Pulse Policy Secure: Session Bridging using Certificate Authentication

Cook Book

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Introduction

On Mac OS X, Windows and Linux endpoint using native supplicant, PPS Host checking can be enforced only for Layer 3connection. Once the endpoint gets authenticated using native supplicant and gains network access, you can launch and install Pulse Secure client using web browser deployment or SCCM advertisement to establish a Layer 3 session.

This evaluates the health status of the endpoints and thereby ensuring legitimate resource access behind PPS Enforcer. There will be only one session for Layer 2 and Layer 3 connections on PPS which will consume single license.

For agentless host checking, native supplicant is used to perform 802.1x authentication. The compliance check is performed using browser based agentless L3 session. The L2 and agentless L3 session are bridged on PPS to provide compliance based layer 2 access control. For access control, RADIUS return attribute Filter-ID with Radius COA is used.

Session Bridging Support Matrix

Table 1 Supported Session Bridging Matrix

Clients	Session	Operating System	Authentication Mechanism
Pulse Client/Browser Sessions (Agentless)	Layer 3	Windows/Mac OS X	User Name, Password/Certificate
Native Supplicant	Layer 2	Windows/Mac OS X	802.1X, SNMP, RADIUS, Mac Authentication

Configuring PPS for Session Bridging

Configuring Mac OS X Native Supplicant for PPS 802.1X Authentication

This section details the procedure for configuring native Mac OS X supplicant for PPS 802.1X authentication.

Requirements:

- Apple Mac OS X endpoint
- iPhone Configuration utility
- Client certificate must be installed on Mac OS X endpoint.

Configuring MAC OS X Native Supplicant

Authentication to a PPS 802.1X server in MAC OS X endpoints is achieved using Apple Configurator. This tool allows you to easily create, maintain, and install configuration profiles, track and install provisioning profiles, and capture device information including console logs.

Note: The latest MAC OS X endpoints can be configured using Apple Configurator 2 tool.

This section covers the following configuration:

- *"Configuring 802.1x profile" on page 4*
- *"Configuring PEAP Authentication Profile" on page 4*

Configuring 802.1x profile

You can create various profiles (TTLS/PAP, TTLS/MS-CHAP-V2, and PEAP/MS-CHAP-V2) required for PPS 802.1x authentication using Apple Configurator. The generated configuration profiles can be exported to a Mac OS X endpoint. To create profiles, install the profiles (by double clicking on the exported files) on their OS X endpoints and that will provision Layer 2 access when connected to 802.1x enabled switch port.

Configuring 802.1x profiles -PEAP applies only for General and Wi-Fi settings. If the authentication server is Certificate Auth Server, use **EAP-PEAP/EAP-TLS.**

Configuring PEAP Authentication Profile

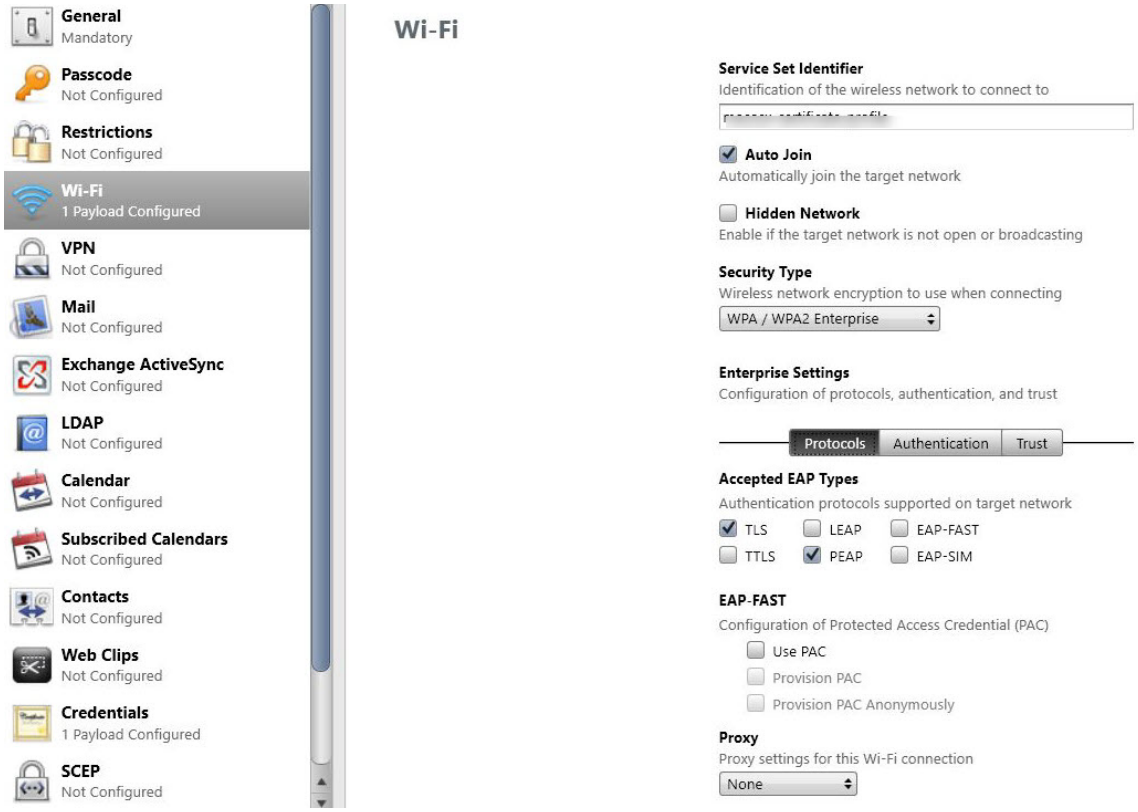
To configure PEAP, perform the following:

1. On the iPhone configuration utility (IPCU) navigate to **Configuration Profiles** tab.
2. On configuration Profiles page, select **General** and enter the required values.

   Figure 1 PEAP: TLS General

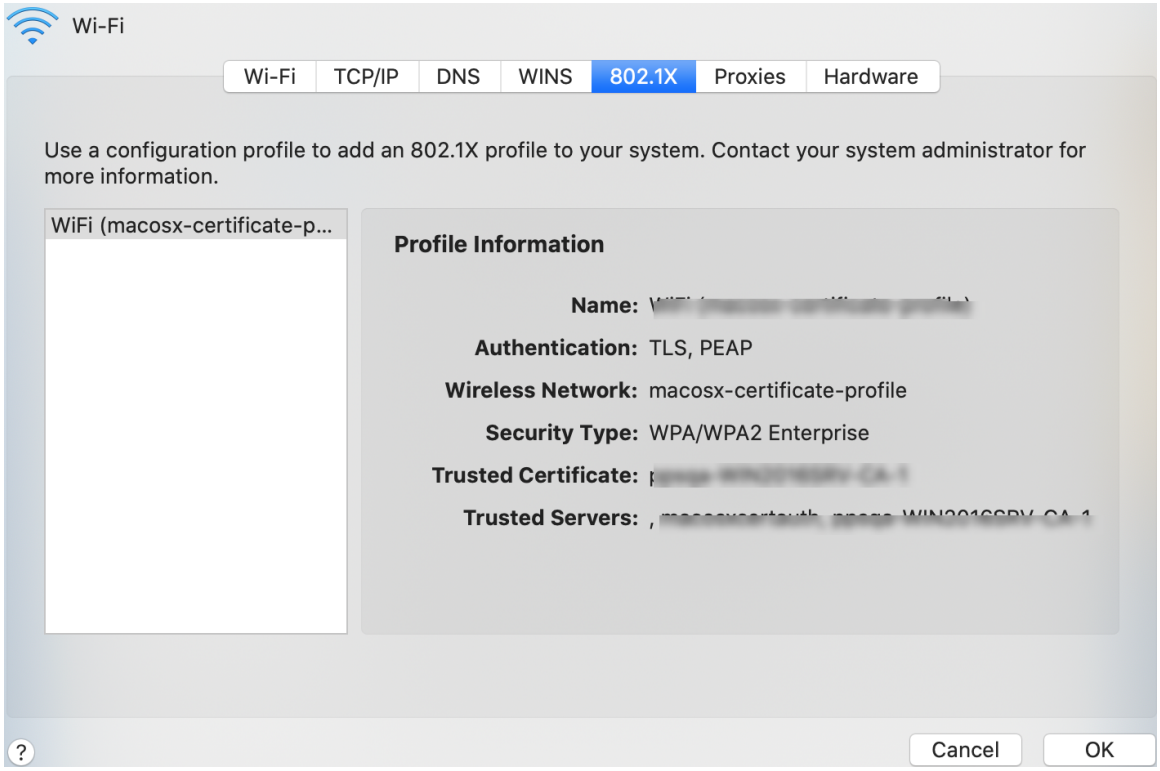
3. Select **Wi-Fi** and enter the required values. Ensure TLS/PEAP are selected under Accepted EAP types.

Figure 2 PEAP: TLS Wi-Fi



Once the profile is successfully imported, you see the below screen shot.

Figure 3 WiFi Profile

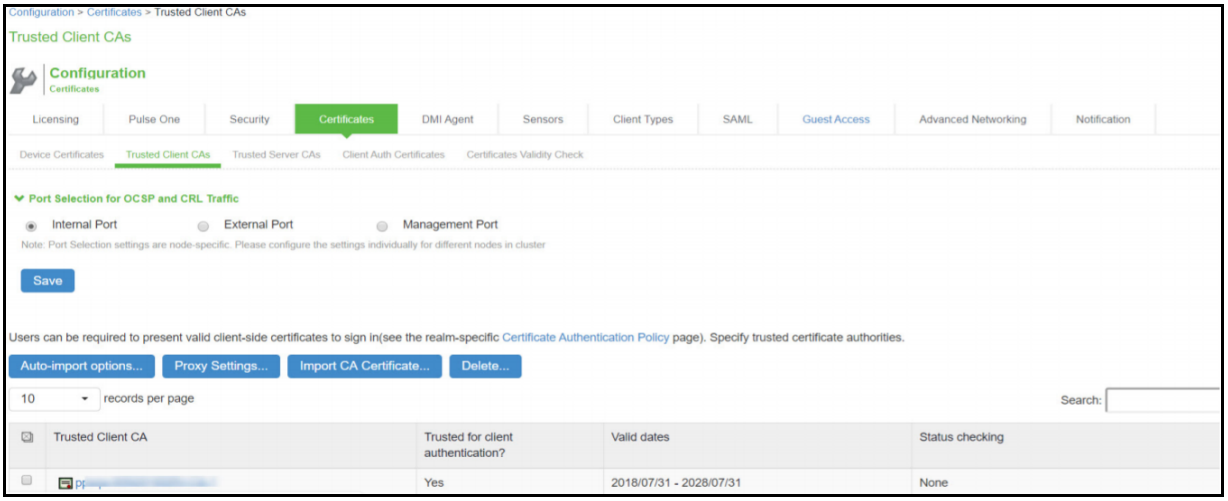


Configuring Pulse Policy Secure

To configure PPS for guest wireless authentication:

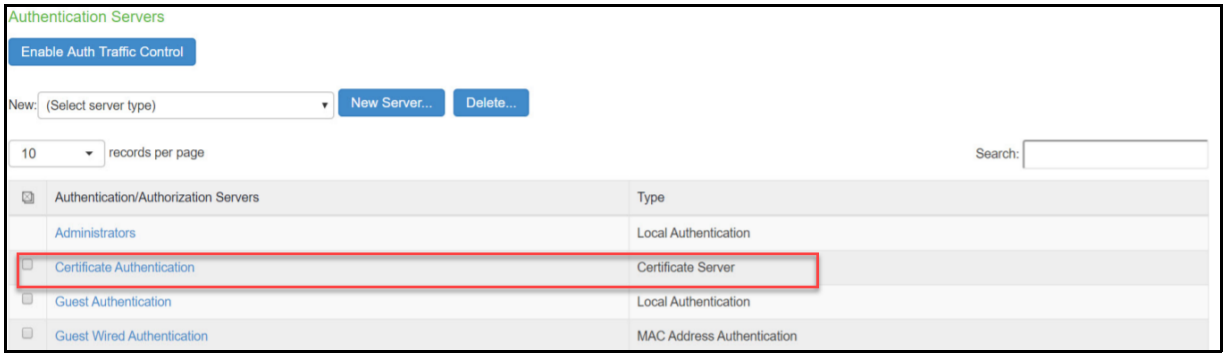
1. Select **System > Configuration > Certificates > Trusted Client CAs.** Install the certificate from the CA that Pulse Policy Secure is using for trusted Client CAs.

   Figure 4 Client CA



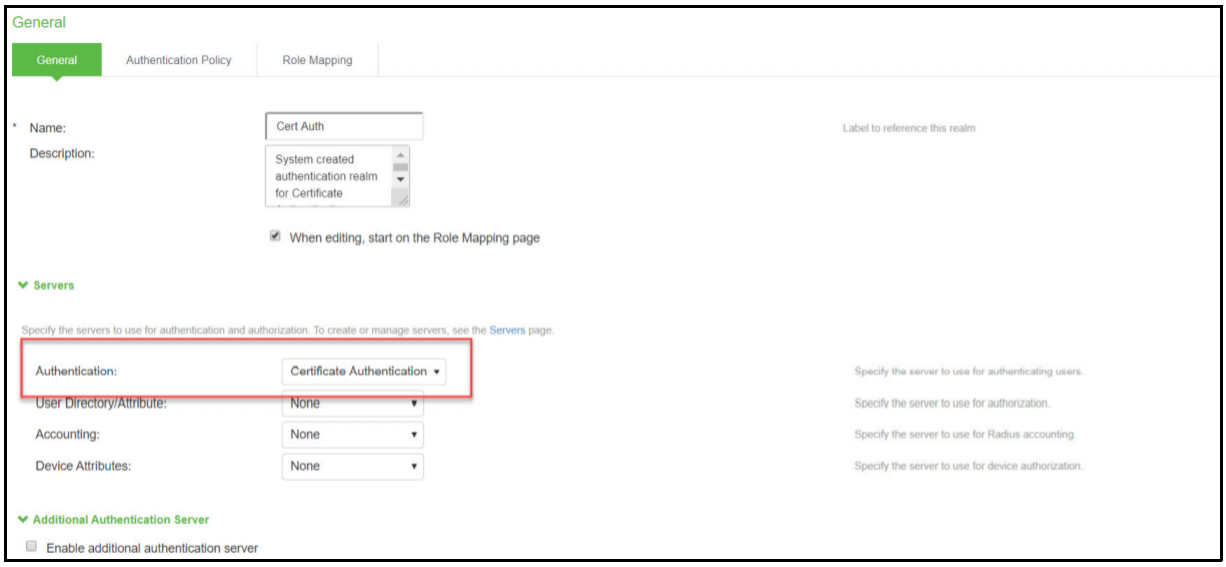
2. Select **Authentication > Auth.Servers**. The Authentication Servers screen appears. Use the Default Certificate Authentication Server.

   Figure 5 Certificate Authentication Server



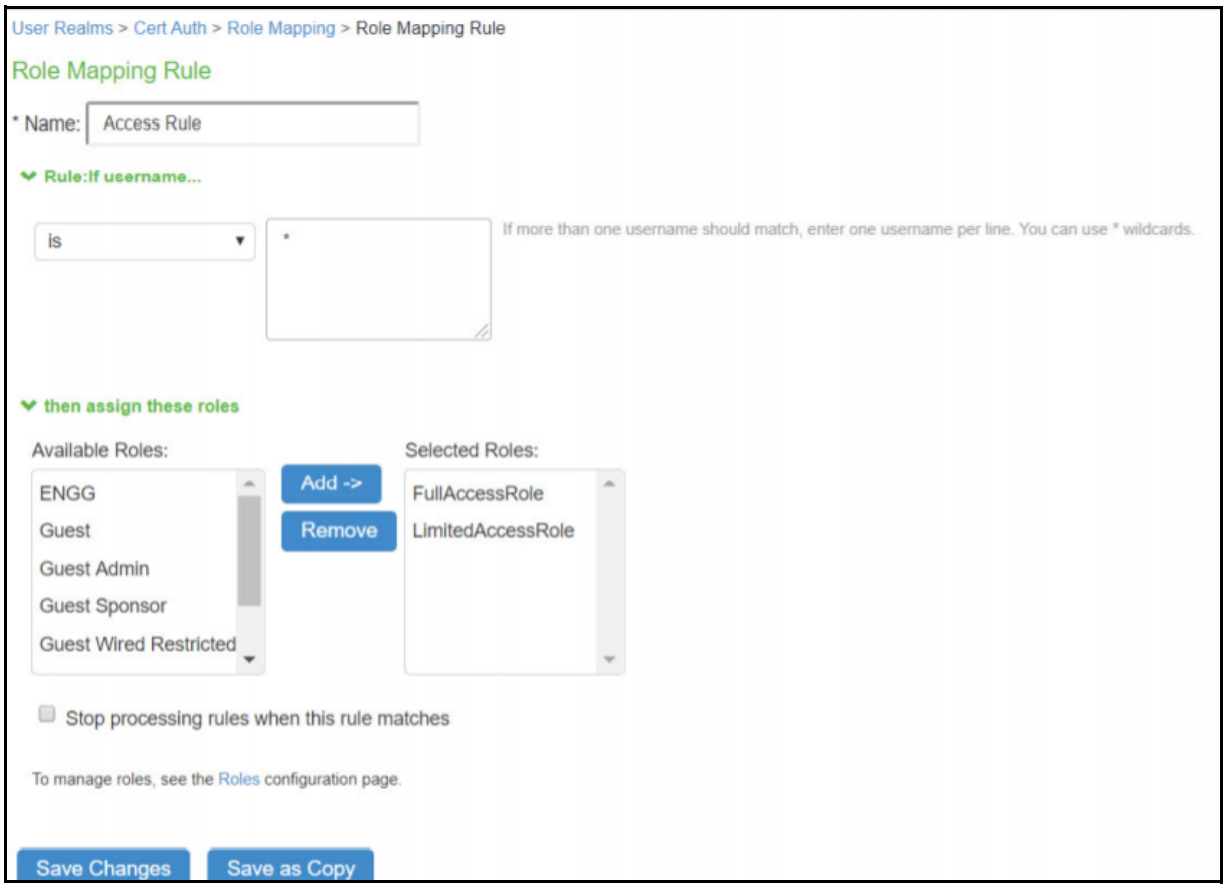
3. Select **Users > User Realms**, Click **Cert Auth** realm available by default to view the settings. Under Servers, Select the Certificate Authentication server.

Figure 6 Cert Auth Realm Settings



4. Create Role Mapping rules to associate with the roles.

Figure 7 Role Mapping Rules

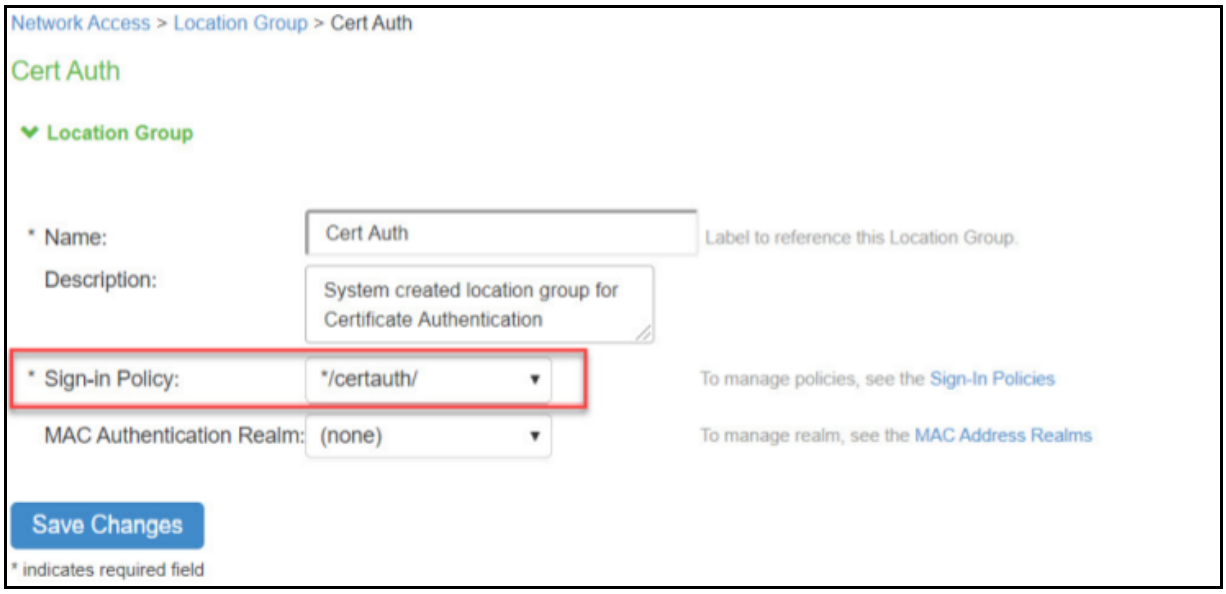


5. Selecting **Authentication > Signing In > Sign-In Policies**. Associate the default Cert Auth authentication protocol set with the realm.

Figure 8 Sign-In Policy

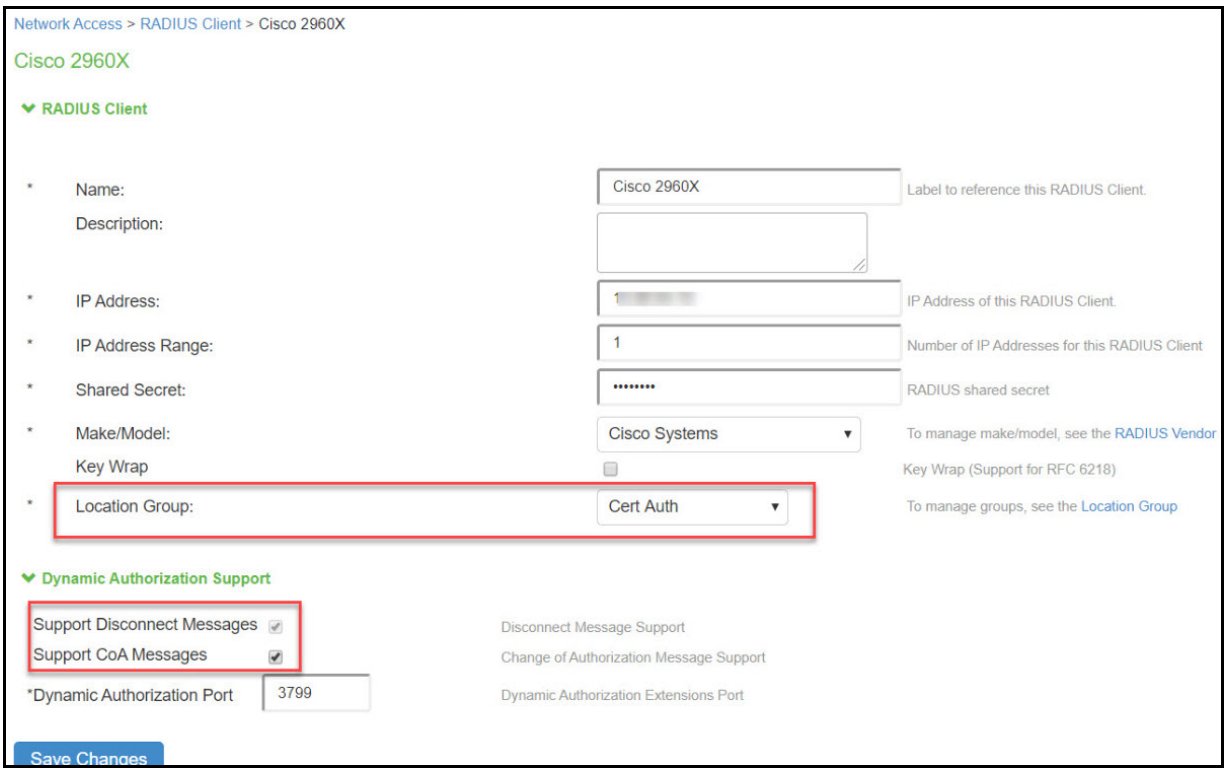
6. Select **Endpoint Policy > Network Access > Location Group**. Select the default ***/certauth/** sign-in policy.

Figure 9 Location Group



7. Configure the RADIUS client. Ensure that the default **Cert Auth** location group and Support Disconnect Messages and Support CoA Messages options are enabled.

Figure 10 RADIUS Client



8. Configure the RADIUS return attributes for Guest Wired policy. Select **Endpoint Policy > Network Access > RADIUS Return Attribute Policies**. Click **New Policy**. Under RADIUS Attributes tab, select the check box for **Return Attribute**.The RADIUS return attributes are required for MAB authentication initially when the user connects to the SSID (where the redirection happens) and then the session is bridged after the user authenticates.

Figure 11 RADIUS Return Attributes

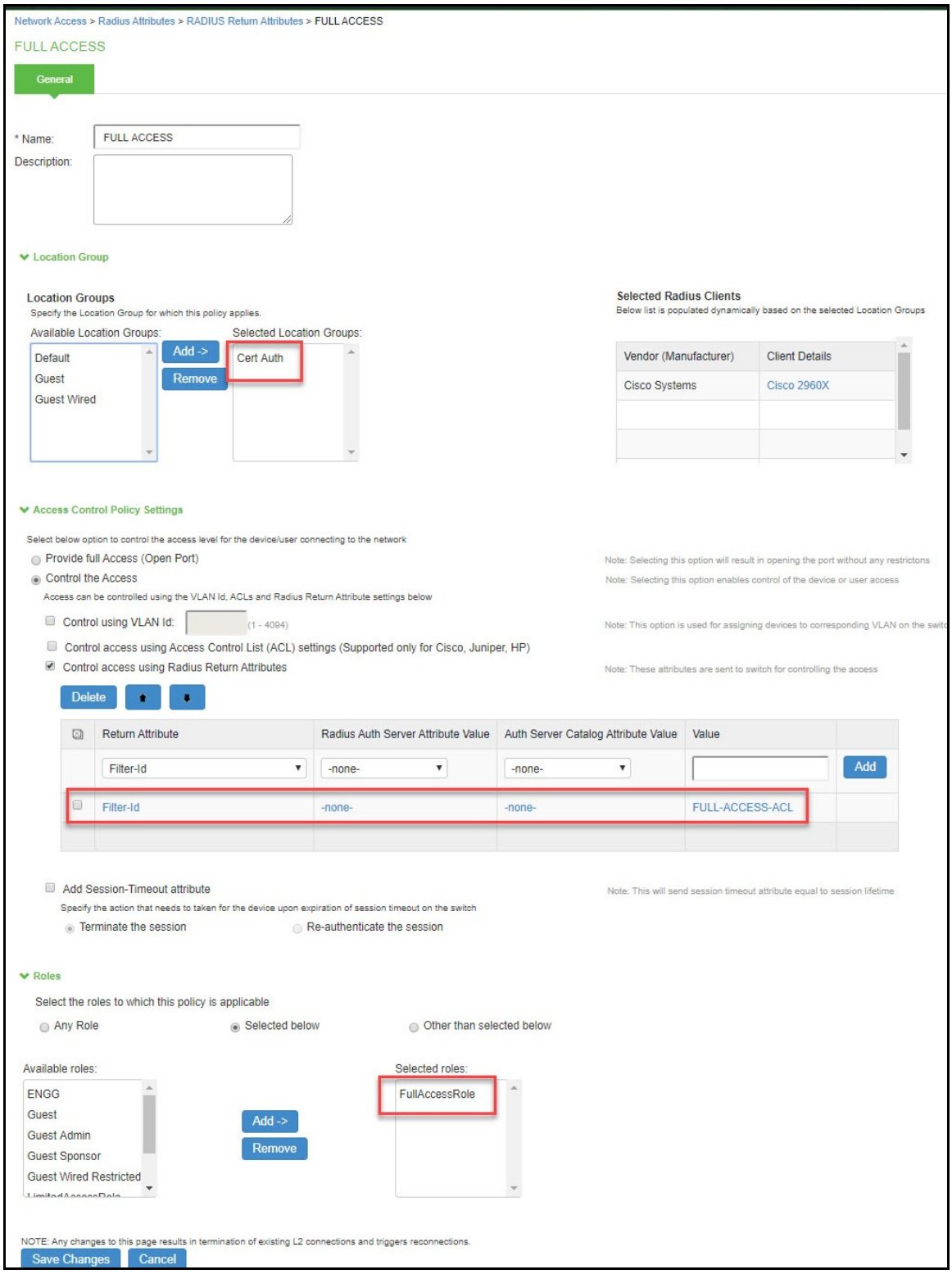
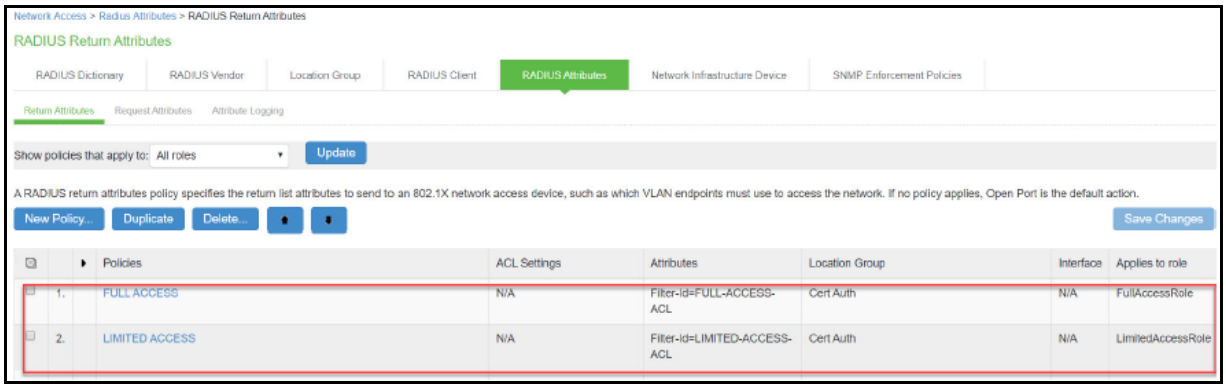


Figure 12 RADIUS Return Attributes Certificate Authentication



Configuring Cisco Switch

CLI command to configure session bridging on Cisco switch. The switch configuration varies for each switch type.

Run the show run command on your switch to ensure that your access interface connections are set up.

```
aaa accounting network default start-stop group PPS-QA

aaa accounting Identity default start-stop broadcast group PPS-QA
aaa accounting send stop-record authentication failure
aaa accounting update periodic 3
!
aaa server radius dynamic-author
client PPS-SERVER server-key 7 000E06080D4B0E14
server-key 7 051B150A22595C0C
port 3799
ignore session-key
ignore server-key
!
radius server PPS-SERVER
address ipv4 <PPS-SERVER-IP> auth-port 1812 acct-port 1813
key 7 1315021E1809557878

radius-server attribute 6 on-for-login-auth
radius-server attribute 8 include-in-access-req
radius-server attribute 32 include-in-access-req
radius-server attribute 55 include-in-acct-req
radius-server attribute 25 access-request include
radius-server dead-criteria time 2 tries 5
radius-server retransmit 3
!
aaa group server radius PPS-QA
server name PPS-SERVER
!
!
aaa local authentication PPS-QA authorization PPS-QA
aaa new-model
aaa session-id common
```

```
Extended IP access list FULL-ACCESS-ACL
    10 permit ip any any

Extended IP access list LIMITED-ACCESS-ACL
    10 permit ip any host <PPS IP>
    20 permit ip any host <PATCH-MGMT-SERVER>
    30 permit udp any any eq domain
    40 permit tcp any any eq domain
    50 permit udp any eq bootps any
    60 permit udp any any eq bootpc
    70 permit udp any eq bootpc any
    80 deny ip any any
```

Troubleshooting

For troubleshooting you can verify the user access logs.

Figure 13 User Access Logs

```
"Agent session bridged for macuser/Cert_Realm from 10.20.30.40 with Junos-Pulse9.1.2.xxxx
(Macintosh) Pulse/9.1.2.xxxxx"
```