PEAP, ISE 2.1 및 WLC 8.3으로 802.1X 인증 구성

목차

소개

이 문서에서는 802.1x 보안 및 VLAN(Virtual Local Area Network) 재정의로 WLAN(Wireless Local Area Network)을 설정하는 방법에 대해 설명합니다.

사전 요구 사항

요구 사항

다음 주제에 대한 지식을 보유하고 있으면 유용합니다.

- 802.1x
- PEAP(Protected Extensible Authentication Protocol)
- CA(인증 기관)
- 인증서

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- WLC v8.3.102.0
- ISE(Identity Service Engine) v2.1
- Windows 10 랩톱

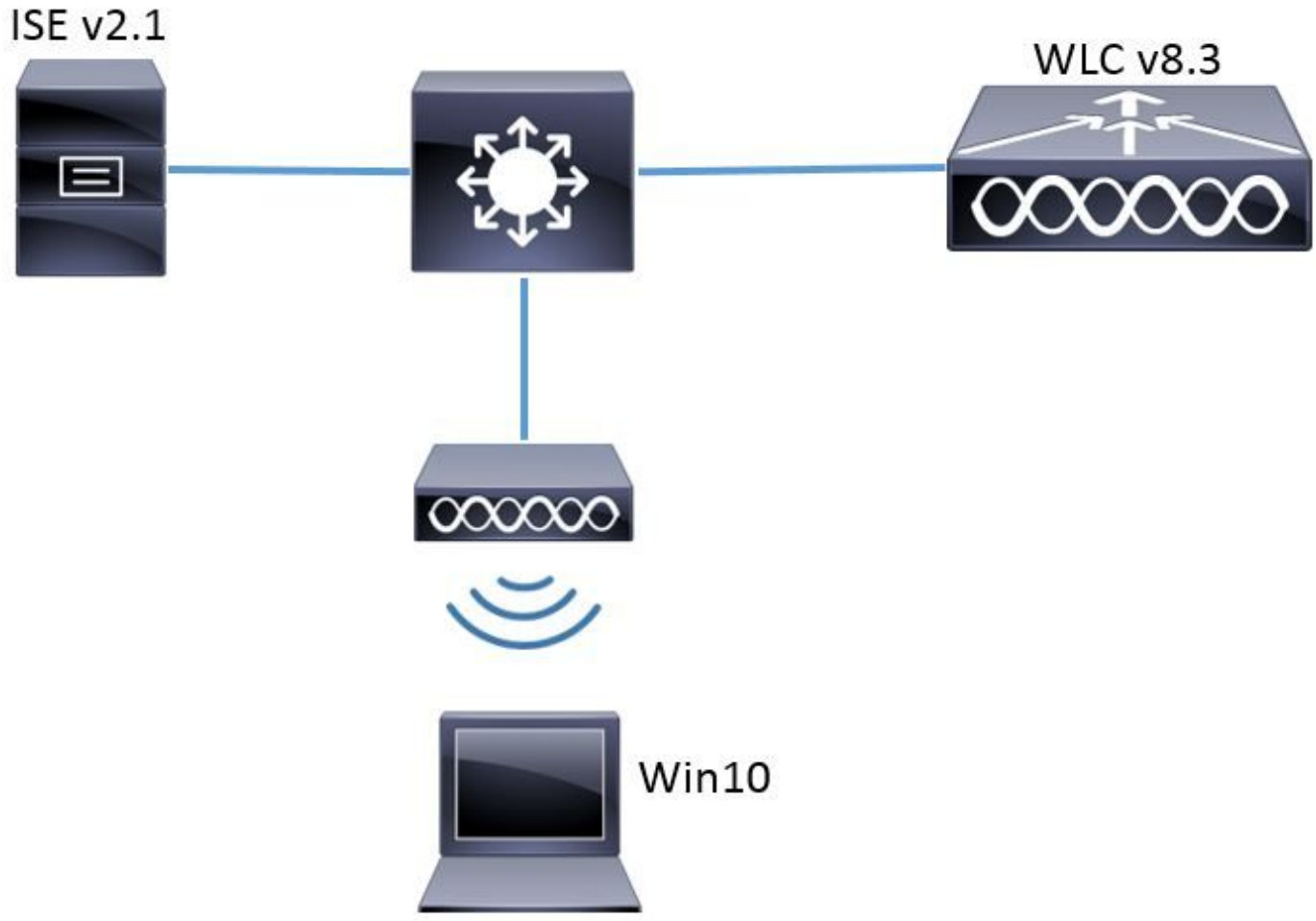
이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우 모든 명령의 잠재적인 영향을 미리 숙지하시기 바랍니다.

배경 정보

802.1x 보안 및 VLAN을 사용하여 WLAN을 설정할 경우 EAP(Extensible Authentication Protocol as Extensible Authentication Protocol)로 보호되는 EAP로 재정의할 수 있습니다.

구성

네트워크 다이어그램



설정

일반적인 단계는 다음과 같습니다.

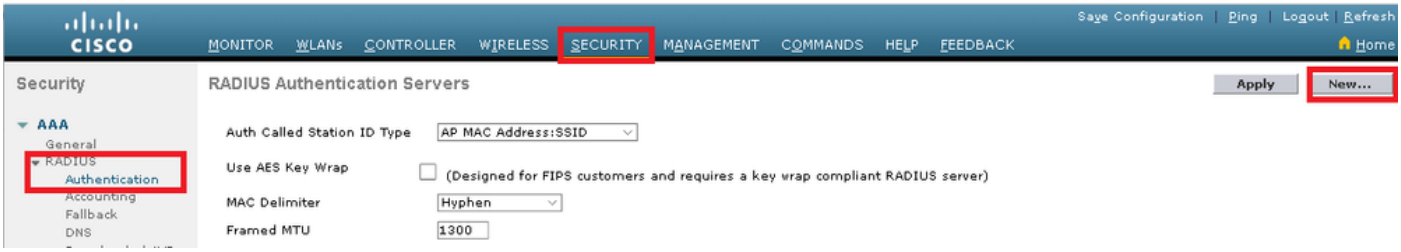
1. WLC에서 RADIUS 서버를 선언하거나 그 반대로 선언하여 서로 통신을 허용합니다.
2. WLC에서 SSID(Service Set Identifier)를 생성합니다.
3. ISE에서 인증 규칙을 생성합니다.
4. ISE에서 권한 부여 프로파일을 생성합니다.
5. ISE에서 권한 부여 규칙을 생성합니다.
6. 엔드포인트를 구성합니다.

WLC에서 RADIUS 서버 선언

RADIUS 서버와 WLC 간의 통신을 허용하려면 WLC에 RADIUS 서버를 등록해야 하며 그 반대의 경우도 마찬가지입니다.

GUI:

1단계. 이미지에 표시된 대로 WLC의 GUI를 열고 SECURITY > RADIUS > Authentication > New로 이동합니다.



2단계. 이미지에 표시된 대로 RADIUS 서버 정보를 입력합니다.

CLI:

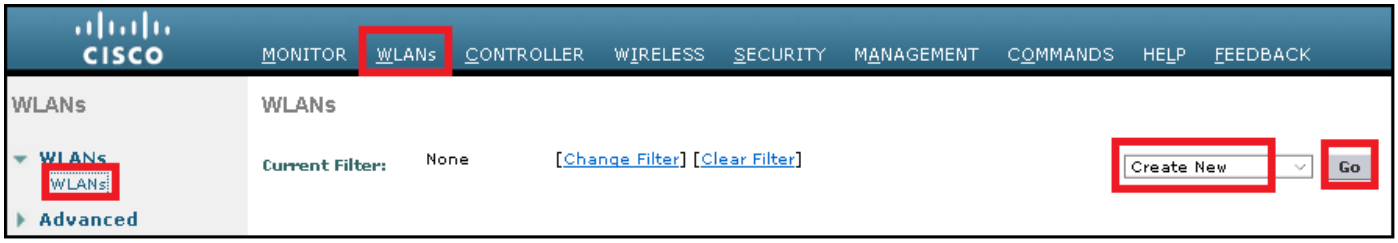
```
> config radius auth add <index> <a.b.c.d> 1812 ascii <shared-key>
> config radius auth disable <index>
> config radius auth retransmit-timeout <index> <timeout-seconds>
> config radius auth enable <index>
```

<a.b.c.d>는 RADIUS 서버에 해당합니다.

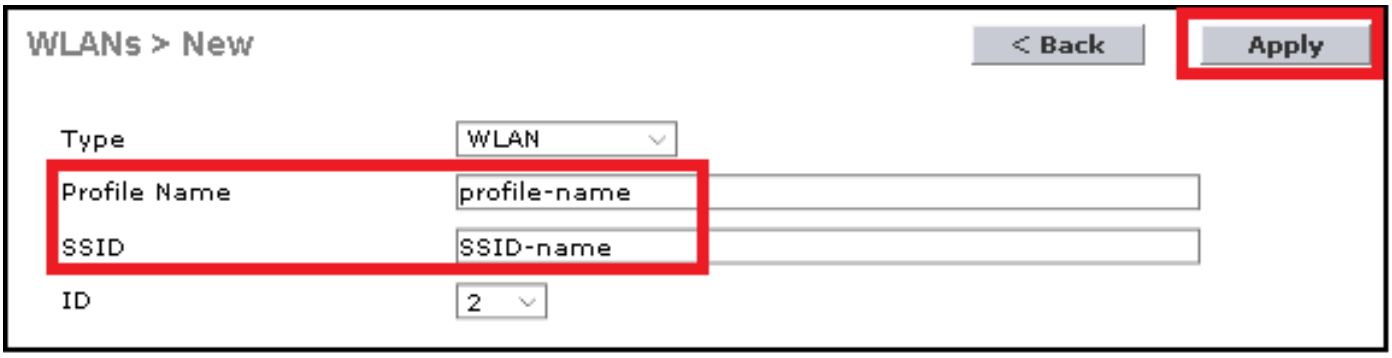
SSID 생성

GUI:

1단계. 이미지에 표시된 대로 WLC의 GUI를 열고 WLANs(WLAN) > Create New(새로 만들기) > Go(이동)로 이동합니다.



2단계. SSID 및 프로필의 이름을 선택한 다음 이미지에 표시된 대로 Apply(적용)를 클릭합니다.



CLI:

```
> config wlan create <id> <profile-name> <ssid-name>
```

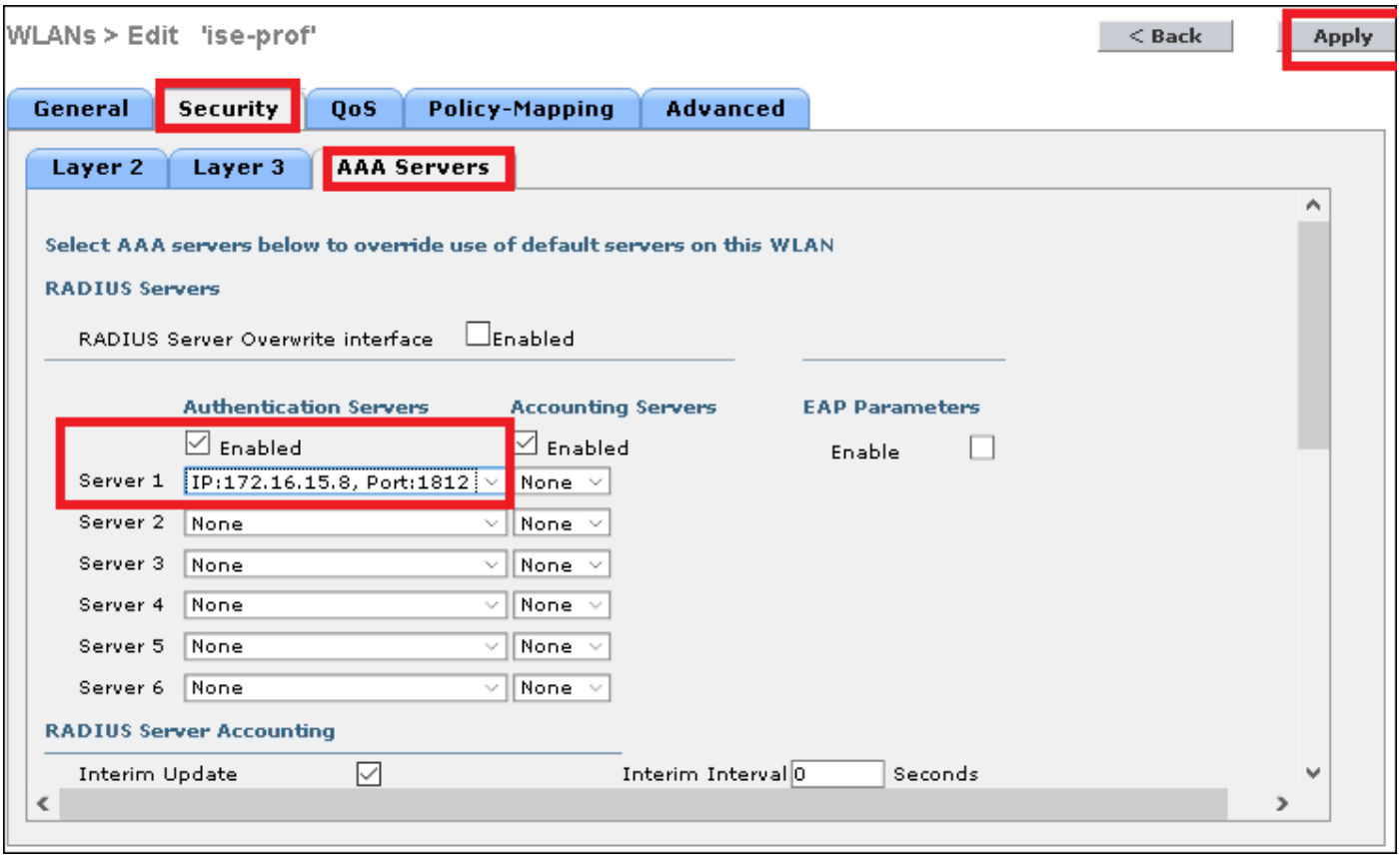
3단계. RADIUS 서버를 WLAN에 할당합니다.

CLI:

```
> config wlan radius_server auth add <wlan-id> <radius-index>
```

GUI:

Security(보안) > AAA Servers(AAA 서버)로 이동하고 원하는 RADIUS 서버를 선택한 다음 이미지에 표시된 대로 Apply(적용)를 누릅니다.



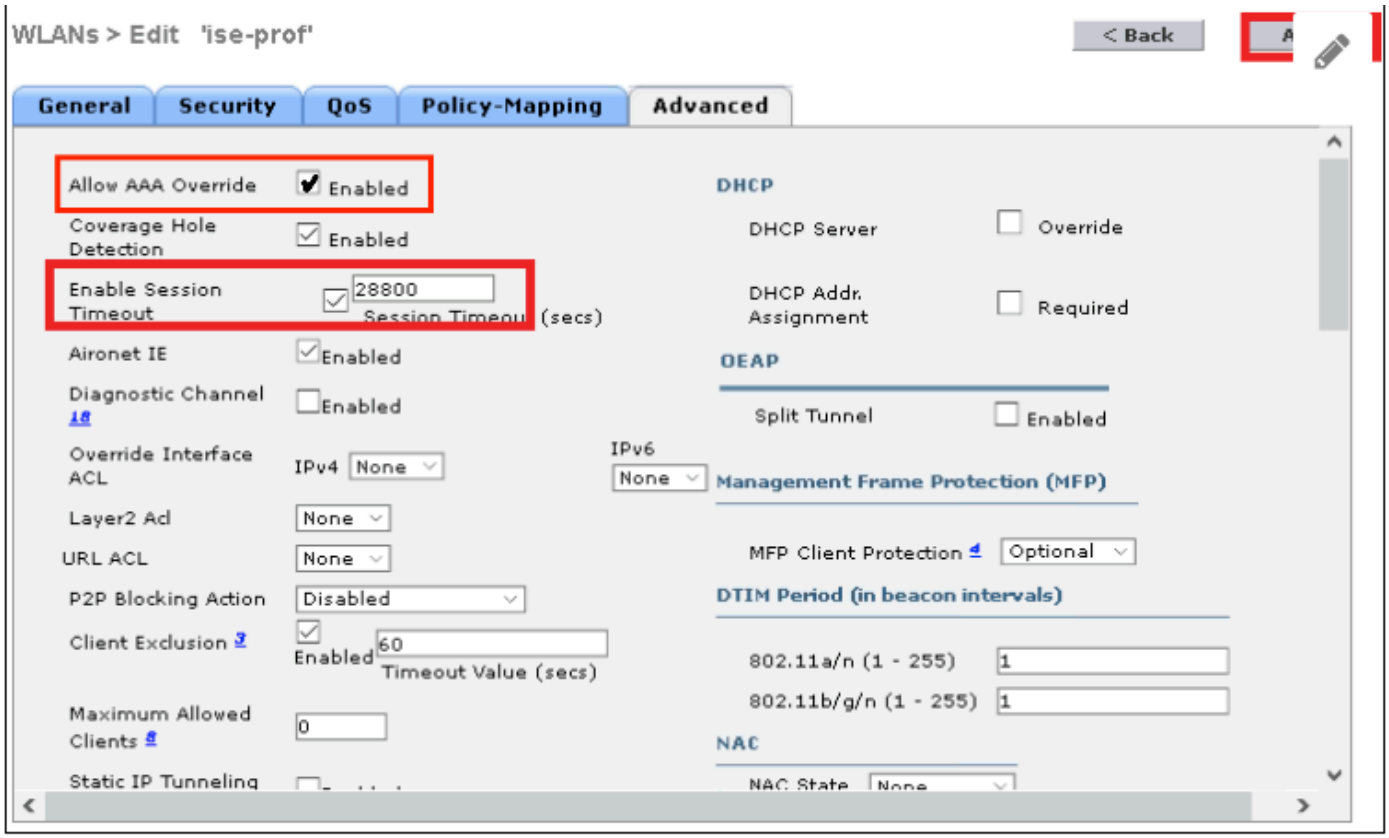
4단계. Allow AAA Override(AAA 재정의 허용)를 활성화하고 선택적으로 세션 시간 제한을 늘립니다.

CLI:

```
> config wlan aaa-override enable <wlan-id>
> config wlan session-timeout <wlan-id> <session-timeout-seconds>
```

GUI:

WLANs(WLAN) > WLAN ID > Advanced(고급)로 이동하고 Allow AAA Override(AAA 재정의 허용)를 활성화합니다. 선택적으로 이미지에 표시된 대로 Session Timeout을 지정합니다.



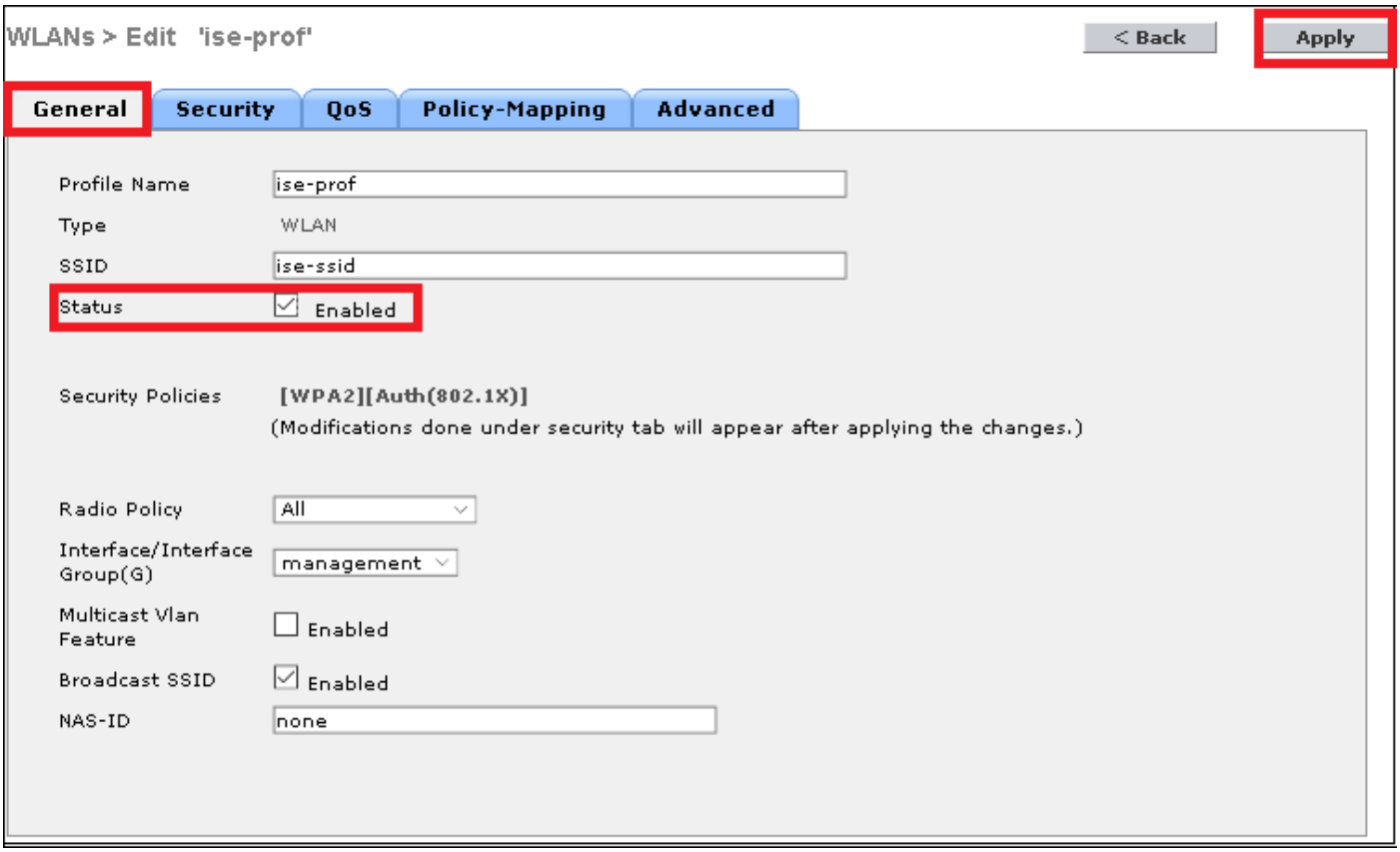
5단계. WLAN을 활성화합니다.

CLI:

```
> config wlan enable <wlan-id>
```

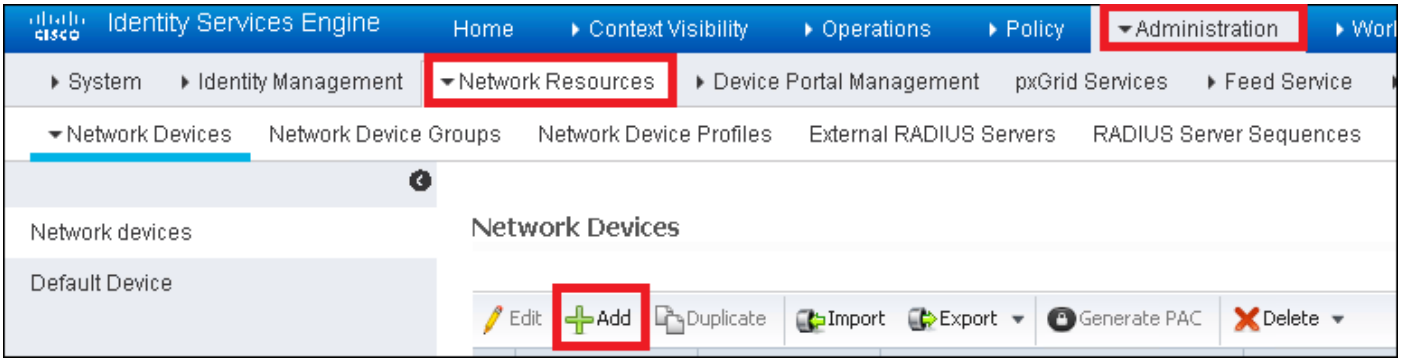
GUI:

이미지에 표시된 대로 WLANs(WLAN) > WLAN ID > General(일반)로 이동하여 SSID를 활성화합니다.



ISE에서 WLC 선언

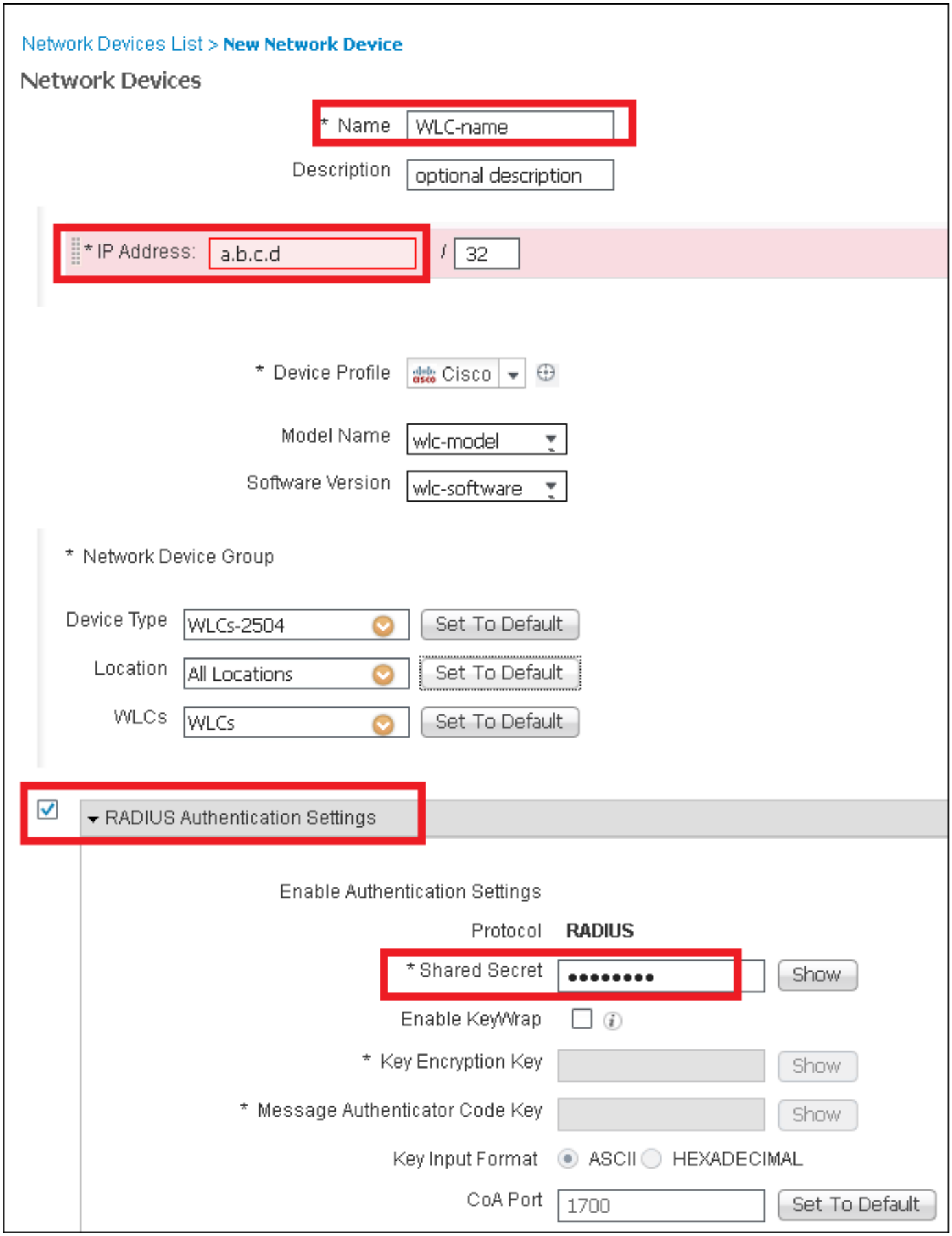
1단계. 이미지에 표시된 대로 ISE 콘솔을 열고 Administration(관리) > Network Resources(네트워크 리소스) > Network Devices(네트워크 디바이스) > Add(추가)로 이동합니다.



2단계. 값을 입력합니다.

선택적으로, 지정된 모델 이름, 소프트웨어 버전, 설명이 될 수 있으며 디바이스 유형, 위치 또는 WLC에 따라 네트워크 디바이스 그룹을 할당할 수 있습니다.

a.b.c.d는 요청된 인증을 전송하는 WLC 인터페이스에 해당합니다. 기본적으로 이미지에 표시된 대로 관리 인터페이스입니다.

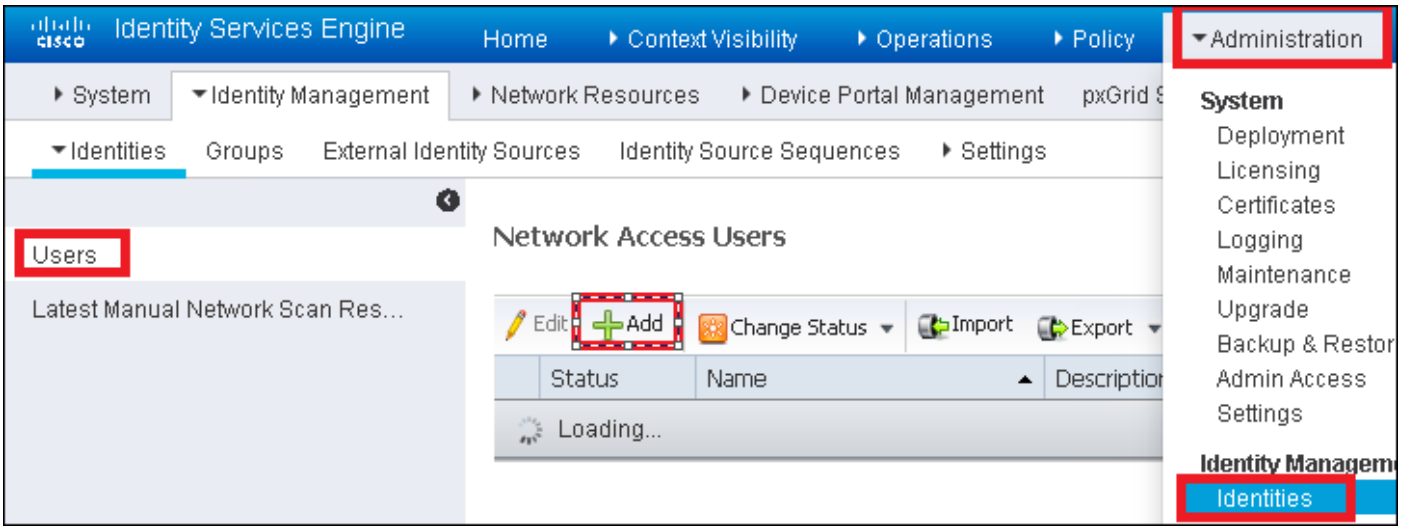


네트워크 디바이스 그룹에 대한 자세한 내용은 다음을 참조하십시오.

[ISE - 네트워크 디바이스 그룹]

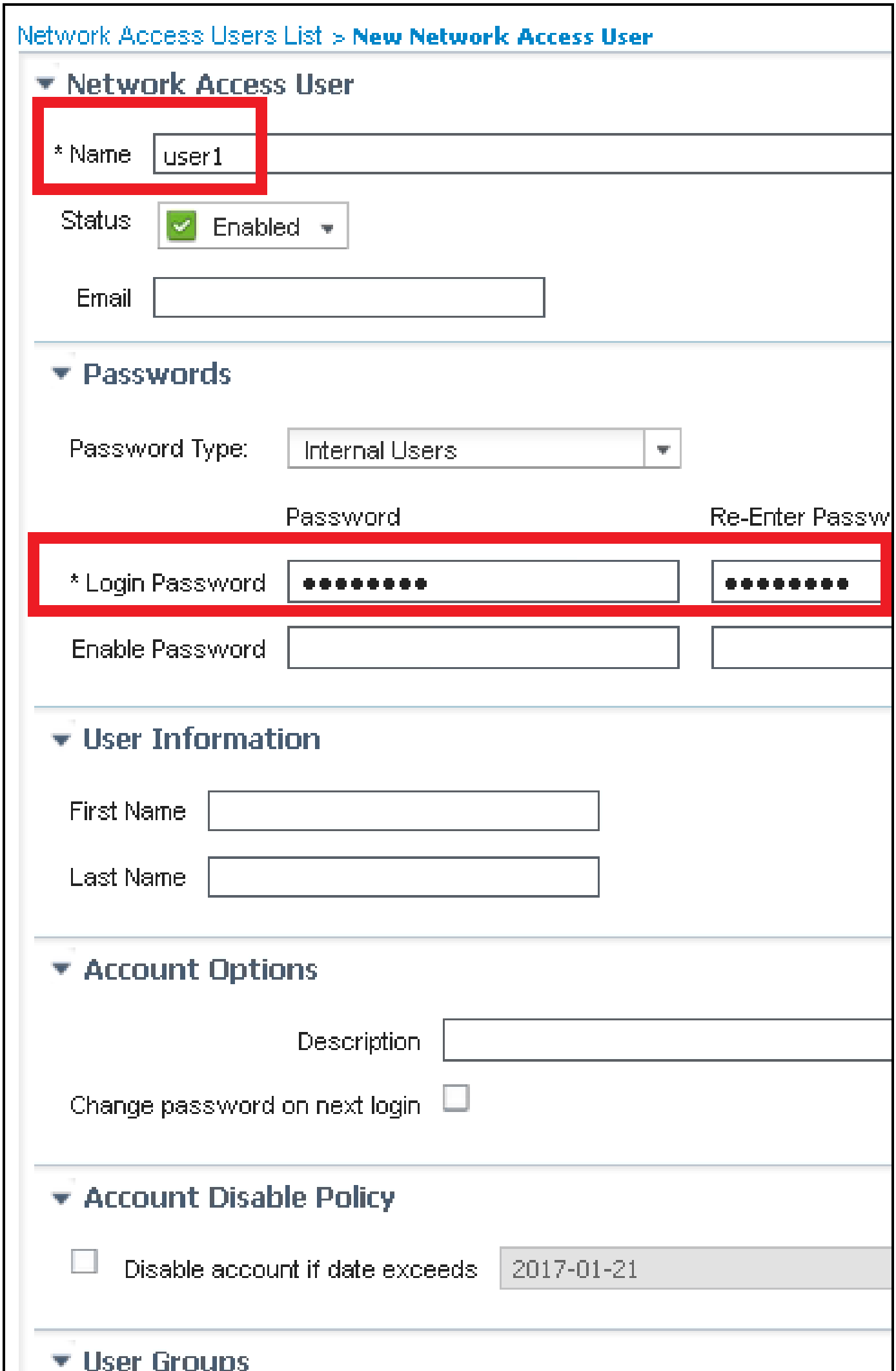
ISE에서 새 사용자 생성

1단계. 이미지에 표시된 대로 Administration > Identity Management > Identities > Users > Add로 이동합니다.



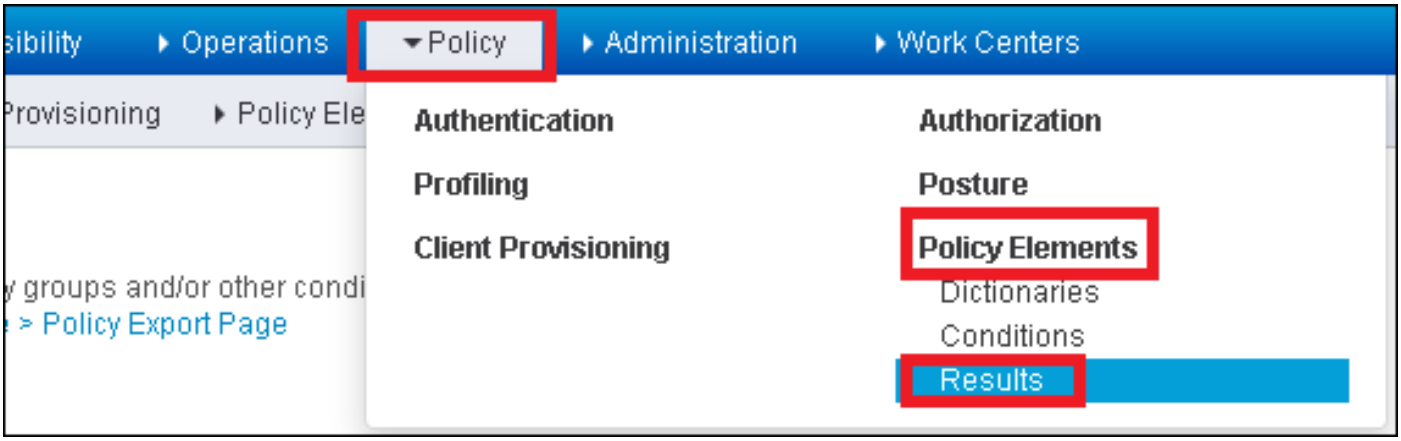
2단계. 정보를 입력합니다.

이 예에서 이 사용자는 ALL_ACCOUNTS라는 그룹에 속하지만, 이미지에 표시된 대로 필요에 따라 조정할 수 있습니다.

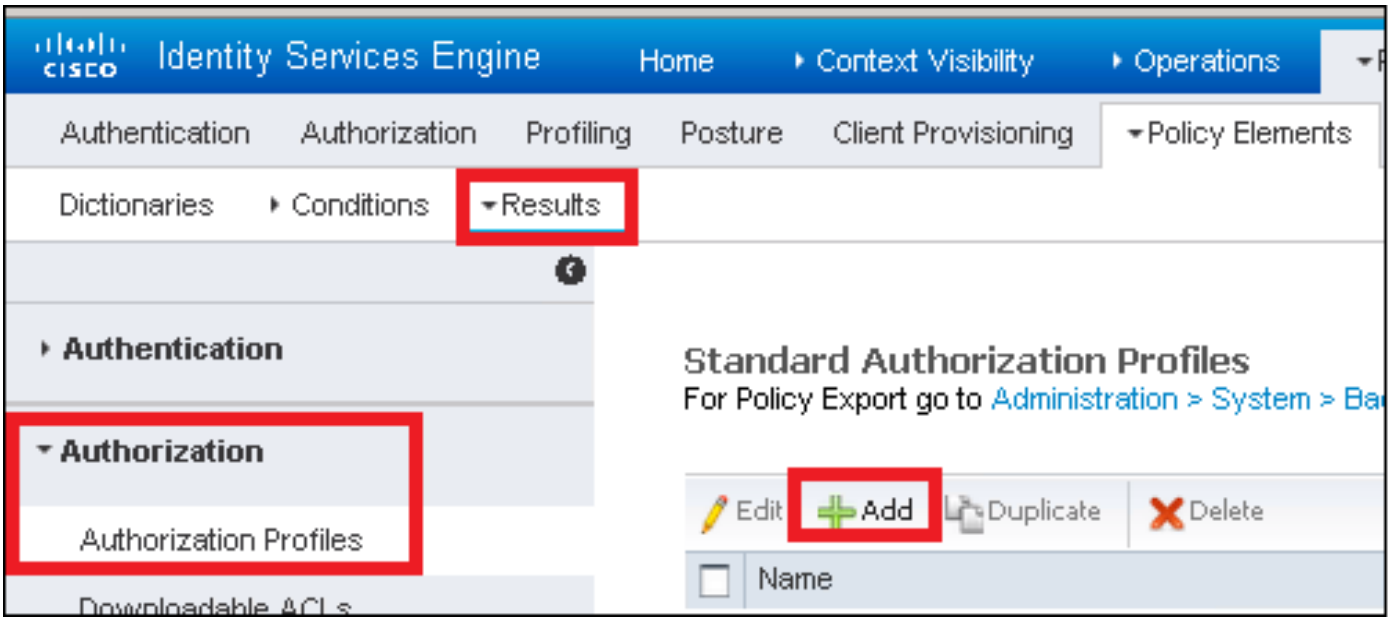

Network Access Users List > New Network Access User
Network Access User
* Name
user1
Status
Enabled
Email
Passwords
Password Type:
Internal Users
Password
Re-Enter Passw
* Login Password
Enable Password
User Information
First Name
Last Name
Account Options
Description
Change password on next login
Account Disable Policy
Disable account if date exceeds
2017-01-21
User Groups

재정의 또는 기타 매개변수. 이 예에 표시된 권한 부여 프로파일은 액세스 승인을 사용자에게 전송하고 VLAN 2404를 할당합니다.

1단계. 이미지에 표시된 대로 Policy > Policy Elements > Results로 이동합니다.



2단계. 새 권한 부여 프로파일을 추가합니다. 이미지에 표시된 대로 Authorization > Authorization Profiles > Add로 이동합니다.



3단계. 이미지에 표시된 대로 값을 입력합니다.

Authorization Profiles > **New Authorization Profile**

Authorization Profile

* Name: PermitAccessVLAN2404

Description:

* Access Type: ACCESS_ACCEPT

Network Device Profile: Cisco

Service Template:

Track Movement:

Passive Identity Tracking:

Common Tasks

ACL (Filter-ID)

VLAN — Tag ID: 0 — Edit Tag — ID/Name: 2404

Voice Domain Permission

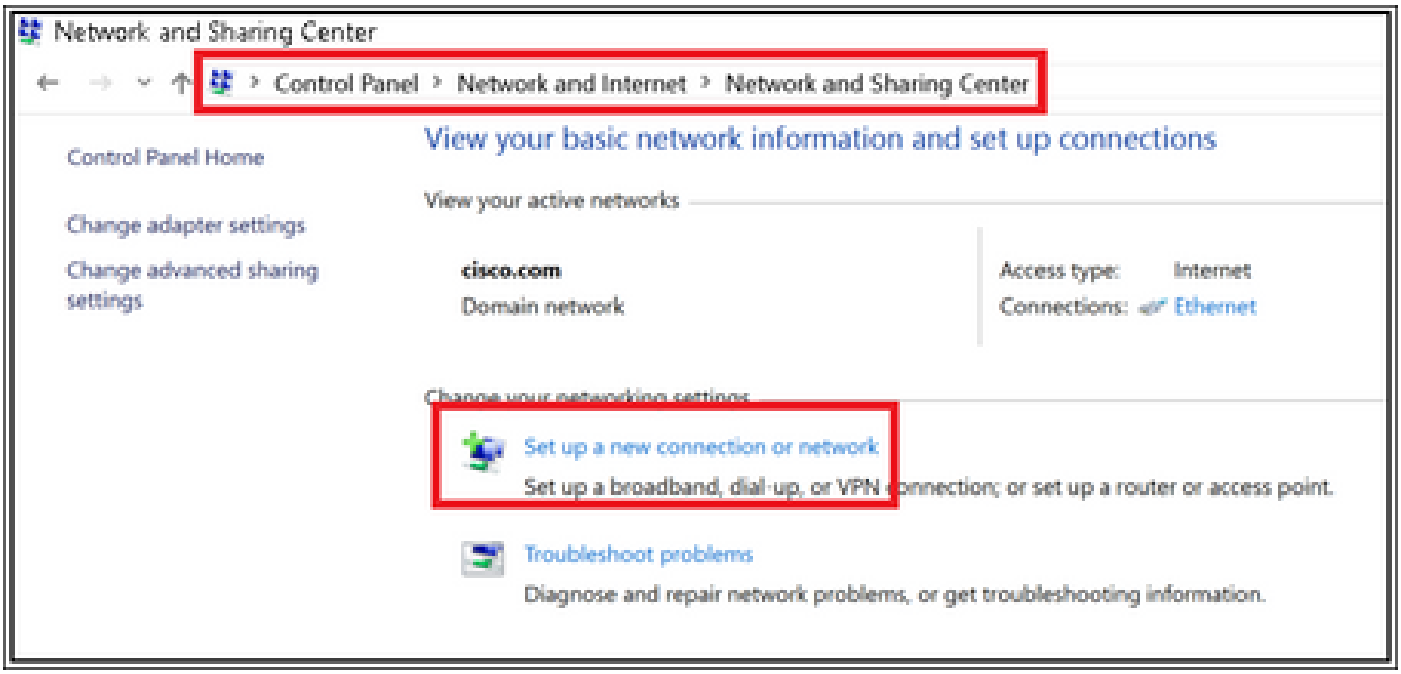
Web Redirection (CWA, MDM, NSP, CPP)

Advanced Attributes Settings

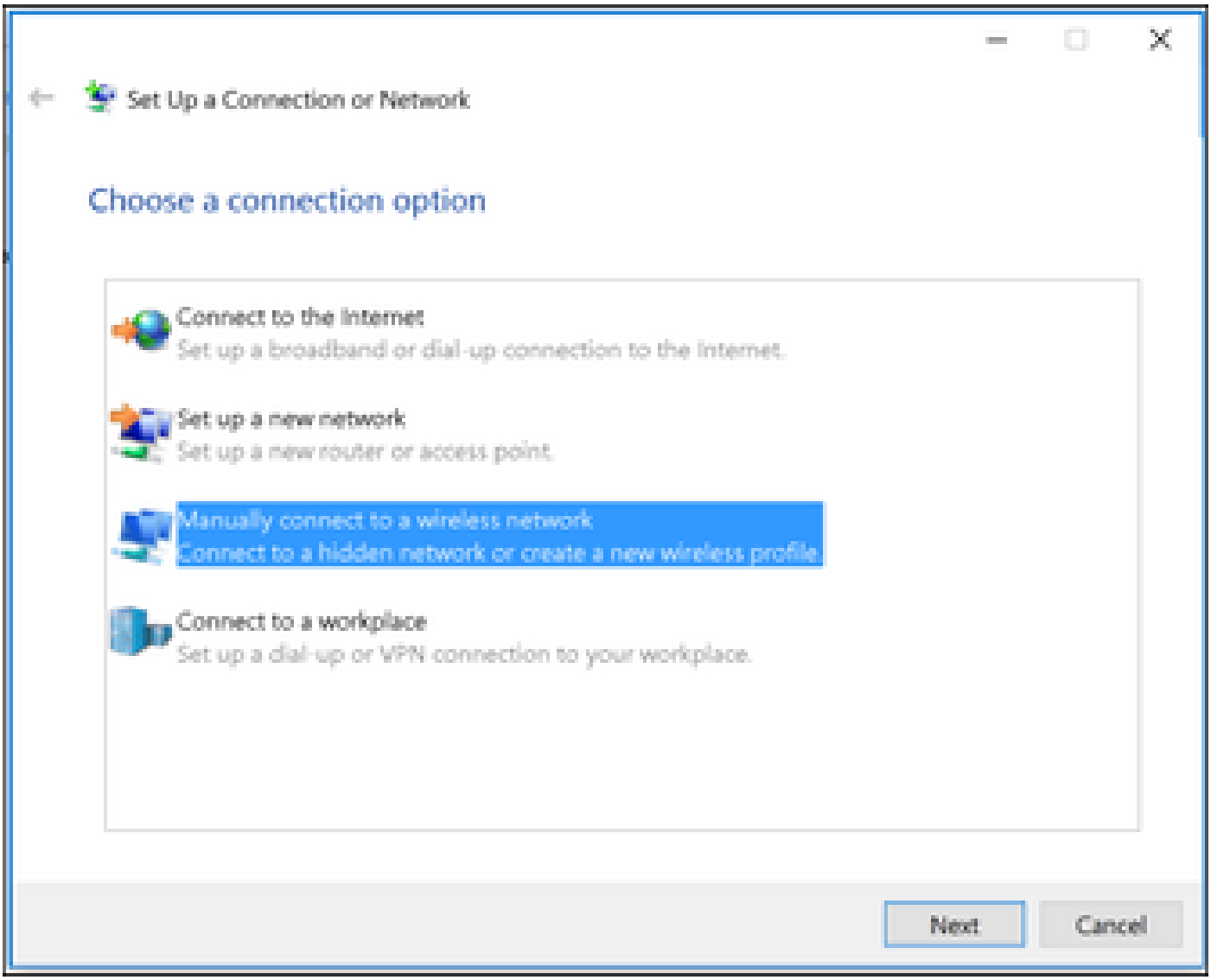
Select an item =

Attributes Details

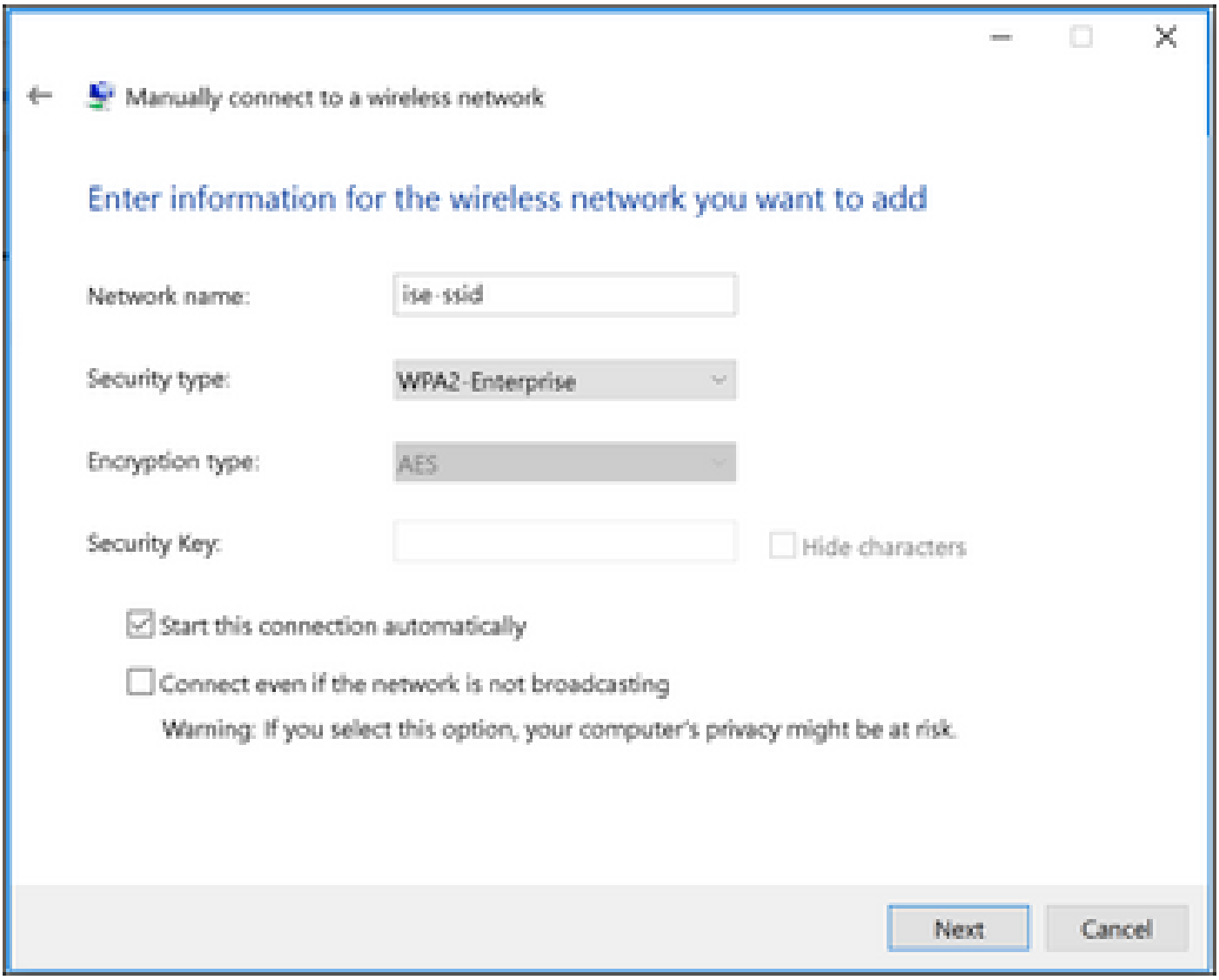
```
Access Type = ACCESS_ACCEPT
Tunnel-Private-Group-ID = NaN:2404
Tunnel-Type = NaN:13
Tunnel-Medium-Type = NaN:6
```



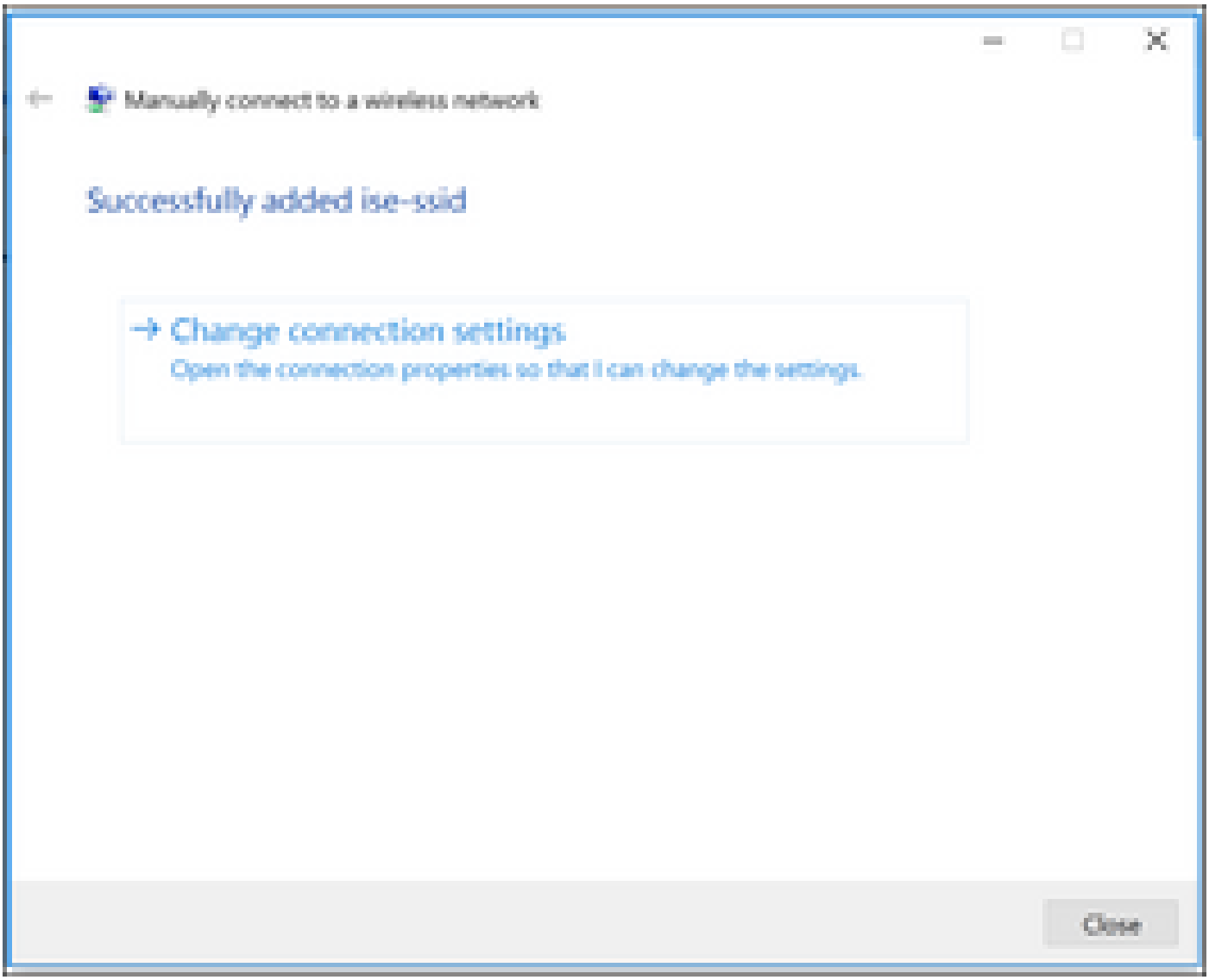
3단계. 이미지에 표시된 대로 Manually connect to a wireless network(무선 네트워크에 수동으로 연결)를 선택하고 Next(다음)를 클릭합니다.



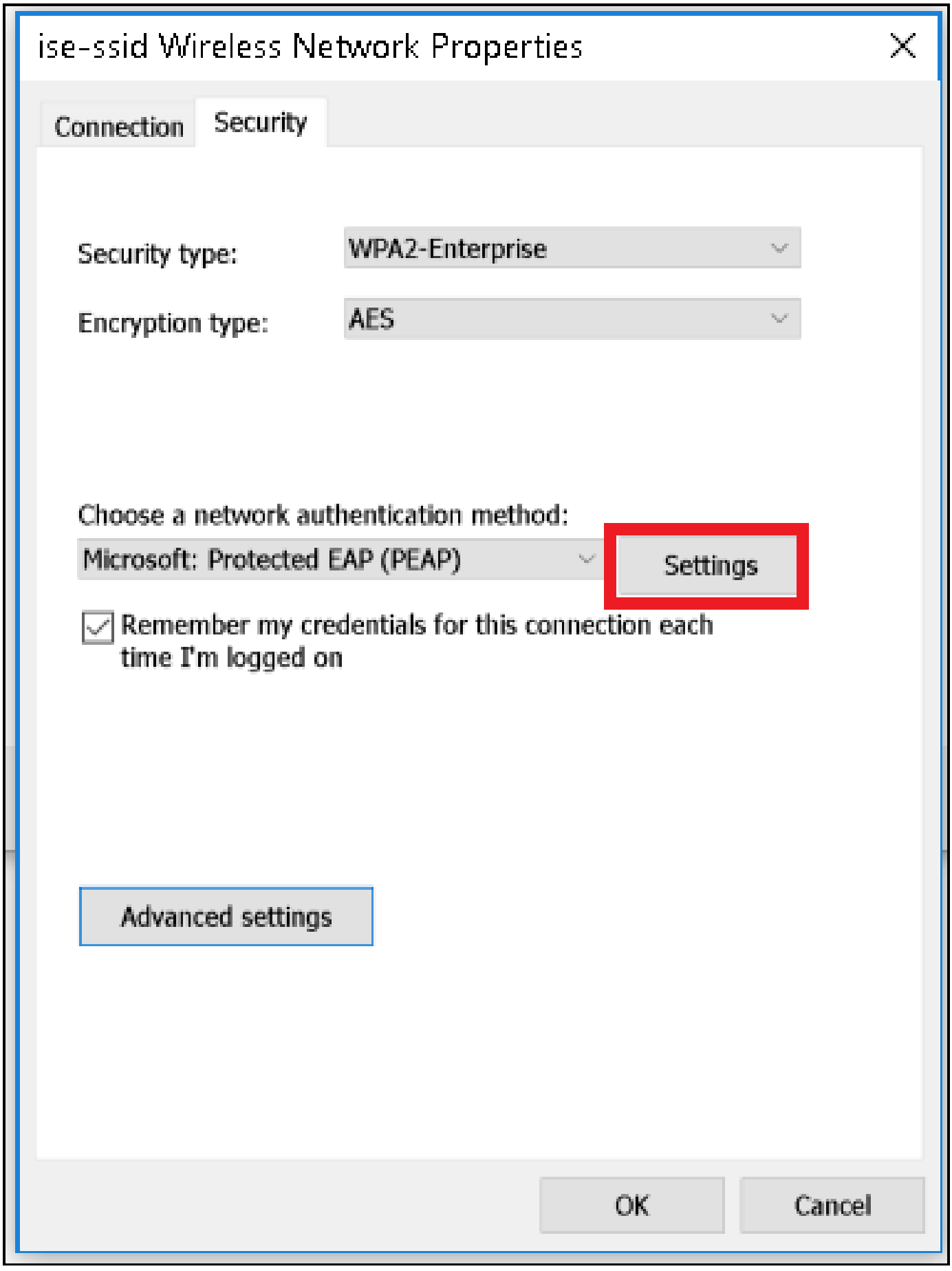
4단계. 이미지에 표시된 대로 SSID 이름 및 보안 유형 WPA2-Enterprise의 정보를 입력하고 Next(다음)를 클릭합니다.



5단계. 이미지에 표시된 대로 WLAN 프로파일의 컨피그레이션을 사용자 지정하려면 연결 설정 변경을 선택합니다.



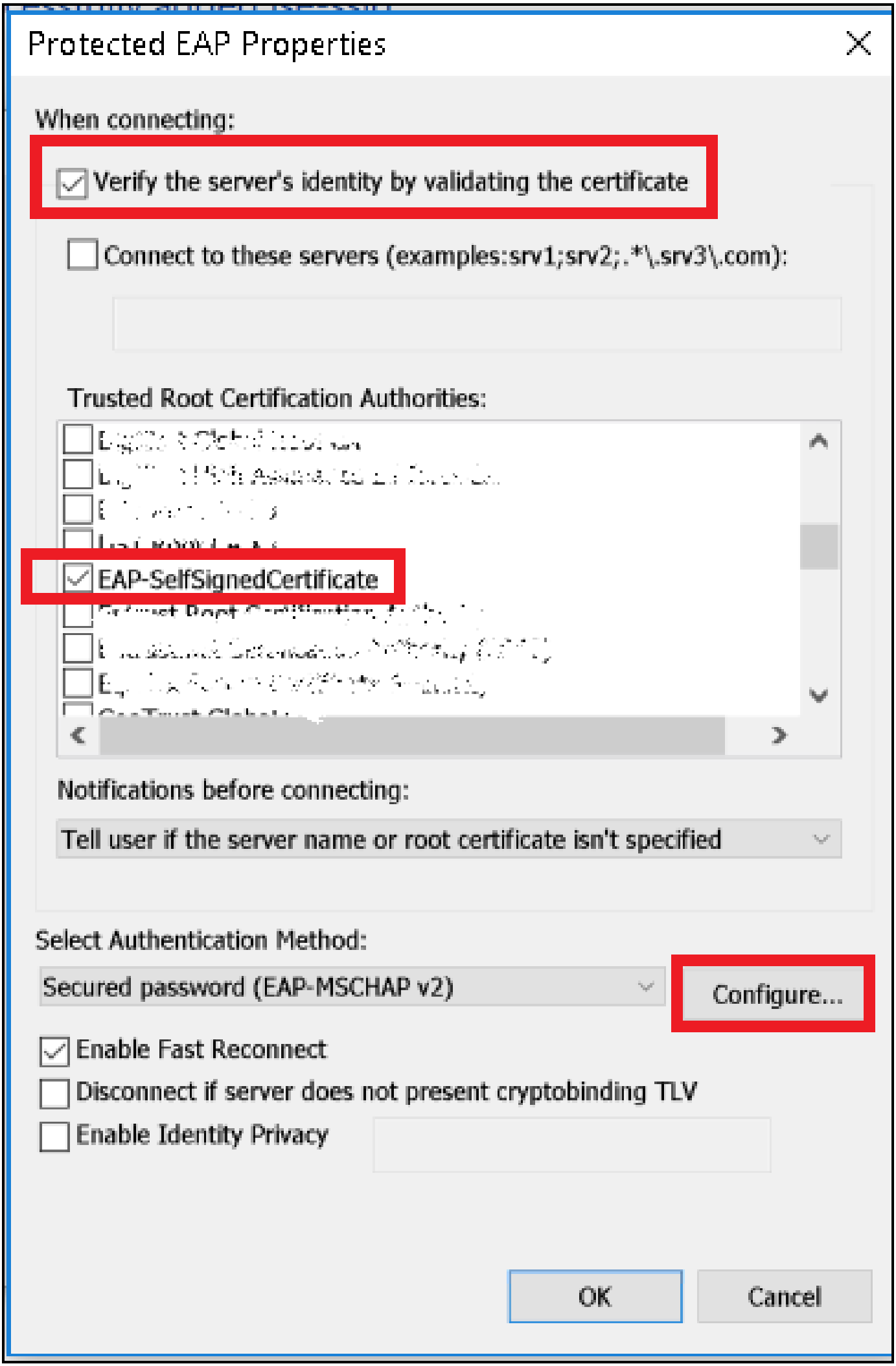
6단계. 이미지에 표시된 대로 Security(보안) 탭으로 이동하고 Settings(설정)를 클릭합니다.



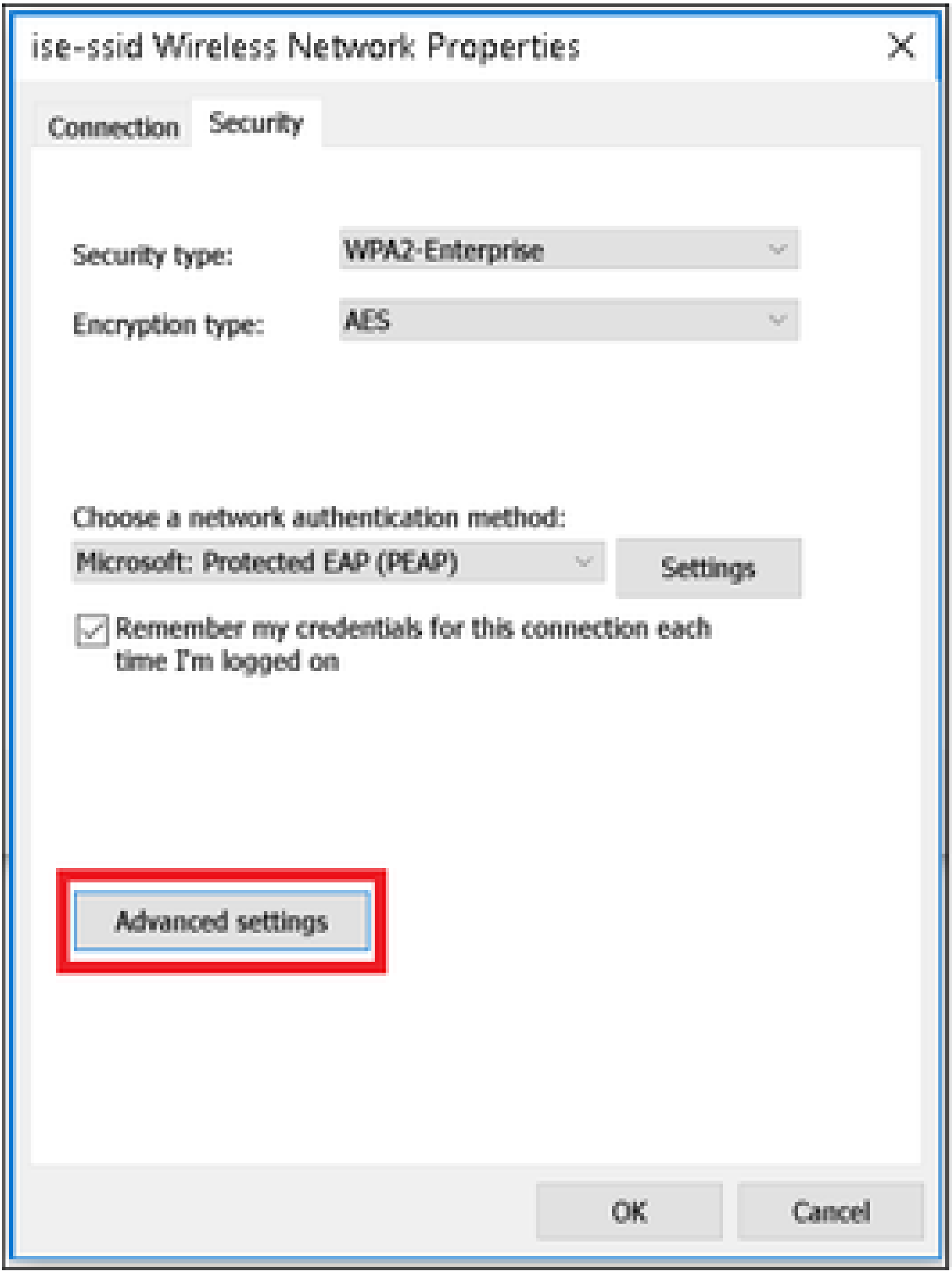
7단계. RADIUS 서버가 유효한지 여부를 선택합니다.

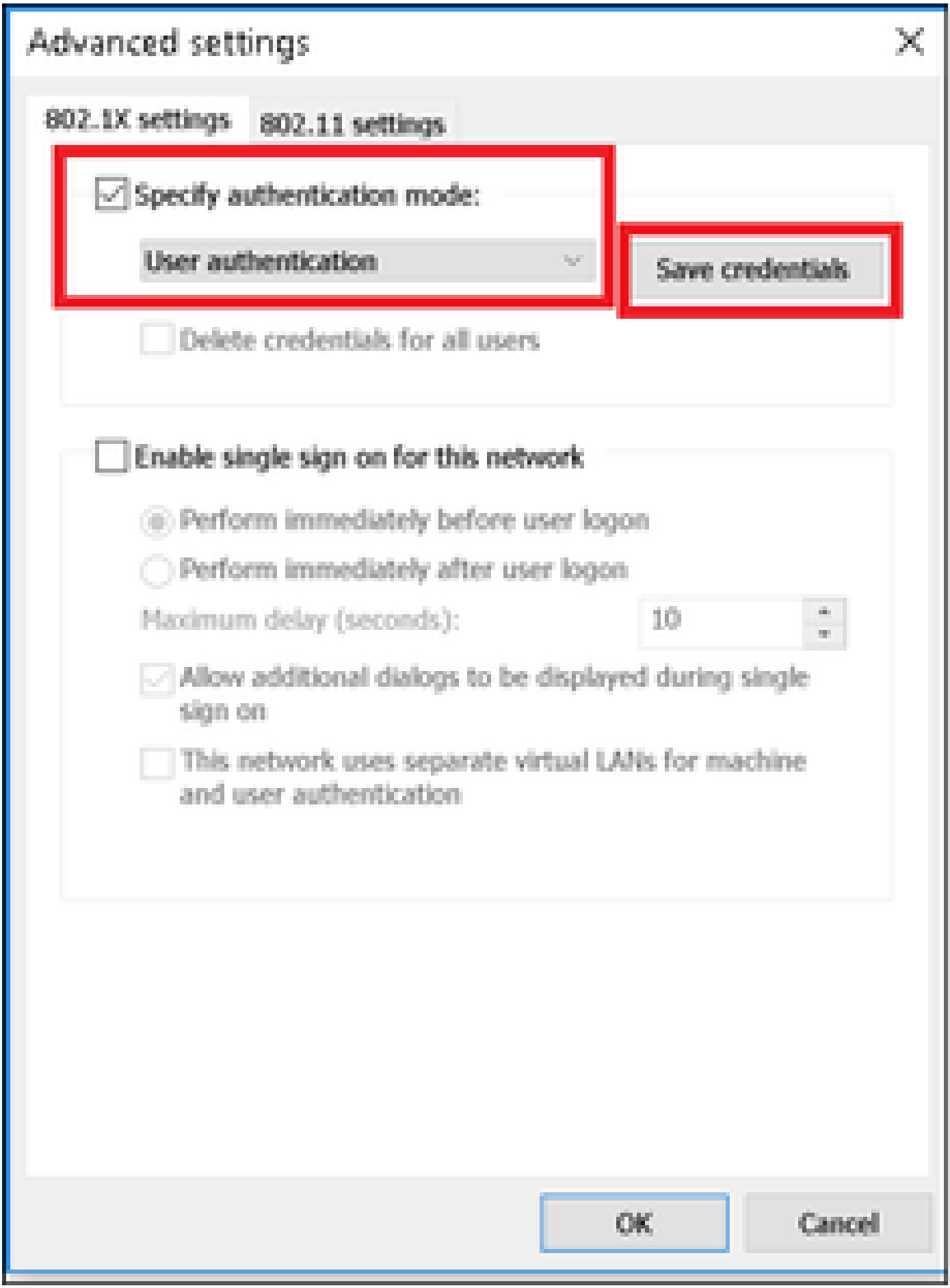
대답이 "예"인 경우 Verify server identity by validating the certificate(인증서를 검증하여 서버 ID 확인)를 활성화하고 Trusted Root Certification Authorities(신뢰할 수 있는 루트 인증 기관) 목록에서 ISE의 자체 서명 인증서를 선택합니다.

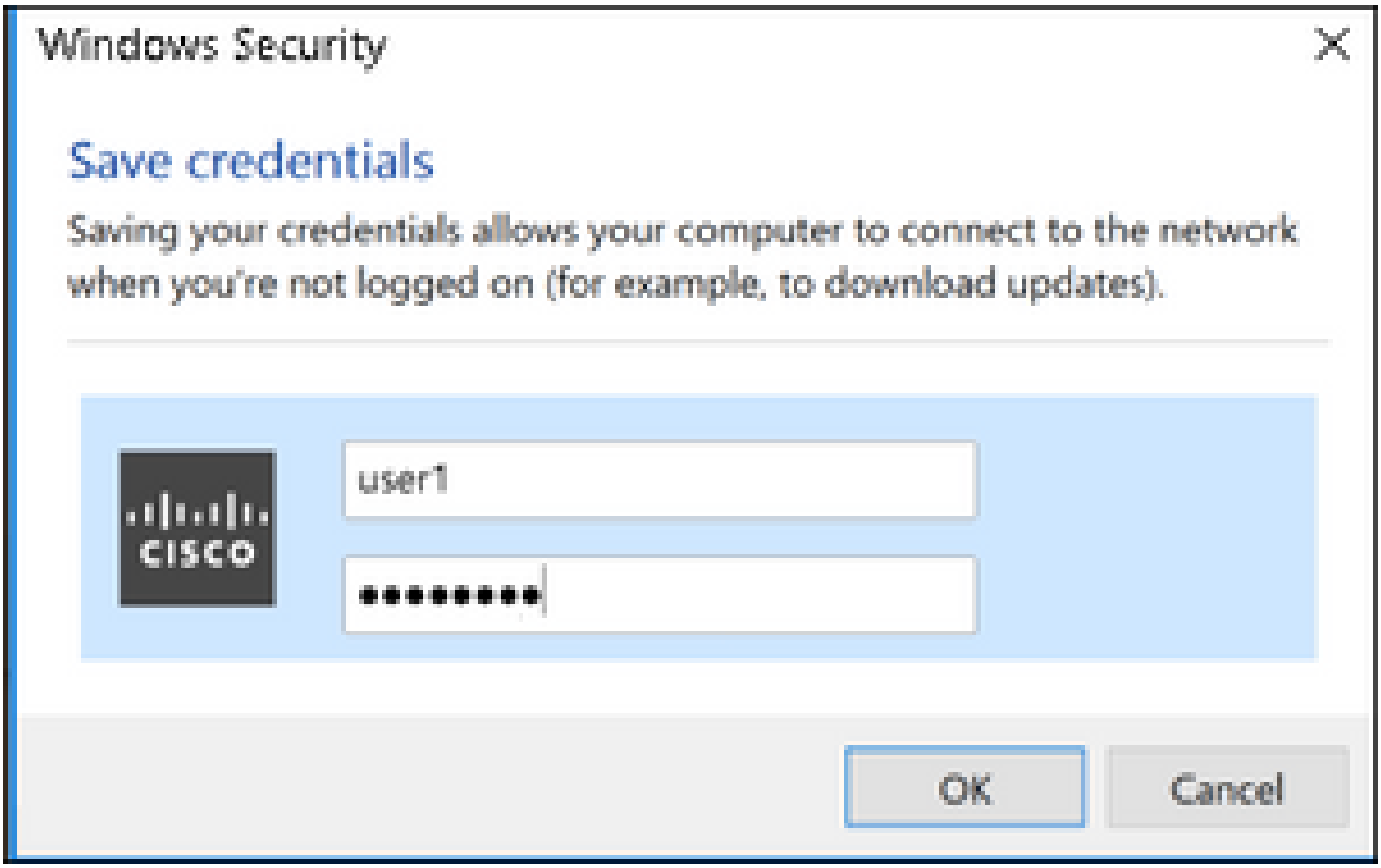
그런 다음 구성 및 사용 안 함 내 Windows 로그온 이름 및 암호 자동 사용...을 선택한 다음 이미지에 표시된 대로 확인을 클릭합니다.


Protected EAP Properties
When connecting:
Verify the server's identity by validating the certificate
Connect to these servers (examples:srv1;srv2;.*\.srv3\.com):
Trusted Root Certification Authorities:
EAP-SelfSignedCertificate
Notifications before connecting:
Tell user if the server name or root certificate isn't specified
Select Authentication Method:
Secured password (EAP-MSCHAP v2)
Configure...
Enable Fast Reconnect
Disconnect if server does not present cryptobinding TLV
Enable Identity Privacy
OK
Cancel

Security(보안) 탭으로 돌아가면 Advanced(고급) 설정을 선택하고, 인증 모드를 User authentication(사용자 인증)으로 지정한 다음 ISE에서 구성한 자격 증명을 저장하여 이미지에 표시된 대로 사용자를 인증합니다.


ise-ssid Wireless Network Properties
Connection
Security
Security type:
WPA2-Enterprise
Encryption type:
AES
Choose a network authentication method:
Microsoft: Protected EAP (PEAP)
Settings
Remember my credentials for this connection each time I'm logged on
Advanced settings
OK
Cancel


Advanced settings
802.1X settings
802.11 settings
Specify authentication mode:
User authentication
Save credentials
Delete credentials for all users
Enable single sign on for this network
Perform immediately before user logon
Perform immediately after user logon
Maximum delay (seconds):
10
Allow additional dialogs to be displayed during single sign on
This network uses separate virtual LANs for machine and user authentication
OK
Cancel



다음을 확인합니다.

구성이 올바르게 작동하는지 확인하려면 이 섹션을 활용하십시오.

인증 흐름은 WLC 또는 ISE 관점에서 확인 할 수 있습니다.

WLC의 인증 프로세스

특정 사용자에 대한 인증 프로세스를 모니터링하려면 다음 명령을 실행합니다.

```
> debug client <mac-add-client>
> debug dot1x event enable
> debug dot1x aaa enable
```

성공적인 인증의 예(일부 출력이 생략됨):

```
<#root>

*apfMsConnTask_1: Nov 24 04:30:44.317:

e4:b3:18:7c:30:58 Processing assoc-req station:e4:b3:18:7c:30:58 AP:00:c8:8b:26:2c:d0-00

 thread:1a5cc288
*apfMsConnTask_1: Nov 24 04:30:44.317: e4:b3:18:7c:30:58 Reassociation received from mobile on BSSID 00
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 Applying Interface(management) policy on Mobil
```

```
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 Applying site-specific Local Bridging override
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 Applying Local Bridging Interface Policy for s
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 RSN Capabilities:  60
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 Marking Mobile as non-
```

e4:b3:18:7c:30:58 Received 802.11i 802.1X key management suite, enabling dot1x Authentication

```
11w Capable
*apfMsConnTask_1: Nov 24 04:30:44.318: e4:b3:18:7c:30:58 Received RSN IE with 1 PMKIDs from mobile e4:b
*apfMsConnTask_1: Nov 24 04:30:44.319: Received PMKID:  (16)
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 Searching for PMKID in MSCB PMKID cache for mo
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 No valid PMKID found in the MSCB PMKID cache f
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 0.0.0.0 START (0) Initializing policy
*apfMsConnTask_1: Nov 24 04:30:44.319:
```

e4:b3:18:7c:30:58 0.0.0.0 START (0) Change state to AUTHCHECK (2) last state START (0)

```
*apfMsConnTask_1: Nov 24 04:30:44.319:
```

e4:b3:18:7c:30:58 0.0.0.0 AUTHCHECK (2) Change state to 8021X_REQD (3) last state AUTHCHECK (2)

```
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 0.0.0.0 8021X_REQD (3) Plumbed mobile LWAPP ru
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 apfMsAssoStateInc
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 apfPemAddUser2 (apf_policy.c:437) Changing sta
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 apfPemAddUser2:session timeout forstation e4:b
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 Stopping deletion of Mobile Station: (callerId
*apfMsConnTask_1: Nov 24 04:30:44.319: e4:b3:18:7c:30:58 Func: apfPemAddUser2, Ms Timeout = 0, Session
*apfMsConnTask_1: Nov 24 04:30:44.320: e4:b3:18:7c:30:58 Sending Assoc Response to station on BSSID 00:
*spamApTask2: Nov 24 04:30:44.323: e4:b3:18:7c:30:58 Successful transmission of LWAPP Add-Mobile to AP
*spamApTask2: Nov 24 04:30:44.325: e4:b3:18:7c:30:58 Received ADD_MOBILE ack - Initiating 1x to STA e4:
*spamApTask2: Nov 24 04:30:44.325: e4:b3:18:7c:30:58
```

Sent dot1x auth initiate message for mobile e4:b3:18:7c:30:58

```
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 reauth_sm state transition 0 ---> 1 for mob
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 EAP-PARAM Debug - eap-params for Wlan-Id :2
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 Disable re-auth, use PMK lifetime.
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 Station e4:b3:18:7c:30:58 setting dot1x rea
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 Stopping reauth timeout for e4:b3:18:7c:30:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326: e4:b3:18:7c:30:58 dot1x - moving mobile e4:b3:18:7c:30:58 int
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.326:
```

e4:b3:18:7c:30:58 Sending EAP-Request/Identity to mobile e4:b3:18:7c:30:58 (EAP Id 1)

```
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 Received EAPOL EAPPKT from mobile e4:b3:18:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 Received Identity Response (count=1) from m
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 Resetting reauth count 1 to 0 for mobile e4
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 EAP State update from Connecting to Authent
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 dot1x - moving mobile e4:b3:18:7c:30:58 int
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 Entering Backend Auth Response state for mo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.380: e4:b3:18:7c:30:58 Created Acct-Session-ID (58366cf4/e4:b3:18:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.386: e4:b3:18:7c:30:58 Processing Access-Challenge for mobile e4:b
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.387: e4:b3:18:7c:30:58 Entering Backend Auth Req state (id=215) fo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.387: e4:b3:18:7c:30:58 WARNING: updated EAP-Identifier 1 ===> 215
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.387: e4:b3:18:7c:30:58 Sending EAP Request from AAA to mobile e4:b
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.387: e4:b3:18:7c:30:58 Allocating EAP Pkt for retransmission to mo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.390: e4:b3:18:7c:30:58 Received EAPOL EAPPKT from mobile e4:b3:18:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.390: e4:b3:18:7c:30:58 Received EAP Response from mobile e4:b3:18:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.390: e4:b3:18:7c:30:58 Resetting reauth count 0 to 0 for mobile e4
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.390: e4:b3:18:7c:30:58 Entering Backend Auth Response state for mo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.393: e4:b3:18:7c:30:58 Processing Access-Challenge for mobile e4:b
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.393: e4:b3:18:7c:30:58 Entering Backend Auth Req state (id=216) fo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.393: e4:b3:18:7c:30:58 Sending EAP Request from AAA to mobile e4:b
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.393: e4:b3:18:7c:30:58 Reusing allocated memory for  EAP Pkt for r
.
```

```
.
.
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530:

e4:b3:18:7c:30:58 Processing Access-Accept for mobile e4:b3:18:7c:30:58

*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530: e4:b3:18:7c:30:58 Resetting web IPv4 acl from 255 to 255
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530: e4:b3:18:7c:30:58 Resetting web IPv4 Flex acl from 65535 to 6
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530:

e4:b3:18:7c:30:58 Username entry (user1) created for mobile, length = 253

*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530:

e4:b3:18:7c:30:58 Found an interface name:'vlan2404' corresponds to interface name received: vlan2404

*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530: e4:b3:18:7c:30:58 override for default ap group, marking intg
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530: e4:b3:18:7c:30:58 Applying Interface(management) policy on Mo
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.530: e4:b3:18:7c:30:58 Re-applying interface policy for client
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 apfApplyWlanPolicy: Apply WLAN Policy over
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531:

e4:b3:18:7c:30:58 Inserting AAA Override struct for mobile

        MAC: e4:b3:18:7c:30:58, source 4
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Applying override policy from source Overri
*Dot1x_NW_MsgTask_0: Nov 24

04:30:44.531: e4:b3:18:7c:30:58 Found an interface name:'vlan2404' corresponds to interface name receive

*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Applying Interface(vlan2404) policy on Mobi
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Re-applying interface policy for client
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Setting re-auth timeout to 0 seconds, got f
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Station e4:b3:18:7c:30:58 setting dot1x rea
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Stopping reauth timeout for e4:b3:18:7c:30:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Creating a PKC PMKID Cache entry for statio
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Resetting MSCB PMK Cache Entry 0 for statio
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Adding BSSID 00:c8:8b:26:2c:d1 to PMKID cac
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: New PMKID: (16)
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531:      [0000] cc 3a 3d 26 80 17 8b f1 2d c5 cd fd a0 8a c4 39
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 unsetting PmkIdValidatedByAp
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Updating AAA Overrides from local for stati
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Adding Audit session ID payload in Mobility
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 0 PMK-update groupcast messages sent
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 PMK sent to mobility group
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Disabling re-auth since PMK lifetime can ta
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.531: e4:b3:18:7c:30:58 Sending EAP-Success to mobile e4:b3:18:7c:3
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 Freeing AAACB from Dot1xCB as AAA auth is d
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 key Desc Version FT - 0
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 Found an cache entry for BSSID 00:c8:8b:26:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: Including PMKID in M1  (16)
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532:      [0000] cc 3a 3d 26 80 17 8b f1 2d c5 cd fd a0 8a c4 39
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: M1 - Key Data: (22)
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532:      [0000] dd 14 00 0f ac 04 cc 3a 3d 26 80 17 8b f1 2d c5
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532:      [0016] cd fd a0 8a c4 39
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532:

e4:b3:18:7c:30:58 Starting key exchange to mobile e4:b3:18:7c:30:58, data packets will be dropped

*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532:

e4:b3:18:7c:30:58 Sending EAPOL-Key Message to mobile e4:b3:18:7c:30:58

state INITPMK (message 1), replay counter 00.00.00.00.00.00.00.00
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 Reusing allocated memory for  EAP Pkt for r
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 Entering Backend Auth Success state (id=223
```

```
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 Received Auth Success while in Authenticati
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.532: e4:b3:18:7c:30:58 dot1x - moving mobile e4:b3:18:7c:30:58 int
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.547: e4:b3:18:7c:30:58 Received EAPOL-Key from mobile e4:b3:18:7c:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.547: e4:b3:18:7c:30:58 Ignoring invalid EAPOL version (1) in EAPOL
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.547: e4:b3:18:7c:30:58 key Desc Version FT - 0
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.547:
```

e4:b3:18:7c:30:58 Received EAPOL-key in PTK_START state (message 2) from mobile

```
 e4:b3:18:7c:30:58
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Successfully computed PTK from PMK!!!
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Received valid MIC in EAPOL Key Message M2!
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Not Flex client. Do not distribute PMK Key
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Stopping retransmission timer for mobile e4
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 key Desc Version FT - 0
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Sending EAPOL-Key Message to mobile e4:b3:1
state PTKINITNEGOTIATING (message 3), replay counter 00.00.00.00.00.00.00.01
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.548: e4:b3:18:7c:30:58 Reusing allocated memory for  EAP Pkt for r
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Received EAPOL-Key from mobile e4:b3:18:7c:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Ignoring invalid EAPOL version (1) in EAPOL
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 key Desc Version FT - 0
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555:
```

e4:b3:18:7c:30:58 Received EAPOL-key in PTKINITNEGOTIATING state (message 4)

```
 from mobile e4:b3:18:7c:30:58
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Stopping retransmission timer for mobile e4
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Freeing EAP Retransmit Bufer for mobile e4:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 apfMs1xStateInc
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 apfMsPeapSimReqCntInc
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 apfMsPeapSimReqSuccessCntInc
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555:
```

e4:b3:18:7c:30:58 0.0.0.0 8021X_REQD (3) Change state to L2AUTHCOMPLETE (4) last state 8021X_REQD (3)

```
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Mobility query, PEM State: L2AUTHCOMPLETE
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.555: e4:b3:18:7c:30:58 Building Mobile Announce :
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58   Building Client Payload:
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58     Client Ip: 0.0.0.0
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58     Client Vlan Ip: 172.16.0.134, Vlan mask
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58     Client Vap Security: 16384
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58     Virtual Ip: 10.10.10.10
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58     ssid: ise-ssid
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58   Building VlanIpPayload.
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 Not Using WMM Compliance code qosCap 00
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 L2AUTHCOMPLETE (4) Plumbed mobile L
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556:
```

e4:b3:18:7c:30:58 0.0.0.0 L2AUTHCOMPLETE (4) Change state to DHCP_REQD (7) last state L2AUTHCOMPLETE (4)

```
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) pemAdvanceState2 6677
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Adding Fast Path rule
  type = Airespace AP - Learn IP address
  on AP 00:c8:8b:26:2c:d0, slot 0, interface = 1, QOS = 0
  IPv4 ACL ID = 255, IPv
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Fast Path rule (contd
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Fast Path rule (contd
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Successfully plumbed
*Dot1x_NW_MsgTask_0: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 Successfully Plumbed PTK session Keysfor mo
*spamApTask2: Nov 24 04:30:44.556: e4:b3:18:7c:30:58 Successful transmission of LWAPP Add-Mobile to AP
*pemReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 Added NPU entry of type 9, dtlFlags 0x0
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) mobility role update requ
  Peer = 0.0.0.0, Old Anchor = 0.0.0.0, New Anchor = 172.16.0.3
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) State Update from Mobilit
```

```
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) pemAdvanceState2 6315, Ad
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Replacing Fast Path rule
  IPv4 ACL ID = 255,
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Fast Path rule (contd...)
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Fast Path rule (contd...)
*apfReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 0.0.0.0 DHCP_REQD (7) Successfully plumbed mobi
*pemReceiveTask: Nov 24 04:30:44.557: e4:b3:18:7c:30:58 Sent an XID frame
*dtlArpTask: Nov 24 04:30:47.932: e4:b3:18:7c:30:58 Static IP client associated to interface vlan2404 w
*dtlArpTask: Nov 24 04:30:47.933: e4:b3:18:7c:30:58 apfMsRunStateInc
*dtlArpTask: Nov 24 04:30:47.933:
```

e4:b3:18:7c:30:58 172.16.0.151 DHCP_REQD (7) Change state to RUN (20)

```
 last state DHCP_REQD (7)
```

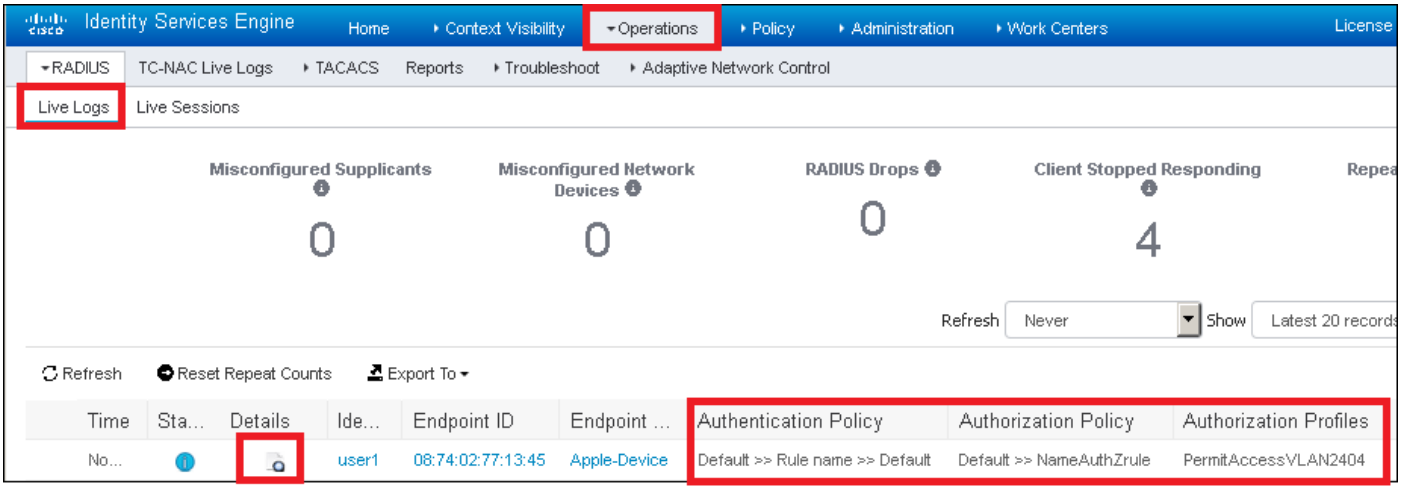
디버그 클라이언트 출력을 쉽게 읽을 수 있는 방법은 무선 디버그 분석기 도구를 사용합니다.

Wireless Debug Analyzer

ISE의 인증 프로세스

사용자에게 할당된 인증 정책, 권한 부여 정책 및 권한 부여 프로파일을 확인하기 위해 Operations(운영) > RADIUS > Live Logs(라이브 로그)로 이동합니다.

자세한 내용을 보려면 Details를 클릭하여 그림과 같이 보다 자세한 인증 프로세스를 확인합니다.



문제 해결

현재 이 구성의 문제를 해결하는 데 사용할 수 있는 특정 정보가 없습니다.

이 번역에 관하여

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