

Configure Single SSID Wireless BYOD on Windows and ISE

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Introduction

This document describes how to configure Bring Your Own Device (BYOD) on Cisco Identity Services Engine (ISE) for Windows Machine using both Single-SSID and Dual-SSID.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Configuration of Cisco ISE Versions 3.0
- Configuration of Cisco WLC
- BYOD Working

Components Used

The information in this document is based on these software and hardware versions:

- Cisco ISE Version 3.0
- Windows 10
- WLC and 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. If your network is live, ensure that you understand the potential impact of any command.

Theory

In Single SSID BYOD only one SSID is used for both onboardings of devices and later giving full access to the Registered Devices. First, the user connects to the SSID using the user name and password (MSCHAPv2). Once authenticated successfully on ISE, the user gets redirected to the BYOD Portal. Once the Device Registration is done, the end-client downloads the Native Supplicant Assistant (NSA) from ISE . NSA is installed on the end client and downloads the Profile and certificate from ISE. The NSA configures the Wireless supplicant and the client installs the certificate. Endpoint performs another authentication to the same SSID using the downloaded certificate using EAP-TLS. ISE checks the new request from the client and verifies the EAP Method and Device Registration and gives full access to the device.

Windows BYOD Single SSID Steps-

- Initial EAP-MSCHAPv2 authentication
- Redirection to BYOD portal
- Device registration
- NSA download
- Profile download
- Certificate download
- EAP-TLS Authentication

Configure

ISE Configuration

Step 1. Add network Device on ISE and configure RADIUS and shared key.

Navigate to **ISE > Administration > Network Devices > Add Network Device**.

Step 2. Create a certificate template for BYOD users. The template must have Client Authentication Enhanced Key Usage. You can use the default EAP_Certificate_Template.

Cisco ISE Administration · System

Deployment Licensing **Certificates** Logging Maintenance Upgrade Health Checks Backup & Restore Admin Access Settings

Certificate Management >

Certificate Authority v

Overview

Issued Certificates

Certificate Authority Certifica...

Internal CA Settings

Certificate Templates

External CA Settings

Edit Certificate Template

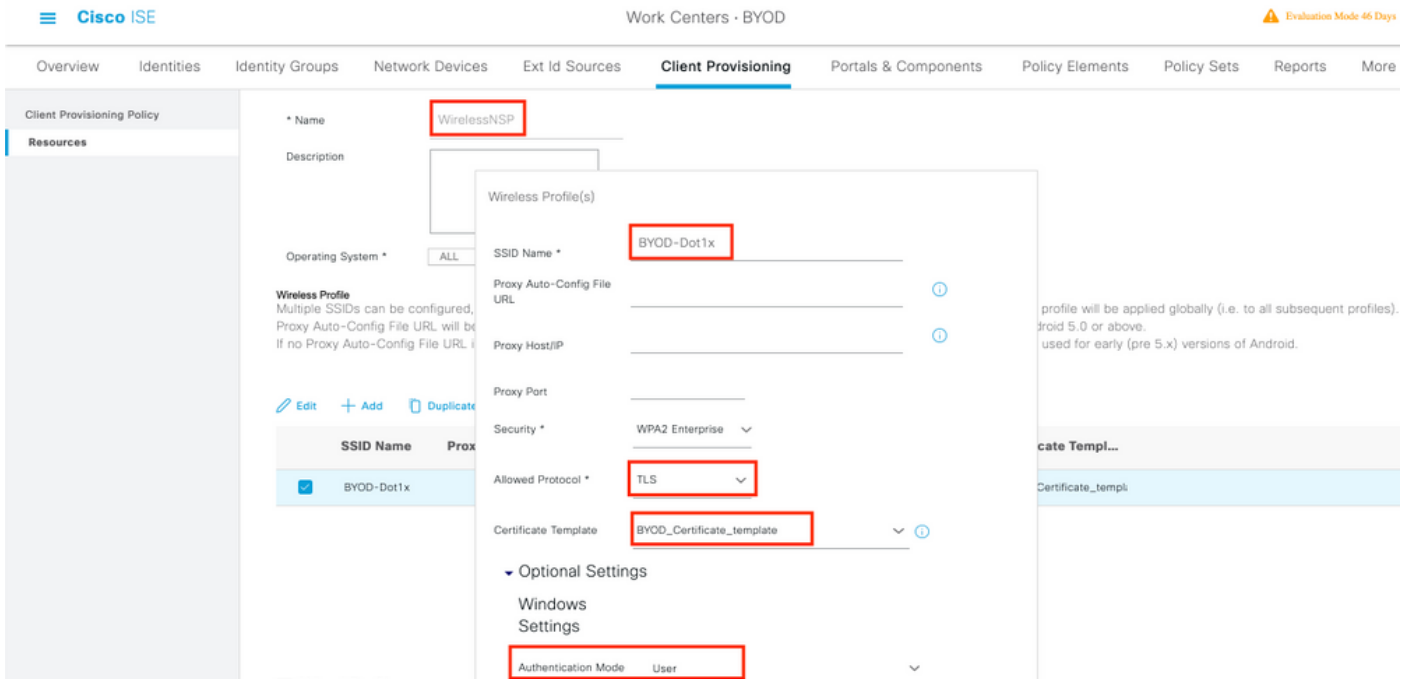
* Name	BYOD_Certificate_template
Description	
Subject	
Common Name (CN)	\$UserName\$ ⓘ
Organizational Unit (OU)	tac
Organization (O)	cisco
City (L)	bangalore
State (ST)	Karnataka
Country (C)	IN
Subject Alternative Name (SAN)	⋮ MAC Address v
Key Type	RSA v
Key Size	2048 v
* SCEP RA Profile	ISE Internal CA v
Valid Period	3652 Day(s) (Valid Range 1 - 3652)
Extended Key Usage	<input checked="" type="checkbox"/> Client Authentication <input type="checkbox"/> Server Authentication

Step 3. Create a Native Supplicant Profile for a Wireless profile.

Navigate to **ISE > Work Centres > BYOD > Client Provisioning**. Click on **Add** and choose **Native Supplicant Profile (NSP)** from the drop-down.

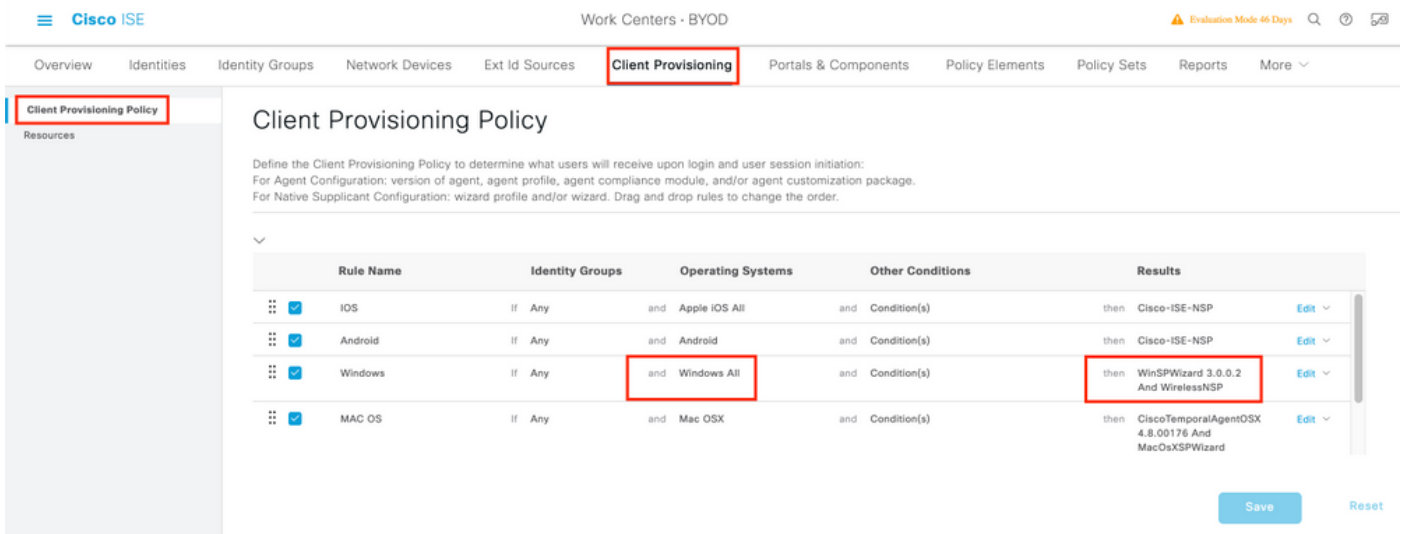
Here the SSID name must be the same as you connected before you are doing a single SSID BYOD. Select the Protocol as TLS. Chose Certificate template as created in the previous step or you can use the default EAP_Certificate_Template .

Under optional settings select user or User and Machine authentication as per your requirement. In this example, it is configured as user authentication. Leave other settings as default.



Step 4. Create Client Provisioning Policy for Windows Device.

Navigate to **ISE > Work Centres > BYOD > Client Provisioning > Client Provisioning Policy**. Select the Operating System as **Windows ALL**. Select **WinSPWizard 3.0.0.2** and **NSP** created in the previous step.



Step 5. Create an **Authorization Profile** for devices not registered as BYOD devices.

Navigate to **ISE > Policy > Policy Elements > Results > Authorization > Authorization Profiles > Add**.

Under **Common Task**, select **Native Supplicant Provisioning**. Define a Redirect ACL Name that is created on WLC and select the BYOD Portal. Here Default Portal is used. You can create a custom BYOD Portal. Navigate to **ISE > Work Centres > BYOD > Portals** and components and click on **Add**.

Dictionarys 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)

Step 6. Create a certificate profile.

Navigate to **ISE > Administration > External Identity Sources > Certificate Profile**. Here create a new certificate profile or use the default certificate profile.

Cisco ISE Administration - Identity Management

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

External Identity Sources

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

Step 7. Create an identity source sequence and select the certificate profile created in the previous step or use the default certificate profile. This is required when users perform EAP-TLS after BYOD registration to get full access.

[Identity Source Sequences List](#) > For_Teap

Identity Source Sequence

Identity Source Sequence

* Name

Description

Certificate Based Authentication

Select Certificate Authentication Profile

Authentication Search List

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

Available	Selected
Internal Endpoints	Internal Users
Guest Users	ADJoiint

Step 8. Create a Policy Set, authentication Policy, and Authorization Policy.

Navigate to **ISE > Policy > Policy Sets**. Create a Policy Set and **Save**.

Create an Authentication Policy and select the identity source sequence created in the previous step.

Create an Authorization Policy. You must create two policies.

1. For devices that are not BYOD Registered. Give redirect profile created in step 5.
2. Devices that are BYOD registered and doing EAP-TLS. Give full access to these devices.

Authentication Policy (1)

Status	Rule Name	Conditions	Use
+	Search		
+	Default		BYOD_id_Store > Options

> Authorization Policy - Local Exceptions

> Authorization Policy - Global Exceptions

Authorization Policy (3)

Status	Rule Name	Conditions	Results	Profiles	Security Groups
+	Search				
+	Full_Access	AND Network Access-EapAuthentication EQUALS EAP-TLS EndPoints-BYODRegistration EQUALS Yes	PermitAccess x	+	Select from list
+	BYOD_Redirect	EndPoints-BYODRegistration EQUALS Unknown	BYOD_Wireless_Redire... x	+	Select from list

WLC Configuration

Step 1. Configure Radius Server on WLC.

Navigate to **Security > AAA > Radius > Authentication**.

The screenshot shows the Cisco ISE Security configuration page for RADIUS Authentication Servers. The left sidebar shows the navigation menu with 'Security' expanded to 'AAA' > 'RADIUS'. The main content area is titled 'RADIUS Authentication Servers > Edit' and shows configuration details for server index 7. The following fields are highlighted with red boxes:

- Server Index: 7
- Server Address(Ipv4/Ipv6): 10.106.32.119
- Shared Secret Format: ASCII
- Shared Secret: [Redacted]
- Confirm Shared Secret: [Redacted]
- 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

Other visible configuration options include:

- Server Timeout: 5 seconds
- Network User: Enable
- Management: Enable
- Management Retransmit Timeout: 5 seconds
- Tunnel Proxy: Enable
- Realm List: [Link]
- PAC Provisioning: Enable
- IPSec: Enable
- Cisco ACA: Enable

Navigate to **Security > AAA > Radius > Accounting**.

The screenshot shows the Cisco configuration interface for RADIUS Accounting Servers. The left sidebar is under 'Security' and expanded to 'AAA' > 'RADIUS' > 'Accounting'. The main content area is titled 'RADIUS Accounting Servers > Edit' and shows configuration for server index 7. The following fields are highlighted with red boxes:

- Server Address(Ipv4/Ipv6): 10.106.32.119
- Port Number: 1813

Other visible settings include: Shared Secret Format (ASCII), Shared Secret (masked), Confirm Shared Secret (masked), Apply Cisco ACA Default settings (unchecked), Server Status (Enabled), Server Timeout (5 seconds), Network User (checked), Management (unchecked), Tunnel Proxy (unchecked), PAC Provisioning (unchecked), IPsec (unchecked), and Cisco ACA (unchecked).

Step 2. Configure a Dot1x SSID.

The screenshot shows the Cisco configuration interface for WLANs. The left sidebar is under 'WLANs' and expanded to 'Advanced'. The main content area is titled 'WLANs > Edit 'BYOD-Dot1x'' and has tabs for 'General', 'Security', 'QoS', 'Policy-Mapping', and 'Advanced'. The 'General' tab is selected, and the following fields are highlighted with red boxes:

- Profile Name: BYOD-Dot1x
- Type: WLAN
- SSID: BYOD-Dot1x
- Status: Enabled
- Interface/Interface Group(G): management

Other visible settings include: Security Policies ([WPA2][Auth(802.1X)]), Radio Policy (All), Multicast Vlan Feature (unchecked), Broadcast SSID (checked), NAS-ID (none), and Lobby Admin Access (unchecked).

WLANs

- WLANs
- Advanced

WLANs > Edit 'BYOD-Dot1x'

- General Security **QoS** Policy-Mapping Advanced

- Layer 2** Layer 3 AAA Servers

Layer 2 Security [e](#) WPA2+WPA3

Security Type Enterprise

MAC Filtering

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

WLANs

- WLANs
- Advanced

WLANs > Edit 'BYOD-Dot1x'

- General Security **QoS** Policy-Mapping Advanced

- Layer 2 Layer 3 **AAA Servers**

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

Server	Enabled	IP:Port	Enabled	IP:Port
Server 1	<input checked="" type="checkbox"/>	IP:10.106.32.119, Port:1812	<input checked="" type="checkbox"/>	IP:10.106.32.119, Port:1813
Server 2	<input type="checkbox"/>	None	<input type="checkbox"/>	None
Server 3	<input type="checkbox"/>	None	<input type="checkbox"/>	None
Server 4	<input type="checkbox"/>	None	<input type="checkbox"/>	None
Server 5	<input type="checkbox"/>	None	<input type="checkbox"/>	None
Server 6	<input type="checkbox"/>	None	<input type="checkbox"/>	None

EAP Parameters

Enable

Authorization ACA Server

Accounting ACA Server

Enabled

Enabled

Server None

Server None

The image shows the Cisco WLAN configuration interface for 'BYOD-Dot1x'. The 'Advanced' tab is selected, and several settings are highlighted with red boxes:

- Allow AAA Override:** Enabled
- Enable Session Timeout:** Enabled, with a session timeout of 1800 seconds.
- Aironet IE:** Enabled
- Client Exclusion:** Enabled, with a timeout value of 180 seconds.
- NAC State:** ISE NAC

Other visible settings include Coverage Hole Detection (Enabled), Diagnostic Channel (18), Override Interface ACL (IPv4: None, IPv6: None), Layer2 Acl (None), URL ACL (None), P2P Blocking Action (Disabled), Maximum Allowed Clients (0), Static IP Tunneling (Disabled), Wi-Fi Direct Clients Policy (Disabled), Maximum Allowed Clients Per AP Radio (200), and Clear HotSpot Configuration (Disabled).

Step 3. Configure Redirect ACL to provide limited access for provisioning the device.

- Permit UDP traffic to DHCP and DNS (DHCP is allowed by default).
- Communication to ISE.
- Deny other traffic.

Name: BYOD-Initial (OR whatever you manually named the ACL in the Authorization Profile)

The image shows the Cisco Security configuration interface for 'Access Control Lists > Edit'. The 'General' tab is selected, and the 'Access List Name' is 'BYOD-Initial'. The 'Deny Counters' are 0. The following table shows the configured ACL rules:

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

Verify

Authentication Flow Verification

Live Logs Live Sessions

Misconfigured Suppliants 0

Misconfigured Network Devices 0

RADIUS Drops 1

Client Stopped Responding 0

Repeat Counter 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	Ei
Nov 29, 2020 11:13:47.4...	●		0	dot1xuser	50:3E:AA:E4:8...		Wireless >...	Wireless >> Full_Access	PermitAccess	W
Nov 29, 2020 11:13:47.2...	■			dot1xuser	50:3E:AA:E4:8...	RegisteredDevices	Wireless >...	Wireless >> Full_Access	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. At first log in, user performs PEAP authentication using a username and password. On ISE, user hits the Redirect Rule BYOD-Redirect.

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

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. After the BYOD Registration, user is added to the Registered Device and now performs EAP-TLS and gets Full Access.

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_Access
Authorization Result	PermitAccess

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

Check the My Devices Portal

Navigate to MyDevices Portal and Log In with the credentials. You can see the device name and the Registration status.

You can create a URL for the MyDevices Portal.

Navigate to **ISE > Work Centres > BYOD > Portal and Components > My Devices Portal > Login Settings** and then Enter the Fully Qualified URL.

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

Add **Refresh**

MAC Address...

Lost Stolen Edit PIN Lock Full Wipe Unenroll Reinstate Delete

<input type="checkbox"/>	MAC Address	Device Name	Description	Status
<input type="checkbox"/>	50:3E:AA:E4:81:B6	MyWindows_Device		Registered

Troubleshoot

General Information

For BYOD process, these ISE components have to be enabled in debug on PSN nodes -

scep- scep log messages. Target log files **guest.log** and **ise-psc.log**.

client-webapp– the component responsible for infrastructure messages. Target log file –**ise-psc.log**

portal-web-action- the component responsible for client provisioning policy processing. Target log file -**guest.log**.

portal- all Portal related events. Target log file -**guest.log**

portal-session-manager -Target log files - **Portal session related debug messages - gues.log**

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

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

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

certprovisioningportal- certificate provisioning portal messages -Target log files **ise-psc.log**

nsf- NSF related messages -Target log files **ise-psc.log**

nsf-session- Session cache-related messages -Target log files **ise-psc.log**

runtime-AAA– All Runtime events. Target log file –**prrt-server.log**.

For the client-side logs :

Look for %temp%\spwProfileLog.txt (ex:

Working Log Analysis

ISE Logs

Initial Access-Accept with redirect ACL and Redirect URL for BYOD Portal.

Prvt-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{wëbÛ"Åp05<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
```

When an end-user tries to navigate to a website and was redirected by WLC to the ISE redirect URL.

Guest.log -

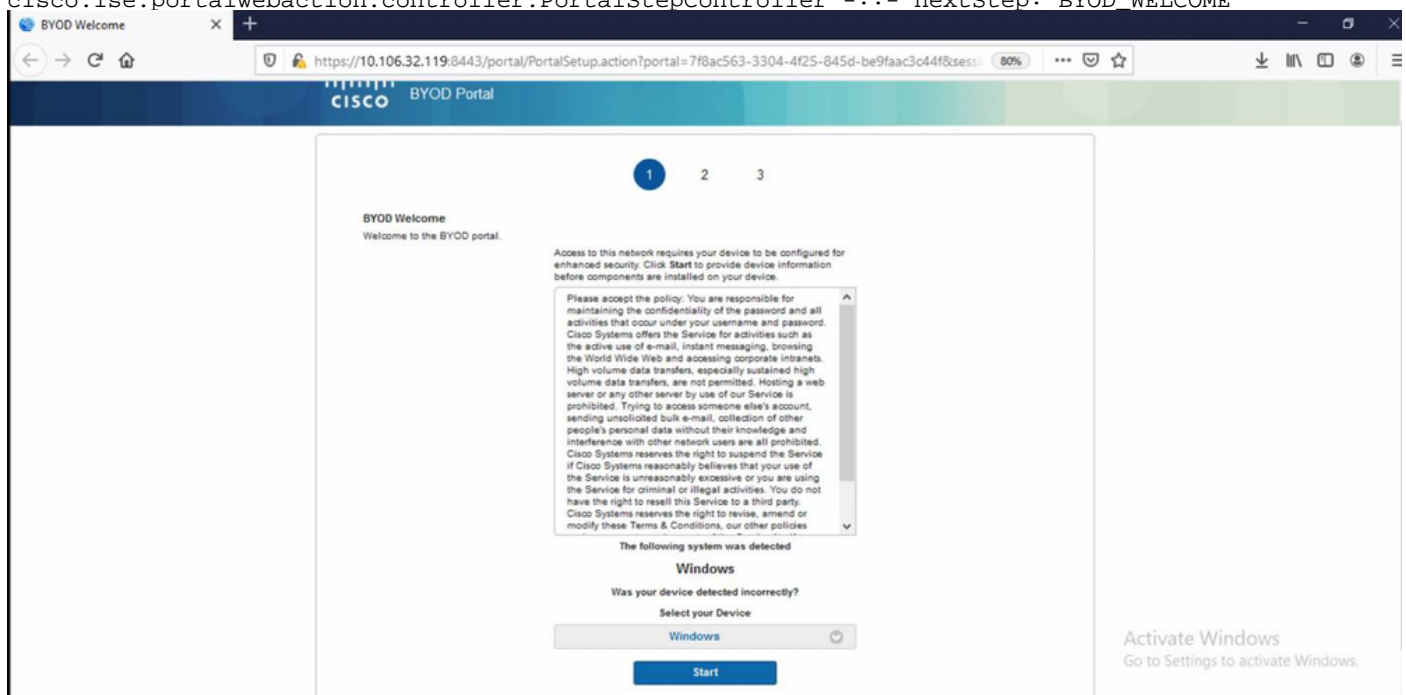
```
2020-12-02 05:43:58,339 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-5][  
com.cisco.ise.portal.Gateway -::- Gateway Params (after update):  
redirect=www.msftconnecttest.com/redirect client_mac=null daysToExpiry=null ap_mac=null  
switch_url=null wlan=null action=nsp sessionId=0a6a21b20000009f5fc770c7 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 'dotlxuserin
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

```



Click on **Start** on the BYOD Welcome page.

```

2020-12-02 05:44:01,926 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][[]
cisco.ise.portalwebaction.actions.BasePortalAction -:dotlxuser:- 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 -:dotlxuser:-
currentStep: BYOD_WELCOME

```

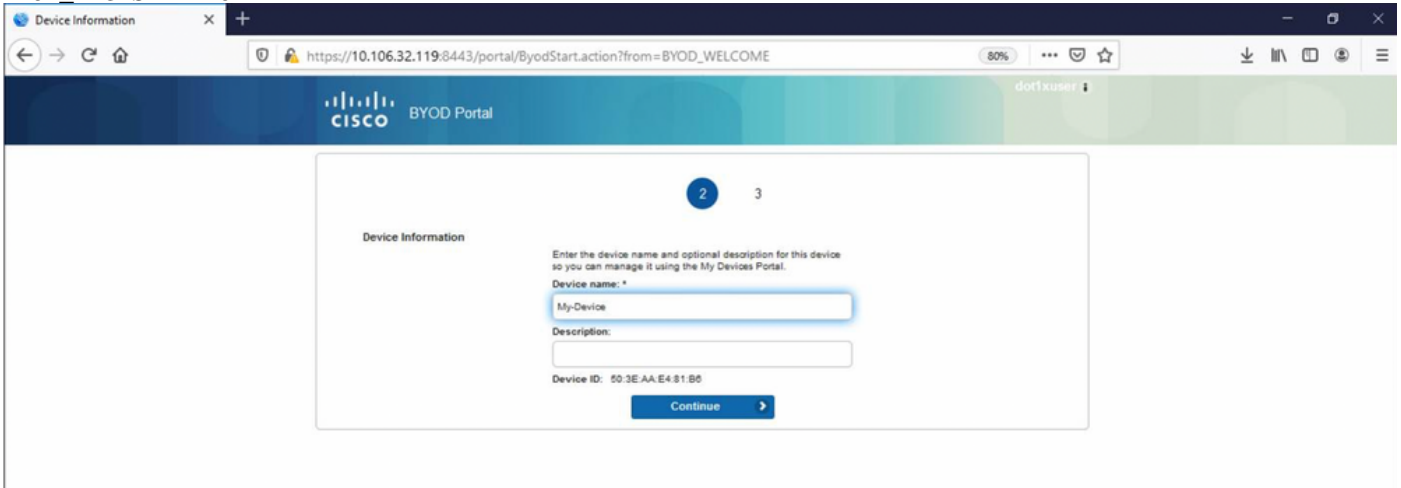
At this point, ISE evaluates if the necessary files/resources required for BYOD are present or not and sets itself to BYOD INIT state.

```

2020-12-02 05:44:01,936 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-3][[]
guestaccess.flowmanager.step.guest.ByodWelcomeStepExecutor -:dotlxuser:- 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 -:dotlxuser:- NSP Downloadable
Resource data=>, resource=DownloadableResourceInfo :WINDOWS_10_ALL
https://10.106.32.119:8443/auth/provisioning/download/a2b317ee-df5a-4bda-abc3-
e4ec38ee188c/WirelessNSP.xml?sessionId=0a6a21b2000009f5fc770c7&os=WINDOWS_10_ALL null null

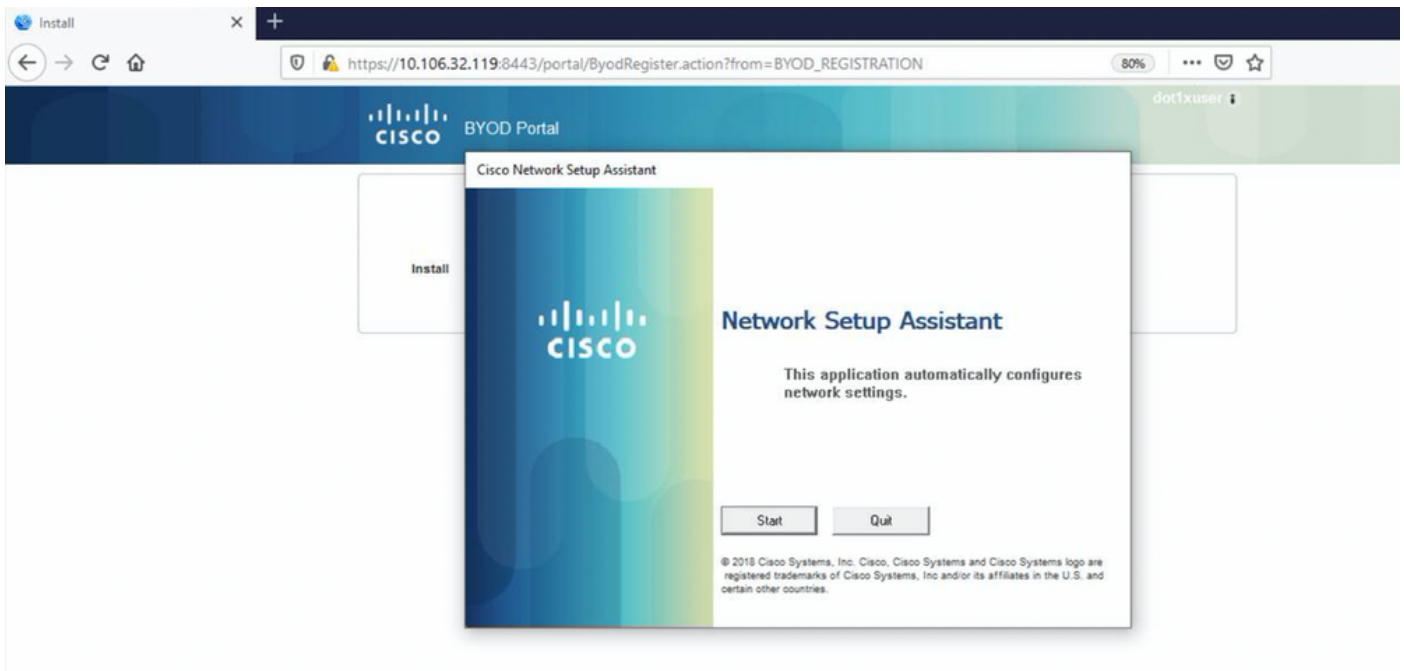
```

```
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 -:dotlxuser:- 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 -:dotlxuser:- 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 -:dotlxuser:- +++ 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 -:dotlxuser:- nextStep:
BYOD_REGISTRATION
```



Enter the device name and click on register.

```
2020-12-02 05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dotlxuser:- 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 -:dotlxuser:- executeAction... 2020-12-02
05:44:14,682 DEBUG [https-jsse-nio-10.106.32.119-8443-exec-1][]
cisco.ise.portalwebaction.actions.BasePortalAction -:dotlxuser:- 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 -:dotlxuser:- 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 -
:dotlxuser:- Register Device : 50:3E:AA:E4:81:B6 username= dotlxuser idGroupID= aal3bb40-8bff-
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 -:dotlxuser:-
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 -:dotlxuser:- +++
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 -:dotlxuser:- 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
```



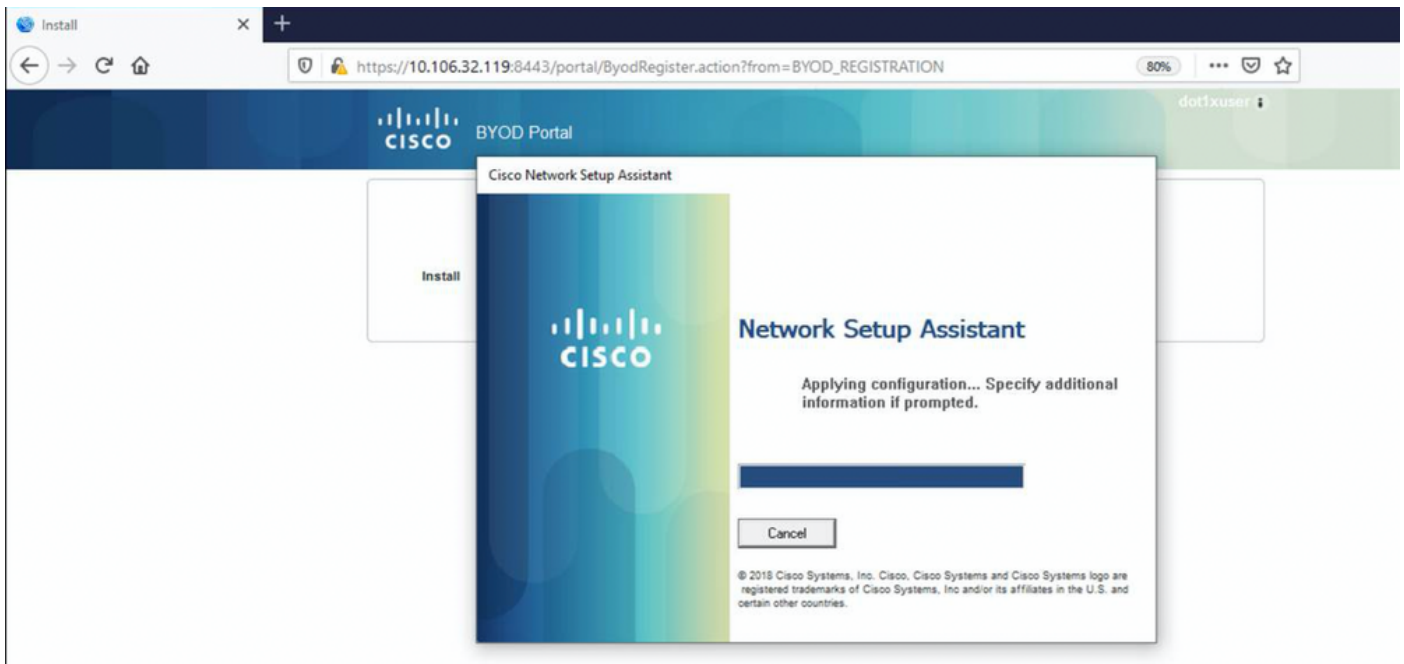
Now, when the user clicks on Start on the NSA, a file named **spwProfile.xml** is temporarily created on the client copying the content from Cisco-ISE-NSP.xml downloaded on TCP port 8905.

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 -::- <?xml version="1.0" encoding="UTF-
8"?><spwProfile xmlns="spwProfile"> <name>WirelessNSP</name>
<spw_xml_version>2.0</spw_xml_version> <description/> <OSs> <os>ALL</os> </OSs>
<ConnectionSetting> <connectionTypes> <connectionType>wireless</connectionType>
</connectionTypes> <wifiSSIDs> <SSID>BYOD-Dot1x</SSID> </wifiSSIDs> <EAPConfig>
<EncryptionTunnel> <SecurityType>WPA2</SecurityType> <OuterEAPMethod
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="TLS"> <EAPType>TLS</EAPType>
<enableServerCertValidation>>false</enableServerCertValidation> </OuterEAPMethod>
</EncryptionTunnel> </EAPConfig> <CertTemplateInfo> <certTemplateId>e2c32ce0-313d-11eb-b19e-
e60300a810d5</certTemplateId> ---output omitted--- 2020-12-02 05:45:03,310 DEBUG [portal-http-
service15][] cisco.cpm.client.provisioning.StreamingServlet -::- Done Streaming file to
ip:10.106.33.167:WirelessNSP.xml
```

After you read the content from the **spwProfile.xml**, NSA configures the network profile and generates a CSR, and sends it to the ISE to get a certificate using the URL

<https://10.106.32.119:8443/auth/pkclient.exe>



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 certificate 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 = dotlxuser
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=dotlxuser 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=
[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=dotlxuser] ---
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 = dotlxuser 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=dotlxuser, 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]

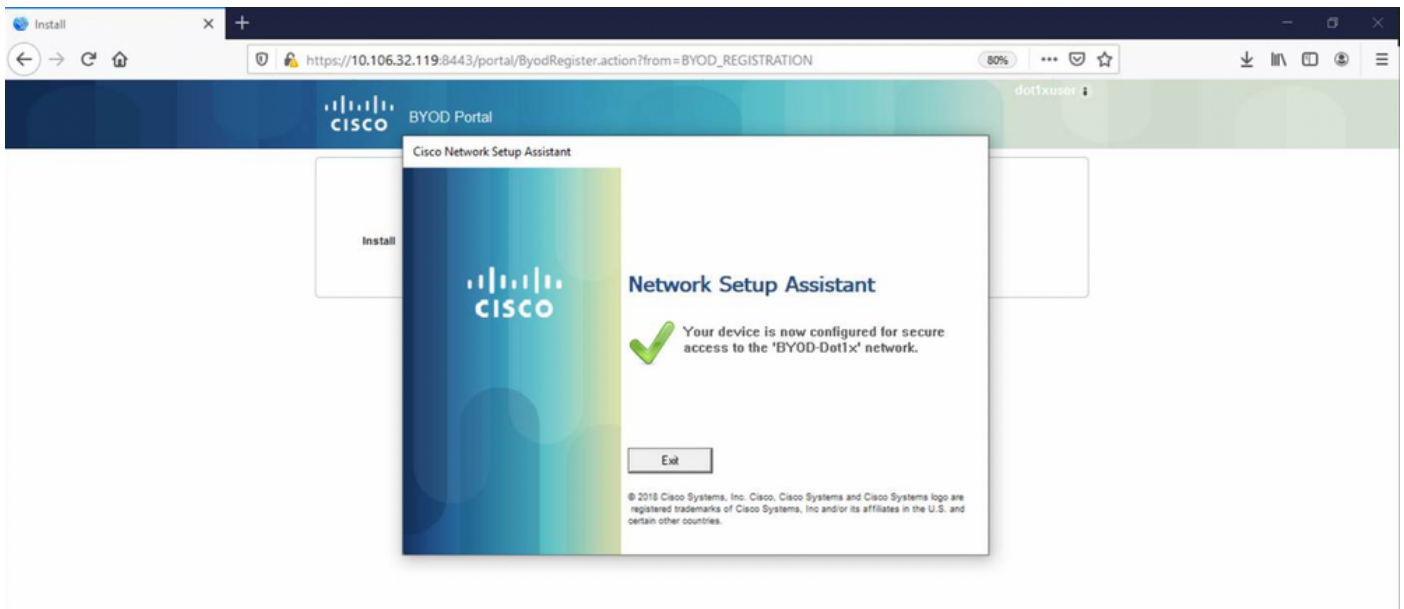
ise-psc.log -

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 -



```

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

```

After certificate installation, clients initiate another authentication using EAP-TLS and get full access.

prrt-server.log -

```

Eap,2020-12-02 05:46:57,175,INFO ,0x7f433e6b8700,cntx=0008591342,sesn=isee30-
primary/392215758/701,CPMSessionID=0a6a21b2000009f5fc770c7,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=0a6a21b2000009f5fc770c7,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: [Û(ÿËöžö|kô,,)] [26] MS-MPPE-Send-Key - value: [****] [26] MS-MPPE-Recv-
Key - value: [****] ,RADIUSHandler.cpp:2216

```

Client Logs (spw logs)

The client initiates to download the Profile.

```

[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

Client Checks if WLAN Service is running.

[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]

The client starts applying profile -

[Mon Nov 30 03:34:37 2020] ApplyProfile - Start... [Mon Nov 30 03:34:37 2020] User Id:
dotluser, 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-DotlX] [Mon Nov 30 03:34:37 2020] applying
certificate for ssid [BYOD-DotlX]

Client install certificate.

[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 = dotluser 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

ISE Configures Wireless Profile

[Mon Nov 30 03:34:51 2020] Configuring wireless profiles... [Mon Nov 30 03:34:51 2020]
Configuring ssid [BYOD-DotlX] [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

<WLANProfile xmlns="http://www.microsoft.com/networking/WLAN/profile/v1"> <name>BYOD-

```
Dot1x</name><SSIDConfig> <SSID> <name>BYOD-Dot1x</name> </SSID>
<nonBroadcast>true</nonBroadcast> </SSIDConfig> <connectionType>ESS</connectionType>
<connectionMode>auto</connectionMode> <autoSwitch>>false</autoSwitch> <MSM> <security>
<authEncryption> <authentication>WPA2</authentication> <encryption>AES</encryption>
<useOneX>true</useOneX> </authEncryption> <OneX
xmlns="http://www.microsoft.com/networking/OneX/v1"> <cacheUserData>true</cacheUserData>
<authMode>user</authMode> <EAPConfig> <EapHostConfig
xmlns="http://www.microsoft.com/provisioning/EapHostConfig"
xmlns:eapCommon="http://www.microsoft.com/provisioning/EapCommon"
xmlns:baseEap="http://www.microsoft.com/provisioning/BaseEapMethodConfig"> <EapMethod>
<eapCommon:Type>13</eapCommon:Type> <eapCommon:AuthorId>0</eapCommon:AuthorId> </EapMethod>
<Config xmlns:baseEap="http://www.microsoft.com/provisioning/BaseEapConnectionPropertiesV1"
xmlns:eapTls="http://www.microsoft.com/provisioning/EapTlsConnectionPropertiesV1"> <baseEap:Eap>
<baseEap:Type>13</baseEap:Type> <eapTls:EapType> <eapTls:CredentialsSource>
<eapTls:CertificateStore> <eapTls:SimpleCertSelection>true</eapTls:SimpleCertSelection>
</eapTls:CertificateStore> </eapTls:CredentialsSource> <eapTls:ServerValidation>
<eapTls:DisableUserPromptForServerValidation>>false</eapTls:DisableUserPromptForServerValidation>
<eapTls:ServerNames /> <eapTls:TrustedRootCA>5b a2 08 1e 17 cb 73 5f ba 5b 9f a2 2d 3b fc d2 86
0d a5 9b </eapTls:TrustedRootCA> </eapTls:ServerValidation>
<eapTls:DifferentUsername>>false</eapTls:DifferentUsername> </eapTls:EapType> </baseEap:Eap>
</Config> </EapHostConfig> </EAPConfig> </OneX> </security> </MSM> </WLANProfile> 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.
```