Configurar e verificar o SGACL no Catalyst 9800 WLC e no ISE Server

Contents

Introdução

Este documento descreve como configurar o TrustSec no Catalyst 9800 e no servidor ISE para utilizar o recurso SGACL, com APs locais e no modo FlexConnect.

Pré-requisitos

Requisitos

Conhecimento dos fundamentos do Cisco 9800 WLC, Cisco ISE, FlexConnect e TrustSec.

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

- C9800-CL v17.12.4
- ISE 3.2.0
- Access Point 9136I

As informações neste documento foram criadas a partir de dispositivos em um ambiente de laboratório específico. Todos os dispositivos utilizados neste documento foram iniciados com uma configuração (padrão) inicial. Se a rede estiver ativa, certifique-se de que você entenda o impacto potencial de qualquer comando.

Configurar

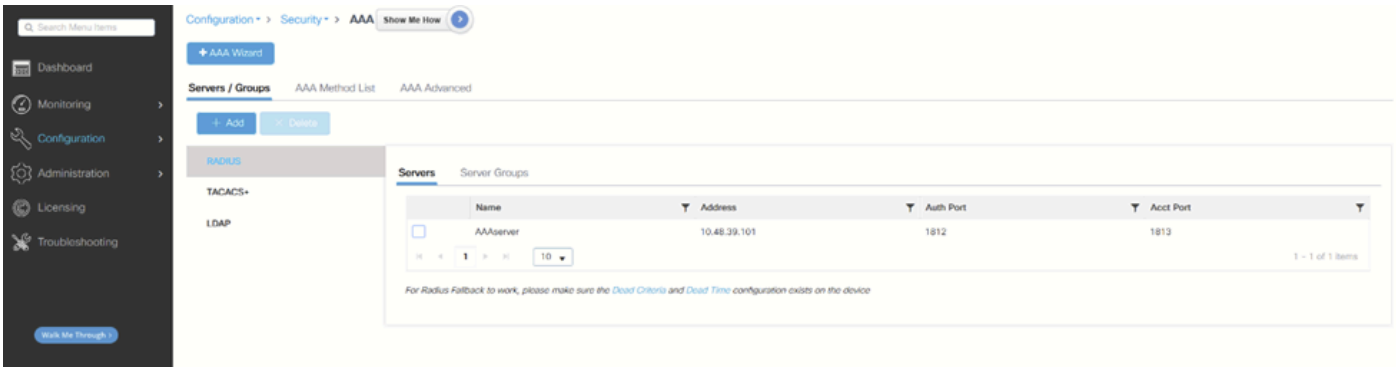
Diagrama de Rede

Diagrama de Rede

Configurações

Configuração de WLC

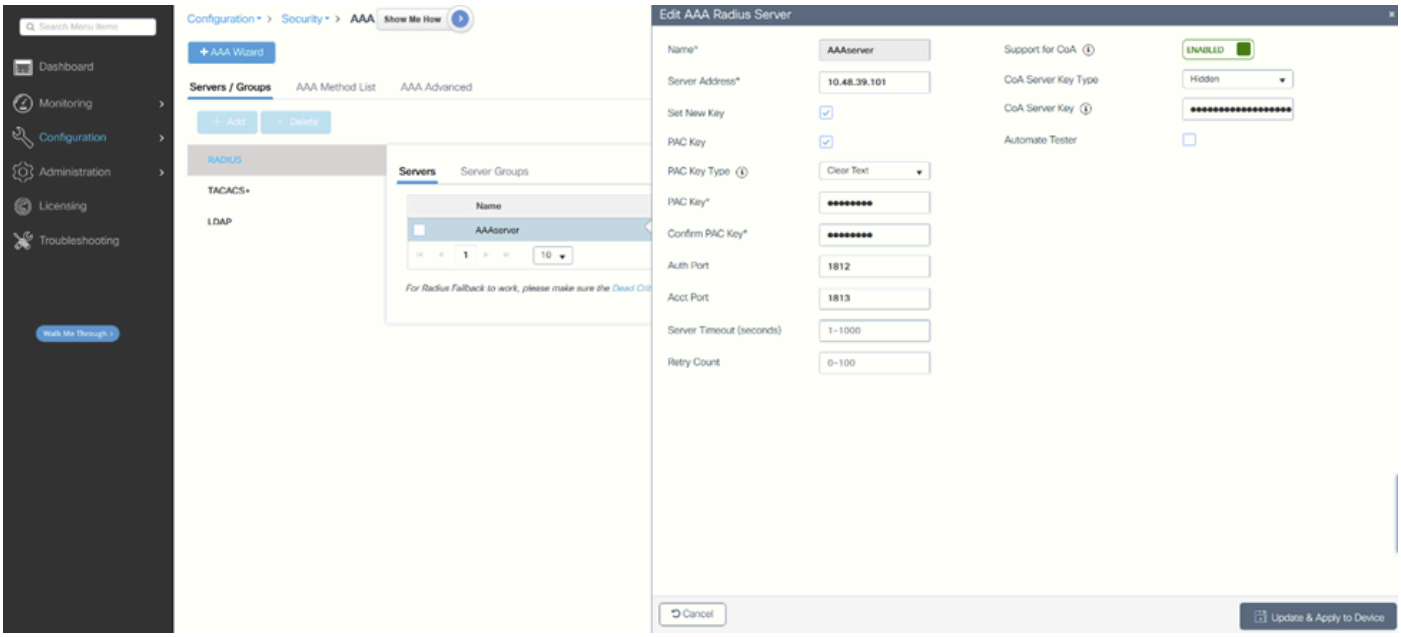
1. Adicione o servidor AAA ao WLC em Configuration > Security > AAA:



página AAA da WLC

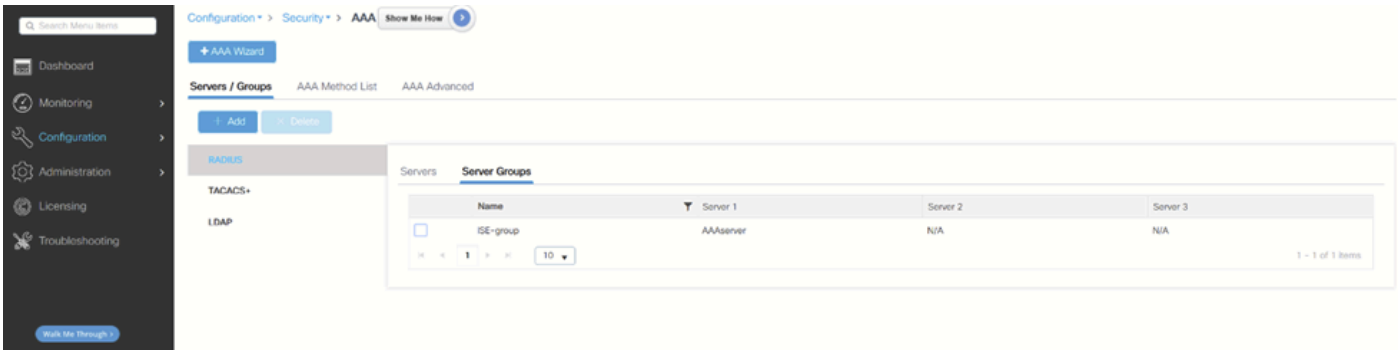
2. Certifique-se de que as entradas de chave aqui correspondam à chave quando você adicionar

o dispositivo no ISE. Habilite Suporte para CoA e adicione a chave se quiser usar CoA para fazer download das atualizações de configuração:



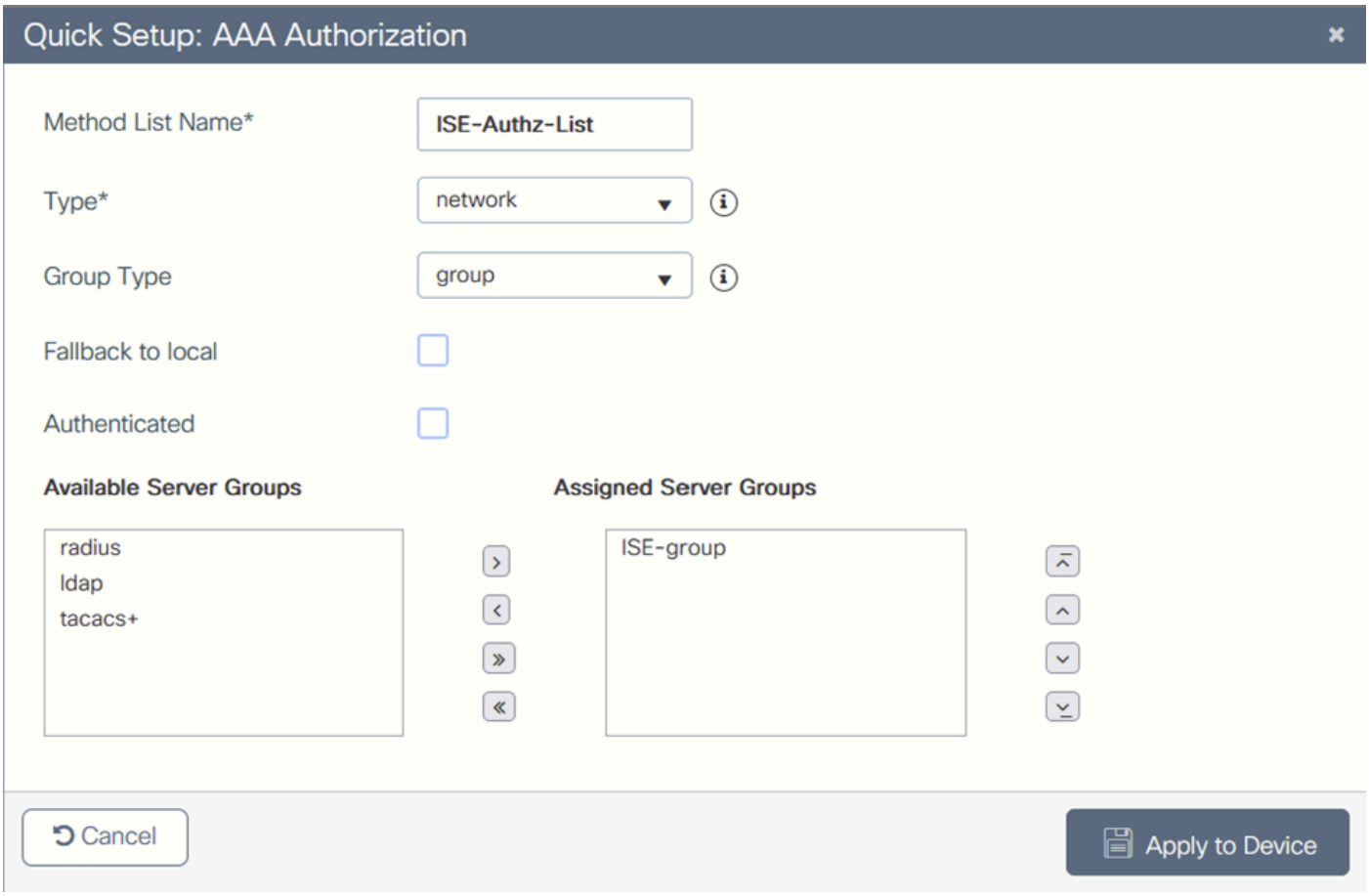
Servidor AAA de adição de WLC

3. Crie o Grupo de Servidores:

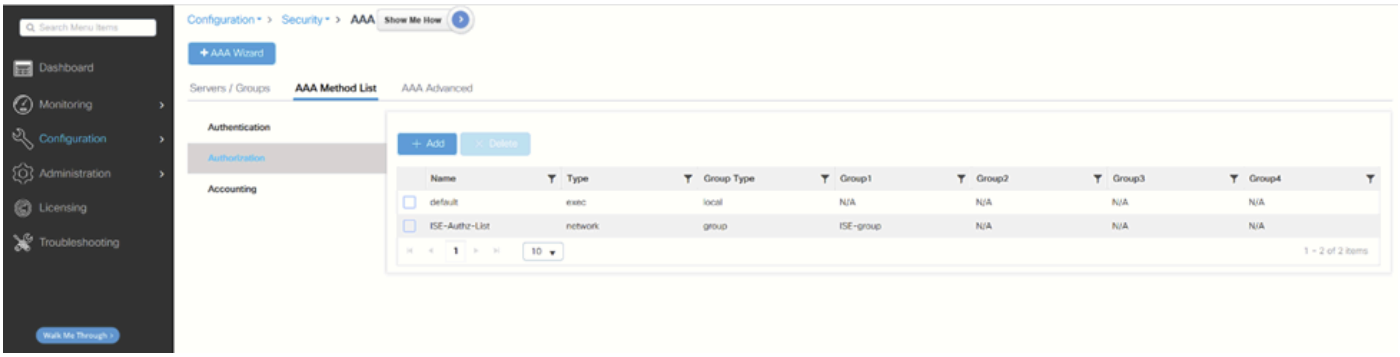


WLC adicionar grupo de servidores

4. Adicione a Lista de Métodos de Autorização com o tipo network:



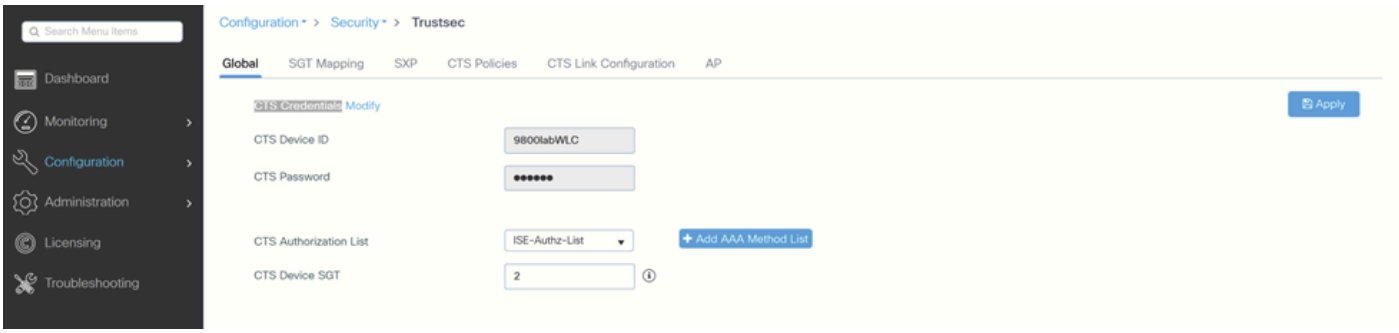
Lista de métodos de autorização



Grupo de servidores AAA da WLC

5. Navegue para Configuration > Security > Trustsec e configure a CTS Device ID e a CTS Password, você usará essas entradas ao adicionar o dispositivo no ISE.

Configure a lista de autorização CTS que você criou nas etapas 4 aqui também:

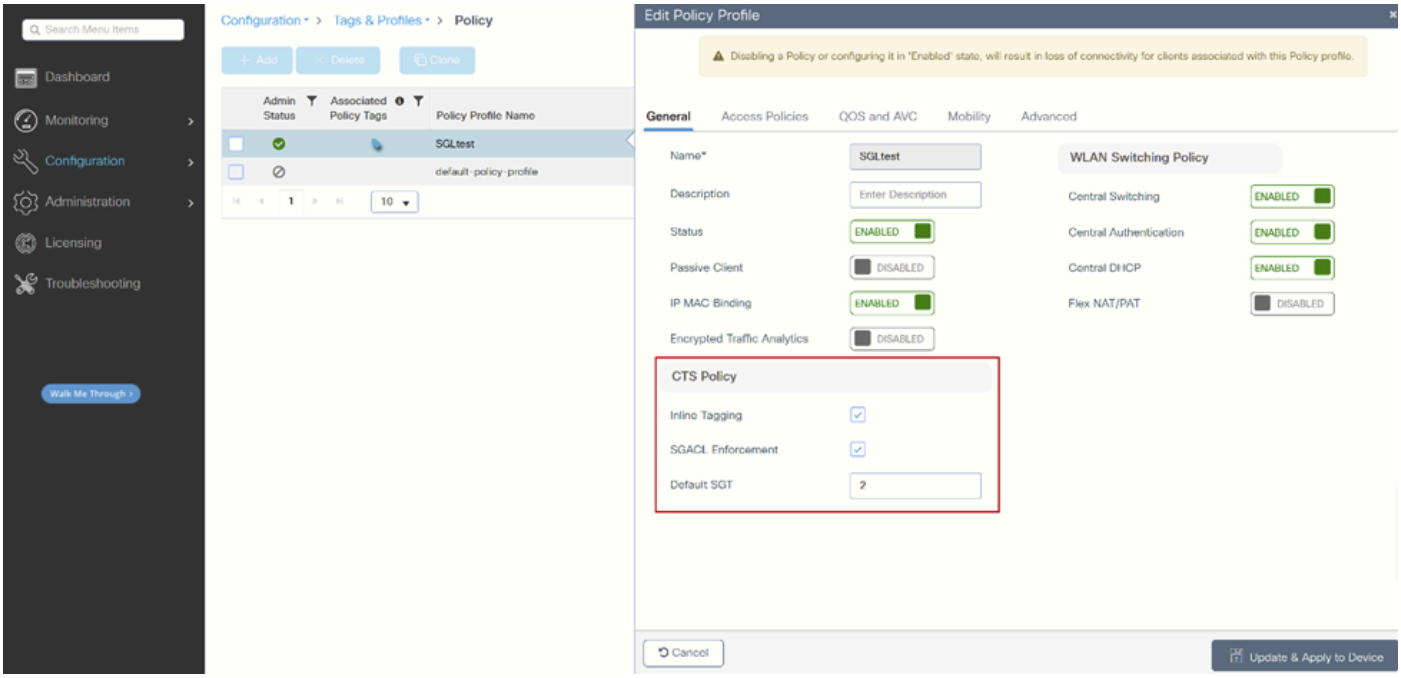


TrustSec da WLC

6. Neste exemplo, a WLAN já foi criada e as configurações de autenticação já estão definidas.

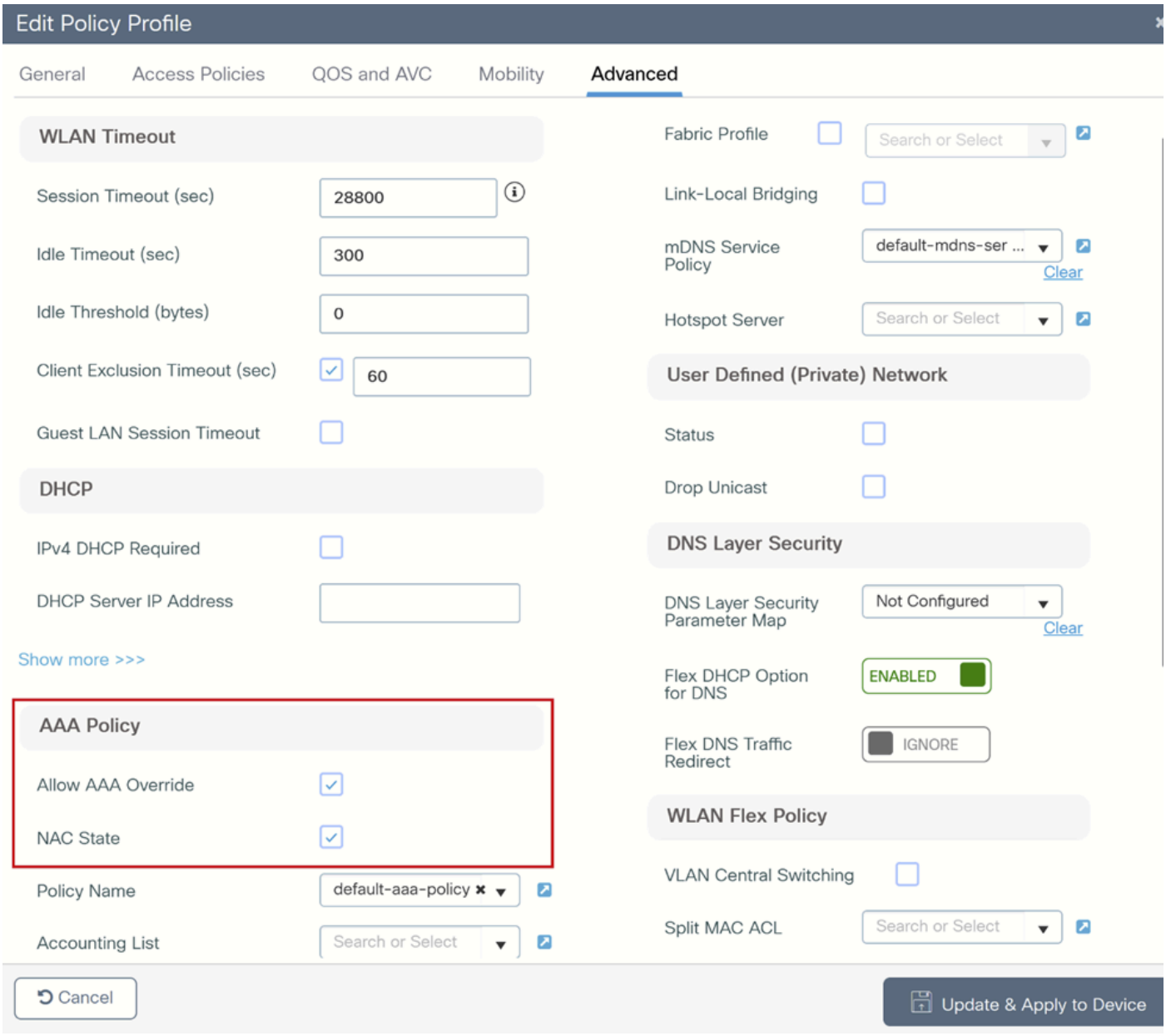
Agora, navegue até o Perfil de política no qual você gostaria de usar SGTs.

i. Em CTS Policy, habilite Inline Tagging e SGACL Enforcement, você pode especificar o Default SGT também. O SGT 2 padrão é usado para este laboratório como exemplo:



Perfil de política da WLC

ii) Na guia Advanced, habilite Allow AAA override e NAC state:



Guia Avançado do Perfil de Política da WLC

Na 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>
```

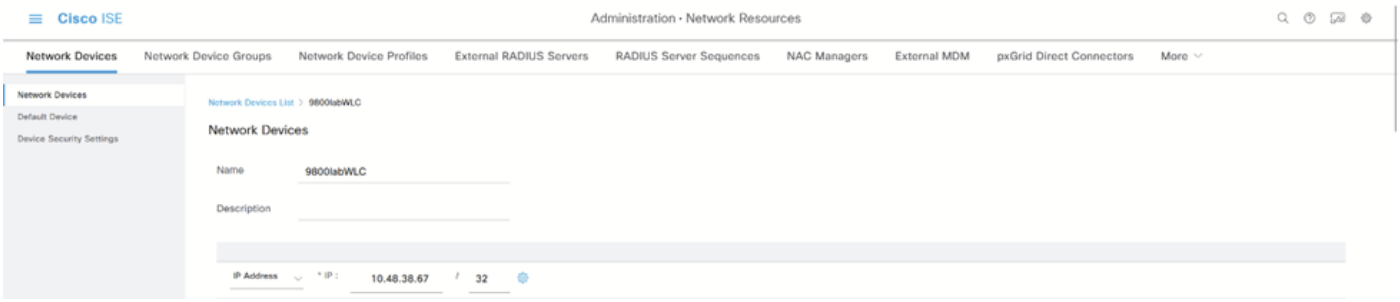
```
(config)# wireless profile policy <policy_profile_name>
(config-wireless-policy)# shut
(config-wireless-policy)# aaa-override
(config-wireless-policy)# cts inline-tagging
(config-wireless-policy)# cts role-based enforcement
(config-wireless-policy)# cts sgt <number>
(config-wireless-policy)# no shut

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

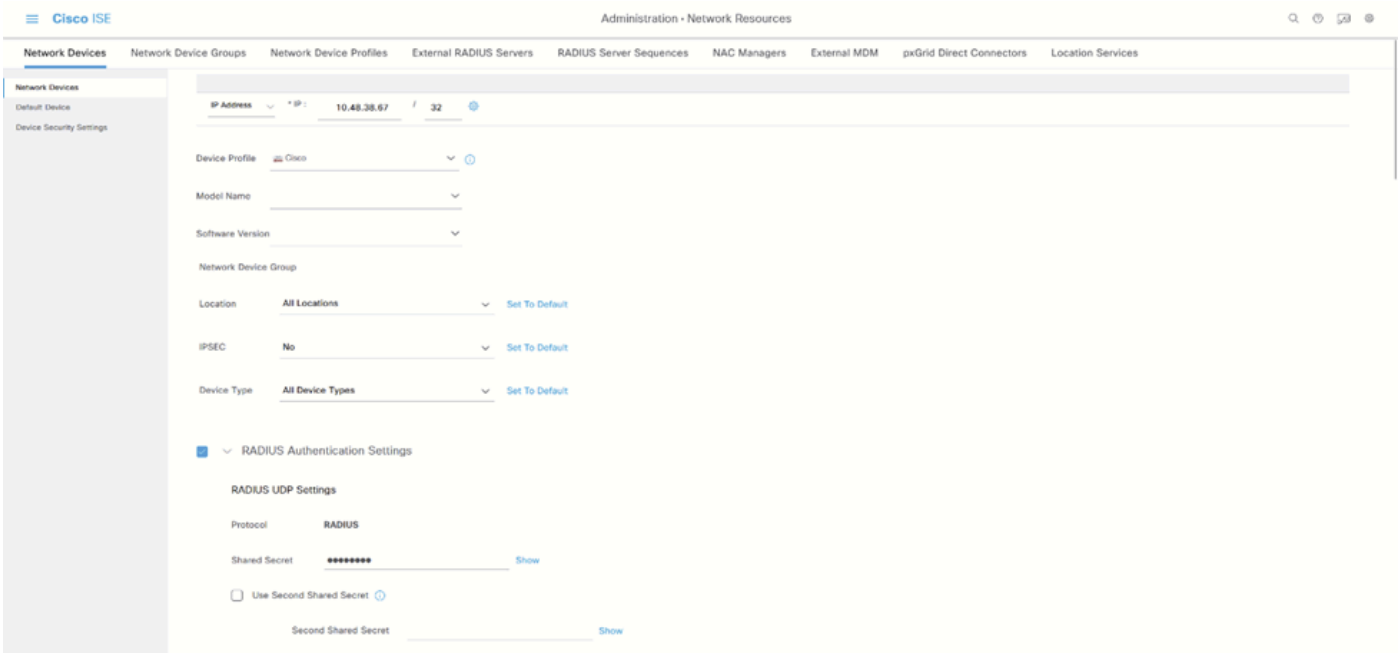
Configuração do ISE

1. Navegue até Administration > Network Resources > Network Devices.

i. Adicione as informações da WLC aqui:

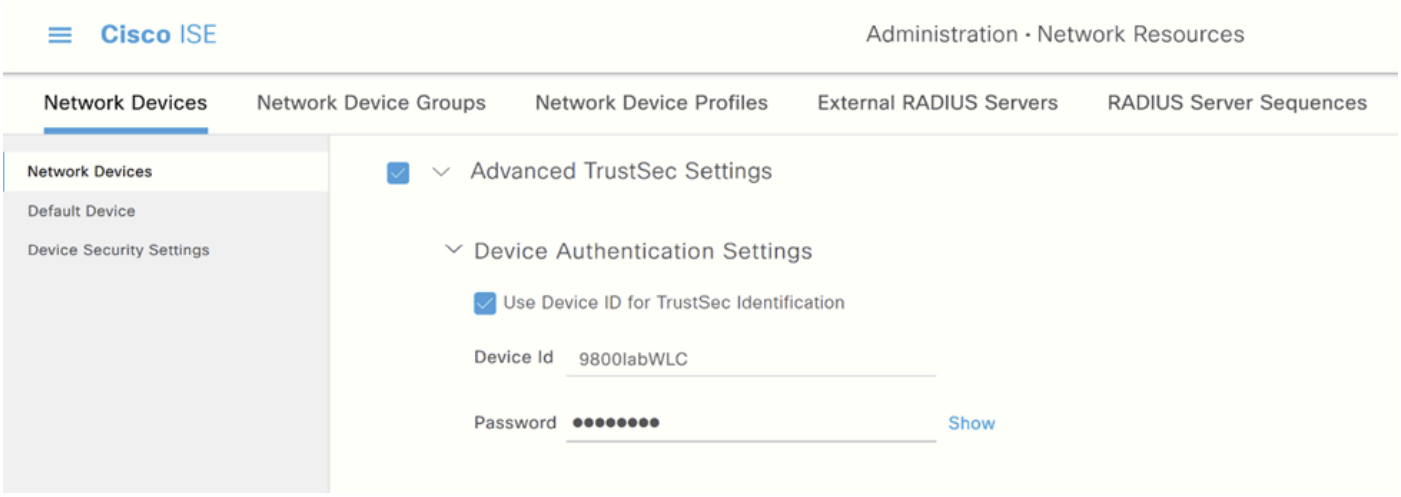


Página Dispositivos de rede do ISE



ISE adiciona informações de RADIUS de WLC

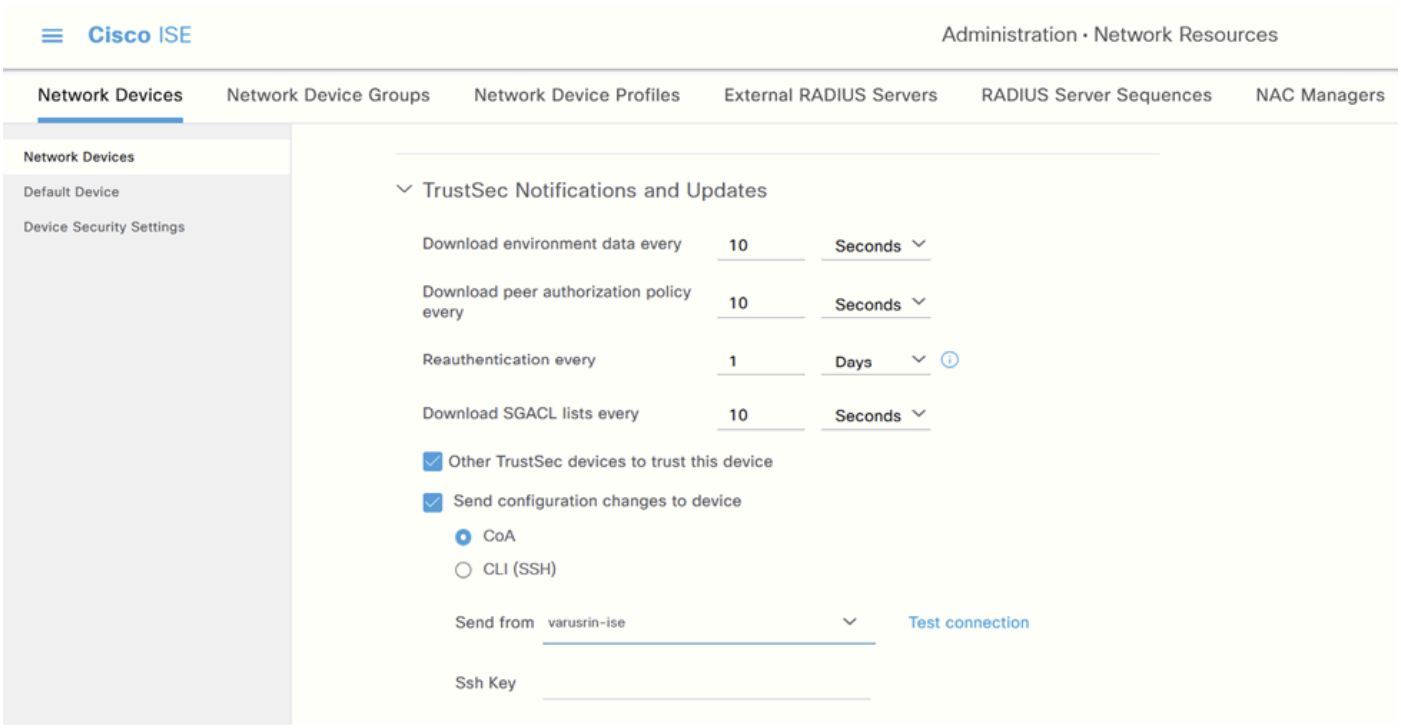
ii) Role para baixo e configure Advanced TrustSec Settings, ative a caixa de seleção Use Device ID for TrustSec Identification e configure a senha:



Configurações avançadas do TrustSec

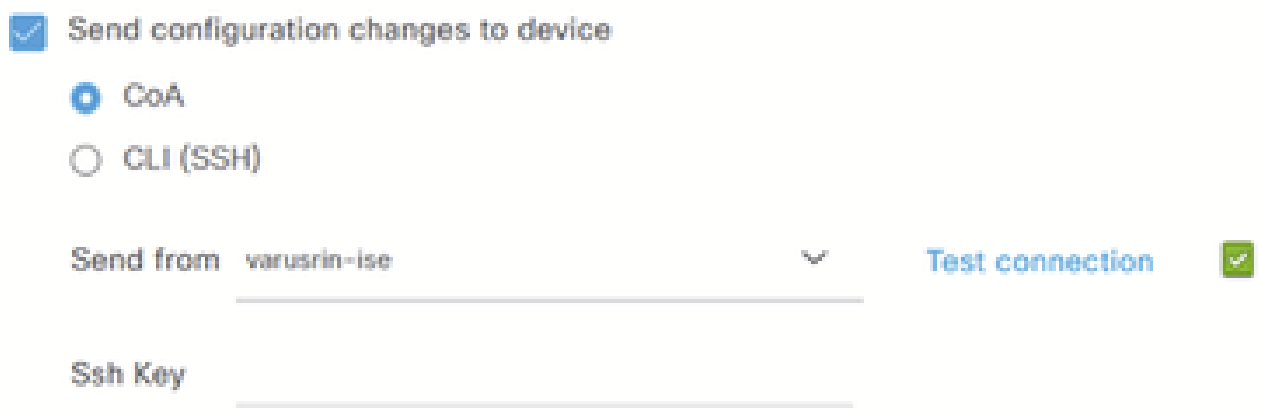
Isso deve corresponder à configuração no lado da WLC na etapa 6 da configuração da WLC.

iii) Role para baixo até Notificações e atualizações TrustSec e configure se você deseja usar CoA ou SSH para atualizações de configuração. Selecione o nó do ISE necessário:



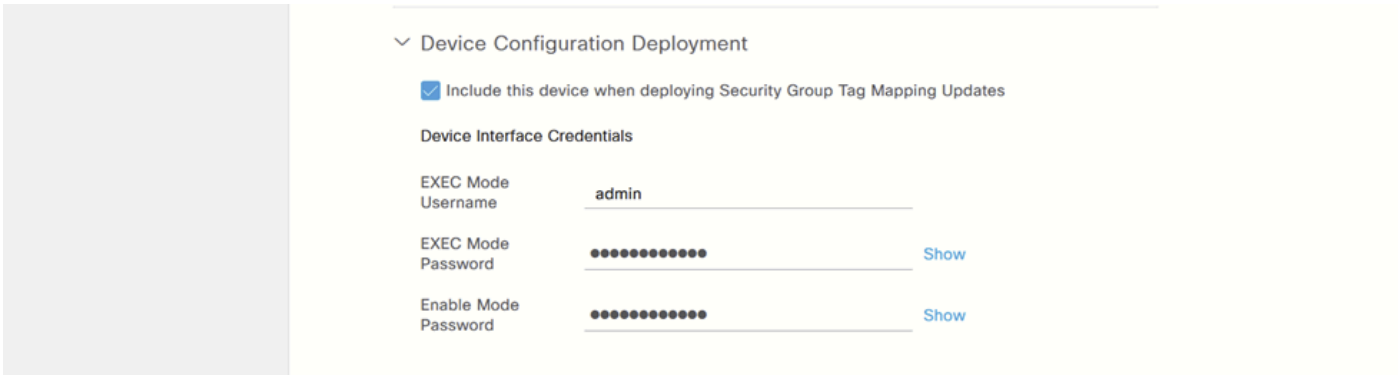
Notificações e atualizações do TrustSec

2. Pressione Conexão de teste para certificar-se de que a conexão esteja estabelecida. Quando for bem-sucedido, exibirá um sinal verde:



Testar conexão

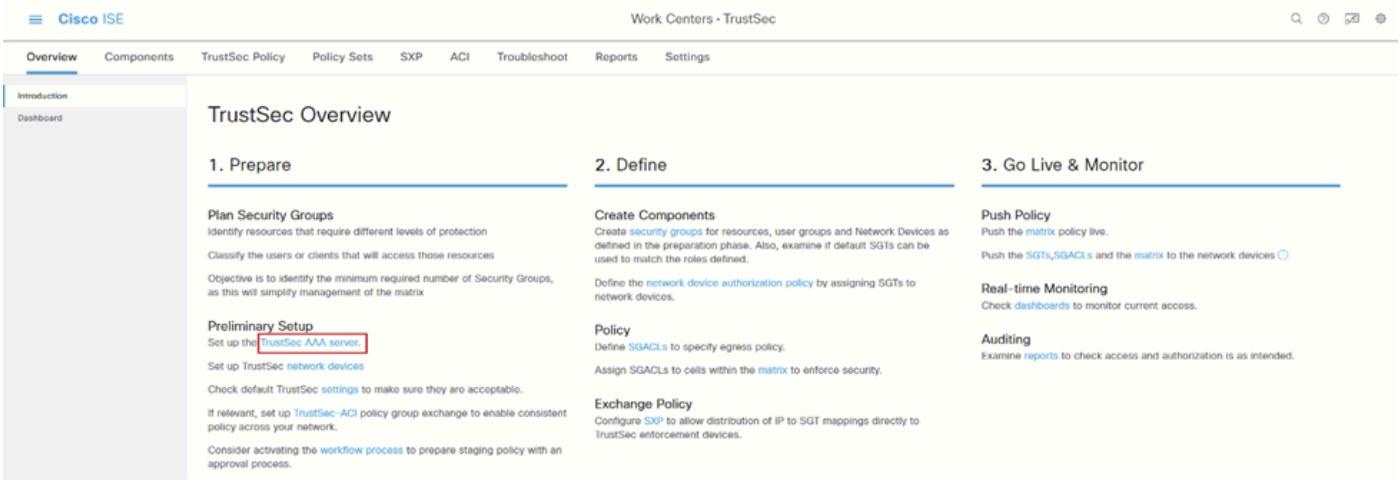
i. Role para baixo e configure a WLC a ser incluída ao implantar atualizações de mapeamento SGT. Isso é importante se você selecionar a opção SSH na etapa anterior:



Implantação de configuração de dispositivo

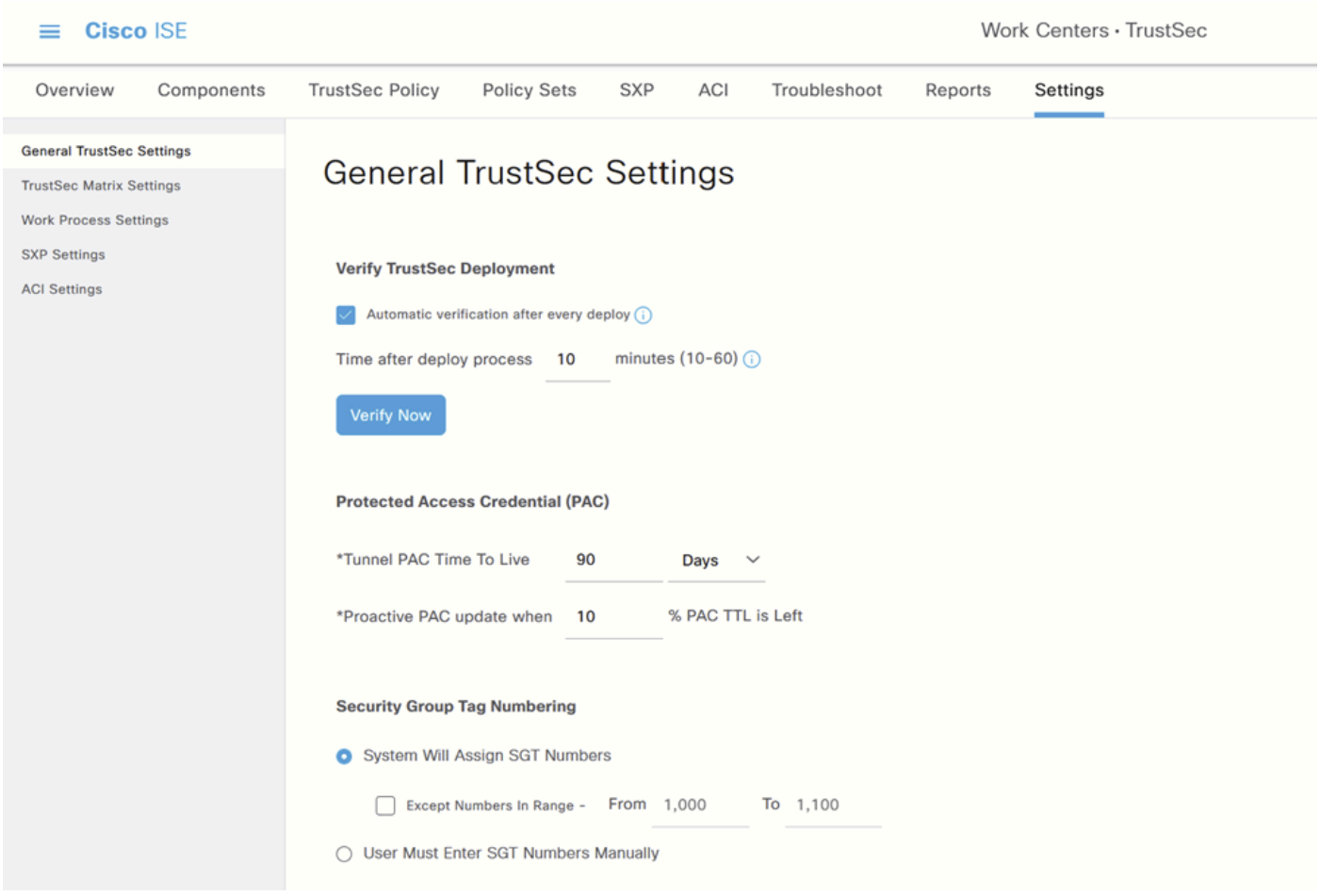
ii) Salve a configuração.

3. Em Centros de Trabalho > TrustSec > Visão Geral, você tem as opções de configuração TrustSec. Escolha TrustSec AAA Server para exibir a instância do ISE em uso. Consulte Cisco Catalyst Wireless Group Based Policy para obter mais informações sobre qual instância é usada se você tiver múltiplos.



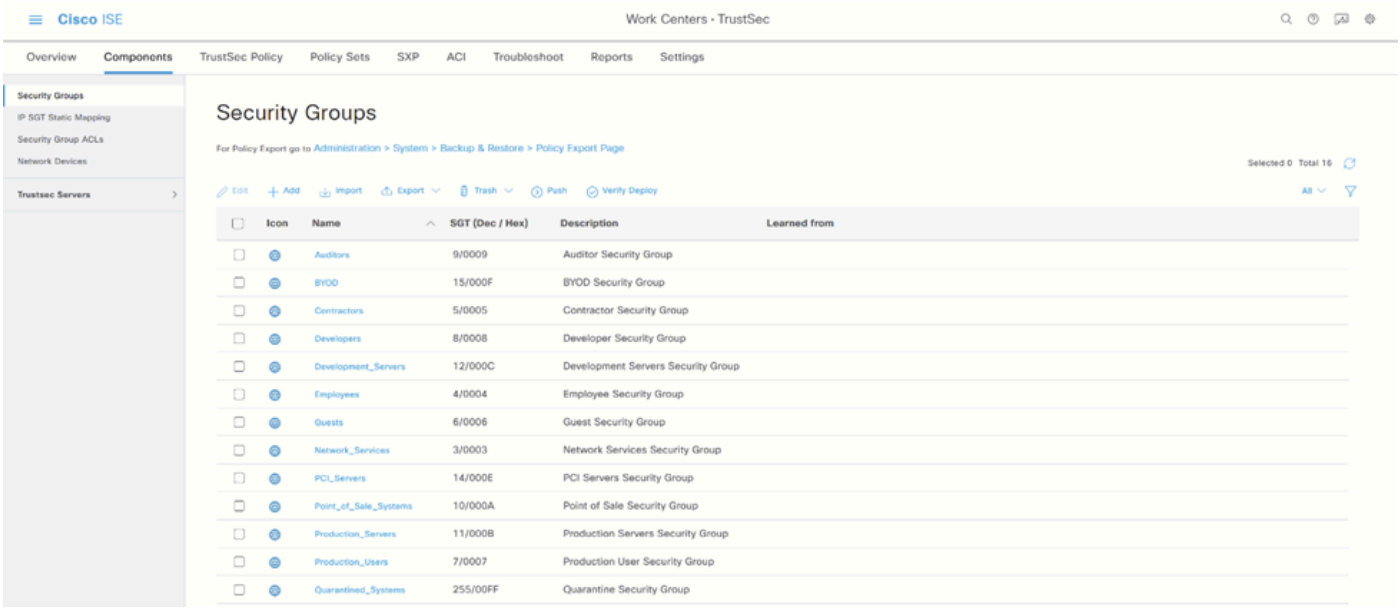
Visão geral do ISE TrustSec

4. (Opcional) Navegue até a guia Configurações, habilite Verificação automática após cada implantação, se preferível.



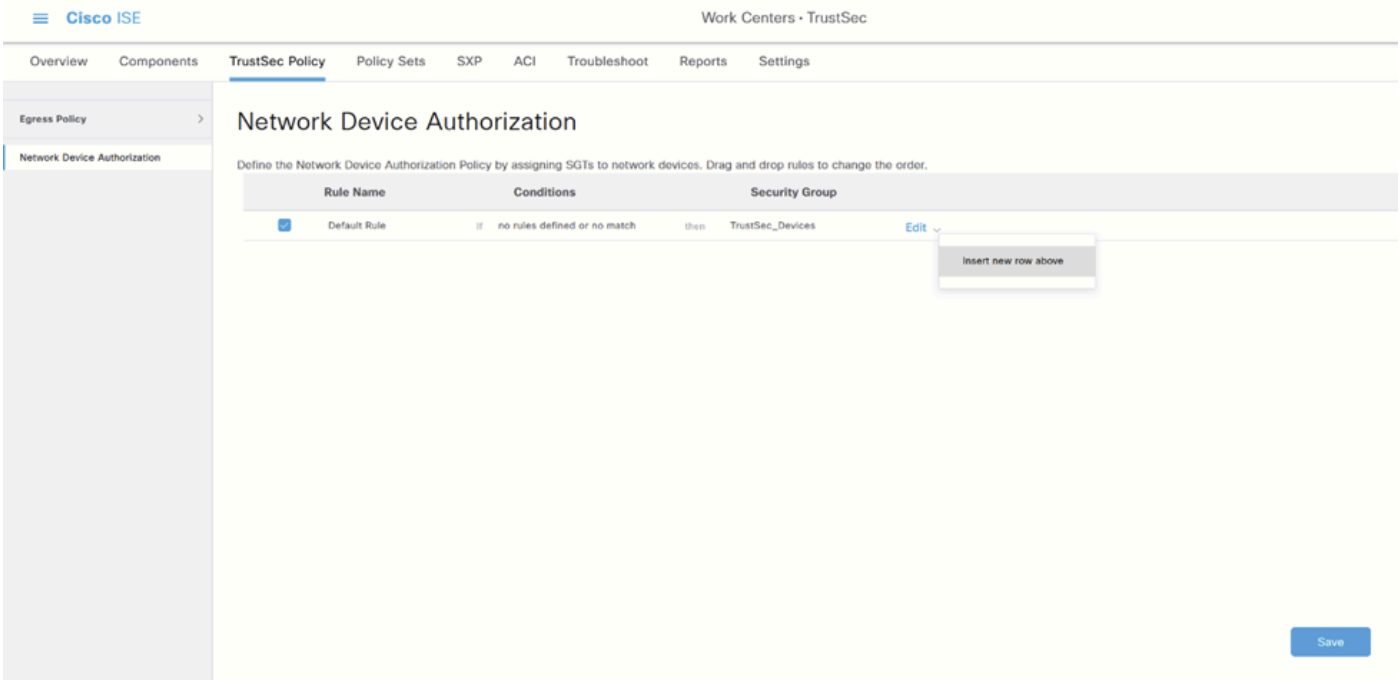
Configurações do ISE TrustSec

5. Adicione ou edite os valores de SGT em Centros de trabalho > TrustSec > Componentes > Grupos de segurança, dependendo de seus requisitos:



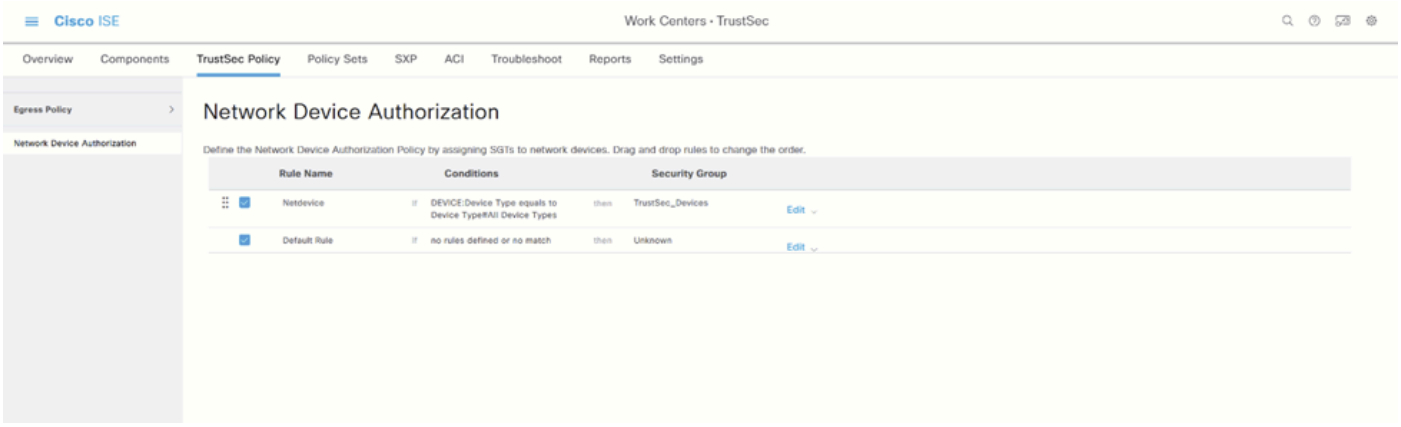
Grupos de segurança do ISE

6. Se quiser especificar a política de autorização, navegue para Centros de Trabalho > TrustSec > Política TrustSec > Autorização de Dispositivo de Rede:



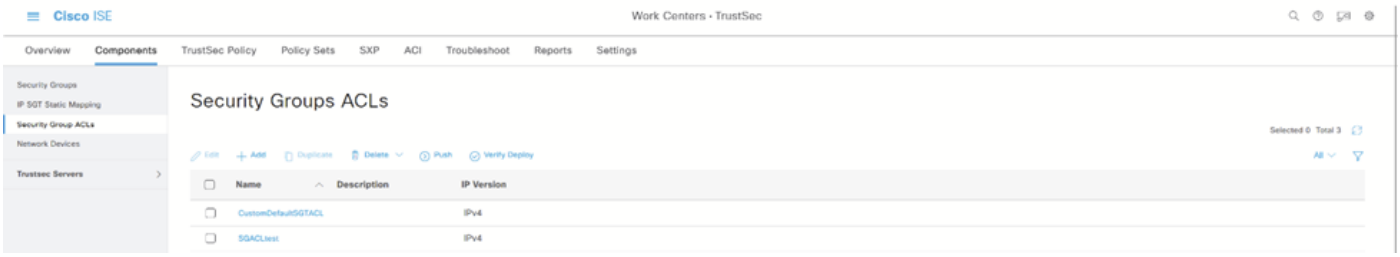
Política TrustSec

Você pode manter o padrão, mas para este laboratório estamos usando esta configuração como um exemplo:



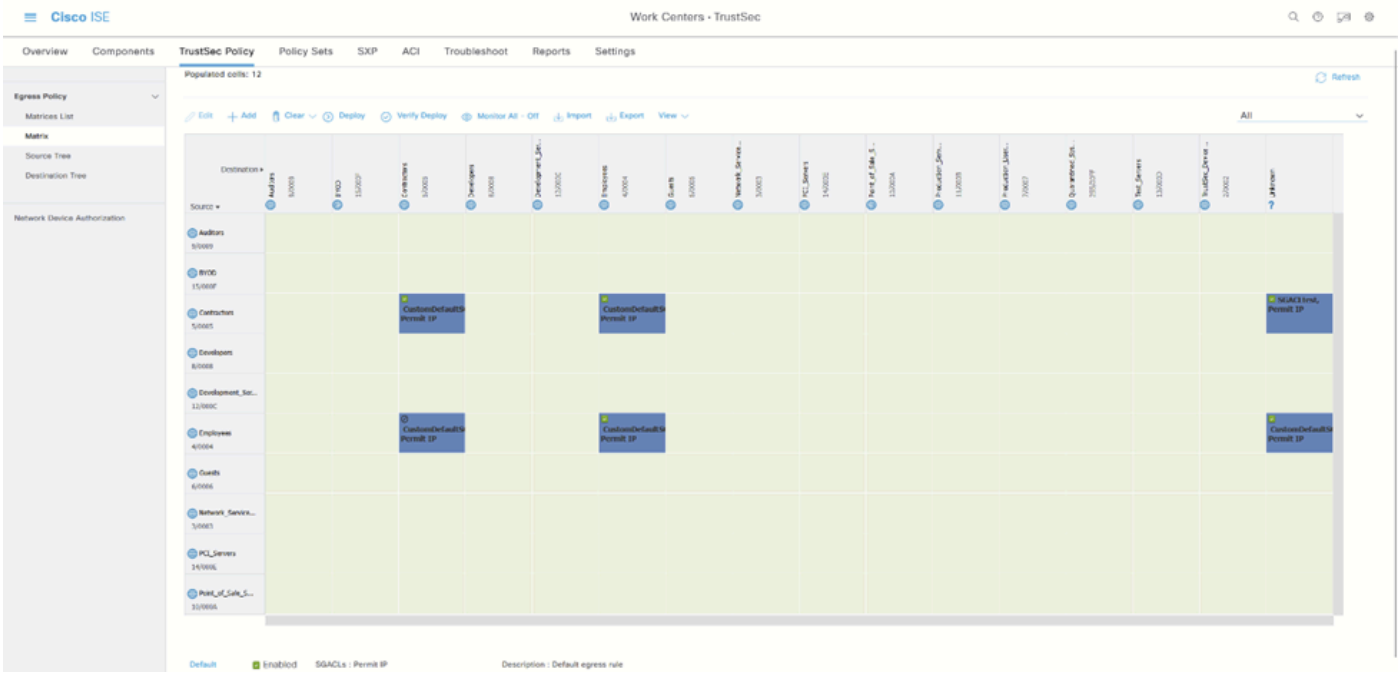
Autorização de dispositivo de rede

7. Crie o SGACL na guia Components e depois nas ACLs Security Group:



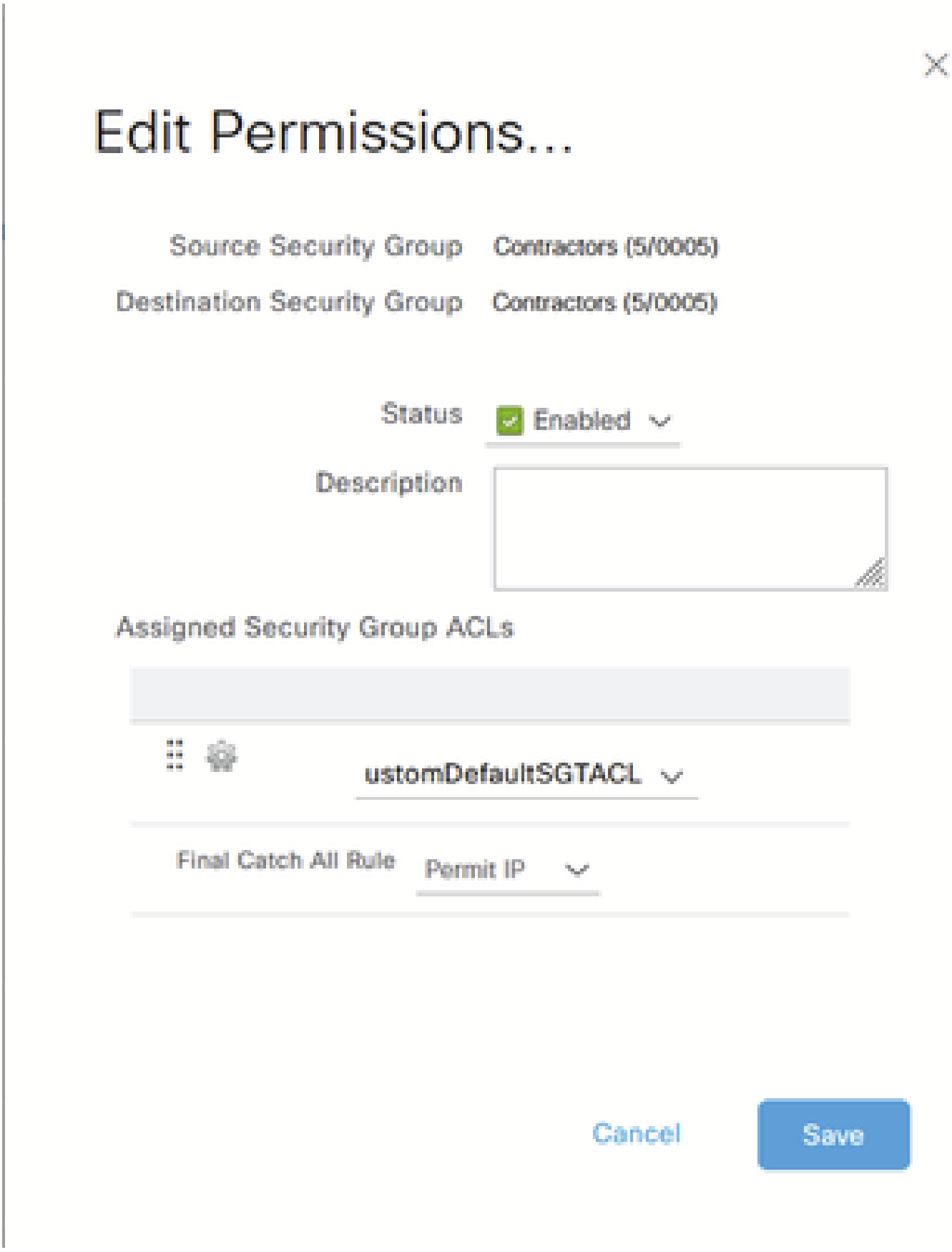
ACLs do grupo de segurança

8. Especifique as entradas da matriz na guia TrustSec Policy e, em seguida, na Matrix. Você pode editar as Permissões clicando no ponto que dois SGTs atendem:

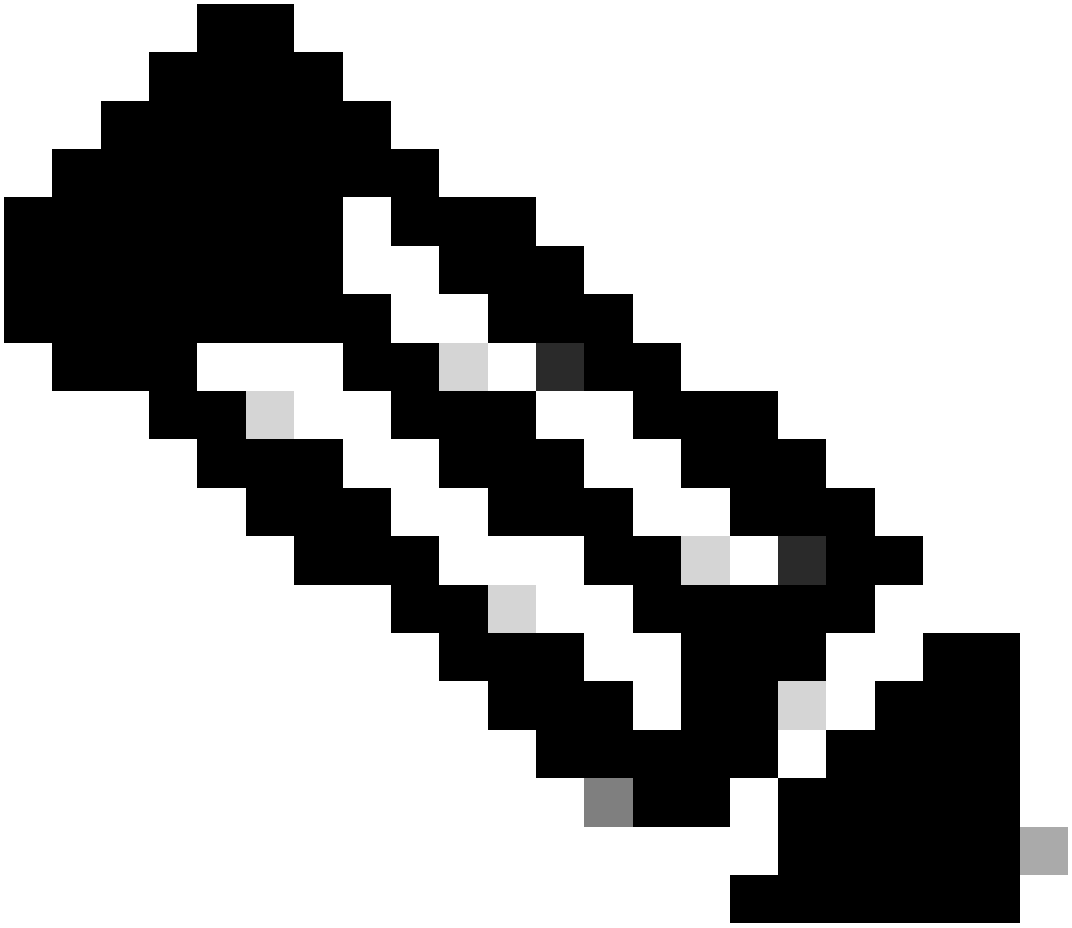


Matriz ISE TrustSec

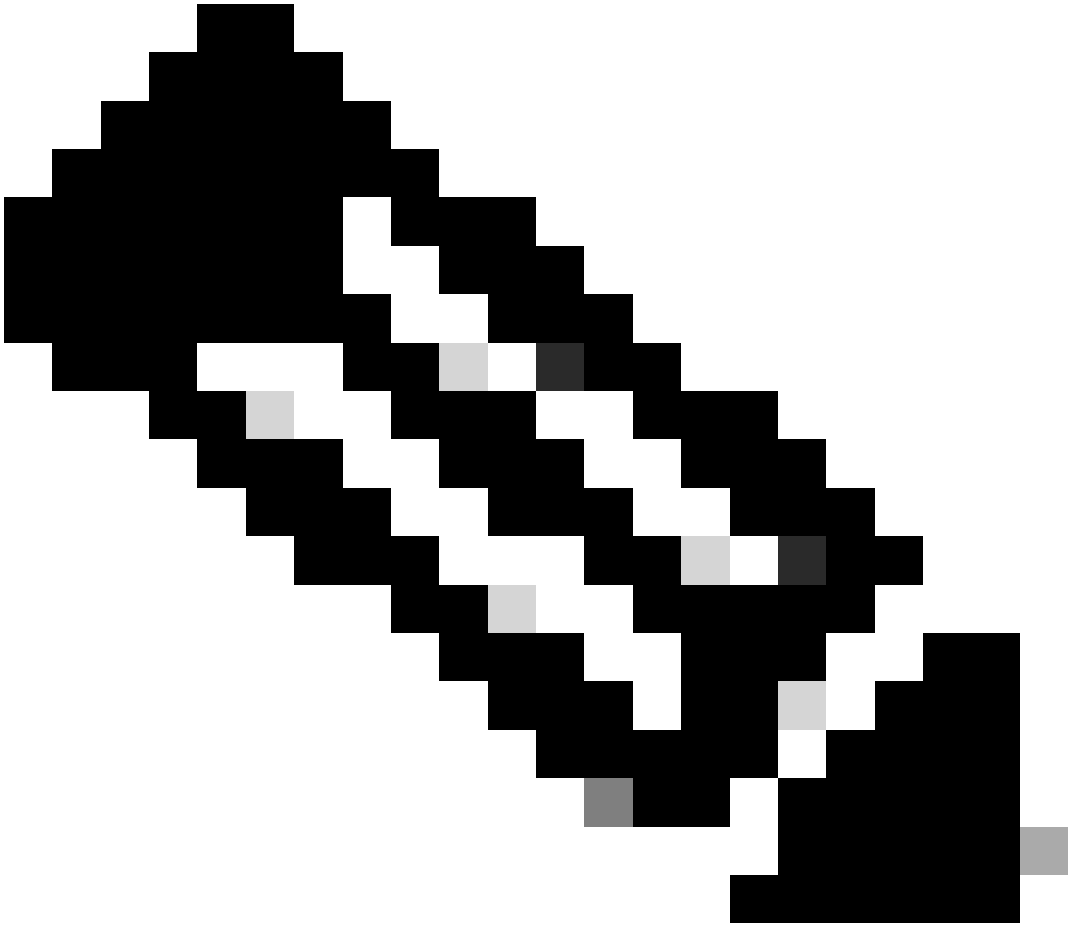
Por exemplo:



Editar permissões

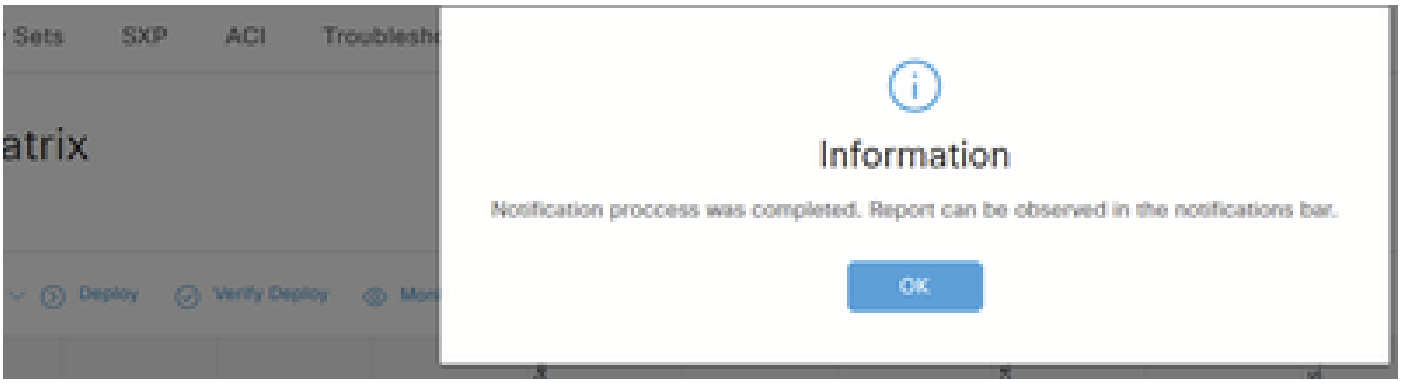


Note: No caso do modelo de lista de permissões, você precisa permitir explicitamente o protocolo DHCP para que os dispositivos cliente obtenham o endereço IP DHCP e depois solicitar o controlador para políticas SGACL.

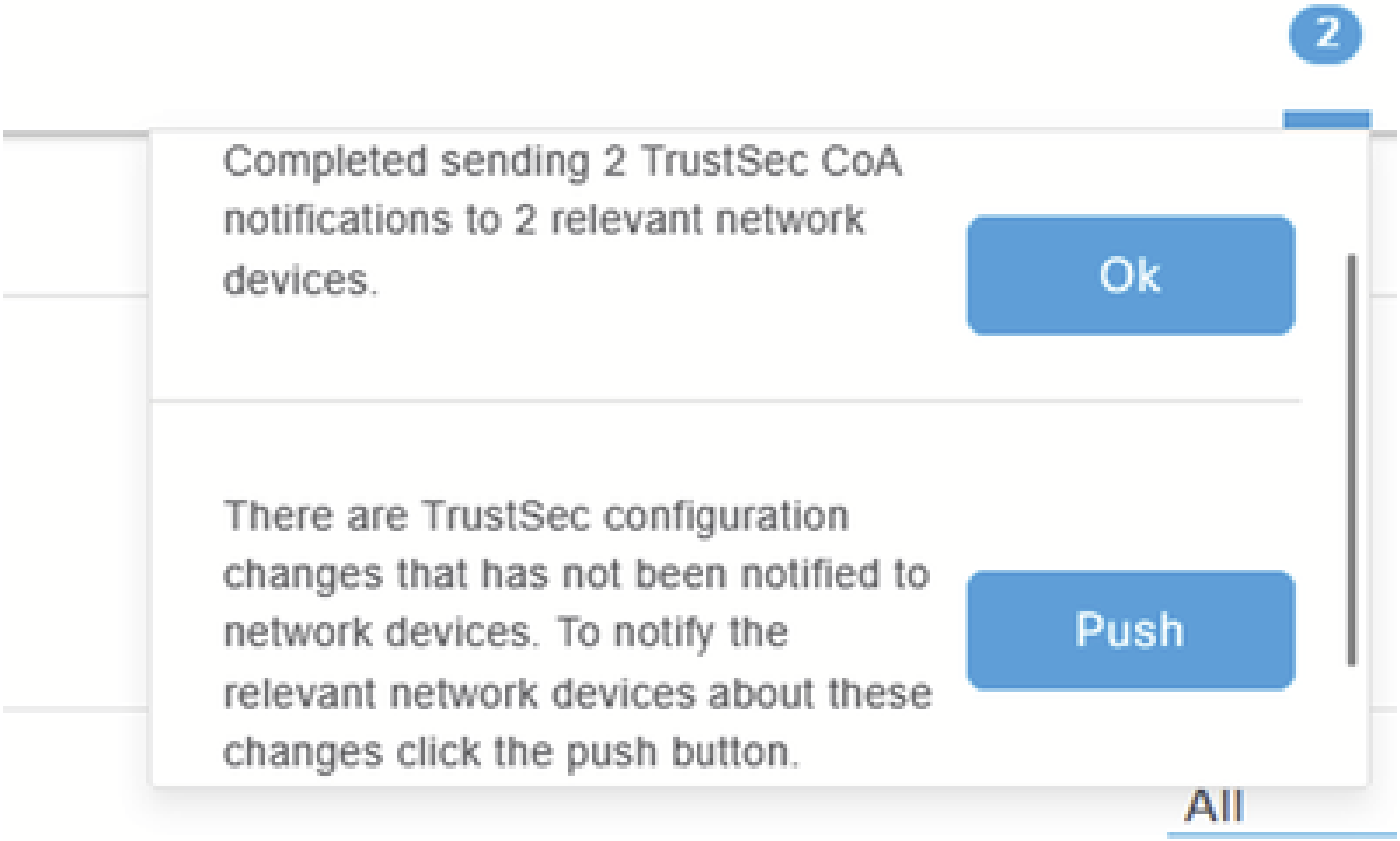


Note: Os clientes recebem um valor SGT zero e os clientes DHCP recebem um endereço APIPA (Automatic Private IP Addressing) quando a política TrustSec "desconhecida para desconhecida" é negada na matriz TrustSec.
Os clientes recebem valores SGT corretos e os clientes DHCP recebem um endereço IP quando a política TrustSec "desconhecido para desconhecido" é permitida na matriz TrustSec.

9. Clique em Implantar. O que resultará nestas mensagens e notificações:



Implantar

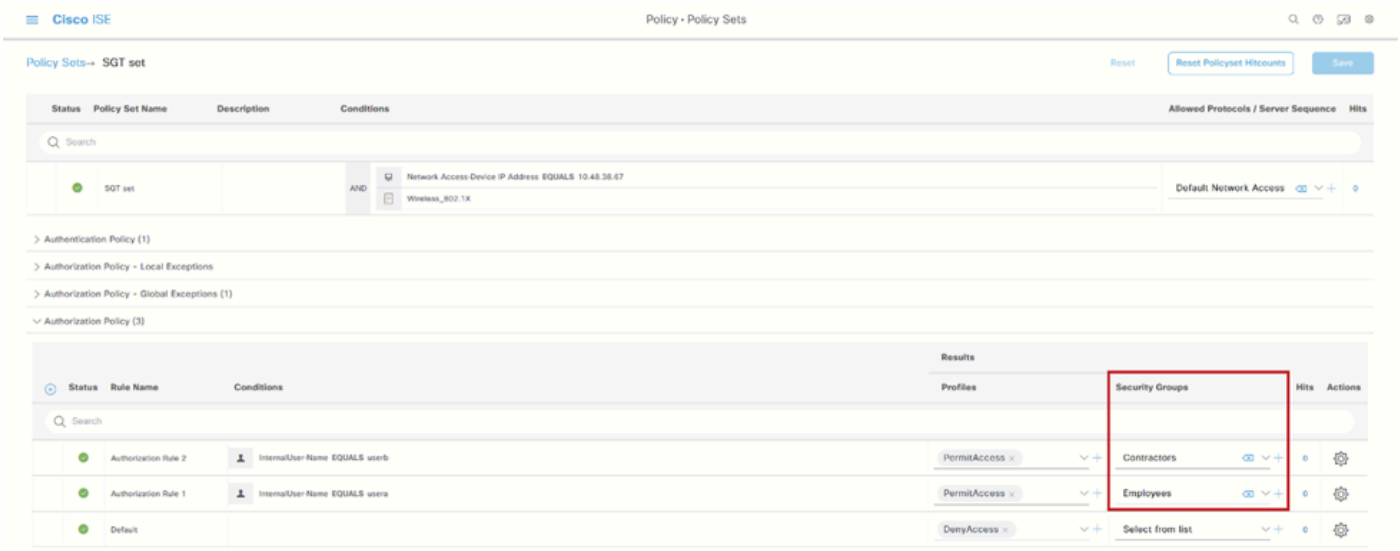


Implantar notificações

10. Navegue até o Policy Set usado para a WLAN em Policy > Policy Sets:

Conjuntos de políticas do ISE

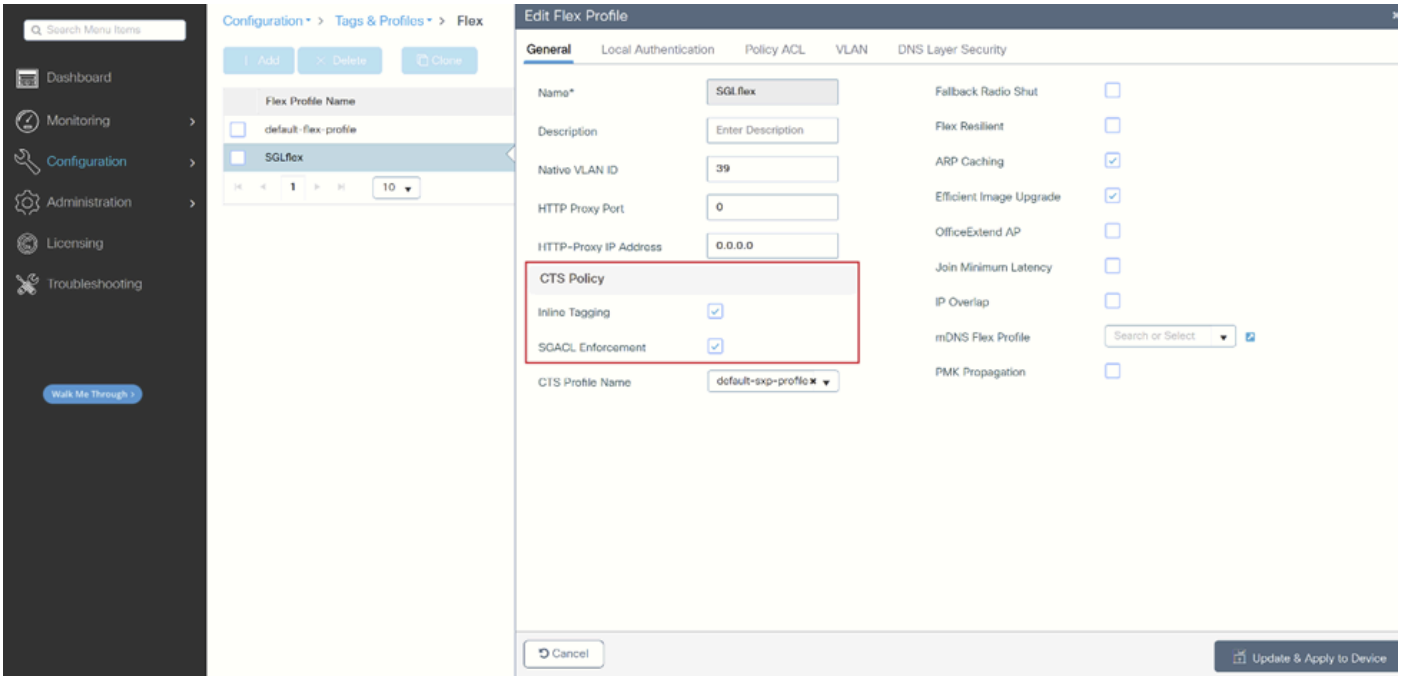
Neste laboratório, estamos definindo o SGT por usuário, selecione o SGT no campo Grupos de segurança:



Grupos de segurança do ISE

Flexconnect

Habilite Inline Tagging e Aplicação de SGACL no Perfil Flex em Configuration > Tags & Policies > Flex:

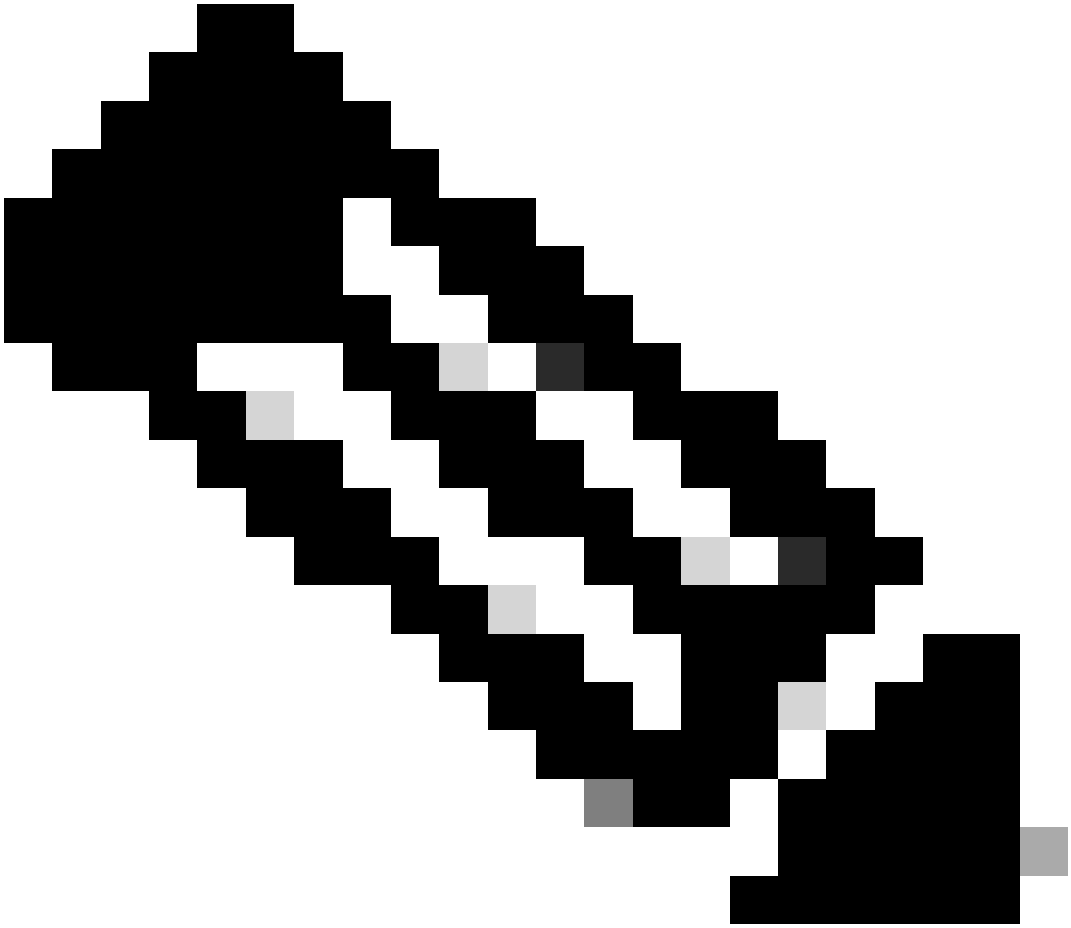


Perfil Flex da WLC

Na CLI:

```
# configure terminal
```

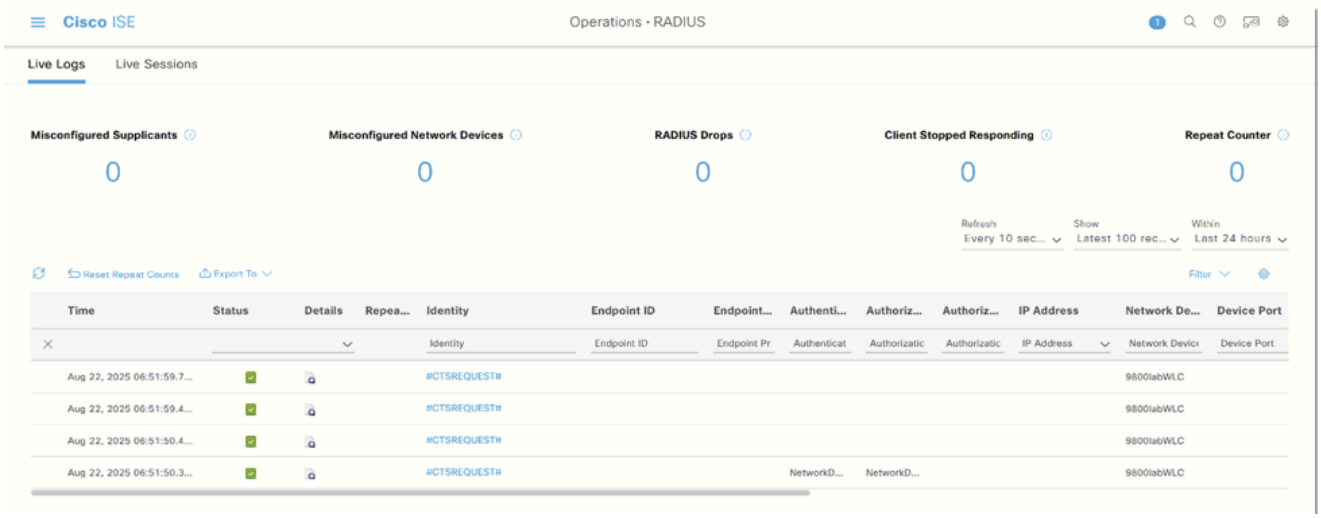
```
(config)# wireless profile flex SGLflex
(config-wireless-flex-profile)# cts inline-tagging
(config-wireless-flex-profile)# cts role-based enforcement
```



Note: Se a WLC estiver em HA-SSO, o SGACL nos APs FlexConnect não será suportado. ID de bug da Cisco CSCwn85468. Isso será adicionado em 17.19.

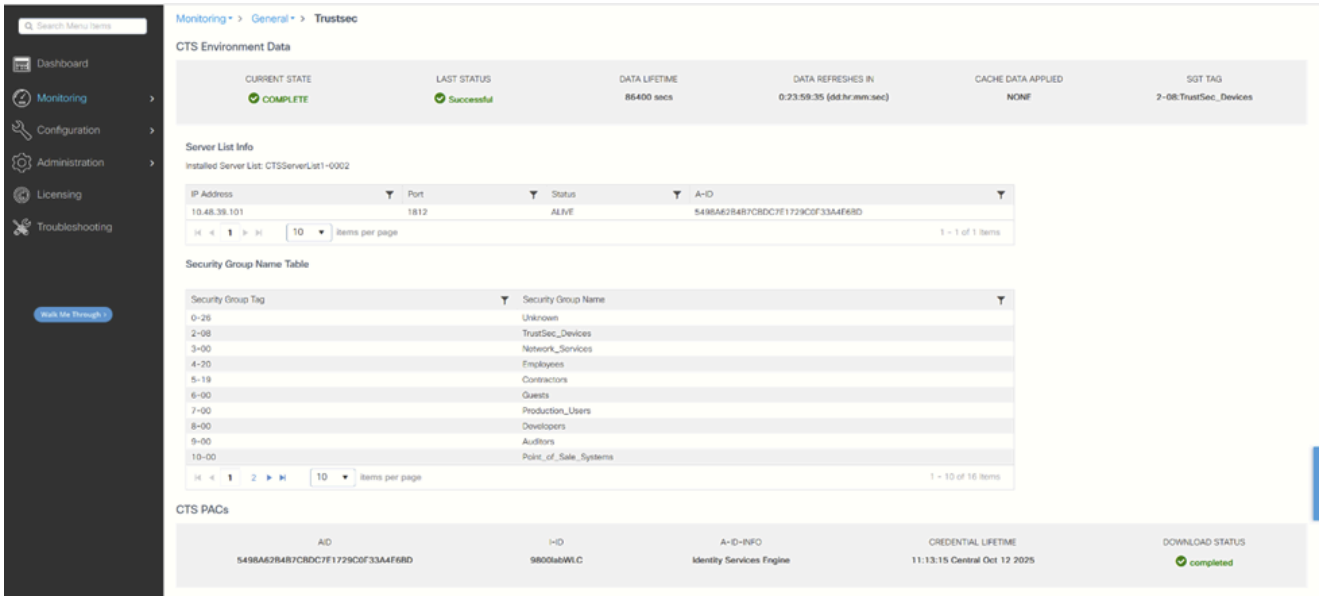
Verificar

1. No ISE, você deve ver a solicitação CTS bem-sucedida em Operations > RADIUS > Live Logs:



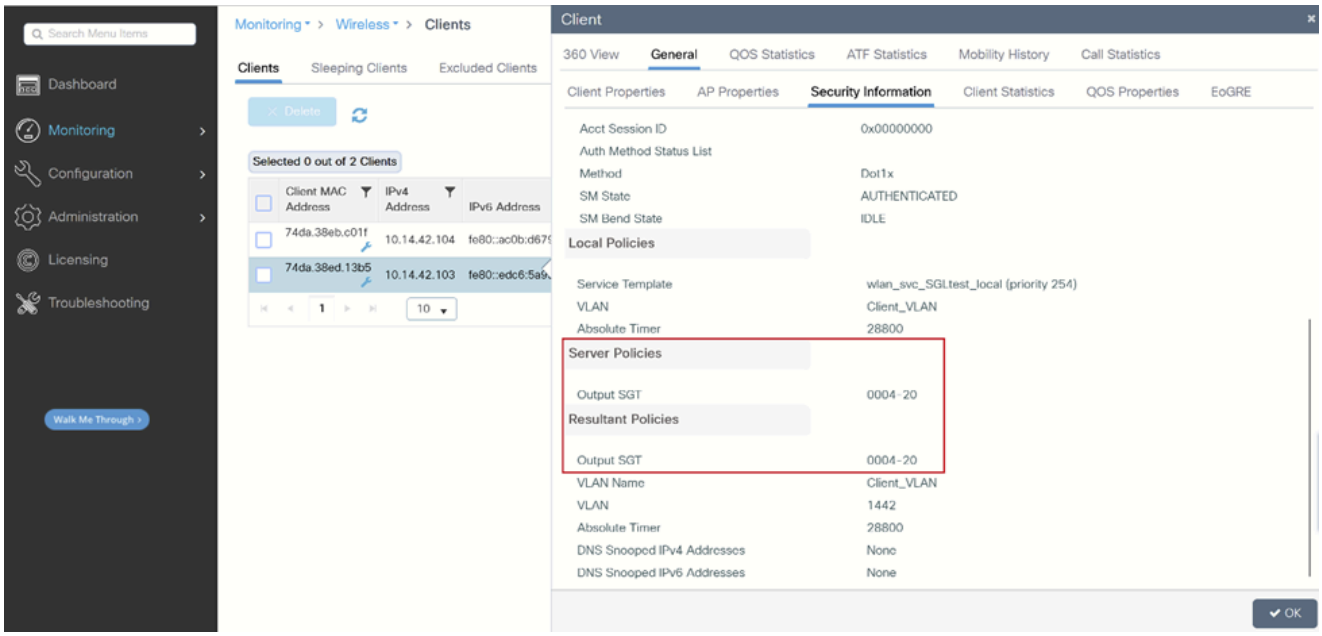
Logs ao vivo do ISE RADIUS

2. Você pode verificar se a conexão foi estabelecida e se os SGTs foram baixados de Monitoring > General > Trustsec no WLC:



Monitoramento do WLC TrustSec

3. Ao conectar um cliente, o SGT atribuído ficará visível em Monitoring > Wireless > Clients, escolha o cliente que deseja verificar e navegue até a guia General > Security information:



Monitoramento de cliente WLC

Na CLI:

- Antes de conectar o cliente, isso é o que você verá na saída da WLC: Somente as permissões relacionadas a SGTs desconhecidos serão exibidas.

```
<#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
```

- Ao conectar o cliente, você pode observar esses logs a partir dos rastreamentos RA, o SGT é aplicado a partir do AAA:

<#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
```

- Use o comando show wireless client mac-address <client_MAC_address> detail da CLI, que mostrará o SGT atribuído ao cliente:

<#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
…
```

- Depois de conectar um cliente no SGT 4, você perceberá que as permissões para o SGT 4 agora aparecem:
  As permissões são adicionadas depois que o cliente é conectado e recebe um SGT.

<#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
============================================================
```

- Depois de conectar dois clientes, um no SGT 4 e o outro no SGT 5:

<#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
============================================================
```

- Agora você pode ver que as permissões de SGT 5 são adicionadas:

<#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
```

- As ACLs parecerão como "baixadas" na WLC:

<#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
```

Switching local FlexConnect

- Esta é a saída da WLC antes de conectar clientes ao AP:

<#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
```

- Na CLI do AP, esta é a saída de permissões antes de conectar clientes ao AP:

```
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
```

- Estas são as depurações de AP enquanto o cliente está se conectando para mostrar o fluxo:

<#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
…
```

- Na CLI da WLC, ao conectar um cliente no SGT 4:

<#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
```

- Do AP CLI:
  Você pode ver a mesma coisa, apenas as permissões relacionadas ao SGT 4 são adicionadas.

```
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
```

- Na CLI da WLC, ao conectar o segundo cliente no SGT 5:

<#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
```

- Saídas AP:

<#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
```

Troubleshooting

- Da CLI da WLC:

show cts provisioning

show cts role-based permissions

show ip access-lists

show cts ap sgt-info <ap_name>

- Do 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

- Depurações de AP:

- Habilita a depuração de imposição de nível de pacote CTS:

debug cts enforcement

term mon

- Para verificar eventos da ACL CAPWAP e informações relacionadas à carga útil:

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

term mon

Sobre esta tradução
A Cisco traduziu este documento com a ajuda de tecnologias de tradução automática e humana para oferecer conteúdo de suporte aos seus usuários no seu próprio idioma, independentemente da localização.

Observe que mesmo a melhor tradução automática não será tão precisa quanto as realizadas por um tradutor profissional.

A Cisco Systems, Inc. não se responsabiliza pela precisão destas traduções e recomenda que o documento original em inglês (link fornecido) seja sempre consultado.