Configure ISE Self Registered Guest Portal

Contents

Introduction

This document describes how to configure and troubleshoot ISE Self Registered Guest Portal functionality.

Prerequisites

Requirements

Cisco recommends that you have experience with ISE configuration and basic knowledge of these topics:

- ISE deployments and Guest flows
- Configuration of Wireless LAN Controllers (WLC)

Components Used

Self Registered Guest Portal, allows guest users to self-register along with employees to use their AD credentials to gain access to network resources. This Portal allows you to configure and customize multiple features.

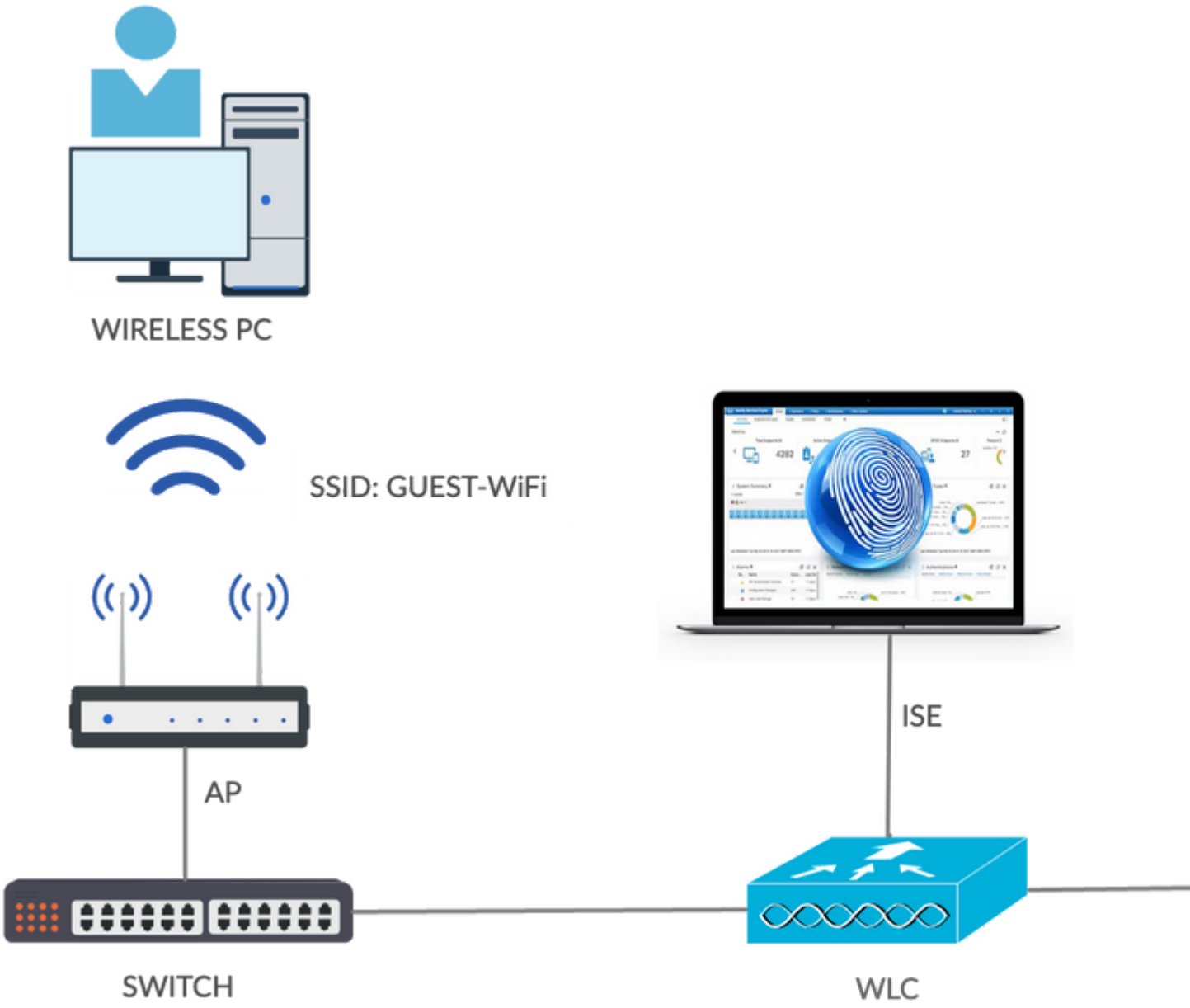
The information in this document is based on these software and hardware versions:

- Microsoft Windows 10 Pro

- Cisco WLC 5508 with version 8.5.135.0
- ISE Software, Version 3.0

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.

Topology and Flow



This scenario presents multiple options available for guest users when they perform self-registration.

Here is the general flow:

Step 1. Guest user associates to Service Set Identifier (SSID): Guest-WiFi. This is an open network with MAC filtering with ISE for authentication. This authentication matches the second authorization rule on the ISE and the authorization profile redirects to the Guest Self Registered Portal. ISE returns a RADIUS

Access-Accept with two cisco-av-pairs:

- url-redirect-acl (which traffic must be redirected, and the name of Access Control List (ACL) defined locally on the WLC)
- url-redirect (where to redirect that traffic- to ISE)

Step 2. The guest user is redirected to ISE. Rather than provide credentials in order to log in, the user clicks **Register for Guest Access.** The user is redirected to a page where that account can be created. An optional secret registration code can be enabled in order to limit the self-registration privilege to people who know that secret value. After the account is created, the user is provided credentials (username and password) and logs in with those credentials.

Step 3. ISE sends a RADIUS Change of Authorization (CoA) Reauthenticate to the WLC. The WLC re-authenticates the user when it sends the RADIUS Access-Request with the Authorize-Only attribute. ISE responds with Access-Accept and Airespace ACL defined locally on the WLC, which provides access to the Internet only (final access for guest user depends on the authorization policy).

> **Note**: Extensible Authentication Protocol (EAP) sessions, ISE must send a CoA Terminate in order to trigger re-authentication because the EAP session is between the supplicant and the ISE. But for MAB (MAC filtering), CoA Reauthenticate is enough; there is no need to de-associate/de-authenticate the wireless client.

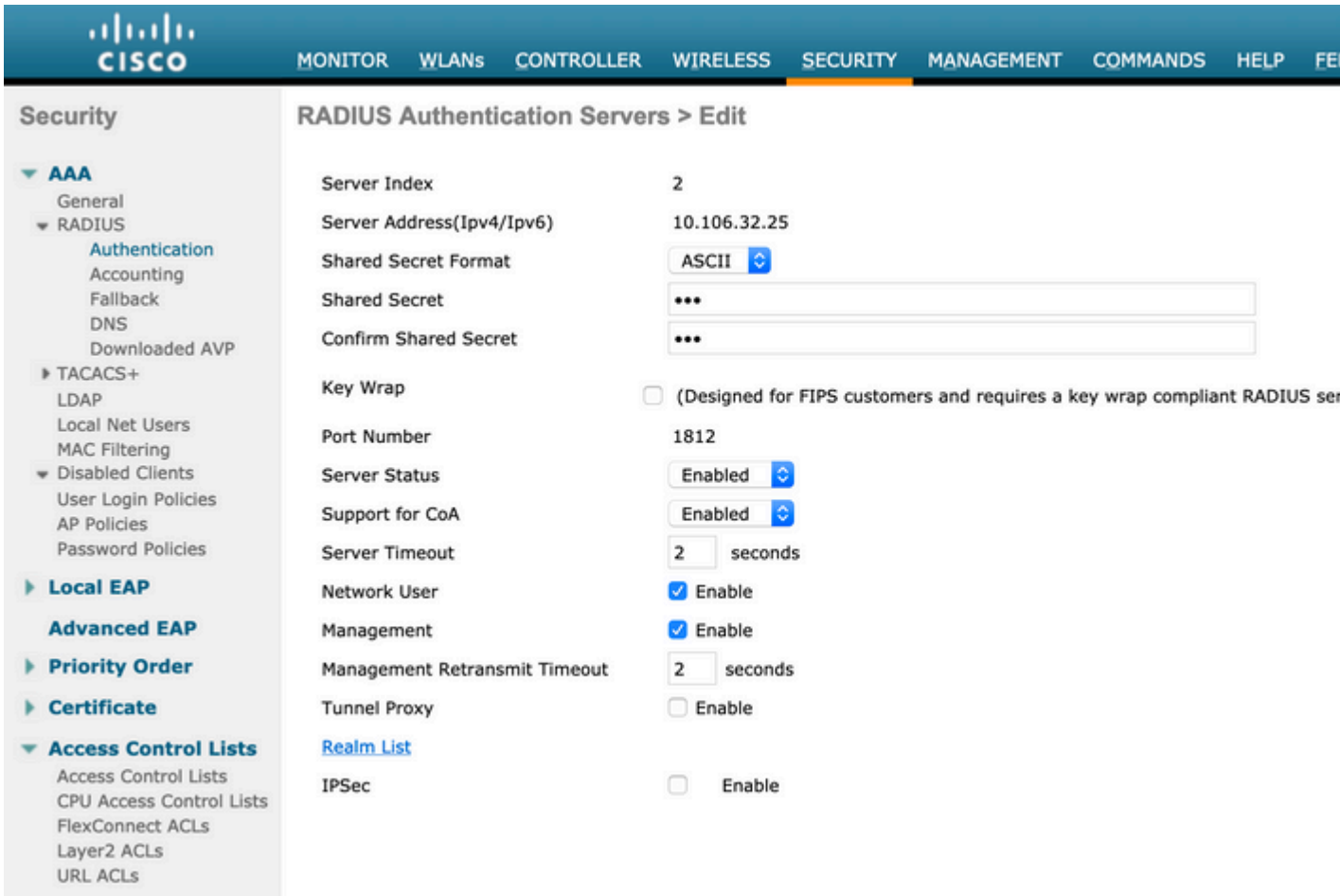
Step 4. The guest user has desired access to the network.

Multiple additional features like posture and Bring Your Own Device (BYOD) can be enabled (discussed later).

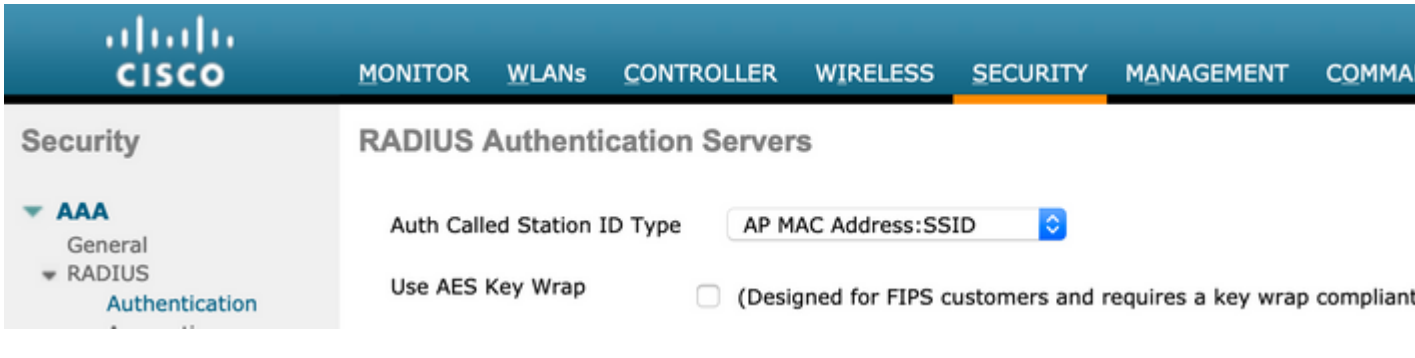
Configure

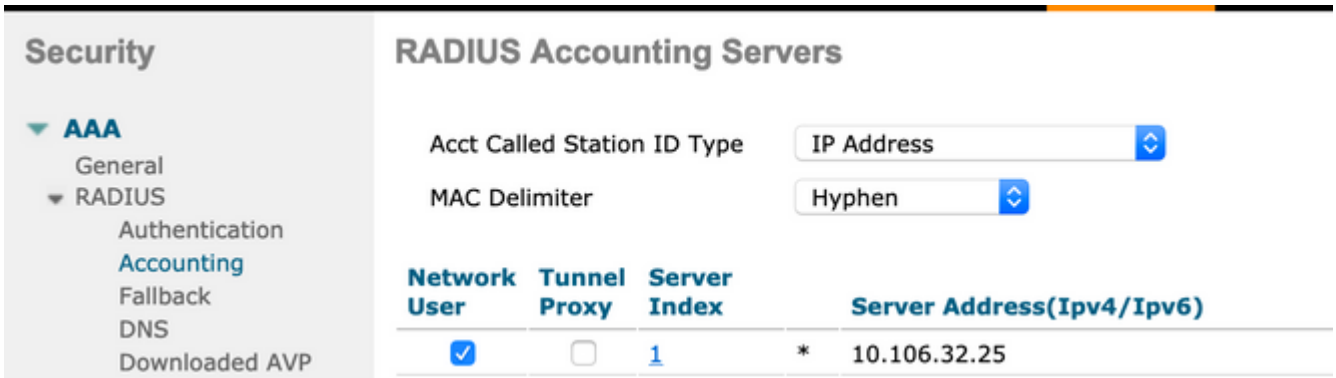
WLC

1. Add the new RADIUS server for Authentication and Accounting. Navigate to **Security** > **AAA** > **Radius** > **Authentication** in order to enable RADIUS CoA (RFC 3576).



There is a similar configuration for Accounting. It is also advised to configure the WLC to send SSID in the Called Station ID attribute, which allows the ISE to configure flexible rules based on SSID:





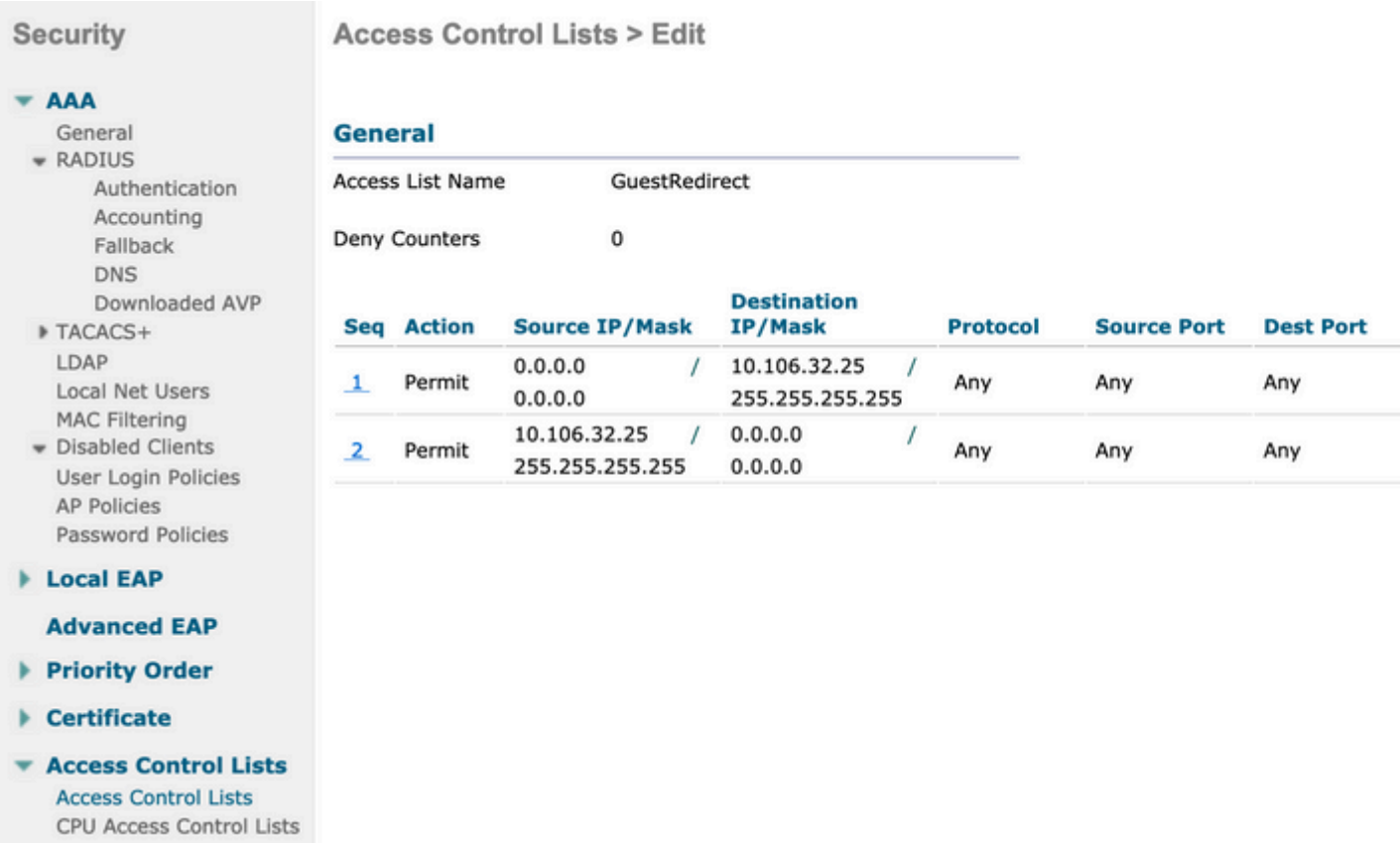
2. Under the WLANs tab, create the Wireless LAN (WLAN) Guest-WiFi and configure the Correct Interface. Set Layer2 security to **None** with MAC filtering. In Security/Authentication, Authorization, and Accounting (AAA) Servers, select the ISE IP address for both Authentication and Accounting. On

the Advanced tab, enable **AAA Override** and set the Network Admission Control (NAC) State to ISE NAC (CoA support).

3. Navigate to **Security** > **Access Control Lists** > **Access Control Lists** and create two access lists:

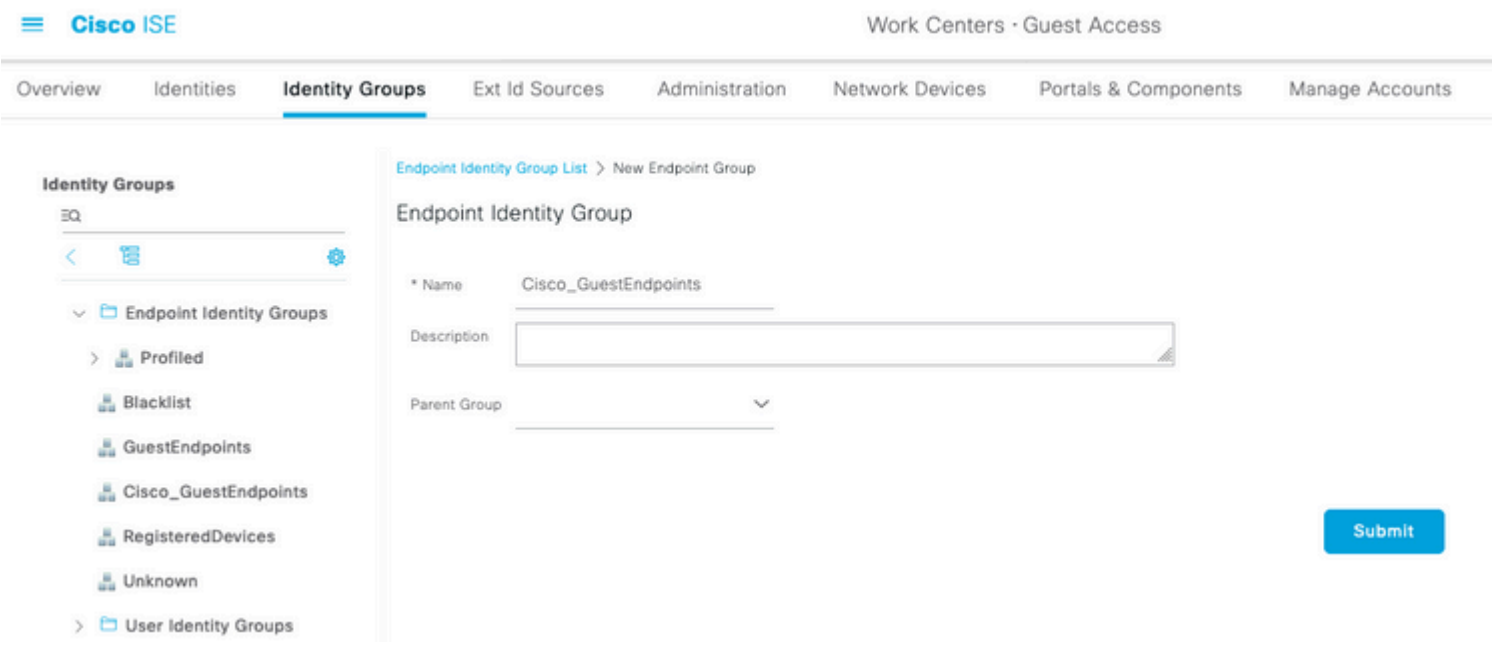
   - GuestRedirect, which permits traffic that must not be redirected and redirects all other traffic
   - Internet, which is denied for corporate networks and permitted for all others

   Here is an example for GuestRedirect ACL (need to exclude traffic to/from ISE from redirection):

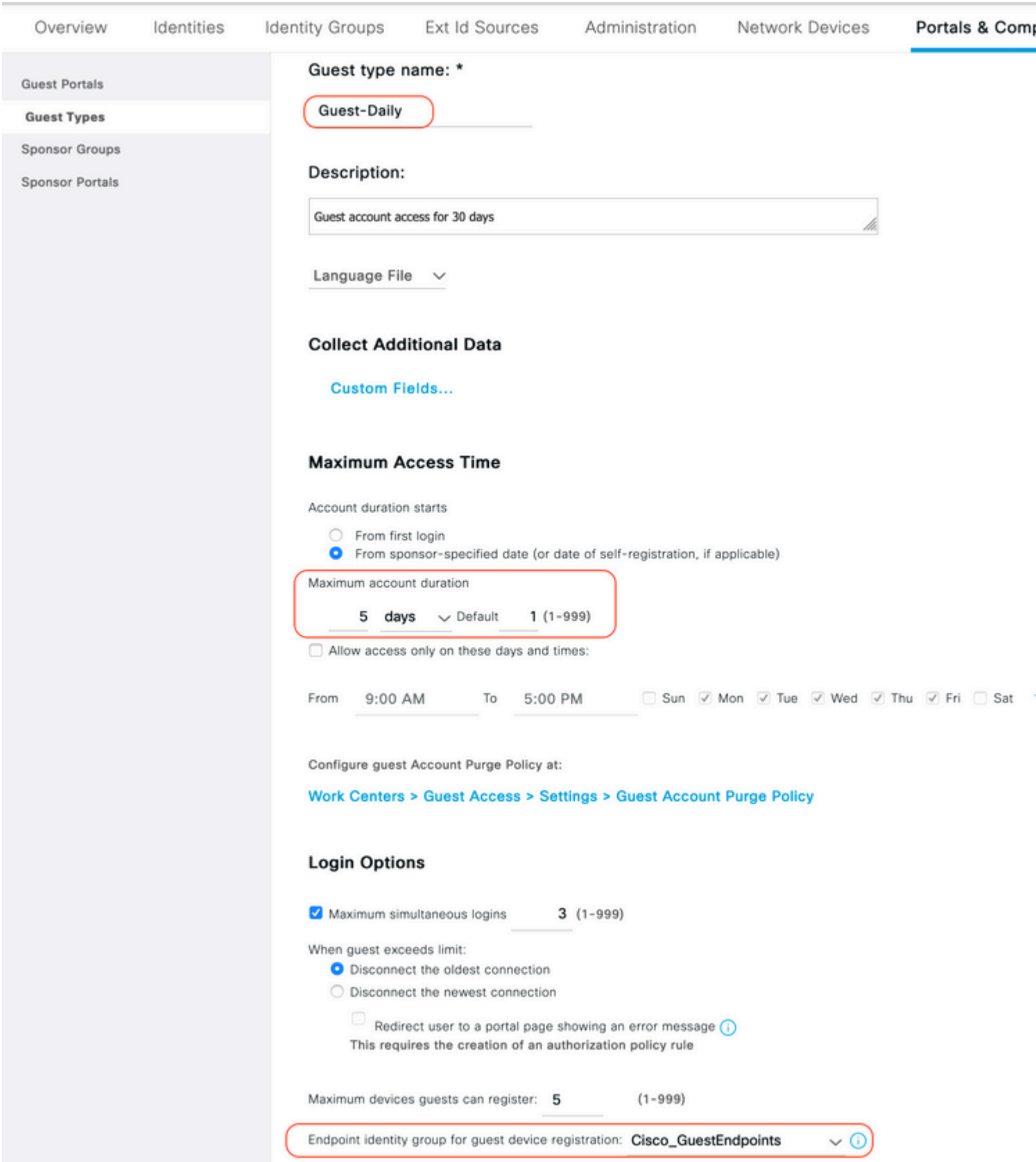


ISE

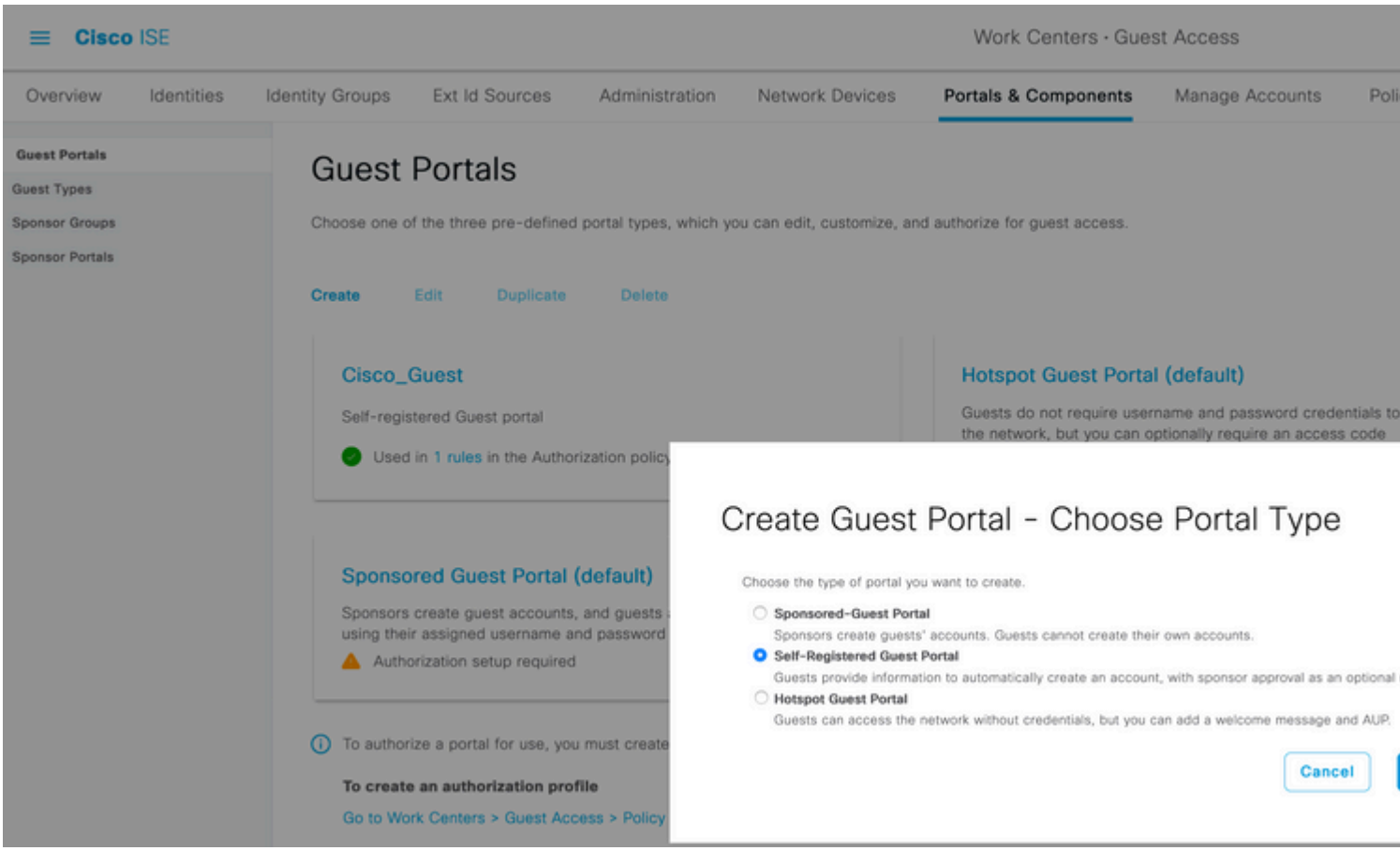
1. Add the WLC as a Network Access Device from **Work Centers** > **Guest Access** > **Network Devices**.
2. Create Endpoint Identity Group. Navigate to **Work Centers** > **Guest Access** > **Identity Groups** > **Endpoint Identity Groups.**



3. Create a Guest Type by navigating to **Work Centers > Guest Access > Portal & Components > Guest Types.** Refer to the previously created Endpoint Identity Group under this new Guest Type and Save.



4. Create a new Guest Portal Type: Self-Registered Guest Portal. Navigate to **Work Centers > Guest Access > Guest Portals.**

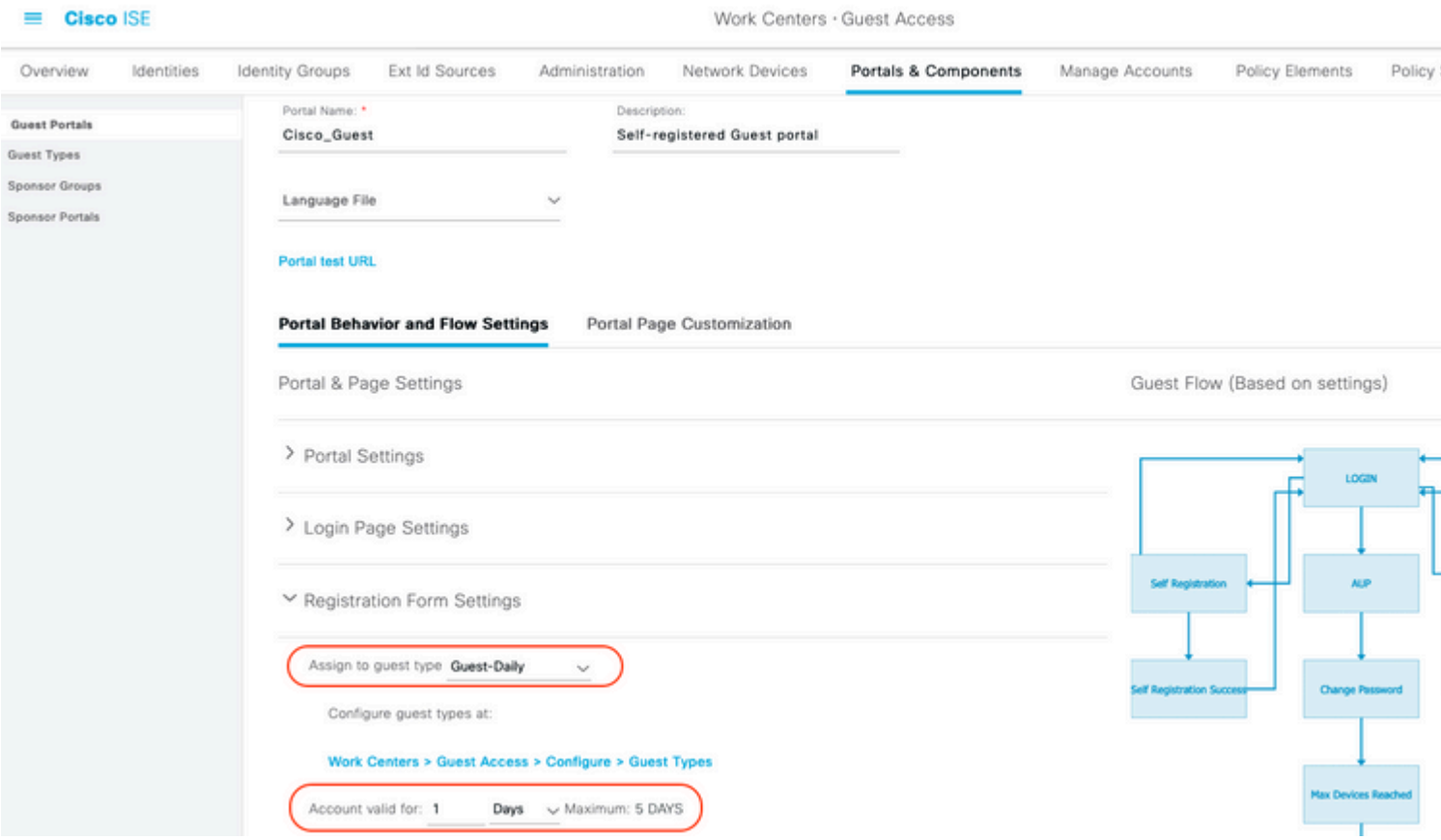


5. Choose the portal name, refer to the Guest Type created before and send credential notification settings under Registration Form settings to send the credentials via Email.

Refer to this document on how to configure the SMTP server on ISE:

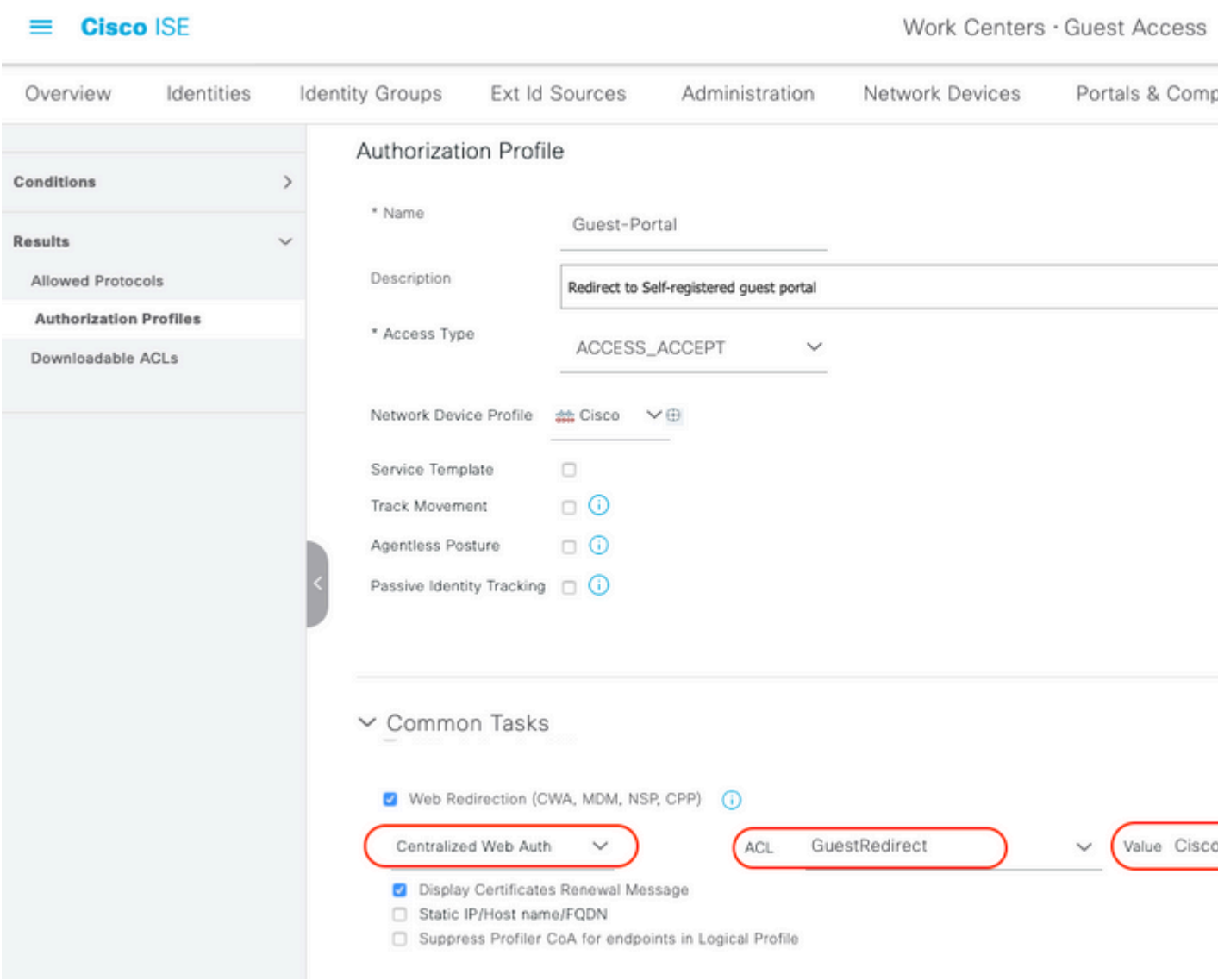
https://www.cisco.com/c/en/us/support/docs/security/identity-services-engine/216187-configure-secure-smtp-server-on-ise.html

Leave all of the other settings to default. Under Portal Page Customization, all pages presented can be customized. By default, the Guest account is valid for 1 day and it can be extended to the number of days configured under the specific Guest Type.

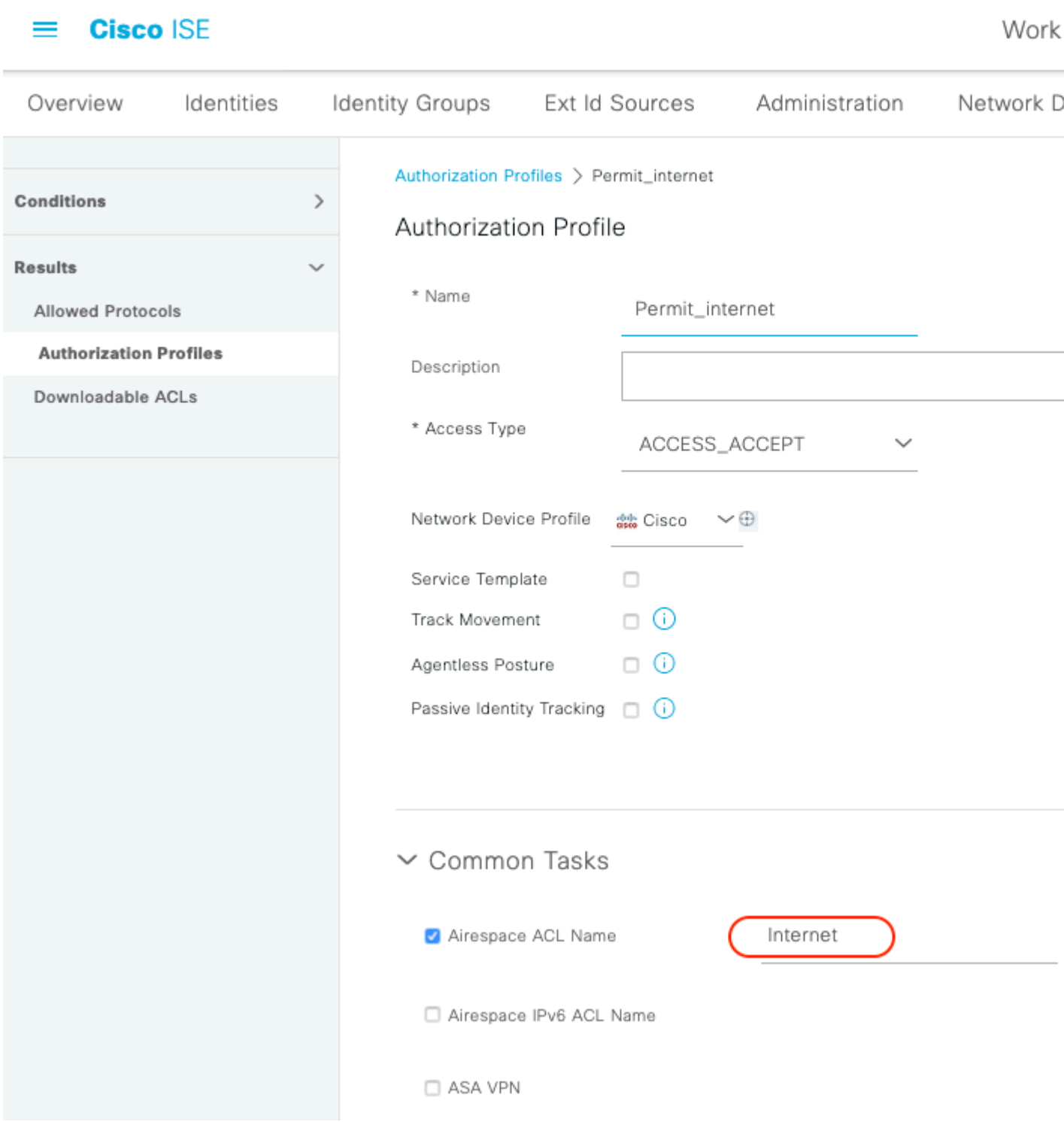


6. Configure these two Authorization Profiles by Navigating to **Work Centers > Guest Access > Policy Elements > Results > Authorization Profiles**.

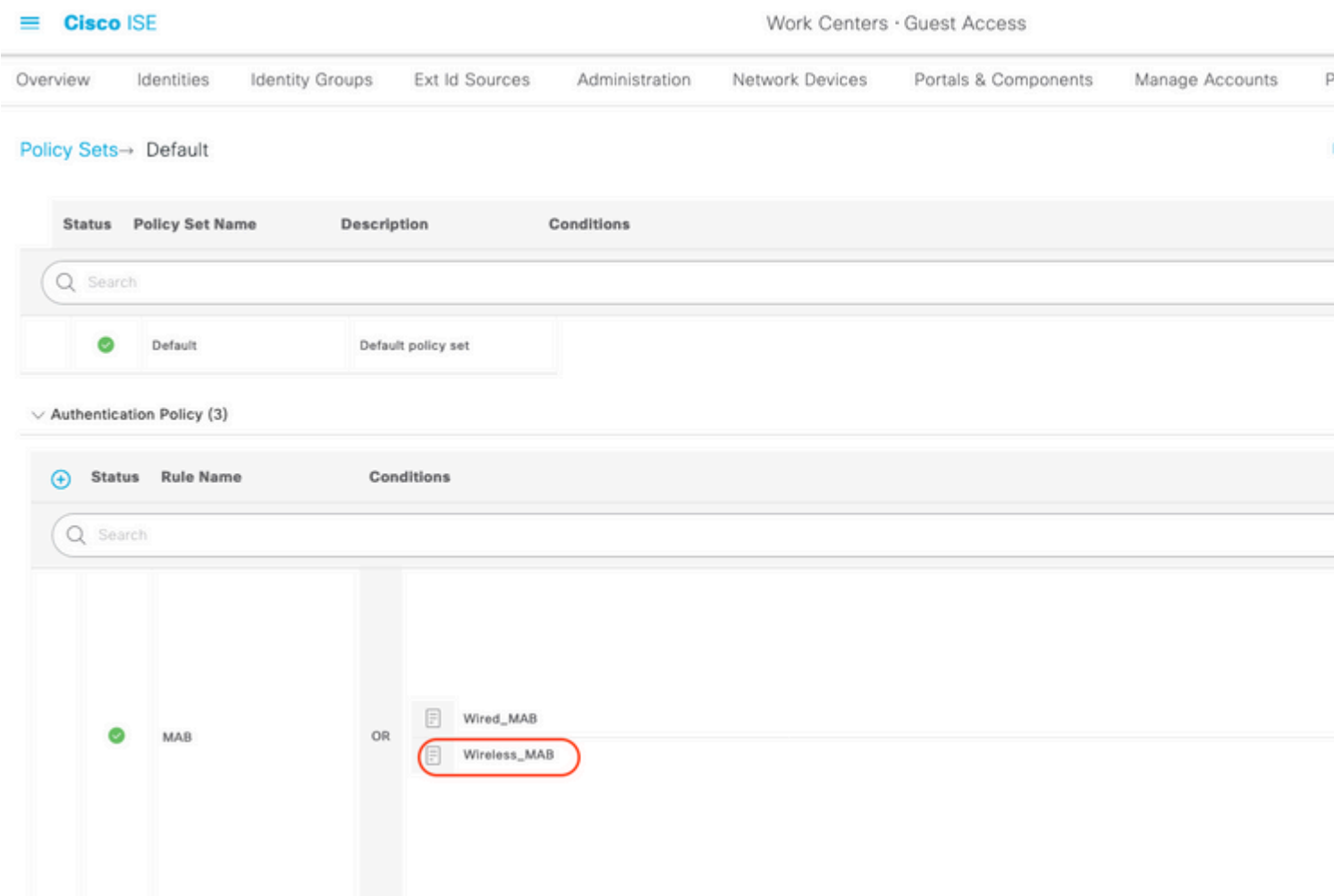
- Guest-Portal (with redirection to Guest portal **Cisco_Guest** and a Redirect ACL named **GuestRedirect**). This GuestRedirect ACL was created earlier on WLC.



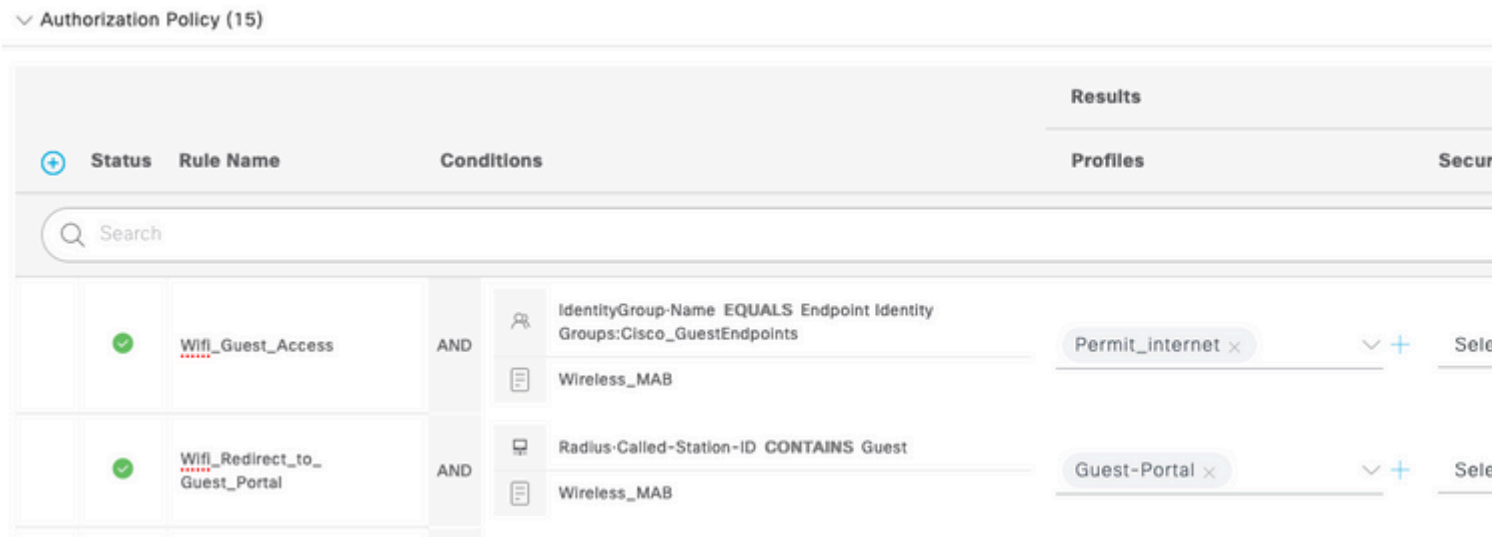
- Permit_Internet (with Airespace ACL equal Internet)



7. Modify Policy Set named Default. The default policy set is preconfigured for Guest portal access. An **authentication policy** named MAB is present, which allows MAC Authentication Bypass (MAB) authentication to continue (not reject) for unknown Mac address.



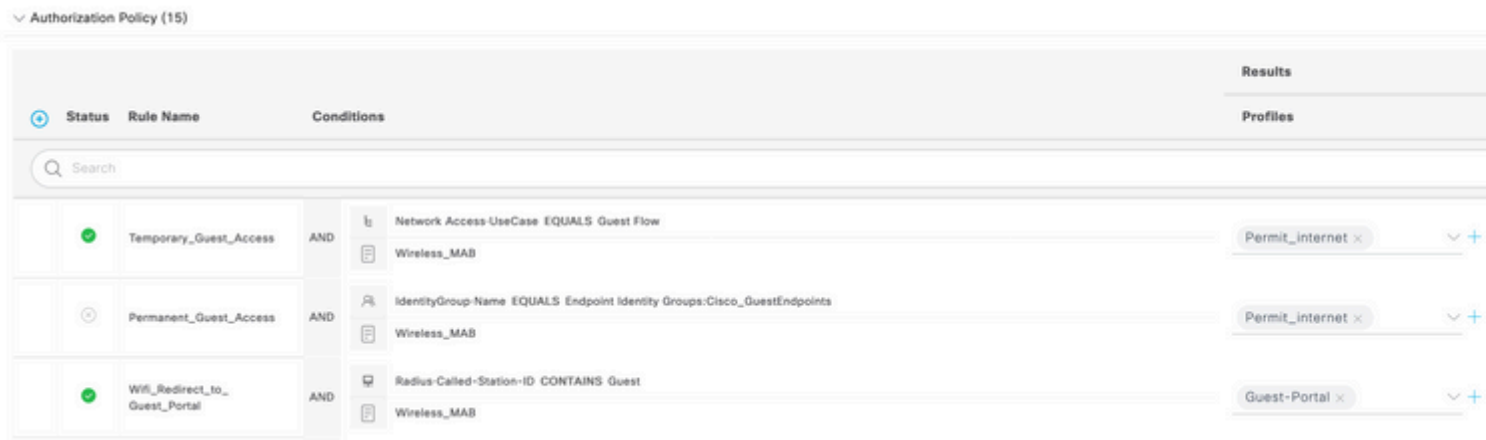
8. Navigate to **Authorization policy** on the same page. Create this Authorization Rules, as shown in this image.



New users when associate with the Guest SSID are not yet part of any identity group and therefore match the second rule and get redirected to Guest Portal.

After the user logs in successfully, ISE sends a RADIUS CoA and the WLC performs re-authentication. This time, the first authorization rule is matched (as endpoint becomes part of defined endpoint identity group) and the user gets Permit_internet authorization Profile.

9. We can also provide Temporary Access to the Guests by using the condition Guest flow. That condition is checking active sessions on ISE and it is attributed. If that session has the attribute indicating that previously guest user has authenticated successfully condition is matched. After ISE receives Radius Accounting Stop message from Network Access Device (NAD), session is terminated and later removed. At that stage the condition Network Access:UseCase = Guest Flow is not satisfied anymore. As a result, all subsequent authentications of that endpoint hits generic rule redirecting for guest authentication.



> **Note**: At a time, you can use either the Temporary Guest access or Permanent Guest Access but not the both.

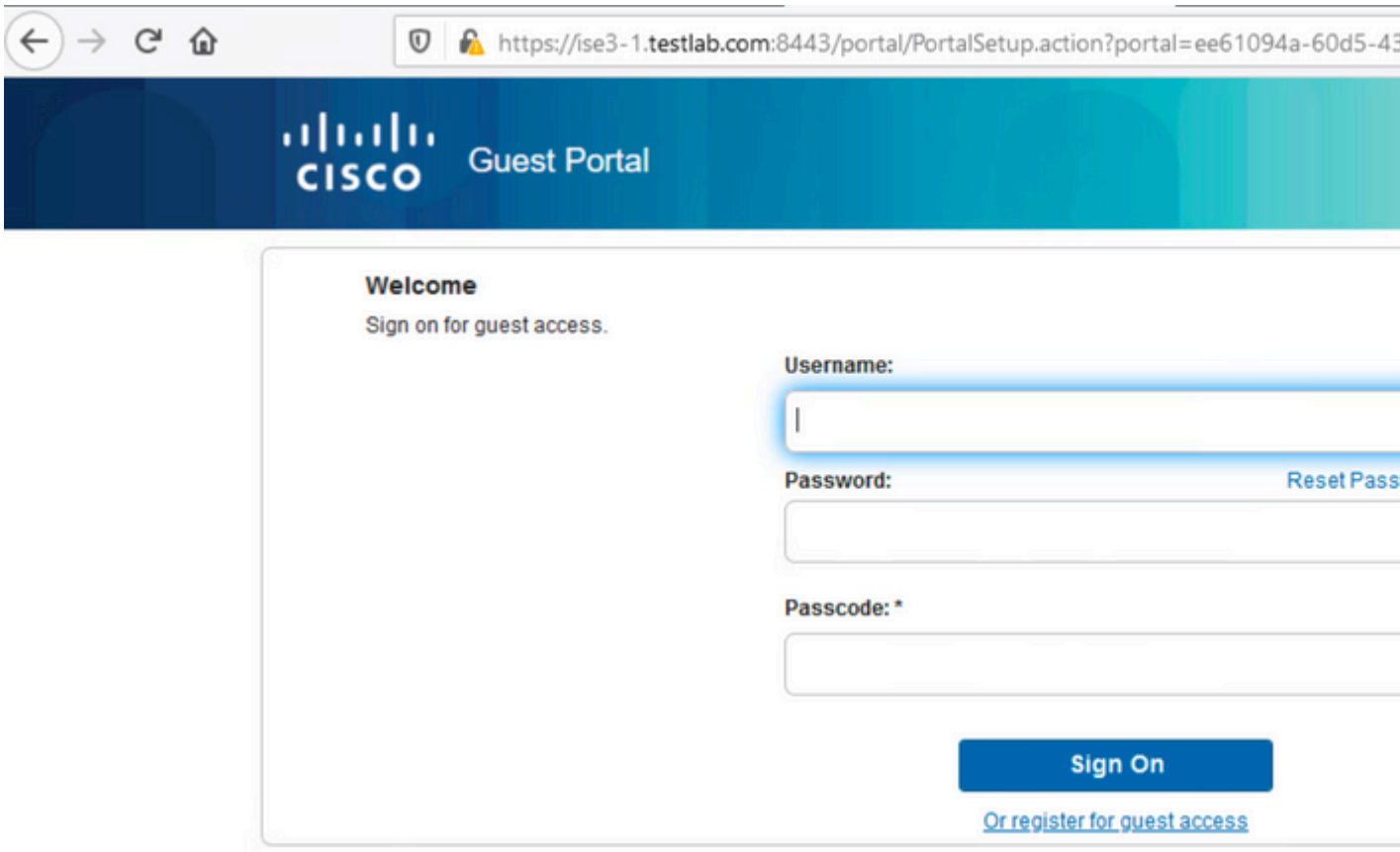
Refer to this document for ISE Guest Temporary and Permanent access configuration in detail.

https://www.cisco.com/c/en/us/support/docs/security/identity-services-engine/200273-Configure-ISE-Guest-Temporary-and-Perman.html

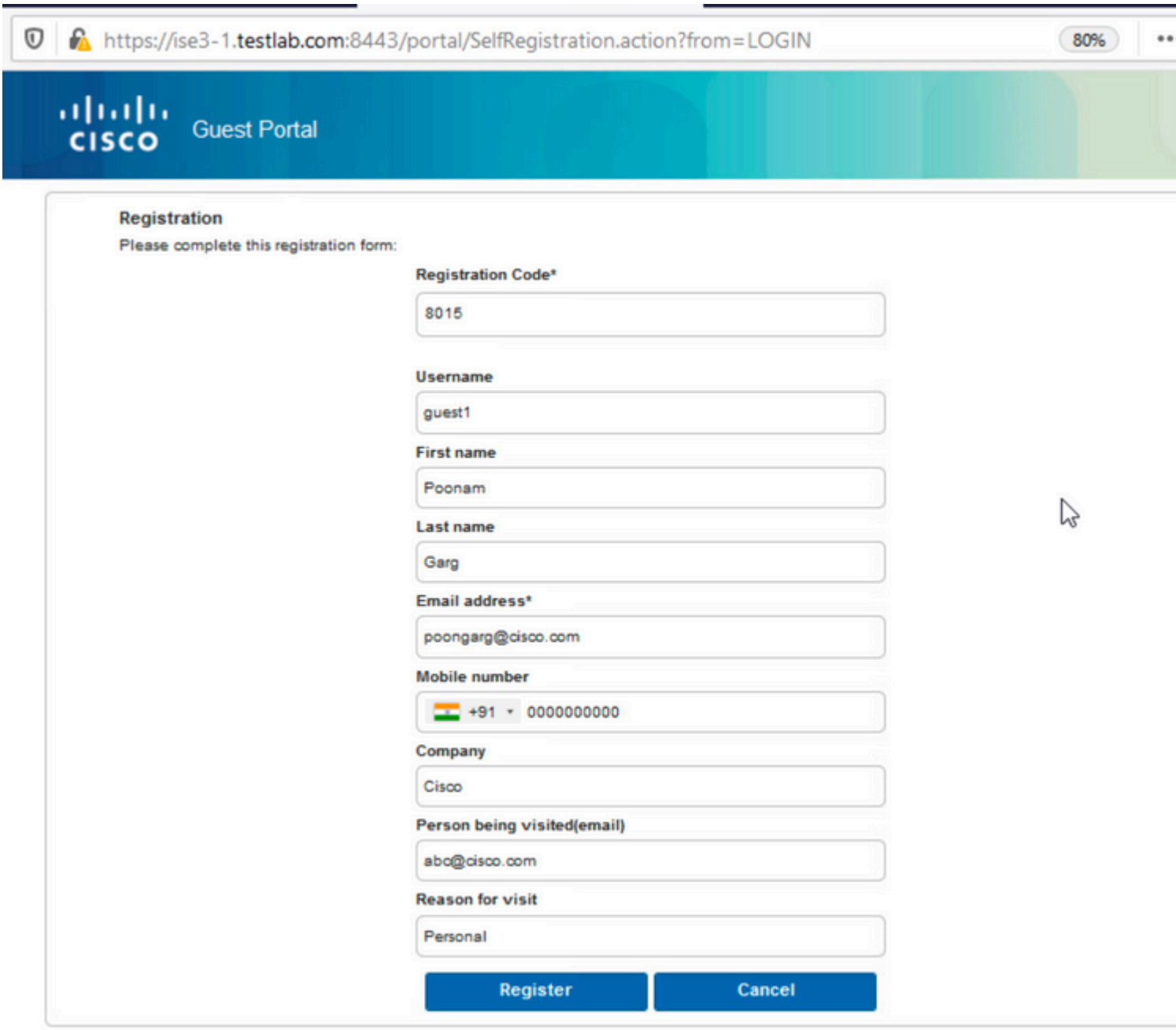
Verify

Use this section in order to confirm that your configuration works properly.

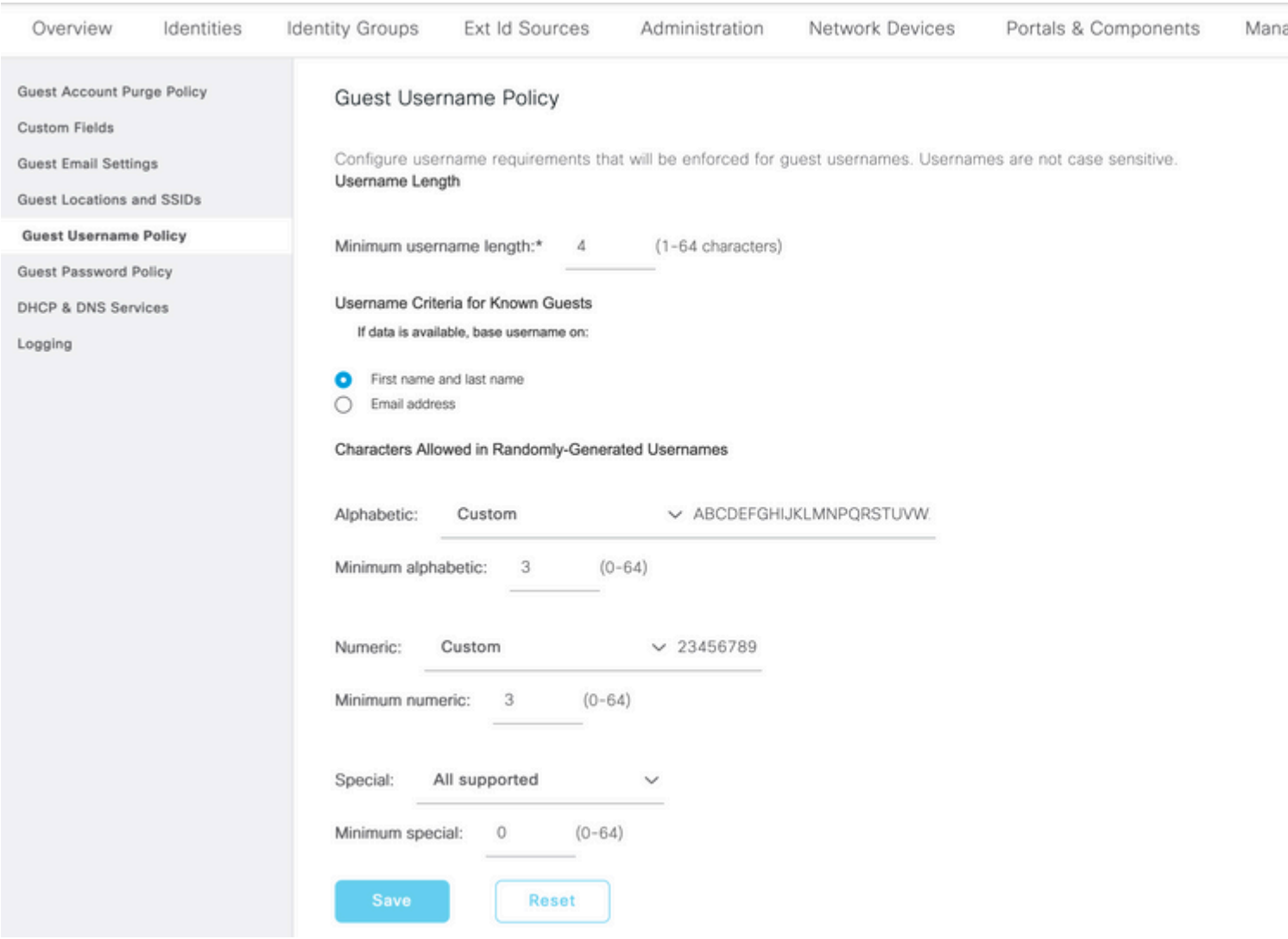
1. After you associate with the Guest SSID and type a URL, then you are redirected to the Guest Portal page, as shown in the image.



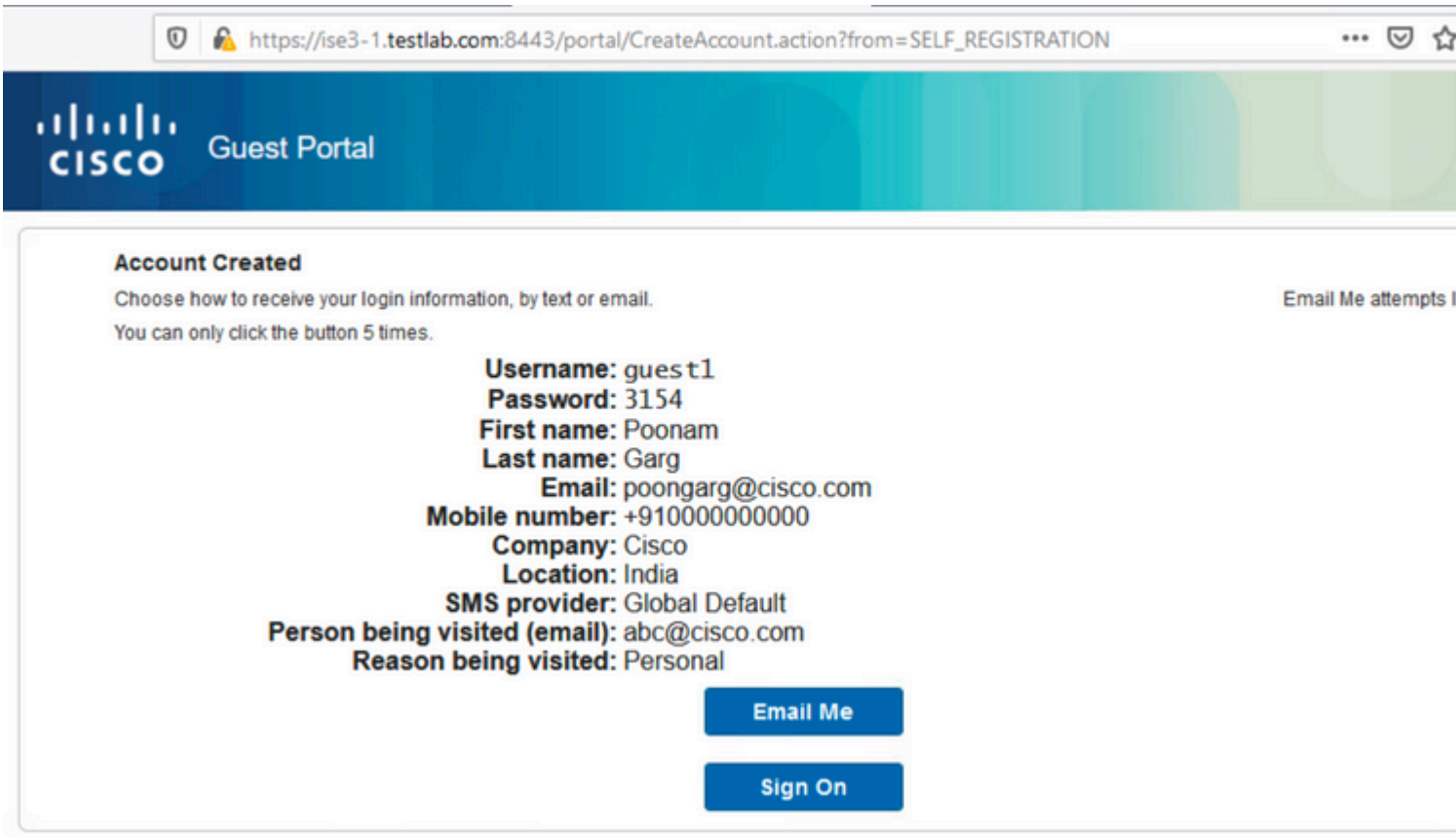
2. Since you donâ€™t have any credentials yet, you must choose the option **Register for Guest access**. You are presented with the Registration form to create the account. If the Registration Code option was enabled under the Guest Portal configuration, that secret value is required (this ensures that only people with correct permissions are allowed to self-register).

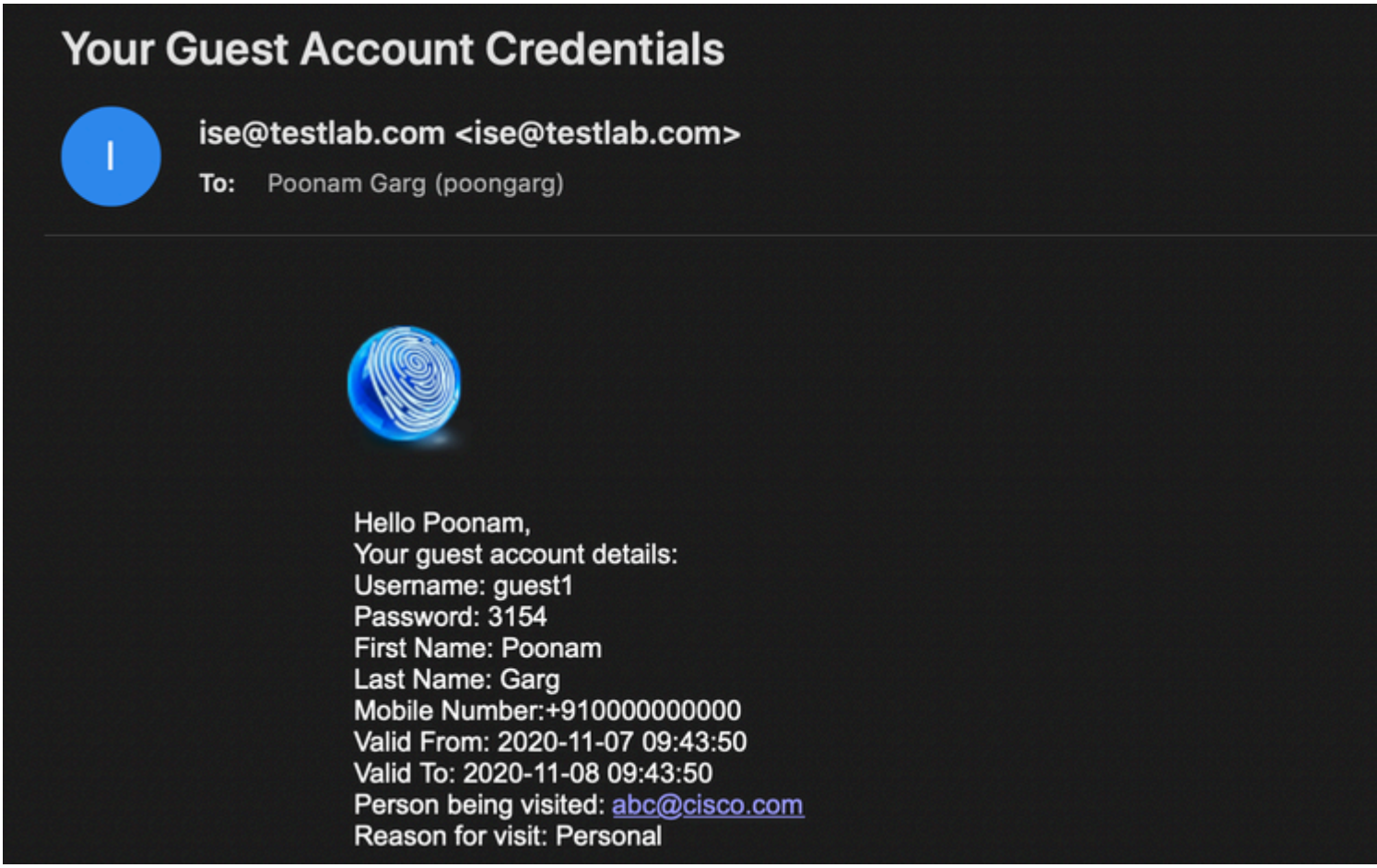


3. If there are any problems with the password or the user policy, navigate to **Work Centers > Guest Access > Settings > Guest Username Policy** in order to change settings. Here is an example:



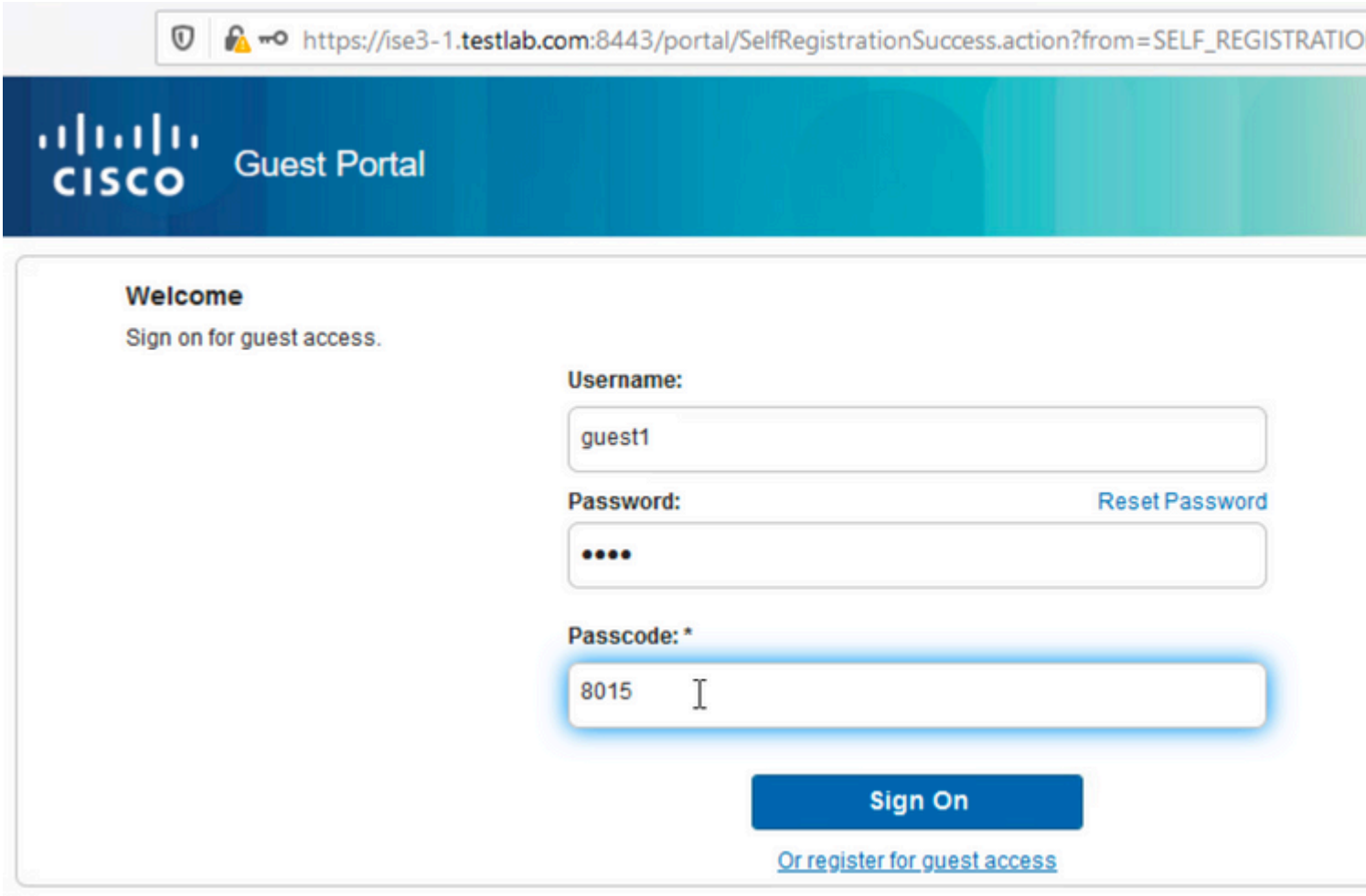
4. After successful account creation, you are presented with credentials (password generated as per guest password policies) also guest user gets the email notification if it is configured:





5. Click **Sign On** and provide credentials (additional Access Passcode can be required if configured under the Guest Portal; this is another security mechanism that allows only those who know the password to log

in).



6. When successful, an optional Acceptable Use Policy (AUP) can be presented (if configured under the Guest Portal). The user is presented with a change password option and the Post-Login Banner (also configurable under Guest Portal) can also display.

https://ise3-1.testlab.com:8443/portal/LoginSubmit.action?from=LOGIN

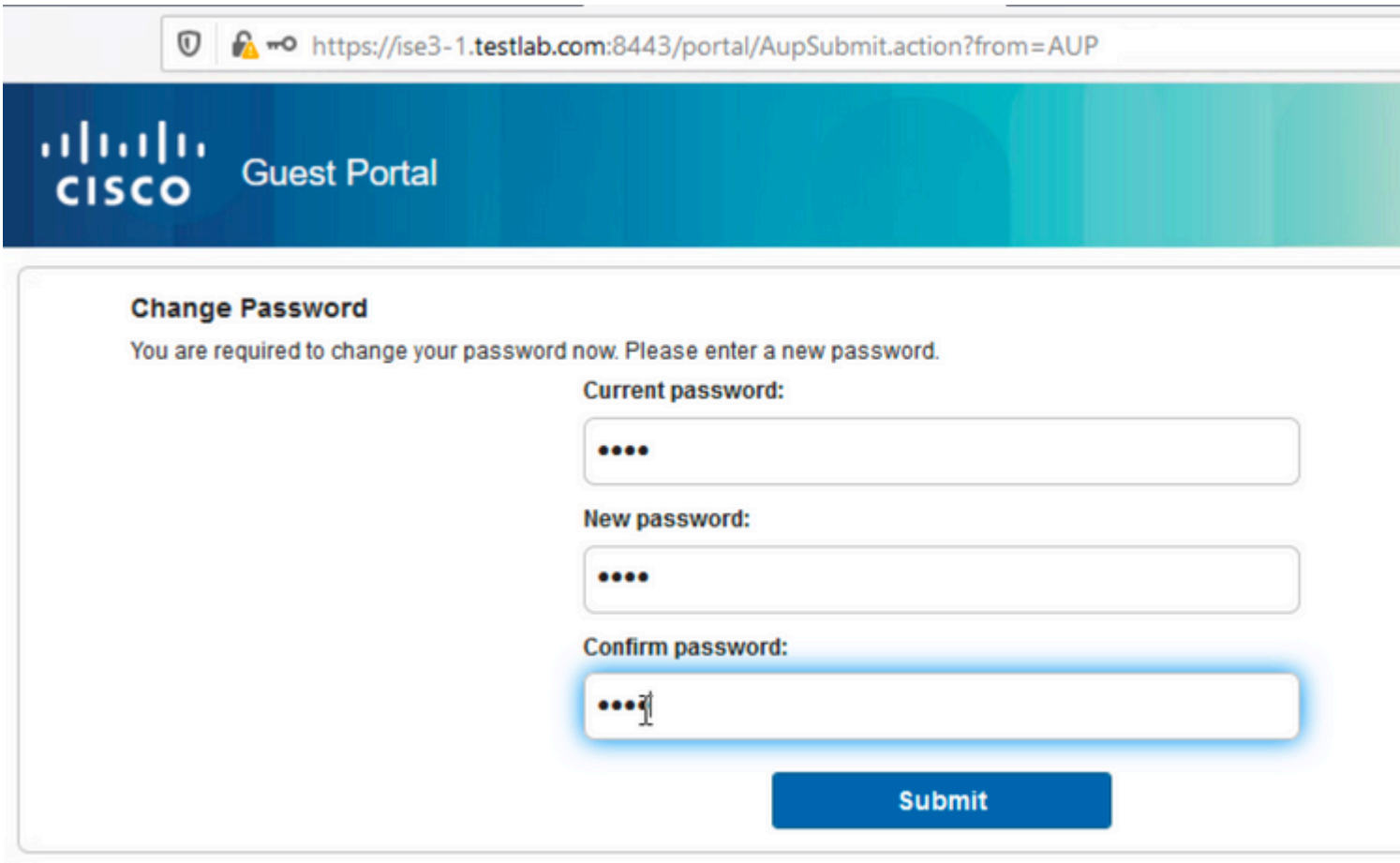
CISCO Guest Portal

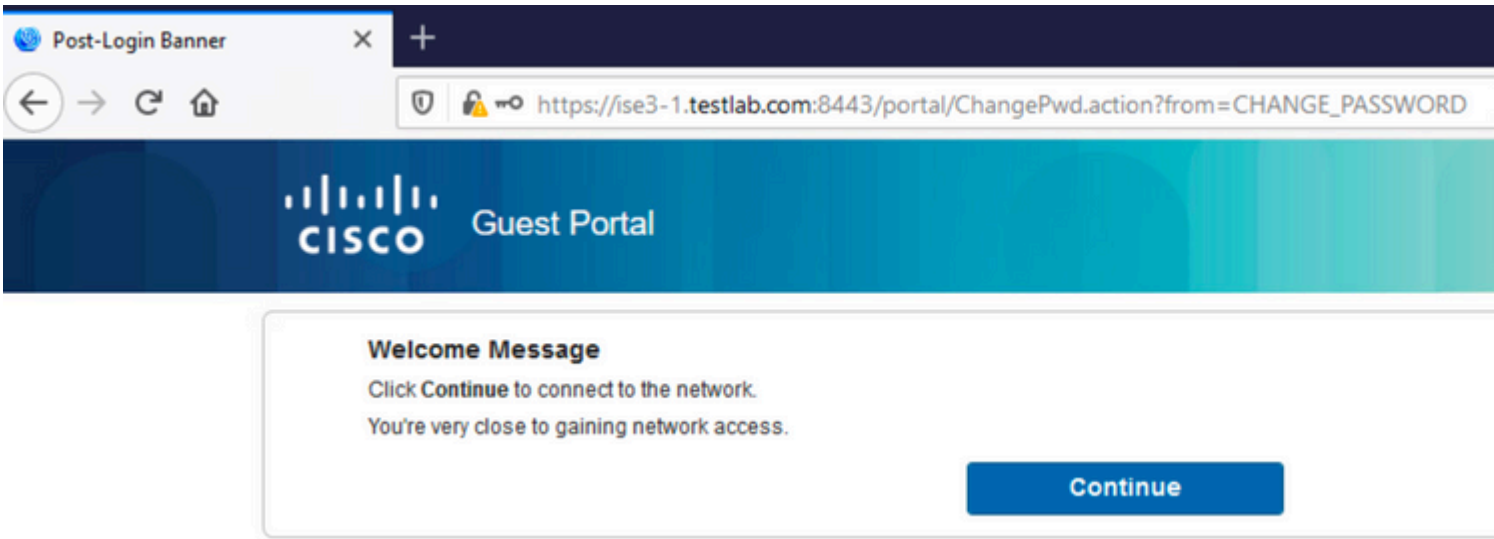
Acceptable Use Policy

Please read the Acceptable Use Policy

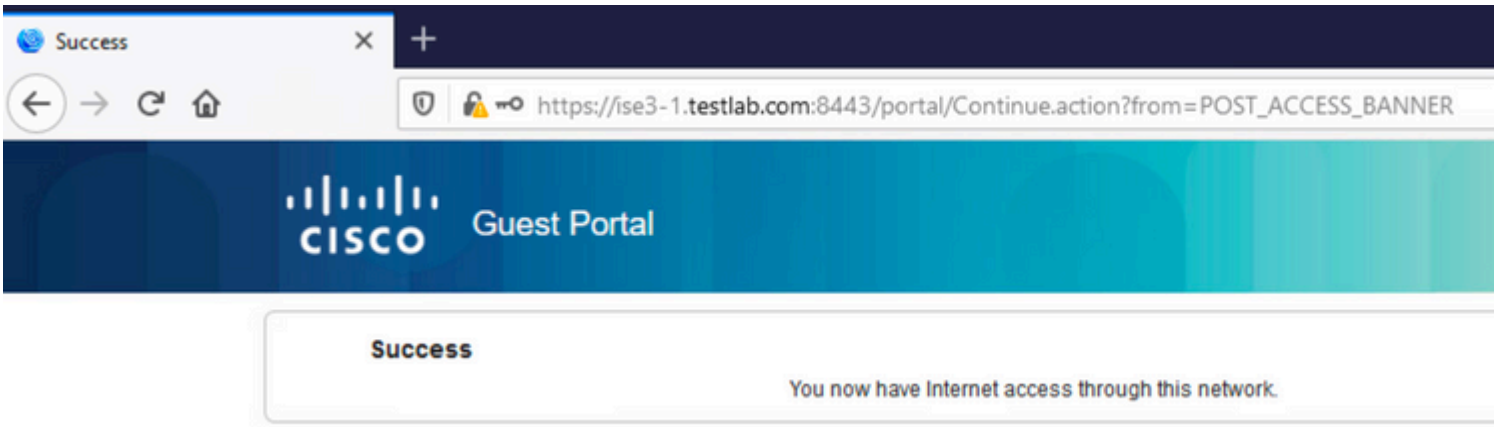
Please accept the policy:You are responsible for maintaining the confidentiality of the password and all activities that occur under your username and password.Cisco Systems offers the Service for activities such as the active use of e-mail, instant messaging, browsing the World Wide Web and accessing 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 ifCisco 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 and agreements, and aspects of the Service itself. Notice of any revision, amendment, or

Accept Decline





7. The last page (Post-Login Banner) confirms that access has been granted:



Troubleshoot

This section provides information you can use in order to troubleshoot your configuration.

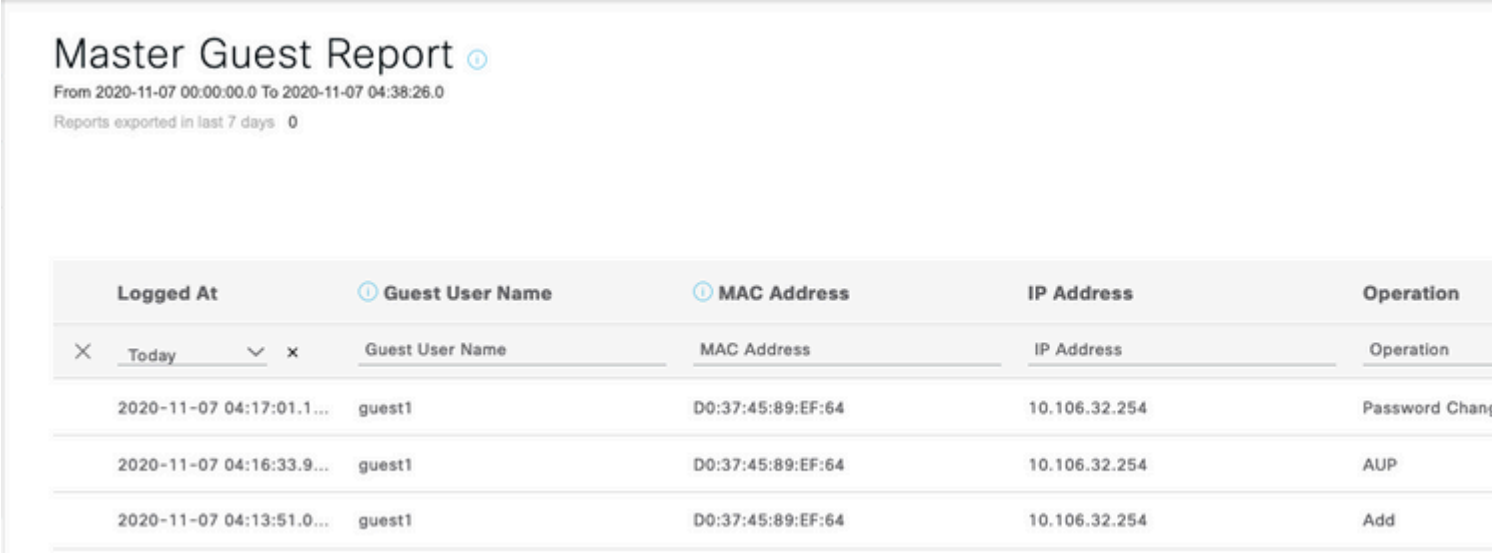
At this stage, ISE presents these logs under **Operations > RADIUS > Live Logs**, as shown in the image.

Time	Status	Details	Identity	Endpoint ID	Authenticat...	Authorization Policy	Authorization P...	IP Address	Id
			Identity	Endpoint ID	Authentication	Authorization Policy	Authorization Profile	IP Address	
Nov 07, 2020 04:17:32.46...			guest1	D0:37:45:89:EF:64	Default	Default >> Permanent_Guest_Access	Permit_internet	10.106.32.2...	
Nov 07, 2020 04:17:32.42...			guest1	D0:37:45:89:EF:64	Default	Default >> Permanent_Guest_Access	Permit_internet		Us
Nov 07, 2020 04:17:32.39...				D0:37:45:89:EF:64					
Nov 07, 2020 04:16:14.85...			guest1	D0:37:45:89:EF:64				10.106.32.2...	Gu
Nov 07, 2020 03:43:30.75...			D0:37:45:89:EF:64	D0:37:45:89:EF:64	Default >> MAB	Default >> Wifi_Redirect_to_ Guest_Portal	Guest-Portal		Pr

Here is the flow:

- The guest user encounters the second authorization rule (Wifi_Redirect_to_Guest_Portal) and is redirected to Guest-Portal (**Auhentication succeeded**).
- The guest is redirected for self-registration. After successfully login (with the newly-created account), ISE sends the CoA Reauthenticate, which is confirmed by the WLC (**Dynamic Authorization succeeded**).
- The WLC performs re-authentication with the Authorize-Only attribute and the ACL name is returned (**Authorize-Only succeeded**). The guest is provided the correct network access.

Reports (**Operations > Reports > Guest > Master Guest Report**) also confirms that:



Master Guest Report

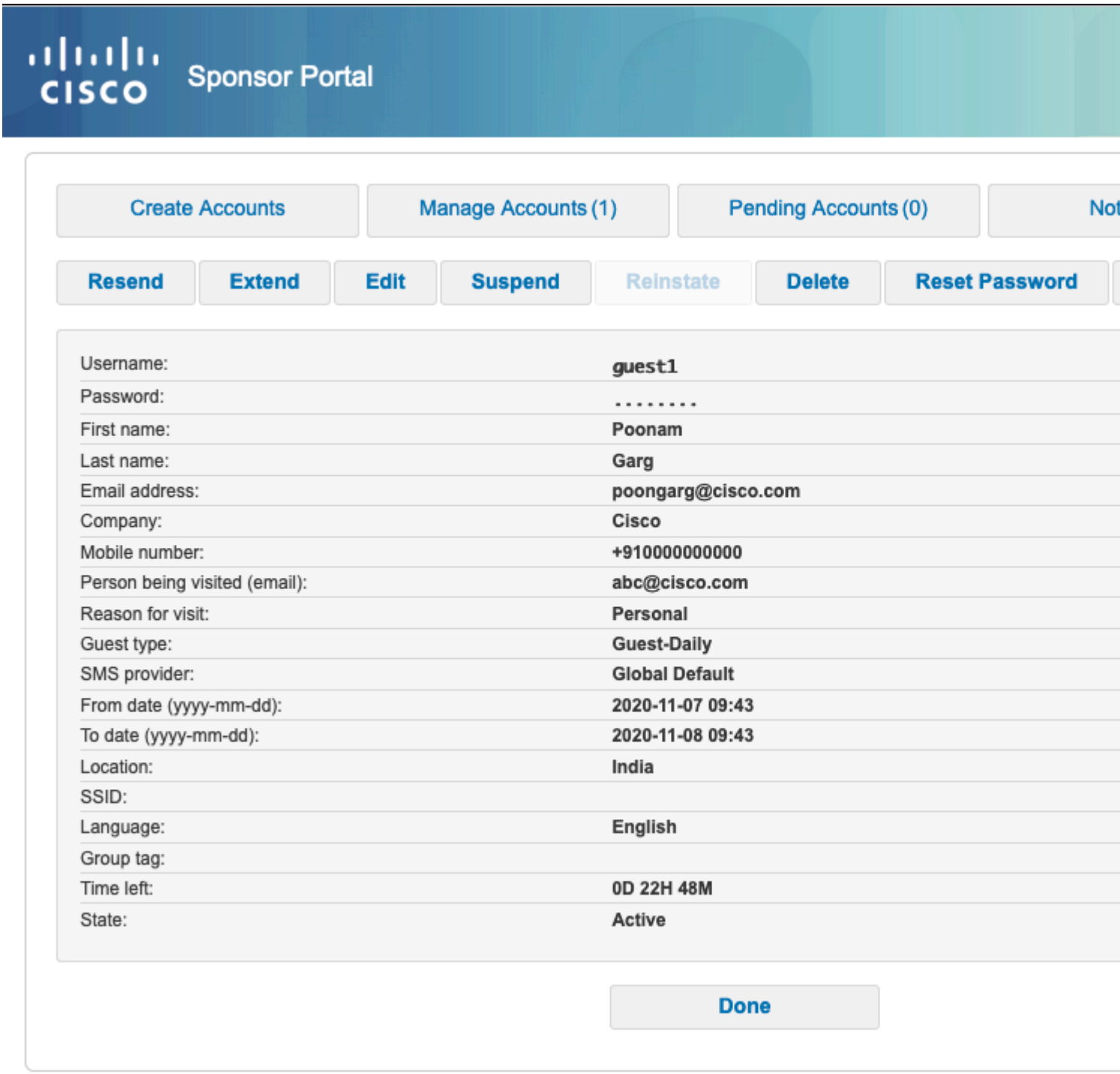
From 2020-11-07 00:00:00.0 To 2020-11-07 04:38:26.0

Reports exported in last 7 days 0

Logged At	Guest User Name	MAC Address	IP Address	Operation
Today	Guest User Name	MAC Address	IP Address	Operation
2020-11-07 04:17:01.1...	guest1	D0:37:45:89:EF:64	10.106.32.254	Password Chang
2020-11-07 04:16:33.9...	guest1	D0:37:45:89:EF:64	10.106.32.254	AUP
2020-11-07 04:13:51.0...	guest1	D0:37:45:89:EF:64	10.106.32.254	Add

A sponsor user (with correct privileges) is able to verify the current status of a guest user.

This example confirms that the account is created, and the user has been logged in to the portal:



Optional Configuration

For every stage of this flow, different options can be configured. All of this is configured per the Guest Portal at **Work Centers > Guest Access > Portals & Components > Guest Portals > Portal Name > Edit > Portal Behavior and Flow Settings**. More important settings include:

Self-Registration Settings

- Guest Type - Describes how long the account is active, password expiry options, logon hours, and options (this is mixture of Time Profile and Guest Role)
- Registration code - If enabled, only users who know the secret code are allowed to self-register (must provide the password when the account is created)

- AUP - Accept Use Policy during self-registration
- The requirement for the sponsor to approve/activate the guest account.

Login Guest Settings

- Access code - If enabled, only guest users who know the secret code are allowed to log in.
- AUP - Accept Use Policy during self-registration.
- Password change option.

Device Registration Settings

- By default, the device is registered automatically.

Guest Device Compliance Settings

- Allows for a posture within the flow.

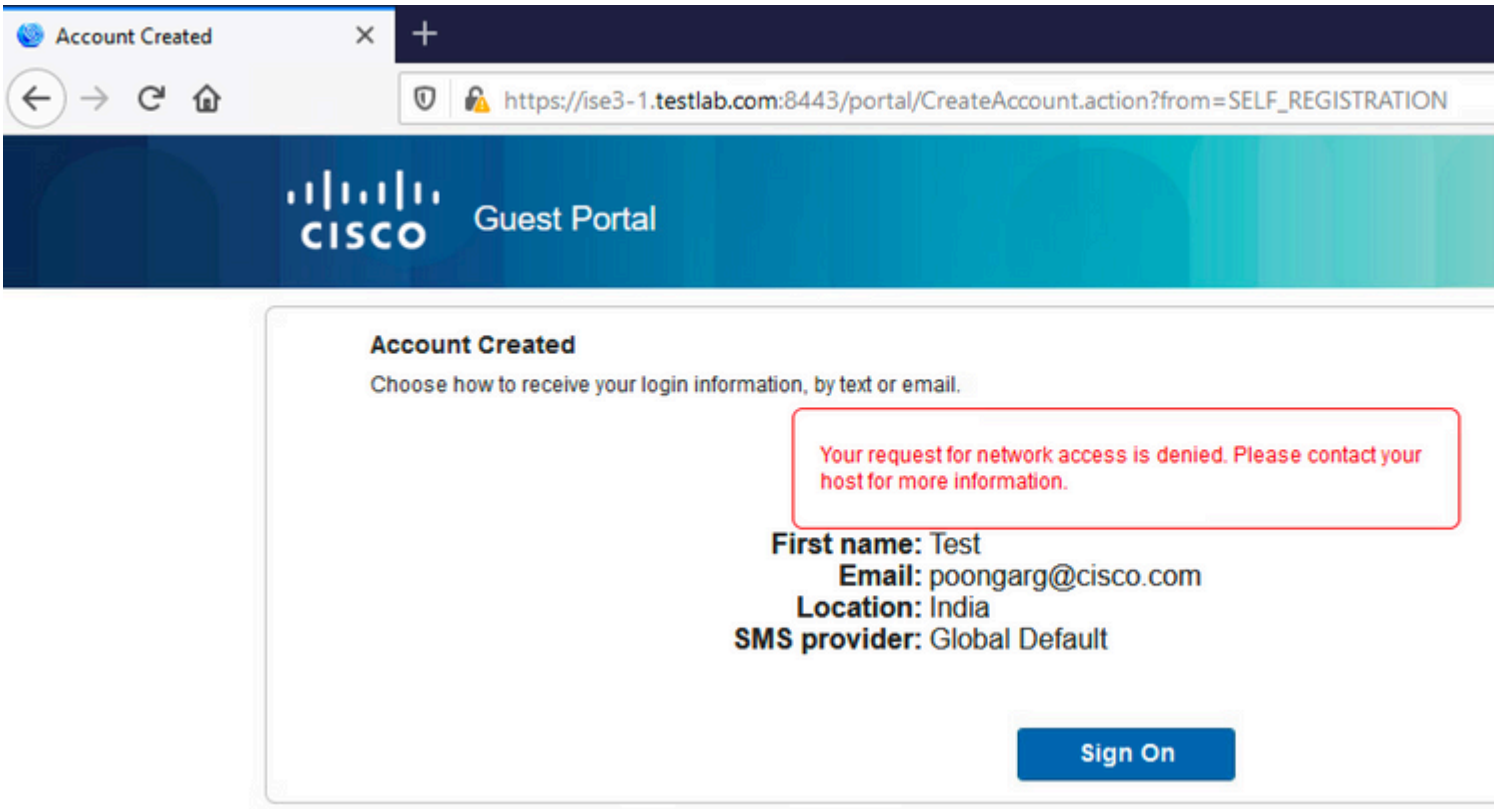
BYOD Settings

- Allows corporate users who use the portal as guests to register their personal devices.

Sponsor-Approved Accounts

If the **Require guests to be approved** option is selected under **Registration Form Settings**, then the account created by the guest must be approved by a sponsor. This feature can use email in order to deliver a notification to the sponsor (for guest account approval):

If the Simple Mail Transfer Protocol (SMTP) server is misconfigured, then the account is not created:



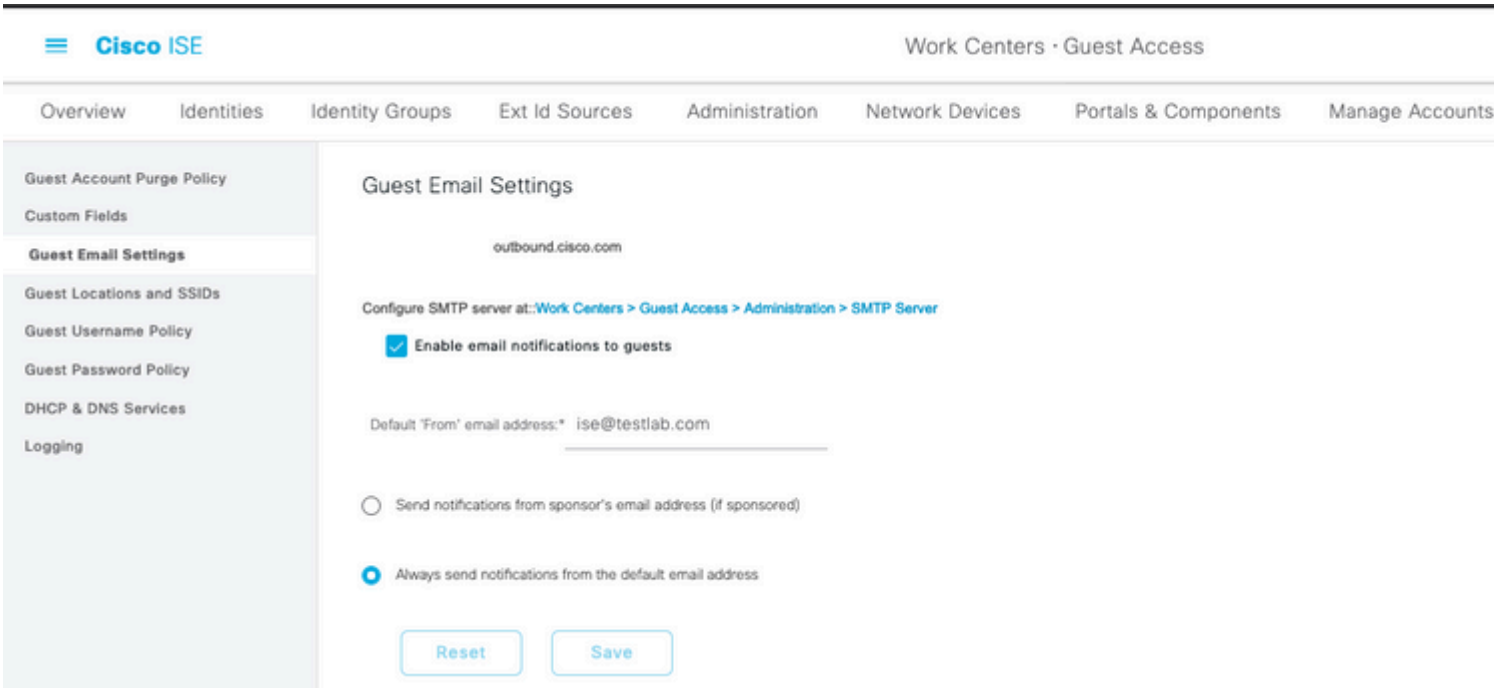
The log from guest.log confirms that there is an issue with sending Approval Notification to the Sponsor email as the SMTP server is misconfigured:

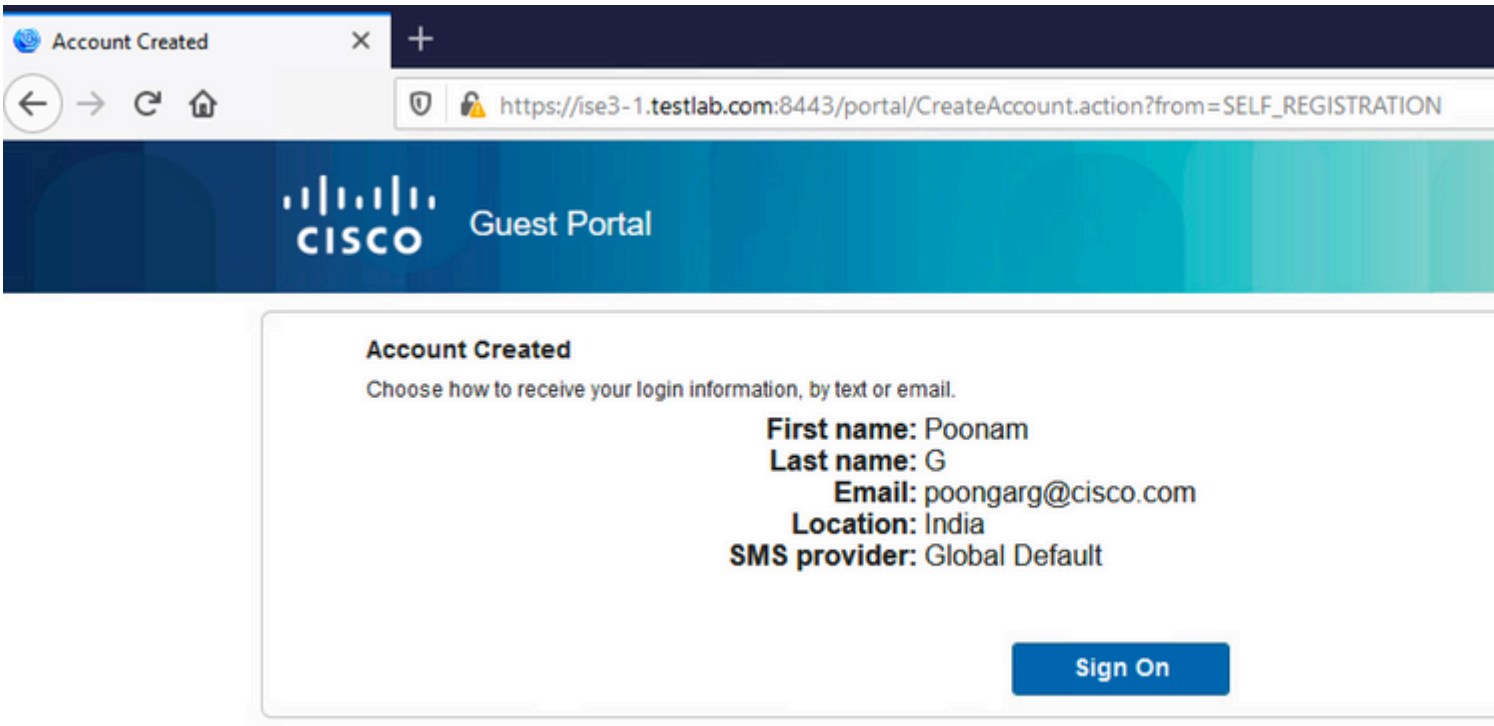
<#root>

```
2020-11-07 07:16:38,547 ERROR [GUEST_ACCESS_SMTP_RETRY_THREAD][] cpm.guestaccess.apiservices.util.SmtpMs
javax.mail.MessagingException: Could not connect to SMTP host: outbound.cicso.com, port: 25, response: 4

2020-11-07 07:16:38,547 ERROR [https-jsse-nio-10.106.32.25-8443-exec-1][] cpm.guestaccess.apiservices.no
com.cisco.cpm.guestaccess.exception.GuestAccessSystemException: com.cisco.cpm.guestaccess.exception.Gues
```

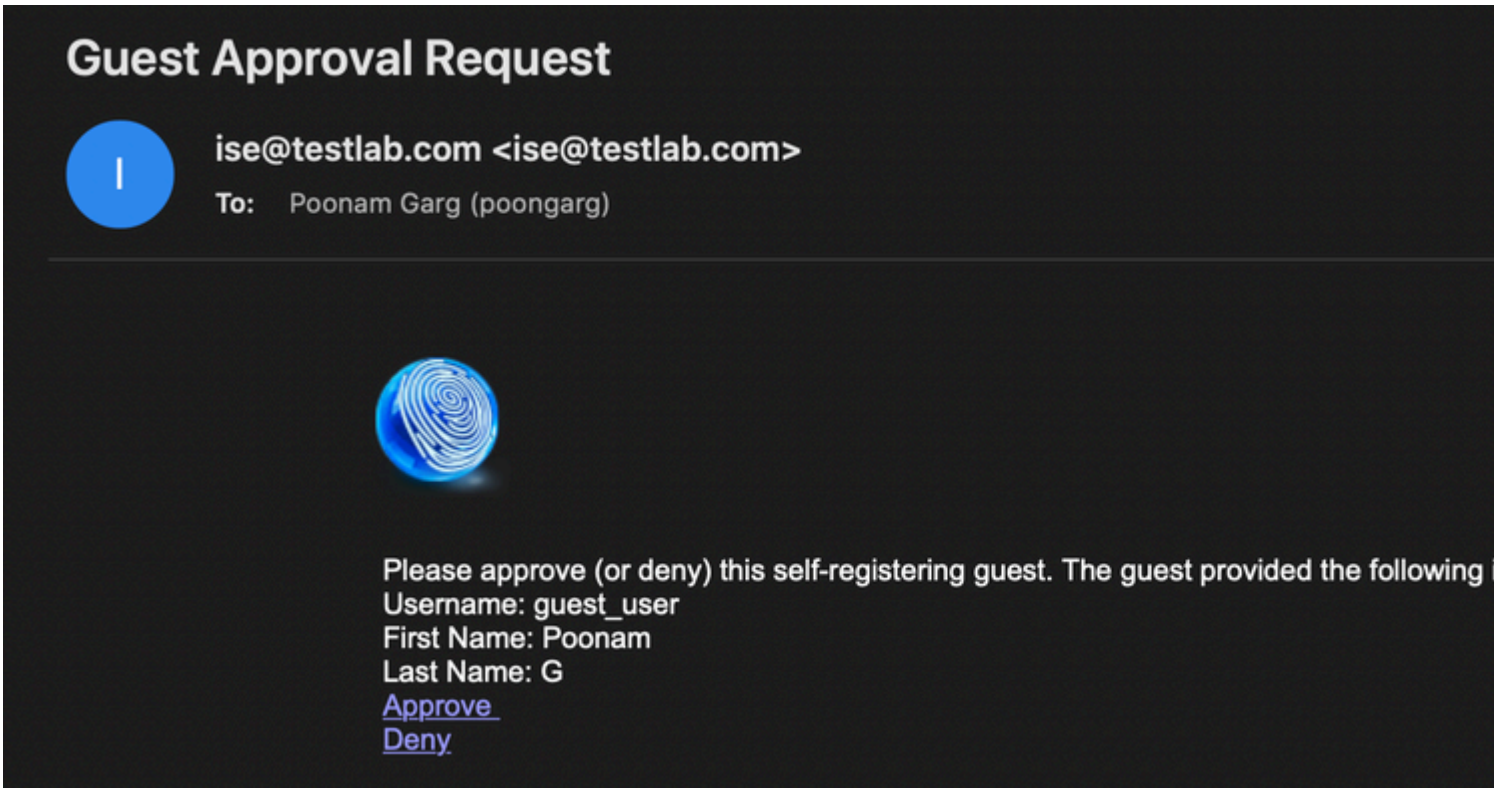
When you have the proper email and SMTP server configuration, the account is created:



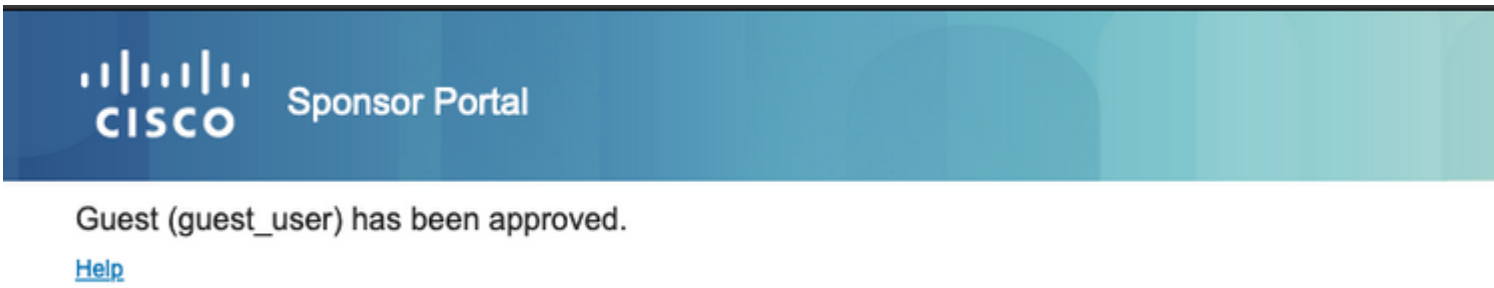


After you enable the **Require guests to be approved** option, the username and password fields are automatically removed from the **Include this information on the Self-Registration Success page** section. This is why, when sponsor approval is needed, credentials for guest users are not displayed by default on the web page that presents information to show that the account has been created. Instead, they must be delivered by Short Message Services (SMS) or email. This option must be enabled in the **Send credential notification upon approval using** section (mark email/SMS).

A notification email is delivered to the sponsor:



The sponsor click the Approval link and logs into the Sponsor portal and the account is approved:



From this point on, the guest user is allowed to log in (with the credentials received by email or SMS).

In summary, there are three email addresses used in this flow:

- Notification "From" address. This is defined statically or taken from the sponsor account and used as the From address for both: notification to sponsor (for approval) and credential details to the guest. This is configured under **Work Centers > Guest Access > Settings > Guest Email Settings**.

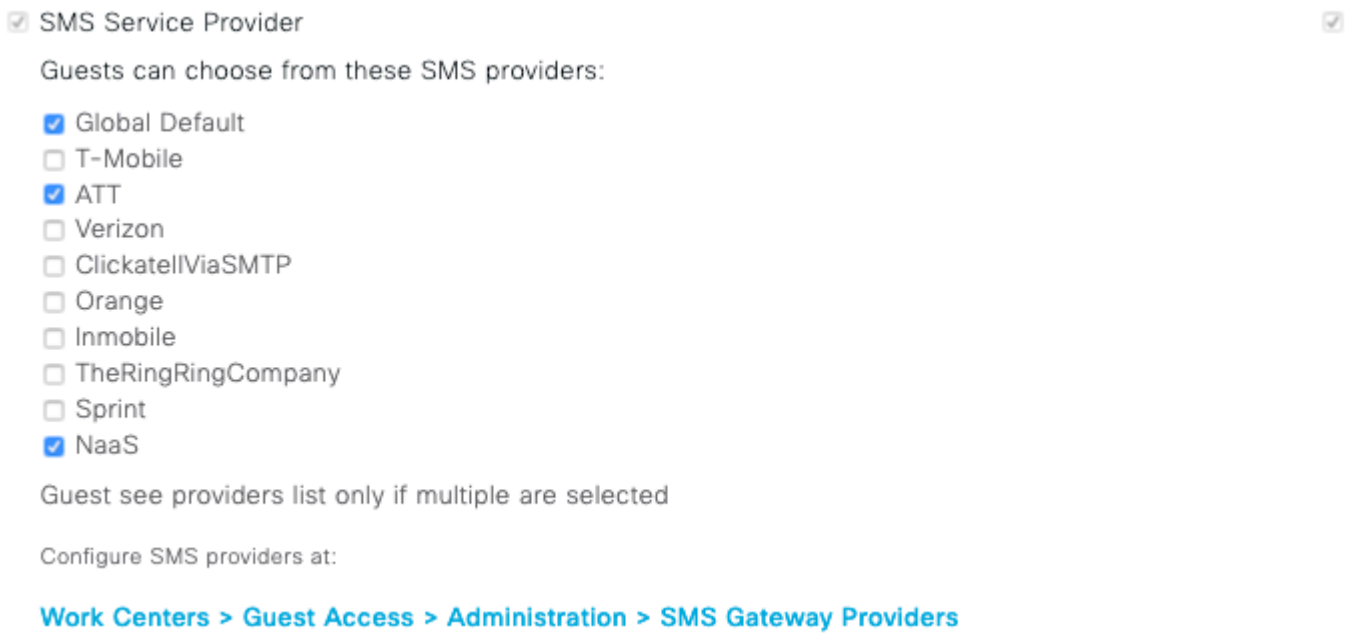
- Notification "To" address. This is used in order to notify the sponsor that it has received an account for approval. This is configured in the Guest Portal under **Work Centers > Guest Access > Guest Portals > Portals and Components > Portal Name > Registeration Form Settings > Require guests to be approved > Email approval request to**.

- Guest "To" address. This is provided by the guest user during registration. If **Send credential notification upon approval using Email** is selected, the email with credential details (username and password) is delivered to the guest.

Deliver Credentials via SMS

Guest credentials can be also delivered by SMS. These options must be configured:

1. Choose the SMS service provider under Registration Form Settings:

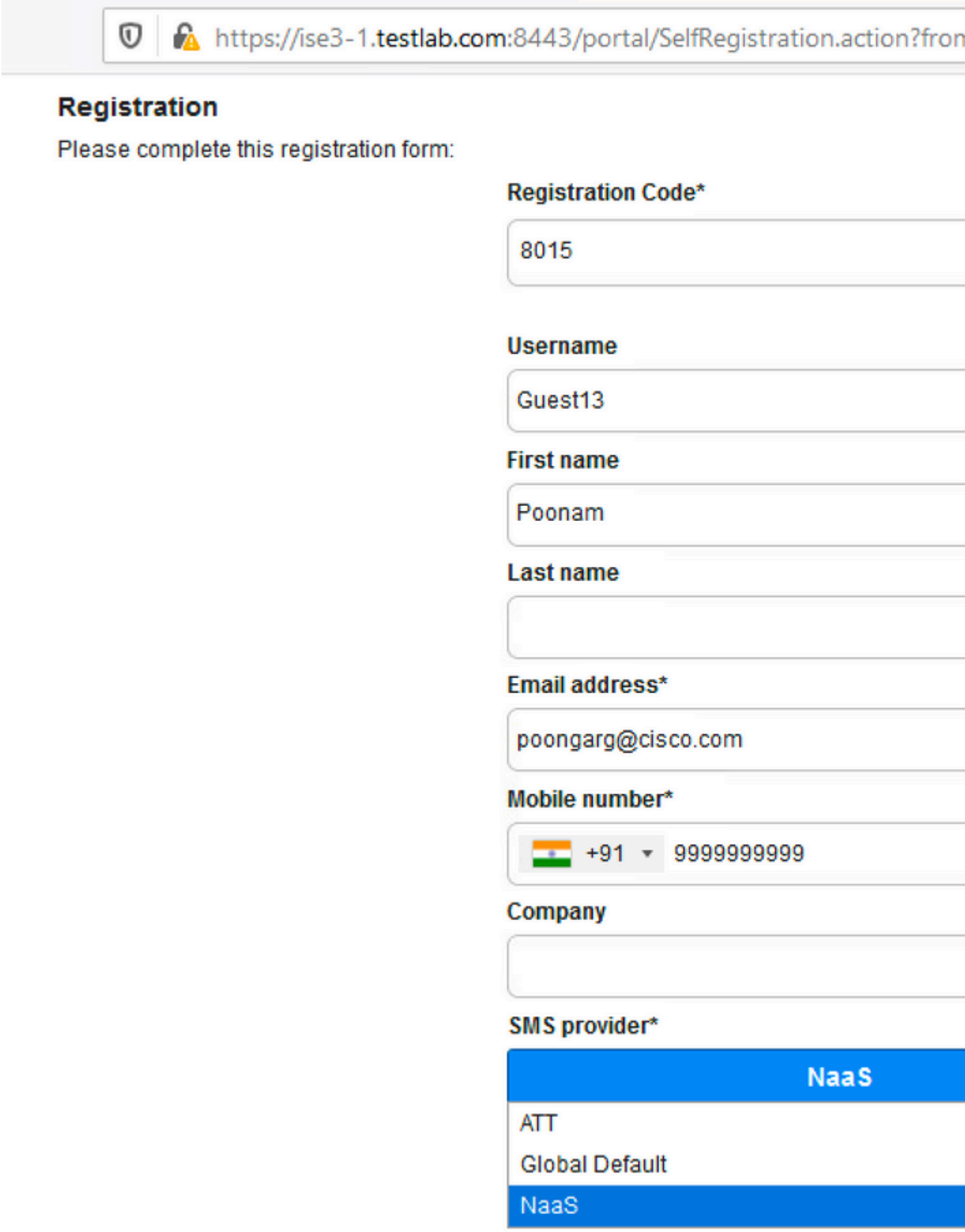


2. Check the **Send credential notification upon approval using: SMS** check box.

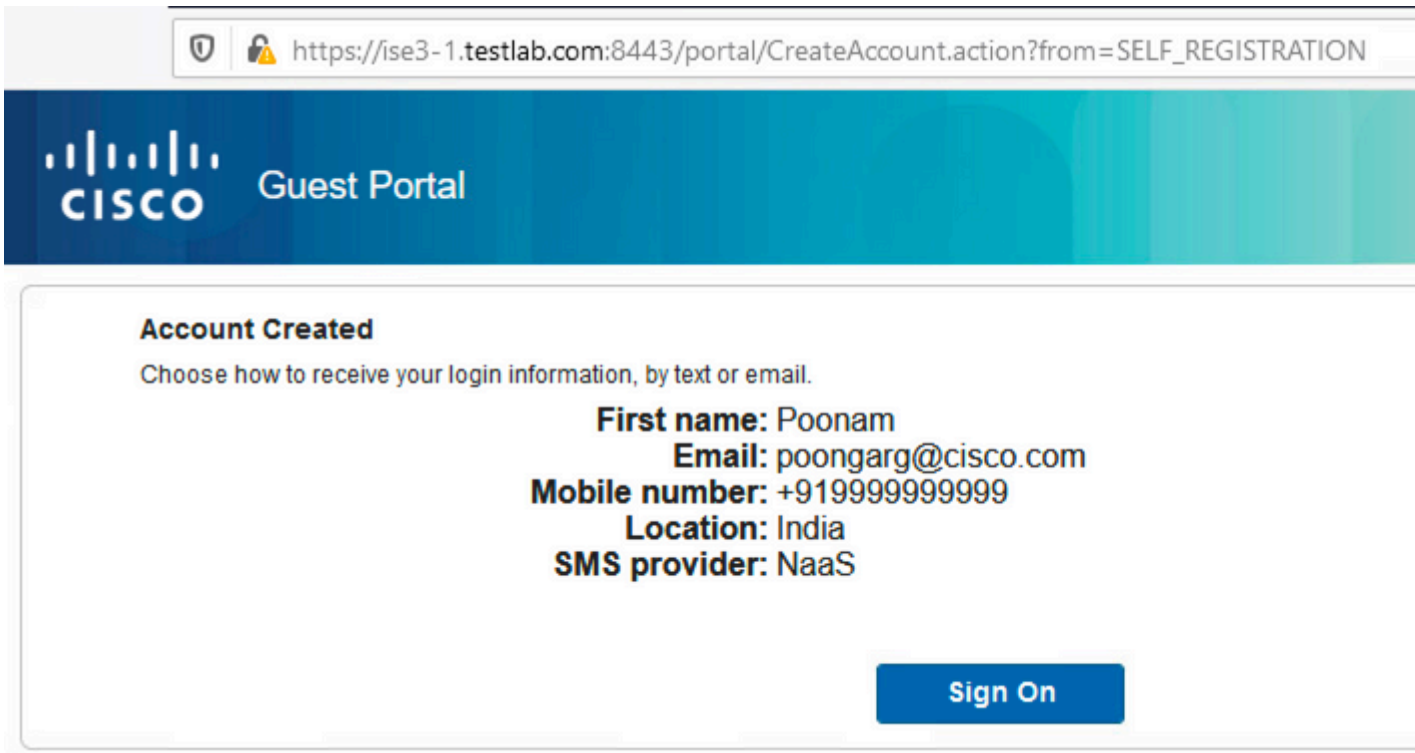
Send credential notification upon approval using:

- [x] Email
- [x] SMS

3. Then, the guest user is asked to choose the available provider when he creates an account:



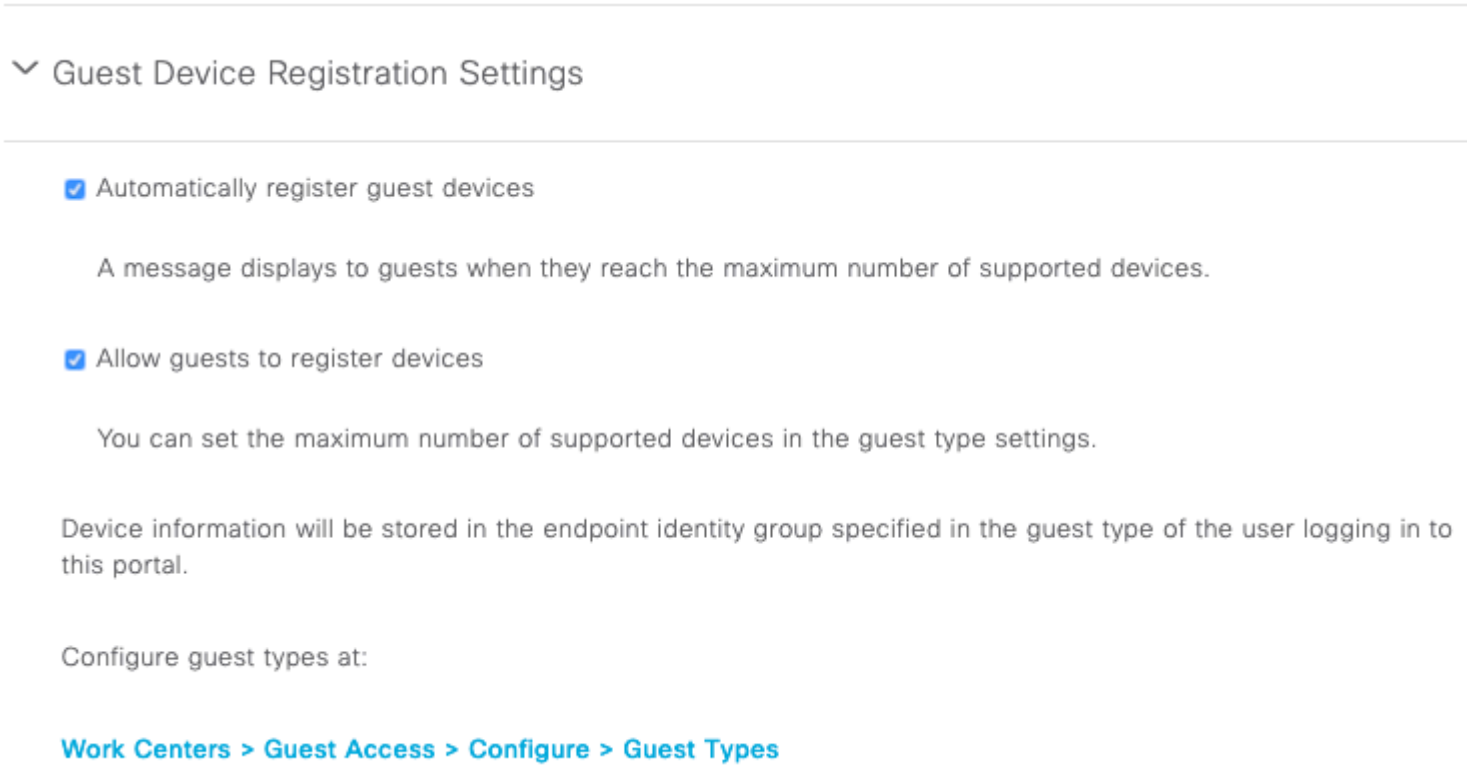
4. An SMS is delivered with the chosen provider and phone number:

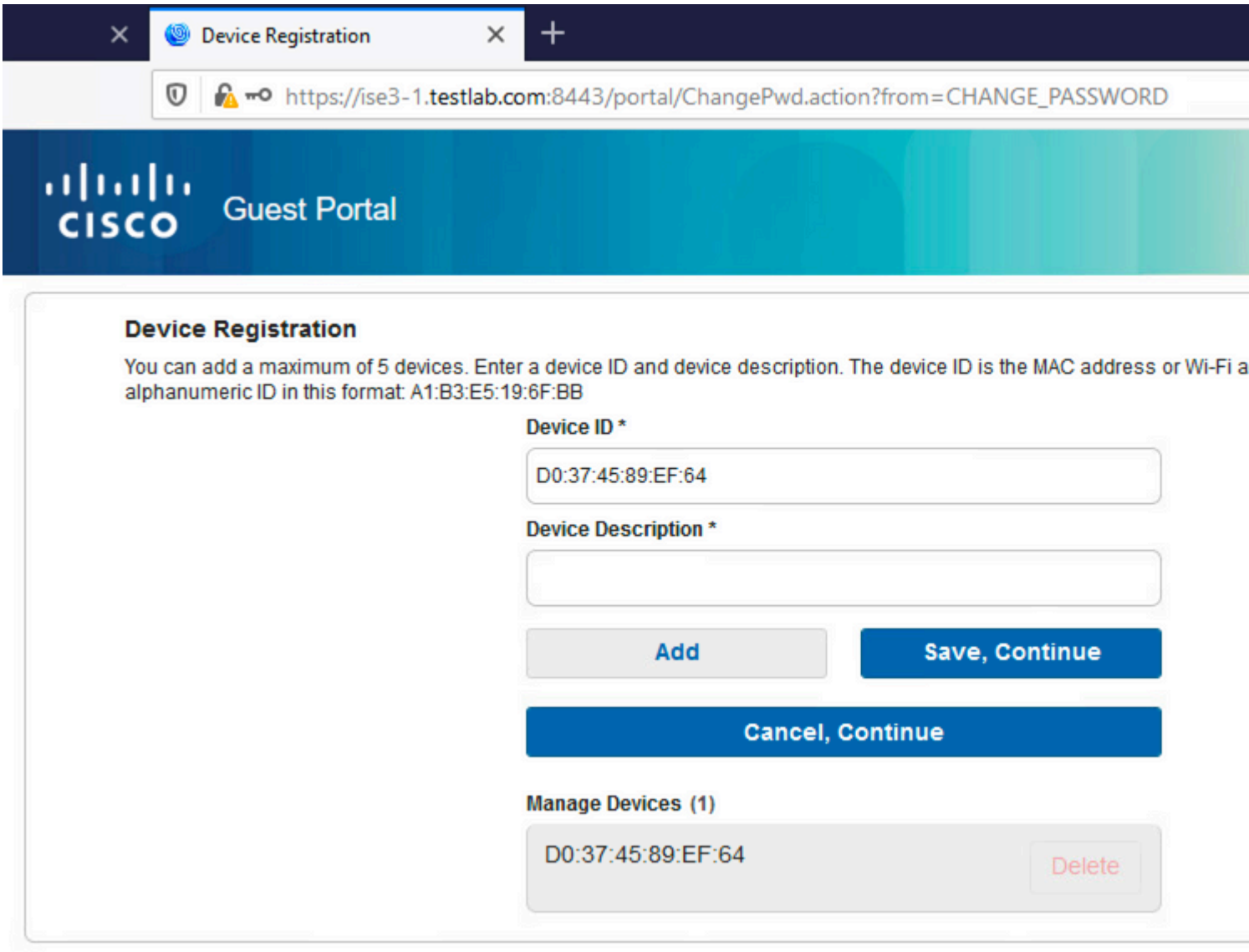


5. You can configure SMS Providers under **Administration > System > Settings > SMS Gateway**.

Device Registration

If the **Allow guests to register devices** option is selected after a guest user logs in and accepts the AUP, you can register devices:





Notice that the device has already been added automatically (it is on Manage Devices list). This is because **Automatically register guest devices** were selected.

Posture

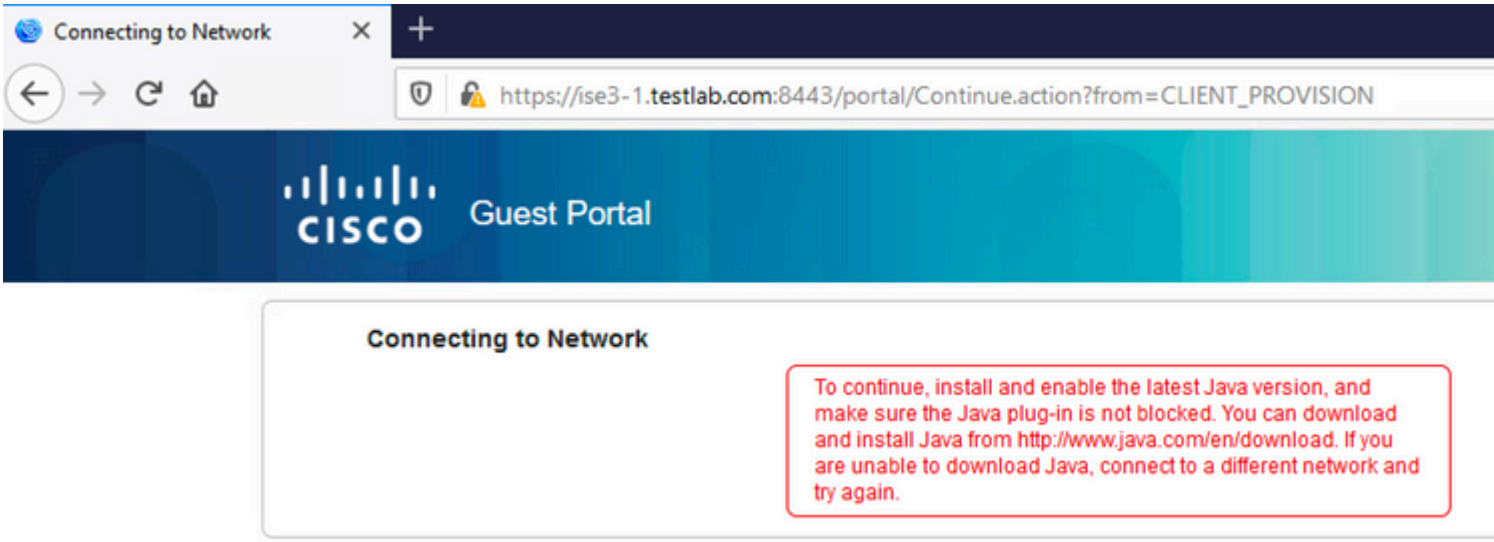
If the **Require guest device compliance** option is selected, then guest users are provisioned with an Agent that performs the posture (NAC/Web Agent) after they log in and accept the AUP (and optionally perform device registration). ISE processes Client Provisioning rules to decide which Agent must be provisioned. Then the Agent that runs on the station performs the posture (as per Posture rules) and sends results to the ISE, which sends the CoA reauthenticate to change authorization status if needed.

Possible authorization rules can look similar to this:

	Guest_Complaint	AND	IdentityGroup·Name **EQUALS** Endpoint Identity Groups:Cisco_GuestEndpoints Wireless_MAB Radius·Called-Station-ID **CONTAINS** Guest Session·PostureStatus **EQUALS** Compliant
	Permanent_Guest_Access	AND	IdentityGroup·Name **EQUALS** Endpoint Identity Groups:Cisco_GuestEndpoints Wireless_MAB Radius·Called-Station-ID **CONTAINS** Guest
	Wifi_Redirect_to_Guest_Portal	AND	Radius·Called-Station-ID **CONTAINS** Guest Wireless_MAB

The first new users who encounter Guest_Authenticate rule redirect to the Self Register Guest portal. After the user self-registers and logs in, CoA changes authorization status and the user is provided with limited access to perform posture and remediation. Only after the NAC Agent is provisioned and the station is compliant does CoA change authorization status once again in order to provide access to the Internet.

Typical problems with posture include lack of correct Client Provisioning rules:



This can also be confirmed if you examine the **guest.log** file:

<#root>

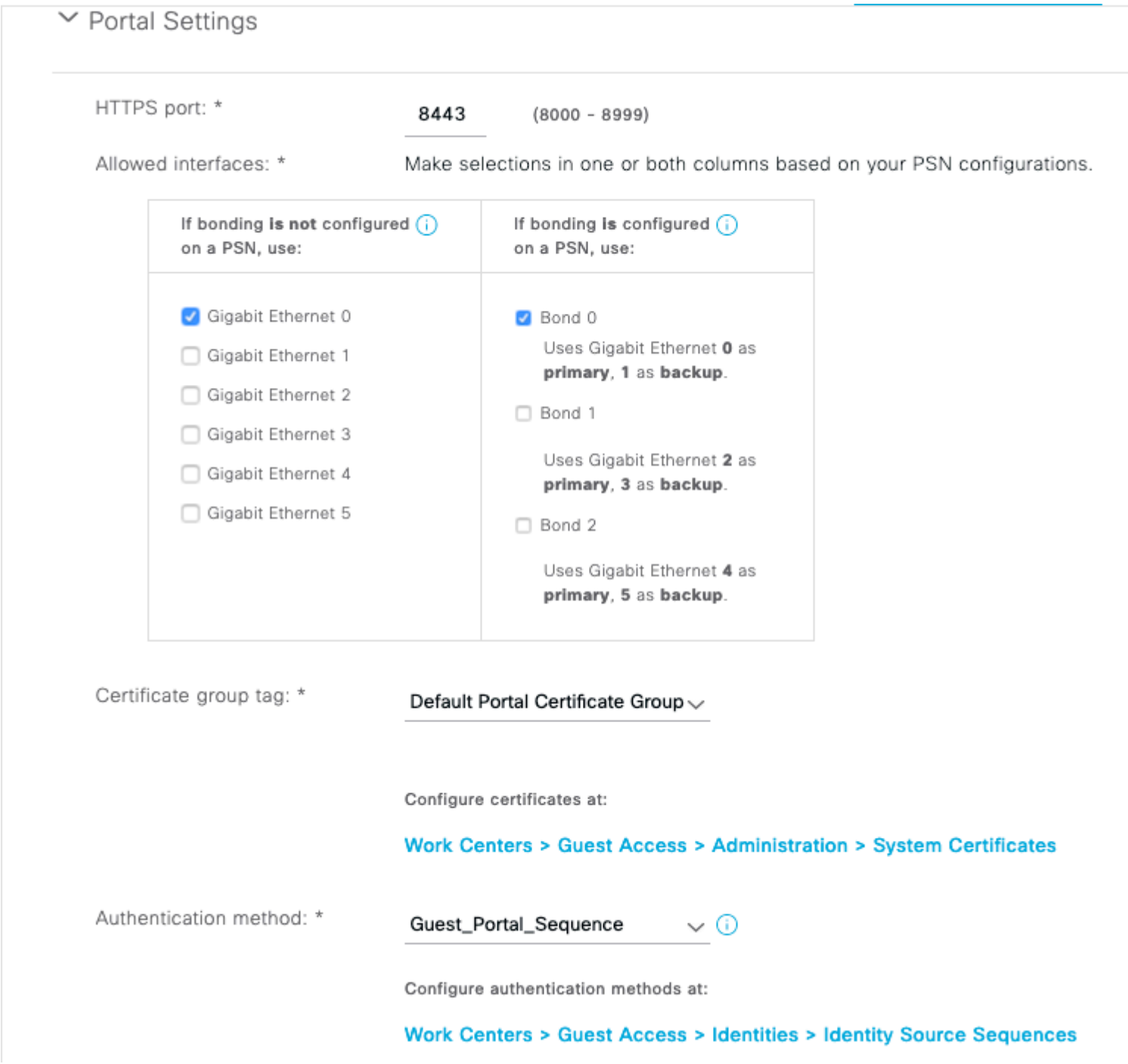
```
2020-11-09 09:23:32,157 ERROR [https-jsse-nio-10.106.32.25-8443-exec-7][] guestaccess.flowmanager.step.g
```

BYOD

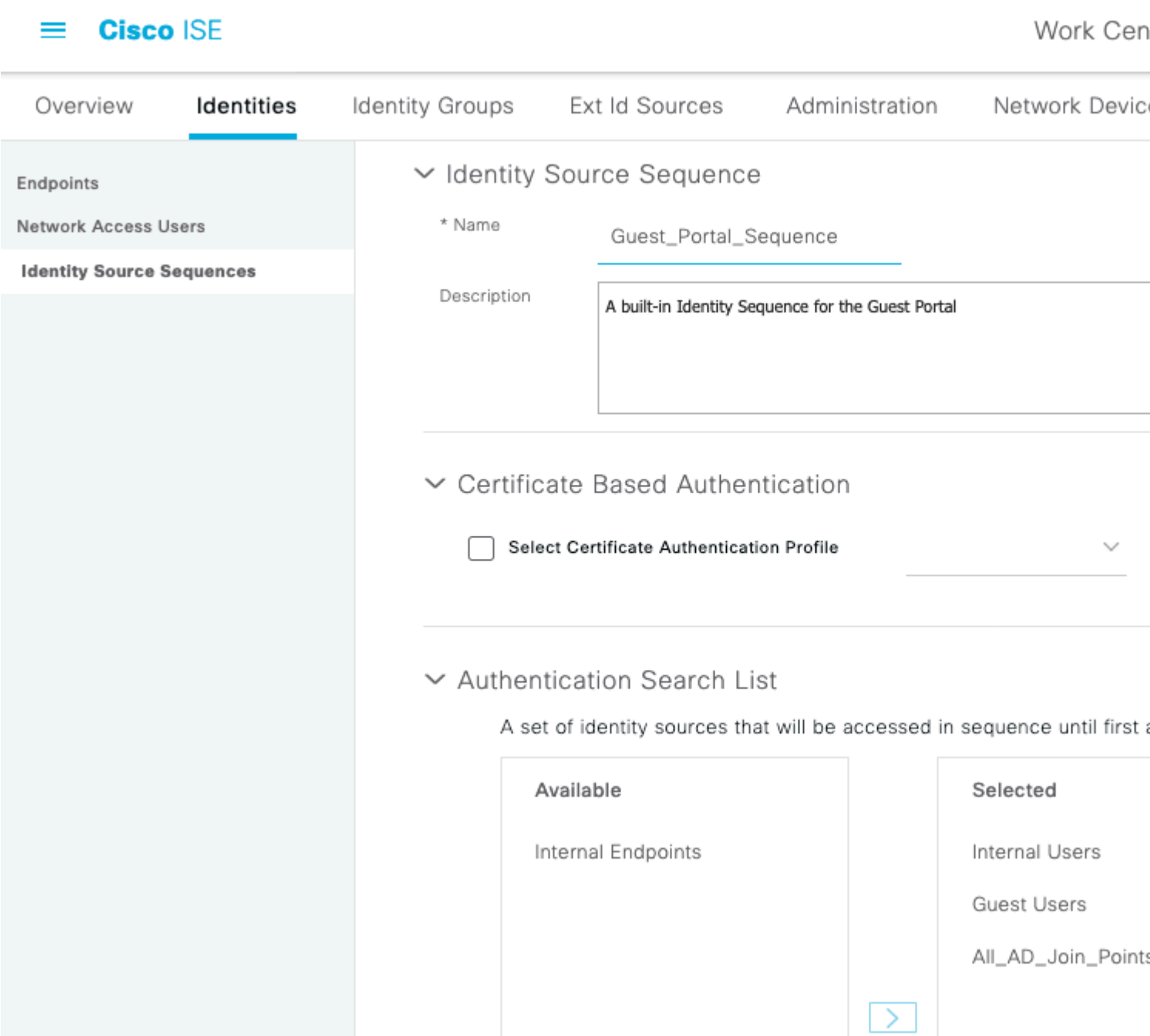
If **Allow employees to use personal devices on the network** option is selected, then corporate users who use this portal can go through BYOD flow and register personal devices. For guest users, that setting does not change anything.

What does "employees using portal as guest" mean?

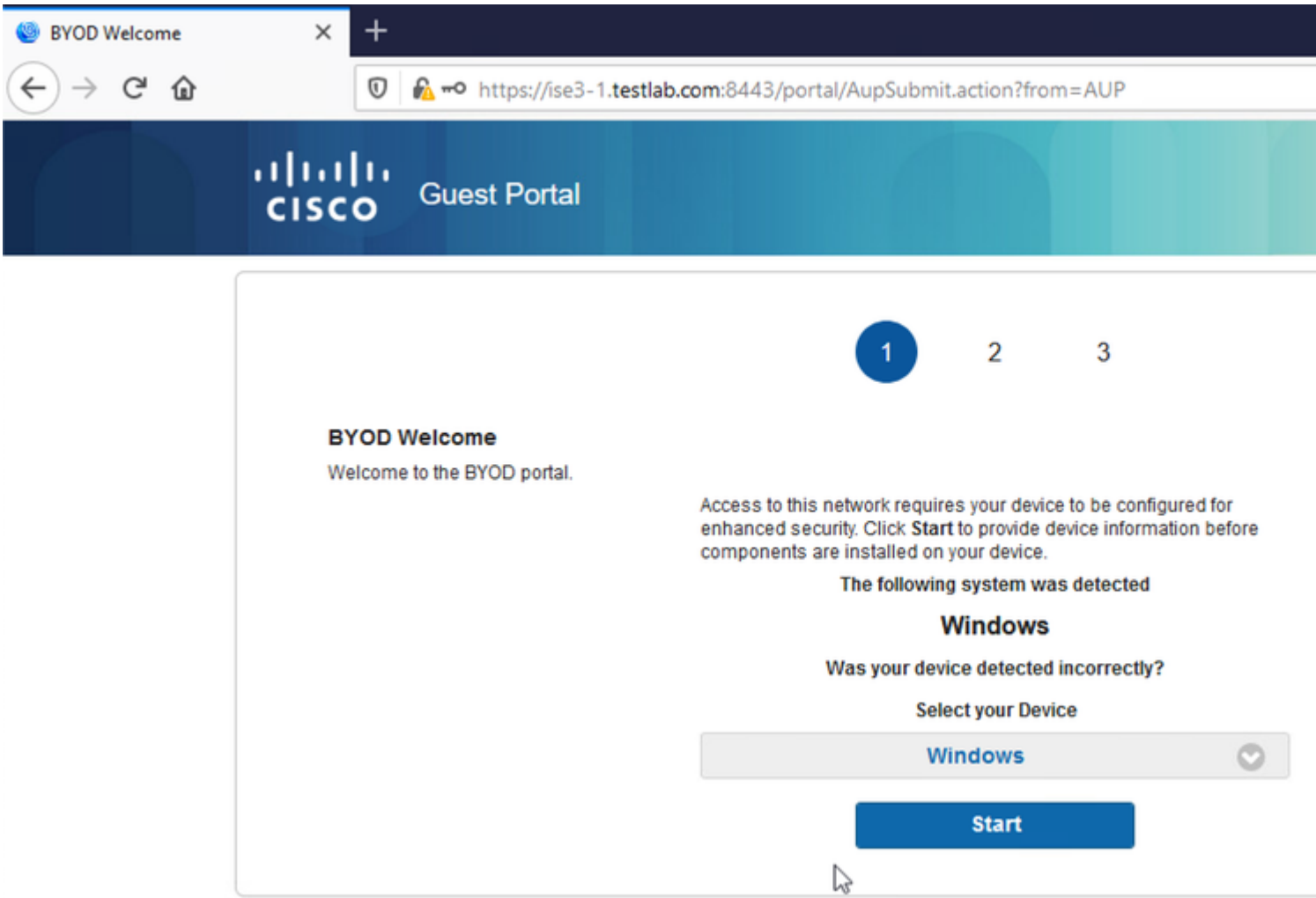
By default, guest portals are configured with the **Guest_Portal_Sequence** identity store:



This is the internal store sequence that tries the Internal Users first (before Guest Users) and then AD credentials, Since the Advanced settings is to proceed to the next store in the sequence when a selected identity store cannot be accessed for authentication, an Employee with internal credentials or AD credentials is able to login to the portal.



When at this stage on the guest portal, the user provides credentials that are defined in the Internal Users store or Active Directory and the BYOD redirection occurs:



This way corporate users can perform BYOD for personal devices.

When instead of Internal Users/AD credentials, Guest Users credentials are provided, normal flow is continued (no BYOD).

VLAN Change

It allows you to run activeX or a Java applet, which triggers DHCP to release and renew. This is needed when CoA triggers the change of VLAN for the endpoint. When MAB is used, the endpoint is not aware of a change of VLAN. A possible solution is to change VLAN (DHCP release/renew) with the NAC Agent. Another option is to request a new IP address via the applet returned on the web page. A delay between release/CoA/renew can be configured. This option is not supported for mobile devices.

Related Information

- **Posture services on Cisco ISE Configuration Guide**
- **Wireless BYOD with Identity Services Engine**
- **ISE SCEP support for BYOD Configuration Example**
- **Central Web Authentication on the WLC and ISE Configuration Example**
- **Central Web Authentication with FlexConnect APs on a WLC with ISE Configuration Example**
- **Technical Support & Documentation - Cisco Systems**