

# 2 ةقبطال نام Wi-Fi 6E WLAN ناما نيوكت هنم ققحتلاو

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## ةمدقملا

نوبز يل عقوقتم وه امو نام 2 ةقبطال Wi-Fi 6E WLAN لكشي ناما فيك ةقيثواذه فصبي  
فلتخم.

## ةيساسال تابلطتملا

### تابلطتملا

ةيلاللا عيضاوملاب ةفرعم كيدل نوكت نام Cisco يصوصت:

- Cisco 9800 (WLC) ةيكل لسان ل LAN ةكبش في مكحتل تادحو
- Cisco 6E Wi-Fi معةت يتل Cisco ن م (APs) لوصول طاقن
- IEEE 802. 11ax راي عم
- 4.0.6 رادصل ال Wireshark : تاودال

## ةمدختس مل تانوك مل

ةيلال ال ةي دام ال تانوك مل او جم ارب ال تارادصل ال دننتس مل اذه في ةدراول تامول عمل دننتس

- WLC 9800-CL عم IOS® XE 17.9.3.
- APs C9136 و CW9162 و CW9164 و CW9166.
- ءال مع Wi-Fi 6e:
  - Lenovo X1 Carbon Gen11 عم AX211 Wi-Fi 6 و 6E لوجم عم رادصل 22.200.2(1).
  - NetGear A8000 Wi-Fi 6 و 6E لويغشت جم انرب عم v1(0.0.108)؛
  - Mobile Pixel 6a عم Android 13؛
  - Samsung S23 لوجم ال فاهل عم Android 13؛

ةصاخ ةي لم عم ةئي ب في ةدوجوم ال ةزهجال نم دننتس مل اذه في ةدراول تامول عمل عاشن ا م تنك اذ ا. (يضا رت ف ا) حوسم م نيوك ت ب دننتس مل اذه في ةمدختس مل ةزهجال عي مج ت ادب رم ا ي ال لم تحت مل ري ثا تل ل كم ه ف نم دكا ت ف ، لويغشت ال دي ق كت كبش

## ةي ساس ا تامول عم

وه لب ، امامت اديج اراي عم سي ل Wi-Fi 6E ن ا وه هت فرع م بجي يذال يسي ئرل ا عي ش ل (802. 11ax) Wi-Fi 6 ةيكل لاصل ال اراي عم ل ادادت ما اهت دعاق في Wi-Fi 6E ةكبش دع ت . دادت ما زتره ا جي 6 غ ل بي يذال وي دارل ا ددرت ي دم في (11ax).

Wi-Fi 6E ةزهجال نكلو ، Wi-Fi راي عم نم ليج ثدح ا دع يذال Wi-Fi 6 ل ع Wi-Fi 6E دم ت عت زتره ا جي 6 ت ا جوم ي دم في لم عمل اهن كم ي طق ف Wi-Fi تاق ي ب طت و

## ام ا Wi-Fi 6e

(OWE) يزاهت نا يكل سال ري فشت و (WPA3) Wi-Fi Protected Access 3 عم اني م ا ت Wi-Fi 6E رفوي WPA2 و Open ن ي م ا ت عم في ف ل خ ق فاوت دجوي الو

ةراد ا راط ا Wi-Fi 6E ب ل ط تي ام ك Wi-Fi 6e دام ت ع ال ن ال ن ي م ا زل ا ن س ح م ل Open نام او WPA3 دع ي ءال عمل او لوصول ةطقن نم لك في (PMF) ي م ح م

اهت ي ب ل ت بجي ة ني عم نام ا ت ا ب ل ط ت م دجوت ، زتره ا جي 6 ددرت ب SSID نيوك ت دن ع

- WPA3 L2 عم OWE او SAE او 802.1x-SHA256 نام ا
- ةي م ح م ل ةراد ا ل راط ا ني ك م ت ؛
- ن ك م م ط ل ت خ م ع ض و دجوي ال ي ا ، رخ ا L2 ن ي م ا ت ب و ل س ا ي ا ب ح م س ي ال

## WPA3

امم WPA2، ربع لضعفأ ةقداصم نيكمت لال خ نم Wi-Fi نيمأت نيسحتل WPA3 ميمصت مت ةساسحلا تاكبشلا ةنورم نم ديزيو ةعسوم ريفشت ةوق ريفوي.

WPA3 ل ةيسيرلا تازيملا نمضتت

- تاراطا ريفشتب موقيو ثبل او يداحأل ثبل ةرادا تاراطا (PMF) يمحمل ةرادا راطا يمحى ل لسلا عنمو يكلساللا لسلا فاشتك ةمظنا نأ ينعي اذهو. يداحأل ثبل ةرادا ليمعلا تاسايس ضرفل ةمشاغل ةوقل بيلاسأ نم لقأ ردقب زيمتت يكلساللا رورملا ةملك ىل ةدنتسملا ةقداصملا (SAE) نيفاكتمل ةنمازتملا ةقداصملا حيتت ةمشاغل ةوقل تامجه نم يمحى اذهو. ةساسألا ةيقافتالا ةيلاو ال نيدلا ةالمعلا ليصوتل WPA2 مادختسا نكمي طلتخم عضوو هيلقاقتنالا عضولا WPA3 نوديؤي.

ليغشتلا ةيلباق كلذكو نيرمتسملا نيمنألا قفاوتلاو ريوطتلا لوح WPA3 رودى نينبلا.

تاعومجم ةطساوب WPA3 فيرعت متي. (WPA2 لثم) WPA3 نيغي تامولعم رصنع دجوي ال AKM/Cipher Suite/PMF.

كنكمي ةفلتخم WPA3 ريفشت تايمزراوخ 4 كيدل، 9800 مقر WLAN ةكبش نيوكت في اهامادختسا.

زمر لوكوتورب عم دادعلا عضوو (GCMP) Galois (GCMP) يسكعلا عضولا لوكوتورب ىل دننتست GCMP128 و CCMP256 و AES (CCMP128) (CCMP) ريفشتل ةلسلستملا لئاسرلا ةقداصم GCMP256 و:

**WPA2/WPA3 Encryption**

AES(CCMP128)	<input checked="" type="checkbox"/>	CCMP256	<input type="checkbox"/>
GCMP128	<input type="checkbox"/>	GCMP256	<input type="checkbox"/>

WPA2/3 ريفشت تارايج

دشحلا

PMF نيكمت دنع WLAN ةكبش ىل ع PMF طيشنت متي.

نم ةيمحم نوكت ال يلاتلابو اهيلع قدصم ريغ 802.11 ةرادا تاراطا نوكت، يضا رتفا لكشب ةردقب (PMF) ةيمحمل ةرادا تاراطا (MFP) ةساسألا ةينبلا ةرادا ةيامح راطا. لاحتنالا 802.11w تامجهلا هذه لثم دض ةيامحلا رفوت.

## Protected Management Frame

PMF

Required

Association Comeback Timer\*

1

SA Query Time\*

200

PMF تاراڭخ

قداصملا حاتفم قرادا

17.9.x رادصا يف قحاتملا AKM تاراڭخ يه هذو

## Auth Key Mgmt

SAE  FT + SAE

OWE  FT + 802.1x

802.1x-  
SHA256

Anti Clogging Threshold\*

Max Retries\*

Retransmit Timeout\*

PSK Format

PSK Type

Pre-Shared Key\*

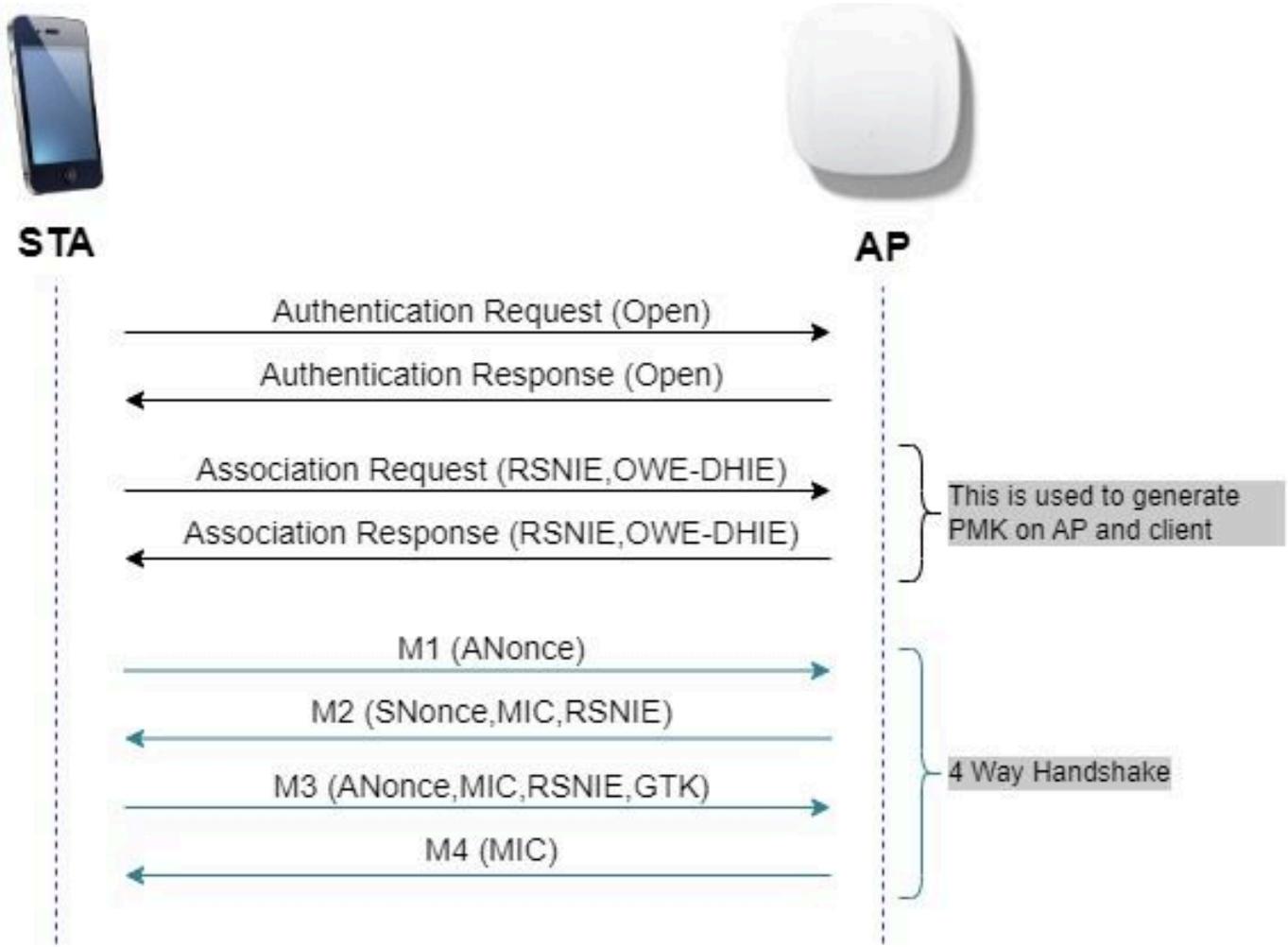
SAE Password Element ⓘ

AKM تاراڭخ

نن ادتست

ري فشت ر فوي يذلا IEEE 802. 11 راي عمل دادتما وه (OWE) يزاهت نالاي كل سالال ري فشت لا بنجت وه OWE لى لى دننت سمل ا قداصل م ن م ضرغ ل ن ا (IETF RFC 8110) ي كل سالال طيسول مئاق ري فشت OWE مدختسي . عال معل او لوصول طاقن ني ب نم آ ريغ ي كل سال لاصت ا حتف لي معل موق ي ، OWE لال خ نم . ي كل سالال ري فشت لا دادع ل Diffie-Hellman تايمزراوخ لى حتاتف معل مادختسا او لوصول اارج اءانثا Diffie-Hellman حيتافم لدابت لوصول ا عطقنو OWE مادختسا يدوي . هاجت ا ل ا ع ا برلا حفاصل م عم كل ذ نع حتان لال (PMK) عم كحلل يسيئرلا

تاكبشالارشن اهيف متي يتالارشنال تاي لمعمل ةيكلسالال ةكبشالارنام انيسحت ىلى  
 ىلى PSK. ةدنتسمال ةكرتشمال و ا ةحوتفمال



نويديل تاراطل لدابت

سفن

ةنمازتمال ةقداصمال ىمست ةديج حيتافم ةرادا ةيلا ةديج ةقداصم WPA3 مدختسي  
 (H2E) رصنع ىلى SAE ةئجت مادختسا لالخنم رثك ا ةيلا ال ا هذ زيزعت متي و .نبيواسمال

SAE م H2E لىمازلل WPA3 و Wi-Fi 6E لىمازلل

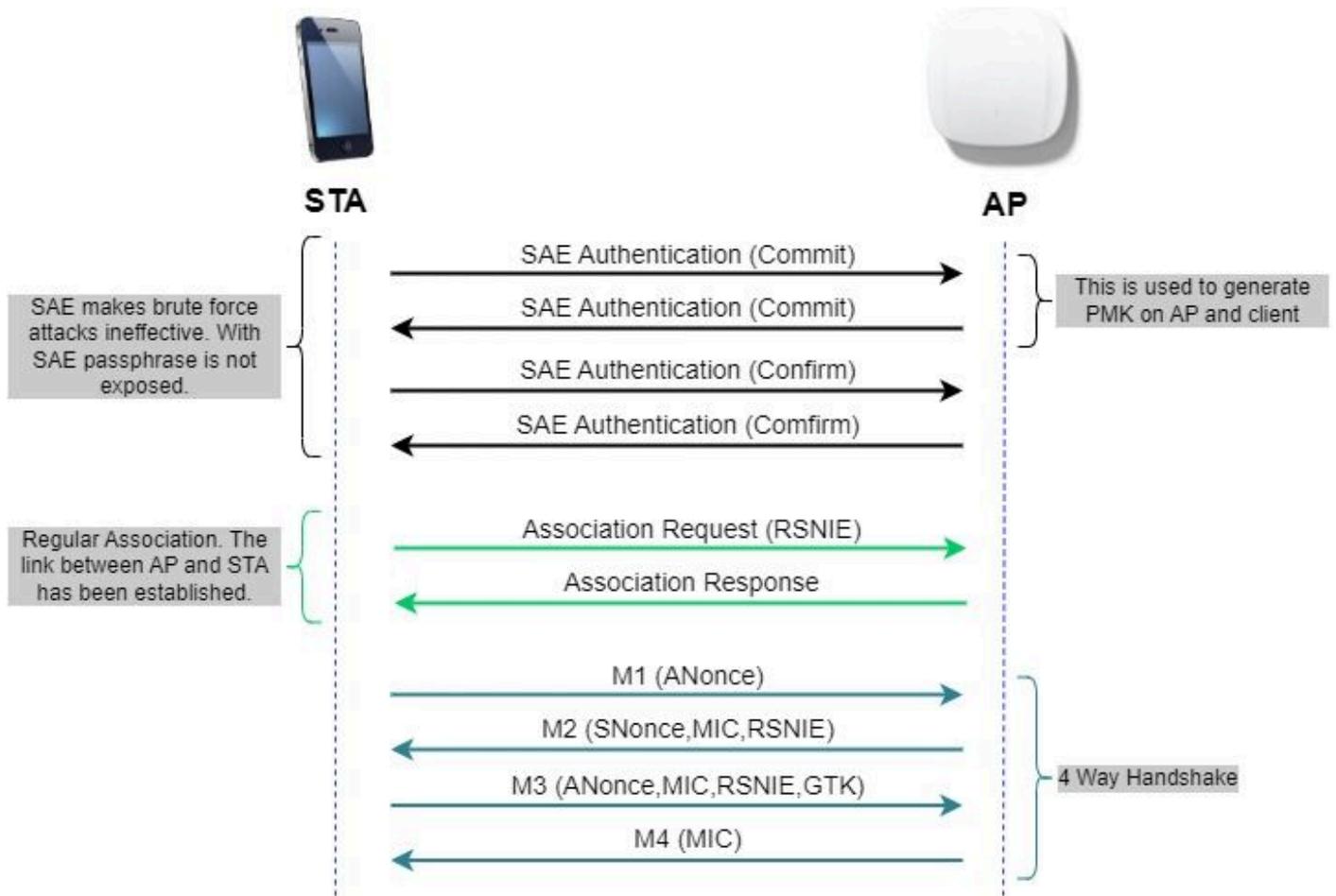
ةقداصمال ىلى يدوت ةقيرطب لاعف لدابت اراجل لصفنم متيراغول ريفشت SAE مدختست  
 لاصتا نود سوماقلا موجهل ةمواقم نوكت دق رورم ةملك مادختساب ةلدابتمال

رورم ةملك ديدحت م صخ هيف لواحي يذال ناكلما وه تنرتنللاب لاصتا نود سوماقلا موجه  
 ةكبشالارنم لعافتال نم ديزمال نودب ةنكممال رورمال تاملك ةلواحم قيرطنع ةكبشالار

لك ئشنتاهنإف ،تحنن اذو .SAE الدابت يرچي هنإف ،لوصولا ةطقنبل لىمعال لصت يامدنع  
 لوصولا ةطقنول لىمعال لخد ي .هنم ةسلجلال حاتفم قاقتشا متي يذالو ،يوق رفشم حاتفم  
 نادكؤي م مازتلال لىس اساسا لكشبل

ةرم لك يف ديكأتلال تالاح ىلى للاقننال لوصولا ةطقنول لىمعال نكم ي ،مازتلا دوجو درجمبو  
 نكم تي شيح هيجوتلا ةداعال ةيرسالا قيرطال ا هذ مدختست و .ةسلجلال حاتفم عاشن ا هيف متي

يخبرنا كيف يتم تأمين الاتصال بين STA و AP.



SAE تاراطل لدابت

## (H2E) رصنع ىلى ةئزجت

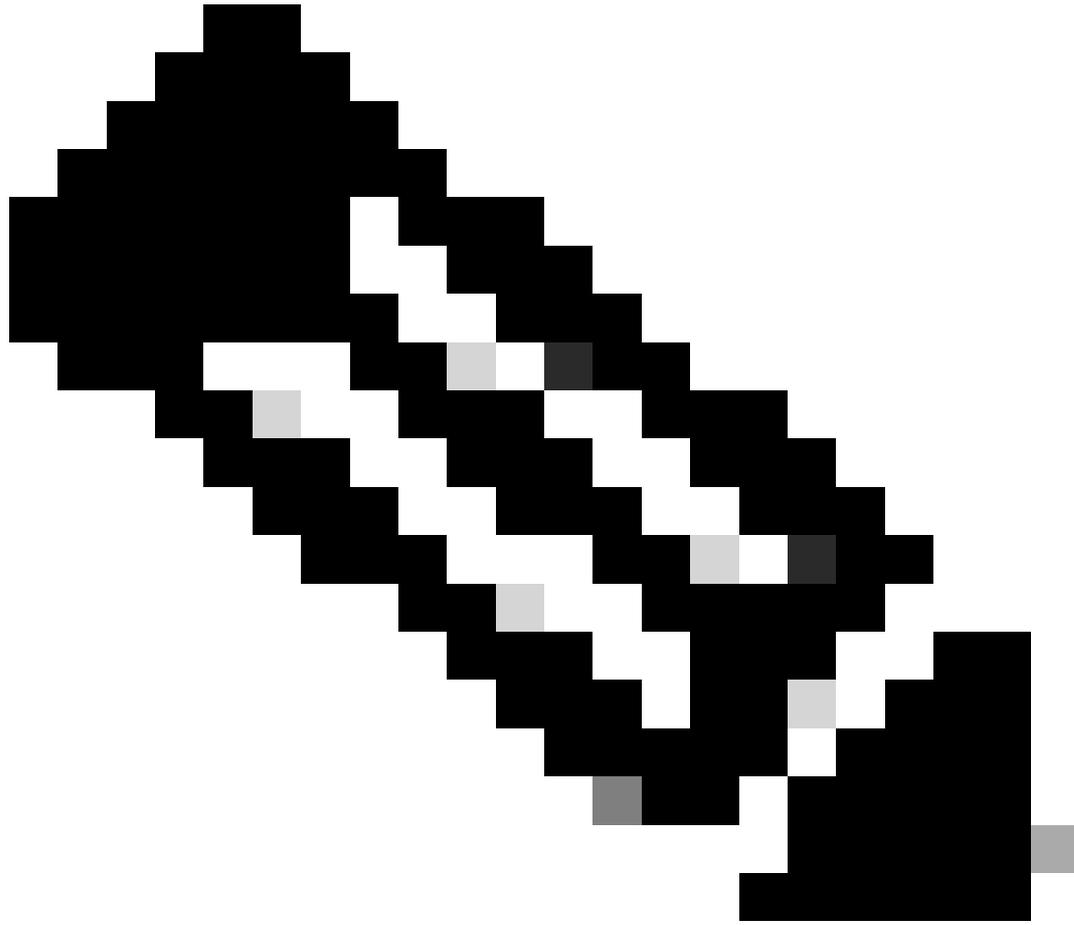
ةقيرطال هذه يف (PWE) ديدج SAE رورم ةملك رصنع ةقيرط يه (H2E) رصنع ال ىلى ةئزجت ال رورم ةملك نم SAE لوكوتورب يف مدختسمل يرسل ال PWE عاشن متي.

ت ناك اذا امم ققحتت اهناف، AP مادختساب SAE ةئيه تب H2E معدت (STA) ةطحم موقت ام دنع PWE صالختس ال H2E مدختست لوصول ةطقن نإف، معدن ةباج ال ت ناك اذا H2E معدت AP SAE Commit ةلاس ر يف اثيدح ةفرعمل ةلحال زمر ةميق مادختساب.

نود لمالك لاب SAE لدابت ةي لمع لظتس ف (HNp) رقن لاو ديصل ةزيم مدختسي STA ناك اذا ريريغت.

تانوكم ال هذه ىلى PWE قاقتشا مسقي، H2E مادختس دنع:

- ام دنع لاصتا نود اذه ذيفنت نكمي. رورم ال ةملك نم (PT) يرستس ورصنع قاقتشا ةدمتعم ةومجم لكل زاغال ىل ةيادبل يف رورم ال ةملك نيوك متي.
- اهيلع ضوافت ال متي ال ةومجم ال ىل كل ذدمتعي. ننخمل ال pt ال نم PWE قاقتشا SAE لدابت ءانثا يقي قح ال تقول يف اذه ذيفنت متي. نارق ال اب ةصال ال MAC نيوانعو.

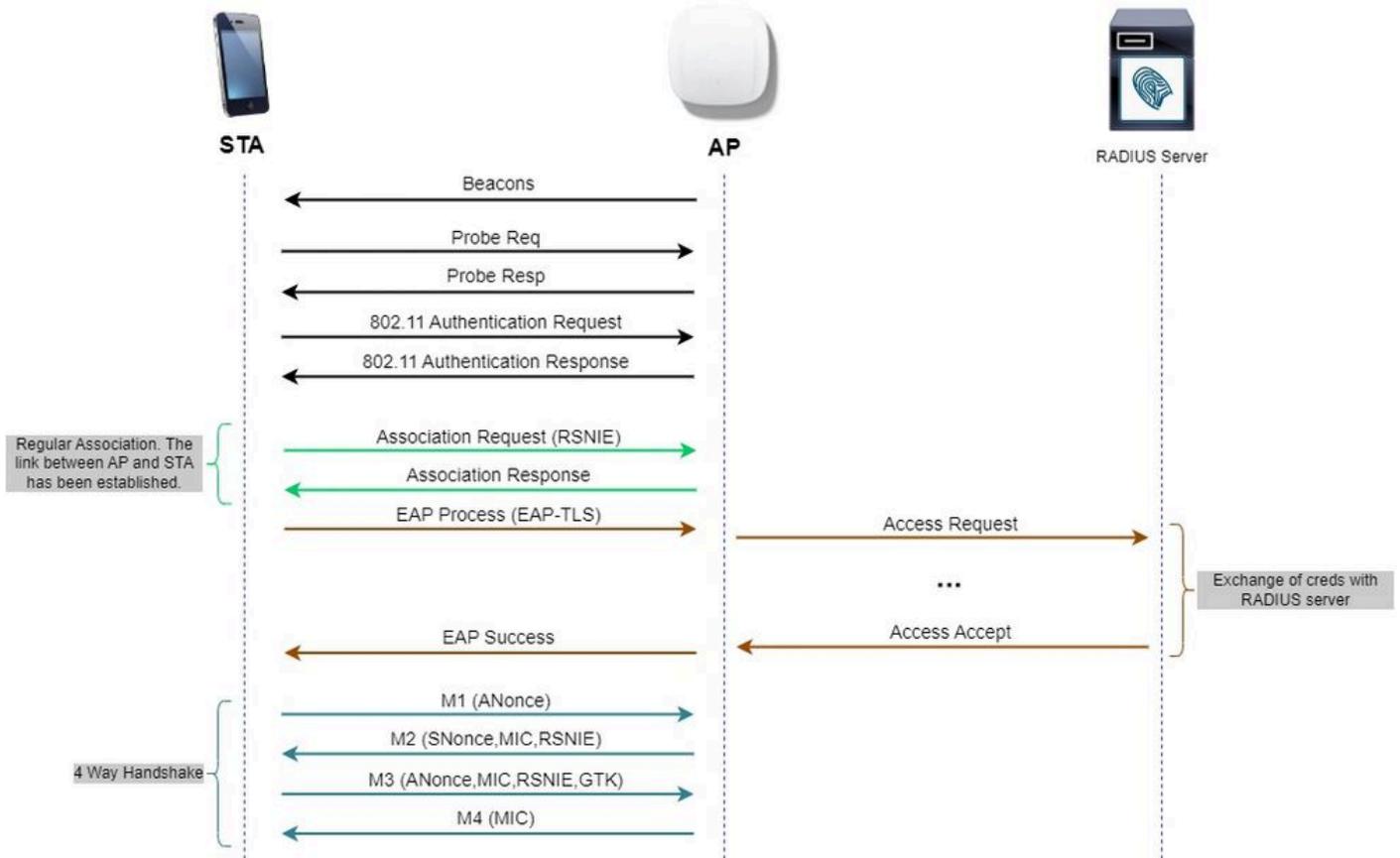


PWE. رصنعلال ىلإ ةئزجتلا نم SAE بولسأ طقف معدت زتره ايج 6: ةظحالم

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WPA-Enterprise 802.1x مساب فورعملال

ىلإ ةفاضلإاب مدختسم مسا مدختسي و WPA3 نم انام أ رثكألا رادصلإا وه WPA3-Enterprise  
، يضارتفا لكش ب. RADIUS مداخل عم مدختسملا ةقداصلمل 802.1X عم ةبكرم رورم ةملك  
تب-192 ريفشت ةوق ريفشت ريفشت اضيأ مدقي هنكل ، تب-128 ريفشت WPA3 مدختسي  
ةساسح تانايب لسرت ةكبش يأل ةفاضلإا ةيامح يطعي يذلاو ، اي رايخا نيوكتلل لباق



WPA3 ةسسؤم ل ل يطيطخت ل م س ر ل ق ف د ت

### WPA3 ع ا ض و ا : ت ا ي و ت س م ل ا ة و م ج م

- يصخش- WPA3
  - ط ق ف ي ص خ ش ل ل - WPA3 ع ض و
    - ب ع ش ل ا د ش ح ل ا ت ا و ق ر ف و ت م ز ل ي
  - يصخش ل ل - WPA3 ل ا ق ت ن ا ل ا ع ض و
    - ا ض ي ا ب ج ي ، ي ص خ ش - WPA2 ن ي ك م ت د ن ع ، ل و ص و ل ا ة ط ق ن ي ل ع : ن ي و ك ت ل ا د ع ا و ق ه ز و ا ج ت م ت ي م ل ا م ، ي ض ا ر ت ف ا ل ك ش ب WPA3-Personal ل ا ق ت ن ا ل ا ع ض و ن ي ك م ت ط ق ف WPA2-Personal ع ض و ي ف ل م ع ل ل ل و و س م ل ل ب ق ن م ح ي ر ص ل ك ش ب
- ي س س ؤ م - WPA3
  - ط ق ف ي س س ؤ م - WPA3 ع ض و
    - WPA3 ت ا ل ا ص ت ا | ع ي م ج ل P M F ي ل ع ض و ا ف ت ل ا م ت ي
  - WPA3-Enterprise ل ا ق ت ن ا ل ا ع ض و
    - WPA3 ل ا ص ت ا ل P M F ي ل ع ض و ا ف ت ل ا م ت ي
    - WPA2 ل ا ص ت ا ل ي ر ا ي ت خ | P M F
  - ي م و ق ل ا ن ا م ا ل ا ة ي م ز ر ا و خ ع م ق ف ا و ت م ل "192-bit" WPA3-Enterprise Suite-B ع ض و ل ا ي ر ا ج ت ل ل (CNSA)
    - ة ي ل ا ر د ي ف ل ا ة م و ك ح ل ا د ر ج م ن م ر ث ك ا
    - ئ ط ا خ ل ل ن ي و ك ت ل ا ب ن ج ت ل ة ق س ا ن ت م ل ا ر ي ف ش ت ل ا ة ر ف ش ت ا ع و م ج م
    - (SHA384) ل ض ا ل ا ة ئ ز ج ت ل ا و ر ي ف ش ت ل ا ف ئ ا ط و ل E C C P و G C M P ة ا ض ا |
    - ب ع ش ل ا د ش ح ل ا ت ا و ق ر ف و ت م ز ل ي

- لك ىلع تاداهش بلطتي امم ، EAP-TLS ل ايرصح تب-192 WPA3 ني مأت نوكي رADIUS مداخو ىطعمال نم
- مدختست نأ بجي ، ةسسؤملا يوتسم ىلع تب 192 رادصلإا WPA3 مادختسال اها: حومسمال EAP تارفش دحأ RADIUS مداخو

TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_GCM\_SHA384  
 TLS\_ECDHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384  
 TLS\_DHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384

نم WLAN تاكبش يف WPA3 ذيفنت لوح ةيوليصفتلا تامولعملال لوح ديزملا ةفرعمل [ليدل](#) نم ققحتلا ةيرحب عامتسالال يجري ، لي عملال نامأ قفاوت ةفوفصم كلذ يف امب ، Cisco ، [WPA3](#) رشن

### Cisco Catalyst Wi-Fi 6E APs لوصول طاقن

Ideal for Small to Medium-sized deployments	Best In Class, Flexibility		Mission Critical, Performance
 <p><b>CW9162</b></p> <ul style="list-style-type: none"> <li>• 2x2 + 2x2 + 2x2</li> <li>• 2.5 Gbps mGig</li> <li>• Power Options: PoE, DC Power</li> <li>• IoT ready + Bluetooth 5.x</li> <li>• Partial iCAP</li> <li>• USB - 4.5 W</li> </ul> <p><small>Available with IOS-XE 17.9.2</small></p>	 <p><b>CW9164</b></p> <ul style="list-style-type: none"> <li>• 2x2, 4x4, 4x4</li> <li>• 2.5 Gbps mGig</li> <li>• Power Options: PoE, DC Power</li> <li>• IoT Ready + Bluetooth 5.x</li> <li>• Partial iCAP</li> <li>• USB- 4.5 W</li> </ul>	 <p><b>CW9166</b></p> <ul style="list-style-type: none"> <li>• 4x4 + 4x4 + 4x4 (XOR 5/6)</li> <li>• 5 Gbps mGig</li> <li>• Power Options: PoE, DC Power</li> <li>• IoT ready + Bluetooth 5.x</li> <li>• Environmental Sensor</li> <li>• Full Packet Capture (iCAP)</li> <li>• Zero-Wait DFS*</li> <li>• USB - 4.5W</li> </ul>	 <p><b>C9136</b></p> <ul style="list-style-type: none"> <li>• 4x4, 8x8, 4x4 (or) 4x4, 4x4+4x4, 4x4</li> <li>• Dual 5 Gbps mGig, active fail over</li> <li>• PoE Redundancy</li> <li>• IoT ready</li> <li>• Bluetooth 5.x</li> <li>• Environmental Sensor</li> <li>• Full Packet Capture (iCAP)</li> <li>• Zero-Wait DFS*</li> <li>• USB - 9W</li> </ul> <p><small>*Available in Future</small></p>
Full radio capability (6 GHz @ LPI) on single 30W PoE+			
Dedicated Radio for CleanAir Pro	Same Bracket, Industrial Design	AP Power Optimization	USB

Wi-Fi 6e لوصول طاقن

### ءالمعلل ةم و عدملال نامألا تاداعإ

بيو ةحفص [تاجت نم ثحاب](#) مادختساب WPA3-Enterprise معدي يذلا جتنملا ىلع روثعلا كنكمي WiFi فللحتل

رمألا مادختساب لوحمل اهمعدي يتلا ني مأتلا تاداعإ نم ققحتلا كنكمي Windows ةزهجأ يف netsh wlan show drivers".

Intel نم AX211 زارط ني زختلا تافيفص جارخا ىلع عالطالا كنكمي انه



Interface name: A8000\_NETGEAR

```
Driver : NETGEAR A8000 WiFi 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 Driver
Radio types supported : 802.11b 802.11a 802.11g 802.11n 802.11ac 802.11ax
FIPS 140-2 mode supported : Yes
802.11w Management Frame Protection supported : Yes
Hosted network supported : No
Authentication and cipher supported in infrastructure 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: [00]
IHV extensibility DLL path: C:\WINDOWS\system32\mtknhvux.dll
IHV UI extensibility CLSID: {00000000-0000-0000-0000-000000000000}
IHV diagnostics CLSID : {00000000-0000-0000-0000-000000000000}
Wireless Display Supported: Yes (Graphics Driver: Yes, Wi-Fi Driver: Yes)
```

لېم عملي لول NetGear A8000s لول NetSH WLAN show driver\_ لول Windows جلا

6a: لول سكلېب ديور دنأ



None

Enhanced Open

WEP

WPA/WPA2-Personal

WPA3-Personal

WPA/WPA2-Enterprise

WPA3-Enterprise

WPA3-Enterprise 192-bit



CIF



# ساي سا ل م ادخت سا ب ر ق ن لا و دا ي ط ص ا ل ا ب ح و م س م ر ي غ ه ن ا ك ر ا ب ت ع ا ي ف ع ض : 6 ة ع ر س ب ط ق ف W L A N ة ك ب ش ن ي و ك ت ب م و ق ت ا م د ن ع . ز ت ر ي ه ا ج ي ج 6 د د ر ت ب ة ي ك س ا ل ا ل ا H2E SAE ر و ر م ة م ل ك ر ص ن ع د ي د ح ت ك ي ل ع ب ج ي ، ز ت ر ه ا ج ي ج .

WLAN: نام ا ت ا د ا ع ا ب ة ص ا خ ا ل ا (GUI) ة ي م و س ر ل م د خ ت س م ل ة ه ج ا و ي ل ع ع ر ع

The screenshot shows a Wireshark capture of WLAN traffic. The main pane lists packets with columns for No., Time, Delta, Source, Destination, Protocol, Length, Channel, Signal, and Info. The right pane shows the details of a selected packet, including IEEE 802.11 radio information and authentication details.

WPA3 SAE Beacons

## ن و ط ب ر ي ن ذ ل ا W i - F i 6 e ا ل م ع د ه ا ش ن ا ن ك ن ي ا ن ه Intel AX211 ح ن ا ش ا ة ع و م ج

ل ي م ع ل ا م R S N ت ا م و ل ع م ر ي ل ع ز ي ك ر ت ا ل م ا ع O T A ل ا ص ت ا ل ا

The screenshot shows a Wireshark capture of WLAN traffic. The main pane lists packets with columns for No., Time, Delta, Source, Destination, Protocol, Length, Channel, Signal, and Info. The right pane shows the details of a selected packet, including IEEE 802.11 radio information and authentication details.

## WLC في ليعم ال لاصفات

## NetGear A8000

## ليعم ال نم RSN تامولوعم ىلع زيكرت ال مع OTA لاصت ال

## WLC في ليعم ال لاصفات

## 6a لسكيب

## ليعم ال نم RSN تامولوعم ىلع زيكرت ال مع OTA لاصت ال

Wireshark capture showing IEEE 802.11 wireless management frames. The interface is 'vdeice/vdeice' (04578905-2998-445). The capture shows a sequence of frames including Authentication, Association Request, and Acknowledgment. The selected frame is an Association Request (Frame 1255) with SSID 'wifid\_test'.

## WLC في ليم عمل ال لي صافات

Cisco Catalyst 9800-CL Wireless Controller interface. The 'Monitoring' tab is active, showing a list of clients. The selected client is '2495.2f72.8a66' with IP address '192.168.1.162' and AP name 'AP6849\_9253\_CA50'. The 'Security Information' tab is also visible, showing details like Client State Servers, Client ACLs, and Authentication Key Management.

## 23 س ا ج ن و س م ا س

## لي عمل ال ن م ر S N م و ل م ع ل ع ز ي ك ر ت ال ل ا ص ا ل ا

Wireshark capture showing IEEE 802.11 wireless management frames. The interface is 'vdeice/vdeice' (04578905-2998-445). The capture shows a sequence of frames including Authentication, Association Request, and Acknowledgment. The selected frame is an Association Request (Frame 773) with SSID 'wifid\_test'.

## WLC في ليم عمل ال لي صافات

Cisco Catalyst 9800-CL Wireless Controller

Welcome admin

Search APs and Clients

Feedback

Monitoring > Wireless > Clients

Clients Sleeping Clients Excluded Clients

Delete

Selected 0 out of 12 Clients

	Client MAC Address	IPv4 Address	IPv6 Address	AP Name
<input type="checkbox"/>	0012.17e1.dd57	192.168.1.33	fe80::212:17ff:fee1:dd57	AP03_Sotao_9548
<input type="checkbox"/>	0012.17e2.4856	192.168.1.37	fe80::212:17ff:fee2:4856	AP05_OutdoorB_220
<input type="checkbox"/>	0012.17e2.4b40	192.168.1.31	fe80::212:17ff:fee2:4b40	AP04_OutdoorF_300
<input type="checkbox"/>	0429.2ec9.e371	192.168.1.160	fe80::6a20:34e8:ab1b:6332	AP6849.9253.CA50
<input type="checkbox"/>	0c8b.9509.3518	192.168.1.129	N/A	AP03_Sotao_9548
<input type="checkbox"/>	34ea.e702.6240	192.168.1.70	N/A	AP6849.9253.CA50
<input type="checkbox"/>	60fb.008b.0e66	N/A	N/A	AP01_RC_9136_F80
<input type="checkbox"/>	84d8.1b0f.294f	192.168.1.91	N/A	AP03_Sotao_9548
<input type="checkbox"/>	9669.5a28.a115	192.168.1.138	fe80::9469:5aff:fe28:a115	AP02_Suite_1084
<input type="checkbox"/>	a810.87bb.b833	192.168.1.94	fe80::aa10:87ff:febb:b833	AP03_Sotao_9548

Client

360 View General QOS Statistics ATF Statistics Mobility History Call Statistics

Client Properties AP Properties Security Information Client Statistics QOS Properties EoGRE

Client State Servers None

Client ACLs None

Client Entry Create Time 78 seconds

Policy Type WPA3

Encryption Cipher CCMP (AES)

Authentication Key Management SAE

EAP Type Not Applicable

Session Timeout 86400

Session Manager

Point of Attachment capwap\_90000010

IF ID 0x90000010

Authorized TRUE

Common Session ID 000000000000FB1B0A58F78

Acct Session ID 0x00000000

Auth Method Status List

Method SAE

WPA3-ش-ي صخش - AES(CCMP128) + SAE + FT

WLAN ناماً ني وكت:

Changing WLAN parameters while it is enabled will result in loss of connectivity for clients connected to it.

General **Security** Advanced Add To Policy Tags

**Layer2** Layer3 AAA

WPA + WPA2  WPA2 + WPA3  WPA3  Static WEP  None

MAC Filtering

Lobby Admin Access

WPA Parameters

WPA Policy  WPA2 Policy   
 GTK Randomize  WPA3 Policy   
 Transition Disable

Fast Transition

Status    
 Over the DS   
 Reassociation Timeout \*

WPA2/WPA3 Encryption

AES(OCMP128)  CCMP256   
 GCMP128  GCMP256

Auth Key Mgmt

SAE  FT + SAE   
 OWE  FT + 802.1x   
 802.1x-SHA256   
 Anti Clogging Threshold\*   
 Max Retries\*   
 Retransmit Timeout\*   
 PSK Format    
 PSK Type    
 Pre-Shared Key\*   
 SAE Password Element

Protected Management Frame

PMF    
 Association Comeback Timer\*   
 SA Query Time\*



No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info			
1	2023-06-12 18:34:49.285337	0.000000	Cisco_13:180:e7	Ethernet II, Src: Cisco_06:70:92:00:00:00, Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)	5	-36	dBm	Beacon frame, S/W=22, F/W=, Flags=.....C, B=100, SSID="WiFi6E"	> Frame 1: 588 bytes on wire (4864 bits), 588 bytes captured (4864 bits) on interface l0vnc/vpp_04578985-2998-4A6C-BC33-C431664			
2	2023-06-12 18:34:49.427544	0.142167	Cisco_13:180:e7	Ethernet II, Src: Cisco_06:70:92:00:00:00, Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)	5	-36	dBm	Beacon frame, S/W=27, F/W=, Flags=.....C, B=100, SSID="WiFi6E"	> Ethernet II, Src: Cisco_06:70:92:00:00:00 (08:0a:8b:07:cf:86), Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)			
3	2023-06-12 18:34:49.589867	0.162453	Cisco_13:180:e7	Ethernet II, Src: Cisco_06:70:92:00:00:00, Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)	5	-37	dBm	Beacon frame, S/W=23, F/W=, Flags=.....C, B=100, SSID="WiFi6E"	> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121			
4	2023-06-12 18:34:49.623332	0.182465	Cisco_13:180:e7	Ethernet II, Src: Cisco_06:70:92:00:00:00, Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)	5	-37	dBm	Beacon frame, S/W=27, F/W=, Flags=.....C, B=100, SSID="WiFi6E"	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000			
5	2023-06-12 18:34:49.791804	0.099872	Netgear_48:78:35	Cisco_13:180:e7	5	-49	dBm	Probe Request, S/W=8, F/W=, Flags=.....C, B=100, SSID="WiFi6E"	> AirPeeK/OneMesh encapsulated IEEE 802.11			
6	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> IEEE 802.11 Association Request, Flags=.....C
7	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Fixed parameters (12 bytes)
8	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tagged parameters (486 bytes)
9	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: SSID parameter set: "WiFi6E"
10	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Supported Rates (6): 9, 12, 18, 24, 36, 48, 54, [Mbit/sec]
11	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Traffic Indication Map (TIM) Bitmap of 3 bits
12	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Country Information: Country Code, Environment Global operating classes
13	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Power Constraint: 6
14	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: TPC Report Transmit Power: 17, Link Margin: 0
15	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: RSN Information
16	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag Number: RSN Information (48)
17	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag length: 26
18	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> RSN version: 1
19	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Group Cipher Suite: 00:e0:ac (see 802.11 AES-CCM)
20	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Pairwise Cipher Suite List: 00:e0:ac (see 802.11 AES-CCM)
21	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Auth Key Management (AKM) Suite Count: 1
22	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Auth Key Management (AKM) List: 00:e0:ac (see 802.11 SAE (SHA256))
23	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> RSN Capabilities: 000000
24	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> PMKID Count: 0
25	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Group Management Cipher Suite: 00:e0:ac (see 802.11 GIP (128))
26	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: QoS Load Element 802.11e (5 octets)
27	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Multiple BSSIDs
28	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: RN Enabled Capabilities (5 octets)
29	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Extended Capabilities (11 octets)
30	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: TX Power Envelope
31	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: TX Power Envelope
32	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: Multiple BSSID Configuration
33	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: HE Capabilities
34	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: HE Operation
35	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: Spatial Reuse Parameter Set
36	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: HE ECCA Parameter Set
37	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Ext Tag: HE 6 GHz Band Capabilities
38	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: RSN extension (1 octet)
39	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag Number: RSN extension (244)
40	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag length: 1
41	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> RSN: 0x20 (octet 1)
42	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> .... 0000 = RSN Length: 0
43	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> ..0... = Protected but operations support: 0
44	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> ..1... = SAE Hash to element: 1
45	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> 00... = Reserved: 00
46	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Atheros Communications, Inc.: Unknown
47	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Microsoft Corp.: WMM/AMC Parameter Element
48	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Cisco Systems, Inc.: AirMESH Unknown (44)
49	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Cisco Systems, Inc.: AirMESH Unknown (11)
50	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Cisco Systems, Inc.: AirMESH Client WPA Disabled
51	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Cisco Systems, Inc.: AirMESH Client WPA Disabled
52	2023-06-12 18:34:49.791804	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-37	dBm	ACKnowledgment, Flags=.....C	> Tag: Vendor Specific: Cisco Systems, Inc.: AirMESH Client WPA Disabled

WPA3 SAE + 802.11e قوت هجوت هجوت FT

نو و ط ب ر ي ن ي ذ ل Wi-Fi 6e ء ا ل م ع د ه ا ش ن ن ا ن ك م ي ا ن ه

Intel AX211 ح ئ ا ر ش ل ن ا ع و م ج م

ل م ي ع ل ا ن م RSN ت ا م و ل ع م ر ل ع ز ي ك ر ت ل ا ع م O T A ل ا ص ت ل ا

No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info			
1811	2023-06-12 18:51:39.249793	0.000000	Netgear_48:78:35	Cisco_13:180:e7	5	-42	dBm	Authentication, S/W=, F/W=, Flags=.....C	> Frame 1811: 256 bytes on wire (2048 bits), 256 bytes captured (2048 bits) on interface l0vnc/vpp_04578985-2998-4A6C-BC33-C431664			
1812	2023-06-12 18:51:39.249793	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> Ethernet II, Src: Cisco_06:70:92:00:00:00, Dst: Univers_07:cf:86 (08:0a:8b:07:cf:86)
1813	2023-06-12 18:51:39.254827	0.005034	Cisco_13:180:e7	Netgear_48:78:35	5	-36	dBm	Authentication, S/W=59, F/W=, Flags=.....C	> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121			
1814	2023-06-12 18:51:39.254827	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
1815	2023-06-12 18:51:39.259394	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> AirPeeK/OneMesh encapsulated IEEE 802.11
1816	2023-06-12 18:51:39.259394	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> IEEE 802.11 Association Request, Flags=.....C
1817	2023-06-12 18:51:39.263979	0.004585	Netgear_48:78:35	Netgear_48:78:35	5	-42	dBm	Authentication, S/W=8, F/W=, Flags=.....C	> Fixed parameters (4 bytes)			
1818	2023-06-12 18:51:39.263979	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> Tagged parameters (156 bytes)
1819	2023-06-12 18:51:39.263979	0.000000	Netgear_48:78:35	Cisco_13:180:e7	5	-42	dBm	Authentication, S/W=8, F/W=, Flags=.....C	> Tag: SSID parameter set: "WiFi6E"			
1820	2023-06-12 18:51:39.263979	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> Tag: Supported Rates (6): 9, 12, 18, 24, 36, 48, 54, [Mbit/sec]
1821	2023-06-12 18:51:39.263979	0.000000	192.168.1.15	192.168.1.121	002	11	76	5	-36	dBm	ACKnowledgment, Flags=.....C	> Tag: Power Capability HE 6 GHz: 0, PMK: 0
1822	2023-06-12 18:51:39.263979	0.000000	192.168.1.15	192.168.1.121	002	11						





Time	Status	Details	Repeat	Identity	Endpoint ID	Endpoint Profile	Authenticat...	Authorizati...	Authorizati...	IP Address	Network Device
Jun 27, 2023 01:52:38.130 PM	Success		0	tantunes	04:29:2E:C9:E3:71		WirelessDot...	WirelessDot...	PermitAccess		
Jun 27, 2023 01:52:38.130 PM	Success		0	tantunes	04:29:2E:C9:E3:71		WirelessDot...	WirelessDot...	PermitAccess		eWLC-9800-01
Jun 27, 2023 01:51:53.850 PM	Success		0	tantunes	24:95:2F:72:8A:66	Unknown	WirelessDot...	WirelessDot...	PermitAccess		
Jun 27, 2023 01:51:53.850 PM	Success		0	tantunes	24:95:2F:72:8A:66	Unknown	WirelessDot...	WirelessDot...	PermitAccess		eWLC-9800-01
Jun 27, 2023 01:50:58.679 PM	Success		0	tantunes	94:18:65:48:70:95	Netgear-Device	WirelessDot...	WirelessDot...	PermitAccess		
Jun 27, 2023 01:50:58.679 PM	Success		0	tantunes	94:18:65:48:70:95	Netgear-Device	WirelessDot...	WirelessDot...	PermitAccess		eWLC-9800-01
Jun 27, 2023 01:50:43.883 PM	Success		0	tantunes	94:18:65:48:70:95	Netgear-Device	WirelessDot...	WirelessDot...	PermitAccess		eWLC-9800-01
Jun 27, 2023 01:50:42.877 PM	Success		0	tantunes	28:6B:35:98:58:0F	Intel-Device	WirelessDot...	WirelessDot...	PermitAccess		
Jun 27, 2023 01:50:42.877 PM	Success		0	tantunes	28:6B:35:98:58:0F	Intel-Device	WirelessDot...	WirelessDot...	PermitAccess		eWLC-9800-01

## قرش ابل ايسه تالاجس

## اذكده و دبت اوتا تارانملا

No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info
324	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	428	59-38-dm	0	Probe Request, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
325	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
326	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
327	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	428	59-38-dm	0	Beacon Frame, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
328	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	76	59-38-dm	0	Clear-to-send, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
329	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
330	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
331	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
332	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
333	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
334	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
335	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
336	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
337	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
338	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
339	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
340	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
341	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
342	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
343	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
344	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
345	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
346	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
347	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
348	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
349	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test
350	0.000000	0.000000	Cisco_05:0a:08:18	Broadcast	802.11	374	59-38-dm	0	Probe Response, SMO=04, PWR=, Flags=, SSID=WiFi6E_test, SSID=WiFi6E_test

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> Frame 327: 428 bytes on wire (3424 bits), 428 bytes captured (3424 bits) on interface DeviceVFP_04578900-2998-4036-8C13-CA1314
> Ethernet II, Src: Cisco_05:0a:08:18 (08:00:0c:28:3c:07:04), Dst: Unknown_07:cf:06 (08:00:0c:07:cf:06)
> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121
> User Datagram Protocol, Src Port: 5555, Dst Port: 59000
> Aloha/Dump/OnPcap encapsulated IEEE 802.11
> IEEE 802.11 wireless management
> IEEE 802.11 beacon frame, Flags: .....C
> IEEE 802.11 beacon frame, Flags: .....C
> IEEE 802.11 beacon frame, Flags: .....C
> Fixed parameters (12 bytes)
> Tagged parameters (120 bytes)
> Tag: Supported Rates (18), 1, 2, 5.5, 11, 24, 36, 48, 54, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180, 192, 204, 216, 228, 240, 252, 264, 276, 288, 300, 312, 324, 336, 348, 360, 372, 384, 396, 408, 420, 432, 444, 456, 468, 480, 492, 504, 516, 528, 540, 552, 564, 576, 588, 600, 612, 624, 636, 648, 660, 672, 684, 696, 708, 720, 732, 744, 756, 768, 780, 792, 804, 816, 828, 840, 852, 864, 876, 888, 900, 912, 924, 936, 948, 960, 972, 984, 996, 1008, 1020, 1032, 1044, 1056, 1068, 1080, 1092, 1104, 1116, 1128, 1140, 1152, 1164, 1176, 1188, 1200, 1212, 1224, 1236, 1248, 1260, 1272, 1284, 1296, 1308, 1320, 1332, 1344, 1356, 1368, 1380, 1392, 1404, 1416, 1428, 1440, 1452, 1464, 1476, 1488, 1500, 1512, 1524, 1536, 1548, 1560, 1572, 1584, 1596, 1608, 1620, 1632, 1644, 1656, 1668, 1680, 1692, 1704, 1716, 1728, 1740, 1752, 1764, 1776, 1788, 1800, 1812, 1824, 1836, 1848, 1860, 1872, 1884, 1896, 1908, 1920, 1932, 1944, 1956, 1968, 1980, 1992, 2004, 2016, 2028, 2040, 2052, 2064, 2076, 2088, 2100, 2112, 2124, 2136, 2148, 2160, 2172, 2184, 2196, 2208, 2220, 2232, 2244, 2256, 2268, 2280, 2292, 2304, 2316, 2328, 2340, 2352, 2364, 2376, 2388, 2400, 2412, 2424, 2436, 2448, 2460, 2472, 2484, 2496, 2508, 2520, 2532, 2544, 2556, 2568, 2580, 2592, 2604, 2616, 2628, 2640, 2652, 2664, 2676, 2688, 2700, 2712, 2724, 2736, 2748, 2760, 2772, 2784, 2796, 2808, 2820, 2832, 2844, 2856, 2868, 2880, 2892, 2904, 2916, 2928, 2940, 2952, 2964, 2976, 2988, 3000, 3012, 3024, 3036, 3048, 3060, 3072, 3084, 3096, 3108, 3120, 3132, 3144, 3156, 3168, 3180, 3192, 3204, 3216, 3228, 3240, 3252, 3264, 3276, 3288, 3300, 3312, 3324, 3336, 3348, 3360, 3372, 3384, 3396, 3408, 3420, 3432, 3444, 3456, 3468, 3480, 3492, 3504, 3516, 3528, 3540, 3552, 3564, 3576, 3588, 3600, 3612, 3624, 3636, 3648, 3660, 3672, 3684, 3696, 3708, 3720, 3732, 3744, 3756, 3768, 3780, 3792, 3804, 3816, 3828, 3840, 3852, 3864, 3876, 3888, 3900, 3912, 3924, 3936, 3948, 3960, 3972, 3984, 3996, 4008, 4020, 4032, 4044, 4056, 4068, 4080, 4092, 4104, 4116, 4128, 4140, 4152, 4164, 4176, 4188, 4200, 4212, 4224, 4236, 4248, 4260, 4272, 4284, 4296, 4308, 4320, 4332, 4344, 4356, 4368, 4380, 4392, 4404, 4416, 4428, 4440, 4452, 4464, 4476, 4488, 4500, 4512, 4524, 4536, 4548, 4560, 4572, 4584, 4596, 4608, 4620, 4632, 4644, 4656, 4668, 4680, 4692, 4704, 4716, 4728, 4740, 4752, 4764, 4776, 4788, 4800, 4812, 4824, 4836, 4848, 4860, 4872, 4884, 4896, 4908, 4920, 4932, 4944, 4956, 4968, 4980, 4992, 5004, 5016, 5028, 5040, 5052, 5064, 5076, 5088, 5100, 5112, 5124, 5136, 5148, 5160, 5172, 5184, 5196, 5208, 5220, 5232, 5244, 5256, 5268, 5280, 5292, 5304, 5316, 5328, 5340, 5352, 5364, 5376, 5388, 5400, 5412, 5424, 5436, 5448, 5460, 5472, 5484, 5496, 5508, 5520, 5532, 5544, 5556, 5568, 5580, 5592, 5604, 5616, 5628, 5640, 5652, 5664, 5676, 5688, 5700, 5712, 5724, 5736, 5748, 5760, 5772, 5784, 5796, 5808, 5820, 5832, 5844, 5856, 5868, 5880, 5892, 5904, 5916, 5928, 5940, 5952, 5964, 5976, 5988, 6000, 6012, 6024, 6036, 6048, 6060, 6072, 6084, 6096, 6108, 6120, 6132, 6144, 6156, 6168, 6180, 6192, 6204, 6216, 6228, 6240, 6252, 6264, 6276, 6288, 6300, 6312, 6324, 6336, 6348, 6360, 6372, 6384, 6396, 6408, 6420, 6432, 6444, 6456, 6468, 6480, 6492, 6504, 6516, 6528, 6540, 6552, 6564, 6576, 6588, 6600, 6612, 6624, 6636, 6648, 6660, 6672, 6684, 6696, 6708, 6720, 6732, 6744, 6756, 6768, 6780, 6792, 6804, 6816, 6828, 6840, 6852, 6864, 6876, 6888, 6900, 6912, 6924, 6936, 6948, 6960, 6972, 6984, 6996, 7008, 7020, 7032, 7044, 7056, 7068, 7080, 7092, 7104, 7116, 7128, 7140, 7152, 7164, 7176, 7188, 7200, 7212, 7224, 7236, 7248, 7260, 7272, 7284, 7296, 7308, 7320, 7332, 7344, 7356, 7368, 7380, 7392, 7404, 7416, 7428, 7440, 7452, 7464, 7476, 7488, 7500, 7512, 7524, 7536, 7548, 7560, 7572, 7584, 7596, 7608, 7620, 7632, 7644, 7656, 7668, 7680, 7692, 7704, 7716, 7728, 7740, 7752, 7764, 7776, 7788, 7800, 7812, 7824, 7836, 7848, 7860, 7872, 7884, 7896, 7908, 7920, 7932, 7944, 7956, 7968, 7980, 7992, 8004, 8016, 8028, 8040, 8052, 8064, 8076, 8088, 8100, 8112, 8124, 8136, 8148, 8160, 8172, 8184, 8196, 8208, 8220, 8232, 8244, 8256, 8268, 8280, 8292, 8304, 8316, 8328, 8340, 8352, 8364, 8376, 8388, 8400, 8412, 8424, 8436, 8448, 8460, 8472, 8484, 8496, 8508, 8520, 8532, 8544, 8556, 8568, 8580, 8592, 8604, 8616, 8628, 8640, 8652, 8664, 8676, 8688, 8700, 8712, 8724, 8736, 8748, 8760, 8772, 8784, 8796, 8808, 8820, 8832, 8844, 8856, 8868, 8880, 8892, 8904, 8916, 8928, 8940, 8952, 8964, 8976, 8988, 9000, 9012, 9024, 9036, 9048, 9060, 9072, 9084, 9096, 9108, 9120, 9132, 9144, 9156, 9168, 9180, 9192, 9204, 9216, 9228, 9240, 9252, 9264, 9276, 9288, 9300, 9312, 9324, 9336, 9348, 9360, 9372, 9384, 9396, 9408, 9420, 9432, 9444, 9456, 9468, 9480, 9492, 9504, 9516, 9528, 9540, 9552, 9564, 9576, 9588, 9600, 9612, 9624, 9636, 9648, 9660, 9672, 9684, 9696, 9708, 9720, 9732, 9744, 9756, 9768, 9780, 9792, 9804, 9816, 9828, 9840, 9852, 9864, 9876, 9888, 9900, 9912, 9924, 9936, 9948, 9960, 9972, 9984, 9996, 10008, 10020, 10032, 10044, 10056, 10068, 10080, 10092, 10104, 10116, 10128, 10140, 10152, 10164, 10176, 10188, 10200, 10212, 10224, 10236, 10248, 10260, 10272, 10284, 10296, 10308, 10320, 10332, 10344, 10356, 10368, 10380, 10392, 10404, 10416, 10428, 10440, 10452, 10464, 10476, 10488, 10500, 10512, 10524, 10536, 10548, 10560, 10572, 10584, 10596, 10608, 10620, 10632, 10644, 10656, 10668, 10680, 10692, 10704, 10716, 10728, 10740, 10752, 10764, 10776, 10788, 10800, 10812, 10824, 10836, 10848, 10860, 10872, 10884, 10896, 10908, 10920, 10932, 10944, 10956, 10968, 10980, 10992, 11004, 11016, 11028, 11040, 11052, 11064, 11076, 11088, 11100, 11112, 11124, 11136, 11148, 11160, 11172, 11184, 11196, 11208, 11220, 11232, 11244, 11256, 11268, 11280, 11292, 11304, 11316, 11328, 11340, 11352, 11364, 11376, 11388, 11400, 11412, 11424, 11436, 11448, 11460, 11472, 11484, 11496, 11508, 11520, 11532, 11544, 11556, 11568, 11580, 11592, 11604, 11616, 11628, 11640, 11652, 11664, 11676, 11688, 11700, 11712, 11724, 11736, 11748, 11760, 11772, 11784, 11796, 11808, 11820, 11832, 11844, 11856, 11868, 11880, 11892, 11904, 11916, 11928, 11940, 11952, 11964, 11976, 11988, 12000, 12012, 12024, 12036, 12048, 12060, 12072, 12084, 12096, 12108, 12120, 12132, 12144, 12156, 12168, 12180, 12192, 12204, 12216, 12228, 12240, 12252, 12264, 12276, 12288, 12300, 12312, 12324, 12336, 12348, 12360, 12372, 12384, 12396, 12408, 12420, 12432, 12444, 12456, 12468, 12480, 12492, 12504, 12516, 12528, 12540, 12552, 12564, 12576, 12588, 
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في حل حمل الة كبش ل ال ف م ك ح ت ل ا د ح و ب ة ص ا خ ل ا (GUI) ة ي م و س ر ل ا م د خ ت س م ل ا ة ة ج ا و ن م) ة د ا ع ل ا و ا ح ي ه ن ك ل و ن ا ر ت ق ا ا غ ا ل ا ر ا ط ا ل ا ي م ع ل ا م ل ت س ي . (ل ا ث م ل ل ا ي ب س ي ل ع (WLC) ة ك ي ل س ل ا ل ا ن ا ل م ا ك EAP ل د ا ب ت ه ع ب ت ي ن ا ر ت ق ا ة د ا ع ل ا ر ا ط ا م د خ ت س ي و ل و ص و ل ا ة ط ق ن س ف ن ب ل ا ص ت ا ل ا ل و ص و ل ا / WLC. ة ط ق ن ن م ا ه ف ذ ح م ل ي م ع ل ا ل ي ص ا ف ت

ل د ا ب ت ة ي و ر ك ن ك م ي ا ن ه . ة د ي د ج ن ا ر ت ق ا ة ي ل م ع ي ف ا م ك ي ل د ا ب ت ل ا ر ا ط ا ل ا س ف ن ا س ا س ا و ه ا ذ ه و ت ا ر ا ط ا ل ا :

The image shows a Wireshark packet capture analysis of an EAP authentication process. The main pane displays a list of packets with columns for No., Time, Delta, Source, Destination, Protocol, Length, Channel, Signal, and Size. Key packets are highlighted with red boxes and labels:

- Probing and authentication frames:** Packets 179-182, including Authentication-Request, Authentication-Response, and Probe-Request/Response.
- Regular Association:** Packets 183-186, including Probe-Request/Response, Request-Identity, and Request-Protected EAP.
- EAP Exchange:** Packets 187-200, including Request-Identity, Request-Protected EAP, and various EAP-OLM frames.
- 4 Way Handshake:** Packets 201-204, including Key-Message frames.

The right pane shows the details of a selected packet (No. 182), highlighting the **Auth Key Management (AKM) List** and **PMKID used for FT** fields.

ق ا د ت ل ا ص ت ا ق ا د ت WPA3 Enterprise 802.1x + FT AX211

ل ي م ع ل ا ل ي ص ا ف ت WLC:

The image shows a screenshot of a network management interface. The top pane displays a list of clients with columns for Client MAC Address, IPv4 Address, IPv6 Address, AP Name, and SSID. The bottom pane shows the details for a selected client, including:

- Client Properties:** Client MAC Address, IPv4 Address, IPv6 Address, AP Name, SSID.
- Security Information:** Re-Authentication Timeout (1800 sec), Client State Servers (None), Client ACLs (None), Client Entry Create Time (1338 seconds), Policy Type (WPA3), Encryption Cipher (CCMP (AES)), Authentication Key Management (FT-802.1x), EAP Type (PEAP), Session Timeout (1800).

ل ي م ع ل ا ل ي ص ا ف ت WPA3 Enterprise 802.1x + FT

ل ا و ج ت ل ا ن م ن ك م ت ا م ك DS. م ا ظ ن ر ب ع FT ة ي ن ق ت م ا د خ ت س ا ب ا ض ي ا ل ي م ع ل ا ا ذ ه ر ا ب ت خ ا م ت د ق ل 802.11r: ر ا ي ع م ا د خ ت س ا ب

No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info
3028	16.491589	0.182243	Cisco_9818-0F	Broadcast	802.11	364	69	-36	dtm Beacon Frame, Src=9817, FwB, Flags=.....C, B1=100, SSID=WiFi
3029	16.504213	0.120808	Cisco_9818-0F	Broadcast	802.11	364	69	-36	dtm Beacon Frame, Src=9817, FwB, Flags=.....C, B1=100, SSID=WiFi
3030	16.564794	0.059523	IntelCor_9818-0F	Broadcast	802.11	368	69	-45	dtm Probe Request, Src=327, FwB, Flags=.....C, SSID=WiFi
3031	16.564794	0.000000	Cisco_9818-0F	Broadcast	802.11	328	69	-38	dtm Probe Response, Src=400, FwB, Flags=.....C, B1=100, SSID=WiFi
3032	16.595429	0.031635	Cisco_9818-0F	Broadcast	802.11	364	69	-38	dtm Beacon Frame, Src=9817, FwB, Flags=.....C, B1=100, SSID=WiFi
3088	16.702450	0.002020	IntelCor_9818-0F	Cisco_9818-0F	802.11	218	69	-46	dtm Authentication, Src=11, FwB, Flags=.....C
3089	16.701542	0.000007	192.168.1.121	192.168.1.121	802.11	76	69	-39	dtm Acknowledgment, Flags=.....C
3092	16.706278	0.004736	Cisco_9818-0F	IntelCor_9818-0F	802.11	247	69	-38	dtm Authentication, Src=115, FwB, Flags=.....C
3093	16.706278	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-39	dtm Acknowledgment, Flags=.....C
3098	16.709827	0.000000	192.168.1.121	192.168.1.121	802.11	372	69	-48	dtm Association Request, Src=327, FwB, Flags=.....C, SSID=WiFi
3099	16.709827	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-38	dtm Acknowledgment, Flags=.....C
3100	16.718126	0.000020	IntelCor_9818-0F	IntelCor_9818-0F	802.11	433	69	-39	dtm Association Response, Src=98, FwB, Flags=.....C
3108	16.731216	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-41	dtm Acknowledgment, Flags=.....C
3109	16.727450	0.000020	IntelCor_9818-0F	IntelCor_9818-0F	802.11	223	69	-59	dtm I P, N(R)=0, N(S)=0; DSAP SNAP Group, SSAP Bk2 Response
3110	16.727450	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-47	dtm Acknowledgment, Flags=.....C
3115	16.748833	0.013376	IntelCor_9818-0F	Broadcast	LLC	525	69	-59	dtm U P, func=0x00; DSAP Bk1 Individual, SSAP Bk2 Command
3116	16.748833	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-48	dtm Acknowledgment, Flags=.....C
3117	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	183	69	-50	dtm I P, N(R)=0, N(S)=0; DSAP SNAP Group, SSAP Bk2 Command
3118	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-53	dtm Acknowledgment, Flags=.....C
3119	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-50	dtm I, N(R)=0, N(S)=0; DSAP Bk1 Individual, SSAP Bk2 Response
3120	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-48	dtm Acknowledgment, Flags=.....C
3121	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3122	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-52	dtm Acknowledgment, Flags=.....C
3123	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-52	dtm Action, Src=1, FwB, Flags=.....C
3124	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-48	dtm Acknowledgment, Flags=.....C
3125	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3126	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	76	69	-41	dtm Acknowledgment, Flags=.....C
3127	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3128	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3129	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3130	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3131	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3132	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3133	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3134	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3135	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3136	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3137	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3138	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3139	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3140	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3141	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3142	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3143	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3144	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3145	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3146	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3147	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3148	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3149	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3150	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3151	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3152	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3153	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3154	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3155	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3156	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3157	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3158	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3159	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3160	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C
3161	16.742984	0.000000	192.168.1.121	192.168.1.121	802.11	118	69	-48	dtm Action, Src=1, FwB, Flags=.....C

### AX211 مع لواجت ال FT

### FT: في لواجت ال ثا اذ عدهاشم اضي اننكمي

Monitoring > Wireless > Clients

Clients Sleeping Clients Excluded Clients

Selected 0 out of 1 Clients

Client MAC Address	IPv4 Address	IPv6 Address	AP Name	SSID	WLAN ID	Client Type
2866.3598.580F	192.168.1.159	N/A	AP01_RC_9136_F80C	wifi6_test	5	WLAN

### WPA3 Enterprise مع FT

### WLC: نم ليمع ال بقعتو

```

Logging display requested on 2023/09/04 14:27:55 (GMT) for Hostname: [wlc-9800-01], Model: [C9800-CL-F91, Version: [17.09.03], SN: [59Y3SR1909], MD_SN: [59Y3SR1909]
2023/09/04 14:22:15.91564120 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Re-association received. BSSID 00df.1d6d.7d30, WLAN wifi6_test, Slot 3 AP 00df.1d6d.7d30, AP9136_SC.F524, old BSSID 00df.1d6d.a018
2023/09/04 14:22:15.91564120 [wmod_w_0-0] (1): [dot11] [15218]: (note) MAC: 286b.3598.580f Association success. AID 33, Roaming = True, WCB = False, llw = True, llw = True Fast roam = True
2023/09/04 14:22:15.91649412 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Delete mobile payload sent for BSSID: 00df.1d6d.a018 WTP mac: 00df.1d6d.a018 slot id: 3
2023/09/04 14:22:15.91649412 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_READY --> S_CO_12_AUTH_IN_PROGRESS
2023/09/04 14:22:15.917320574 [wmod_w_0-0] (1): [client-auth] [15218]: (note) MAC: 286b.3598.580f ADO Mobile sent. Client state flags: 0x71 BSSID: MAC: 00df.1d6d.7d30 capwap IFID: 0x00000000, Add mobiles sent: 1
2023/09/04 14:22:15.921041967 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Mobility discovery triggered. Client mode: Local
2023/09/04 14:22:15.921041967 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_12_AUTH_IN_PROGRESS --> S_CO_MOBILITY_DISCOVERY_IN_PROGRESS
2023/09/04 14:22:15.921041967 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Mobility Successful. Roam Type Home, Sub Roam Type HM_SUB_ROAM_TYPE_INTRA_INSTANCE, Previous BSSID MAC: 00df.1d6d.a018 Client IFID: 0x00000000, Client Role: Local Pk: 0x00000000 Pop: 0x0
2023/09/04 14:22:15.92113992 [wmod_w_0-0] (1): [client-auth] [15218]: (note) MAC: 286b.3598.580f ADO MOBILE sent. Client state flags: 0x76 BSSID: MAC: 00df.1d6d.7d30 capwap IFID: 0x00000000, Add mobiles sent: 1
2023/09/04 14:22:15.92113992 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_MOBILITY_DISCOVERY_IN_PROGRESS --> S_CO_DEATH_PLUMB_IN_PROGRESS
2023/09/04 14:22:15.92146455 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_DEATH_PLUMB_IN_PROGRESS --> S_CO_IP_LEARN_IN_PROGRESS
2023/09/04 14:22:15.92166600 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_IP_LEARN_IN_PROGRESS --> S_CO_READY
2023/09/04 14:24:17.91855521 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Re-association received. BSSID 00df.1d6d.a018, WLAN wifi6_test, Slot 3 AP 00df.1d6d.a018, AP01_RC_9136_F80C, old BSSID 00df.1d6d.7d30
2023/09/04 14:24:17.91897444 [wmod_w_0-0] (1): [dot11] [15218]: (note) MAC: 286b.3598.580f Association success. AID 33, Roaming = True, WCB = False, llw = True, llw = True Fast roam = True
2023/09/04 14:24:17.921392523 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Delete mobile payload sent for BSSID: 00df.1d6d.7d30 WTP mac: 00df.1d6d.7d30 slot id: 3
2023/09/04 14:24:17.921392523 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_READY --> S_CO_12_AUTH_IN_PROGRESS
2023/09/04 14:24:17.92409164 [wmod_w_0-0] (1): [client-auth] [15218]: (note) MAC: 286b.3598.580f ADO MOBILE sent. Client state flags: 0x71 BSSID: MAC: 00df.1d6d.a018 capwap IFID: 0x00000000, Add mobiles sent: 1
2023/09/04 14:24:17.92409164 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Mobility discovery triggered. Client mode: Local
2023/09/04 14:24:17.92409164 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_12_AUTH_IN_PROGRESS --> S_CO_MOBILITY_DISCOVERY_IN_PROGRESS
2023/09/04 14:24:17.92409164 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Mobility Successful. Roam Type Home, Sub Roam Type HM_SUB_ROAM_TYPE_INTRA_INSTANCE, Previous BSSID MAC: 00df.1d6d.7d30 Client IFID: 0x00000000, Client Role: Local Pk: 0x00000000 Pop: 0x0
2023/09/04 14:24:17.93161935 [wmod_w_0-0] (1): [client-auth] [15218]: (note) MAC: 286b.3598.580f ADO MOBILE sent. Client state flags: 0x76 BSSID: MAC: 00df.1d6d.a018 capwap IFID: 0x00000000, Add mobiles sent: 1
2023/09/04 14:24:17.93161935 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_MOBILITY_DISCOVERY_IN_PROGRESS --> S_CO_DEATH_PLUMB_IN_PROGRESS
2023/09/04 14:24:17.93161935 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_DEATH_PLUMB_IN_PROGRESS --> S_CO_IP_LEARN_IN_PROGRESS
2023/09/04 14:24:17.93350110 [wmod_w_0-0] (1): [client-orch-stm] [15218]: (note) MAC: 286b.3598.580f Client state transition: S_CO_IP_LEARN_IN_PROGRESS --> S_CO_READY
  
```

### NetGear A8000

### WPA3-Enterprise اذ ع دل مع دم ع ريغ

### 6a لسكيب

No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info
878	1.408897	0.263322	Cisco_08:00:18:18	Broadcast	802.11	428	69	-17	dm Beacon frame, SN=3662, PWR=, Flags=.....C, BI=100, SSID=Wi-Fi
880	1.409207	0.143770	Cisco_08:00:18:18	Broadcast	802.11	204	69	-17	dm Probe Request, SN=3662, PWR=, Flags=.....C, SSID=Wi-Fi, SS
882	1.409362	0.000405	Cisco_08:00:18:18	Broadcast	802.11	428	69	-17	dm Beacon frame, SN=3662, PWR=, Flags=.....C, BI=100, SSID=Wi-Fi
884	1.409478	0.000716	Cisco_08:00:18:18	Broadcast	802.11	374	69	-17	dm Probe Response, SN=3662, PWR=, Flags=.....C, BI=100, SSID=Wi-Fi
928	1.675576	0.113498	Cisco_08:00:18:18	Broadcast	802.11	428	69	-17	dm Beacon frame, SN=3662, PWR=, Flags=.....C, BI=100, SSID=Wi-Fi
932	1.675989	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Authentication, SN=0111, PWR=, Flags=.....C
934	1.675989	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
936	1.675951	0.003842	Cisco_08:00:18:18	Google_72:8a:96	802.11	108	69	-17	dm Authentication, SN=14, PWR=, Flags=.....C
938	1.675951	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
940	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	264	69	-14	dm Association Request, SN=0002, PWR=, Flags=.....C, SSID=Wi-Fi
942	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
944	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
946	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
948	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
950	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
952	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
954	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
956	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
958	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
960	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
962	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
964	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
966	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
968	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
970	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
972	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
974	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
976	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
978	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
980	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
982	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
984	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
986	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
988	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
990	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
992	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
994	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
996	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
998	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1000	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1002	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1004	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1006	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1008	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C
1010	1.676238	0.000000	192.168.1.15	192.168.1.122	802.11	76	69	-17	dm Acknowledgment, Flags=.....C

```

> frame 925: 264 bytes on wire (2088 bits), 264 bytes captured (2088 bits) on Interface Wpa/WiFi (en-1:0:0:0:0:0)
> Ethernet II, Src: Cisco_08:00:18:18:18:18, Dst: Intelersa_07:c8:06 (en-1:0:0:0:0:0)
> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.122
> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
> AiroHw/0x100000 encapsulated IEEE 802.11
> IEEE 802.11 radio information
> IEEE 802.11 Association Request, Flags: .....C
Tagged parameters (167 bytes)
> Fixed parameters (4 bytes)
> Tag: SSID parameter set: "Wi-Fi"
> Tag: Supported Rates (8): 9, 12(0), 18, 24(0), 36, 48, 54, [Mbit/sec]
> Tag: Power Capability Mtr: 7, Max: 29
> Tag: Supported Channels
> Tag: RSN Information
Tag Number: RSN Information (48)
Tag Length: 28
RSN Version: 1
> Group Cipher Suite: 00000000 (See IEEE 802.11) AES (CCM)
Pairwise Cipher Suite Count: 1
Pairwise Cipher Suite List: 00000000 (See IEEE 802.11) AES (CCM)
Auth Key Management (AKM) Suite Count: 1
Auth Key Management (AKM) List: 00000000 (See IEEE 802.11) FT over IEEE 802.1X
Auth Key Management (AKM) Suite: 00000000 (See IEEE 802.11) FT over IEEE 802.1X
Auth Key Management (AKM) Type: FT over IEEE 802.1X (1)
> RSN Capabilities: 000000
.....00000000 = RSN Pre-Auth capabilities: Transmitter does not support pre-authentication
.....00000000 = RSN No Pairwise capabilities: Transmitter can support MP default key @ simultaneously wdt
.....00000000 = RSN PTKSA Replay Counter capabilities: 1 replay counter per PTKSA/PTKSA/STakeySA (0x0)
.....00000000 = RSN GTKSA Replay Counter capabilities: 1 replay counter per PTKSA/PTKSA/STakeySA (0x0)
.....00000000 = Management frame Protection Required: True
.....00000000 = Management frame Protection Capable: True
.....00000000 = 32bit MIC11-band RSN: False
.....00000000 = PTKSA Enabled: False
.....00000000 = Extended key ID for Individually Addressed Frames: Not supported
PNVID Count: 0
PNVID List:
> Group Management Cipher Suite: 00000000 (See IEEE 802.11) BIP (128)
> Tag: W Enabled Capabilities (5 octets)
> Tag: Mobility domain
> Tag: Supported Operating Classes
> Tag: Extended Capabilities (20 octets)
> Ext Tag: HE Capabilities
> Ext Tag: HE 4-0 Band Capabilities
> Tag: Vendor Specific: Broadcom
Tag Number: Vendor Specific (221)
Tag Length: 10
OUI: 00-00-00 (Broadcom)
Vendor Specific OUI Type: 2
Vendor Specific Data: 0000000000000000
> Tag: Vendor Specific: Microsoft Corp.: WPA/WiFi Information Element
  
```

نارتقالا WPA3 Enterprise 802.1x + FT Pixel6a

WLC: لي عمل لى صافات

The screenshot shows the Cisco Catalyst 9800-CL Wireless Controller interface. The 'Client' page is active, displaying 'Security Information' for a selected client. The client's MAC address is 2495.2172.8a66, and its IP address is 192.168.1.162. The security information shows that the client is using WPA3 Enterprise with FT (Fast Transition) and is authenticated via IEEE 802.1X. The re-authentication timeout is set to 1800 seconds.

لي عمل لى صافات WPA3 Enterprise 802.1x + FT Pixel6a

802.11R: عون اونك مي شيح عاوهال ربع لاونتال عون لى زكر

The screenshot shows the Cisco Catalyst 9800-CL Wireless Controller interface, specifically the 'Mobility History' page for a selected client. The table displays the client's recent association history, including the AP Name, BSSID, AP Slot, Association Time, Instance, Mobility Role, Run Latency, and Room Type. The client is currently associated with AP01\_RC\_9136\_FB0C in room 802.11R.

23 س اچنوس ماس

لي عمل لى صافات RSN تامول عمل لى زكر لى صافات ال اوتا





### Edit WLAN

⚠ Changing WLAN parameters while it is enabled will result in loss of connectivity for clients connected to it.

General **Security** Advanced Add To Policy Tags

Layer2 Layer3 AAA

WPA + WPA2  WPA2 + WPA3  WPA3  Static WEP  None

MAC Filtering

Lobby Admin Access

**WPA Parameters**

WPA Policy	<input type="checkbox"/>	WPA2 Policy	<input type="checkbox"/>
GTK Randomize	<input type="checkbox"/>	WPA3 Policy	<input checked="" type="checkbox"/>
Transition Disable	<input type="checkbox"/>		

**Fast Transition**

Status

Over the DS

Reassociation Timeout \*

**WPA2/WPA3 Encryption**

AES(CCMP128)	<input type="checkbox"/>	CCMP256	<input type="checkbox"/>
GCMP128	<input checked="" type="checkbox"/>	GCMP256	<input type="checkbox"/>

**Auth Key Mgmt**

SUITEB-1X

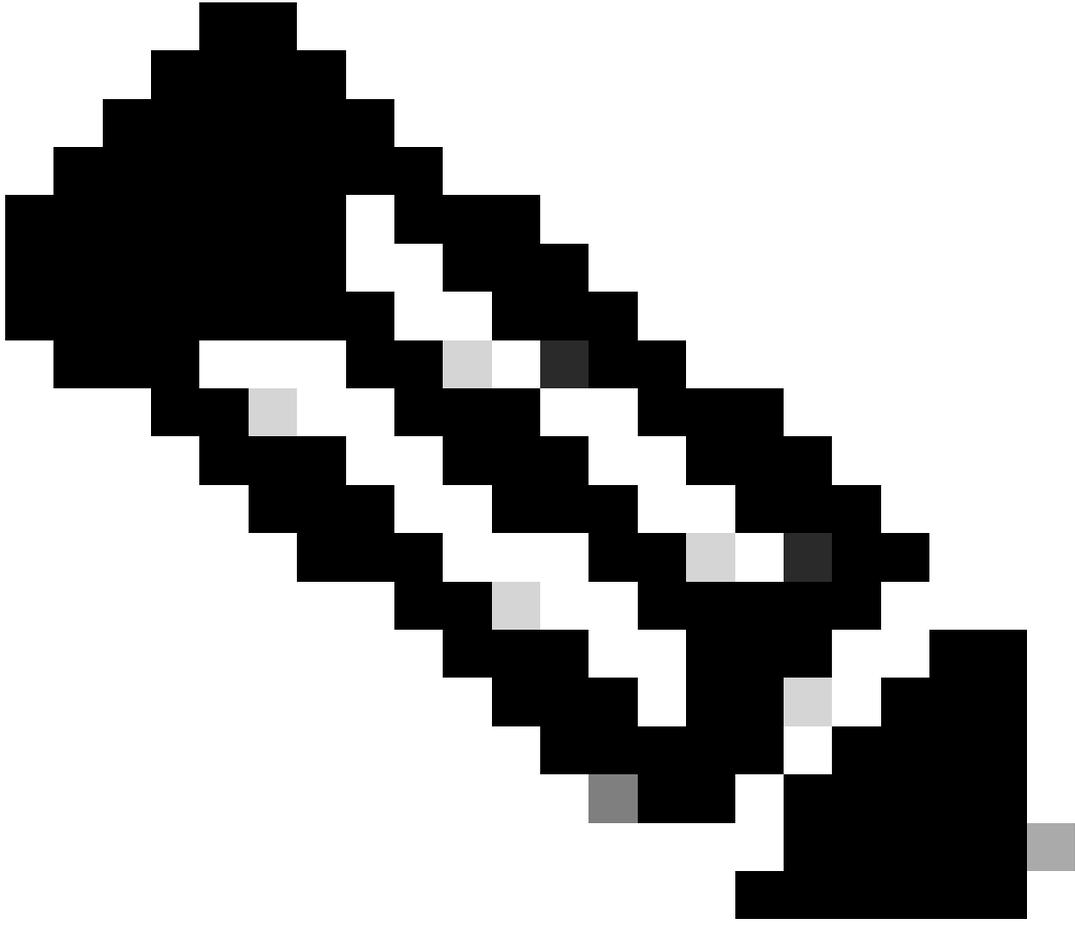
**Protected Management Frame**

PMF

Association Comeback Timer\*

SA Query Time\*

WPA3 Enterprise SuiteB-1X نام ال نيوكت



SUITEB-1X في ft معد متي ال: ةظحالم

WLAN نام أ تادادعإب ةصاخلا (GUI) ةيموسرلا مدختسملا ةهجاو ىلع ضرع

□ ● w@6E\_test

5

w@6E\_test

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

OTA: داشرالا ةزهجأ نم ققحتلا

No.	Time	Delta	Source	Destination	Protocol	Length	Channel	Signal	Info
37376	59.189776	0.820482	Cisco_06:00:18	Broadcast	802.11	312	69	-48 dbm	Probe Response, SN=2802, PWR=, Flags=.....C, BI=100, SSID=
37385	59.190516	0.820488	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2803, PWR=, Flags=.....C, BI=100, SSID=
37396	59.191790	0.820481	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2804, PWR=, Flags=.....C, BI=100, SSID=
37414	59.193261	0.820462	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2805, PWR=, Flags=.....C, BI=100, SSID=
37424	59.193713	0.820472	Cisco_06:00:18	Broadcast	802.11	312	69	-48 dbm	Probe Response, SN=2806, PWR=, Flags=.....C, BI=100, SSID=
37437	59.194258	0.820457	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2807, PWR=, Flags=.....C, BI=100, SSID=
37447	59.194792	0.820442	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2808, PWR=, Flags=.....C, BI=100, SSID=
37459	59.195334	0.820522	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2809, PWR=, Flags=.....C, BI=100, SSID=
37470	59.195829	0.820399	Cisco_06:00:18	Broadcast	802.11	312	69	-19 dbm	Probe Response, SN=2809, PWR=, Flags=.....C, BI=100, SSID=
37480	59.196445	0.820501	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2810, PWR=, Flags=.....C, BI=100, SSID=
37489	59.197047	0.821342	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2812, PWR=, Flags=.....C, BI=100, SSID=
37499	59.197616	0.821929	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2813, PWR=, Flags=.....C, BI=100, SSID=
37520	59.198733	0.820817	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2814, PWR=, Flags=.....C, BI=100, SSID=
37529	59.199088	0.820343	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2815, PWR=, Flags=.....C, BI=100, SSID=
37532	59.199236	0.821156	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2816, PWR=, Flags=.....C, BI=100, SSID=
37539	59.199689	0.821751	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2817, PWR=, Flags=.....C, BI=100, SSID=
37552	59.199748	0.820459	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2818, PWR=, Flags=.....C, BI=100, SSID=
37565	59.199799	0.820501	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2819, PWR=, Flags=.....C, BI=100, SSID=
37574	59.199843	0.820438	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2820, PWR=, Flags=.....C, BI=100, SSID=
37585	59.199865	0.820542	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2821, PWR=, Flags=.....C, BI=100, SSID=
37596	59.199829	0.820476	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2822, PWR=, Flags=.....C, BI=100, SSID=
37616	59.199949	0.820995	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2823, PWR=, Flags=.....C, BI=100, SSID=
37628	59.200021	0.820881	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2824, PWR=, Flags=.....C, BI=100, SSID=
37641	59.200064	0.820961	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2825, PWR=, Flags=.....C, BI=100, SSID=
37652	59.200337	0.820351	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2826, PWR=, Flags=.....C, BI=100, SSID=
37668	59.200765	0.820428	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2827, PWR=, Flags=.....C, BI=100, SSID=
37687	59.202467	0.820792	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2828, PWR=, Flags=.....C, BI=100, SSID=
37696	59.202867	0.820480	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2829, PWR=, Flags=.....C, BI=100, SSID=
37704	59.203477	0.820630	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2830, PWR=, Flags=.....C, BI=100, SSID=
37719	59.203721	0.820241	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2831, PWR=, Flags=.....C, BI=100, SSID=
37731	59.204549	0.820628	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2832, PWR=, Flags=.....C, BI=100, SSID=
37738	59.204659	0.820180	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2833, PWR=, Flags=.....C, BI=100, SSID=
37749	59.205208	0.820605	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2834, PWR=, Flags=.....C, BI=100, SSID=
37775	59.205621	0.820302	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2835, PWR=, Flags=.....C, BI=100, SSID=
37792	59.206215	0.820508	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2836, PWR=, Flags=.....C, BI=100, SSID=
37809	59.207802	0.821581	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2837, PWR=, Flags=.....C, BI=100, SSID=
37814	59.207813	0.821511	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2838, PWR=, Flags=.....C, BI=100, SSID=
37822	59.207968	0.820347	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2839, PWR=, Flags=.....C, BI=100, SSID=
37833	59.208058	0.820398	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2840, PWR=, Flags=.....C, BI=100, SSID=
37841	59.208548	0.820490	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2841, PWR=, Flags=.....C, BI=100, SSID=
37857	59.209090	0.820550	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2842, PWR=, Flags=.....C, BI=100, SSID=
37864	08.013602	0.820462	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2843, PWR=, Flags=.....C, BI=100, SSID=
37868	08.013932	0.820508	Cisco_06:00:18	Broadcast	802.11	355	69	-18 dbm	Beacon frame, SN=2844, PWR=, Flags=.....C, BI=100, SSID=
37881	08.014049	0.820597	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2845, PWR=, Flags=.....C, BI=100, SSID=
37887	08.014057	0.820508	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2846, PWR=, Flags=.....C, BI=100, SSID=
37897	08.014084	0.820839	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2847, PWR=, Flags=.....C, BI=100, SSID=
37908	08.112976	0.820888	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2848, PWR=, Flags=.....C, BI=100, SSID=
37927	08.112424	0.820438	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2849, PWR=, Flags=.....C, BI=100, SSID=
37928	08.113047	0.820813	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2850, PWR=, Flags=.....C, BI=100, SSID=
37936	08.173114	0.820267	Cisco_06:00:18	Broadcast	802.11	312	69	-18 dbm	Probe Response, SN=2851, PWR=, Flags=.....C, BI=100, SSID=
37943	08.193778	0.820464	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2852, PWR=, Flags=.....C, BI=100, SSID=
37949	08.114389	0.820593	Cisco_06:00:18	Broadcast	802.11	312	69	-17 dbm	Probe Response, SN=2853, PWR=, Flags=.....C, BI=100, SSID=
37961	08.114873	0.820598	Cisco_06:00:18	Broadcast	802.11	355	69	-17 dbm	Beacon frame, SN=2854, PWR=, Flags=.....C, BI=100, SSID=

```

> frame 37628: 355 bytes on wire (2840 bits), 355 bytes captured (2840 bits) on interface \Device\NPF_{04576965-2998-4456-8C13-C4}
> Ethernet II, Src: Cisco_02:00:07:47 (74:11:3a:02:07:47), Dst: Unknown_07:c7:cf:0e (08:00:07:c7:cf:0e)
> Internet Protocol Version 4, Src: 192.168.1.15, Dst: 192.168.1.121
> User Datagram Protocol, Src Port: 5555, Dst Port: 5000
> AlohaPdu/OnStream encapsulated IEEE 802.11
> IEEE 802.11 radio information
> IEEE 802.11 Beacon frame, Flags: .....C
IEEE 802.11 Wireless Management
> Fixed parameters (12 bytes)
> Tagged parameters (213 bytes)
  > Tag: SSID parameter set: "wifi6_test"
  > Tag: Supported Rates (6B), 9, 12(0), 18, 24(0), 36, 48, 54, [Mbit/sec]
  > Tag: Traffic Indication Map (TIM): OPM # of 1 bitmap
  > Tag: Country Information: Country Code na, Environment Global operating classes
  > Tag: Power Constraint: 6
  > Tag: TX Report Transmit Power: 36, L100 Operati: 0
  > Tag: RSN Information
    > Tag Number: RSN Information (64)
    > Tag Length: 36
    > RSN Version: 1
    > Group Cipher Suite: 00000000: IEEE 802.11 GCM (128)
    > Pairwise Cipher Suite Count: 1
    > Pairwise Cipher Suite List 00000000: IEEE 802.11 GCM (128)
    > Auth Key Management (AKM) Suite Count: 1
    > Auth Key Management (AKM) List 00000000: IEEE 802.11 WPA (SHA256-Suite0)
    > Auth Key Management (AKM) SU: 00000000: IEEE 802.11
    > Auth Key Management (AKM) Type: WPA (SHA256-Suite0) (11)
    > RSN Capabilities: 000000
    > PMKID Count: 0
    > PMKID List
  > Group Management Cipher Suite: 00000000: IEEE 802.11 GCM (128)
  > Tag: QoS User Element: IEEE 802.11 version
  > Tag: W Enabled Capabilities (5 octets)
  > Tag: Extended Capabilities (1 octets)
  > Tag: Tx Power Envelope
  > Tag: Tx Power Envelope
  > Ext Tag: Multiple BSSID Configuration
  > Ext Tag: HE Capabilities
  > Ext Tag: HE Operation
  > Ext Tag: Spatial Reuse Parameter Set
  > Ext Tag: HE SCA Parameter Set
  > Ext Tag: HE 4 GHz Band Capabilities
  > Tag: Vendor Specific: Atheros Communications, Inc.: Unknown
  > Tag: Vendor Specific: Microsoft Corp.: WPA/WPA2 Parameter Element
  > Tag: Vendor Specific: Cisco Systems, Inc.: Airont Client MFP Disabled
  > Tag: Vendor Specific: Cisco Systems, Inc.: Airont CCK version = 5
  > Tag: Vendor Specific: Cisco Systems, Inc.: Airont Unknown (64)
  > Tag: Vendor Specific: Cisco Systems, Inc.: Airont Unknown (11) (11)

```

WPA3 Enterprise SuiteB-1X Beacon

SuiteB-1X WLAN مداخلت ساب WLAN ةكبش ب لاصت الال ن م ه راب تخ إ ن م ي ن ك م ت ي م ل هذه نام الال ةقيرط م عدي عيش ال ن أ دك و ي امم 1X

WPA3- Suiteb192-1X + ريفش GCMP256 + يس سؤم

WLAN نام أ وكت

⚠ Changing WLAN parameters while it is enabled will result in loss of connectivity for clients connected to it.

General **Security** Advanced Add To Policy Tags

**Layer2** Layer3 AAA

WPA + WPA2   
  WPA2 + WPA3   
  WPA3   
  Static WEP   
  None

MAC Filtering

Lobby Admin Access

**WPA Parameters**

WPA Policy     WPA2 Policy   
 GTK Randomize     WPA3 Policy   
 Transition Disable

**Fast Transition**

Status   
 Over the DS   
 Reassociation Timeout \*

**WPA2/WPA3 Encryption**

AES(CCMP128)     CCMP256   
 GCMP128     GCMP256

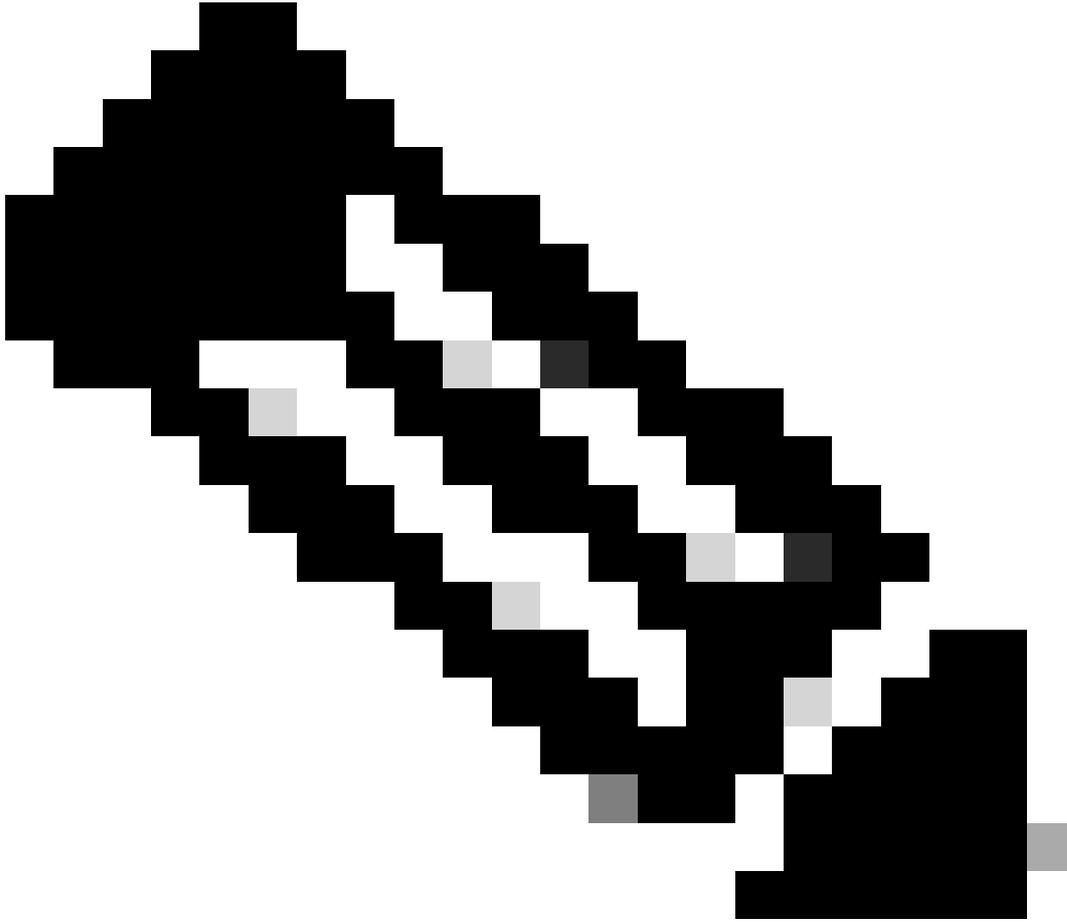
**Auth Key Mgmt**

SUITEB192-1X

**Protected Management Frame**

PMF   
 Association Comeback Timer\*   
 SA Query Time\*

WPA3 Enterprise Suiteb192-1x نيمأت تادادع



GCMP256+SUITEB192-1X عم ft معد متي ال: ةظحالم

ةدحوب ةصاخلا (GUI) تاموسرلا مدختسم ةهجاوب ةصاخلا WLAN تاكبش ةمئاق ىلع WLAN  
ة (WLC) ةيكلساللا ةيلحملا ةكبشلا يف مكحتلا



تارابتخاللا ةمدختسملا WLAN

OTA داشرالا ةزهجأ نم ققحتلا





WPA3 Enterprise ب لاصتالال نم ليمعلا اذه نكم تي مل ،دنتسملا اذه ةباتك خيرات ي ف  
EAP-TLS مادختساب

ةقوثولا هذه ثيدحت نيعتي ،اهلح درجم بو ،اهيلع لمعلا يرجي ليمعلا بناج نم ةلسم هذهو

ةينمألا تاجاتنتسالا

ةجتانللا تاجاتنتسالا يه هذه ،ةقباسلا تارابتخالال لك دعب

لوكوتوربلا	ريفش ت	AKM	ةرفش AKM	EAP بولسأ	FT- OverTA	FT- overDS	ةومجم حئارشلا Intel AX211	جوج/جنوسم اس ديوردنأ
ننادتست	AES- CCMP128	ننادتست	ريغ دوجوم	دوجوم ريغ	ريغ دوجوم	ريغ دوجوم	مومدم	مومدم
سفن	AES- CCMP128	SAE (H2E طقف)	SHA256	دوجوم ريغ	مومدم	مومدم	مومدم: H2E و طقف FT-OTA	H2E مومدم طقف FT لشف FT-oDS لشف
تاسسؤملا	AES- CCMP128	802.1x- SHA256	SHA256	PEAP/FAST/TLS	مومدم	مومدم	مومدم: SHA256 و FT- OTA/ODS ريغ مومدم: EAP- FAST	مومدم: SHA256 و FT-OTA و FT- ODS (S23) مومدم ريغ: EAP-FAST و FT-oDS (Pixel6a)
تاسسؤملا	GCMP128	SuiteB-1x	SHA256- SuiteB	PEAP/FAST/TLS	ريغ مومدم	ريغ مومدم	ريغ مومدم	مومدم ريغ
تاسسؤملا	GCMP256	ت يوس ب-192	SHA384- SuiteB	TLS	ريغ مومدم	ريغ مومدم	NA/TBD	NA/TBD



# ةلص تاذا تامولعم

[ام Wi-Fi 6E؟ وه ام](#)

[ام Wi-Fi 6e؟ لباقوم Wi-Fi 6 وه ام](#)

[ام Wi-Fi 6e ىلع ةعيرس ةرطن](#)

[ضيبألل Wi-Fi ريرقت يف يلاتللا عئارللا لصفلا: Wi-Fi 6e](#)

[Cisco Live - لوصو طاقن مادختساب يلاتللا ليچللا نم ةيكلسال ةكبش عاشن - Wi-Fi 6e](#)

[Cisco Catalyst 9800 Series Wireless Controller Software، رادصللا 17.9.x](#)

[WPA3 رشن ليلا](#)

