc	215	69	-38 dBe	5, FUTCHER, N(R)+28; USAP BKIB Group, SSAP BKF2 Response		
	1262	16.795852	0,000067	192.168.1.15	192.168.1.121	882.11	76	69	-45 dbt	Acknowledgement, FlagsC		

> frame NMML IF2 bytes multic (20% bits), 12 bytes captured (20% bits) on Interface Owner(NML (20% DML)) (10mmer II, 20mmer Class, gdf) (20mmer Class), 20mmer Class, 20mmer Class,

AX211 roaming with FT over DS

### We can also see the FT roaming events:

Monitorin	g*> Wireless*> Clie	nts												CI	ient										
Clients	Sleeping Clients E	xclude	d Clier	nts										36	50 View General		QOS Statist	ics	ATF Statistics		Mobility H	History	, c	all Statistics	
× D	oloto C														Recent associat	tion	history:								
Selected	10 out of 1 Clients														AP Name	8	ssid 🍸	AP Slot	Assoc Time	Ŧ	Instance	Mob Role	ility <b>T</b>	Run T Latency (ms)	Roam <b>T</b> Type
0	Client MAC Address	Ŧ	IPv4	Address	т	IPv6 Address	AP Name	Ŧ	SSID	Ŧ	WLAN ID	Ŧ	Client Type		AP01_RC_9136_F800	c 00	df.1ddd.a018	з	08/04/2023 14:24:27		0	Loca	4	15	802.11R
0	286b.3598.580/	1	192.1	68.1.159		N/A	AP01_RC_9136_F80C		wifi6E_test		5		WLAN		AP9136_5C.F524	00	df.1ddd.7d38	3	08/04/2023 14:22:59		0	Loca	4	6	802.11R
		٦																	0000400000						

WPA3 Enterprise with FT

### And client ra trace from wlc:

Logging display requested on 2023/08/04 14:27:55	5 (GMT) for Hostname: [eWLC-9800-01], Hodel: [C9800-CL-K9], Version: [17.09.03], SN: [9RY358518059], HD_SN: [9RY358518059]
2023/08/04 14:22:59.315308237 (wned_x_R0=0)(1):	[client-orch-sm] [15210]: (note): MAC: 20%b.3590.500f Re-Association received. BSSID 00df.1ddd.7d30, WLAN wifi%T_test, Slot 3 AP 00df.1ddd.7d30, AP9136_5C.F524, old BSSID 00df.1ddd.a010
2023/08/04 14:22:59.315864120 [wncd x R0=0][1]:	[dot11] [15210]: (note): MAC: 2045.3590.500f Association success. AID 33, Roaming = True, WGB = False, 11r = True, 11w = True Fast roam = True
2023/08/04 14:22:59.316488412 (wned_x_R0=0)(1):	(client-orch-sm) [15210]: (note): MAC: 20(b.3590.500f Delete mobile payload sent for BSSID: 00df.1ddd.a010 WTP mac: 00df.1ddd.a010 slot id: 3
2023/08/04 14:22:59.316652383 (wned_x_R0-0)(1):	[client-orch-state] [15210]: (note): MAC: 2060.3550.500f Client state transition: S_CO_RUN -> S_CO_L2_AUTH_IN_PROGRESS
2023/08/04 14:22:59.317328574 (wned_x_R0-0)(1):	[client-auth] [15210]: (note): MAC: 2060.3590.600f ADD HOBILE sent. Client state flags: 0x71 BSSID: MAC: 00df.1ddd.7d30 capwap IFID: 0x9000000d, Add mobiles sent: 1
2023/00/04 14:22:59.321041967 (wned x R0=0){1}:	[client-orch-sm] [15210]: (note): MAC: 20(b.3590.500f Mobility discovery triggered. Client mode: Local
2023/00/04 14:22:59.321044391 {wncd_x_R0=0}{1}:	(client=orch=state) (15210): (note): MAC: 2046.3550.500f Client state transition: S_CO_L2_AUTH_IM_PROGRESS => S_CO_MOBILITY_DISCOVERY_IM_PROGRESS
2023/08/04 14:22:59.321064980 (wned_x_R0=0){1}:	(mm-client) (15210): (note): MAC: 206b.3550.500f Mobility Successful. Roam Type None, Sub Roam Type NM_SUB_ROAM_TYPE_INTRA_INSTANCE, Previous BSSID MAC: 00df.1ddd.a010 Client IFID: 0xa0000003, Client Role:
Local PoA: 0x9000000d PoP: 0x0	
2023/08/04 14:22:59.321213982 (wned_x_R0+0)(1):	[client-auth] [15210]: (note): MAC: 2060.3590.500f ADD HOBILE sent. Client state flags: 0x76 BSSID: MAC: 00df.1ddd.7d30 capwap IFID: 0x9000000d, Add mobiles sent: 1
2023/00/04 14:22:59.321256052 (wned_x_R0=0){1}:	[client-orch-state] [15210]: (note): MAC: 206b.3590.500f Client state transition: S_CO_MOBILITY_DISCOVERY_IN_PROGRESS => S_CO_DPATH_PLUMB_IN_PROGRESS
2023/00/04 14:22:59.321463455 (wned_x_R0=0){1}:	(client-orch-state) (15210): (note): MAC: 2046.3550.500f Client state transition: S_CO_DPATH_PLOME_IN_PROGRESS => S_CO_IP_LEARN_IN_PROGRESS
2023/08/04 14:22:59.321666600 (wned_x_R0-0)(1):	(client-orch-state) (15210): (note): MAC: 20(b.3550.500f Client state transition: S_CO_IP_LEARM_IN_PROGRESS -> S_CO_RUM
2023/08/04 14:24:27.918855521 (wned_x_R0-0)(1):	(client-orch-sm) (15210): (note): MAC: 206b.3590.500f Re-Association received. BSSID 00df.1ddd.a010, WLAN wifi68_test, Slot 3 AP 00df.1ddd.a010, AP01_RC_9136_F80C, old BSSID 00df.1ddd.7d30
2023/08/04 14:24:27.919897444 (wned_x_R0-0)(1):	[dot11] [15210]: (note): MAC: 206b.3590.500f Association success. AID 33, Roaming = True, WGB = False, 11r = True, 11v = True Fast roam = True
2023/08/04 14:24:27.921992523 (wnod_x_R0=0){1}:	[client-orch-sm] [15210]: (note): MAC: 20%b.3590.500f Delete mobile payload sent for BSSID: 00df.1ddd.7d30 WTP mac: 00df.1ddd.7d30 slot id: 3
2023/08/04 14:24:27.522776547 {wncd_x_R0=0}{1}:	(client-orch-state) (15210): (note): MAC: 2040-3550.500f Client state transition: S_CO_NUM →> S_CO_L2_AUTH_IN_FROMRES
2023/08/04 14:24:27.525409164 (wned_x_R0=0)(1):	(client-auth) (15210): (note): MAC: 2060-3590.600f ADD MOBILE sent. Client state flags: 0x71 BSSID: MAC: 00df.1ddd.a010 capwap IFID: 0x9000000e, Add mobiles sent: 1
2023/08/04 14:24:27.931505871 (wned_x_R0-0)(1):	(client-orch-sm) [15218]: (note): MAC: 286b.3598.580f Hobility discovery triggered. Client mode: Local
2023/08/04 14:24:27.931511962 (wned_x_R0-0)(1):	[client-orch-state] [15210]; (note); MAC; 206b.3590.500f Client state transition; S_CO_L2_AUTH_IN_PROGRESS -> S_CO_MOBILITY_DISCOVERY_IN_PROGRESS
2023/08/04 14:24:27.931569952 (wnod_x_R0=0){1}:	[mm-client] [15210]: (note): MAC: 20%b.3590.500f Mobility Successful. Roam Type None, Sub Roam Type MM_SUB_ROAM_TYPE_INTRA_INSTAINCE, Previous BSSID MAC: 00df.1ddd.7d30 Client IFID: 0xa0000003, Client Role:
Local PoA: 0x9000000e PoP: 0x0	
2023/08/04 14:24:27.531861935 (wned_x_R0-0)(1):	(client-auth) [15210]: (note): MAC: 2060-3590.600f ADD MOBILE sent. Client state flags: 0x76 BSSID: MAC: 00df.1ddd.a010 capwap IFID: 0x9000000e, Add mobiles sent: 1
2023/08/04 14:24:27.931913122 (wned_x_R0-0)(1):	(client-orch-state) (15218): (note): MAC: 206D.3550.580f Client state transition: S_CO_MOBILITY_DISCOVERY_IN_PROGRESS -> S_CO_DPATH_PLUMB_IN_PROGRESS
2023/08/04 14:24:27.933100190 (wned_x_R0+0)(1):	[client-orch-state] [15210]; (note); MAC: 206D.3550.500f Client state transition: S_CO_DPATH_PLUME_IM_PROGRESS -> S_CO_IP_LEARM_IN_PROGRESS
2023/08/04 14-24-22 633601101 (unred in 20-01/11).	Internet Internet Internet, Mr. 180, 180, 180, 181, 1814 Alient state secondation, 8 da 18 18180 to sandhard - 8 da 180

### NetGear A8000

WPA3-Enterprise is not supported on this client.

#### Pixel 6a

Connection OTA with focus on the RSN information from client:

No.	Time	Delta Source	Destination	Protocol	Length	Channel Signal stre	! Info	) Frame S21 and synes on sure (area cuts), an eyes cuts) on anternace waverage (area cuts) on a sure (area cuts) of a sure (area
	878 1.460897	0.102322 Cisco_dd:a0:18	Broadcast	802.11	428	69 -37 dBn	Beacon frame, 5%-3682, FN=0, Flags=C, 81=100, SSID="will	) Enternet II, SYT LISCORTSYNK (W. LICETORIUWY//) DET ORDWEINS DITCTION (ORISENDICTION) Internet Destandi Sectoria (Sectoria (Sectori
	889 1.562867	0.101970 Google_72:8a:66	Broadcast	802.11	204	69 -29 d8n	Probe Request, SNv1030, FN+0, Flags+C, 551D+"wdf160_te	) INTELETION (1993) 4, 311 12:10:11; (1) 12:10:11:12
	898 1.563362	0.000405 Cisco_dd:a0:18	Broadcast	882.11	428	69 -37 d8e	Beacon frame, SN+3683, FN+8, Flags+C, 81+100, SSID+"wi	> User Gatagram Protocol, Src Port: SSSS, Oit Port: Sake
	892 1.564878	0.000716 Cisco_dd:a0:18	Broadcast	882.11	374	69 -37 dlm	Probe Response, SN+108, FN+0, Flags+C, B1+100, SSID+"he	> Alroweek.Omitweek encapsulated litte Sec.11
	928 1.675576	0.111498 Cisco_dd:a0:18	Broadcast	882.11	428	60 -37 dBH	Beacon frame, SN+3685, FN+8, Flags+C, 81+188, SSID+*wd	/ micro provide the second sec
	921 1.675899	0.000233 Google_72:8a:66	Cisco_dd:a0:18	882.11	208	60 -34 dile	Authentication, SNv1031, FNv0, FlagsxC	) Ittl: 802.11 ASSOCIATION Request, Flags:
	922 1.675809	0.000000 192.168.1.15	192.168.1.121	882.11	76	69 -37 dBm	Acknowledgement, Flags+C	<ul> <li>Ittl NZ.11 KEPLESS Paragement</li> </ul>
	023 1.679651	0.003842 Cisco_dd:a0:18	Google_72:8a:66	892.11	208	69 -37 dim	Authentication, SN+14, FN+0, Flags+C	> rised parameters (+ bytes)
	924 1.679651	0.000000 192.168.1.15	192.168.1.121	882.11	76	69 -34 dBH	Acknowledgement, Flags+C	<ul> <li>Tagged parameters (167 bytes)</li> </ul>
1	925 1.681281	0.001630 Google_72:8a:66	Cisco_dd:a0:18	882.11	261	60 -34 dile	Association Request, SN=1802, FM=0, Flags=C, SSID="wif	> Tag: 55D0 parameter set: "wirist_test"
15	926 1.681281	0.000000 192.168.1.15	192.168.1.121	882.11	76	60 - 17 dBm	Acknowledgement, #lags=C	> Tag: Supported Rates 6(0), 9, 22(0), 18, 24(0), 39, 48, 54, [PDIT/sec]
	938 1.705251	0.023970 Cisco_dd:a0:18	Google_72:8a:66	882.11	313	60 -37 dBm	Association Response, SN+0, FN+0, Flags+C	) Tag: Power Capability Min: -7, Max: 19
	931 1.705251	0.000000 192.168.1.15	192.168.1.121	882.11	75	60 -31 dBH	Acknowledgement, Flags+C	> Tag: Supported Channels
	932 1.710280	0.005629 Clsco_dd:a0:18	Google_72:8a:66	EAP	209	69 -37 dBm	Request, Identity	V Tag: ROV Ensormation
18	933 1.710298	0.000000 192.168.1.15	192.168.1.121	802.11	76	60 -31 dim	Acknowledgement, FlagssC	Tag Number: KSN Information (48)
1	939 1.747377	0.037097 Google 72:8a:66	Cisco dd:a0:18	EAP	337	69 -33 dBm	Response, Identity	1 Tag Length: 26
1	948 1.747377	0.000000 192.168.1.15	192.168.1.121	882.11	76	69 -37 d8m	Acknowledgement, FlagsvC	RSW Version: 1
122	942 1.758424	0.011047 Cisco dd:a0:18	Google 72:8a:66	EAP	110	69 -37 dBe	Request, Protected EAP (EAP-PEAP)	> Group Cipher Suite: 00:0f:ac (leee 802.11) ALS (CON)
18	943 1.758424	0.000000 192.168.1.15	192.168.1.121	882.11	26	69 -32 dile	Acknowledgement, FlagsvC	Pairwise Cipher Suite Count: 1
18	945 1,768896	0.009672 Cisco dd:a0:18	Broadcast	882.11	428	60 - 37 dBe	Beacon frame, SN-3605, FN+0, Flags+C, 81+100, 5510-541	> Paindise Cipher Suite List 00:0f1ac (Ieee IM2.11) AES (COM)
(B)	946 1.768484	0.000188 Goorle 72:8a:66	Broadcast	LLE	114	40 -17 dim	1. N(R)+36. N(S)+7: DSAP Build Individual. SSAP Network Respons	Auth Key Management (ARM) Suite Count: 1
8	949 1.779457	8.818973 Google 7218a166	Claro ddrailr38	71.5v1.7	241	40	Client Hello	Auth Key Management (ARM) List 00:0f:ac (Leee BR2.11) FT over IIII BR2.1X
18	050 1.779457	0.000000 102.168.1.15	192.168.1.121	892.11	26	69 -17 dim	Acknowledgement, Flags,C	✓ Auth Key Management (AOM) Suite: 00:0fiat (leee 802.11) FT over IEEE 802.1X
30	956 1.794520	0.015063 Cisco dd:a0:18	Google 72:8a:66	EAP	1116	60 -37 dila	Rement, Protected EAP (EAP-DEAP)	Auth Key Management (AMP) OUI: 00:0f:ac (Leee 802.11)
	957 1.794528	0.000000 202.168.1.15	192,168,1,121	892.11	26	50 -50 dbs	Acknowledgement, FlagsC	Auth Key Management (ARM) type: FT over IEEE 882.1X (3)
182	958 1.702858	8 083538 Google 72-8a-66	Cisco dd:a0:38	FAD	110	80 . W - Her	Response, Destanted FAR (FAD-DFAD)	✓ RSW Capabilities: 0x00000
1	959 1, 292058	0.000000 102.168.1.15	192.168.1.121	802.11	26	40 -17 dla	Arizon-Jacoment, Flame, C	
	960 1 801714	8 88656 Fixes At at 18	feorla 72-8a-56	115/1.2	367	50 + 17 dire	Terrorad Universe Record	
	961 1.891714	8 000000 102.168.1.15	102.168.1.121	892.11	76	40 - 10 dia	Aritya-Jedneset, Flams,	00 # ESN PTKSA Replay Counter capabilities: 1 replay counter per PTKSA/GTKSA/STAKeySA (0x0)
1	961 1.820671	8.018050 Google 72:8a:66	Cisco de al-18	115/1.2	235	40 - 10 die	Client Key Exchange, Change Cinher Spec, Encrysted Hardshake B	
1.	068 1 830673	0.000000 201 162 1 15	102 169 1 121	807.11		40 - 17 dis	Arizon defensent Elastra d	
1	G65 1 8349999	a abdit? Class ddiabits	foorta 77-Ea-66	D Set 2	363	40 - 17 die	Channe Cinhar Sour Encounted Handshuba Bassana	
35	066 1 834999	0.000000 102 168 1 15	102.168.1.121	882.11	26	40 - 10 dia	Arizonal damage f	
10	068 1 820280	a aptric foorle 72-Es-66	Cinco dd-all-18	FAD	110	40 - 10 dile	Bannona Doutarted (SD (ESD.2018D)	
	969 1.829209	0.000000 102 168 1 15	102.168.1.121	802.11	76	60 -17 484	Acing defense flam.	
	075 3 823378	0.000000 172,105,1115	foodle Thilinite	515-d 3	144	40 - 17 000	Application Date	PMKID Count: 0
1	073 3 922139	0.000000 101 162 1 15	102 168 1 121	2011.11		40 - 10 day	Action Andrewsont Flooren C	PMID List
18	071 1 07110	0.000000 192,100.1119 0.004150 Good's 71:8:145	Fines dd-sk-18	0.6.4.2	353	40 - 30 - 604	Application Data	) Group Management Cipher Sulte: 00:0f:ac (Jeee 802.11) BIP (128)
12	073 1.027506	0.000070 101 100 1 15	101 149 1 111	897.77	10	40 - 17 day	Action defensest. Flame C	> Tag: HM Enabled Capabilities (5 octets)
1	076 1 040306	8 001200 fires dispits	foorly 71-81-66	0.64.2	9.75	40 - 17 day	Application Data	> Tag: Mobility Domain
8	077 1 807785	0.000000 101 168 1 18	102.168.3.122	16.0Ya.r.s	24	40 - 31 day	Action Andreasest Flames C	> Tag: Supported Operating Classes
12	077 A.000703	0.000000 271.200.1.17	Class ddysby10	Difference in			hard and an index	> Tag: Extended Capabilities (10 octets)
1	978 2.845522	6.004817 GOOD18_72188100	100 100 0 100 100	ILSVA.Z	200	44 17 494	Adjustation on a	> Ext Tag: HE Capabilities
	979 1.003322	0.000000 172.100.1.15	192.100.1.121	002.11	70	60 - 37 com	Accossing ment, Finger	> Ext Tag: HE 6 GHz Band Capabilities
÷.	204 1.004704	0.000000 000 000 001 00	1000218_72184100	TLOVALC NO.	450	60 -37 000	Adaption on a	✓ Tag: Vendor Specific: Broadcom
	993 1.994/34 004 1 000001	a anital densis Theorem	Eleca Advaktik	10.000.00	145	50 - 39 com	Application form	Tag Number: Vendor Specific (221)
1	200 1.00000/	electros deligre_raisaldo	CISCO_00140128	ILSYALE	440	07 -we core	Hepsilon Conta	Tag Length; 10
1	987 1.806887	0.000000 192.108.1.15	192.168.1.121	802.11	/5	69 -37 cmm	Accrossingement, Finger	GUE: 60:10:18 (Broadcom)
	355 1.870055	0.003771 C15CD_00:40:18	Broadcast	802.11	428	60 - 17 000	beacon trame, Swisody, mee, Flagst	Vendor Specific OUE Type: 2
	989 1.870058	0.000000 C15C0_00:30:18	ucogie_/2:8acee	ILSVI.Z	243	69 -37 cmm	Application beta	Vendor Specific Data: 02000010000000
	998 1.878658	0.000000 192.168.1.15	192.168.1.121	882.11	75	69 - 39 688	Acknowledgement, Flags+C	5 Tag: Vendor Specific: Microsoft Corp.: WHVWHE: Information Element
	992 1.877128	0.000470 GOOg1e_72:88:66	C15C0_03:00:18	LAP	130	60 - 38 dan	Response, Protected LAP (LAP-PLAP)	
	993 1.877128	0.000000 192.168.1.15	192.168.1.121	882.11	75	69 - 37 dBe	Acknowledgement, #lags*C	
12	996 1.920065	0.0429/37 C15C0_00180118	Google_/218a086	CAP.	208	69 - 57 dan	Success	
	997 1.928865	0.000000 192.168.1.15	192.168.1.121	862.11	75	67 -39 dBH	Acknowledgement, Flags+C	
	998 1.920065	0.000000 C15C0_00180118	G00g14_72188166	LAPOL	223	60 -37 dae	xey (Message 1 OF 4)	
	999 1.928865	0.000000 192.168.1.15	192.108.1.121	862.11	76	07 - 79 dBe	Acknowledgebent, FlagssC	
	1000 1.925255	e.e65250 Goog1e_7218a166	C72C0_00196128	LAPOL	346	60 -48 dis	key (message 2 of 4)	
	1001 1.925255	0.000000 192.168.1.15	192.168.1.121	802.11	76	69 - 37 dBH	Acknowledgement, FlagsC	
	1004 1.926677	e.ee1422 Clsco_dd:a0:18	G00g1e_7218a166	LAPOL	423	69 -37 dBe	key (Message 3 of 4)	
	1005 1.926677	0.000000 192.168.1.15	192.168.1.121	802.11	76	60 -39 dBm	Acknowledgement, Flags+C	
	1006 1.928885	0.002209 Google_7218a166	ETPC0_00196128	EAPOL	199	69 - 39 dBe	key (Message 4 of 4)	
	1007 1.928885	0.000000 192.168.1.15	192.168.1.121	882.11	76	69 - 37 dBn	Acknowledgement, Flags+C	

WPA3 Enterprise 802.1x + FT Pixel6a Association

### Client details in WLC:

Cisco Cisco Ca	talyst 9800-CL Wireless Controller	Welcome admin Lange (7/17/2023 15/8/4 ) 🖌 🕷 🛕 🖹 🏟 🔞 🕢 📿 Search APs and Claims 📿
O Securit Minesterne	Monitoring * > Wireless * > Clients	Client
	Clients Sleeping Clients Excluded Clients	360 View General QOS Statistics ATF Statistics Mobility History Call Statistics
Dashboard		Client Properties AP Properties Security Information Client Statistics QOS Properties EoGRE
( Monitoring	Colors	Re-Authentication Timeout 1800 sec (Remaining time: 267 sec)
N) antennes	Selected 0 out of 2 Clients	Client State Servers None
Configuration ;	Contract MAC Address T IDud Address T IDud Address AD Name	Client ACLs None Client Entry Create Time 1538 seconds
Administration	0 0429.2ec9.e371 / 192.168.1.160 /e60:6a20;34e8.ab1b.6332 AP01_RC_9136_F80C	Policy Type WPA3
C Licensing	O 2495.2172.8a66 ≠ 192.168.1.162 №80.:b13:1107.7c51:a7e0 AP01_RC_9136_F80C	Encryption Clipher CCMP (AES)
	H 4 1 H H 10 +	EAP Type PEAP
X Troubleshooting		Session Timeout 1800

WPA3 Enterprise 802.1x + FT Pixel6a Client details

Focus on the roam type Over the Air where we can see the roam type 802.11R:

start Alexa tarra	Monitor	ring * > Wireless * >	Clients				Cli	ent							
	Clients	Sleeping Clients	Exclu	ded Clients			36	0 View General	QOS Statist	ics .	ATF Statistics	Mobility H	listory	Call Statistics	
		Crime C						Recent associat	on history:	AP Y			Mobility <b>T</b>	Run	Roam Y
onfiguration s	Selec	ted 0 out of 2 Clients						AP Name	BSSID 📍	Slot	Assoc Time	T Instance	Role	Latency (m	Туре
	0	Client MAC Address	T IPv4	Address	Y IPv6 Address	AP Name T		AP01_RC_9136_F800	00dl.1ddd.a018	3	07/12/2023 11:46:16	o	Local	7	802.11R
dministration >	0	0429.2ec9.e371	▶ 192.	168.1,160	fe80::6a20:34e8:ab1b;6332	AP01_RC_9136_F80C		AP9136_5C.F524	00dt.1ddd.7d38	3	07/12/2023	0	Local	3161	N/A
	-	5466 5175 BLER	E 107	168 1 162	M80-513-007-7-5Ea7e0	ARO1 RC 9135 E800	A								

### Samsung S23

Connection OTA with focus on the RSN information from client:

No.	Time	Delta	Source	Destination	Protocol	Length Ci	hannel Signal stre	Info	> Frame 5136: 357 bytes on wire (2856 bits), 357 bytes captured (2856 bits) on Interface \Device\WP4_[D4578085-2998-4456-8C33-C343]
	5874 9,739729	0.10238	9 Cisco dd:a0:18	Broadcast	892.11	428	69 -35 dBm	Beacon frame, SN+3288, FN+8, FlamisC, BI+188, 5510+"sd	> Ethernet II, Src: Cisco_d2:97:47 (74:11:b2:d2:97:47), Dst: Universa_b7:cf:06 (00:3a:88:b7:cf:06)
	5120 9.830173	0.09044	4 Samural citel:71	Cisco dd:a0:18	892.11	211	69 -39 dile	Probe Request, SN+2476, FN+0, FlagssC. SSID="wdf16E te	> Internet Protocol Version 4, Src: 192.168.1.15, Dot: 192.168.1.121
	5121 9,838173	0.00000	0 192.168.1.15	192,168,1,121	882.11	76	69 -35 dan	Acknowledgement, FlagsvC	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	\$122 9.830955	0.00078	2 Claro dd:a8:18	Samural (9:e3:71	892.11	174	60 -16 dla	Probe Response, Sho207, Field, Flagss,	> AiroPeek/OmiPeek encapsulated IEEE 882.11
	\$122 G #30055	0.00000	0 102 168 1 16	102 16K 1 121	802.11	. 74	60 - 30 dite	Arbon Judenmant Elization (	> 802.11 radio information
	\$118 9 \$28952	0.00700	7 Samoni cical:71	Flace 61:49:19	997.11	- 14	60 -10 dim	Arthurtication Ski2077 Dash Classe C	> IEEE 882.11 Association Request, Flags:C
	5130 G R10003	0.00000	0.101.148.7.15	101 148 1 111	BUD 11		10 11 10	Advantation of the second seco	✓ IEEE 802.11 kireless Management
	7447 7-830074	0.00000	C and and a start	172-100-1-14A	000.44		00 - 10 000	Restriction of the state of the	) Fixed parameters (4 bytes)
	5152 9.842012	0.00399	e cisco_oocaecia	droadcast.	802.11	425	69 - 55 088	beacon trame, Seesada, File, Falgiettini, Barade, SSade et	<ul> <li>Taggid parameters (263 bytes)</li> </ul>
	5133 9.842237	0.00022	5 L15C0_00:30:18	Sansunge_corestra	802.11		69 -35 008	Autoentication, Swess, Pawer, Plagsw	> Tag: SSID parameter set: "wifing test"
-	5154 9.842257	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -48 dBm	Acknowledgement, Flags+C	) Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [Pbit/sec]
1	5136 9.845638	8,00350	1 Samurgs_Crite1171	C15C0_00189118	802.11	357	69 -01 CBB	Association Request, Sevense, Piegos, Figges	) Tar: Power Capability Nin: 8. Max: 16
	5137 9,845838	0,00000	0 192.168.1.15	192.168.1.121	892.11	76	69 -36 dBm	Acknowledgement, Flags+C	1 fair Supported Channels
	5143 9.870722	0.02488	A Cisco_dd:a0:18	SansungE_c9:e3:71	882.11	313	69 -36 dBm	Association Response, SNv0, Flags+C	V Jar: EN Information
	5144 9.878722	0.00000	6 192.168.1.15	192.168.1.121	892.11	76	69 -41 dBm	Acknowledgement, Flags+C	The Number: BOX Information (28)
	5145 9.878538	0.00781	6 Cisco_dd:a0:18	Samsungt_c9:e3:75	EAP	109	69 -36 dim	Request, Identity	Tag results to
10	5146 9.878538	8,00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -41 dBm	Acknowledgement, Flags+C	the second
10	5158 9.897813	0.01847	5 SansungE_clice3:71	Cisco_dd:a0:18	EAP .	317	69 -42 dBm	Response, Identity	NOR VERSION: 2
10	5151 9,807013	0.00000	0 192.168.1.15	192.168.1.121	892.11	76	69 -36 dBm	Acknowledgement, Flags+C	> Group Capter State: With a (Leee Mc2.11) ALS (COR)
10	5157 9.983463	0.00545	e Cisco_dd:a0:38	SansungE_c9:e3:71	EAP	110	69 -36 d8m	Request, Protected EAP (EAP-PEAP)	Pairwise Cipper Suite Court: 1
81	5158 9.983774	0.00031	1 192.168.1.15	192.168.1.121	882.11	76	69 -43 d8m	Acknowledgement, Flags=C	> Pairwise Cipher Suite List WileFisc (Leee 802.11) ALS (COR)
12	5166 9.926800	0.02302	6 SamsungE_chie3:71	Cisco_dd:a0:18	TLSv1.2	273	69 -43 dBm	Encrypted Handshake Message	Auth Key Hanagement (AAM) Suite Count: 1
10	5367 9.926800	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -35 dBm	Acknowledgement, FlagtsC	Auth Key Management (AKM) List (00:04:ac (leee 802.11) #1 over IEEE 802.1X
80	\$173 9.939449	0.00364	e cisco ditali 18	Sansungi c91e3171	100	1116	60 -36 dist.	Request, Protected EAP (EAP-PEAP)	<ul> <li>Auth Key Ranagement (A09) Suite: 60:0f:ac (Leee 802.11) FT over IEEE 802.1X</li> </ul>
10	\$174 9.930440	0.00000	0 192,168,1,15	192.368.1.121	802.11	76	69 -63 dBm	Acknowledgement, Flags,C	Auth Key Management (ADM) OUE: 00:04:ac (Leee 882.11)
1	5175 9.934701	0.00525	5 Samuel ritel:71	Cisco ditali18	140	110	60 .42 dim	Response Instanted F2D (F2D-DF2D)	Auth Key Management (AKM) type: FT over IEEE \$82.1X (3)
8.	\$176 9 934701	0.00000	0 197.168.1.15	197.368.1.121	1002 11	26	60 -16 dbs	Arizonal administration of the state of the	<ul> <li>RSN Capabilities: 0x00c0</li> </ul>
100	5191 0 029770		0 Class ddiabith	Species (dial)??	Titled 3	202	410 - 316 - 45m	Facesstal stadshake Mercane. Encounted Linetshake Mercane. Face	0 = RiN Pre-Auth capabilities: Transmitter does not support pre-authentication
10	5182 9 938770	0.00000	0 102 168 1 15	102 148 1 121	807 11	26	60 -50 dim	Alexandre Filmer	
	SADA PURSEIPE		a fires directs	Are-son-a-sea			410 - 10 dite	Restor from the Vill Had Dans. P. St. MR. 1975.5.4	00 = RSN PTKSA Replay Counter capabilities: 1 replay counter per PTKSA/GTKSA/STAKeySA (0x0)
1	2791 21264926	0.00000	a C1100_00:30:18	Broadcast	862.11	9,29	09 -30 CBH	beacon trane, sersion, ree, riagor	
10	5100 9.944704	0.00027	a passode"ratestive	CESCO_00180150	TLOVE-A		07 - 43 000	bicrypter recorder resider, charge carrier spec, bicrypter ren	
1	5189 9.944/06	0.00000	0 192.168.1.15	192.158.1.121	802.11	70	60 -36 008	Accossing and the second secon	I = Management Frame Protection Capable: True
	5250 9,944850	0.00054	e passodr"cateatta	proaocast	114	124	69 -36 CBR	1, N(K)+7, N(S)+87; USAP EXT2 Individual, SSAP Banyan vines Co	
12	5193 9.948782	0.00393	2 Cisco_dd:a0:18	Sansungt_c9:e3:71	TL5v1.2	161	69 -36 d8m	Change Clpher Spec, Encrypted Handshake Message	
	5294 9,948864	0.00008	2 192.168.1.15	192.168.1.121	862.11	76	69 -44 (388	Acknowledgement, Flags+C	
80	5195 9.952821	0.00315	7 Samungt_clice3:71	Cisco_dd:a0:18	LAP	118	69 -64 dam	Response, Protected EAP (EAP-PEAP)	DWCTD County B
85	5196 9.952255	0,00023	4 192.168.1.15	292.168.1.121	882.11	76	69 -36 dB#	Acknowledgement, Flags+C	PRVID List
81	5199 9.956895	0.00355	0 Cisco_dd:a0:18	Sansungt_c9:e3:71	TL5v1.2	144	69 -36 dBm	Application Data	5. Street Machinesett Claber Licks (Woldlag, Jone 10) 311 (20)
	5200 9.956895	0.00000	8 192.168.1.15	192.168.1.121	882.11	76	69 -43 d8m	Acknowledgement, Flags+C	<ul> <li>The DE Conference Capital Society of anti-all society data (200)</li> </ul>
	\$282 9.959476	0.00358	1 Samungt_c9:e3:71	Cisco_dd:a0:18	TL5v1.2	152	69 -43 dBm	Application Data	<ul> <li>Tag. We begin the second s</li></ul>
	5283 9.959476	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -36 dBm	Acknowledgement, Flags=C	) rag: receiving construction (Construction Construction)
1.	5204 9.962667	0.00319	1 Cisco_dd:a0:18	SansungE_c9:e3:71	TLSv1.2	171	69 -36 dBm	Application Data	/ Teg: Supporter operating Classes
12	5285 9.962667	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -43 d8m	Acknowledgement, Flags+C	) ing: Extended capacities (1 octats)
12	5287 9.966228	0.00355	1 Santungt_clice1:71	Cisco_dd:a0:18	TLSv1.2	205	69 -43 dBm	Application Data	> Ext Tag: He Capacitities
1	5288 9.966228	0.00000	0 192.168.1.15	192.168.1.121	882.11	78	69 -36 d8m	Acknowledgement, FlagsC	3 Ext ing: HE & GHZ Band Capabilities
1.	5211 9.974391	0,00825	8 Cisco dd:a0:18	SamsungE_c9:e3:75	TL5v1.2	199	69 -36 dim	Application Data	> Tag: Vendor Specific: Microsoft Corp.: WMCVME: Information Element
10	5212 9.974391	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	60 -43 dBm	Acknowledgement, Flags+C	<ul> <li>Tag: Wendor Specific: Qualcom Inc.</li> </ul>
122	\$215 9,986916	0.01252	5 Sansungl_c9:e3:71	Cisco dd:a0:18	TLSv1.2	345	69 -43 dBm	Application Data	Tag Number: Vendor Specific (221)
22	5216 9,986916	0.00000	0 192.168.1.15	192.168.1.121	892.11	75	69 -36 dan	Acknowledgement, FlagsC	Tag length: 11
	\$217 9.986916	0.00000	R Claro dd:a8:18	Samural c9:e3:71	TL5v1.2	141	69 -36 dim	Application Data	OUI: Sc:fd:f0 (Qualcom Inc.)
80	\$218 9.986916	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -64 day	Acknowledgement, FlagssC	Vendor Specific OUI Type: 1
82	\$221 9.996016	0.00000	8 Samuel cical:71	Fisco 61:48:18	140	110	60 -44 dim	Records, Protected EAP (EAP-DEAP)	Vendor Specific Data: 0101020100020100
82	5722 9 986016	0.00000	0 192 168 1 15	192 168 1 121	BED 11	76	60 - 15 dile	Arbondadonant Flama C	<ul> <li>Tag: Wendor Specific: Samsung Electronics Co., Ltd</li> </ul>
÷.	£3172 0 007806	0.01000	a firm ddialing	Samuel (Big)/11	2.60	100	40 - 16 dim	Survey - Lage - Little	Tag Number: Vendor Specific (221)
10	1218 0 007884	0.00000	0 102 168 1 16	101 148 1 171	-	26	40 -43 dbs	Islandadament Dama	Tag length: 11
10	5100 0 000444	0.00000	e are see doubtly	And and all all all all	2.4.4	10	-43 000	En derran haf di	OUI: 00:00:f0 (Sansung Electronics C
	1229 7.298004	0.00085	a craco occas: 16	participation of the second se	LINEL IN		00 - 30 USB	And a state of a state	Vendor Specific Oul Type: 34
10	54.90 7.998004	0.00000	e 192.108.1.15	172.108.1.121	Bec. 11	10	67 -43 000	Action programmers, 1 adget	Vendor Specific Data: 220001040000000f
	24.34 20.007005	0.00834	a sentungt_cred:71	L1500_00:00:18	PART	340	60 -43 ddii	May (message 2 of 4)	> Tag: Vendor Specific: Samsung Electronics Co., Ltd
1	5215 20.007005	0.00000	0 192.100.1.15	192.108.1.121	862.11	. 76	69 -36 dbe	Acconsidence of the second sec	
	5236 18.005443	0.00243	a cisco_dd:80:18	sansoigt_c9:e3:71	LAPOL	423	69 - 36 dân	key (nessage 3 of 4)	
1	5237 20.009443	0.0000	0 192.168.1.15	192.168.1.121	862.11	76	69 -43 dan	Acknowledgement, Flags+C	
2	5239 10.015678	0.00523	5 SamsungE_cP:e3:71	C1500_65:40:18	LAPOL	199	60 -44 dBm	Key (Message 4 of 4)	
	5240 20.015678	0.00000	0 192.168.1.15	192.168.1.121	802.11	76	69 -36 dBm	Acknowledgement, Flags+C	

S23 FToTA Roaming event

### Client details in WLC:

Cisco Cata	vst 9800-CL Wireless Controller	Velcome admin 🛛 🖌 🧒 🏠 🖹 🔅 🔯 😨 🗯 🚱 🕱 🔤 Starch APs and Clarest 🔍	S Feedback
	Monitoring * > Wireless * > Clients	Client	×
Dashboard	Clients Steeping Clients Excluded Clients	360 View General QOS Statistics ATF Statistics Mobility History Call Statistics	
Monitoring >	Selected 0 out of 2 Clients	Client Properties         AP Properties         Security Information         Client Statistics         QOS Properties           Re-Authentication Timeout         1800 sec (Remaining time: 798 sec)         Client Statistics         QOS Properties           Client State Servers         None         None         None         None         None	es EoGRE
~	Client MAC Address T IPv4 Address T IPv6 Address AP Name T	Client Entry Greate Time 1003 seconds	
Of Administration	O 0429.2ec9.e371  → 192.168.1.160 1e80;;6a20;34e8;ab1b;6332 AP01_RC_9136_F80C *	Policy Type WPA3	
C Licensing	O 2495.2172.8a66 ≯ 192.168.1.162 №80::b13:1107:7c5f:a7e0 AP01_RC_9136_F80C	Encryption Clipher CCMP (AES)	
Troubleshooting	······································	EAP Type PEAP Session Timeout 1800	

S23 Client Properties

### Focus on the roam type Over the Air where we can see the roam type 802.11R:

32 VI							CI	ant							
Q. Search Monultems	Monitor	ing * > Wireless * >	Clients				Cill	ant							
	Clients	Sleeping Clients	Exclud	ed Clients			36	0 View General	QOS Statisti	cs i	ATF Statistics	Mobility F	listory	Call Statistics	
Dashboard	_														
Monitoring	, 📖	Ouriste Ø						Recent association	on history:						$\frown$
2 Configuration	Selec	ted 0 out of 2 Clients						AP Name <b>T</b>	BSSID T	AP T Sibt	Assoc Time	T Instance	Mobility <b>T</b> Role	Run Latency (ms)	Roam <b>T</b> Type
	0	Client MAC Address	T IPv4	Address	T IPv6 Address	AP Name	r	AP01_RC_9136_F80C	00at.1aad.a018	3	07/12/2023	ō	Local	12	802.11R
Administration	0	0429.2ec9.e371	× 192.1	68.1.160	fe80::6a20:34e8:ab1b:6332	AP01_RC_9136_F80C		AP9136_5C.F524	00dt.1ddd.7d38	3	07/12/2023	0	Local	4536	N/A
A laurates	0	2495.2172.8a66		68.1.162	fe80::b13:f107:7c5f:a7e0	AP01_RC_9136_F80C									

S23 Roaming type 802.11R

This client was also tested using FT over the DS and was able to roam using 802.11r:

No	. Time	Delta Source	Destination	Protocol	Length Cha	nnel Signal stre	Info	2	Frame 1265: 485 bytes on wire (3880 bits), 485 bytes captured (3880 bits) on interface \Device\MPy_[D4578085-2
	1246 8.299585	0.102333 Cisco_dd:a0:18	Broadcast	882.11	364	69 -39 dBm	Beacon Frame, SN+305, FN+0, Flags+C, 81+100, SSID+"wif	1212	Ethernet II, Src: Clsco_d2:97:47 (74:11:b2:d2:97:47), Dst: Universa_D7:cf:06 (08:3a:88:b7:cf:06)
	1247 8.401955	0.102370 Cisco dd:a0:18	Broadcast	882.11	364	69 -40 dBm	Beacon frame, SN=306, FN=0, Flags=C, 81=100, SSID="wiff	1 1 2	Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121
	1248 8,504375	0.102420 Cisco dd:a0:18	Broadcast	882.11	364	69 - 39 dBm	Beacon frame, SN+307, FN+0, Flags+C, 81+100, SSID+"wiff		User Datagram Protocol, Src Port: 5555, Dst Port: 5880
	1249 8.686814	0.102439 Cisco dd:a0:18	Broadcast	882.11	364	69 -48 dBm	Beacon frame, SN=388, FN=0, Flags=C, 81=100, SS1D="wif		AiroPeek/OmniPeek encapsulated IEEE 882.11
	1251 8,612759	0.005945 Cisco dd:#0:18	Broadcast	882.11	312	69 -48 dBm	Probe Response, SN=459, FN=0, Flags=C. BI=100, SSID="w		882.11 radio information
	1258 8,709133	8,896374 Cisco dd:a8:18	Broadcast	882.11	364	69 -39 dBm	Beacon Frame, Ski310, Flieb, FlagssC. 81+100, 5510+"wiff		IEEE 802.11 Reassociation Request, Flags:C
	1268 8,786412	0.077279 SamsungE c9:e3:71	Cisco dd:a0:18	882.11	235	69 -48 dBm	Authentication, SN-99, FN-8, FlagsC		· IEEE 802.11 wireless Management
	1261 8.786412	0.000000 102.168.1.15	192.168.1.121	882.11	76	60 +30 dBs	Acknowledgement, FlagsC		> Fixed parameters (10 bytes)
	1262 8,798571	0.004159 Cisco dd:a0:18	SansungE c9:e3:71	882.11	247	69 -39 dBt	Authentication, SN+118, FN+0, Flags+C		<ul> <li>Tagged parameters (385 bytes)</li> </ul>
	1263 8,798571	0.000000 192.168.1.15	192.168.1.121	882.11	26	69 -47 dbm	Acknowledowneot, flagsC		> Tag: SSID parameter set: "wifi66_test"
122	1265 8,796430	0.005868 Samonet c9:e3:71	Cisco dd:a0:18	882.11	685	60 -48 dbr	Reassociation Request, States, Flags, Flags, C. SSIDe'nd		> Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [Pbit/sec]
T	1255 8,795439	0.000000 192.168.1.15	192,168,1,121	82.11	26	69 - 39 dBm	Acknowledgement, FlagtsC		> Tag: Power Capability Min: 8, Max: 16
	1268 8.8M078	0.000630 Samurat c9:e3:71	Broadcast	LLC	114	60 - 30 dbs	5. FuncsRE3, N(R)+57: DSAP Bulla Group, SSAP Buat Command		> Tag: Supported Channels
î.	1269 8,887948	0.001862 Cisco dd:a0:18	Sansungl c9:e3:71	802.11	433	69 - 39 dBm	Reassociation Response, SNeD, FNeD, Flags,C		> Tag: RM Enabled Capabilities (5 octets)
	1270 E.807940	0.000000 192.168.1.15	192, 168, 1, 121	882.11	26	60 -48 dile	Acknowledgement, Flatta, C		) Tag: RSN Information
	1221 # 982040	0.000000 Samural (Stal-73	Broadcast.	110	120	60 - 10 dile	T. D. M(B)+TT. M(S)+TD- TKAD BySB Tertfordunt SSAD BySa Berrown		V Tag: Mobility Domain
	1222 8.811521	0.001591 Cisco dd:a0:18	Broadcas#	882.11	36.4	60 . 10 .48#	Bearon Frame, Skoll1, Elsen, C. Bladde, SSIDa Self		Tag Number: Mobility Domain (54)
	1273 8 937764	0.011213 /ires Sectorie	Castronal (Dral) 77	117	182	60 - 40 dBe	II EmonATC': AGAD Bolts Group, CGAD Bug2 Frammed		Tag length: 3
	1278 8 822754	0 000000 107 168 1 15	192 168 1 121	982 11	76	60 .58 .684	Acknowladownest Flammer F		Mobility Domain Identifier: 8xeF27
	1275 8.832754	a abagaa Cisco Sciffsiar	Samunal clicel:71	LLC.	183	69 -49 dBa	U. Ausseinkower: DSAP Taxas Instruments Group, SSAP (b)28 Respon-		<ul> <li>FT Capability and Policy: 0x81</li> </ul>
	1076 0 000017	0.000063 303 369 3 35	102 168 1 121	807 11	36	60 - 50 dila	Arkenuladament Flame F		1 = Fast BSS Transition over D5: 0x1
	1277 8 000540	0.067773 Samural (0:e3:71	Recadract	115	144	60 -16 dim	S.E. Europein, Plagarithting State and Anna State Bods Resson		
	1772 2 000540	0.000000 101 162 1 15	102 168 1 121	892 11		60 .40 .000	trian laterant flam.		0000 00 = Reserved: 0x00
	1199 8 094143	a passa cieco de autre	Concerned clicality	882.11	118	69 -40 dite	Action Old Date Classes of		<ul> <li>Tag: Fast BSS Transition</li> </ul>
	1101 0 004143	0.000000 101 162 1 15	101 162 1 111	997 11	76	40 47 day	Actual January (1990) Fangarapeter		Tag Number: Fast BSS Transition (SS)
	1727 8 (0490)	0.000000 192.100.1115	Cinco dd Mir18	892.11	116	60 -47 dila	Action Old Date Classes C		Tag length: 96
	1193 9 (014993)	0.000000 301 502 3 10	101 100 1 111			60 40 600	Actual advances films		> MIC Control: 0x0300
	1283 8.904003	0.000000 192.100.1.15	Logenation and a file of the f	110	107	60 -10 cbs	T 0 M(R)-36 M(F)-681 0(40 Bole fedboldes) (240 Bole Company		MIC: 0f814df7fe156ad6e4cf650aa53a4aca
	1286 8 013012	a parala fiere di a.ts	Boundrast	882 11	364	40 -41 dbs	Bearing Strates, States, Carton Strates, 130 Constrates, 130 C		Monce: d514fb17ab7fa895b7fd75e5b6d6a9e882cf4ec59fbd1f492e13889fb1a869ca
	2307 # 080403	0.000000 000000000000	100 144 1 101	2017 22		40 - 10 dis	taken dedement. Elser.		Skonce: 00172e455c738aa1b8cfe6fd142b425970879eb5cce3fa11283f566d849bb2c9
	1037 8.998493	0.030301 192.100.1.15	102 168 1 121	882.33	70	40 - 10 dis	Accountedgement, Plagar		<ul> <li>Subelement: PMK-R1 key holder identifier (RIOH-ID)</li> </ul>
	1272 0.016510	a approx first disp. 1	Presidente	000.11		10 - 10 - 000	Record forms (N-114 Hold Flower C. H. 100 (1710-5-14		Subelement ID: PMK-R1 key holder identifier (RIKH-ID) (1)
	1072 9.029519	0.000000 C1500_00.20.28	Broadcast	802.22	204	69 - 38 cms	beacon trane, Sensas, rive, rangs		Length: 6
	1402 0 120014	0.101104 01300_00.100.10	producase sol	1002 AR		02 - 39 004	below fordered from the forder to be and the state		99K-R1 key holder identifier (R1KH-ID); d4887b497a4b
	1000 9,178814	0.058131 194,168.1.15	192.108.1.121	802.22	10	69 -40 CBR	Acknowledgement, Flags		<ul> <li>Subelement: PMK-R0 key holder identifier (R0KH-ID)</li> </ul>
	1002 0.224145	0.000331 C1500_00180188	broadcast	004.11	304	69 - 39 00s	beacon trume, Swisto, rive, range		Subelement ID: PMK-R0 key holder identifier (R0RH-ID) (3)
	1933 9.324107	0.102062 (1500_00180118	broadcast	862.11	354	69 - 39 CBR	beacon trume, Swisir, Hwe, Fingst		Length: 4
	1937 9,423938	0.101831 (1500_00:00:18	Broadcast	802.22	394	00 140 008	beacon trane, SWISIA, PNPE, Flags*		PMK-R8 key holder identifier (R804-ID): 082055a2
	1939 9,528403	0.101525 C1500_00120128	Browcast	002.11	304	09 -38 006	beautin trame, SNESDE, Files, Files, Files, State, State, State, State		> Tag: Supported Operating Classes
	1945 9.632028	0.102557 C1500_00180118	Broadcast	882.11	304	69 +38 0Be	beacon trame, Swisze, rive, rings+		> Tag: Extended Capabilities (11 octets)
	1940 9.733295	0.1012/5 C15C0_00:00:16	Broadcast	002.11	204	09 - 39 ODR	beacon trame, SNESLI, FINE, Flags+, B1=100, SSLD+ HIT		> Tag: Vendor Specific: Microsoft Corp.: WMM/WME: Information Element
	1990 9,835864	0.101009 0.1500_00180118	prosocast	002.11	364	02 -40 088	beacon trame, seesaa, rees, raegs+C, 81+100, 5510+ 91+		> Ext Tag: HE Capabilities
	1951 9.925936	e.esoe72_samsunge_c91e3171	C1500_00:#0:18	sey.11	122	07 -45 dBR	Action, Same, Freed, FlagselpTC		> Ext Tag: HE 6 GHz Band Capabilities
	1952 9.925936	0.000000 192.168.1.15	192.168.1.121	662.11	76	60 -40 dbis	Accondingenent, FlagswC		> Tag: Vendor Specific: Qualcomm Inc.
	1953 9.926893	0.00057 192.158.1.15	192.168.1.121	B02.11	76	60 -48 dBs	Acknowledgement, Flagss		> Tag: Vendor Specific: Samsung Electronics Co., Ltd
	1954 9.937895	0.011002 C11C0_dd:a0:18	Broadcast	802.11	364	607 -48 dBm	Beacon frame, SN+323, FN+0, Flags+C, BI+100, SSID+"hdf		> Tag: Vendor Specific: Samsung Electronics Co.,Ltd
	1955 9.942343	0.006648 192.168.1.15	192.168.1.121	802.11	76	67 -68 dBit	Acknowledgement, FlagssC		

S23 Roaming FToDS packets

### WPA3-Enterprise + GCMP128 cipher + SUITEB-1X

## WLAN Security configuration:

### Edit WLAN

		20 0428		
yer2 Layer3 AAA				
O WPA + WPA2 O	WPA2 + WPA3	WPA3	○ Static WEP	O None
MAC Filtering				
Lobby Admin Access				
WPA Parameters		Fast	Transition	
WPA D	WPA2 O	Sta	tus	Disabled 🔻
GTK O Randomize	WPA3 🖸	Ove	er the DS	0
Transition Disable	£.	Rea	association Timeout *	20
WPA2/WPA3 Encryption				
AES(CCMP128)	ССМР256 О	Auth	N Key Mgmt	
GCMP128	GCMP256 O			
Protected Management Fr	ame			
PMF	Required			
Association Comeback Time	r* 1			
SA Query Time*	200			
Cor Query Time	200			

×

WPA3 Enterprise SuiteB-1X Security Configuration



wifi6E_test

[WPA3][SUITEB-1X][GCMP128]

Note: FT is not suported in SUITEB-1X

View on WLC GUI of the WLAN Security settings:

Verification of beacons OTA:

140	Time	Delta	Source	Destination	Protocol	Length Cha	nnel S	ignal stre	Info	> Frame 37525: 355 Dytes on wire (2840 DITs), 355 Dytes captured (2840 DITs) on Internace (Device/WP*_(D45/8045-208-4456-80))
	37376 59,169776	0,02048	Cisco dd:a0:18	Broadcast	882.11	312	69 -	40 (04	Probe Response, SN-2002, FN-0, FlagsC. 81-100, SSID-7	b Ethernet II, Src: Cisco_d2:97:47 (74:11:b2:d2:97:47), Dst: Universa_b7:cf:06 (08:3a:88:b7:cf:06)
	17385 59.190316	0.02054	Cisco dd:a0:18	Broadcast	882.11	332	60 -	17 dile	Probe Response, SN+2003, FN+0, Flags+C, BI+100, SSID+"	) Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121
	37396 59.238799	0.02068	Cisco dd:a0:18	Broadcast	882.11	355	60 -	37 d8e	Beacon frame, Ski-2004, FM-8, Flams,, C. 81+100, 55104-"wd	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
	17414 59.231261	0.02046	Cisco ddraibr18	Broadcast	882.11	312	69 -	18.000	Probe Response, Sk-2005, FN-0, FlarssC. 81+100, SSID-"	> AiroPeek/OeniPeek encapsulated IEEE 882.11
	17424 59.251733	0.02057	Cisco dd:a0:18	Broadcast	892.11	312	69 -	40 404	Probe Response, Ste2006, Filed, FlagseC. 81+100, 5510+1	> 802.11 radio information
	13417 59.272258	0.02053	Clara ddiallin	Broadcast	882.11	312		18 184	Probe Resource, Shu2007, Filed, Flame, C. Ri-100, SSID-7	> IEEE 802.11 Beacon frame, Flags:C
	17447 59 297797	0.02054	Clare dd ab 18	Broadcast	882.11	312		17 484	Probe Resources Studiell, Plug Flams / Studiel, SCID-1	V IEEE 802.11 Mireless Management
	17450 50.311314	0.02052	Cisro ddiabil8	Broadcast	882.11	355	40 -	14.000	Rearcon Frame, Mic2000, Hield, Flames, C. 81+100, 5510+241	> fixed parameters (12 bytes)
	11470 00 111610	0.02030	Ciara dd-ab-18	Broadcast	882.11	317	4.0	10.00	Denke Resource Oku3050 (Bull Flame, C 81-100 COD-1	<ul> <li>Tagged parameters (253 bytes)</li> </ul>
	17480 55 154145	0.03055	Claro ddiabille	Boondrast	882.11	313	100	17.00	Broke Bergonie, Skylett Blue Flags- / Rf-100 SCID-1	> Tag: SSID parameter set: "wifi68_test"
	17480 10.175487	0.02134	Cisco de serie	Booadcast	602.11	312		10.000	Anale Resources Okching Filed Flams / Blatter	> Tag: Supported Rates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, [Mbit/sec]
	17400 50 306116	0.0000	Class drive 18	En concest	1017 11	25.7	1.1	17.000	Bucks Records, Divide 2, 1976, 1988, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987,	) Tag: Traffic Indication Map (TIM): OTIM 0 of 1 bitmap
	37422 39.395110	0.01962	Cisco_do:se:16	Broadcast	802.11	344		17 000	Probe Response, Servers, Fere, Flags	> Tag: Country Information: Country Code na, Environment Global operating classes
	37540 59.445753	0.0.0004	CT2010_00190158	BECHLUSSE	004-34	333	1.22	17 Mar.	beautin mane, swizezw, nime, rangsmining, barate, ssaar wa	) Tag: Power Constraint: 6
	37329 39,430000	0.02034	C1900_00.00.18	Br GBGCBSC	002.11	244		37 000	Probe Response, Servers, Field, Finger	) Tag: IPC Report Transmit Power: 16, Link Margin: 0
	37532 59.457236	0.02115	5 C1500_00180118	Broadcast	862.11	312		37 (008	Proce Response, Switzelb, Hwe, Flags	V Tag: RN Information
	1/539 59.4/6969	0.01975	1 C13C0_00:30:18	Broadcast	002.11	312	09	37 094	Probe Response, SNV201/, PNV0, Flags+C, 01×100, SS1D+1	Tag Number: HSN Information (48)
	37552 59,497448	0.02045	CLSC0_00100118	Broadcast	882.11	33.2	69 -	17 088	Probe Response, SN+2018, HN+0, Flags+C, BL+100, SSID+1	Tag Length: 26
	37565 59.517993	0.02054	Cisco_dd:a0:18	Broadcast	862.11	355	69 -	37 clim	Beacon frame, SNv2819, Flore, FlagsxC, B1×100, S510v'sd	RN Version: 1
	37574 59.538423	0.82843	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	37 (58)	Probe Response, SN+2820, FN+0, Flags+C, BI+100, SSID+"	> Scoup Claber Suffer (0):0Flar (Leee 880.11) (COP (128))
	37585 59.558965	0.02054	Cisco_dd:a0:18	Broadcast	802.11	332	69 -	37 dila	Probe Response, SW-2021, FN+0, Flags+C, 81×100, SSID+"	Paindise Clober Suite Count: 1
	37596 59.579439	0.82047	Cisco_dd:#8:18	Broadcast	882.11	312	69 -	37 dBm	Probe Response, SN=2822, FN=0, Flags=C, 81=100, SSID="	3 Balandise Clober Sulte List BildFlar (Jeee 802.13) (CRP (128))
	37616 59.599940	0.82050	1 Cisco_dd:a0:18	Broadcast	882.11	312	69 -	37 din	Probe Response, SW-2023, FN+0, Flags+C, BI=100, SSID="	Arth Yay Management (JAW) Suite Count: 1
	37626 59.628421	0.02048	1 Cisco_dd:#0:18	Broadcast	882.11	355	69 -	58 dBH	Beacon frame, SN+2824, FN+8, Flags+C, BI+100, SSID+'ad	A dath for Management (AM) 1144 (Red) by (Tang (R) 11) (Rt (NaN)6 (Leftab)
	37641 59.648984	0.02056	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 dbr	Probe Response, SN-2025, FN+0, Flags+C, BL-100, SSID="	A deft for determined (ADD) cite weeks at the Direct Team (BP) 111 LDA (DIRECT TEAM)
	37652 59.661337	0.02035	S Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 dBH	Probe Response, 5942826, Pie-0, Flags+C, 81+100, 5520+"	And by management (and) states devices (the second of the (second states)
	37668 59.681765	0.02042	Cisco_dd:a0:18	Broadcast	882.11	332	69 -	38 dBe	Probe Response, SN-2027, FN+0, Flags+C, B1+100, SSID="	Arth May Handparter (MM) Social Visit Cold State Cold and (193)
	37687 59.782467	0.02070	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 dite	Probe Response, SN=2028, FN=0, Flags=C, BI=100, SSID="	A DEV CANADARIAN BARRAN
	37696 59.722867	0.02040	Cisco_dd:a0:18	Broadcast	882.11	355	89 -	38 dbn	Beacon frame, SN+2829, FN+0, Flags+C, B1+100, SS10+"wd	Providence and a second s
	37784 59.743477	0.02065	Cisco_dd:a0:18	Broadcast	802.11	312	60 -	38 din	Probe Response, SN+2030, FN+0, Flags+C, BI+100, SSID+"	Provide Contraction
	37719 59.763721	0.02024	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 dBn	Probe Response, SN+2031, FN+0, Flags+C, 81+100, SSID+"	Tread last
	37733 59.784549	0.02082	Cisco_dd:a0:18	Broadcast	802.11	3322	69 -	38 d8n	Probe Response, 58+2832, FN+0, Flags+C, 81+100, 551D="	> woop nanadament other solation (new energy) one (new real)
	37738 59.884659	0.02011	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 (0H	Probe Response, SN=2033, FN=0, Flags=C, 81=100, SSID="	) Tag: Qoo Load Liement Mc.lle Cut Wrision
	37749 59.825260	0.02068	Cisco_dd:a0:18	Broadcast	882.11	355	69 -	38 dim	Beacon frame, SN-2834, FN+0, Flags+C, BI+300, SSID+"sd	) Tag: M Ended Capacities (5 octors)
	37773 59.845621	0.02036	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	37 dBm	Probe Response, 59+2035, FN+0, Flags+C, 81+100, SSID+"	> Tag: Extended Lapoclities (11 octets)
	37792 59.866121	0.02050	Cisco_dd:a0:18	Broadcast	882.11	332	69 -	37 dBe	Probe Response, SN+2016, FN+0, Flags+C, 81+100, SSID="	> Tag: Tx Power Envelope
	37889 59,887882	0.02158	Cisco_dd:s0:18	Broadcast	882.11	312	69 -	38 dBt	Probe Response, 59+2017, FN+0, Flags+C, 81+100, 5520+"	> tag: tx rower envisione
	37814 59.987313	0.01951	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	37. dilet	Probe Response, SN-2038, FN-0, Flags+C, BI+100, SSID+"	> Ext Tag: Multiple BSSID Configuration
	37822 59.927668	0.02034	Cisco_dd:a0:18	Broadcast	882.11	355	69 -	35 die	Beacon frame, SNv2039, FN+0, Flags+C, B1×100, SS1D+"vd	5 Ext Tag: HE Capabilities
	37833 59.948858	0.02039	Cisco_dd:a0:18	Broadcast	882.11	312	60 -	38 (59)	Probe Response, SN-2040, FN+0, Flags+C, BI-100, SSID+1	> Ext Tag: HE Operation
	37841 59.968540	0.02049	Cisco_dd:a0:18	Broadcast	882.11	312	69 -	38 dBr	Probe Response, SN-2041, FN+0, Flags+C, BI+100, SSID+"	* > Ext Tag: Spatial Reuse Parameter Set
	37857 59,989090	0.02055	Cisco dd:a0:18	Broadcast	882.11	312	60 -	38 (84	Probe Response, SN+2042, FN+0, Flags+C, BI+100, SSID+"	> Ext Tag: AU EDGA Parameter Set
	37864 60.013602	0.82458	Cisco dd:all:18	Broadcast	802.11	352	60 -	37 dla	Probe Response, 58+2043, FN+0, Flags+C, 81+100, 5520+7	> Ext Tag: HE 6 GHZ Band Capabilities
	37868 68.838192	0,01650	Cisco dd:a0:18	Broadcast	882.11	355	89 -	38 d8n	Beacon frame, 59x2844, FNv0, Flags+C, 81×100, 5510x"wd	) Tag: Vendor Specific: Athenos Comunications, Inc.: Unknown
	37881 60.058489	0.02929	Cisco dd:a0:18	Broadcast	802.11	352	60 -	38 dbs	Probe Response, SN+2045, FN+0, Flags+C, 81+100, SSID+"	> Tag: Vendor Specific: Microsoft Corp.: WMCAME: Parameter Element
	37887 68.071057	0.02056	Cisco dd:a0:18	Broadcast	892.11	312	60 -	38 dbr	Probe Response, 59+2046, FN+0, Flags+C. BI+100, SSID+"	) Tag: Vendor Specific: Cisco Systems, Inc: Aironet Client MPP Disabled
	37897 60.001896	0.02083	Cisco dd:a8:18	Broadcast	882.13	352	69 -	38 (88	Probe Response, 99+2047, FN+0, Flags+C, 81+100, 5525+7	) Tag: Vendor Specific: Cisco Systems, Inc: Aironet CCX version = 5
	17988 58.111976	0.02008	Cisco dd:a0:18	Broadcast	882.11	312	69 -	38 dBr	Probe Response, 99(2018, FN=0, Flags,C. 81+100, 5510+7	> Tag: Vendor Specific: Cisco Systems, Inc: Alronet Unknown (44)
	37917 68.133414	0.82843	Cisco dd:a0:18	Broadcast	882.11	355	60 -	37 (88	Beacon frame, SN-2049, FN+8, Flags+C, BI+109, SSID+"wd	> Tag: Vendor Specific: Cisco Systems, Inc: Advonet Unknown (11) (11)
	17928 68.153847	0.02061	Cisco dd:a0-18	Broadcast	882.17	312	60 -	17 dilm	Probe Response, SW-2050, Phyle, FlagssC. 81+100, 55320+1	
	17936 48.173314	8.82826	Cisco detailute	Broadcast	882.11	352	60 -	th die	Probe Resource, Stu-2051, Fluid, Flagser, C. Rf-100, SSID-1	
	17943 48.193778	0.02005	Cisco dd:a0:18	Broadcast	882.11	312	60 -	17 dlm	Probe Response, 99(2052, Filed, Flags,, C. 81(100, 5520-)	
	17549 68.254369	8,82952	Cisco delabria	Broadcast	882.11	312	60 .	17 (80)	Probe Response, 90-2053, Filed, Flags, C. 81-100, SSID-1	
	17961 68 114873	0.02050	Clarge ddraibilli	Interferent	802.11	165	60 .	17.000	Bearon frame Okabid Bladt Flames / BTatlet Stills and	
				an every diff.		-99		and see and	second in second	

WPA3 Enterprise SuiteB-1X Beacon

None of the tested clients were able to connect to the WLAN using SuiteB-1X confirming that none supports this security method.

### WPA3-Enterprise + GCMP256 cipher + SUITEB192-1X

WLAN Security configuration:

### Edit WLAN

Gecuity	Advanced Add To P	olicy lags		
yer2 Layer3	AAA			r
O WPA + WPA2	O WPA2 + WPA3	WPA3	O Static WEP	○ None
MAC Filtering	0			
Lobby Admin Access	0			
NPA Parameters —		Fast	Transition	
WPA O	WPA2 O	Stat	us	Disabled
дтк О	WPA3	Ove	r the DS	0
Transition	Policy	Rea	ssociation Timeout *	20
Disable				
NPA2/WPA3 Encryp	otion	Auth	Key Mgmt	
AES(CCMP128)	CCMP256	SI	UITEB192-	
00001120				
Protected Managem	ent Frame			
PMF	Required	•		

WPA3 Enterprise SUITEB192-1x security settings



**Note**: FT is not supported with GCMP256+SUITEB192-1X.

### WLAN on WLC GUI WLANs list:



Verification of beacons OTA:

No. Time	Delta Source	Destination	Protocol	Length Ch	annel Sinual str	v Joh	> Frame 8: 355 bytes on size (2800 bits), 355 bytes captured (2800 bits) on interface 'Device/UMF_(06539905-2900-4656-8C33-C561266AM000), 5d 0
7 8 91111	# PROPERTY AND ADDRESS	Broadcast	807.51	111111111	40.40.40	Inche Reservers Old/10 Blad Flams / Hullin CON-Colding Aust-	) Ethernet II, Sec: Clace_d2:97:47 (M:11:52:62:97:47), Det: Universa_b7:cf:06 (ME:3a:ME:57:cf:06)
1 4 41174	A STREET CLASS ALL ALL ALL	Republicant		12.7		Bude Beause (NoV) Det Case C State (CTh-)dist set"	> Internet Protocol Wersion 4, Src: 192.168.1.15, Dot: 192.368.1.123
5.0.05214	B BOMAN Class Attack 18	Bernadicast	1007 11	1112	ATT	Books Barnonna (Balld Blad Flams, F. Statis (Challed sare)	> User Datagram Protocol, Src Port: 5555, Ost Port: 5000
T & STOL	a state class during	Bernard and		11.7		Trade Response, Dr. 10, Deck, Finger, T. St. 10, 1725-54/101 Aug."	> AlroPeek/OmiPeek encapsulated IEEE 882.11
1 0.000	a constitution directly	Boundrast	and 11	144		Beating Frank Shorts Frank Frank C. Brotan Structure and	> B02.11 radio information
20.0.44640	a manufacture et alle alle	En concers	1992.12A	11.2		hade formate (b. 1) the line of state (b) both balls and	> IHE M02.11 Beacon frame, Flags:C
30 0.11300	0.000035 01000_00100128	In calculate	004.55	144		Probe Response, Security, Pares, Parester, State, State, State, Cent	V 100 802.11 kirelass Rangement
11 0.13004	0.020545 01502_00100110	prosocalit	962.11	342	10 -40 005	Probe Response, Second, Pred, Fings+	> Fixed parameters (12 bytes)
12 0.15666	0.020634 C1500_00130118	Broadcast	862.11	142	10 -40 004	Probe Response, SNe240, Meid, Flags	<ul> <li>Taged parameters (25) bytes)</li> </ul>
13 0.17094	0.02020H C1505_0010018	proaocait	802.11	112	89 -39 056	woos wedones, wedos, wes, risks, risks, strand, strand, strand, strand, sere	> fag: SSD parameter set: "widthst text"
14 0.19783	0.020687 C1sco_00.0018	Broadcast	892.11	155	10 - 32 (884	Beacon frame, SN-251, HWP, FingsrC, 81-100, 3310-"x1Fin8_test"	) Inc: Supported Bates 6(8), 9, 12(8), 18, 24(8), 36, 48, 54, 19bit/sec]
15.0.21792	0.428287 C1sco_55:a0:18	Broadcast	802.11	112	80 -39 dBs	Probe Response, 99+252, Ph-0, Flags+C, 81+100, 5510+"hdF16E_text"	have traffic indication Nan (TIN) DDIN 0 of 1 bitson
16 0.23840	0.820547 C1sco_0d:s0:18	Broadcast	802.11	912	80 - 39 dbt	Probe Response, SN+255, FN+0, Flags+C, H1+100, 5510+"ydf165_test"	> far: Country information: Country Code na. Invironment Global commution classes
17 0.25887	0.020405 C1sto_65100138	Broadcast	802.11	112	87 - 32 (884	Probe Response, Mix254, Phi-0, Flags+C, H2+380, SSID="wdF166_test"	Last Dates Constraint: 6
18 0.27936	0.020468 Cisco_dd:a0:18	Broadcast	802.11	312	40 -39 dBe	Probe Response, SH-255, FN=0, Flags+C, H1+100, SSID="wdfisE_test"	<ul> <li>Figure Version Science Frances in Manufact &amp; Tab Manufact &amp;</li> </ul>
19 0.30856	0.029222 Cisco_6d:x0:18	Broadcast	992.11	355	10 -39 dBs	Beacon frame, SN-256, FN-0, Flags+C, 81-100, SSID+"wif166_test"	V Take Bit Information
28 0.32024	0.051681 Cisco_6d:a0:18	Broadcast	802.11	312	80 -39 dBe	Probe Response, SH-257, FH-0, Flags+C, E1+380, SSID-"wifisi_test"	The business with Teleparties (199)
23 0.34875	0.020493 Cisco_dd:a0:18	Broadcast	802.11	3122	80 -39 dBe	Probe Response, 50+258, F0+0, Flags+	The month for an other set (re)
22 0.36138	0.820645 Cisco_6d:a0:18	Broadcast	882.11	312	80 -40 (58	Probe Response, 99+259, F8+0, Flags+C, 82+380, SSID="wdf166_test"	Tag sangthi an
23 0.38174	0.020357 Cisco_dd:a0:18	Broadcast	802.11	112	80 -40 dbs	Probe Response, SH+260, FM+0, Flags+C, 82+300, SSID+"wdfi66_test"	50 WE107: 1
24 8,48248	0.020665 Cisco_6d:a0:18	Broadcast	802.11	255	80 -40 dBs	Beacon frame, SN-261, FN-0, FlagsC, 81-100, SSID-"wif166_test"	> Group Cloher Sulte: WE(Hrist (Lees W2.11) GOP (256)
28 0.42265	0.020249 Clsco_df:a0:18	Broadcast	802.11	312	80 -40 dbe	Probe Response, 99+262, FB+0, Flags+C, 82+380, 5522+"wdf166_test"	Mindle Cliner suite Covit: 1
29 0.44327	0.020632 Cisco dd:a0:18	Broadcast	802.11	312	40 -40 dbs	Probe Response, SHudbl, Flags	> Paindise Cipher Solte List 08:001ac (lees 862.11) 6090 (256)
32 (0.46376	0.000486 Cisco dd:a0:18	Broadcast	882.11	312	#13 -429 clibe	Prote Response, Sh-264, Flags+C. 82+100, SSID-"wified test"	Auth Key Ranagement (ARR) Suite Count: 1
33 9.48647	0.020672 Cisco dd:a8:18	Broadcast	802.11	322	80 -60 dbs	Probe Response, Sk-365, Flieft, Flague,	<ul> <li>Argh Rec Bassement / 800, 1114-90-861ac (Team 802, 11), 462, (Sold Mar Sold W1).</li> </ul>
34 0.50002	0.800456 Cinco dd:a0:18	Broadcast	882.11	255	60 -41 dbe	Beacon frame, Shilts, Fluet, FlagteC. Ble100, SSIDe'wd/16E test"	✓ Auth Key Recogneent (ARP) Subte: 00:0F(ac (Lees N02.13) WA (SHASH-SubteD)
15 (8, 52522	0.000203 (15/0 (0) (0) 15	Broadcast	802.11	122	80 -41 dist	Probe Response, Dis267, Field, Flags	Auth Key Management (ARM) OUI: 00:09fiac (leee M02.11)
Mr. (8) 54572	R ROBER Clark At al-18	Broadcast	842.11	112	10 - 40 dist	Proba Battorna Glubbl Dash Flams / El-100 COlurad/102 *ar**	Auth Key Ranagement (ARR) type: WRA (SVA384-Suited) (12)
NT (8.56623	8.809488 Clara 60 a8-18	Benadyare	882.33	11.2	10 . doi: 100	Probe Resource Opchill Flats. C. Statis, VCDs"ulfild Rest"	✓ KSW Capabilities: 0x00e8
10 0 10175	a south class straights	Broadcast	802 11	111	10 -10 -04	Inche Sannone Gallin Des Linne / State Columnities and	
10 0.00711	8 608361 Clara Stat-18	Broadcast	802.11	955	10.40.00	Rearry frame Sho71 Had Flama / Slaubh SSIDe"widthi tant"	
A6 8 87767	a statis flam alustis	Bookfrage	8877 11	117	AU	hole because (0,77) (0,4 (Tam, / 27,70) (175,-10)) faith	10 + RSW PTKSA Replay Counter capabilities: 4 replay counters per PTKSA/STKSA/STAGeySA (8x2)
41 -0 -42300	a stated class during	Brook and	200.00	264		hole Reserves (N-VI) (N-2 Care ( N-30) (Ch-2 d)(Care)	
42 0 0000	a solution classe delaterate	Beneficier	807.11	10.5	10 10 100	Probe Response, Security, Filed, Frager,	
43 0.00003	0.00000 C1500_00:00:18	Broadcast.	002.13	212	10 -40 004	Proce Response, Swizze, Field, Flags	i
44 0,60003	0.020120 01200 00120120	prosocast	001-11	Pad	10 - 39 - 004	Probe Neighbor, Severs, Field, Falger	
45 4.76947	W.W.MISH CLEOS_00100118	Broadcast	907.11	255	89 - 39 008	Beacon Water, Sec216, Here, Fingle	
46 E.73065	0.000525 01500_0010018	BPORTCRIT.	942.33	244	10 - 39 088	Proce Response, Sec277, Pare, Fiegs+	.e
47 4.75866	0.828367 C1605_00128118	ersadcast	802.11	312	80 - 39 008	Probe Response, Media, Pael, Flags	PRED Chart I 0
48 0.77082	0.020435 Cisco_dd:s0:18	Broadcast	892.11	312	83 - 39 dBe	Probe Response, SH-279, PH-R, FlagsC, 81-100, SSID-"xdf166_test"	P9820 L1st
45 0.79543	0.020134 Cisco_6d:00:18	proadcast	802.11	112	80 -30 dBa	Probe Response, Me-280, Pied, Flags+C, 81-200, SSID="wifild_test"	5 Group Kanagement (Loher Suite: 00:0f.ac (Less 802.11) 81P (GWC-256)
58 0.81197	0.020539 Cisco_dd:a0:18	Broadcast	802.11	255	80 -40 dbs	Beacon frame, 50-201, F0+0, Flags+C, 81+100, 5510+"wif168_test"	The two lines therein, we have the weather
51 0.83232	0.020150 Clsco_dd:a0:18	Broescast	802.11	312	89 -39 dBe	Probe Response, 59+282, F8+8, Flags+	) Tar: HM (nubled (amblilities (5 octors))
53 4.85293	0.020634 Cisco_dd:a0:18	Broadcast	802.13	342	89 -39 dán	Probe Response, S0-283, PD+0, Flags+	> Tar Extended Cambilities (1) orbits)
54 0.87353	0.620600 Cisco_6d:a0:15	Broadcast	892.11	312	89 - 39 dB4	Probe Response, SN+284, FN+0, Flags+C, 81+300, SS3D+"wifisi_test"	<ul> <li>Tig: Sectores septembers and a sectory.</li> <li>Tig: Transform functions.</li> </ul>
55 0.89796	0.020433 C1sco_6d:x0:38	Broadcast	882.11	312	10 -40 dbs	Probe Response, SN+285, Ph+8, Flags+C, 82+100, SSID="wdf166_test"	2 regs in communications
56 @.93455	0.000587 Cisco_dd:a0:18	Broadcast	802.11	155	60 -40 dbs	Beacon Frame, SN-286, FN-0, Flags+C, 81+100, SSID+"wdF16E_text"	2 July 18, Team Develope Science Face Adversion and Company Science (Science Science) (Science Science) (Science Science) (Science Science) (Science Science Scienc
57 0.93495	0.800481 Cisco_6d:a0:18	Broadcast	892.11	312	80 -40 dBr	Probe Response, SN+287, FN+0, Flags+	2 UKL ING, TRUIDER BOOK VIETABETELIKE
58 0.95522	0.020209 Cisco_6f:#0:18	Broadcast	802.11	332	40 -40 dbs	Probe Response, S9-288, F8-0, Flags+	2 EXT Tag: The Experimental
68 0.97569	0.020473 Cisco_6d:a0:18	Broadcast	862.11	322	80 -40 dbs	Probe Response, 59-280, FM-0, Flags+	3 Ext Tag: HE Upperation
61 0.99619	0.000404 Cisto_6f:a0:18	Broadcast	882.11	812	80 -40 dbs	Probe Response, SN-200, FM-0, Flags+C, 81-100, SSID="wdf16E_test"	> EXT TAX: Spottal number for the sec
62 1.01713	0.020543 Cisco_6d:a0:18	Broadcast	802.11	255	85 -40 dbe	Beacon Frame, SH-191, FN+0, Flags+C, 81+100, SSID+"wiftHK_test"	> Ext Tag: PU EEA TWINNER SPE
-							> bit tag: HE 6 GH2 Band Capabilities
							11 V. Tarri Vandor Grantiffer: Athanya Francation Tarri Linkowan

WPA3 Enterprise SUITEB192-1x beacons

Here we can observe Wi-Fi 6E clients associating:

### Intel AX211

Connection OTA with focus on the RSN information from client:

No.	Time	Delta	Source	Destination	Protocol	Length Chan	el Signal strength	BSS 1d	Info	> Frame 17873: 1116 bytes on wire (8928 bits), 1116 bytes captured (8928 bits) on interface 'Device'
	17760 13:51:37.057843	0.0255	Visite Western Strategy	Broadcast	842.11	236	64 -39 dlin	11:11:11:11:11:11	Probe Request, SN+352, FN+8, Flags+C. SS2D+"hdf16E test"	Ethernet II, Src: Cisco_d2:07:47 (74:11:b2:d2:07:47), Dst: Universa_b7:cf:06 (00:5a:80:b7:cf:06)
	17780 11:51:17.332635	0.2755	92 192,168,1.15	192,168,1,121	892.11	26	69 -44 dlm		Clear-to-tend, flamsC	1 > Intervet Protocol Version 4, Src: 182.168.1.15, Ost: 192.168.1.121
	17831 13:51:37,355711	0.0238	76 IntelCor 98:58:00	Cisco dd:a0:18	892.11	26	60 -44 dBm	00:df:1d:dd:a0:10	Authentication, SN+7, FN+8, Flags+C	> User Datagram Protocol, Src Port: 5555, Dat Port: 5000
	17632 13:51:37,355711	0.0000	00 192,168,1,15	192.168.1.121	882.11	76	69 -37 dBe		Acknowledgement, Flags+C	> ALroheek/OmrSPeek encapsuLated IEEE 882.11
	17833 13:51:37,359876	0.0041	65 Cisco dd:a0:10	IntelCor 98:58:0f	882.11	26	69 -37 dBm	00:df:1d:dd:a0:18	Authentication, Skoll, FNell, FlagsC	> 802.11 radio information
	12615 11:51:12, 199822	0.0000	in IntelCor 18158-04	Claro At at 18	882.11	252	60 -45 dla	minute 1d de la 18	Association Respect. One. Blue. Flance. C. SUDA-Millif. Text"	↓ ¥ 115E 882.11 Qo5 Deta, Flags:F.C
	17KM 11/51/17. MINE2	0.0000	102.168.1.15	192.168.1.121	887.11	26	60 -17 dla		Acknowledgement filests	Type/Subtype: QoS Data (0x0028)
	17638 11151117, 360129	0.0005	47 Intelline 38 Name	Broadcast	LLE	114	60 -17 dla	00105110161100110	T.P. N(R)+dR. N(S)+011 DER BUIK GROOP, SSER BUFJ Bashonse	> Frame Control Field: 0x8802
	THE STREET	0.00077	DE Filere dérait-16	Intalfac ON-10-04	887.43	34.1	60 - 17 dla	all-AE-14-Ad-uk-19	Annulation Bacones Old Did Class, P	.000 0000 0100 1100 + Duration: 76 microseconds
	THAT STATES TO THEAT	0.0000	10 1 10 1 10 1 10 10 10 10 10 10 10 10 1	200 100 1 100	1007 13		65 -17 dia		Report to and Flam, C	Receiver address: IntelCor_98:58:0f (28:6b:35:98:58:0f)
	17641 13-51-17 17564	0.0000	AN Fire distant	Intelline SH-DR-DR	540	100	60 - 17 dile	48-48-18-44-48-18	Repart Lineting	Transmitter address: Cisco_dd:a0:18 (00:df:ld:d0:a0:16)
	THAT ST. ST. ST. AMARTS	0.0000	14 Tebel/or (0) Elobe	fine dealers	LANCE	100	and the state	development and the	Repeating administry	Destination address: IntelCor_98:58:0F (20:48:35:98:58:0F)
	17647 LL.S. IT AMOUNT	10,0000	100 100 140 1 10	200 200 2 200	882.22	24	and the state	10.07.20.00.00.00	John Anderson Barris C	Source address: Cisco_dd:a0:18 (00:df:1d:dd:a0:18)
	LINE ALLELIC. MONTH	0.0000	NV 202-200-2-25	APR- 500- 4 - 444			40 - 37 Gam		Annual general states of the second states of the s	855 Id: (1sco.dd:a0:18 (00:df:1d:dd:a0:18)
	1/649 13:51:37.460431	0.001/	53 102.168.1.15	192.166.1.111	802.11	84	69 -37 clim		Request-to-send, Flags+	STA address; IntelCor.98;58;0f (28:60:35:98:58:0f)
	1/051 13:51:37.4005/2	0.0001	A1 C15c0_0018018	TALATCOL NULSACOA	LAP	200	60 - 17 CBR	00009110000100110	Request, Loentity	0000 = Fragment number; 0
	1/855 13:51:37.425/98	0.01/2	70 Tupenro. 36:20:64	C25C0_00180128	LAP	137	69 -49 date	00107120100120128	Response, Identity	0000 0000 0011 + Sequence number: 1
	17856 13:51:37.425798	0.0000	00 192.188.1.15	192.168.1.121	882.11	76	69 -37 dBe	ang constants	Acknowledgement, Flags+C	Frame check sequence: 0x00000000 [unverified]
	17858 13(51)37,425952	0.0001	34 IntelCor_98:58:84	C1500_05180118	LAP	137	69 -48 dBH	00004134000180138	Response, Identity	[FCS_Status: Unvertified]
	17859 13151137,425952	0,0000	00 192.168.1.15	192,168.1.121	882.11	76	69 -37 (09)		Acknowledgement, Flags+C	> Gos Control: 8x0007
	17861 13151137,458271	0,0323	19 192.168.1.15	192.368.1.321	802.11	82	69 -37 008		Request-to-send, Flags+C	M. Lorizability Control
	17863 13151137,458271	0.0000	00 C1500_00100118	IntelCor_9815810f	UAP .	110	69 -37 dbs	001061341000130130	Request, TLS EAP (EAP-TLS)	V DEP DEP (Real)
	17866 13:51:37.469889	0.0336	38 192.168.1.15	192.168.1.121	882.11	26	69 -48 dbs		Clear-to-send, Flags+C	tene ten - Car- Shar
	17868 11:51:17.486721	0.0168	02 192.168.1.15	192.168.1.123	802.11	76	69 -37 dBm		Acknowledgement, Flags+C	a = 16 Bit Intividual
	17869 13:51:37.487783	0,0050	62 IntelCor_98:58:84	Cisco_dd:a0:18	TL5v1.2	365	69 -48 d8m	00:df:1d:dd:a0:18	Client Wello	S SSET SHE (must
	17870 13:51:37.487783	0.0000	00 192.168.1.15	192.168.1.121	802.11	76	69 -37 dim		Acknowledgement, Flags+C	A fasted life in fasted (hill)
	17871 13:51:37.497138	0.0093	55 192.168.1.15	192.168.1.121	802.13	82	69 -17 dBm		Request-to-send, Flags+C	<ul> <li>Anticida (space) of concerning (protoc)</li> <li>Anticida (space) of concerning (protoc)</li> <li>Anticida (space) of concerning (protoc)</li> </ul>
	17973 13:51:37.498852	0.0015	14 Cisco_dd:#0:18	IntelCor_98:58:0f	ENP	1110	69 -37 dBn	00:df:1d:dd:a0:18	Request, TLS EAP (EAP-TLS)	the second
	17875 13:51:37.502459	0.0038	07 IntelCor_90:58:04	CLsco_dd:a0:18	ENP.	110	69 -48 dBm	00:df:1d:dd:a0:18	Response, TLS EAP (EAP-TLS)	Contraction Code Code Code Code Code Code Code
	17876 13:51:37.582459	0,0000	00 192.168.1.15	292.168.1.121	802.11	76	69 -37 dBm		Acknowledgement, Flags+C	Transfer contraction ( a second contraction of the second se
	17877 13:51:37,584792	0,0023	38 192.168.1.15	192.168.1.121	882.11	82	69 -17 dBs		Request-to-send, Flags+C	Type: multi-statistic (example)
	17879 13151:37.585493	0.0007	W1 Cisco_dd:a0:18	IntelCor_98:58:0f	TLSv1.2	489	69 -17 dbs	000dF13d0dd1a0138	Ignored Unknown Record	Weill's Astronomy and and and
	17883 13:51:37,518581	0.0130	88 IntelCor_98:58:0F	Cisco_dd:30:28	EAP .	326	69 -48 dBm	001dF:1d1dd1a0138	Response, TLS EAP (EAP-TLS)	Writion: McL.A. Ante (3)
	17884 13151137.518581	0.0000	00 192.168.1.15	292.168.1.121	892.11		69 - 37 dila		Acknowledgement, FlagsvC	Type: Law vacant (e)
	37885 13:51:37.522955	0.0003	74 192.168.1.15	192.168.1.121	802.11	82	69 -38 dilt		Request-to-send, FlagsvC	Longon: parts
	17887 13:51:37.521955	0.0000	00 Cisco_dd:a0:18	IntelCor_98:58:04	EAP	110	69 -37 dile	Wodf:1dodd:a0:38	Request, TLS LAP (EAP-TLS)	<ul> <li>Enterologie Automotication Protocol</li> </ul>
	17889 13:51:37.523974	0.0020	19 IntelCor_98:58:04	Cisco_dd:a0:18	TL5v1.2	908	62 -48 dBm	00:df:1d:dd:a0:18	Certificate, Client Key Exchange, Certificate Verify, Change Cipher Spec, En	Loop: Meganit (1)
	17990 13:51:37.523974	0.0000	00 192.158.1.15	192.168.1.121	882.11	76	69 -37 dBm		Acknowledgement, Flags+C	46:396
	17993 13:51:37.529850	0.0000	66 192.168.1.15	192.168.1.121	882.11	82	69 -37 dBm		Request-to-send, Flags+C	Length para
	17895 13:51:37.528355	0.0001	Q5 Cisco_dd:a0:18	IntelCor_98:58:0F	TL5v1.2	161	69 -37 dBm	00:df:1d:dd:a0:18	Change Clpher Spec, Encrypted Handshake Message	Type: TLS GAP (GAP-TLS) (23)
	17998 13:51:37.534810	0.0064	65 192.168.1.15	192.168.1.121	882.11	76	60 - 38 dBm		Acknowledgement, Flags+C	<ul> <li>Convints Fallet income</li> </ul>
	17809 13:51:37.539457	8,8545	47 192.168.1.15	192.168.1.121	882,11	76	69 -48 dbs		Clear-to-send, Flags+C	I + Length Included: True
	17941 13:51:17.556537	0.0170	88 192.158.1.15	192.168.1.121	802.11	76	69 -38 dBe		Acknowledgement, Flags+C	.1
	17982 13151137.556624	0.0000	87 IntelCor_98:58:0F	£1500_05180128	EAP	110	69 -49 dBs	000dF(1d)dd(a0)18	Response, TLS EAP (EAP-TLS)	+ Start: False
	17901 13:51:37.556624	0.0000	00 192.168.1.15	192.168.1.121	80.11	76	69 -38 dBn		Acknowledgement, Flags+C	EAP-TLS Length: 1381
	17986 13:51:37,586732	0.0305	08 192.148.1.15	192.168.1.121	802.11	76	69 -35 clin		Acknowledgement, Flags+C	
	17908 13:51:37.592524	0.0047	92 192,168,1.15	192.168.1.121	802.11	76	60 -35 dlin		Clear-to-send, FlagsC	
	17965 13:51:37.668659	0.0171	35 192.168.1.15	192.168.1.121	802.11	76	69 -38 dlin		Acknowledgement, FlagueC	
	17967 13:51:37.638468	0.0017	49 192.168.1.15	192.168.1.121	802.11	82	69 -38 dlin		Request-to-send, Flags+C	
	17969 13:51:37.638472	0.0000	64 Cisco dd:a0:18	IntelCor 98:58:8f	LAP	288	69 -38 dBe	00:df:1d:dd:a0:18	Success	
	17971 13:51:37.611308	0.0009	06 192.168.1.15	192.168.1.123	882.13	82	69 -37 dBm		Request-to-send, Flags+C	
	17973 13:51:37.613446	0.0001	38 Cisco dd:89:18	1+telCor 98:58:04	ENVOL	223	69 -37 d8m	00:0f:16:06:08:18	Key (Message 1 of 4)	
	17975 13:51:17.621381	0.0000	05 IntelCor 98:58:84	Cisco ddiamiza	ENVOL	346	69 -49 dBm	00:df:1d:dd:a0:18	Key (Message 2 of 4)	
	17976 13:51:17.621381	0.0000	00 192,168,1.15	292.168.1.123	807.11	76	69 -38 dBm		Acknowledgement, FlagsC	
	17988 13:51:37.638913	0.0005	32 192.168.1.15	392,168,1.123	882.11	82	69 -12 dBs		Request-to-send, FlagsC	
	17982 13:51:17.611510	0.0005	07 Cisco dd:a0:18	IntelCor 98:58:04	EAPOL	423	69 -17 dBs	WeidFrädinkräß	Key (Message 3 of 4)	
	17984 13:51:37.632421	0.0009	11 IntelCor 98:58:04	Cisco dd:a0:18	EAPOL	299	69 -40 dBm	WhidF:1d:dd:a0:15	Key (Message 4 of 4)	
	17985 13:51:37.632421	0.0000	00 192.168.1.15	292.168.1.121	802.11	76	69 -37 dBs		Acknowledgement, FlagsC	

WPA3 Enterprise with EAP-TLS Association with Intel AX211 client and RSN Info

### And the EAP-TLS exchange:

No.	Time	Delta	Source	Destination	Protocol	Length Chann	el Signal strength	BSS 1d	Info	Frame 17875: 110 bytes on wire (800 bits), 110 bytes captured (800 bits) on interface 'Device'(890_)
	17768 11:51:17.057843	0.015572	2 IntelCor 98:58:0F	Broadcast	882.13	236	64 -39 dile	11:11:11:11:11:11	Probe Request, SM-352, FM-0, FlagsC, SSID+"wifind test"	1 Sthermet II, Src: Class_d2:97:47 (74:11:62:d2:97:47), Dat: Universa_b7:cf:06 (08:3a:88:b7:cf:06)
	17780 11:51:17.132635	0.275593	2 192.168.1.15	292.168.1.121	802.11	26	69 -64 dlm		Clear-to-send, Flags+C	1 > Internet Protocol Version 4, Src: 192.168.1.15, Det: 192.168.1.121
	17831 13:51:37.355711	0.023876	6 IntelCor S8:58:0F	Cisco dd:a0:18	802.11	96	49 -44 dim	00:df:1d:dd:a0:10	Authentication, SN+7, FN+9, Flags+C	User Datagram Protocol, Src Port: 5555, Dst Port: 5880
	17812 13:51:37.355711	0.000000	0 192.168.1.15	192.168.1.121	882.11	75	69 -37 dBm		Acknowledgement, FlagsC	3 AbroPeek/OerSPeek encapsulated IEEE 882.11
	17853 13:51:37.259878	0.004143	S Cisco_dd:a0:18	IntelCor_SH:SH:M	682.11	96	69 -37 dBm	00:df:1d:dd:a0:18	Authentication, SN+20, FN+0, Flags+C	3 882.11 ratio information
	17835 11:51:37.360682	0.000000	5 IntelCor_98:58:00	Cisco_dd:a0:18	802.11	252	62 -45 d84	00:df:1d:dd:a0:18	Association Request, 59+8, FM+R, Flags+C, SSID+"wifi6E_test"	> ILLE BHZ.11 QOS DUTA, FLAGS:TC
	17836 13:51:37.368682	0.000000	0 192.168.1.15	192.168.1.121	882.11	76	60 -37 dBM		Acknowledgement, FlagsC	<ul> <li>Logical-Line Control</li> </ul>
	17838 13:51:37.369329	0.008643	7 IntelCor_98:58:0F	Broadcast	LLC	334	69 -37 dBe	0000F13d1dd1x0138	1 P, N(R)=48, N(S)=21; DSAP Bx36 Group, SSAP BxF2 Response	<ul> <li>DSM: SMP (exa)</li> </ul>
	17819 13:51:37.371564	0.002235	S Cisco_dd:a0:18	IntelCor_98:58:0F	882.11	32.5	69 -37 dBs	001dF11d1df1a0118	Association Response, SNe0, FNe0, Flags+C	1010 101. v 507: SN07
	17841 11:51:17.371564	0.000000	0 192.168.1.15	192.168.1.321	882.11	82	69 -37 dim		Request-to-send, Flags+C	
	17843 11:51:37.371564	0.00000	0 Cisco_dd:a0:18	DetelCor_SH:58:04	EAP .	109	60 -37 dim	00:df:1d:dd:a0:18	Request, Identity	> sow: swe (exa)
	17847 13:51:37,406678	0.035114	A IntelCor_98:58:84	Cisco_dd:a0:18	LAPOL	385	69 -46 dim	00:df:10:dd:a0:18	Start	Control Flats: 0, Functus (Beet)
	17648 11:51:17.486678	0.00000	0 192.168.1.15	192.168.1.121	882.11	76	69 -37 dim		Acknowledgement, Flags+C	the company transfer to provide the company
	17849 13:51:37.408431	0.001753	3 192.168.1.15	192.168.1.121	882.11	112	60 -37 dbm		Request-to-send, Flags=C	The state of the s
	17851 13:51:37.408572	0.000141	1 Cisco_dd:a0:18	IntelCor_98:58:0f	LAP .	189	69 -37 dBm	00:df:1d:dd:a0:18	Request, Identity	Transaction could be interested contracting and the
	17855 13:51:37.425798	0.017226	6 IntelCor_9815858F	Cisco_dd:a0:18	649	137	69 -49 dBt	001df13d1dd1a0138	Response, Identity	Type, Month Administration (Mander)
	17856 13:51:17.425798	0.000000	0 192.168.1.15	292.368.1.321	882.33	26	69 -37 dBm		Acknowledgement, Flags+C	Line fact and the fact and the
	17858 13:51:37.429952	0.000154	4 IntelCor_98:58:8F	Clsco_dd:a0:18	EAP	137	40 -48 dbs	00:0F13d:dd:a0:38	Response, Identity	Transfer Market (M)
	17859 13:51:37.425952	0.000000	0 192.168.1.15	292.368.3.321	802.33	78	49 -37 dBm		Acknowledgement, Flags+	ipper the reactor (by
	17861 13:51:37.458271	0.032315	9 192.168.1.15	292.168.1.121	802.15	82	69 -37 dim		Request-to-send, Flags+C	Aregin a determined to be a second
	17863 13:51:37.458271	0.000000	0 Cisco_dd:a0:18	IntelCor_98:58:04	LAP	11#	69 -37 dBm	00:df:1d:dd:a0:10	Request, TLS EAP (EAP-TLS)	Professional Annual Profession
	17866 13:51:37.4659889	0.011618	8 192.148.1.15	192.168.1.125	882.11	75	69 -48 dBe		Clear-to-send, #lags+C	16: 98
	17868 13:51:37,486721	0.015833	2 192.168.1.15	192.168.1.121	882.11	76	49 -37 dB#		Acknowledgement, Flags+C	Laterth: 6
	17869 13:51:37,487783	0.002062	2 IntelCor_SH:58:84	Cisco_dd:a0:18	1L5v1.2	365	69 -48 dBe	00100110100100118	Client Hello	Tome: TIS FAR (FAR-TIS) (31)
	17870 13:51:37.487783	0.000000	0 192.168.1.15	292.168.1.321	882.13	26	69 -37 dBs		Acknowledgement, Flags+C	142-115 (Lam - 200)
	17871 13:51:37.497138	0.009355	5 192.168.1.15	192.168.1.121	882.11	82	69 -17 dBm		Request-to-send, Flags+C	0 = Length Included: False
	17873 13:51:37.498652	0.001514	4 C1300_00/20718	1=telCor_98:58:84	EAP	1136	69 -37 dBH	00104120100100128	Request, TLS GAP (GAP-TLS)	.0 = More fragments: false
	17875 13:51:37.502459	0.001803	7 IntelCor_98158:99	Claco_dd:a0:18	UP .	128	69 -48 dBs	0000F110000180018	Response, TLS EAP (EAP-TLS)	. 0 Start: False
	17876 13:51:37.502459	0.00000	0 192.168.1.15	192.168.1.121	882.11	28	69 -37 dim		Acknowledgement, Flags+C	
	17877 13:51:37.504792	0.002333	3 192.168.1.15	392.168.1.121	882.13	82	60 -37 dan		Request-to-send, FlagsC	
	17879 13:51:37.585493	0.000701	1 61500_00:00:10	IntelCor_98:58:04	FLSV1.2	489	69 -37 008	00100110100100118	Lgrored Unknown Record	
	17883 13:51:37.518581	0.013058	s Intellor_98:58:89	C1sco_0d:80:18	De.	116	09 -48 008	00107110100100118	Response, TLS EAP (EAP-TLS)	
	17884 13:51:37.518581	0.000000	0 192.168.1.15	292.168.1.121	882.11	28	69 -37 098		Acknowledgement, Flags+C	
	17885 13151137.521955	0.003374	4 192.168.1.15	292.168.1.121	882.13	82	49 -38 dBH	server a recent of	Request-to-send, FingsG	
	1/66/ 15/51/17/521995	0.000000	Case of the second second	productor_pactor	Direct of	140	10 - 17 UNK	00107120100100120	September (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999)	
	17889 13-51-51-52-504	0.002013	a publication part parter	Cases a sta	FLOVA-4	978	10 - 10 cm	decise recompanyaer se	certificate, claim by bloarge, certificate veryy, charge came spec, in	
	17890 13-51-37-543978	0.000000	0 102-108-1-15	500 168 1 324	802.14	10	40 -17 dat		Account to and Dama f	
	17805 11-51-77 52805	10.00000000	Class depairing	Tata Vor Di-18-04	TIRAS T	147	40 - 17 dis-	40-47-14-44-48-18	Change Cades See, Eccepted Intelability Research	
	TIME TRALLY SAME	10.0000.011	101 108 1 10	201 248 1 212	882.11		40.000	100.001.000.000.000.000	Arban Andreasest These C	
	12809 13-51-17 59457	0.000643	7 102 168 1 15	292, 168, 1, 121	807.11	- 28	40 48 494		Clean-to-sent Flams. C	
	12901 11:51:17.556517	0.012098	8 192 168 1 15	192, 168, 1, 121	682.11	26	49 - 18 - 59		Acknowledgement, Flammer, C	
11	17982 11-51/17 556638	0.000000	7 Intelfor SELSEN	Elaco de all'19	142	110	40 -40 dbr	00145154145108158	Recourse, TLS EAP (EAP.715)	
	17903 13:51:37.556634	0.000000	0 192.168.1.15	292.168.1.121	882.11	26	40 -18 dim		Acknowledgement, FlagseC	
	17906 13:51:37.586732	0.030500	8 192.168.1.15	292.168.1.121	802.13	76	60 -18 dlm		Acknowledgement, FlagseC	
	17908 11:51:17.501524	0.00(29)	2 192.168.1.15	292.368.3.325	882.13	28	40 -38 dBs		Clear-to-send, FlamsC	
	17965 11:51:17.688659	8.817131	5 192.168.1.15	292,168.1.121	882.13	75	69 -38 dBm		Acknowledgement, FlagsC	
	17967 13:51:37,610408	0.001745	9 192.168.1.15	292.368.1.321	892.13	12	40 -38 dBs		Request-to-send, Flags,C	
	17969 13:51:37.610472	0.000064	< Cisco_dd:a0:18	IntelCor_98:58:0f	EAP .	188	69 -38 dBH	00:0111000:00:08	Success	
	17971 13:51:37.611308	0.000030	6 192.168.1.15	292.168.1.121	892.15	82	69 -37 (88		Request-to-send, FlagsC	
	17973 13:51:37.611446	0.000138	8 Cisco_dd:w0:18	IntelCor_98:58:0f	EAPOL	223	40 -37 dBs	00147134144140138	Key (Message 1 of 4)	
	17975 13:51:37.621381	0.009935	S IntelCor_98158:00	Cisco_dd:a8:18	EAPOL	346	40 -49 (88	001dF13d1dd1a0138	Key (Nessage 2 of 4)	
	17976 13:51:37.621381	0.000000	0 192.168.1.15	392.368.1.121	882.13	76	49 -38 dBs		Acknowledgement, Flags+C	
	17980 13:51:37.630913	0.009533	2 192.168.1.15	292.168.1.121	882.33	82	69 -37 dBs		Request-to-send, Flags+C	
	17982 13:51:37.631530	0.000593	7 Cisco_dd:a0:18	intelCor_98:58:00	EAPOL	423	69 -37 dBm	00:df:1d:dd:a0:18	Key (Message 3 of 4)	
	17984 13:51:37.632421	9.000911	1 IntelCor_98:58:00	Clscp_dd;a0:18	EAPOL.	199	63 -49 dBH	00:df:1d:dd:80:18	Key (Message 4 of 4)	
	17985 11:51:37.632421	0.00000	0 192.168.1.15	192.168.1.121	882.13	75	60 -37 dBM		Acknowledgement, Flags+C	
	17986 13:51:37.640170	0.007745	9 192.168.1.15	192.168.1.121	882.11	62	69 -47 d84		Request-to-send, Flags=C	
	17988 13:51:37.640170	0.000000	0 Cisco_5c:f8:0c	IntelCor_98:58:0f	LLC	183	69 -48 /88	001dF11d1dd1a0:18	S, func=RE2, N(R)=83; DSAP 199 Net Management Group, SSAP Budb Response	
	17990 13:51:37.640237	0.000063	7 C1500_5C1F810C	IntelCor_98:58:6f	LLC	183	69 -48 dBe	0010F13d1dd1a0138	S F, func+INR, N(R)+S2) 054P Netblane Group, SSAP Bude Response	
	17994 13:51:37.471570	0.031333	3 192.168.1.15	392.168.1.121	882.11	26	60 -17 dBs		Acknowledgement, Flags=C	
	17006 11-11-11 ch/Md	(a) (a)(a) (7)(a)	5 101 Nov 8 16	B00 848 8 818	2000 B B B	100	400 - 400 diller		Classe he would State it	

WPA3 Enterprise with EAP-TLS Association with Intel AX211 client and EAP-TLS Focus

### Client details in WLC:

Cisco Cisco Cat	alyst 9800-CL Wireless Controller	Welcome admin 👫 🐔 🕻	Search APs and Clients
Q, Search Menu Items	Monitoring * > Wireless * > Clients	Client	
Dachboard	Clients Sleeping Clients Excluded Clients	360 View General QOS Statis	stics ATF Statistics Mobility History Call
Monitoring	× Delete O	Client Properties AP Properties	Security Information Client Statistics QO 1800 sec (Remaining time: 1172 sec)
Configuration	Selected 0 out of 1 Clients	Client State Servers Client ACLs	None
Administration	Client MAC Address T IPv4 Address T IPv6 Address AP Name T SSD T WLAN D T Client	Type Client Entry Create Time Policy Type	628 seconds WPA3
C Licensing	2860.3990.3007         > 132.100.1.159         N/A         A+01_MC_3130_260C         Webe_365         5         WEA           H         1         H         10         ▼         10         ▼         10         ■         10         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■         ■	Encryption Clipher Authentication Key Management	CCMP (AES) FT-802.1x
		EAP Type	EAP-TLS
		Session Manager	1000
		Point of Attachment	capwap_9000000e
		IIF ID Authorized	0x9000000E TRUE
		Common Session ID	0F01A8C0000001BC0D80D64
		Auth Method Status List	00000000
		Method	Dot1x.
		SM State	AUTHENTICATED
		SM Bend State	IDLE

WPA3 Enterprise with EAP-TLS client details

#### NetGear A8000

WPA3-Enterprise is not supported on this client.

### Pixel 6a

At the date of writing this document, this client was not able to connect to WPA3 Enterprise using EAP-TLS.

This was a client side issue that is being worked on and as soon its resolved, this document shall be updated.

### Samsung S23

At the date of writing this document, this client was not able to connect to WPA3 Enterprise using EAP-TLS.

This was a client side issue that is being worked on and as soon its resolved, this document shall be updated.

### **Security Conclusions**

After all the previous tests, this is the resultant conclusions:

Protocol	Encryption	AKM	AKM Cipher	EAP Method	FT- OverTA	FT- OverDS	Intel AX211	Samsung/Google Android	Net A8
OWE	AES- CCMP128	OWE	NA.	NA.	NA	NA	Supported	Supported	Sur
SAE	AES- CCMP128	SAE (H2E Only)	SHA256	NA.	Supported	Supported	Supported: H2E Only and FT- oTA	Supported: H2E Only. FT Failed. FT- oDS Failed.	Sur H2 and oT FT- Fai
Enterprise	AES- CCMP128	802.1x- SHA256	SHA256	PEAP/FAST/TLS	Supported	Supported	Supported: SHA256 and FT- oTA/oDS Not- Supported: EAP- FAST	Supported: SHA256 and FT- oTA, FT-oDS (S23) Not-Supported: EAP-FAST, FT- oDS (Pixel6a)	Sur SH and oT Not Sur EA FA
Enterprise	GCMP128	SuiteB- 1x	SHA256- SuiteB	PEAP/FAST/TLS	Not Supported	Not Supported	Not Supported	Not Supported	Not Sup
Enterprise	GCMP256	SuiteB- 192	SHA384- SuiteB	TLS	Not Supported	Not Supported	NA/TBD	NA/TBD	Not Sup

# Troubleshoot

The troubleshooting used in this document was based on the online document:

Troubleshoot COS APs

The general guideline for troubleshooting is to collect RA trace in debug mode from the WLC using the client mac address making sure that the client is connecting using the device mac and not a randomized mac address.

For Over the Air troubleshooting, the recommendation is to use AP in sniffer mode capturing the traffic on

### the channel of the client serving AP.



Note: Refer to Important Information on Debug Commands before you use debug commands.

# **Related Information**

What is Wi-Fi 6E?

What Is Wi-Fi 6 vs. Wi-Fi 6E?

Wi-Fi 6E At-a-Glance

Wi-Fi 6E: The Next Great Chapter in Wi-Fi White Paper

Cisco Live - Architecting Next Generation Wireless Network with Catalyst Wi-Fi 6E Access Points

Cisco Catalyst 9800 Series Wireless Controller Software Configuration Guide 17.9.x

WPA3 Deployment Guide