Configurar o BYOD sem fio de SSID único no Windows e no ISE

Contents

Introduction

Este documento descreve como configurar o BYOD (Bring Your Own Device, traga seu próprio dispositivo) no Cisco Identity Services Engine (ISE) para a máquina Windows usando SSID único e SSID duplo.

Prerequisites

Requirements

A Cisco recomenda que você tenha conhecimento destes tópicos:

- Configuração do Cisco ISE versões 3.0
- Configuração do Cisco WLC
- BYOD funcionando

Componentes Utilizados

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

- Cisco ISE versão 3.0
- Windows 10

- WLC e AP

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. Se a rede estiver ativa, certifique-se de que você entenda o impacto potencial de qualquer comando.

Teoria

Em BYOD de SSID único, somente um SSID é usado para ambos os dispositivos integrados e, posteriormente, para fornecer acesso total aos dispositivos registrados. Primeiro, o usuário se conecta ao SSID usando o nome de usuário e a senha (MSCHAPv2). Depois de autenticado com êxito no ISE, o usuário é redirecionado para o portal BYOD. Depois que o Device Registration for concluído, o cliente final baixará o NSA (Native Supplicant Assistant) do ISE . O NSA é instalado no cliente final e faz o download do Perfil e certificado do ISE. A NSA configura o requerente sem fios e o cliente instala o certificado. O endpoint executa outra autenticação no mesmo SSID usando o certificado baixado usando EAP-TLS. O ISE verifica a nova solicitação do cliente e verifica o método EAP e o registro do dispositivo e dá acesso total ao dispositivo.

Etapas do SSID único do Windows BYOD -

- Autenticação EAP-MSCHAPv2 inicial
- Redirecionamento para o portal BYOD
- Registro do dispositivo
- download de NSA
- Download de perfil
- Download de certificado
- Autenticação EAP-TLS

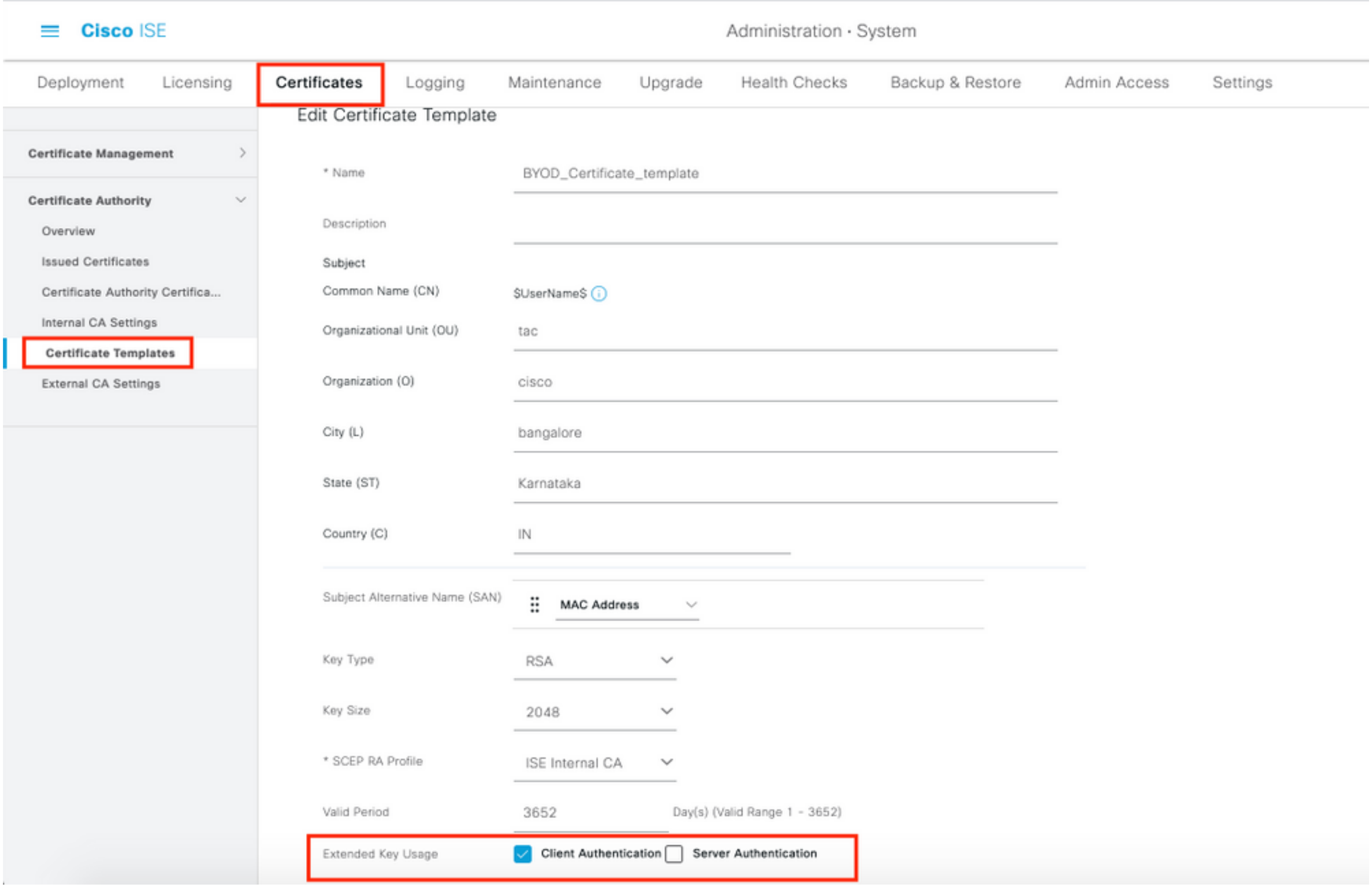
Configurar

Configuração do ISE

Etapa 1. Adicione o dispositivo de rede ao ISE e configure o RADIUS e a chave compartilhada.

Navegue até **ISE > Administration > Network Devices > Add Network Device**.

Etapa 2. Crie um modelo de certificado para usuários de BYOD. O modelo deve ter a Autenticação de cliente com uso de chave aprimorado. Você pode usar o EAP_Certificate_Template padrão.



Edit Certificate Template

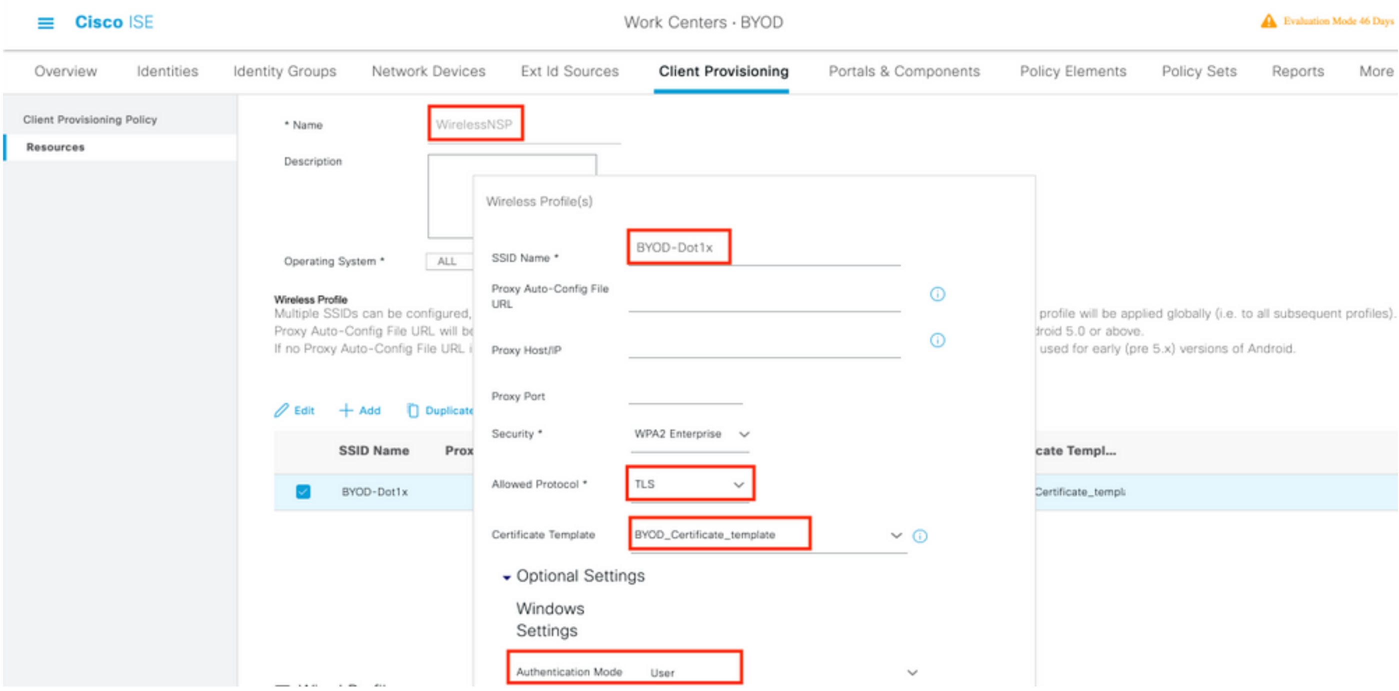
* Name	BYOD_Certificate_template
Description	
Subject	
Common Name (CN)	$UserName$
Organizational Unit (OU)	tac
Organization (O)	cisco
City (L)	bangalore
State (ST)	Karnataka
Country (C)	IN
Subject Alternative Name (SAN)	MAC Address
Key Type	RSA
Key Size	2048
* SCEP RA Profile	ISE Internal CA
Valid Period	3652 Day(s) (Valid Range 1 - 3652)
Extended Key Usage	☑ Client Authentication □ Server Authentication

Etapa 3. Crie um perfil de requerente nativo para um perfil sem fio.

Navegue até **ISE > Work Centers > BYOD > Client Provisioning**. Clique em **Add** e escolha **Native Supplicant Profile (NSP**) na lista suspensa.

Aqui, o nome SSID deve ser o mesmo que você conectou antes de fazer um único BYOD de SSID. Selecione o protocolo como TLS. Escolha o modelo de certificado como criado na etapa anterior ou você pode usar o EAP_Certificate_Template padrão .

Em configurações opcionais, selecione autenticação usuário ou usuário e máquina de acordo com o seu requisito. Neste exemplo, ele é configurado como autenticação de usuário. Deixe outras configurações como padrão.



* Name: WirelessNSP

Description

Operating System *: ALL

Wireless Profile
Multiple SSIDs can be configured, ... profile will be applied globally (i.e. to all subsequent profiles).
Proxy Auto-Config File URL will be ... droid 5.0 or above.
If no Proxy Auto-Config File URL i... used for early (pre 5.x) versions of Android.

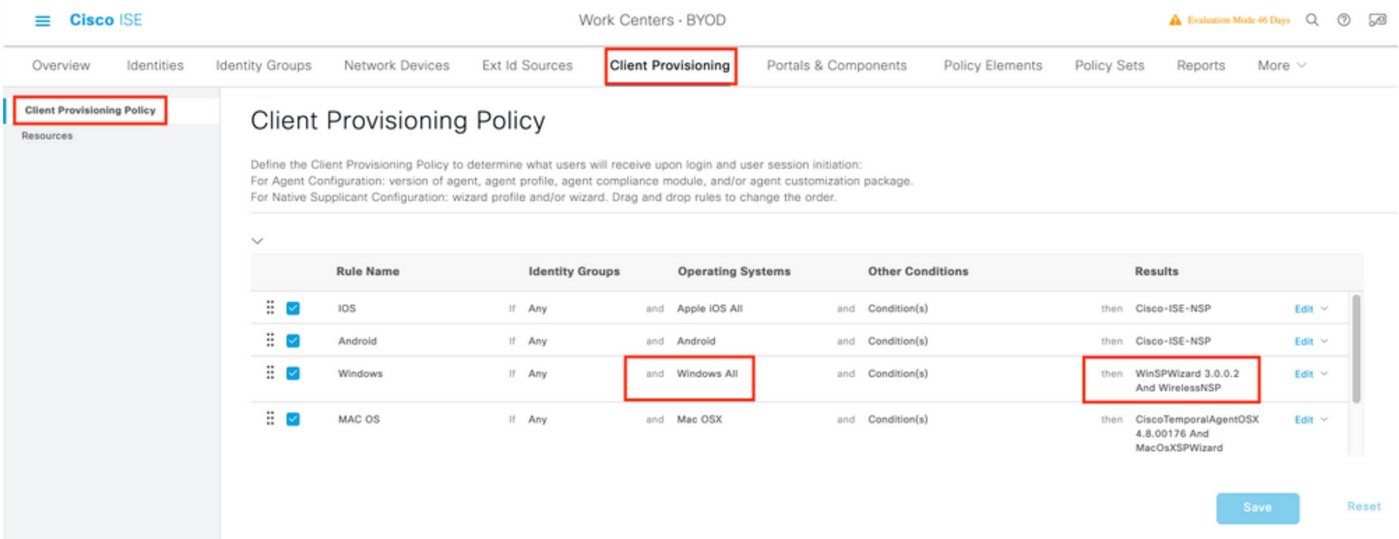
SSID Name	Prox...	...cate Templ...
☑ BYOD-Dot1x		Certificate_templ...

Wireless Profile(s)

- SSID Name *: BYOD-Dot1x
- Proxy Auto-Config File URL:
- Proxy Host/IP:
- Proxy Port:
- Security *: WPA2 Enterprise
- Allowed Protocol *: TLS
- Certificate Template: BYOD_Certificate_template
- Authentication Mode: User

Etapa 4. Criar Política de Provisionamento de Cliente para Dispositivo Windows.

Navegue até **ISE > Work Centers > BYOD > Client Provisioning > Client Provisioning Policy** . Selecione o sistema operacional como **Windows ALL**. Selecione **WinSPWizard 3.0.0.2 e NSP** criados na etapa anterior.



Client Provisioning Policy

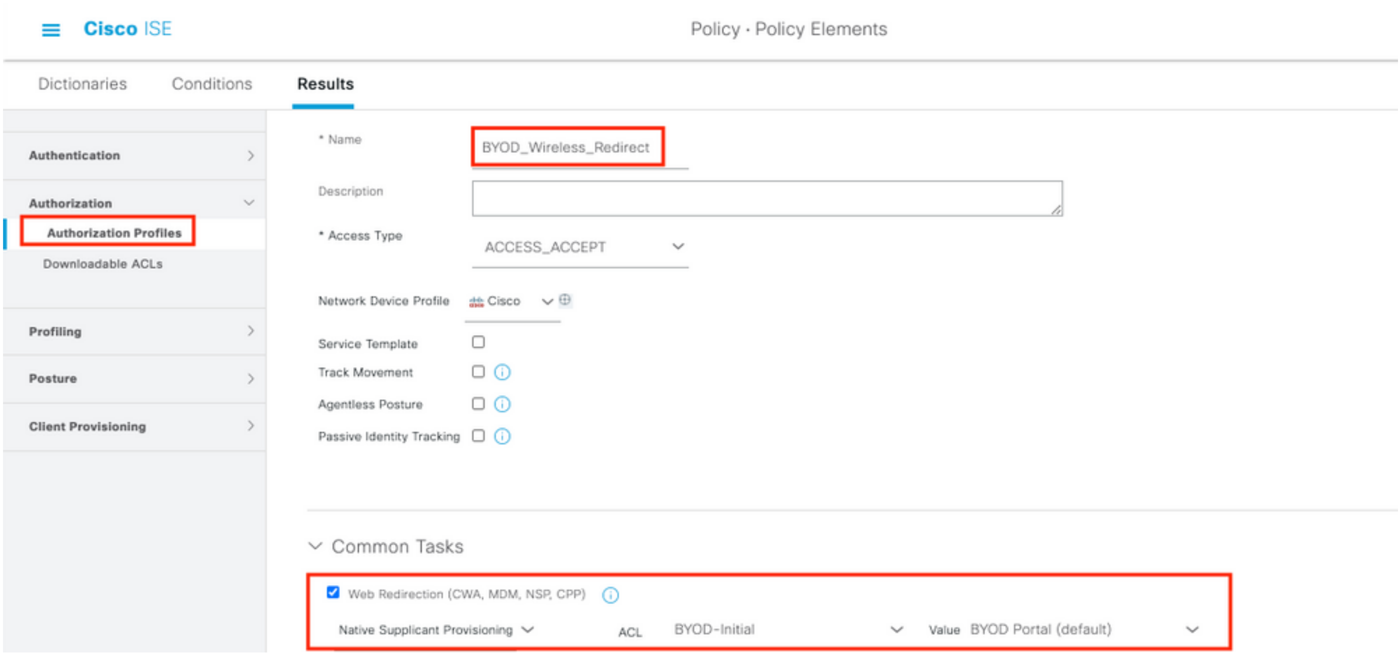
Define the Client Provisioning Policy to determine what users will receive upon login and user session initiation:
For Agent Configuration: version of agent, agent profile, agent compliance module, and/or agent customization package.
For Native Supplicant Configuration: wizard profile and/or wizard. Drag and drop rules to change the order.

Rule Name		Identity Groups		Operating Systems		Other Conditions		Results	
☑ IOS	If	Any	and	Apple iOS All	and	Condition(s)	then	Cisco-ISE-NSP	Edit
☑ Android	If	Any	and	Android	and	Condition(s)	then	Cisco-ISE-NSP	Edit
☑ Windows	If	Any	and	Windows All	and	Condition(s)	then	WinSPWizard 3.0.0.2 And WirelessNSP	Edit
☑ MAC OS	If	Any	and	Mac OSX	and	Condition(s)	then	CiscoTemporalAgentOSX 4.8.00176 And MacOsXSPWizard	Edit

Etapa 5. Crie um **perfil de autorização** para dispositivos não registrados como dispositivos BYOD.

Navegue até **ISE > Policy > Policy Elements > Results> Authorization > Authorization Profiles > Add (ISE > Política > Elementos de política > Resultados > Autorização > Perfis de autorização > Adicionar)**.

Em **Common Task**, selecione **Native Supplicant Provisioning**. Defina um nome de ACL de redirecionamento criado na WLC e selecione o portal BYOD. Aqui é usado o Portal padrão. Você pode criar um portal BYOD personalizado. Navegue até **ISE > Work Centers > BYOD > Portals** e components e clique em **Add**.



Cisco ISE — Policy · Policy Elements

Dictionaries | Conditions | **Results**

Authentication >
Authorization
- Authorization Profiles
- Downloadable ACLs

Profiling >
Posture >
Client Provisioning >

* Name: BYOD_Wireless_Redirect

Description:

* Access Type: ACCESS_ACCEPT

Network Device Profile: Cisco

Service Template: □

Track Movement: □

Agentless Posture: □

Passive Identity Tracking: □

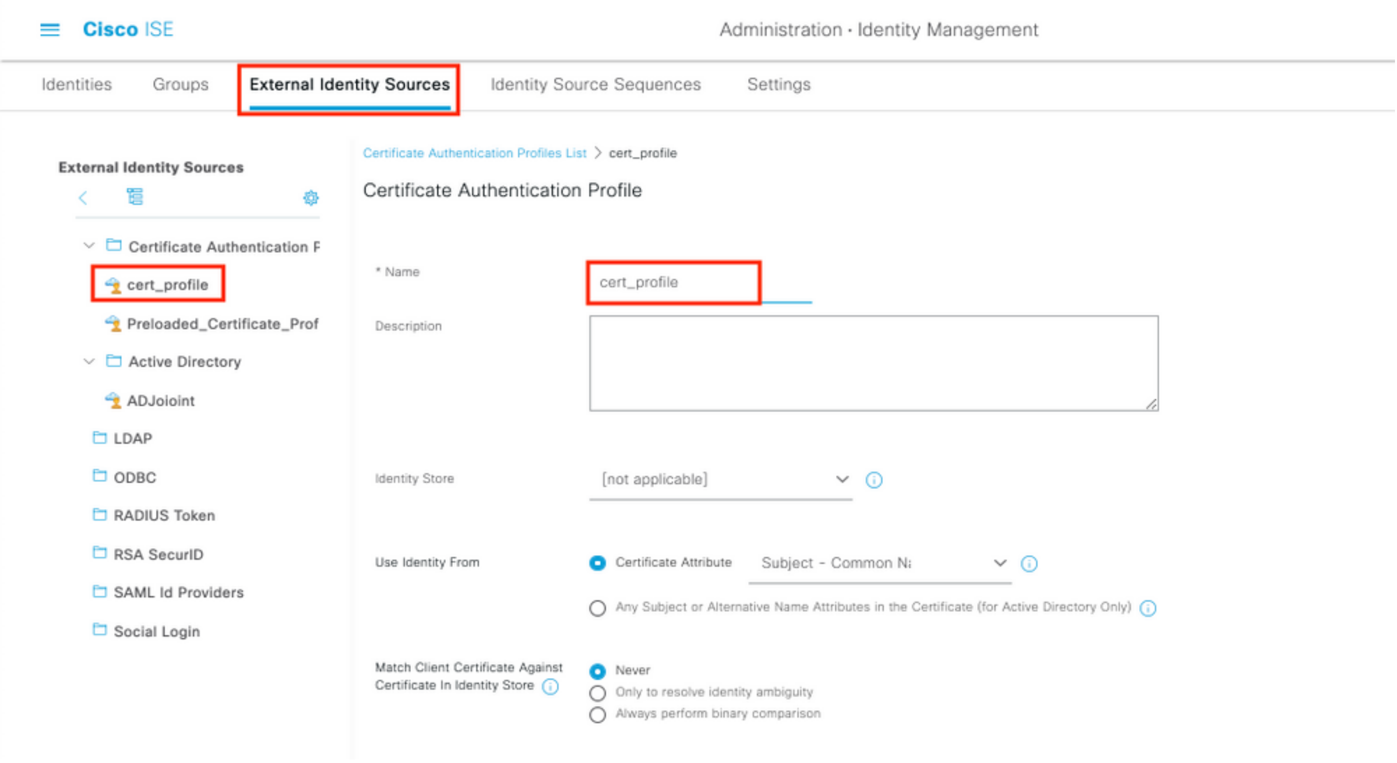
Common Tasks

☑ Web Redirection (CWA, MDM, NSP, CPP)

Native Supplicant Provisioning — ACL: BYOD-Initial — Value: BYOD Portal (default)

Etapa 6. Crie um perfil de certificado.

Navegue até **ISE > Administration > External Identity Sources > Certificate Profile**. Aqui, crie um novo perfil de certificado ou use o perfil de certificado padrão.



Cisco ISE — Administration · Identity Management

Identities | Groups | **External Identity Sources** | Identity Source Sequences | Settings

External Identity Sources
- Certificate Authentication F
  - cert_profile
  - Preloaded_Certificate_Prof
- Active Directory
  - ADJoioint
- LDAP
- ODBC
- RADIUS Token
- RSA SecurID
- SAML Id Providers
- Social Login

Certificate Authentication Profiles List > cert_profile

Certificate Authentication Profile

* Name: cert_profile

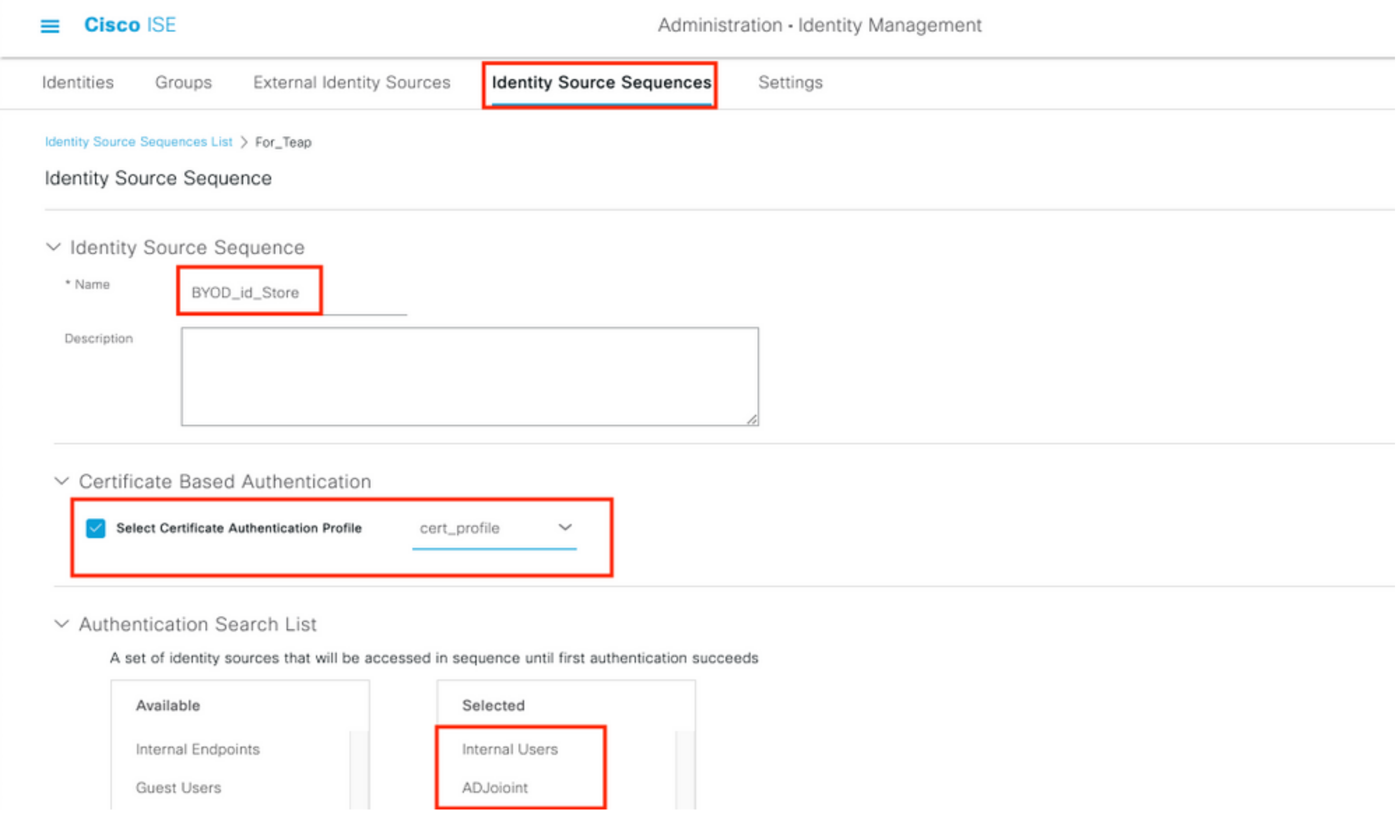
Description:

Identity Store: [not applicable]

Use Identity From: ● Certificate Attribute — Subject - Common N:
○ Any Subject or Alternative Name Attributes in the Certificate (for Active Directory Only)

Match Client Certificate Against Certificate In Identity Store:
● Never
○ Only to resolve identity ambiguity
○ Always perform binary comparison

Passo 7. Crie uma sequência de origem de identidade e selecione o perfil de certificado criado na etapa anterior ou use o perfil de certificado padrão. Isso é necessário quando os usuários executam EAP-TLS após o registro de BYOD para obter acesso total.


Cisco ISE
Administration · Identity Management
Identities
Groups
External Identity Sources
Identity Source Sequences
Settings
Identity Source Sequences List > For_Teap

Identity Source Sequence

Identity Source Sequence

* Name: BYOD_id_Store

Description:

Certificate Based Authentication

☑ Select Certificate Authentication Profile: cert_profile

Authentication Search List

A set of identity sources that will be accessed in sequence until first authentication succeeds

Available: Internal Endpoints, Guest Users

Selected: Internal Users, ADJoioint

Etapa 8. Crie um Conjunto de políticas, uma política de autenticação e uma política de autorização.

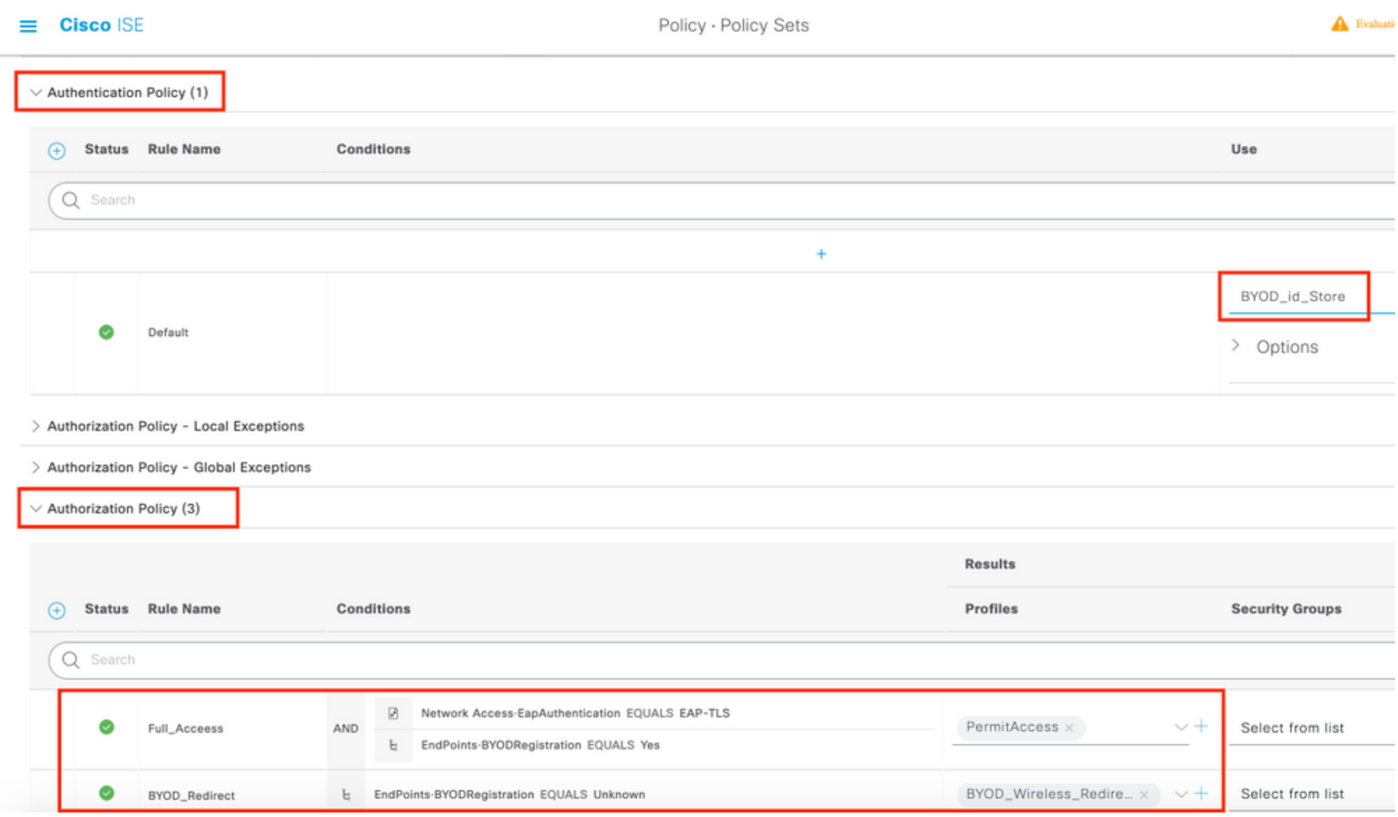
Navegue até **ISE > Policy > Policy Sets (ISE > Política > Conjuntos de políticas)**. Criar um Conjunto de Políticas e **Salvar**.

Crie uma política de autenticação e selecione a sequência de origem da identidade criada na etapa anterior.

Criar uma Política de Autorização. Você deve criar duas políticas.

1. Para dispositivos que não são registrados pelo BYOD. Dê o perfil de redirecionamento criado na etapa 5.

2. Dispositivos que são registrados pelo BYOD e que executam EAP-TLS. Conceda acesso total a esses dispositivos.



Cisco ISE — Policy · Policy Sets

Authentication Policy (1)

Status	Rule Name	Conditions	Use
✓	Default		BYOD_id_Store > Options

> Authorization Policy - Local Exceptions

> Authorization Policy - Global Exceptions

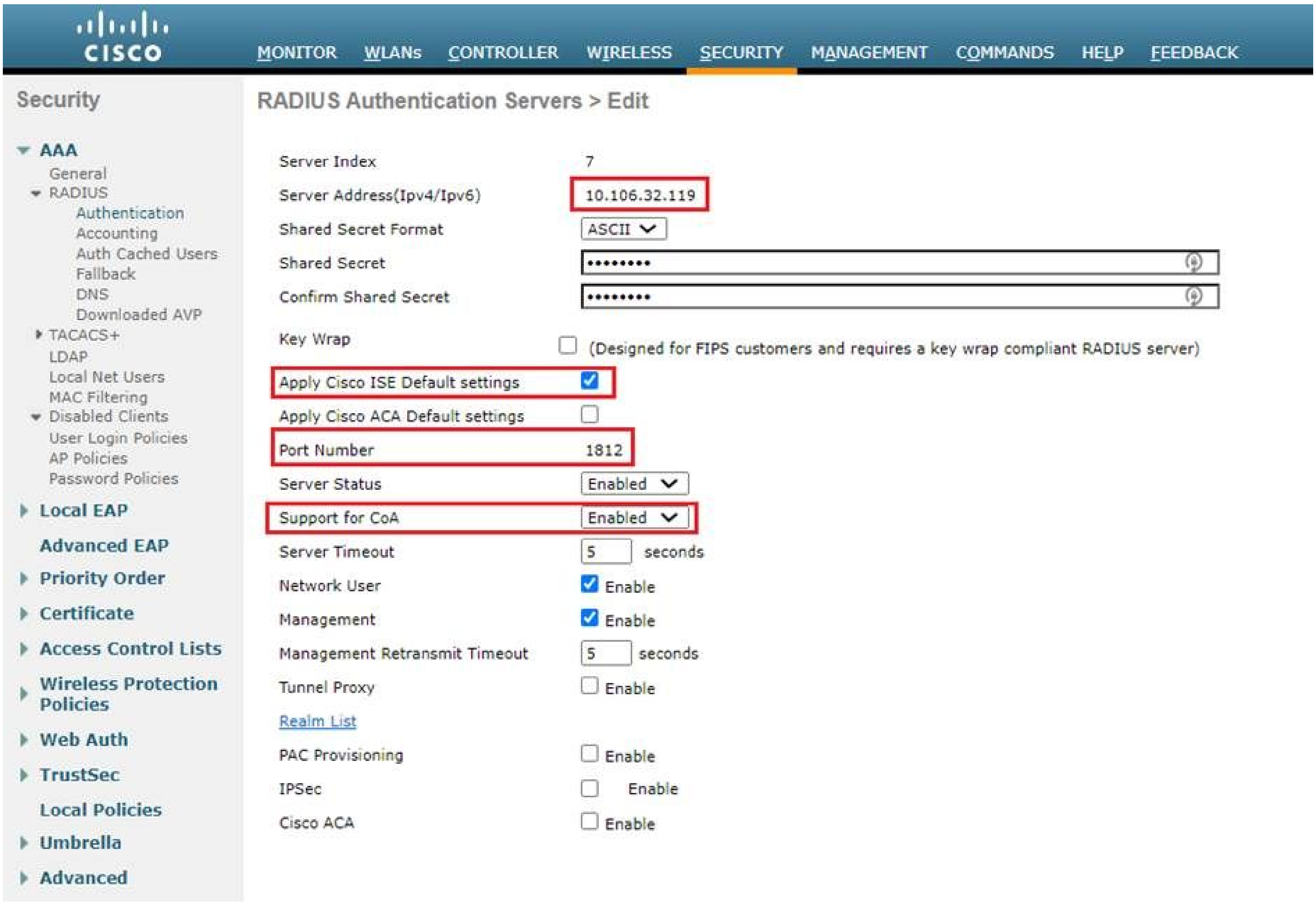
Authorization Policy (3)

Status	Rule Name	Conditions	Results: Profiles	Security Groups
✓	Full_Acceess	AND Network Access·EapAuthentication EQUALS EAP-TLS EndPoints·BYODRegistration EQUALS Yes	PermitAccess	Select from list
✓	BYOD_Redirect	EndPoints·BYODRegistration EQUALS Unknown	BYOD_Wireless_Redire...	Select from list

Configuração de WLC

Etapa 1. Configure o servidor Radius na WLC.

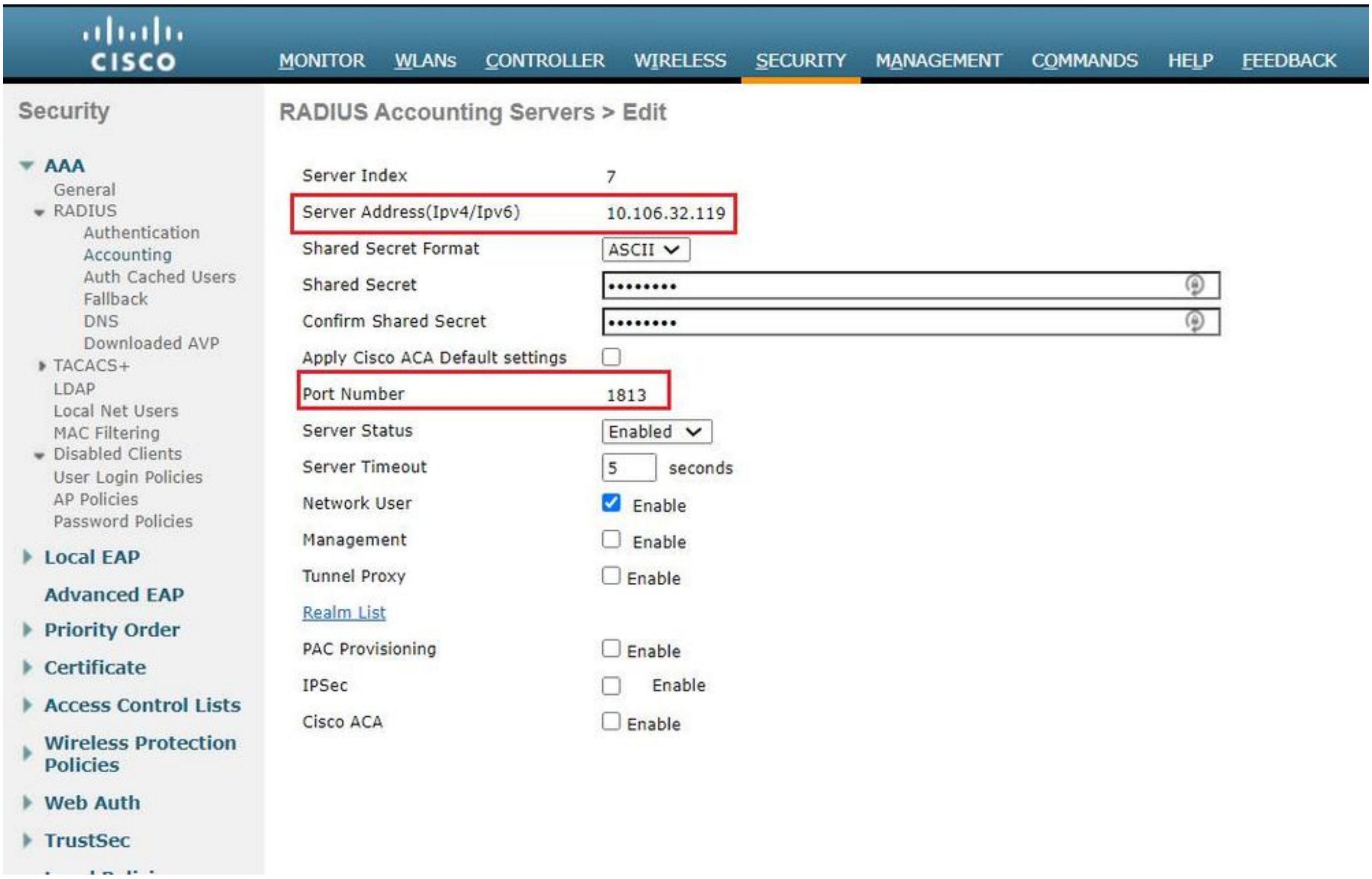
Navegue até **Security > AAA > Radius > Authentication**.



RADIUS Authentication Servers > Edit

Server Index	7
Server Address(Ipv4/Ipv6)	10.106.32.119
Shared Secret Format	ASCII
Shared Secret	••••••••
Confirm Shared Secret	••••••••
Key Wrap	□ (Designed for FIPS customers and requires a key wrap compliant RADIUS server)
Apply Cisco ISE Default settings	☑
Apply Cisco ACA Default settings	□
Port Number	1812
Server Status	Enabled
Support for CoA	Enabled
Server Timeout	5 seconds
Network User	☑ Enable
Management	☑ Enable
Management Retransmit Timeout	5 seconds
Tunnel Proxy	□ Enable
Realm List	
PAC Provisioning	□ Enable
IPSec	□ Enable
Cisco ACA	□ Enable

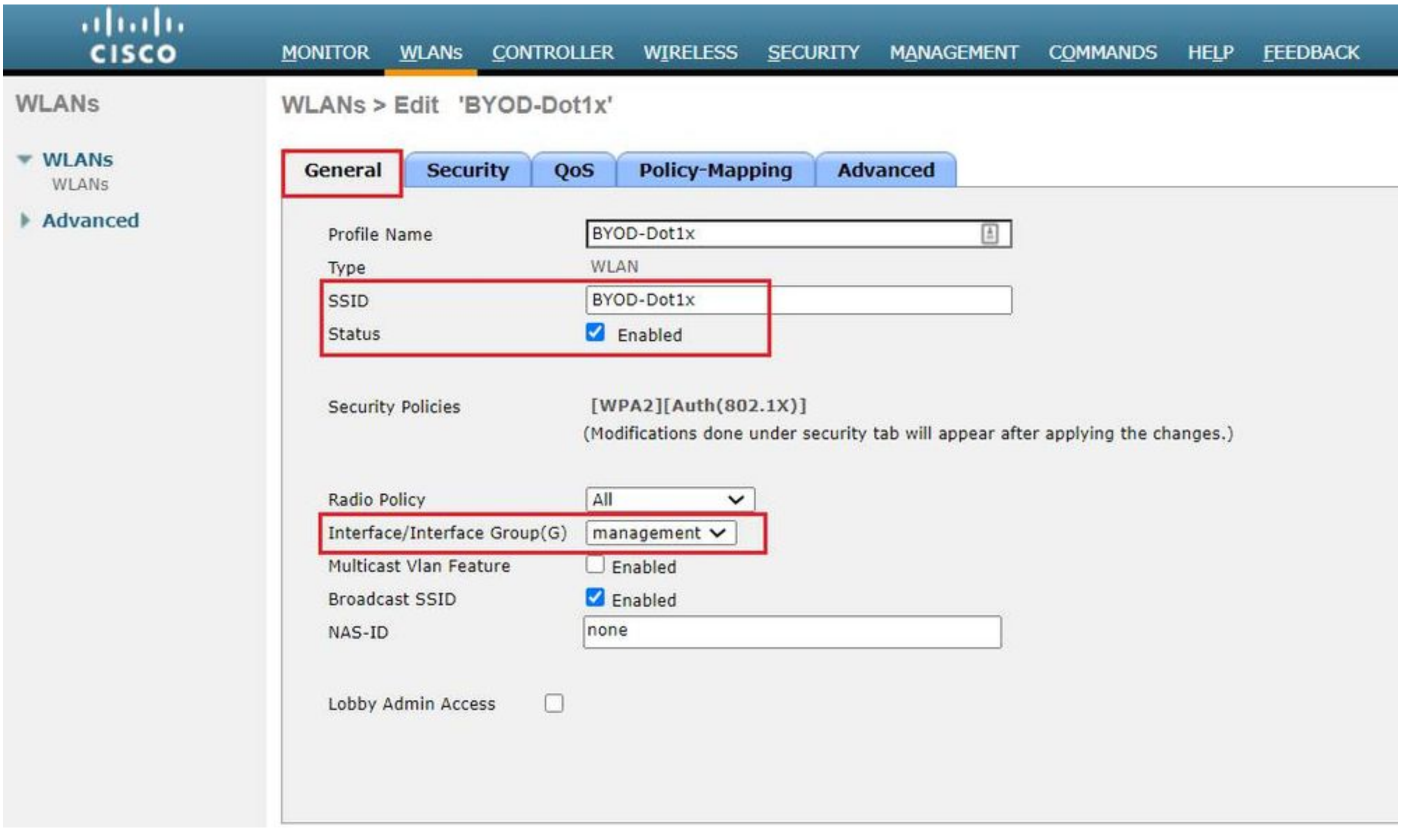
Navegue até **Security > AAA > Radius > Accounting**.



RADIUS Accounting Servers > Edit

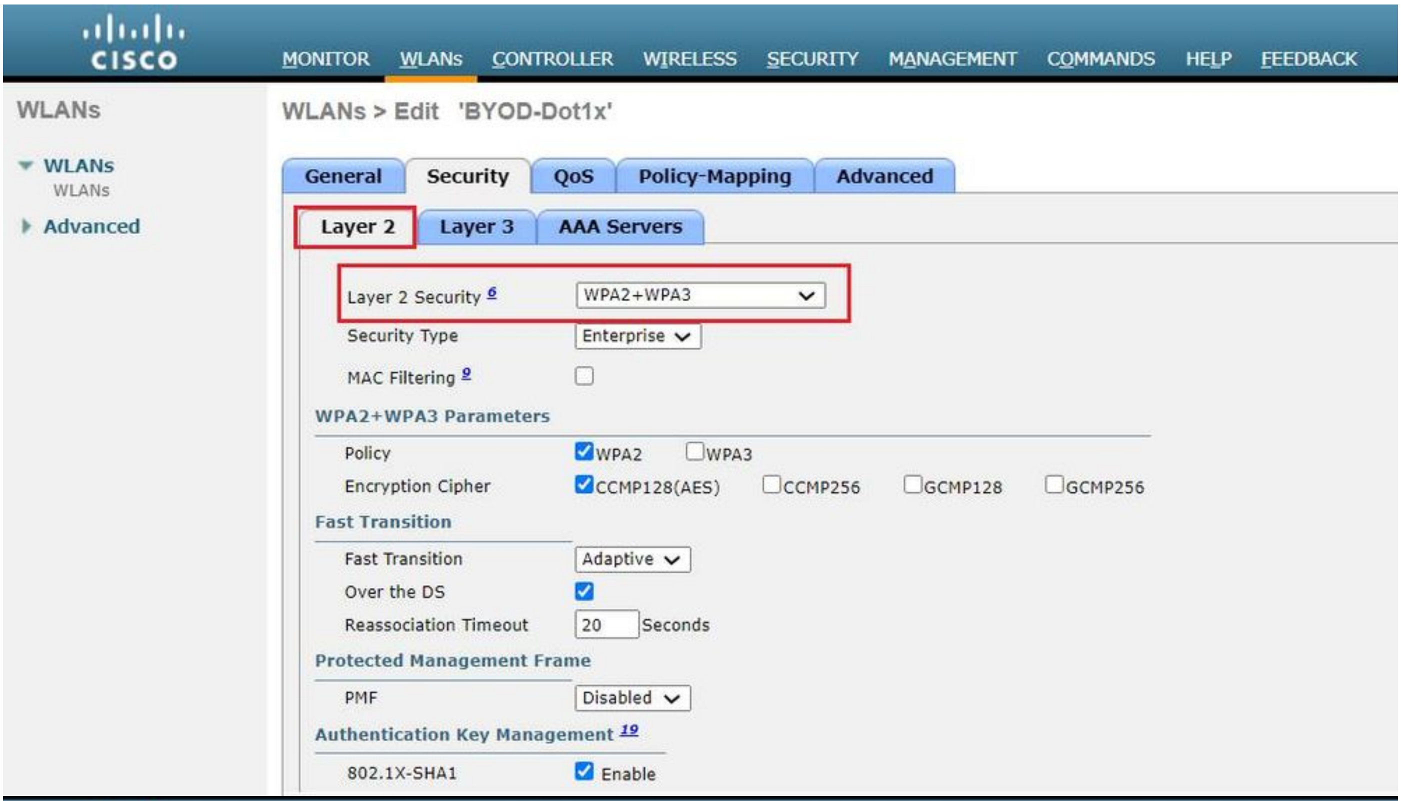
Server Index	7
Server Address(Ipv4/Ipv6)	10.106.32.119
Shared Secret Format	ASCII
Shared Secret	••••••••
Confirm Shared Secret	••••••••
Apply Cisco ACA Default settings	□
Port Number	1813
Server Status	Enabled
Server Timeout	5 seconds
Network User	☑ Enable
Management	□ Enable
Tunnel Proxy	□ Enable
Realm List	
PAC Provisioning	□ Enable
IPSec	□ Enable
Cisco ACA	□ Enable

Etapa 2. Configure um SSID Dot1x.



WLANs > Edit 'BYOD-Dot1x'

Profile Name	BYOD-Dot1x
Type	WLAN
SSID	BYOD-Dot1x
Status	☑ Enabled
Security Policies	[WPA2][Auth(802.1X)] (Modifications done under security tab will appear after applying the changes.)
Radio Policy	All
Interface/Interface Group(G)	management
Multicast Vlan Feature	□ Enabled
Broadcast SSID	☑ Enabled
NAS-ID	none
Lobby Admin Access	□


cisco
MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
WLANs
WLANs
WLANs
Advanced
General Security QoS Policy-Mapping Advanced
Layer 2 Layer 3 AAA Servers

WLANs > Edit 'BYOD-Dot1x'

Layer 2 Security 6: WPA2+WPA3

Security Type: Enterprise

MAC Filtering 9: □

WPA2+WPA3 Parameters

Policy: ☑WPA2 □WPA3

Encryption Cipher: ☑CCMP128(AES) □CCMP256 □GCMP128 □GCMP256

Fast Transition

Fast Transition: Adaptive

Over the DS: ☑

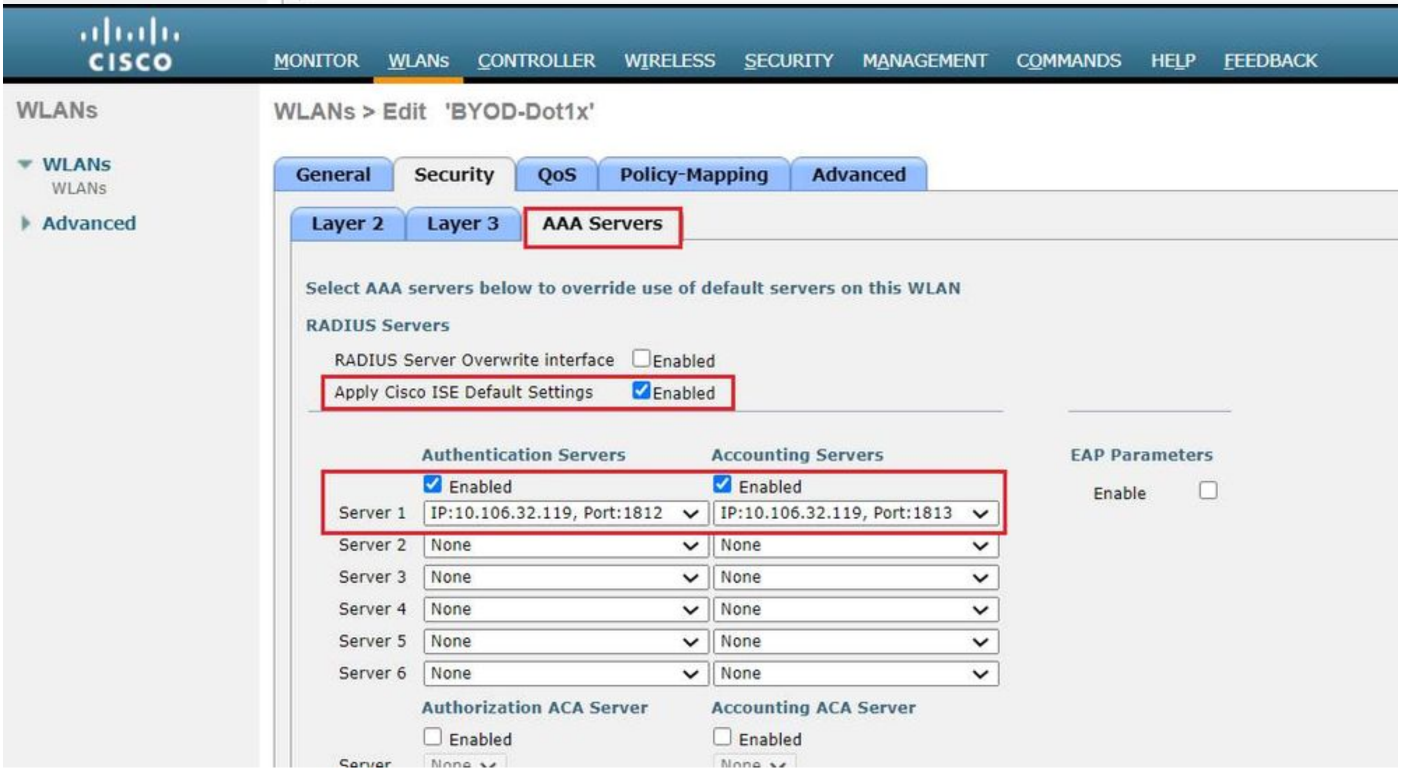
Reassociation Timeout: 20 Seconds

Protected Management Frame

PMF: Disabled

Authentication Key Management 19

802.1X-SHA1: ☑ Enable


cisco
MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
WLANs
WLANs
WLANs
Advanced
General Security QoS Policy-Mapping Advanced
Layer 2 Layer 3 AAA Servers

WLANs > Edit 'BYOD-Dot1x'

Select AAA servers below to override use of default servers on this WLAN

RADIUS Servers

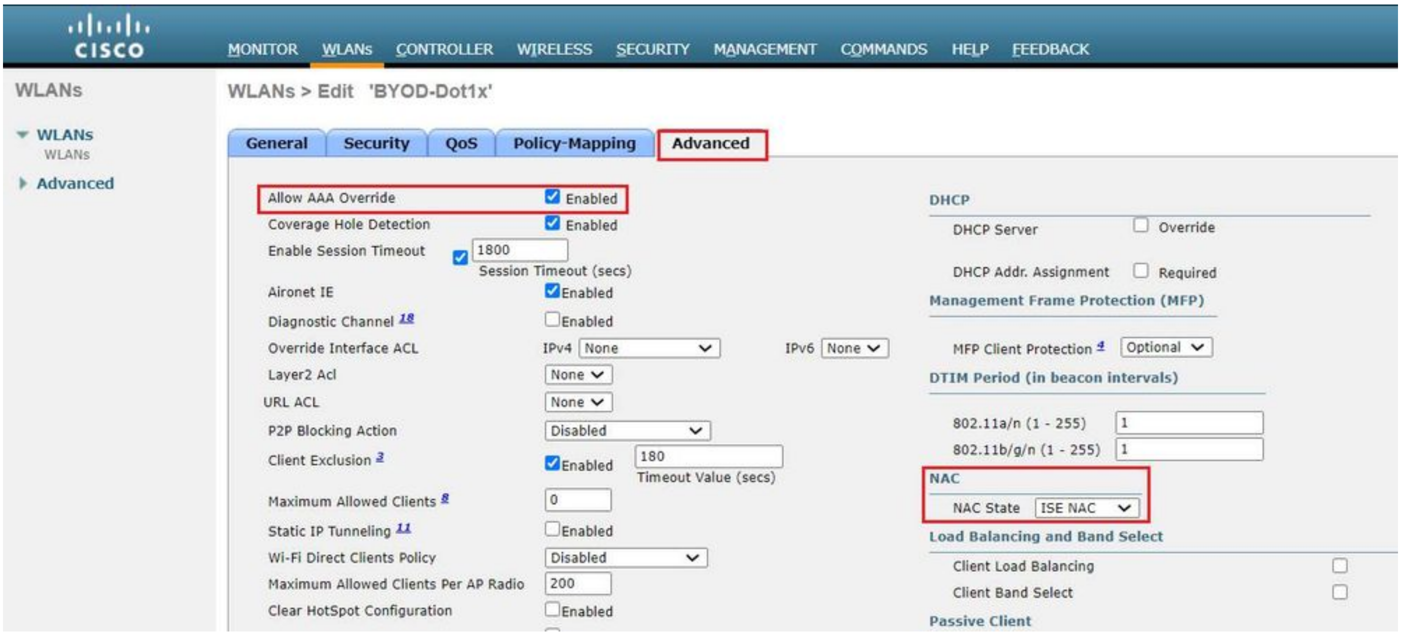
RADIUS Server Overwrite interface: □Enabled

Apply Cisco ISE Default Settings: ☑Enabled

	Authentication Servers	Accounting Servers
	☑ Enabled	☑ Enabled
Server 1	IP:10.106.32.119, Port:1812	IP:10.106.32.119, Port:1813
Server 2	None	None
Server 3	None	None
Server 4	None	None
Server 5	None	None
Server 6	None	None
	Authorization ACA Server	Accounting ACA Server
	□ Enabled	□ Enabled
Server	None	None

EAP Parameters

Enable: □



WLANs > Edit 'BYOD-Dot1x'

Allow AAA Override ☑ Enabled
Coverage Hole Detection ☑ Enabled
Enable Session Timeout ☑ 1800 Session Timeout (secs)
Aironet IE ☑ Enabled
Diagnostic Channel 18 □ Enabled
Override Interface ACL IPv4 None IPv6 None
Layer2 Acl None
URL ACL None
P2P Blocking Action Disabled
Client Exclusion 3 ☑ Enabled 180 Timeout Value (secs)
Maximum Allowed Clients 8 0
Static IP Tunneling 11 □ Enabled
Wi-Fi Direct Clients Policy Disabled
Maximum Allowed Clients Per AP Radio 200
Clear HotSpot Configuration □ Enabled

DHCP
DHCP Server □ Override
DHCP Addr. Assignment □ Required

Management Frame Protection (MFP)
MFP Client Protection 4 Optional

DTIM Period (in beacon intervals)
802.11a/n (1 - 255) 1
802.11b/g/n (1 - 255) 1

NAC
NAC State ISE NAC

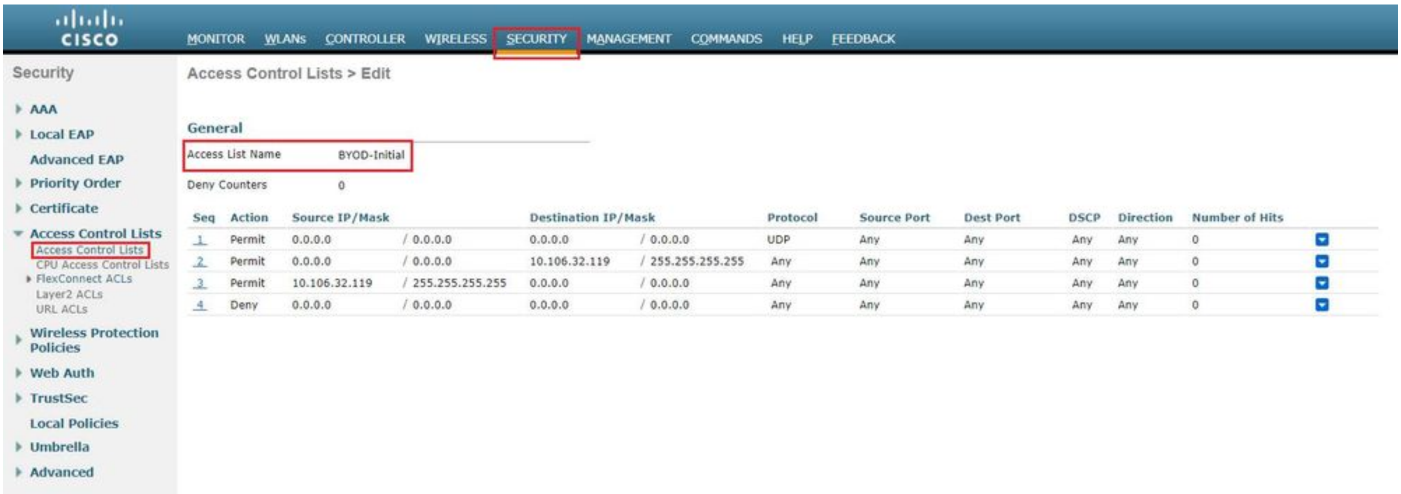
Load Balancing and Band Select
Client Load Balancing □
Client Band Select □

Passive Client

Etapa 3. Configure a ACL de redirecionamento para fornecer acesso limitado ao provisionamento do dispositivo.

- Permita o tráfego UDP para DHCP e DNS (o DHCP é permitido por padrão).
- Comunicação com o ISE.
- Negar outro tráfego.

Nome: BYOD-Inicial (OU seja lá o que você nomeou manualmente a ACL no perfil de autorização)



Access Control Lists > Edit

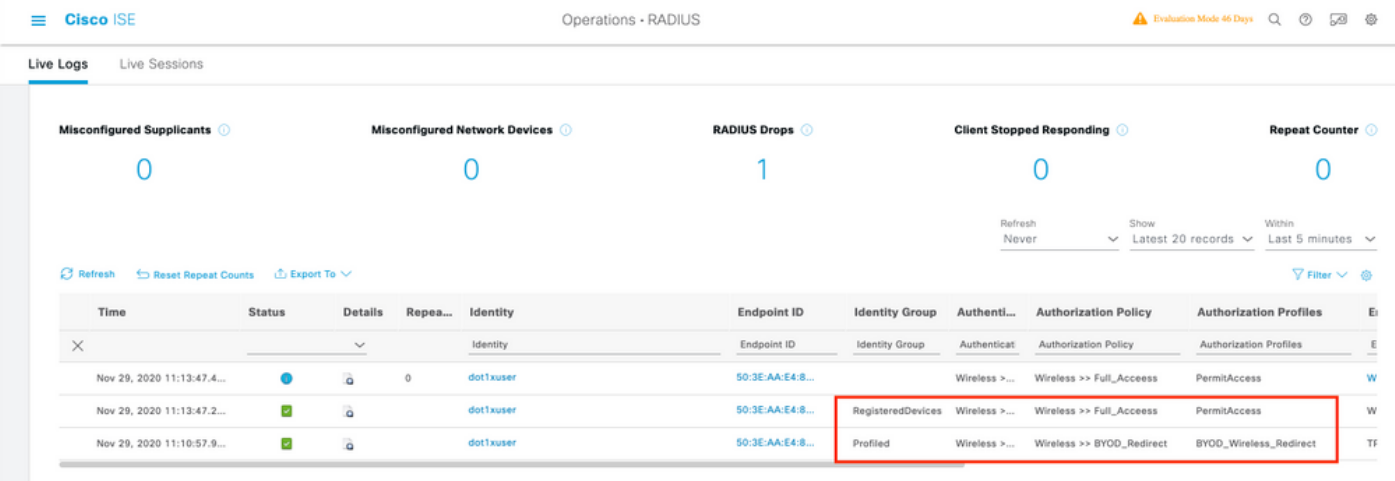
General

Access List Name BYOD-Initial
Deny Counters 0

Seq	Action	Source IP/Mask		Destination IP/Mask		Protocol	Source Port	Dest Port	DSCP	Direction	Number of Hits
1	Permit	0.0.0.0	/ 0.0.0.0	0.0.0.0	/ 0.0.0.0	UDP	Any	Any	Any	Any	0
2	Permit	0.0.0.0	/ 0.0.0.0	10.106.32.119	/ 255.255.255.255	Any	Any	Any	Any	Any	0
3	Permit	10.106.32.119	/ 255.255.255.255	0.0.0.0	/ 0.0.0.0	Any	Any	Any	Any	Any	0
4	Deny	0.0.0.0	/ 0.0.0.0	0.0.0.0	/ 0.0.0.0	Any	Any	Any	Any	Any	0

Verificar

Verificação de fluxo de autenticação


Cisco ISE Operations · RADIUS

Evaluation Mode 46 Days

Live Logs Live Sessions

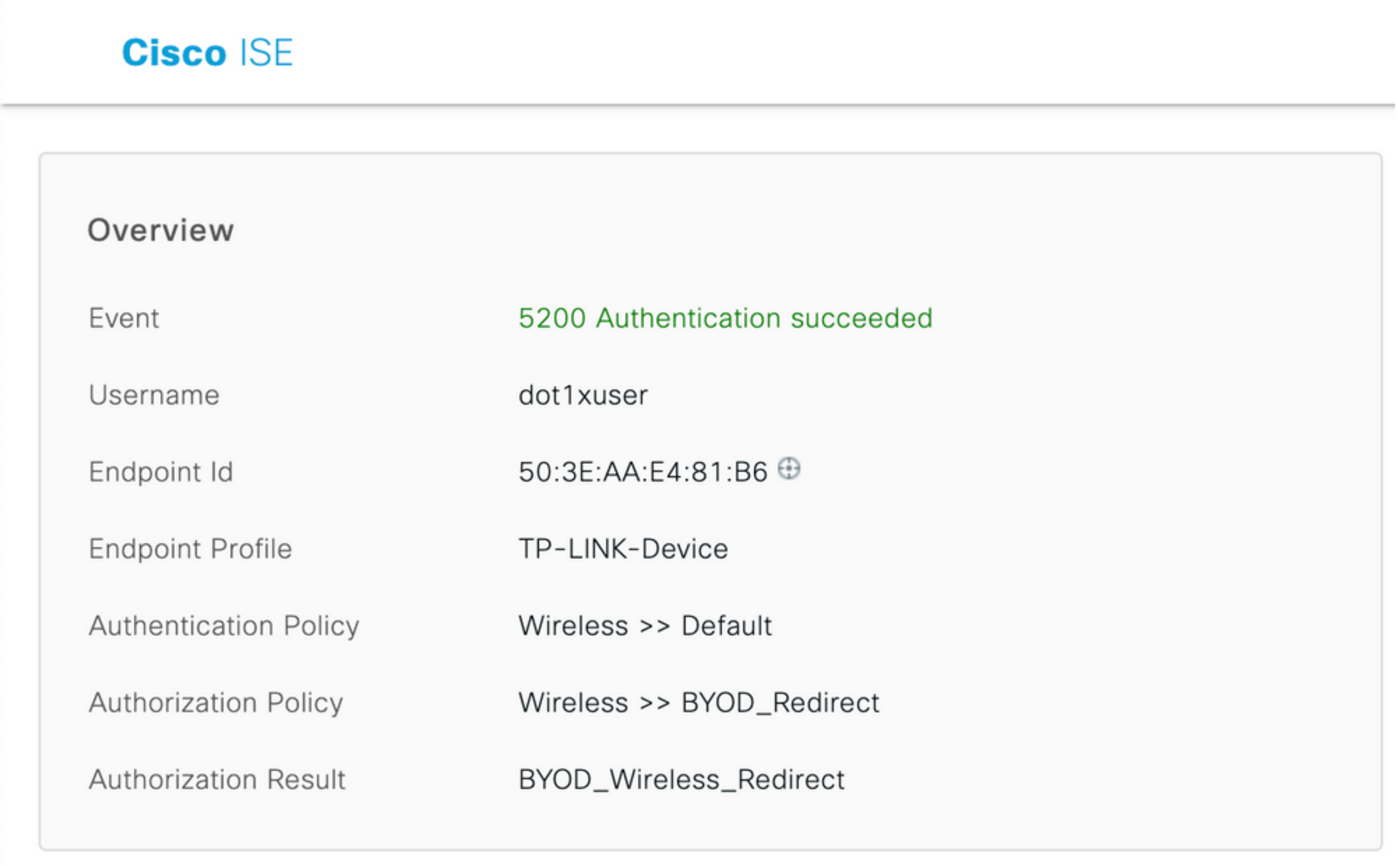
Misconfigured Supplicants	Misconfigured Network Devices	RADIUS Drops	Client Stopped Responding	Repeat Counter
0	0	1	0	0

Refresh: Never Show: Latest 20 records Within: Last 5 minutes

Refresh Reset Repeat Counts Export To Filter

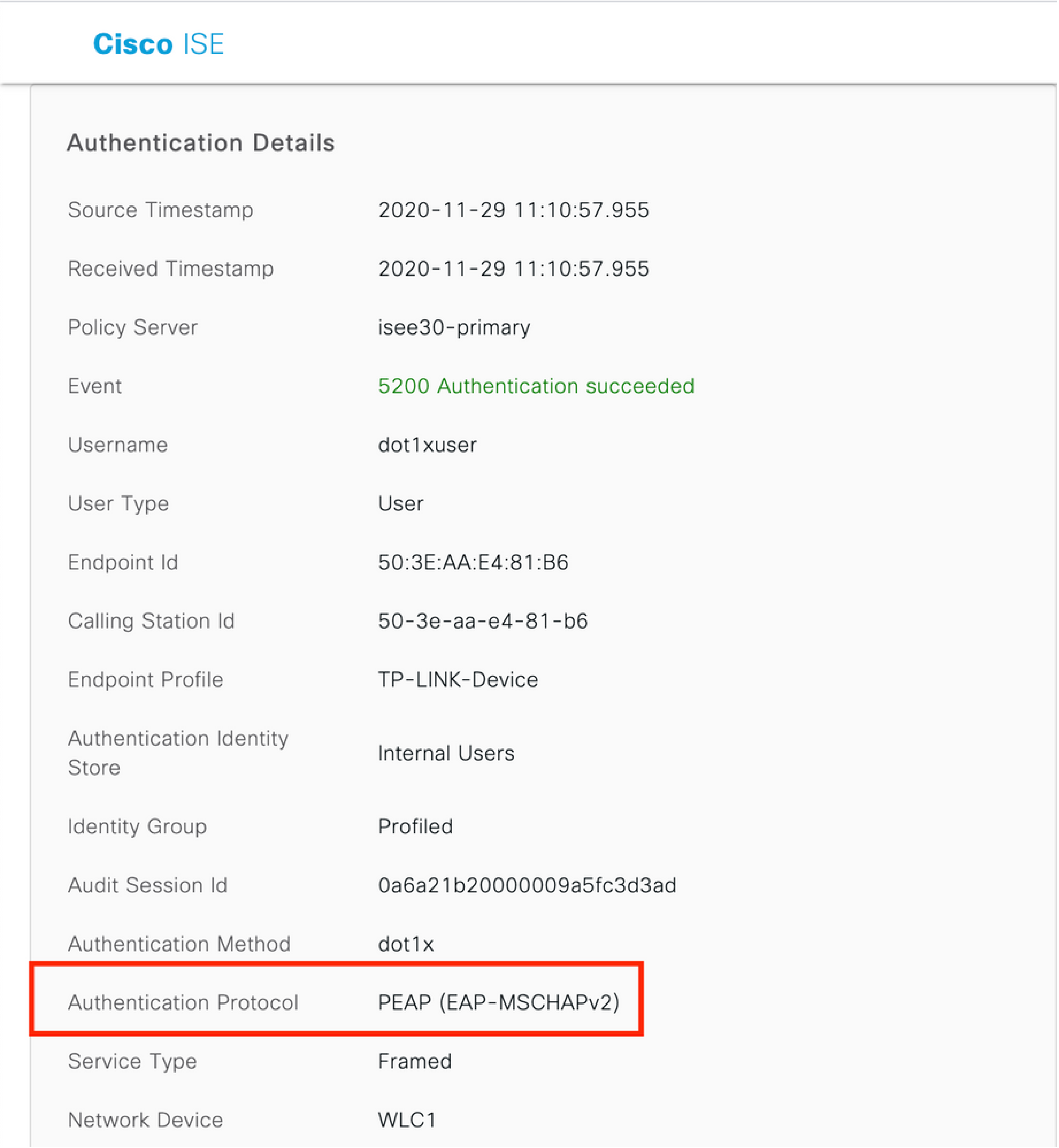
Time	Status	Details	Repea...	Identity	Endpoint ID	Identity Group	Authenti...	Authorization Policy	Authorization Profiles	E
Nov 29, 2020 11:13:47.4...	●		0	dot1xuser	50:3E:AA:E4:8...		Wireless >...	Wireless >> Full_Acceess	PermitAccess	W
Nov 29, 2020 11:13:47.2...	✓			dot1xuser	50:3E:AA:E4:8...	RegisteredDevices	Wireless >...	Wireless >> Full_Acceess	PermitAccess	W
Nov 29, 2020 11:10:57.9...	✓			dot1xuser	50:3E:AA:E4:8...	Profiled	Wireless >...	Wireless >> BYOD_Redirect	BYOD_Wireless_Redirect	TF

1. No primeiro login, o usuário executa a autenticação PEAP usando um nome de usuário e uma senha. No ISE, o usuário atinge o Redirecionamento de BYOD da regra de redirecionamento.


Cisco ISE

Overview

Event	5200 Authentication succeeded
Username	dot1xuser
Endpoint Id	50:3E:AA:E4:81:B6
Endpoint Profile	TP-LINK-Device
Authentication Policy	Wireless >> Default
Authorization Policy	Wireless >> BYOD_Redirect
Authorization Result	BYOD_Wireless_Redirect

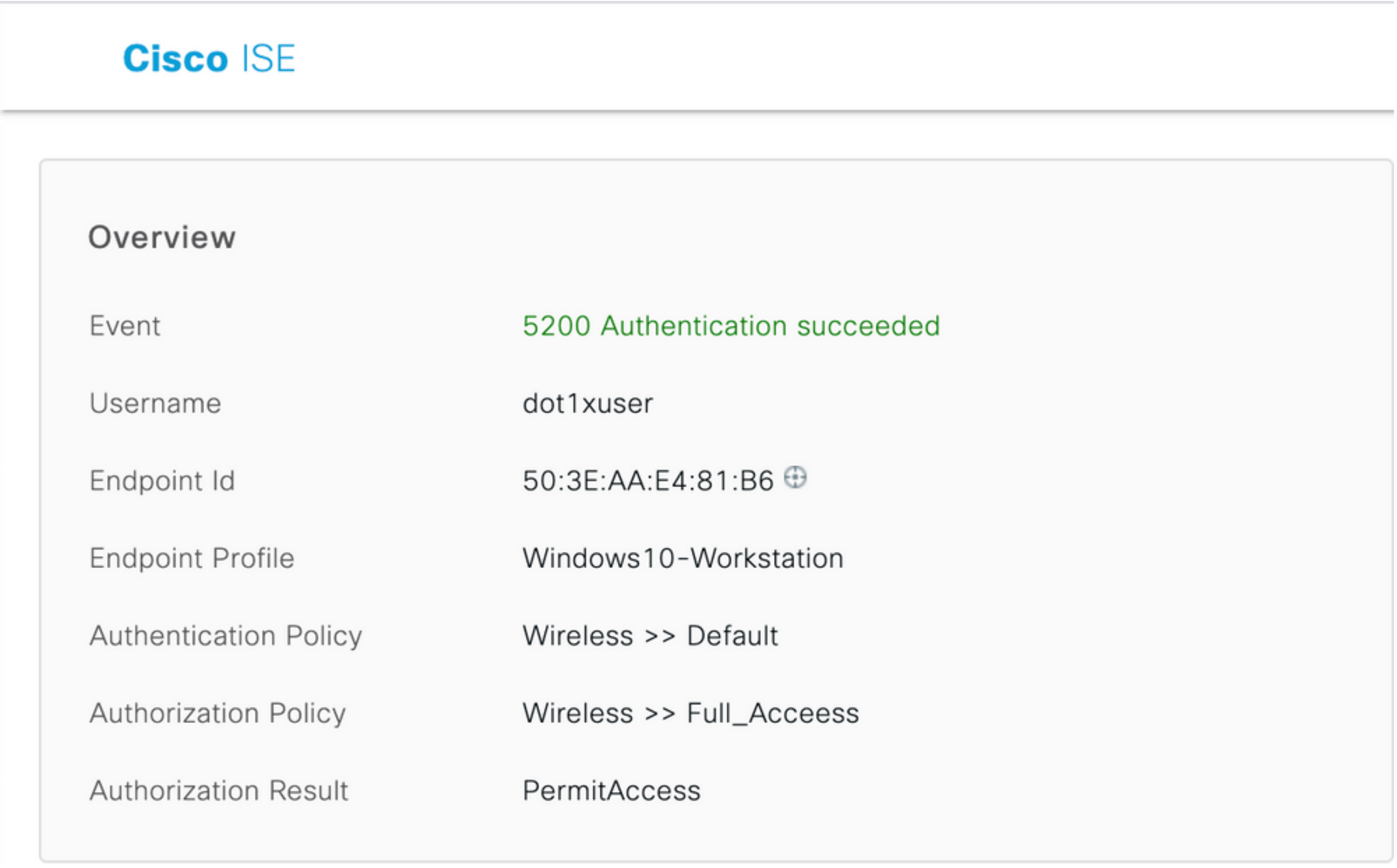


Cisco ISE

Authentication Details

Source Timestamp	2020-11-29 11:10:57.955
Received Timestamp	2020-11-29 11:10:57.955
Policy Server	isee30-primary
Event	5200 Authentication succeeded
Username	dot1xuser
User Type	User
Endpoint Id	50:3E:AA:E4:81:B6
Calling Station Id	50-3e-aa-e4-81-b6
Endpoint Profile	TP-LINK-Device
Authentication Identity Store	Internal Users
Identity Group	Profiled
Audit Session Id	0a6a21b20000009a5fc3d3ad
Authentication Method	dot1x
Authentication Protocol	PEAP (EAP-MSCHAPv2)
Service Type	Framed
Network Device	WLC1

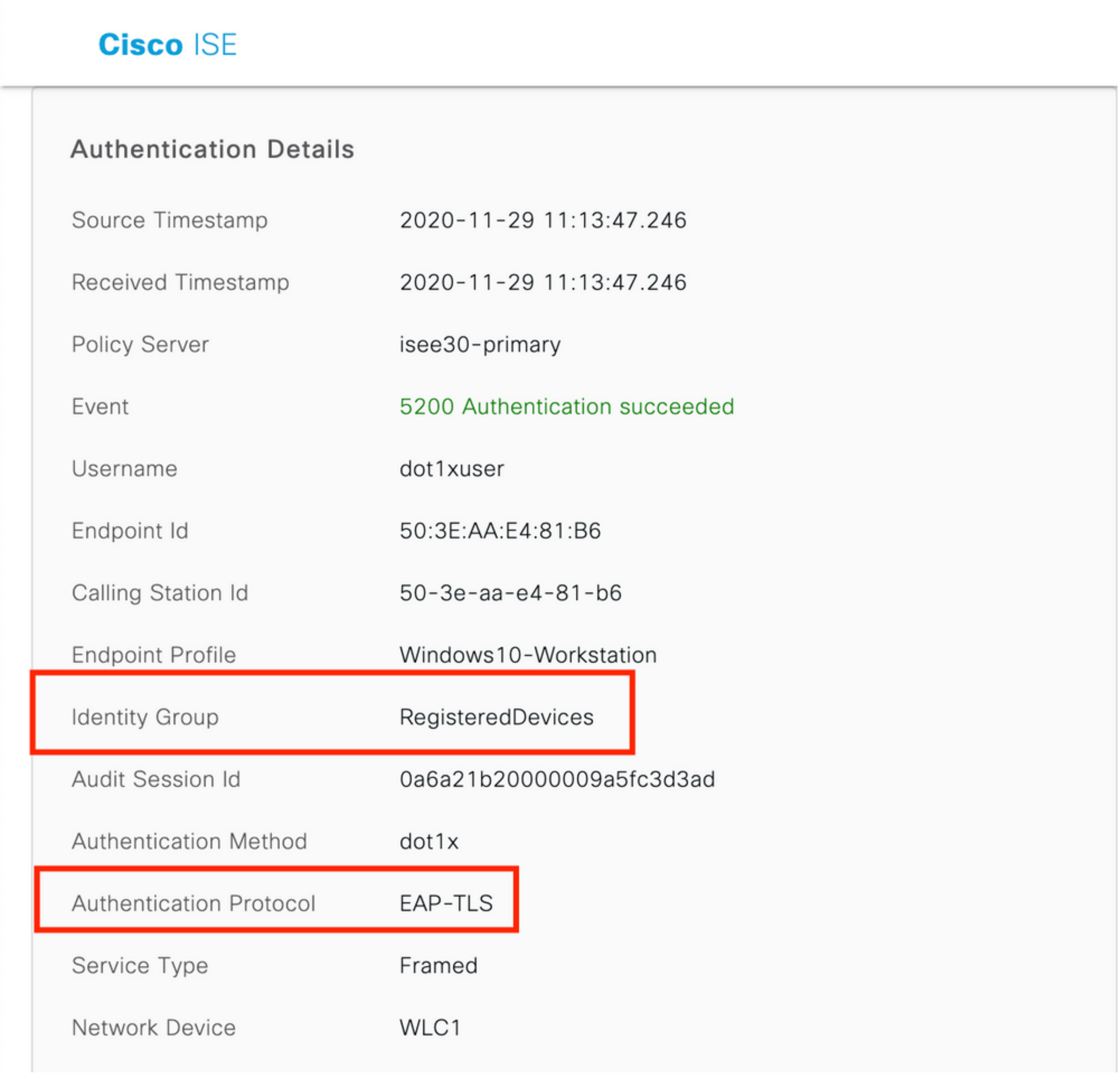
2. Após o registro BYOD, o usuário é adicionado ao dispositivo registrado e agora executa EAP-TLS e obtém acesso total.



Cisco ISE

Overview

Event	5200 Authentication succeeded
Username	dot1xuser
Endpoint Id	50:3E:AA:E4:81:B6 ⊕
Endpoint Profile	Windows10-Workstation
Authentication Policy	Wireless >> Default
Authorization Policy	Wireless >> Full_Acceess
Authorization Result	PermitAccess



Cisco ISE

Authentication Details

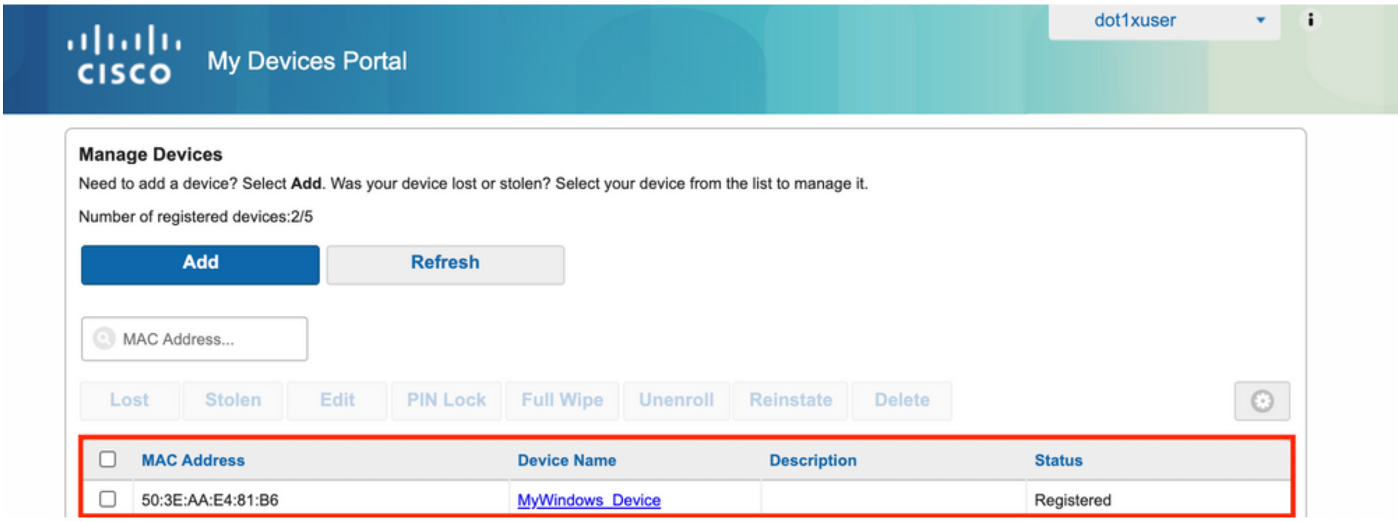
Source Timestamp	2020-11-29 11:13:47.246
Received Timestamp	2020-11-29 11:13:47.246
Policy Server	isee30-primary
Event	5200 Authentication succeeded
Username	dot1xuser
Endpoint Id	50:3E:AA:E4:81:B6
Calling Station Id	50-3e-aa-e4-81-b6
Endpoint Profile	Windows10-Workstation
Identity Group	RegisteredDevices
Audit Session Id	0a6a21b20000009a5fc3d3ad
Authentication Method	dot1x
Authentication Protocol	EAP-TLS
Service Type	Framed
Network Device	WLC1

Verifique o portal Meus dispositivos

Navegue até MyDevices Portal e faça login com as credenciais. Você pode ver o nome do dispositivo e o status de registro.

Você pode criar uma URL para o portal MyDevices.

Navegue até **ISE > Work Centers > BYOD > Portal and Components > My Devices Portal > Login Settings** e digite o URL totalmente qualificado.



Manage Devices

Need to add a device? Select **Add**. Was your device lost or stolen? Select your device from the list to manage it.

Number of registered devices:2/5

□	MAC Address	Device Name	Description	Status
□	50:3E:AA:E4:81:B6	MyWindows_Device		Registered

Troubleshoot

Informações gerais

Para o processo BYOD, esses componentes do ISE precisam ser ativados na depuração em nós PSN -

scep - scep log messages (mensagens de log do scep). Registro de destino **filesguest.log e ise-psc.log**.

client-webapp - o componente responsável pelas mensagens de infraestrutura. Arquivo de log de destino -**ise-psc.log**

portal-web-ação - o componente responsável pelo processamento da política de provisionamento do cliente. Arquivo de log de destino - **guest.log**.

portal - todos os eventos relacionados ao Portal. Arquivo de log de destino -**guest.log**

portal-session-manager -Arquivos de log de destino - **Mensagens de depuração relacionadas à sessão do portal - gues.log**

ca-service- ca-service messages -Target log files -**caservice.log e caservice-misc.log**

ca-service-cert- ca-service certificate messages - Target log files - **caservice.log e caservice-misc.log**

admin-ca- ca-service admin messages -Target log files **ise-psc.log**, **caservice.log e casrvice-misc.log**

certprovisioningportal - mensagens do portal de provisionamento de certificados - **arquivos de** log de destino **ise-psc.log**

nsf - Mensagens relacionadas ao NSF -Arquivos de log de destino **ise-psc.log**

nsf-session - Mensagens relacionadas ao cache da sessão - Arquivos de log de destino **ise-psc.log**

runtime-AAA - Todos os eventos Runtime. Arquivo de log de destino -**prrt-server.log**.

Para os registros do lado do cliente:

Procure %temp%\spwProfileLog.txt (ex: C:\Users\<nome de usuário>\AppData\Local\Temp\spwProfileLog.txt)

Análise de log de trabalho

Logs do ISE

Acesso inicial - Aceite com ACL de redirecionamento e URL de redirecionamento para o portal BYOD.

Port-server.log-

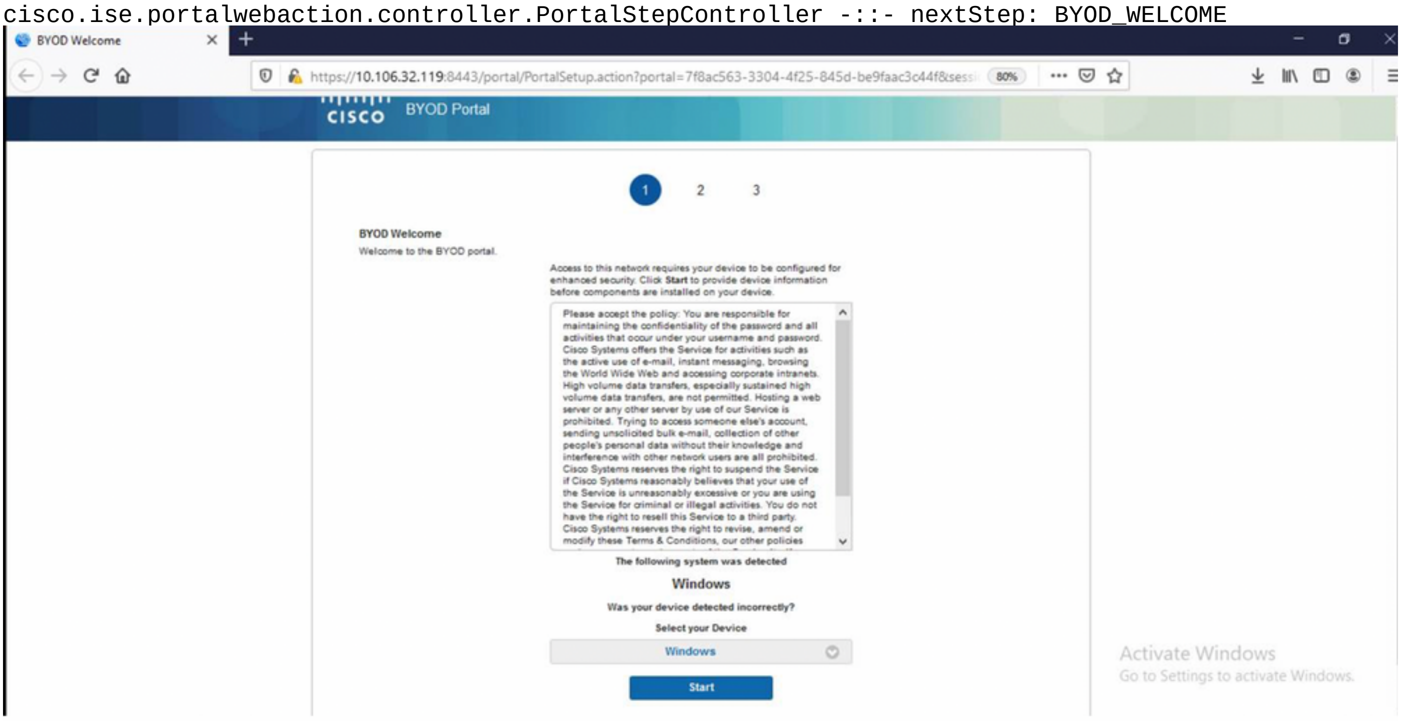
```
Radius,2020-12-02 05:43:52,395,DEBUG,0x7f433e6b8700,cntx=0008590803,sesn=isee30-
primary/392215758/699,CPMSessionID=0a6a21b20000009f5fc770c7,user=dot1xuser,CallingStationID=50-
3e-aa-e4-81-b6,RADIUS PACKET:: Code=2(AccessAccept) Identifier=254 Length=459 [1] User-Name -
value: [dot1xuser] [25] Class - value: [****] [79] EAP-Message - value: [ñ [80] Message-
Authenticator - value: [.2{wëbÙ¨ÅþO5‹Z] [26] cisco-av-pair - value: [url-redirect-acl=BYOD-
Initial] [26] cisco-av-pair - value: [url-
redirect=https://10.106.32.119:8443/portal/gateway?sessionId=0a6a21b20000009f5fc770c7&portal=7f8
ac563-3304-4f25-845d-be9faac3c44f&action=nsp&token=53a2119de6893df6c6fca25c8d6bd061] [26] MS-
MPPE-Send-Key - value: [****] [26] MS-MPPE-Recv-Key - value: [****] ,RADIUSHandler.cpp:2216
```

Quando um usuário final tenta navegar para um site e é redirecionado pela WLC para o URL de redirecionamento do ISE.

Guest.log -

```
2020-12-02 05:43:58,339 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-5][]
com.cisco.ise.portal.Gateway -::- Gateway Params (after update):
redirect=www.msftconnecttest.com/redirect client_mac=null daysToExpiry=null ap_mac=null
switch_url=null wlan=null action=nsp sessionId=0a6a21b20000009f5fc770c7 portal=7f8ac563-3304-
4f25-845d-be9faac3c44f isExpired=null token=53a2119de6893df6c6fca25c8d6bd061 2020-12-02
05:43:58,339 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-5][]
cisco.ise.portalwebaction.utils.RadiusSessionUtil -::- sessionId=0a6a21b20000009f5fc770c7 :
token=53a2119de6893df6c6fca25c8d6bd061 2020-12-02 05:43:58,339 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-5][] cisco.ise.portalwebaction.utils.RadiusSessionUtil -::- Session
token successfully validated. 2020-12-02 05:43:58,344 DEBUG [https-jsse-nio-10.106.32.119-8443-
exec-5][] cisco.ise.portal.util.PortalUtils -::- UserAgent : Mozilla/5.0 (Windows NT 10.0;
Win64; x64; rv:83.0) Gecko/20100101 Firefox/83.0 2020-12-02 05:43:58,344 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-5][] cisco.ise.portal.util.PortalUtils -::- isMozilla: true 2020-12-02
05:43:58,344 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-5][] com.cisco.ise.portal.Gateway -
::- url: /portal/PortalSetup.action?portal=7f8ac563-3304-4f25-845d-
be9faac3c44f&sessionId=0a6a21b20000009f5fc770c7&action=nsp&redirect=www.msftconnecttest.com%2Fre
direct 2020-12-02 05:43:58,355 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cisco.ise.portalwebaction.controller.PortalFlowInterceptor -::- start guest flow interceptor...
2020-12-02 05:43:58,356 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cisco.ise.portalwebaction.actions.BasePortalAction -::- Executing action PortalSetup via request
/portal/PortalSetup.action 2020-12-02 05:43:58,356 DEBUG [https-jsse-nio-10.106.32.119-8443-
exec-7][] cisco.ise.portalwebaction.actions.PortalSetupAction -::- executeAction... 2020-12-02
05:43:58,360 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cisco.ise.portalwebaction.actions.BasePortalAction -::- Result from action, PortalSetup: success
2020-12-02 05:43:58,360 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cisco.ise.portalwebaction.actions.BasePortalAction -::- Action PortalSetup Complete for request
```

```
/portal/PortalSetup.action 2020-12-02 05:43:58,360 DEBUG [https-jsse-nio-10.106.32.119-8443-
exec-7][] cpm.guestaccess.flowmanager.processor.PortalFlowProcessor -::- Current flow step:
INIT, otherInfo=id: 226ea25b-5e45-43f5-b79d-fb59cab96def 2020-12-02 05:43:58,361 DEBUG [https-
jsse-nio-10.106.32.119-8443-exec-7][] cpm.guestaccess.flowmanager.step.StepExecutor -::- Getting
next flow step for INIT with TranEnum=PROCEED 2020-12-02 05:43:58,361 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-7][] cpm.guestaccess.flowmanager.step.StepExecutor -::- StepTran for
Step=INIT=> tranEnum=PROCEED, toStep=BYOD_WELCOME 2020-12-02 05:43:58,361 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-7][] cpm.guestaccess.flowmanager.step.StepExecutor -::- Find Next
Step=BYOD_WELCOME 2020-12-02 05:43:58,361 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cpm.guestaccess.flowmanager.step.StepExecutor -::- Step : BYOD_WELCOME will be visible! 2020-12-
02 05:43:58,361 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cpm.guestaccess.flowmanager.step.StepExecutor -::- Returning next step =BYOD_WELCOME 2020-12-02
05:43:58,362 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-7][]
cpm.guestaccess.flowmanager.adaptor.PortalUserAdaptorFactory -::- Looking up Guest user with
uniqueSubjectId=5f5592a4f67552b855ecc56160112db42cf7074e 2020-12-02 05:43:58,365 DEBUG [https-
jsse-nio-10.106.32.119-8443-exec-7][]
cpm.guestaccess.flowmanager.adaptor.PortalUserAdaptorFactory -::- Found Guest user 'dot1xuserin
DB using uniqueSubjectID '5f5592a4f67552b855ecc56160112db42cf7074e'. authStoreName in
DB=Internal Users, authStoreGUID in DB=9273fe30-8c01-11e6-996c-525400b48521. DB ID=bab8f27d-
c44a-48f5-9fe4-5187047bffc0 2020-12-02 05:43:58,366 DEBUG [https-jsse-nio-10.106.32.119-8443-
exec-7][] cisco.ise.portalwebaction.controller.PortalStepController -::- ++++ updatePortalState:
PortalSession (e0d457d9-a346-4b6e-bcca-5cf29e12dacc) current state is INITIATED and current step
is BYOD_WELCOME 2020-12-02 05:40:35,611 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-6][]
com.cisco.ise.portalSessionManager.PortalSession -::- Setting the portal session state to ACTIVE
2020-12-02 05:40:35,611 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-6][]
cisco.ise.portalwebaction.controller.PortalStepController -::- nextStep: BYOD_WELCOME
```


BYOD Welcome
https://10.106.32.119:8443/portal/PortalSetup.action?portal=7f8ac563-3304-4f25-845d-be9faac3c44f&sess
80%
CISCO
BYOD Portal
1
2
3
Start
Activate Windows
Go to Settings to activate Windows.

BYOD Welcome

Welcome to the BYOD portal.

Access to this network requires your device to be configured for enhanced security. Click **Start** to provide device information before components are installed on your device.

Please accept the policy: You are responsible for maintaining the confidentiality of the password and all activities that occur under your username and password. Cisco Systems offers the Service for activities such as the active use of e-mail, instant messaging, browsing the World Wide Web and accessing corporate intranets. High volume data transfers, especially sustained high volume data transfers, are not permitted. Hosting a web server or any other server by use of our Service is prohibited. Trying to access someone else's account, sending unsolicited bulk e-mail, collection of other people's personal data without their knowledge and interference with other network users are all prohibited. Cisco Systems reserves the right to suspend the Service if Cisco Systems reasonably believes that your use of the Service is unreasonably excessive or you are using the Service for criminal or illegal activities. You do not have the right to resell this Service to a third party. Cisco Systems reserves the right to revise, amend or modify these Terms & Conditions, our other policies

The following system was detected

Windows

Was your device detected incorrectly?

Select your Device

Windows

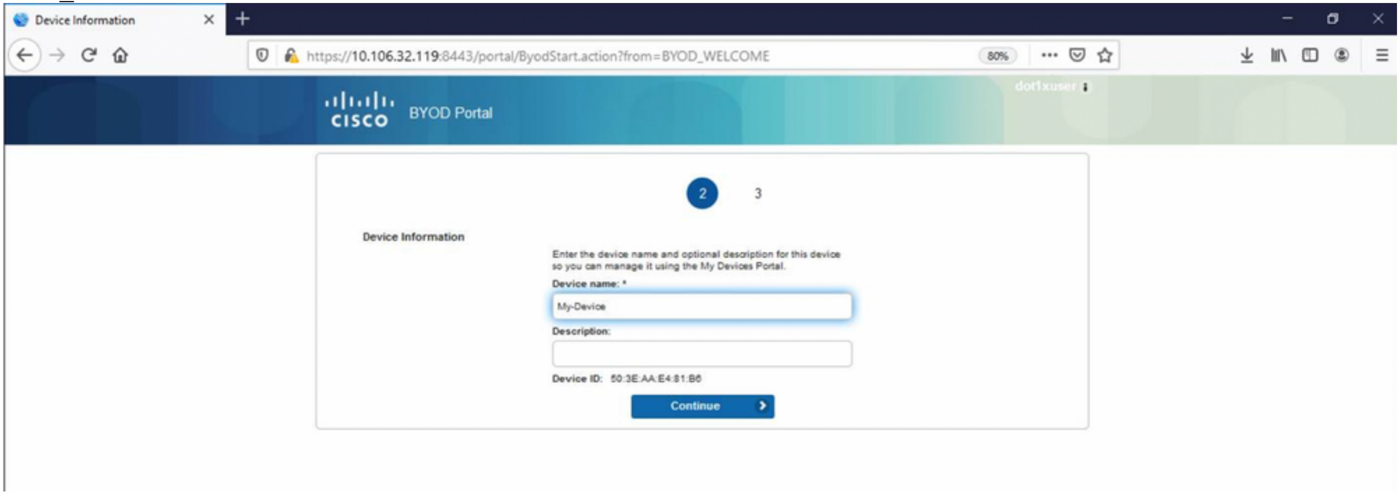
Clique em **Iniciar** na página de Boas-vindas da BYOD.

```
020-12-02 05:44:01,926 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dot1xuser:- Executing action ByodStart via
request /portal/ByodStart.action 2020-12-02 05:44:01,926 DEBUG [https-jsse-nio-10.106.32.119-
8443-exec-3][] cisco.ise.portalwebaction.controller.PortalPreResultListener -:dot1xuser:-
currentStep: BYOD_WELCOME
```

Neste ponto, o ISE avalia se os arquivos/recursos necessários para o BYOD estão presentes ou não e se ajusta ao estado INIT de BYOD.

```
2020-12-02 05:44:01,936 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
```

```
guestaccess.flowmanager.step.guest.ByodWelcomeStepExecutor -:dot1xuser:- userAgent=Mozilla/5.0
(Windows NT 10.0; Win64; x64; rv:83.0) Gecko/20100101 Firefox/83.0, os=Windows 10 (All),
nspStatus=SUCCESS 2020-12-02 05:44:01,936 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
guestaccess.flowmanager.step.guest.ByodWelcomeStepExecutor -:dot1xuser:- NSP Downloadalble
Resource data=>, resource=DownloadableResourceInfo :WINDOWS_10_ALL
https://10.106.32.119:8443/auth/provisioning/download/a2b317ee-df5a-4bda-abc3-
e4ec38ee188c/WirelessNSP.xml?sessionId=0a6a21b20000009f5fc770c7&os=WINDOWS_10_ALL null null
https://10.106.32.119:8443/auth/provisioning/download/90a6dc9c-4aae-4431-a453-81141ec42d2d/ null
null https://10.106.32.119:8443/auth/provisioning/download/90a6dc9c-4aae-4431-a453-
81141ec42d2d/NetworkSetupAssistant.exe, coaType=NoCoa 2020-12-02 05:44:01,936 DEBUG [https-jsse-
nio-10.106.32.119-8443-exec-3][] cpm.guestaccess.flowmanager.utils.NSPProvAccess -:dot1xuser:-
It is a WIN/MAC! 2020-12-02 05:44:01,936 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
cpm.guestaccess.flowmanager.step.StepExecutor -:dot1xuser:- Returning next step
=BYOD_REGISTRATION 2020-12-02 05:44:01,950 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
cisco.ise.portalwebaction.controller.PortalStepController -:dot1xuser:- ++++ updatePortalState:
PortalSession (e0d457d9-a346-4b6e-bcca-5cf29e12dacc) current state is ACTIVE and current step is
BYOD_REGISTRATION 2020-12-02 05:44:01,950 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][]
cisco.ise.portalwebaction.controller.PortalStepController -:dot1xuser:- nextStep:
BYOD_REGISTRATION
```


Device Information
https://10.106.32.119:8443/portal/ByodStart.action?from=BYOD_WELCOME
80%
CISCO
BYOD Portal
dot1xuser
2
3

Device Information

Enter the device name and optional description for this device so you can manage it using the My Devices Portal.

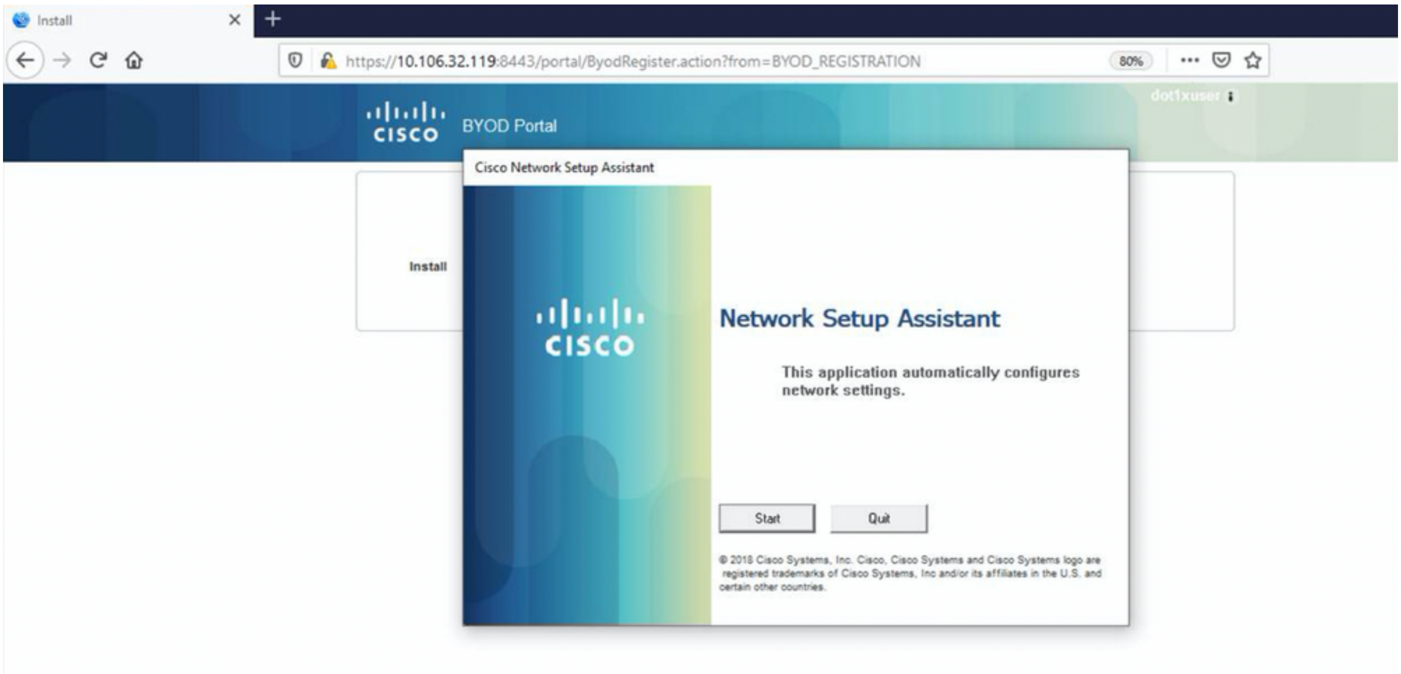
Device name: * My-Device

Description:

Device ID: 50:3E:AA:E4:81:B6

Insira o nome do dispositivo e clique em registrar.

```
2020-12-02 05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dot1xuser:- Executing action ByodRegister
via request /portal/ByodRegister.action Request Parameters: from=BYOD_REGISTRATION
token=PZBMFBHX3FBPXT8QF98U717ILNOTD68D device.name=My-Device device.description= 2020-12-02
05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portal.actions.ByodRegisterAction -:dot1xuser:- executeAction... 2020-12-02
05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dot1xuser:- Result from action,
ByodRegister: success 2020-12-02 05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dot1xuser:- Action ByodRegister Complete
for request /portal/ByodRegister.action 2020-12-02 05:44:14,683 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] cpm.guestaccess.apiservices.mydevices.MyDevicesServiceImpl -
:dot1xuser:- Register Device : 50:3E:AA:E4:81:B6 username= dot1xuser idGroupID= aa13bb40-8bff-
11e6-996c-525400b48521 authStoreGUID= 9273fe30-8c01-11e6-996c-525400b48521 nadAddress=
10.106.33.178 isSameDeviceRegistered = false 2020-12-02 05:44:14,900 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] cpm.guestaccess.flowmanager.step.StepExecutor -:dot1xuser:-
Returning next step =BYOD_INSTALL 2020-12-02 05:44:14,902 DEBUG [https-jsse-nio-10.106.32.119-
8443-exec-1][] cisco.ise.portalwebaction.controller.PortalStepController -:dot1xuser:- ++++
updatePortalState: PortalSession (e0d457d9-a346-4b6e-bcca-5cf29e12dacc) current state is ACTIVE
and current step is BYOD_INSTALL 2020-12-02 05:44:01,954 DEBUG [https-jsse-nio-10.106.32.119-
8443-exec-3][] cisco.ise.portalwebaction.controller.PortalFlowInterceptor -:dot1xuser:- result:
success 2020-12-02 05:44:14,969 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-10][]
cisco.cpm.client.provisioning.StreamingServlet -::- StreamingServlet
URI:/auth/provisioning/download/90a6dc9c-4aae-4431-a453-81141ec42d2d/NetworkSetupAssistant.exe
```


Install
https://10.106.32.119:8443/portal/ByodRegister.action?from=BYOD_REGISTRATION
80%
BYOD Portal
dot1xuser
Cisco Network Setup Assistant
Install
Network Setup Assistant
This application automatically configures network settings.
Start
Quit
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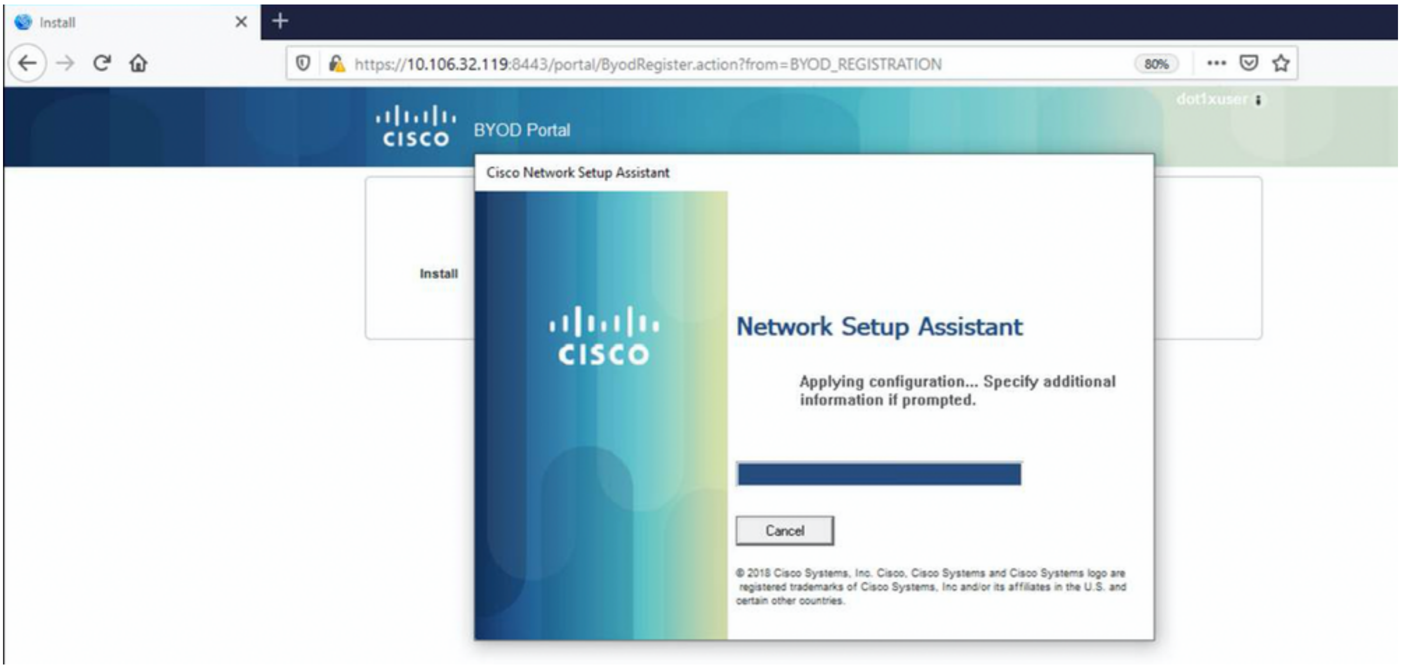
Agora, quando o usuário clica em Iniciar no NSA, um arquivo chamado **spwProfile.xml** é criado temporariamente no cliente copiando o conteúdo do Cisco-ISE-NSP.xml baixado na porta TCP 8905.

Guest.log -

```
2020-12-02 05:45:03,275 DEBUG [portal-http-service15][]
cisco.cpm.client.provisioning.StreamingServlet -::- StreamingServlet
URI:/auth/provisioning/download/a2b317ee-df5a-4bda-abc3-e4ec38ee188c/WirelessNSP.xml 2020-12-02
05:45:03,275 DEBUG [portal-http-service15][] cisco.cpm.client.provisioning.StreamingServlet -::-
Streaming to ip:10.106.33.167 file type: NativeSPProfile file name:WirelessNSP.xml 2020-12-02
05:45:03,308 DEBUG [portal-http-service15][] cisco.cpm.client.provisioning.StreamingServlet -::-
SPW profile :: 2020-12-02 05:45:03,308 DEBUG [portal-http-service15][]
cisco.cpm.client.provisioning.StreamingServlet -::-
```

Depois de ler o conteúdo do **spwProfile.xml**, a NSA configura o perfil de rede e gera um CSR e o envia ao ISE para obter um certificado usando o URL https://10.106.32.119:8443/auth/pkiclient.exe


Install
https://10.106.32.119:8443/portal/ByodRegister.action?from=BYOD_REGISTRATION
80%
BYOD Portal
dot1xuser
Cisco Network Setup Assistant
Install
Network Setup Assistant
Applying configuration... Specify additional information if prompted.
Cancel
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ise-psc.log-

```
2020-12-02 05:45:11,298 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.cpm.provisioning.cert.CertProvisioningFactory -::::- Found incoming certifcate request for
internal CA. Increasing Cert Request counter. 2020-12-02 05:45:11,331 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] cisco.cpm.provisioning.cert.CertProvisioningFactory -::::- Key type
is RSA, retrieving ScepCertRequestProcessor for caProfileName=ISE Internal CA 2020-12-02
05:45:11,331 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.cpm.provisioning.cert.CertRequestValidator -::::- Session user has been set to = dot1xuser
2020-12-02 05:45:11,331 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.cpm.scep.util.ScepUtil -::::- Algorithm OID in CSR: 1.2.840.113549.1.1.1 2020-12-02
05:45:11,331 INFO [https-jsse-nio-10.106.32.119-8443-exec-1][]
com.cisco.cpm.scep.ScepCertRequestProcessor -::::- About to forward certificate request
C=IN,ST=Karnataka,L=bangalore,O=cisco,OU=tac,CN=dot1xuser with transaction id n@P~N6E to server
http://127.0.0.1:9444/caservice/scep 2020-12-02 05:45:11,332 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] org.jscep.message.PkiMessageEncoder -::::- Encoding message:
org.jscep.message.PkcsReq@5c1649c2[transId=4d22d2e256a247a302e900ffa71c35d75610de67,messageType=
PKCS_REQ,senderNonce=Nonce
[7d9092a9fab204bd7600357e38309ee8],messageData=org.bouncycastle.pkcs.PKCS10CertificationRequest@
4662a5b0] 2020-12-02 05:45:11,332 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
org.jscep.message.PkcsPkiEnvelopeEncoder -::::- Encrypting session key using key belonging to
[issuer=CN=Certificate Services Endpoint Sub CA - isee30-primary;
serial=162233386180991315074159441535479499152] 2020-12-02 05:45:11,333 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] org.jscep.message.PkiMessageEncoder -::::- Signing message using
key belonging to [issuer=CN=isee30-primary.anshsinh.local;
serial=126990069826611188711089996345828696375] 2020-12-02 05:45:11,333 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-1][] org.jscep.message.PkiMessageEncoder -::::- SignatureAlgorithm
SHA1withRSA 2020-12-02 05:45:11,334 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
org.jscep.message.PkiMessageEncoder -::::- Signing
org.bouncycastle.cms.CMSProcessableByteArray@5aa9dfcc content
```

ca-service.log -

```
2020-12-02 05:45:11,379 DEBUG [CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67
0x67ee11d5 request] com.cisco.cpm.caservice.CrValidator -:::::- performing certificate request
validation: version [0] subject [C=IN,ST=Karnataka,L=bangalore,O=cisco,OU=tac,CN=dot1xuser] ---
output omitted--- 2020-12-02 05:45:11,379 DEBUG [CAService-Scep][scep job
4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request validation]
com.cisco.cpm.caservice.CrValidator -:::::- RDN value = dot1xuser 2020-12-02 05:45:11,379 DEBUG
[CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request]
com.cisco.cpm.caservice.CrValidator -:::::- request validation result CA_OK
```

caservice-misc.log -

```
2020-12-02 05:45:11,380 DEBUG [CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67
0x67ee11d5 request issuance] cisco.cpm.scep.util.ScepUtil -:::::- Algorithm OID in CSR:
1.2.840.113549.1.1.1 2020-12-02 05:45:11,380 DEBUG [CAService-Scep][scep job
4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request issuance]
com.cisco.cpm.scep.CertRequestInfo -:::::- Found challenge password with cert template ID.
```

caservice.log -

```
2020-12-02 05:45:11,380 DEBUG [CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67
0x67ee11d5 request issuance] cisco.cpm.caservice.util.CaServiceUtil -:::::- Checking cache for
certificate template with ID: e2c32ce0-313d-11eb-b19e-e60300a810d5 2020-12-02 05:45:11,380 DEBUG
[CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request issuance]
com.cisco.cpm.caservice.CertificateAuthority -:::::- CA SAN Extensions = GeneralNames: 1: 50-3E-
AA-E4-81-B6 2020-12-02 05:45:11,380 DEBUG [CAService-Scep][scep job
4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request issuance]
com.cisco.cpm.caservice.CertificateAuthority -:::::- CA : add SAN extension... 2020-12-02
```

```
05:45:11,380 DEBUG [CAService-Scep][scep job 4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5
request issuance] com.cisco.cpm.caservice.CertificateAuthority -:::::- CA Cert Template name =
BYOD_Certificate_template 2020-12-02 05:45:11,395 DEBUG [CAService-Scep][scep job
4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request issuance]
cisco.cpm.caservice.util.CaServiceUtil -:::::- Storing certificate via REST for serial number:
518fa73a4c654df282ffdb026080de8d 2020-12-02 05:45:11,395 INFO [CAService-Scep][scep job
4d22d2e256a247a302e900ffa71c35d75610de67 0x67ee11d5 request issuance]
com.cisco.cpm.caservice.CertificateAuthority -:::::- issuing Certificate Services Endpoint
Certificate: class [com.cisco.cpm.caservice.CaResultHolder] [1472377777]: result: [CA_OK]
subject [CN=dot1xuser, OU=tac, O=cisco, L=bangalore, ST=Karnataka, C=IN] version [3] serial
[0x518fa73a-4c654df2-82ffdb02-6080de8d] validity [after [2020-12-01T05:45:11+0000] before [2030-
11-27T07:35:10+0000]] keyUsages [ digitalSignature nonRepudiation keyEncipherment ]
```

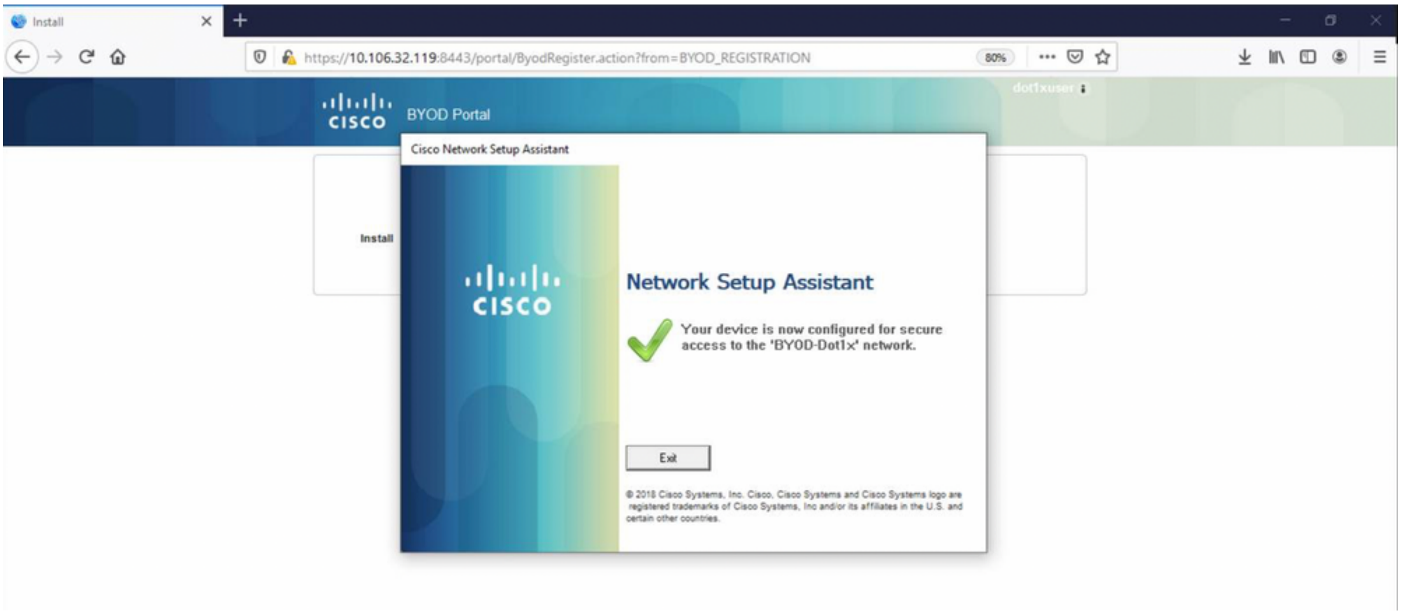
ise-psc.log -

```
2020-12-02 05:45:11,407 DEBUG [AsyncHttpClient-15-9][] org.jscep.message.PkiMessageDecoder -
::::- Verifying message using key belonging to 'CN=Certificate Services Endpoint RA - isee30-
primary'
```

caservice.log -

```
2020-12-02 05:45:11,570 DEBUG [Infra-CAServiceUtil-Thread][]
cisco.cpm.caservice.util.CaServiceUtil -:::::- Successfully stored endpoint certificate.
```

ise-psc.log -



https://10.106.32.119:8443/portal/ByodRegister.action?from=BYOD_REGISTRATION

Cisco Network Setup Assistant

Network Setup Assistant

Your device is now configured for secure access to the 'BYOD-Dot1x' network.

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```
2020-12-02 05:45:13,381 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-10][]
cisco.cpm.provisioning.cert.CertProvisioningFactory -::::- Performing doGetCertInitial found
Scep certificate processor for txn id n@P~N6E 2020-12-02 05:45:13,381 DEBUG [https-jsse-nio-
10.106.32.119-8443-exec-10][] com.cisco.cpm.scep.ScepCertRequestProcessor -::::- Polling
C=IN,ST=Karnataka,L=bangalore,O=cisco,OU=tac,CN=dot1xuser for certificate request n@P~N6E with
id {} 2020-12-02 05:45:13,385 INFO [https-jsse-nio-10.106.32.119-8443-exec-10][]
com.cisco.cpm.scep.ScepCertRequestProcessor -::::- Certificate request Complete for
C=IN,ST=Karnataka,L=bangalore,O=cisco,OU=tac,CN=dot1xuser Trx Idn@P~N6E 2020-12-02 05:45:13,596
DEBUG [https-jsse-nio-10.106.32.119-8443-exec-10][]
cisco.cpm.provisioning.cert.CertProvisioningFactory -::::- BYODStatus:COMPLETE_OTA_NSP
```

Após a instalação do certificado, os clientes iniciam outra autenticação usando EAP-TLS e obtêm acesso total.

prrt-server.log -

```
Eap,2020-12-02 05:46:57,175,INFO ,0x7f433e6b8700,cntx=0008591342,sesn=isee30-
primary/392215758/701,CPMSessionID=0a6a21b20000009f5fc770c7,CallingStationID=50-3e-aa-e4-81-
b6,EAP: Recv EAP packet, code=Response, identifier=64, type=EAP-TLS, length=166
,EapParser.cpp:150 Radius,2020-12-02
05:46:57,435,DEBUG,0x7f433e3b5700,cntx=0008591362,sesn=isee30-
primary/392215758/701,CPMSessionID=0a6a21b20000009f5fc770c7,user=dot1xuser,CallingStationID=50-
3e-aa-e4-81-b6,RADIUS PACKET:: Code=2(AccessAccept) Identifier=5 Length=231 [1] User-Name -
value: [dot1xuser] [25] Class - value: [****] [79] EAP-Message - value: [E [80] Message-
Authenticator - value: [Ù(ØyËöžö|kÔ,¸}] [26] MS-MPPE-Send-Key - value: [****] [26] MS-MPPE-Recv-
Key - value: [****] ,RADIUSHandler.cpp:2216
```

Logs de cliente (logs spw)

O cliente inicia o download do perfil.

```
[Mon Nov 30 03:34:27 2020] Downloading profile configuration... [Mon Nov 30 03:34:27 2020]
Discovering ISE using default gateway [Mon Nov 30 03:34:27 2020] Identifying wired and wireless
network interfaces, total active interfaces: 1 [Mon Nov 30 03:34:27 2020] Network interface -
mac:50-3E-AA-E4-81-B6, name: Wi-Fi 2, type: unknown [Mon Nov 30 03:34:27 2020] Identified
default gateway: 10.106.33.1 [Mon Nov 30 03:34:27 2020] Identified default gateway: 10.106.33.1,
mac address: 50-3E-AA-E4-81-B6 [Mon Nov 30 03:34:27 2020] DiscoverISE - start [Mon Nov 30
03:34:27 2020] DiscoverISE input parameter : strUrl [http://10.106.33.1/auth/discovery] [Mon Nov
30 03:34:27 2020] [HTTPConnection] CrackUrl: host = 10.106.33.1, path = /auth/discovery, user =
, port = 80, scheme = 3, flags = 0 [Mon Nov 30 03:34:27 2020] [HTTPConnection] HttpSendRequest:
header = Accept: */* headerLength = 12 data = dataLength = 0 [Mon Nov 30 03:34:27 2020] HTTP
Response header: [HTTP/1.1 200 OK Location:
https://10.106.32.119:8443/portal/gateway?sessionId=0a6a21b20000009c5fc4fb5e&portal=7f8ac563-
3304-4f25-845d-
be9faac3c44f&action=nsp&token=29354d43962243bcb72193cbf9dc3260&redirect=10.106.33.1/auth/discove
ry [Mon Nov 30 03:34:36 2020] [HTTPConnection] CrackUrl: host = 10.106.32.119, path =
/auth/provisioning/download/a2b317ee-df5a-4bda-abc3-
e4ec38ee188c/WirelessNSP.xml?sessionId=0a6a21b20000009c5fc4fb5e&os=WINDOWS_10_ALL, user = , port
= 8443, scheme = 4, flags = 8388608 Mon Nov 30 03:34:36 2020] parsing wireless connection
setting [Mon Nov 30 03:34:36 2020] Certificate template: [keytype:RSA, keysize:2048,
subject:OU=tac;O=cisco;L=bangalore;ST=Karnataka;C=IN, SAN:MAC] [Mon Nov 30 03:34:36 2020] set
ChallengePwd
```

O cliente verifica se o serviço WLAN está em execução.

```
[Mon Nov 30 03:34:36 2020] WirelessProfile::StartWLanSvc - Start [Mon Nov 30 03:34:36 2020]
Wlansvc service is in Auto mode ... [Mon Nov 30 03:34:36 2020] Wlansvc is running in auto
mode... [Mon Nov 30 03:34:36 2020] WirelessProfile::StartWLanSvc - End [Mon Nov 30 03:34:36
2020] Wireless interface 1 - Desc: [TP-Link Wireless USB Adapter], Guid: [{65E78DDE-E3F1-4640-
906B-15215F986CAA}]... [Mon Nov 30 03:34:36 2020] Wireless interface - Mac address: 50-3E-AA-E4-
81-B6 [Mon Nov 30 03:34:36 2020] Identifying wired and wireless interfaces... [Mon Nov 30
03:34:36 2020] Found wireless interface - [ name:Wi-Fi 2, mac address:50-3E-AA-E4-81-B6] [Mon
Nov 30 03:34:36 2020] Wireless interface [Wi-Fi 2] will be configured... [Mon Nov 30 03:34:37
2020] Host - [ name:DESKTOP-965F94U, mac addresses:50-3E-AA-E4-81-B6]
```

O cliente inicia a aplicação do perfil -

```
[Mon Nov 30 03:34:37 2020] ApplyProfile - Start... [Mon Nov 30 03:34:37 2020] User Id:
dot1xuser, sessionid: 0a6a21b20000009c5fc4fb5e, Mac: 50-3E-AA-E4-81-B6, profile: WirelessNSP
[Mon Nov 30 03:34:37 2020] number of wireless connections to configure: 1 [Mon Nov 30 03:34:37
2020] starting configuration for SSID : [BYOD-Dot1x] [Mon Nov 30 03:34:37 2020] applying
certificate for ssid [BYOD-Dot1x]
```

Certificado de instalação do cliente.

```
[Mon Nov 30 03:34:37 2020] ApplyCert - Start... [Mon Nov 30 03:34:37 2020] using ChallengePwd
[Mon Nov 30 03:34:37 2020] creating certificate with subject = dot1xuser and subjectSuffix =
OU=tac;O=cisco;L=bangalore;ST=Karnataka;C=IN [Mon Nov 30 03:34:38 2020] Self signed certificate
[Mon Nov 30 03:34:44 2020] Installed [isee30-primary.anshsinh.local, hash: 5b a2 08 1e 17 cb 73
5f ba 5b 9f a2 2d 3b fc d2 86 0d a5 9b ] as rootCA [Mon Nov 30 03:34:44 2020] Installed CA cert
for authMode machineOrUser - Success Certificate is downloaded . Omitted for brevity - [Mon Nov
30 03:34:50 2020] creating response file name C:\Users\admin\AppData\Local\Temp\response.cer
[Mon Nov 30 03:34:50 2020] Certificate issued - successfully [Mon Nov 30 03:34:50 2020]
ScepWrapper::InstallCert start [Mon Nov 30 03:34:50 2020] ScepWrapper::InstallCert: Reading scep
response file [C:\Users\admin\AppData\Local\Temp\response.cer]. [Mon Nov 30 03:34:51 2020]
ScepWrapper::InstallCert GetCertHash -- return val 1 [Mon Nov 30 03:34:51 2020]
ScepWrapper::InstallCert end [Mon Nov 30 03:34:51 2020] ApplyCert - End... [Mon Nov 30 03:34:51
2020] applied user certificate using template id e2c32ce0-313d-11eb-b19e-e60300a810d5
```

O ISE configura o perfil sem fio

```
[Mon Nov 30 03:34:51 2020] Configuring wireless profiles... [Mon Nov 30 03:34:51 2020]
Configuring ssid [BYOD-Dot1x] [Mon Nov 30 03:34:51 2020] WirelessProfile::SetWirelessProfile -
Start [Mon Nov 30 03:34:51 2020] TLS - TrustedRootCA Hash: [ 5b a2 08 1e 17 cb 73 5f ba 5b 9f a2
2d 3b fc d2 86 0d a5 9b]
```

profile

```
Wireless interface succesfully initiated, continuing to configure SSID [Mon Nov 30 03:34:51
2020] Currently connected to SSID: [BYOD-Dot1x] [Mon Nov 30 03:34:51 2020] Wireless profile:
[BYOD-Dot1x] configured successfully [Mon Nov 30 03:34:51 2020] Connect to SSID [Mon Nov 30
03:34:51 2020] Successfully connected profile: [BYOD-Dot1x] [Mon Nov 30 03:34:51 2020]
WirelessProfile::SetWirelessProfile. - End [Mon Nov 30 03:35:21 2020]
WirelessProfile::IsSingleSSID - Start [Mon Nov 30 03:35:21 2020] Currently connected to SSID:
[BYOD-Dot1x], profile ssid: [BYOD-Dot1x], Single SSID [Mon Nov 30 03:35:21 2020]
WirelessProfile::IsSingleSSID - End [Mon Nov 30 03:36:07 2020] Device configured successfully.
```