在Catalyst 9800 WLC和ISE服务器上配置和验证SGACL

目录

简介

本文档介绍如何在Catalyst 9800和ISE服务器上配置TrustSec以利用SGACL功能，以及本地和FlexConnect模式AP。

先决条件

要求

了解Cisco 9800 WLC、Cisco ISE、FlexConnect和TrustSec基础知识。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- C9800-CL v17.12.4
- ISE 3.2.0
- 9136I无线接入点

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

配置

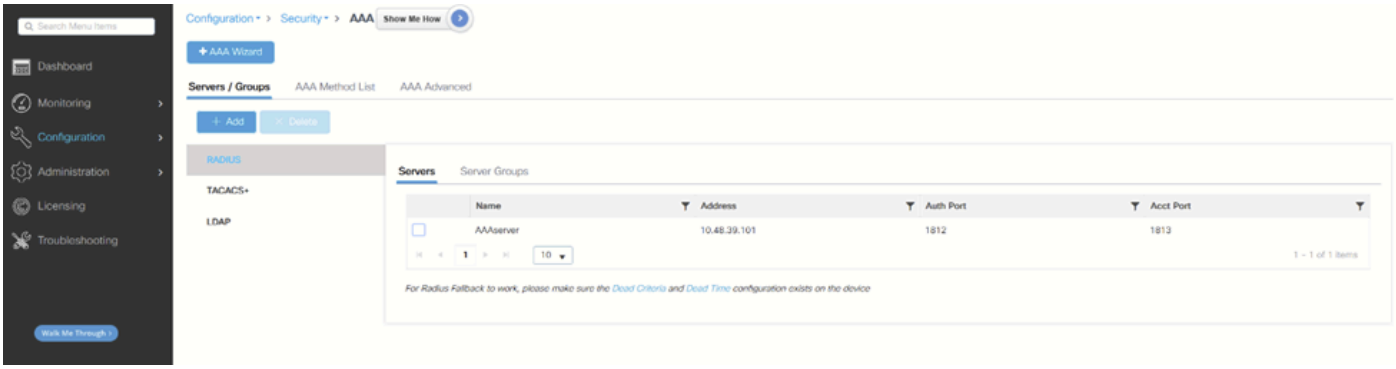
网络图

网络图

配置

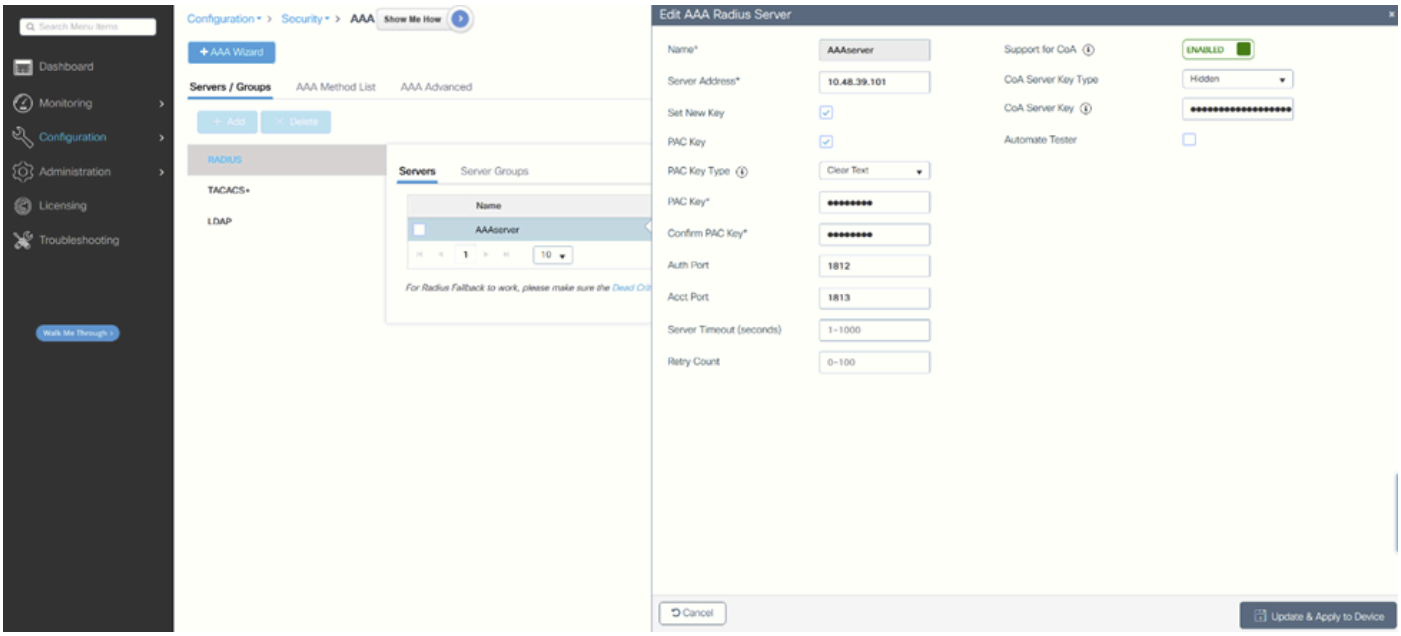
WLC 配置

1.从Configuration > Security > AAA将AAA服务器添加到WLC:



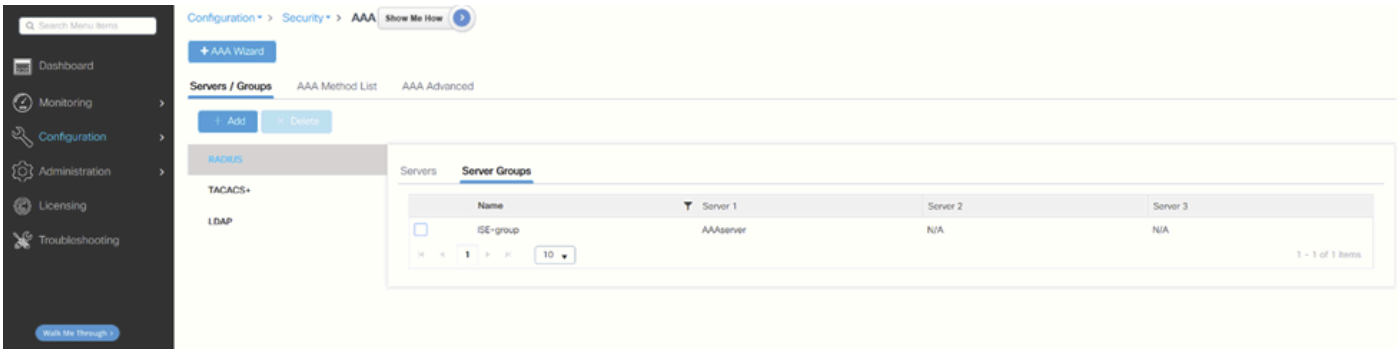
WLC AAA页

2.在ISE上添加设备时，请确保此处的密钥条目与密钥匹配。启用CoA支持并添加密钥（如果您希望使用CoA下载配置更新）：



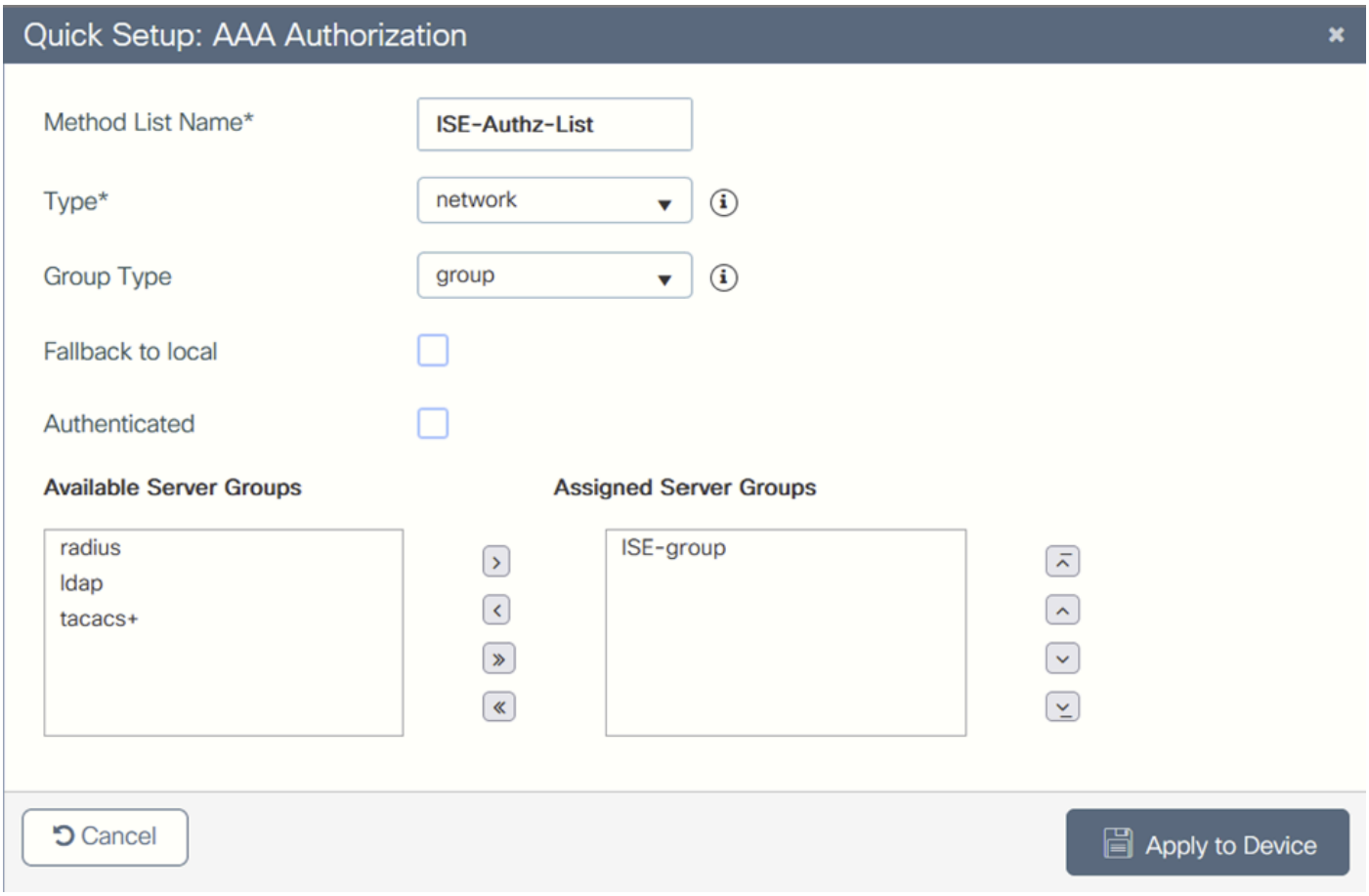
WLC添加AAA服务器

3.创建服务器组：

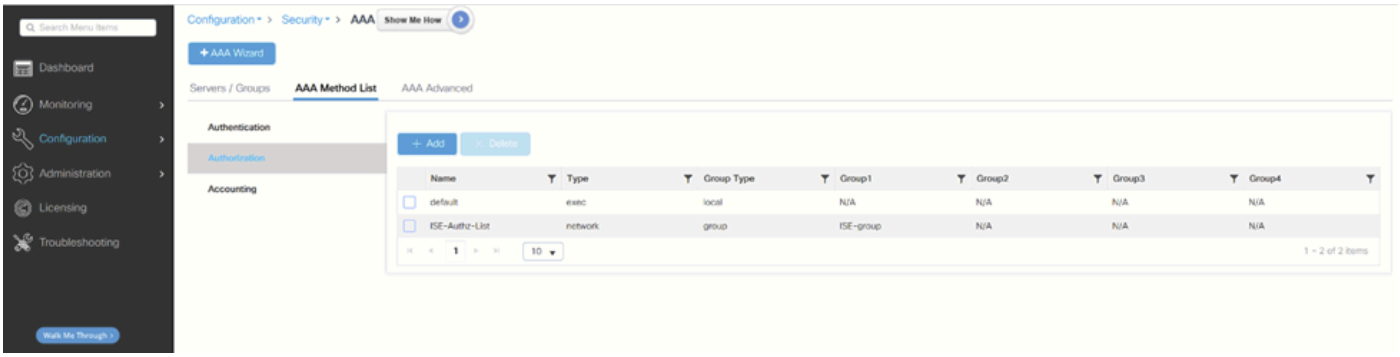


WLC添加服务器组

4.添加Authorization Method List，并键入network:



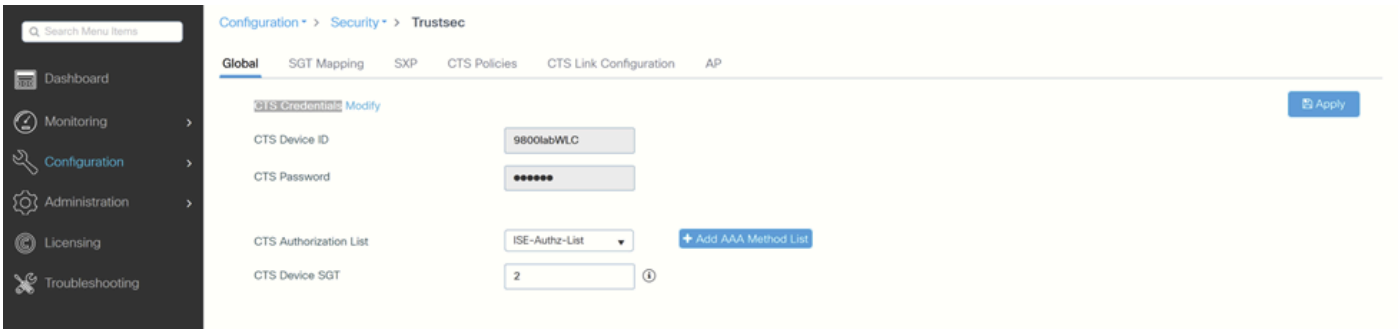
授权方法列表



WLC AAA服务器组

5.导航到Configuration > Security > Trustsec并配置CTS Device ID和CTS Password，您将在ISE上添加设备时使用这些条目。

在此处配置您在第4步中创建的CTS授权列表：

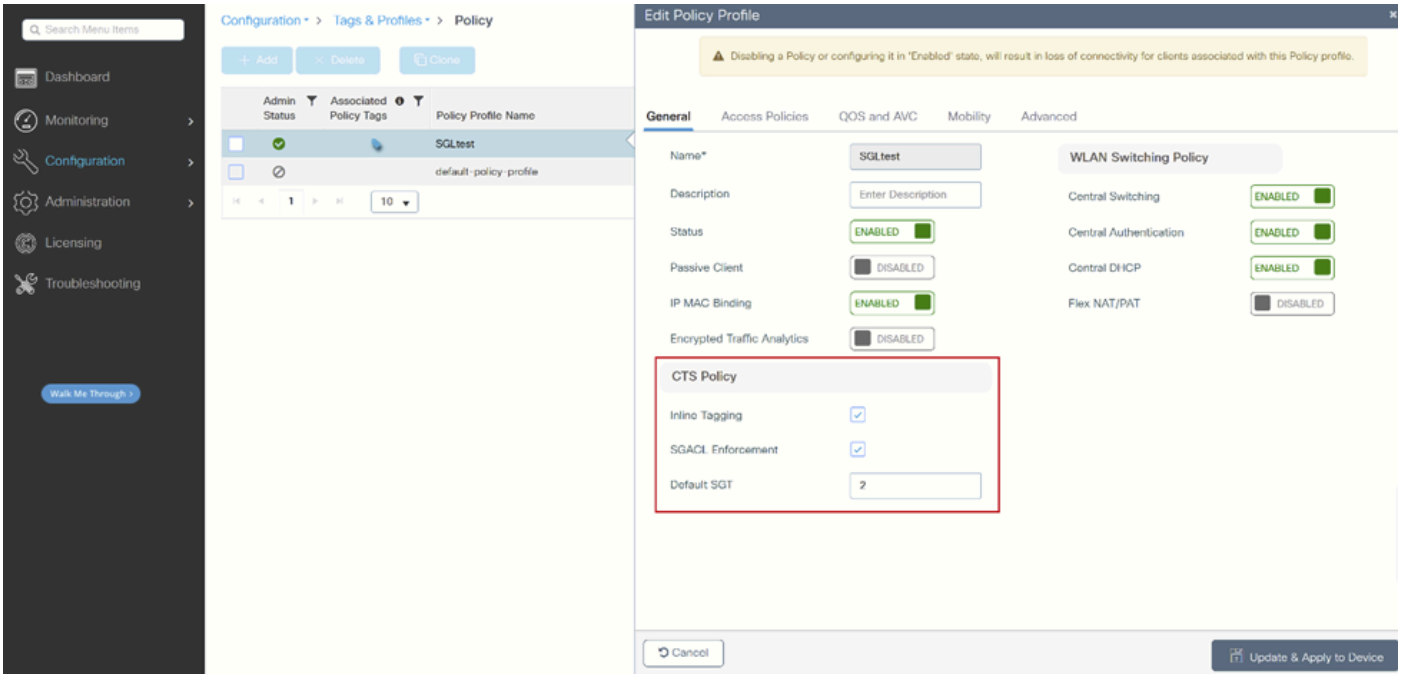


WLC TrustSec

6.在本示例中，已创建WLAN并已配置身份验证设置。

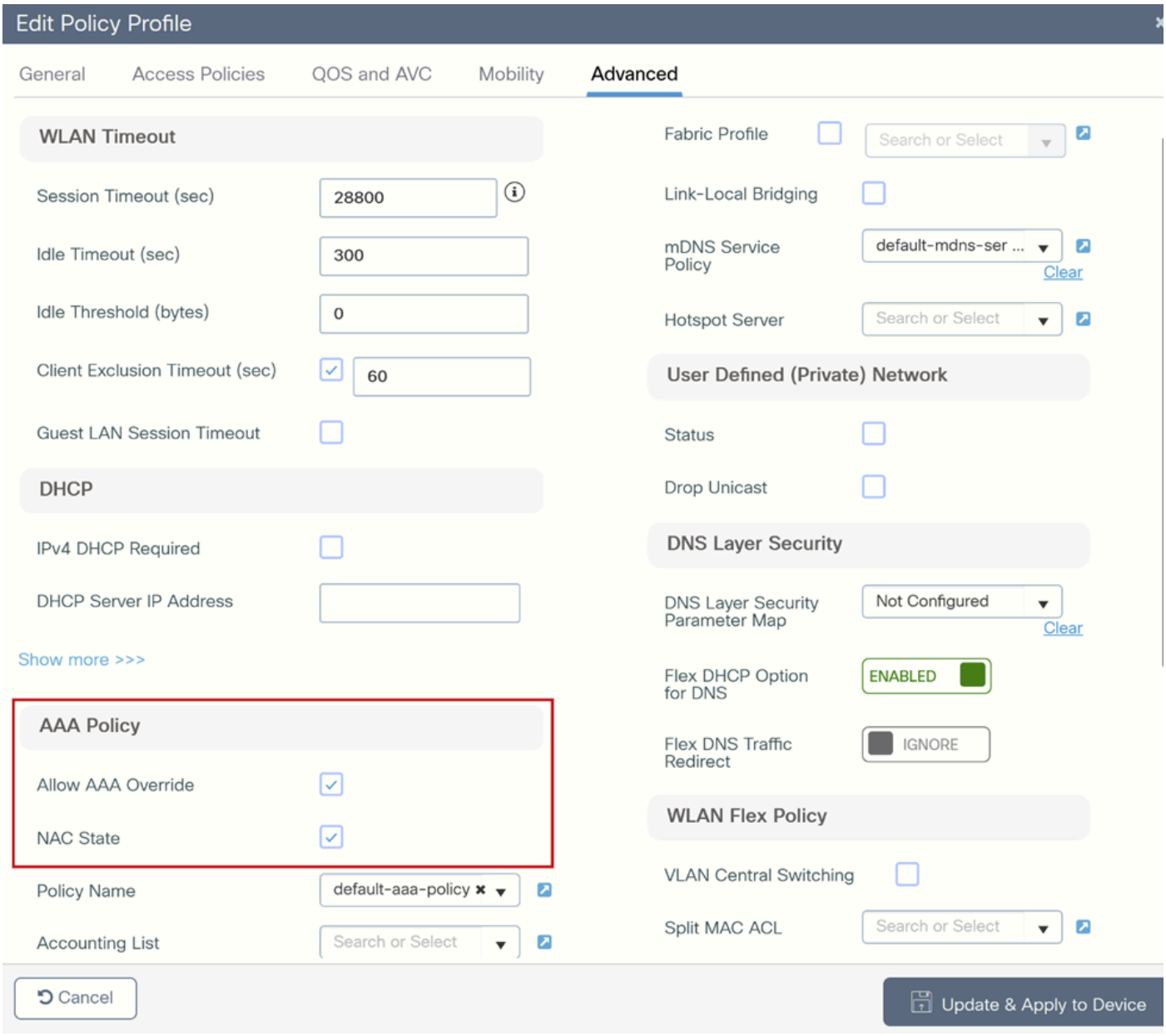
现在，导航至您要使用SGT的策略配置文件。

i.在CTS Policy下，启用Inline Tagging和SGACL Enforcement，您还可以指定Default SGT。本实验使用默认SGT 2作为示例：



WLC策略配置文件

二、在Advanced选项卡下，启用Allow AAA override和NAC state:



WLC策略配置文件高级选项卡

从 CLI：

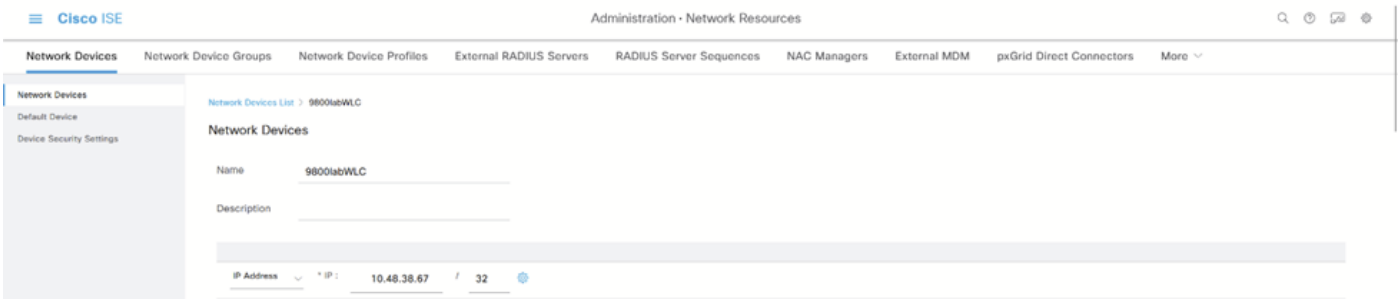
```
# configure terminal

(config)# radius server <server_name>
(config-radius-server)# address ipv4 <server_IP>
(config-radius-server)# pac key <password>

(config)# aaa server radius dynamic-author
(config-locsvr-da-radius)# client <server_IP> server-key <password>

(config)# aaa group server radius <server_group_name>
(config-sg-radius)# server name <server_name>
(config-sg-radius)# ip radius source-interface Vlan#

(config)# aaa authorization network <author_method_list> group <server_group_name>

(config)# cts authorization list <author_method_list>
```

```
(config)# wireless profile policy <policy_profile_name>
(config-wireless-policy)# shut
(config-wireless-policy)# aaa-override
(config-wireless-policy)# cts inline-tagging
(config-wireless-policy)# cts role-based enforcement
(config-wireless-policy)# cts sgt <number>
(config-wireless-policy)# no shut

# show cts credentials
CTS password is defined in keystore, device-id = 9800labWLC
```

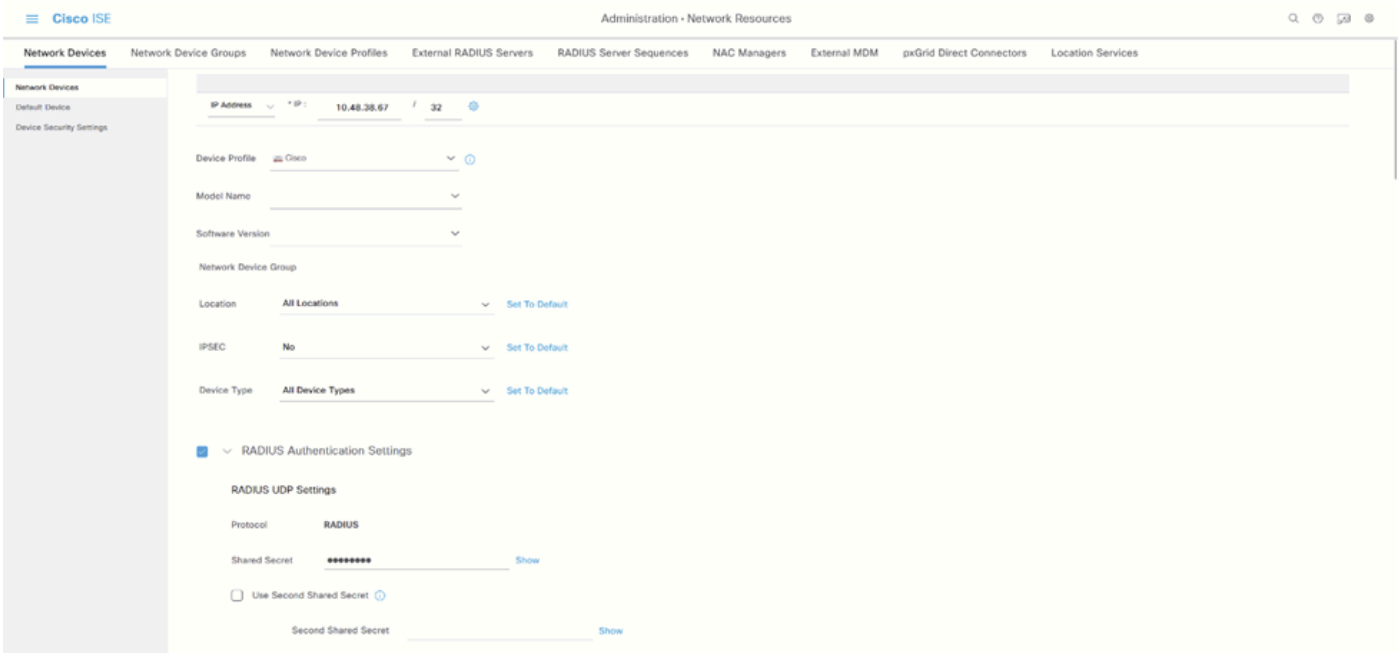
ISE 配置

1.导航到管理>网络资源>网络设备。

i.在此处添加WLC信息：

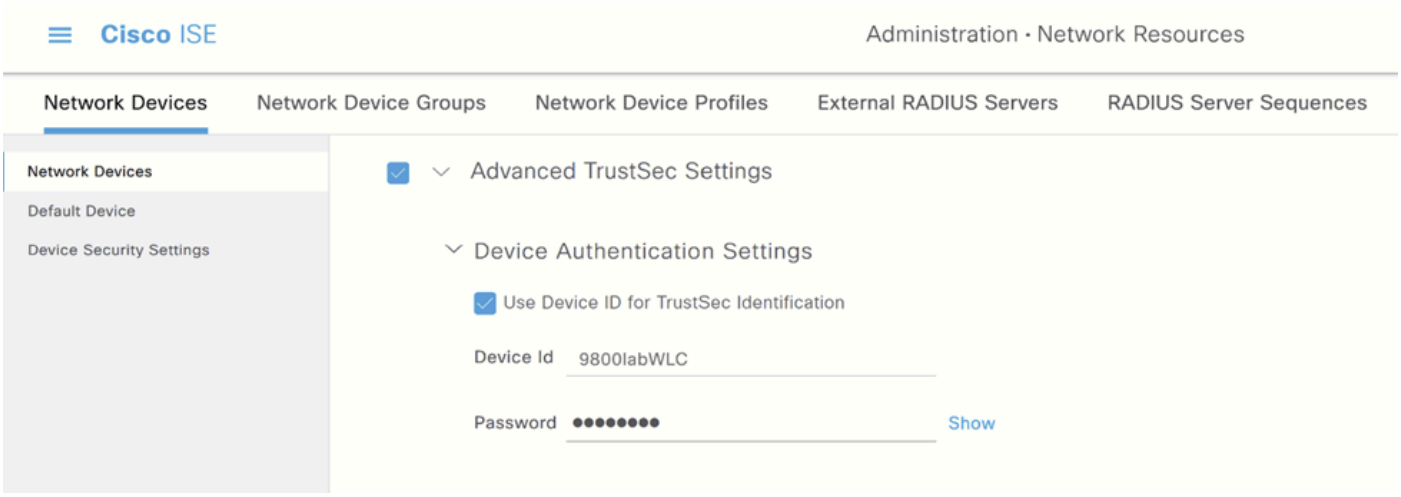


ISE网络设备页面



ISE添加WLC RADIUS信息

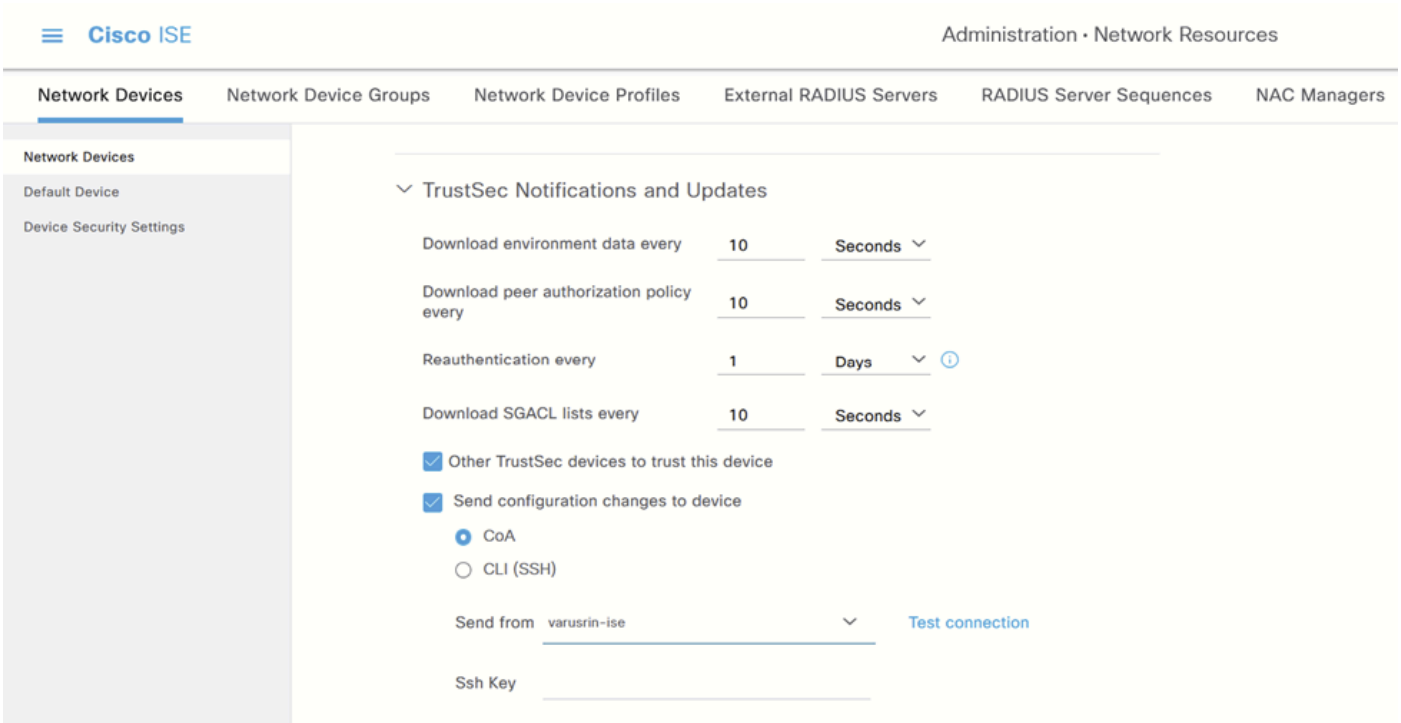
二、向下滚动并配置Advanced TrustSec Settings，启用Use Device ID for TrustSec Identification复选框并配置密码：



高级TrustSec设置

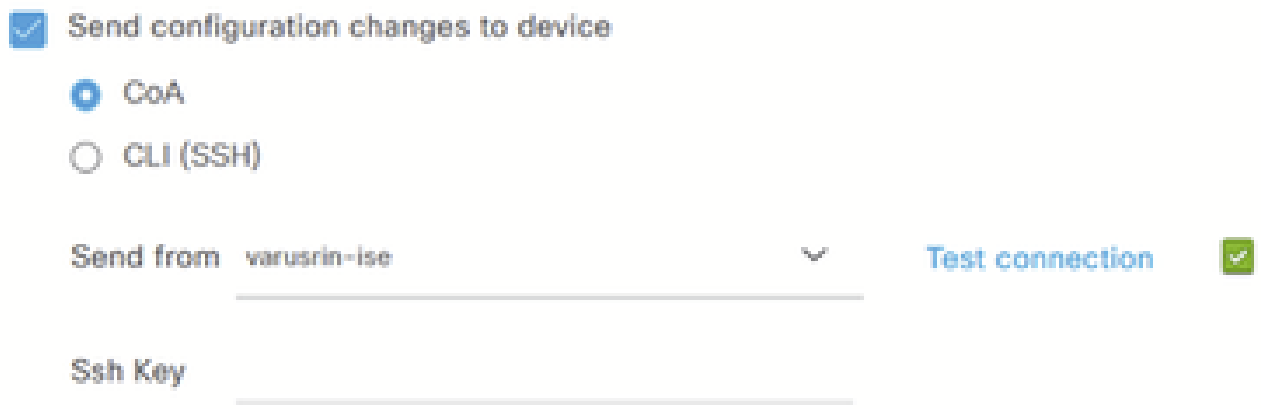
这必须与WLC配置步骤6中WLC端的配置相匹配。

三。向下滚动到TrustSec Notifications and Updates，并配置是否要使用CoA或SSH进行配置更新。选择所需的ISE节点：



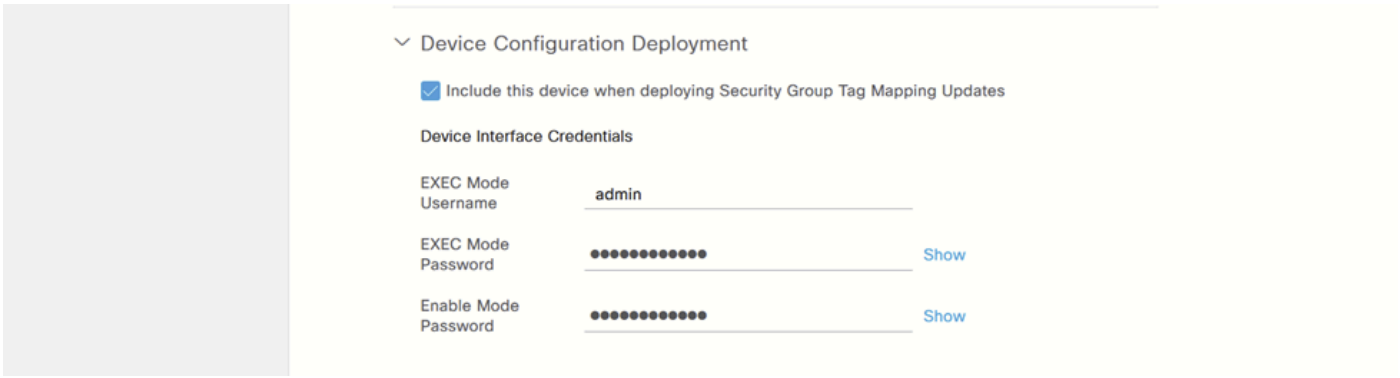
TrustSec通知和更新

2.按测试连接以确保已建立连接。当它成功时，将会显示绿色的勾选标记：



测试连接

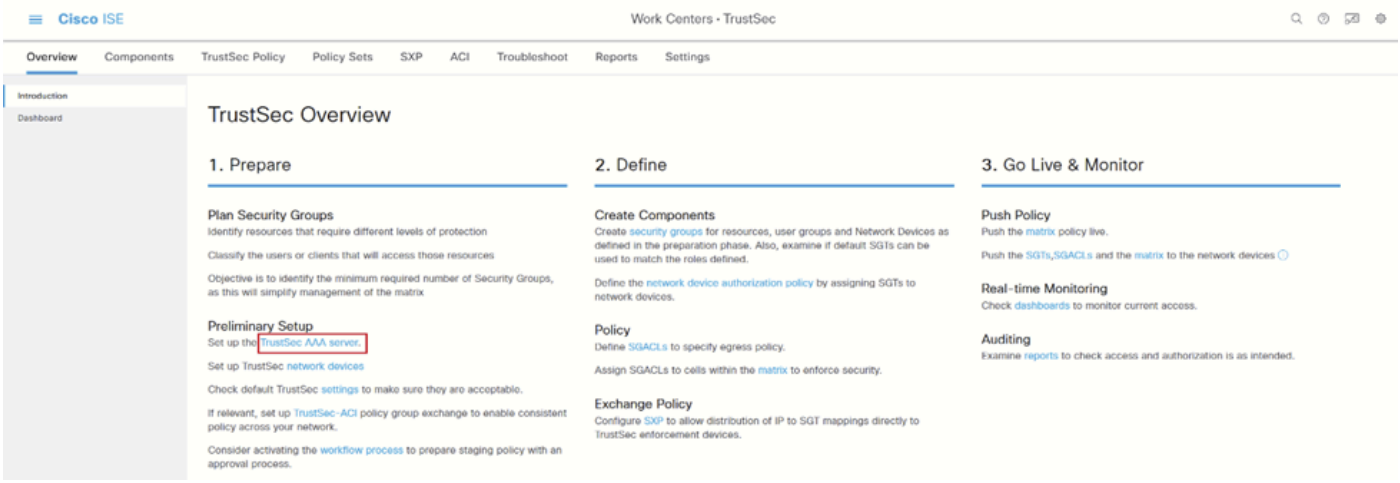
i.向下滚动并配置部署SGT映射更新时要包括的WLC，如果您在上一步中选择SSH选项，这一点非常重要：



设备配置部署

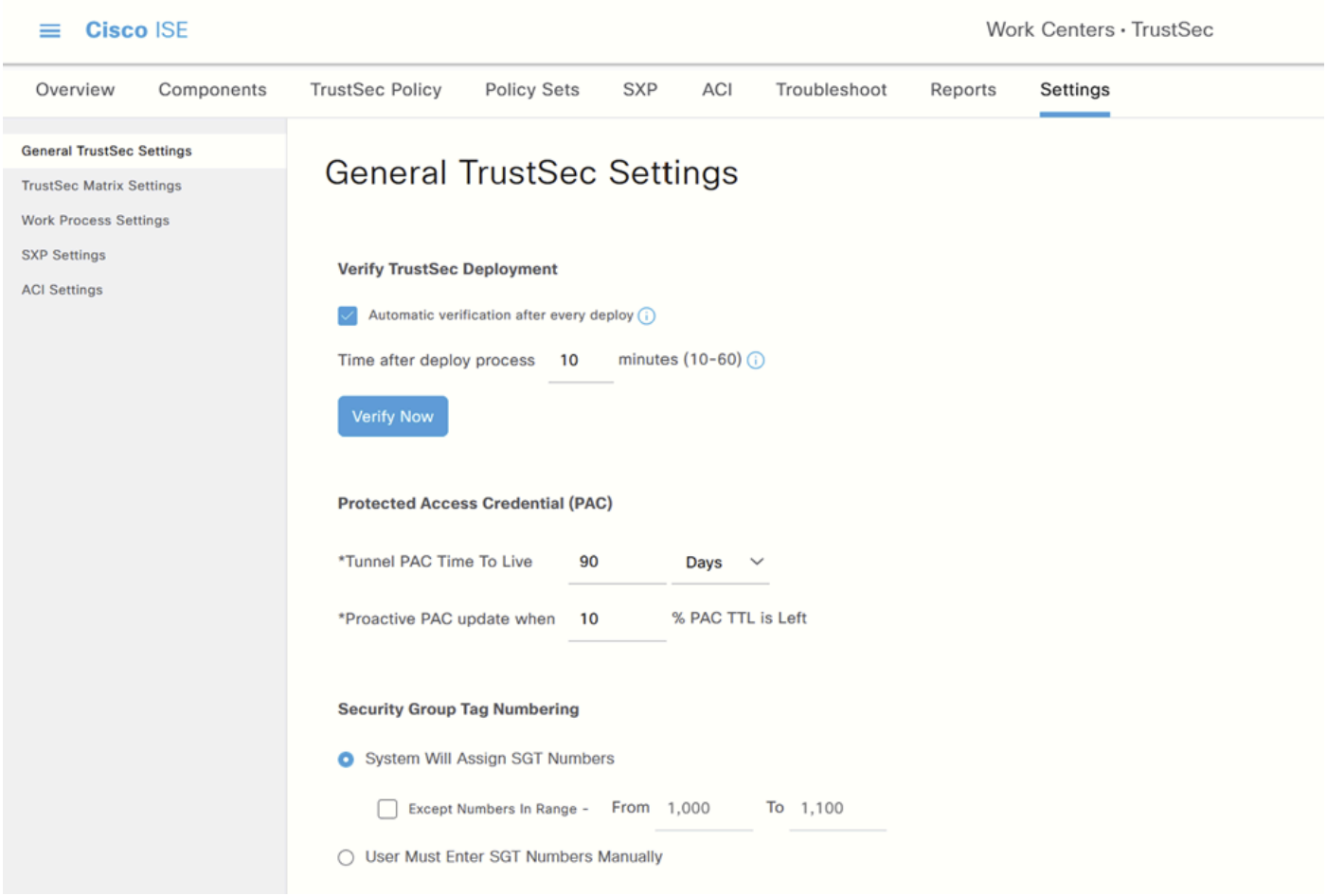
二、保存配置。

3.从“工作中心”>“TrustSec”>“概述”中，您可以选择TrustSec配置选项。选择TrustSec AAA Server以查看正在使用的ISE实例。有关使用哪个实例（如果有多个实例）的详细信息，请参阅Cisco Catalyst无线组策略。



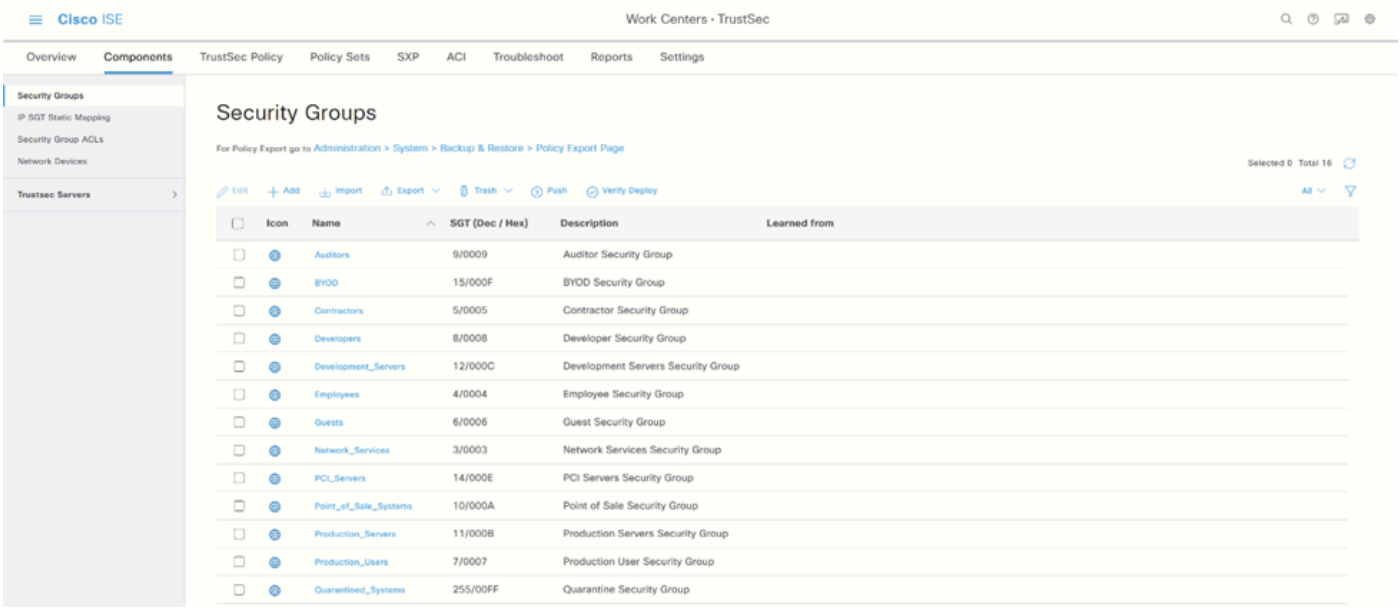
ISE TrustSec概述

4.（可选）导航到Settings选项卡，启用Automatic verification after every deploy（如果首选）。



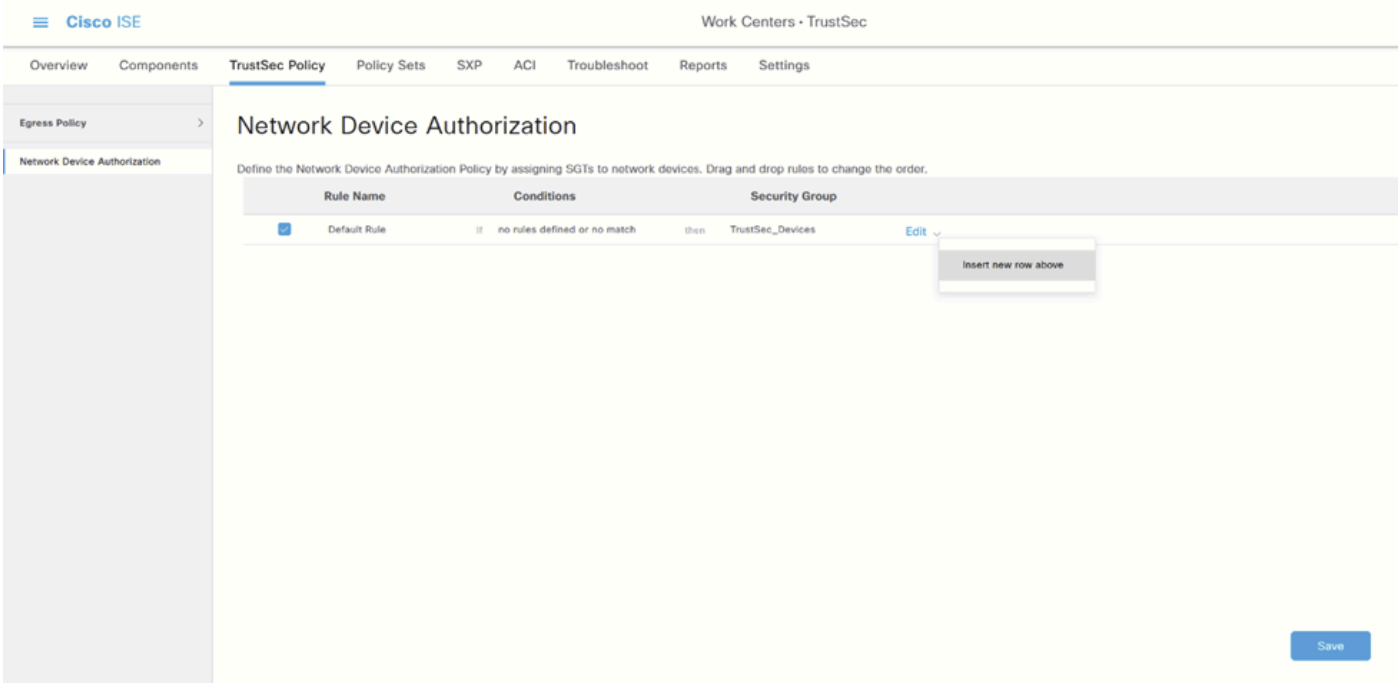
ISE TrustSec设置

5.根据您的要求，从工作中心> TrustSec >组件>安全组添加或编辑SGT值：



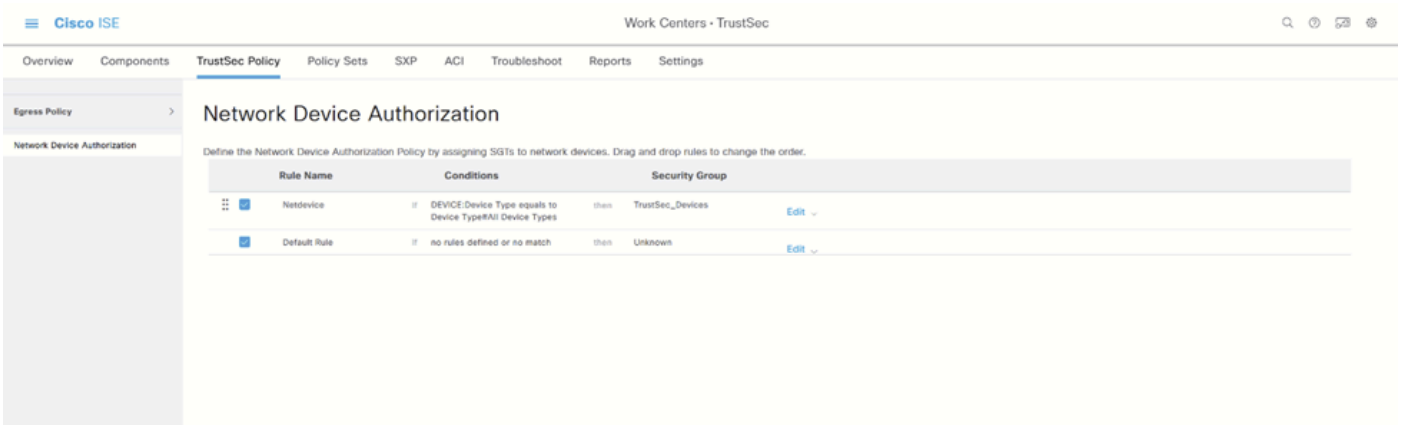
ISE安全组

6.如果要指定授权策略，请导航至工作中心> TrustSec > TrustSec策略>网络设备授权:



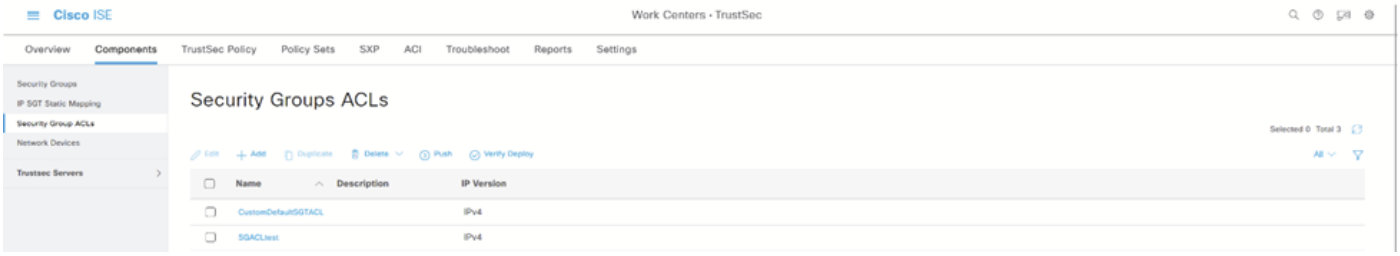
TrustSec策略

您可以保留默认值，但在本实验中，我们将使用此配置作为示例：



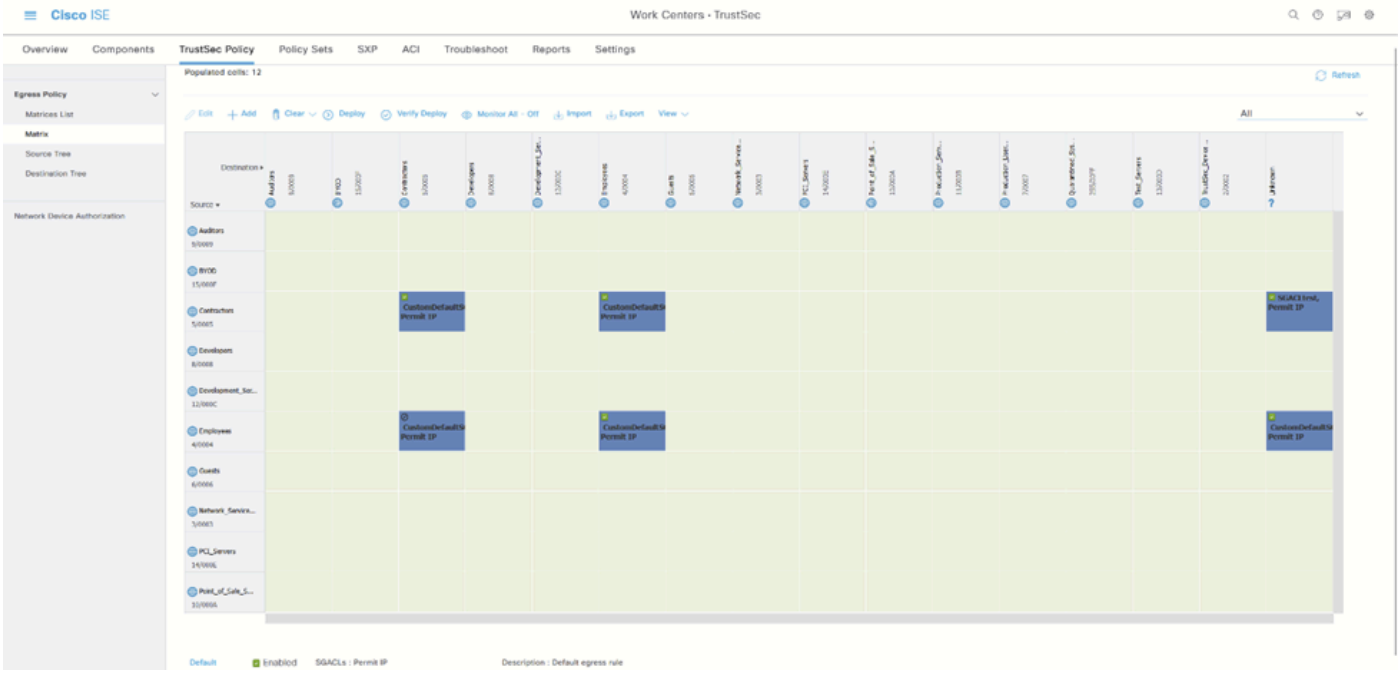
网络设备授权

7.在Components选项卡下创建SGACL，然后创建Security Group ACL:

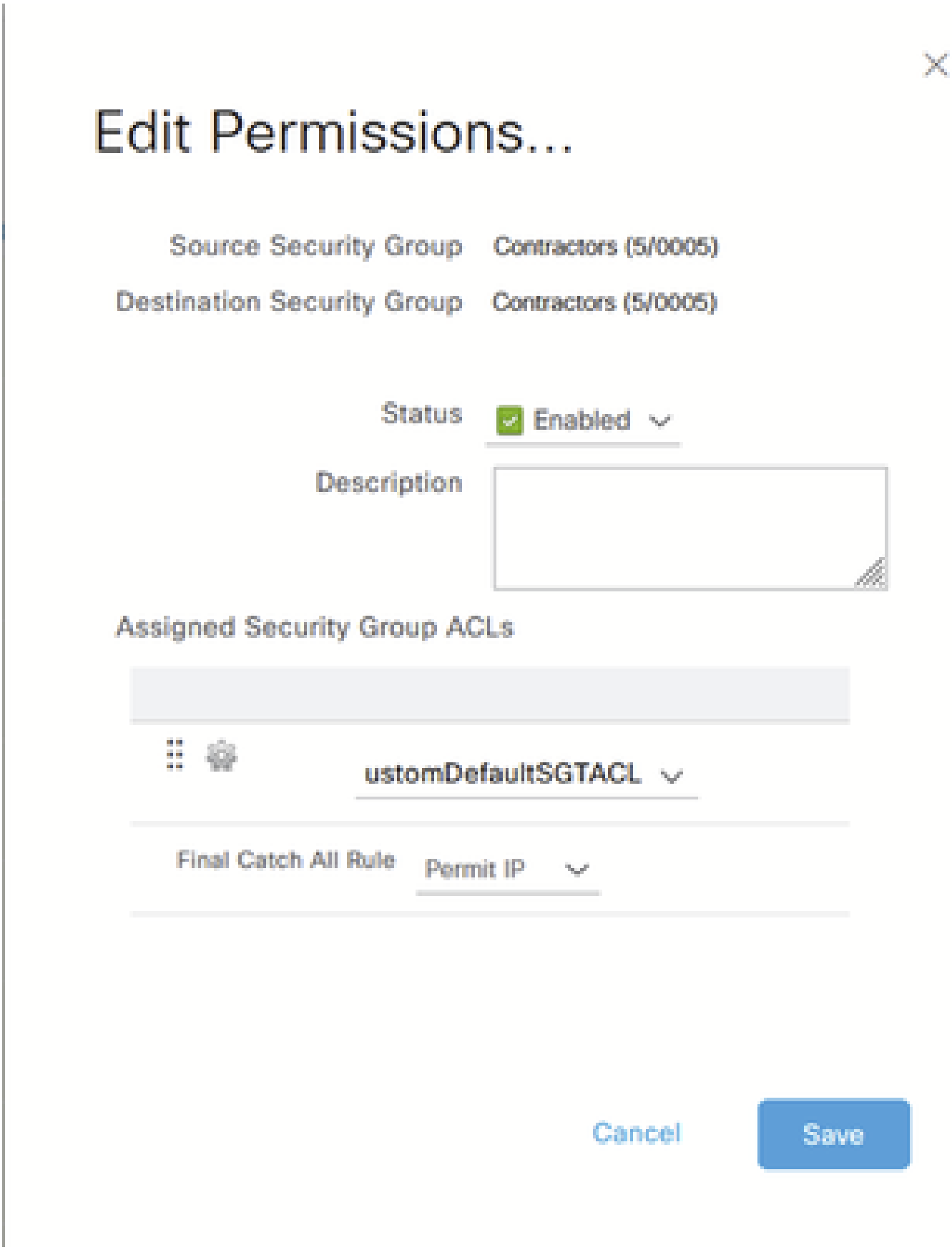


安全组ACL

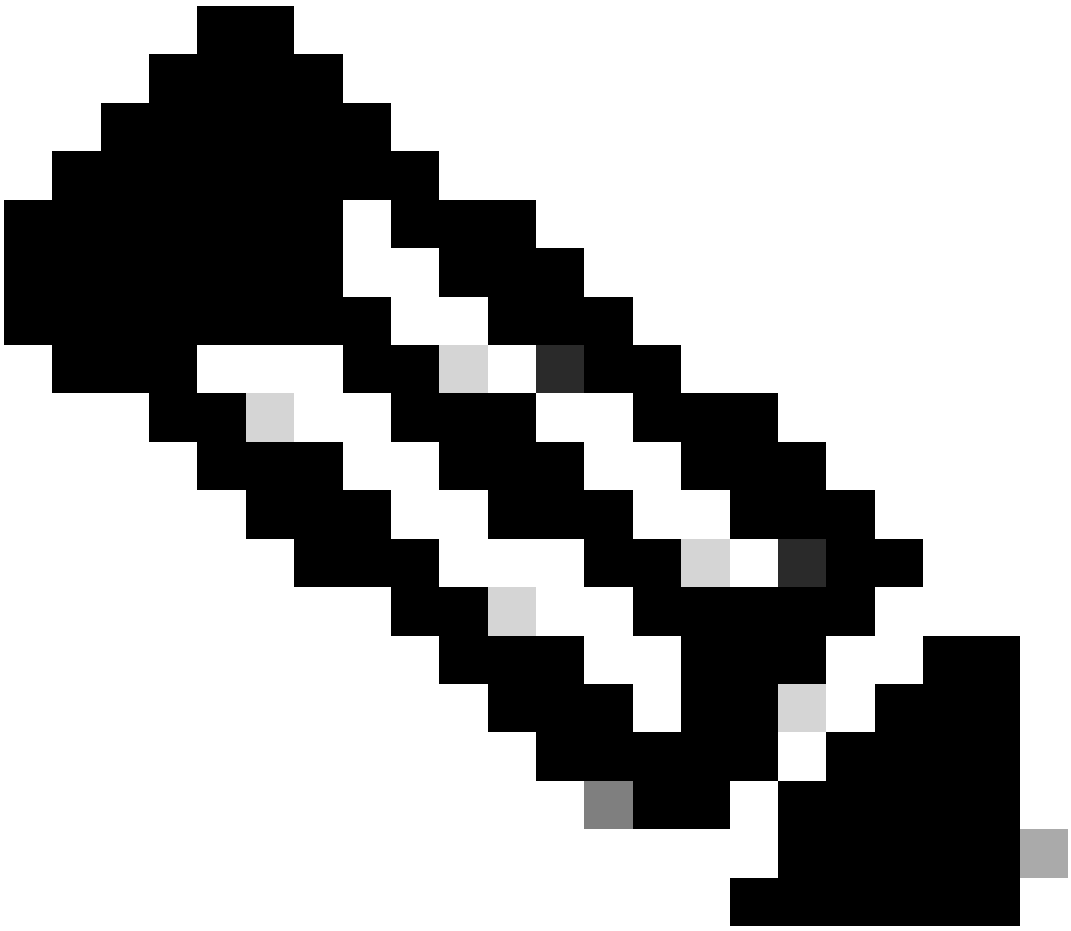
8.在TrustSec Policy（TrustSec策略）选项卡下指定矩阵条目，然后在Matrix（矩阵）下指定矩阵条目。您可以通过点击两个SGT相遇的点来编辑权限：



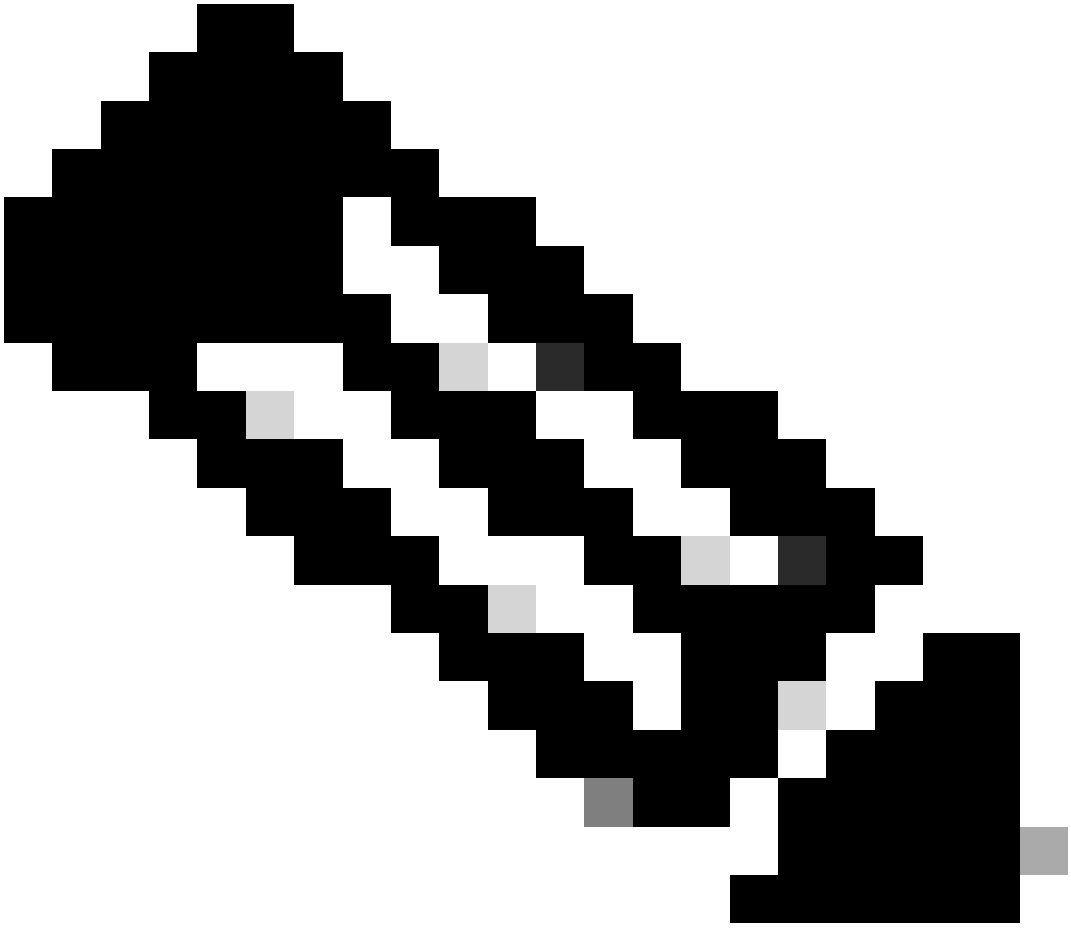
例如：


Edit Permissions...
Source Security Group
Contractors (5/0005)
Destination Security Group
Contractors (5/0005)
Status
Enabled
Description
Assigned Security Group ACLs
ustomDefaultSGTACL
Final Catch All Rule
Permit IP
Cancel
Save

编辑权限

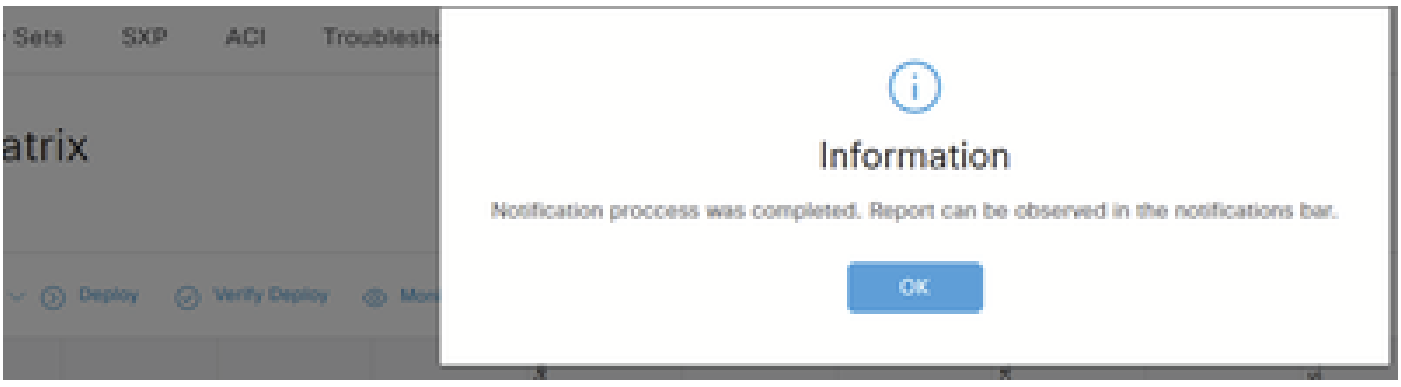


注意：如果使用Allow List模型，您需要明确允许客户端设备的DHCP协议以获取DHCP IP地址，然后请求控制器提供SGACL策略。

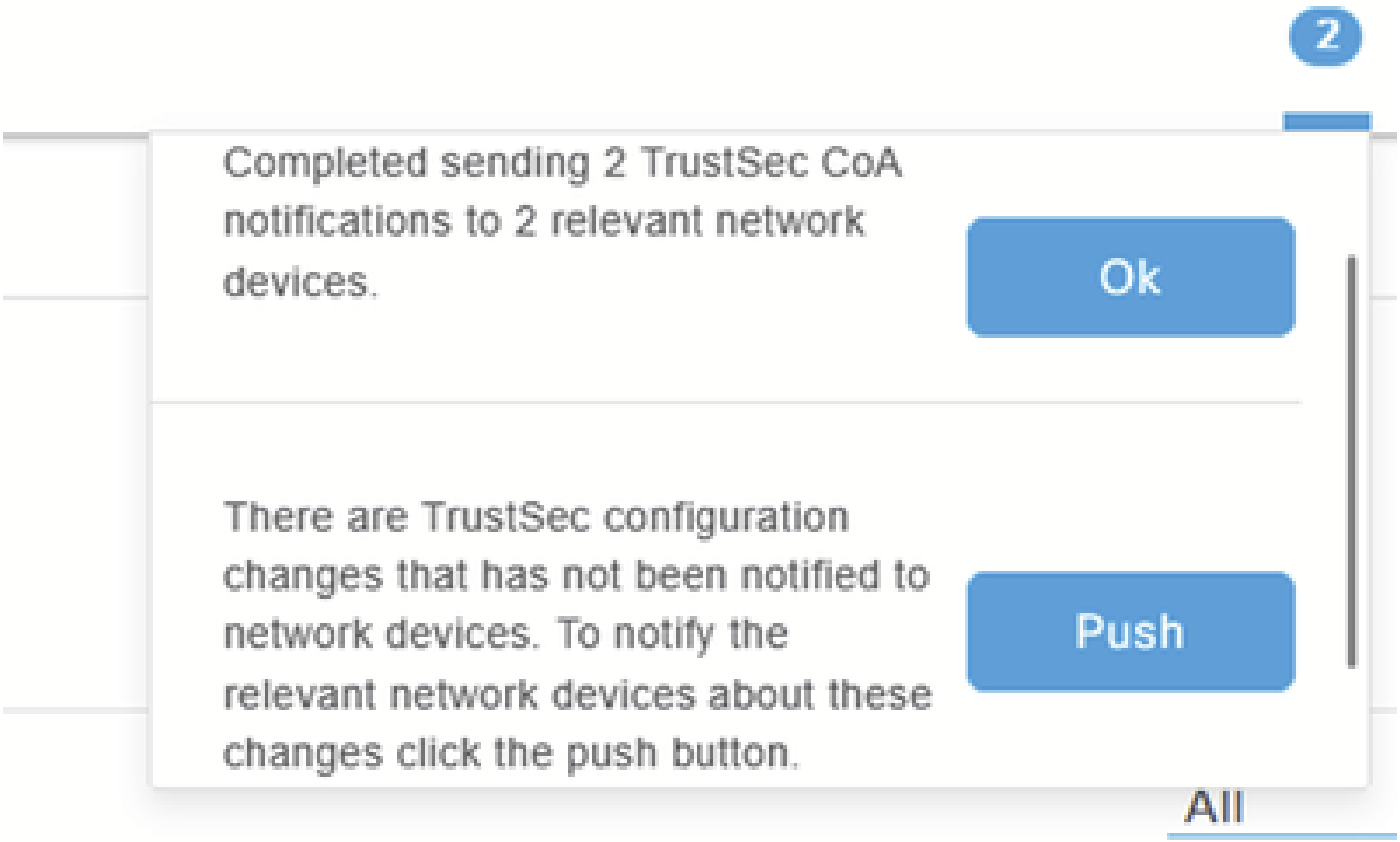


注意：当TrustSec策略“unknown to unknown”在TrustSec矩阵中被拒绝时，客户端接收零SGT值，DHCP客户端接收自动私有IP寻址(APIPA)地址。
当TrustSec矩阵中允许TrustSec策略“unknown to unknown”时，客户端接收正确的SGT值，DHCP客户端接收IP地址。

9.单击部署。将生成以下消息和通知：



部署

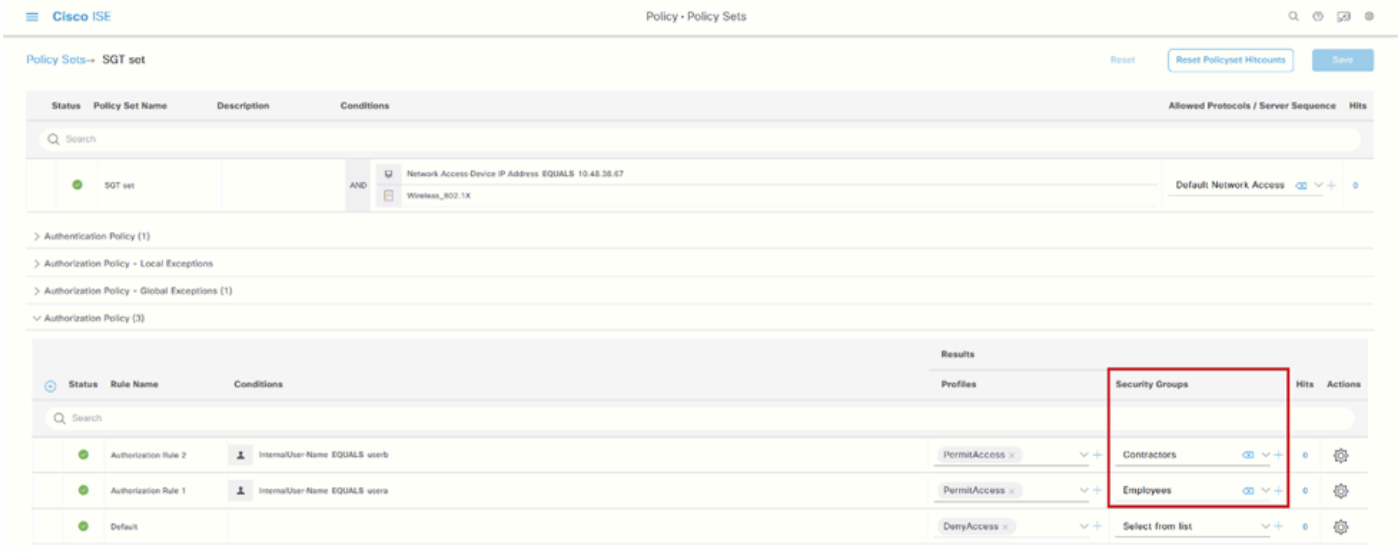


部署通知

10.导航到策略>策略集下的策略集，该策略集用于WLAN:

ISE策略集

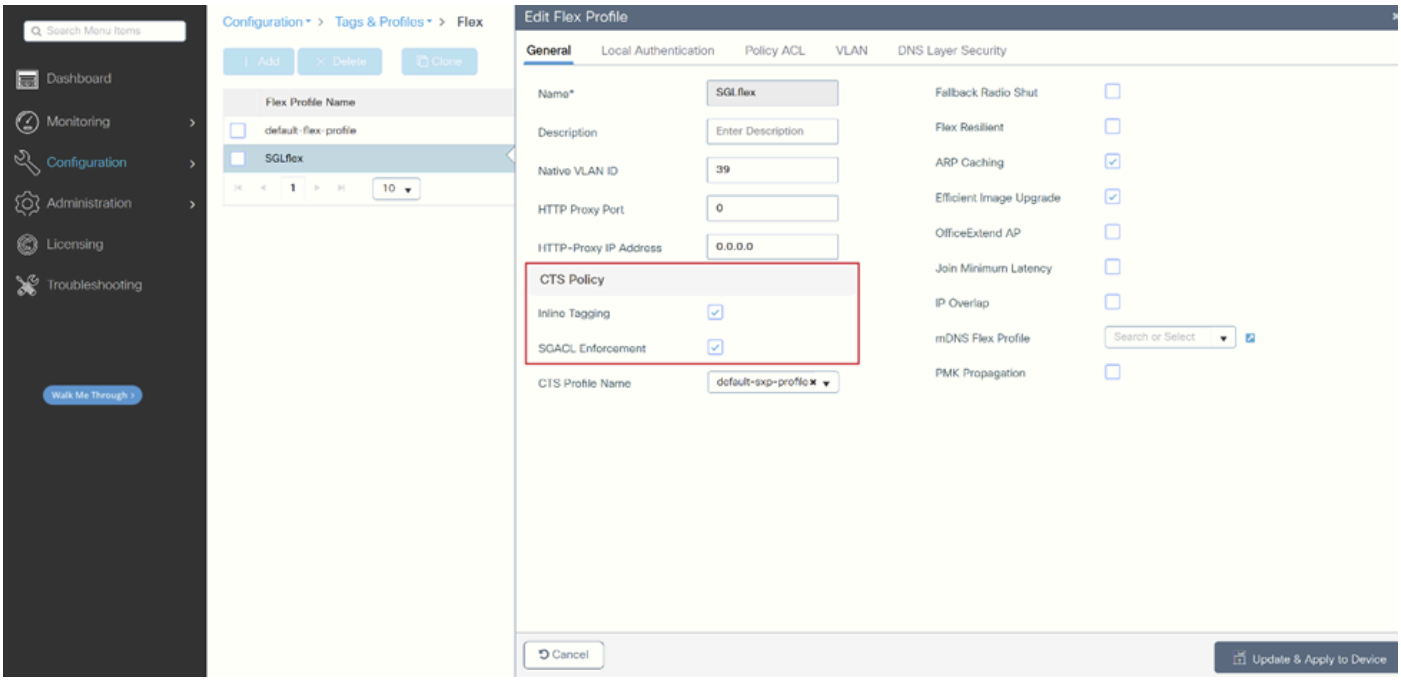
在本实验中，我们将定义每个用户的SGT，在Security Groups字段下选择SGT:



ISE安全组

FlexConnect

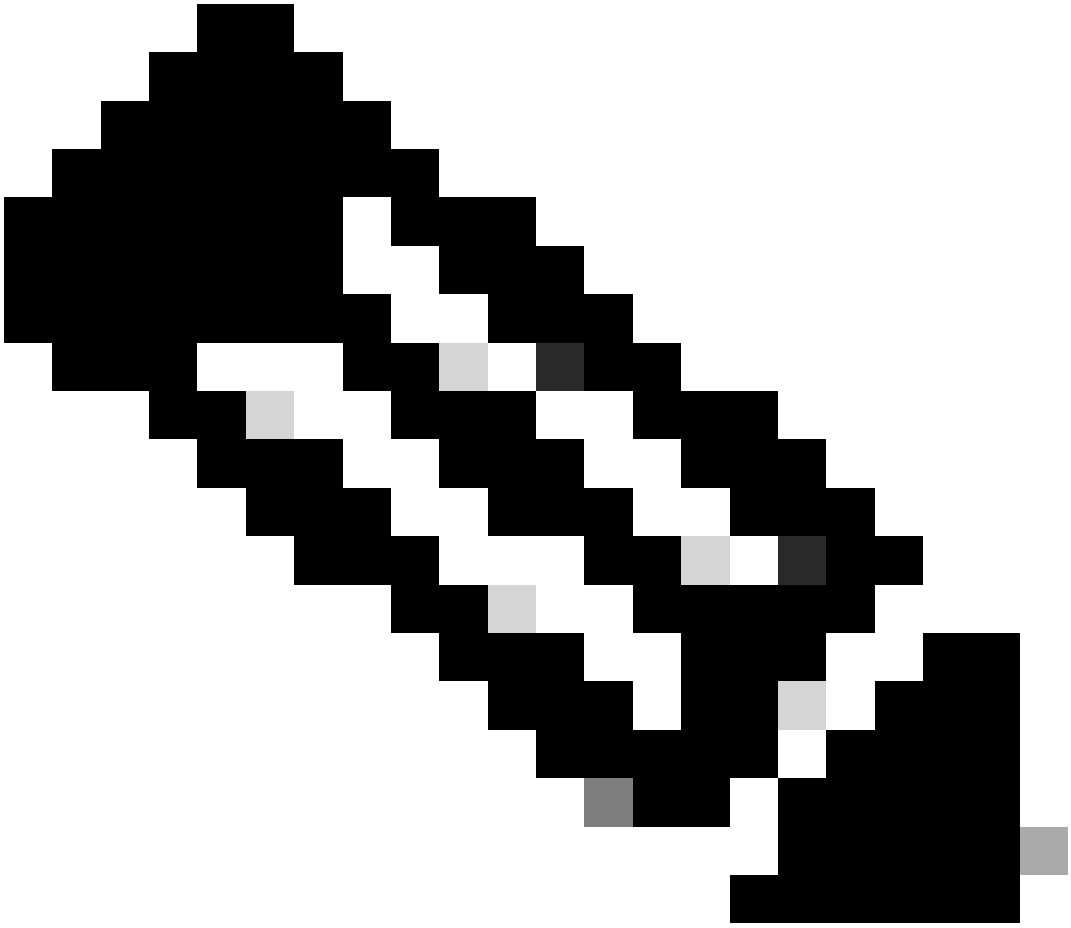
在Configuration > Tags & Policies > Flex下的Flex Profile上启用内联标记和SGACL实施:



WLC Flex配置文件

从 CLI：

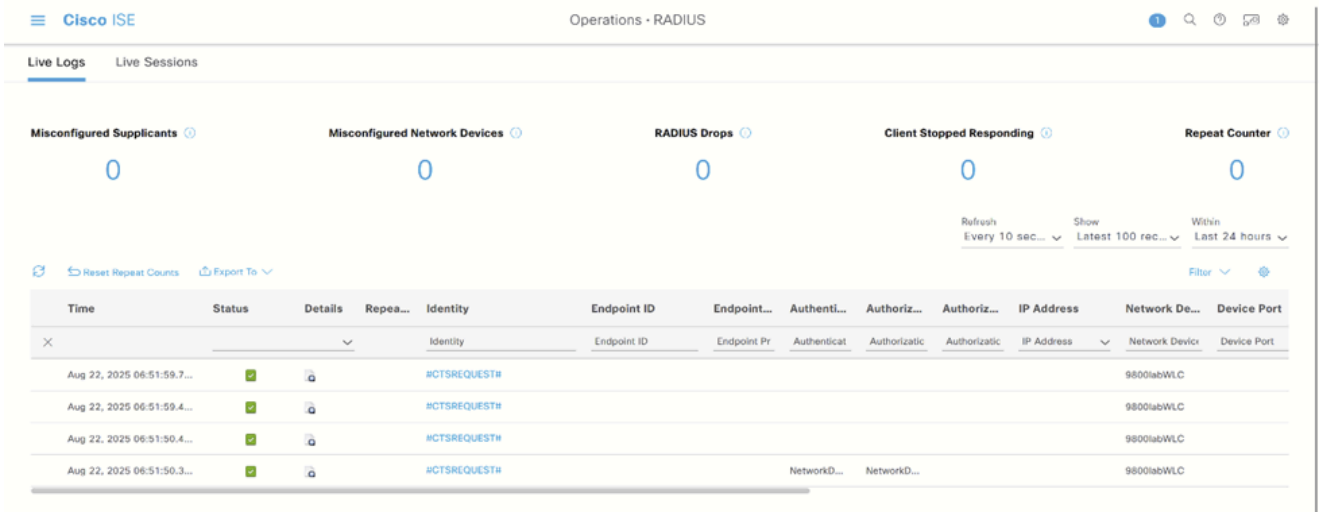
```
# configure terminal

(config)# wireless profile flex SGLflex
(config-wireless-flex-profile)# cts inline-tagging
(config-wireless-flex-profile)# cts role-based enforcement
```



注意：如果WLC在HA-SSO中，则不支持FlexConnect AP上的SGACL。Cisco Bug ID CSCwn85468。此错误将在17.19中添加。

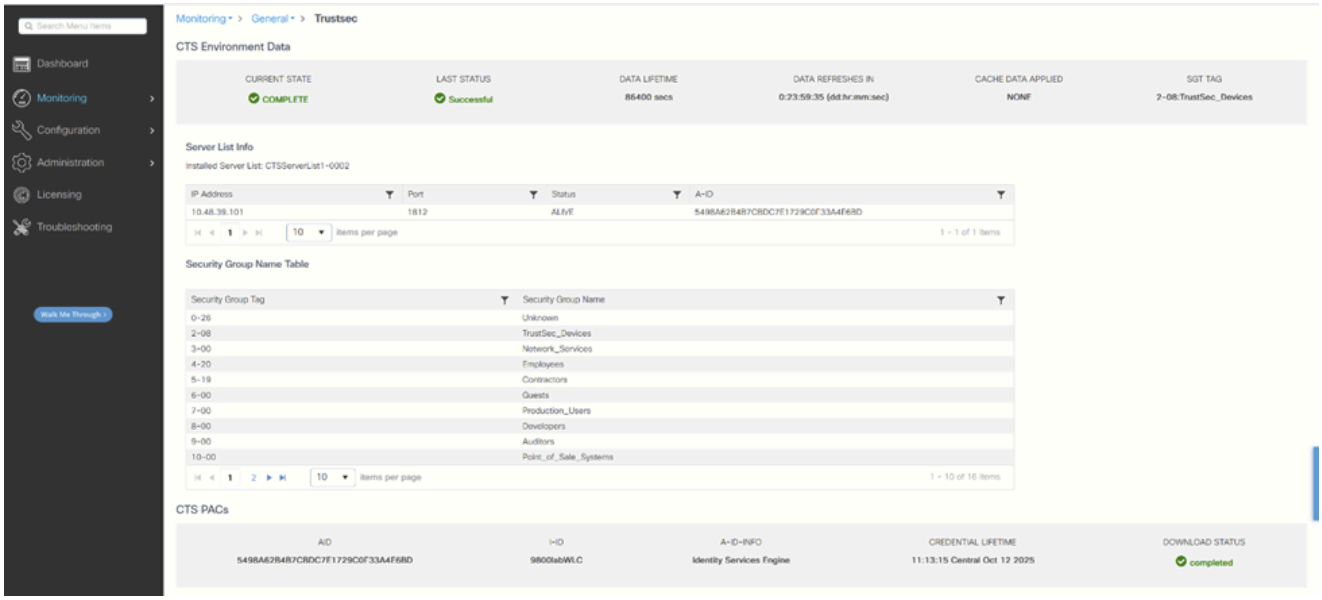
验证

1. 从ISE，您必须在操作> RADIUS >实时日志下看到成功的CTS请求：



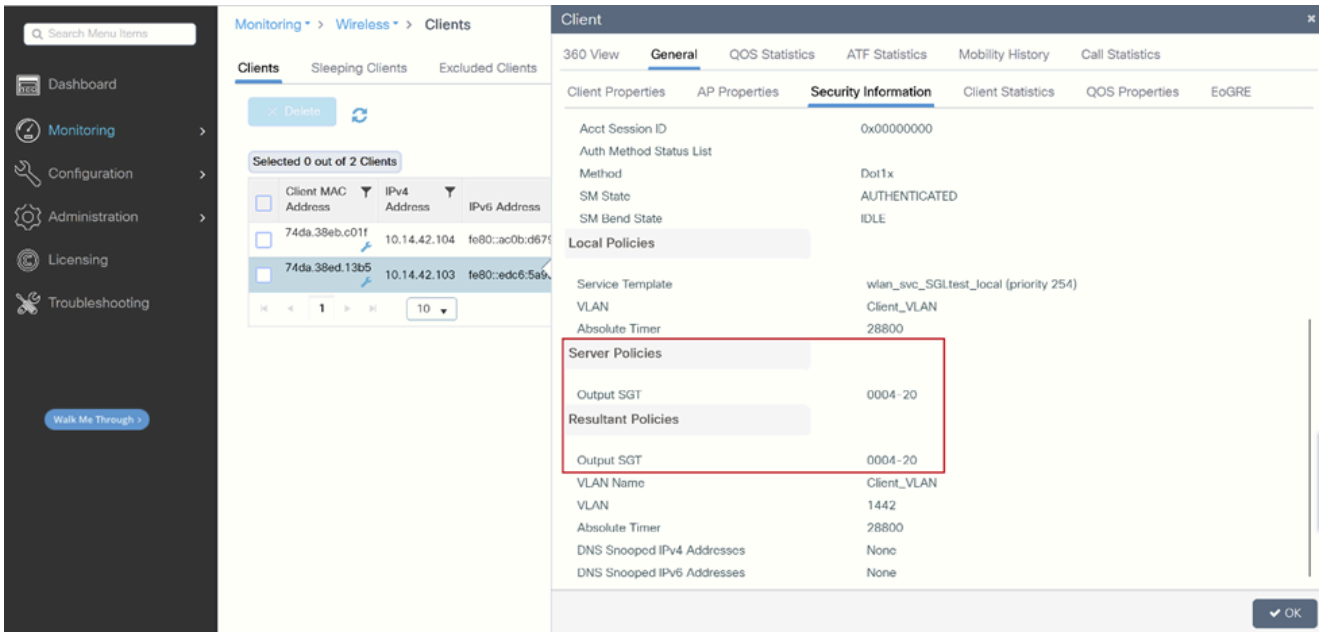
ISE RADIUS实时日志

2. 您可以验证是否已建立连接，以及是否已从WLC上的Monitoring > General > Trustsec下载SGT:



WLC TrustSec监控

3. 连接客户端时，分配的SGT将在Monitoring > Wireless > Clients下可见，选择您要检查的客户端，然后导航到General > Security information选项卡：



WLC客户端监控

从 CLI：

- 在连接客户端之前，您将从WLC输出中看到以下内容：
  仅显示与未知SGT相关的权限。

```
<#root>

#

show cts role-based sgt-map all


Active IPv4-SGT Bindings Information

IP Address              SGT     Source
============================================
10.14.12.110            2       INTERNAL
10.48.39.55             2       INTERNAL

IP-SGT Active Bindings Summary
============================================
Total number of INTERNAL bindings = 2
Total number of active   bindings = 2

Active IPv6-SGT Bindings Information

IP Address                                SGT     Source
============================================================


<#root>

#
```

```
show cts role-based permissions


IPv4 Role-based permissions default:
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group 2:TrustSec_Devices to group Unknown:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 4:Employees to group Unknown:
        CustomDefaultSGTACL-03
        Permit IP-00
IPv4 Role-based permissions from group 5:Contractors to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group 2:TrustSec_Devices:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 2:TrustSec_Devices to group 2:TrustSec_Devices:
        SGT32-06
RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

- 连接客户端时，您可以从RA跟踪中观察这些日志，SGT从AAA应用：

<#root>

```
2025/08/14 08:44:47.072771984 {wncd_x_R0-0}{1}: [aaa-attr-inf] [15596]: (info): [ Applied attribute :
2025/08/14 08:44:47.072786402 {wncd_x_R0-0}{1}: [aaa-attr-inf] [15596]: (info): [ Applied attribute :
2025/08/14 08:44:47.072788080 {wncd_x_R0-0}{1}: [aaa-attr-inf] [15596]: (info):

[ Applied attribute :  security-group-tag   0 "0004-20" ]


2025/08/14 08:44:47.072809490 {wncd_x_R0-0}{1}: [aaa-attr-inf] [15596]: (info): [ Applied attribute :bs
2025/08/14 08:44:47.072811627 {wncd_x_R0-0}{1}: [aaa-attr-inf] [15596]: (info): [ Applied attribute :
2025/08/14 08:44:47.072824202 {wncd_x_R0-0}{1}: [auth-mgr] [15596]: (info): [0000.0000.0000:unknown]  R
2025/08/14 08:44:47.072829794 {wncd_x_R0-0}{1}: [ewlc-qos-client] [15596]: (info): MAC: 74da.38ed.13b5
2025/08/14 08:44:47.072860963 {wncd_x_R0-0}{1}: [rog-proxy-capwap] [15596]: (debug): Managed client RUN
2025/08/14 08:44:47.072905375 {wncd_x_R0-0}{1}: [client-orch-state] [15596]: (note): MAC: 74da.38ed.13b
```

- 在CLI中使用show wireless client mac-address <client_MAC_address> detail命令，该命令将显示分配给客户端的SGT:

<#root>

```
#show wireless client mac-address 74da.38ed.13b5 detail

Client MAC Address : 74da.38ed.13b5
Client MAC Type : Universally Administered Address
Client DUID: NA
Client IPv4 Address : 10.14.42.103
…
  Auth Method Status List
```

```
        Method : Dot1x
                SM State         : AUTHENTICATED
                SM Bend State    : IDLE
  Local Policies:
        Service Template : wlan_svc_SGLtest_local (priority 254)
                VLAN             : Client_VLAN
                Absolute-Timer   : 28800
  Server Policies:


       Output SGT       : 0004-20


  Resultant Policies:


Output SGT       : 0004-20


                VLAN Name        : Client_VLAN
                VLAN             : 1442
                Absolute-Timer   : 28800
…
```

- 在SGT 4中连接一个客户端后，您将注意到SGT 4的权限现在显示：
  在客户端连接并分配了SGT之后添加权限。

<#root>

#

show cts role-based permissions

```
IPv4 Role-based permissions default:
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group 2:TrustSec_Devices to group Unknown:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 4:Employees to group Unknown:
        CustomDefaultSGTACL-03
        Permit IP-00
IPv4 Role-based permissions from group 5:Contractors to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group 2:TrustSec_Devices:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 2:TrustSec_Devices to group 2:TrustSec_Devices:
        SGT32-06
```

IPv4 Role-based permissions from group Unknown to group 4:Employees:

CustomDefaultSGTACL-03

Permit IP-00

IPv4 Role-based permissions from group 4:Employees to group 4:Employees:

CustomDefaultSGTACL-03

Permit IP-00

IPv4 Role-based permissions from group 5:Contractors to group 4:Employees:

CustomDefaultSGTACL-03

Permit IP-00

```
RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

<#root>

#

show cts role-based sgt-map all

```
Active IPv4-SGT Bindings Information

IP Address              SGT     Source
============================================
10.14.12.110            2       INTERNAL
10.14.42.103            4       LOCAL
10.48.39.55             2       INTERNAL

IP-SGT Active Bindings Summary
============================================
Total number of LOCAL    bindings = 1
Total number of INTERNAL bindings = 2
Total number of active   bindings = 3

Active IPv6-SGT Bindings Information

IP Address                                  SGT     Source
============================================================
```

- 连接两个客户端后，一个在SGT 4中，另一个在SGT 5中：

<#root>

#

show cts role-based sgt-map all

```
Active IPv4-SGT Bindings Information

IP Address              SGT     Source
========================================
10.14.12.110            2       INTERNAL
10.14.42.103            4       LOCAL
10.14.42.104            5       LOCAL
10.48.39.55             2       INTERNAL

IP-SGT Active Bindings Summary
========================================
Total number of LOCAL    bindings = 2
Total number of INTERNAL bindings = 2
Total number of active   bindings = 4

Active IPv6-SGT Bindings Information

IP Address                                  SGT     Source
============================================================
```

- 现在您可以看到SGT 5的权限已添加：

<#root>

#

show cts role-based permissions

```
IPv4 Role-based permissions default:
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group 2:TrustSec_Devices to group Unknown:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 4:Employees to group Unknown:
        CustomDefaultSGTACL-03
        Permit IP-00
IPv4 Role-based permissions from group 5:Contractors to group Unknown:
        SGACLtest-03
        Permit IP-00
IPv4 Role-based permissions from group Unknown to group 2:TrustSec_Devices:
        CustomDefaultSGTACL-03
IPv4 Role-based permissions from group 2:TrustSec_Devices to group 2:TrustSec_Devices:
        SGT32-06
IPv4 Role-based permissions from group Unknown to group 4:Employees:
        CustomDefaultSGTACL-03
        Permit IP-00
IPv4 Role-based permissions from group 4:Employees to group 4:Employees:
        CustomDefaultSGTACL-03
        Permit IP-00
IPv4 Role-based permissions from group 5:Contractors to group 4:Employees:
        CustomDefaultSGTACL-03
        Permit IP-00
```

IPv4 Role-based permissions from group Unknown to group 5:Contractors:

```
        SGACLtest-03


        Permit IP-00


IPv4 Role-based permissions from group 4:Employees to group 5:Contractors:


        CustomDefaultSGTACL-03


        Permit IP-00


IPv4 Role-based permissions from group 5:Contractors to group 5:Contractors:


        CustomDefaultSGTACL-03


        Permit IP-00


RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

- ACL在WLC上将显示为“已下载”：

```
<#root>

#

show ip access-lists


Role-based IP access list CustomDefaultSGTACL-03 (downloaded)
    10 permit udp src eq bootps (12 matches)
    20 permit udp src eq bootpc
    30 permit ip
Extended IP access list IP-Adm-V4-Int-ACL-global
    10 permit tcp any any eq www
    20 permit tcp any any eq 443
Role-based IP access list Permit IP-00 (downloaded)
    10 permit ip
Role-based IP access list SGACLtest-03 (downloaded)
    10 permit udp src eq bootps (18 matches)
    20 permit udp src eq bootpc
    30 permit udp dst eq bootps
    40 permit udp dst eq bootpc
    50 permit ip
Role-based IP access list SGT32-06 (downloaded)
    10 permit ip
Extended IP access list implicit_deny
```

```
    10 deny ip any any
Extended IP access list implicit_permit
    10 permit ip any any
Extended IP access list meraki-fqdn-dns
Extended IP access list preauth_v4
    10 permit udp any any eq domain
    20 permit tcp any any eq domain
    30 permit udp any eq bootps any
    40 permit udp any any eq bootpc
    50 permit udp any eq bootpc any
    60 deny ip any any
```

FlexConnect本地交换

- 这是将客户端连接到AP之前的WLC输出：

<#root>

#

show cts ap sgt-info

```
Number of SGTs referred by the AP.............: 4

SGT               PolicyPushedToAP       No.of Clients
-------------------------------------------------------------
UNKNOWN(0)        NO                     0
2                 NO                     1
DEFAULT(65535)    YES                    0
```

- 在AP CLI中，这是将客户端连接到AP之前的权限输出：

```
AP#show cts role-based permissions
IPv4 role-based permissions:
SGT DGT ACL
65535 65535 Permit_IP

IPv6 role-based permissions:
SGT DGT ACL
65535 65535 Permit_IP
```

- 以下是客户端连接时显示流的AP调试：

<#root>

```
[*08/14/2025 09:45:40.8504] CLSM[74:DA:38:ED:13:B5]: US Auth(b0) seq 2599 IF 72 slot 0 vap 0 len 30 sta
[*08/14/2025 09:45:40.8507] CLSM[74:DA:38:ED:13:B5]: DS Auth len 30 slot 0 vap 0
[*08/14/2025 09:45:40.8509] CLSM[74:DA:38:ED:13:B5]: Driver send mgmt frame success Radio 0 Vap 0
[*08/14/2025 09:45:40.8509] CLSM[74:DA:38:ED:13:B5]: client moved from UNASSOC to AUTH
[*08/14/2025 09:45:40.8660] CLSM[74:DA:38:ED:13:B5]: US Assoc Req(0) seq 2600 IF 72 slot 0 vap 0 len 17
...
[*08/14/2025 09:45:40.8782] CLSM[74:DA:38:ED:13:B5]: client moved from ASSOC to 8021X
[*08/14/2025 09:45:40.8783] CLSM[74:DA:38:ED:13:B5]: Added to WCP client table AID 1 Radio 0 Vap 0 Enc
[*08/14/2025 09:45:40.8784] CLSM[74:DA:38:ED:13:B5]:
```

SGT Data sent: 74:DA:38:ED:13:B5 0 0

!--- The client initiates the connection and it's directly put under the SGT 0.

<#root>

```
[*08/14/2025 09:45:40.8800] CLSM[74:DA:38:ED:13:B5]: ADD_CENTRAL_AUTH_INFO_MOBILE Payload
[*08/14/2025 09:45:40.8801] CLSM[74:DA:38:ED:13:B5]: msAssocTypeFlags: 2 apfMsEntryType: 2 eap_type: 0
[*08/14/2025 09:45:40.8807] CLSM[74:DA:38:ED:13:B5]: Decoding TLV_CLIENTCAPABILITYPAYLOAD: capbaility:
[*08/14/2025 09:45:40.8812] CLSM[74:DA:38:ED:13:B5]: Decoding TLV_CLIENT_TYPE_PAYLOAD: Client Type : 0
[*08/14/2025 09:45:41.5130] CLSM[74:DA:38:ED:13:B5]: ADD_MOBILE AID 1
[*08/14/2025 09:45:41.5135] CLSM[74:DA:38:ED:13:B5]: Client ADD Encrypt Key success AID 1 Radio 0 Enc 4
[*08/14/2025 09:45:41.5139] chatter: 74:DA:38:ED:13:B5: web_auth status 1
[*08/14/2025 09:45:41.5140] CLSM[74:DA:38:ED:13:B5]: client moved from 8021X to
```

IPLEARN_PENDING

!--- The client must get an IP address through DHCP.

<#root>

```
[*08/14/2025 09:45:41.5144] CLSM[74:DA:38:ED:13:B5]: ADD_CENTRAL_AUTH_INFO_MOBILE Payload
[*08/14/2025 09:45:41.5144] CLSM[74:DA:38:ED:13:B5]: msAssocTypeFlags: 2 apfMsEntryType: 2 eap_type: 25
[*08/14/2025 09:45:41.5150] CLSM[74:DA:38:ED:13:B5]: TLV_FLEX_CENTRAL_AUTH_STA_PAYLOAD
[*08/14/2025 09:45:41.5155] CLSM[74:DA:38:ED:13:B5]: Decoding TLV_CLIENTCAPABILITYPAYLOAD: capbaility:
[*08/14/2025 09:45:41.5161] CLSM[74:DA:38:ED:13:B5]:
```

SGT Data sent: 74:DA:38:ED:13:B5 4 0

!--- Afterwards, the assigned SGT for that client is going to be applied accordingly.

<#root>

```
[*08/14/2025 09:45:41.5163] CLSM[74:DA:38:ED:13:B5]: Decoding TLV_CLIENT_TYPE_PAYLOAD: Client Type : 0
[*08/14/2025 09:45:41.6476] chatter: find_insert_client:3313
[*08/14/2025 09:45:41.6476] chatter: Update IP from 0.0.0.0 to 10.14.42.103
```

[*08/14/2025 09:45:41.6477] chatter:

Update ipsgt: IPV4 client(74:DA:38:ED:13:B5) - [10.14.42.103]

!--- Associated IP & SGT is going to be added into mapping table.

<#root>

[*08/14/2025 09:45:41.6477] chatter: Update ipsgt IPV6 client(74:DA:38:ED:13:B5) - [fe80::edc6:5a93:ada
[*08/14/2025 09:45:41.6481] CLSM[74:DA:38:ED:13:B5]: Authorize succeeded to radio intf apr0v0
[*08/14/2025 09:45:41.6490] chatter: 74:DA:38:ED:13:B5: web_auth status 1
[*08/14/2025 09:45:41.6492] CLSM[74:DA:38:ED:13:B5]: client moved from IPLEARN_PENDING to

FWD

<#root>

!--- Then for the IP-SGT mapping entry in the mapping table, SGACL policy for those SGTs is requested.
!--- This is a snippet of the AP debugs showing one of the ACLs:

CLSM[74:DA:38:ED:13:B5]: SGT Data sent: 74:DA:38:ED:13:B5 4 0
CLSM[74:DA:38:ED:13:B5]: Decoding TLV_CLIENT_TYPE_PAYLOAD: Client Type : 0
[ENC] CAPWAP_CONFIGURATION_UPDATE_RESPONSE(8)
.Msg Elem Type: CAPWAP_MSGELE_RESULT_CODE(33) Len 8 Total 8
[DEC] CAPWAP_CONFIGURATION_UPDATE_REQUEST(7) seq 165 len 148
....TLV: TLV_CTS_RBACL_DELETE(1434), level: 0, seq: 0, nested: true
....TLV: TLV_CTS_RBACL_DELETE(1437), level: 1, seq: 0, nested: false
TLV_CTS_RBACL_DELETE received
ACL Name:CustomDefaultSGTACL
....TLV: TLV_CTS_RBACL_ADD(1433), level: 0, seq: 0, nested: true
....TLV: TLV_CTS_RBACL_ADD(1437), level: 1, seq: 0, nested: false
....TLV: TLV_CTS_RBACL_ADD(1438), level: 1, seq: 1, nested: false
....TLV: TLV_CTS_RBACL_ADD(1439), level: 1, seq: 2, nested: false
....TLV: TLV_CTS_RBACL_ADD(1439), level: 1, seq: 3, nested: false
....TLV: TLV_CTS_RBACL_ADD(1439), level: 1, seq: 4, nested: false
TLV_CTS_RBACL_ADD received

ACL Name:CustomDefaultSGTACL

ACL Type:1

ACE entry:permit udp src eq bootps

ACE entry:permit udp src eq bootpc

ACE entry:permit ip

```
[ENC] CAPWAP_CONFIGURATION_UPDATE_RESPONSE(8)
.Msg Elem Type: CAPWAP_MSGELE_RESULT_CODE(33) Len 8 Total 8
…
```

- 在WLC CLI中，连接SGT 4上的一个客户端时：

<#root>

#

show cts ap sgt-info

```
Number of SGTs referred by the AP.............: 4

SGT                PolicyPushedToAP       No.of Clients
-------------------------------------------------------------
UNKNOWN(0)         NO                     0
2                  NO                     1
4                  YES                    1
DEFAULT(65535)     YES                    0
```

- 从AP CLI:
  您可以看到相同的情况，仅添加了与SGT 4相关的权限。

```
AP#show cts role-based permissions
IPv4 role-based permissions:
SGT DGT ACL
0 4 Permit_IP, CustomDefaultSGTACL
4 4 Permit_IP, CustomDefaultSGTACL
5 4 Permit_IP, CustomDefaultSGTACL
65535 65535 Permit_IP

IPv6 role-based permissions:
SGT DGT ACL
0 4 Permit_IP
4 4 Permit_IP
5 4 Permit_IP
65535 65535 Permit_IP
```

- 从WLC CLI，当连接SGT 5上的第二个客户端时：

<#root>

#

show cts ap sgt-info

Number of SGTs referred by the AP.....: 5

SGT	PolicyPushedToAP	No.of Clients
UNKNOWN(0)	NO	0
2	NO	1
4	YES	1
5	YES	1
DEFAULT(65535)	YES	0

- AP输出：

<#root>

AP#

show flexconnect client

Flexconnect Clients:
mac radio vap aid state encr aaa-vlan aaa-acl aaa-ipv6-acl assoc auth switching

SGT

74:DA:38:EB:C0:1F 0 0 1 FWD AES_CCM128 none none none Local Central Local

5

74:DA:38:ED:13:B5 0 0 2 FWD AES_CCM128 none none none Local Central Local

4

<#root>

AP#

show cts role-based sgt-map all

```
Active IPv4-SGT Bindings Information
          IP SGT SOURCE
10.14.42.103   4  LOCAL
10.14.42.104   5  LOCAL

IP-SGT Active Bindings Summary
============================================
Total number of LOCAL    bindings = 2
Total number of active   bindings = 2

Active IPv6-SGT Bindings Information
                       IP SGT SOURCE
 fe80::ac0b:d679:e356:a17   5  LOCAL
fe80::edc6:5a93:adab:fff6   4  LOCAL

IP-SGT Active Bindings Summary
============================================
Total number of LOCAL    bindings = 2
Total number of active   bindings = 2
```

<#root>

AP#

show cts role-based permissions

```
IPv4 role-based permissions:
  SGT   DGT                              ACL
    0     4 Permit_IP, CustomDefaultSGTACL
    4     4 Permit_IP, CustomDefaultSGTACL
    5     4 Permit_IP, CustomDefaultSGTACL
    0     5           Permit_IP, SGACLtest
    4     5 Permit_IP, CustomDefaultSGTACL
    5     5 Permit_IP, CustomDefaultSGTACL
65535 65535 Permit_IP, CustomDefaultSGTACL

IPv6 role-based permissions:
  SGT   DGT       ACL
    0     4 Permit_IP
    4     4 Permit_IP
    5     4 Permit_IP
    0     5 Permit_IP
    4     5 Permit_IP
    5     5 Permit_IP
65535 65535 Permit_IP
```

<#root>

AP#

show cts access-lists

```
IPv4 role-based ACL:
SGACLtest
        rule 0: allow true && ip proto 17 && ( src port 67 )
        rule 1: allow true && ip proto 17 && ( src port 68 )
```

```
        rule 2: allow true && ip proto 17 && ( dst port 67 )
        rule 3: allow true && ip proto 17 && ( dst port 68 )
        rule 4: allow true
CustomDefaultSGTACL
        rule 0: allow true && ip proto 17 && ( src port 67 )
        rule 1: allow true && ip proto 17 && ( src port 68 )
        rule 2: allow true
Permit_IP
        rule 0: allow true

IPv6 role-based ACL:
Permit_IP
        rule 0: allow true
```

<#root>

AP#

show cts role-based sgt-map summary

```
        -IPv4-
IP-SGT Active Bindings Summary
============================================
Total number of LOCAL    bindings = 2
Total number of active   bindings = 2

        -IPv6-
IP-SGT Active Bindings Summary
============================================
Total number of LOCAL    bindings = 2
Total number of active   bindings = 2
```

故障排除

- 从WLC CLI:

show cts provisioning

show cts role-based permissions

show ip access-lists

show cts ap sgt-info <ap_name>

- 从AP:

show cts role-based sgt-map all

show cts role-based permissions

show cts access-lists <acl-name>

show cts role-based sgt-map summary

show cts access-lists

show flexconnect client

clear cts role-based counters

show cts role-based counters

- 无线接入点调试：

- 启用CTS数据包级别实施调试：

debug cts enforcement

学期星期一

- 要检查CAPWAP ACL事件和负载相关信息，请执行以下操作：

debug dot11 client access-list <client-mac-addr>

debug capwap client acl

debug capwap client payload

debug capwap client error

debug dot11 client management information

debug dot11 client management critical

debug dot11 client management error

debug dot11 client management events

debug generic datapath client_ip_table/debug_acl

debug generic datapath client_ip_table/debug

debug generic datapath sgacl/debug

debug generic datapath sgacl/debug_sgt

debug generic datapath sgacl/debug_protocol

debug generic datapath sgacl/debug_permission

学期星期一

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