Grandstream Networks, Inc.

Captive Portal Authentication with Microsoft 365

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Overview

This guide explains how to configure a Grandstream captive portal to authenticate visitors using their Microsoft work or school accounts. It covers the complete setup, from creating and configuring the required Microsoft application to configuring the captive portal and completing the visitor sign-in process.

The guide is divided into two parts. **Part 1** covers the one-time configuration of the Microsoft application. **Part 2** covers the captive portal configuration, providing two deployment options: configuring the portal through the primary AP's local web interface, or through a management platform, using GDMS Networking as an example. The management-platform method includes an additional splash-page configuration, but both methods provide visitors with the same Microsoft sign-in experience.

How It Works

The visitor selects **Connect With Microsoft** on the portal. Microsoft handles the account sign-in, then returns the visitor to the portal using the application's registered redirect URI. After successful authentication, the access point allows the visitor to access the network.

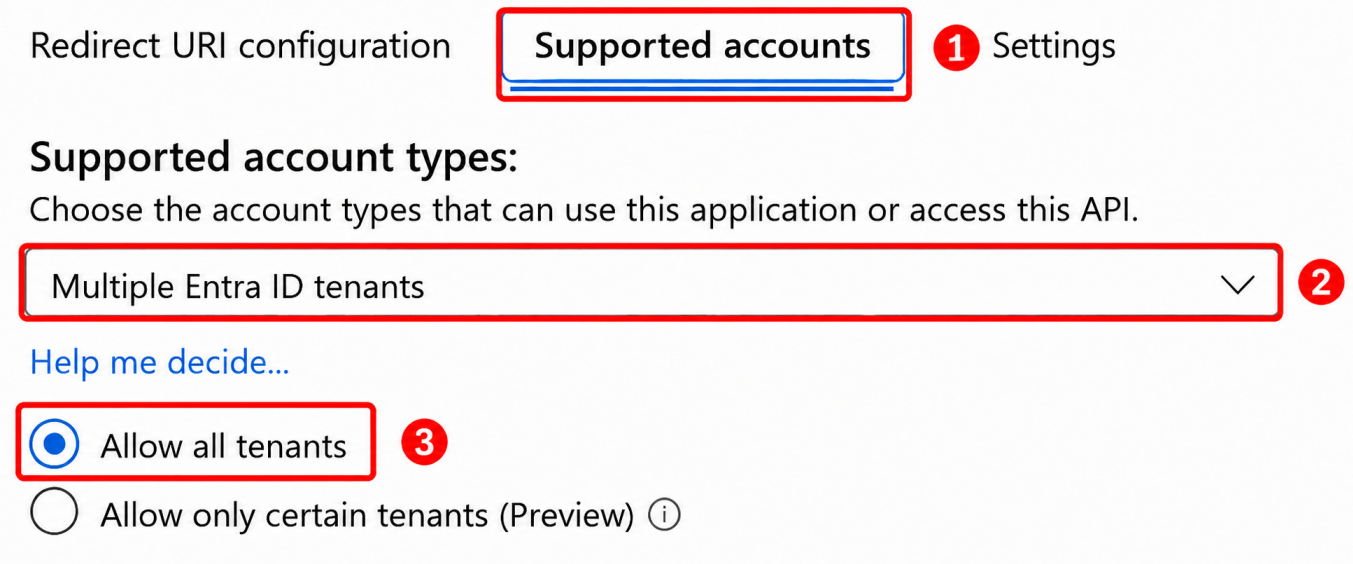
Before You Begin

Prepare a Grandstream access point with working internet connectivity, access to its management interface, and a Microsoft organizational account that can register an application. An administrator must be available to approve the requested permissions when required. Keep the application credentials available for the captive portal configuration.

Part 1: Prepare the Microsoft Application

Register the Application

1. Sign in to the Microsoft Entra admin center using an account permitted to register applications in your organization.
2. Open **Entra ID > App registrations > New registration**.
3. Enter a recognizable name, such as **Guest Wi-Fi**. This identifies the application to visitors during permission approval.
4. For visitors from different organizations, select **Accounts in any organizational directory (**Multi-tenant**)**. In the newer Authentication interface, this is shown as **Multiple Entra ID tenants** with **Allow all tenants**.
5. Set the redirect platform to **Web** and enter the return address shown below, then select **Register**. If the application already exists, add the Web redirect URI under **Authentication**.



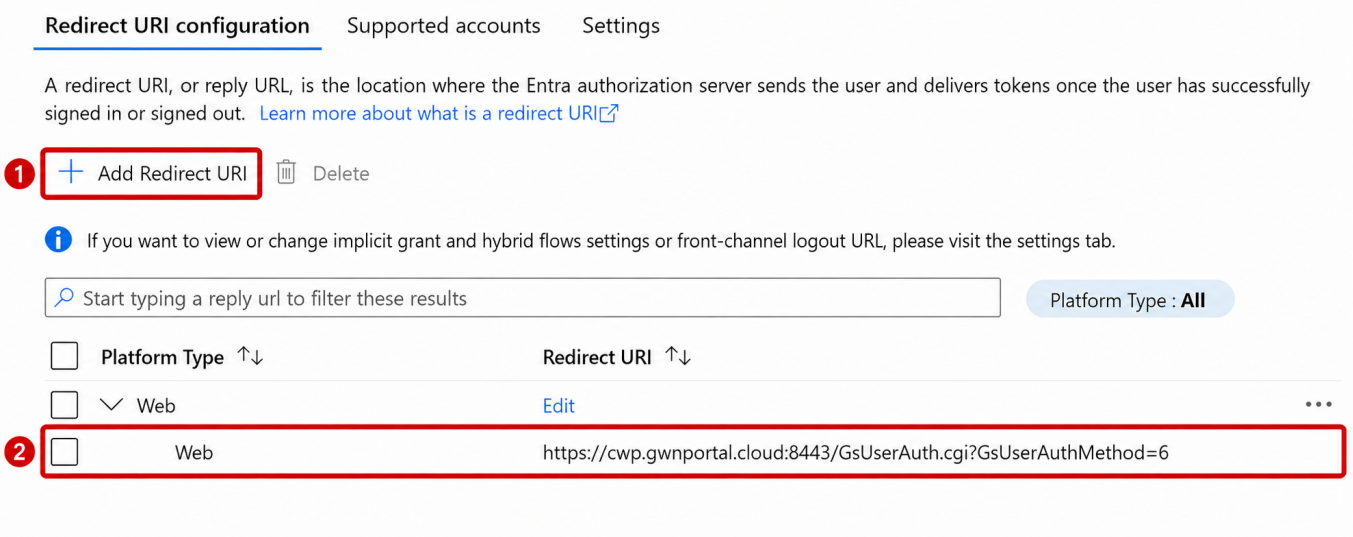
Microsoft application account audience

This configuration accepts Microsoft work or school accounts. Each visitor organization can still require administrator approval. Personal Microsoft accounts are not supported by this query-based redirect configuration; do not select a personal-account audience.

Configure the Return Address

For the local access point used in this guide, register the following exact Web redirect URI:

```
https://cwp.gwnportal.cloud:8443/GsUserAuth.cgi?GsUserAuthMethod=6
```



Web redirect URI configuration

Keep implicit access-token and ID-token grants unchecked and public client flows disabled, as in the tested Web application. No front-channel logout URL is required for this guide.

Enter the redirect URI above exactly as shown, including **https://**, **cwp.gwnportal.cloud**, port **8443**, and **/GsUserAuth.cgi?GsUserAuthMethod=6**. This is the return address used by the captive portal in this guide.

Obtain the Client ID and Client Key

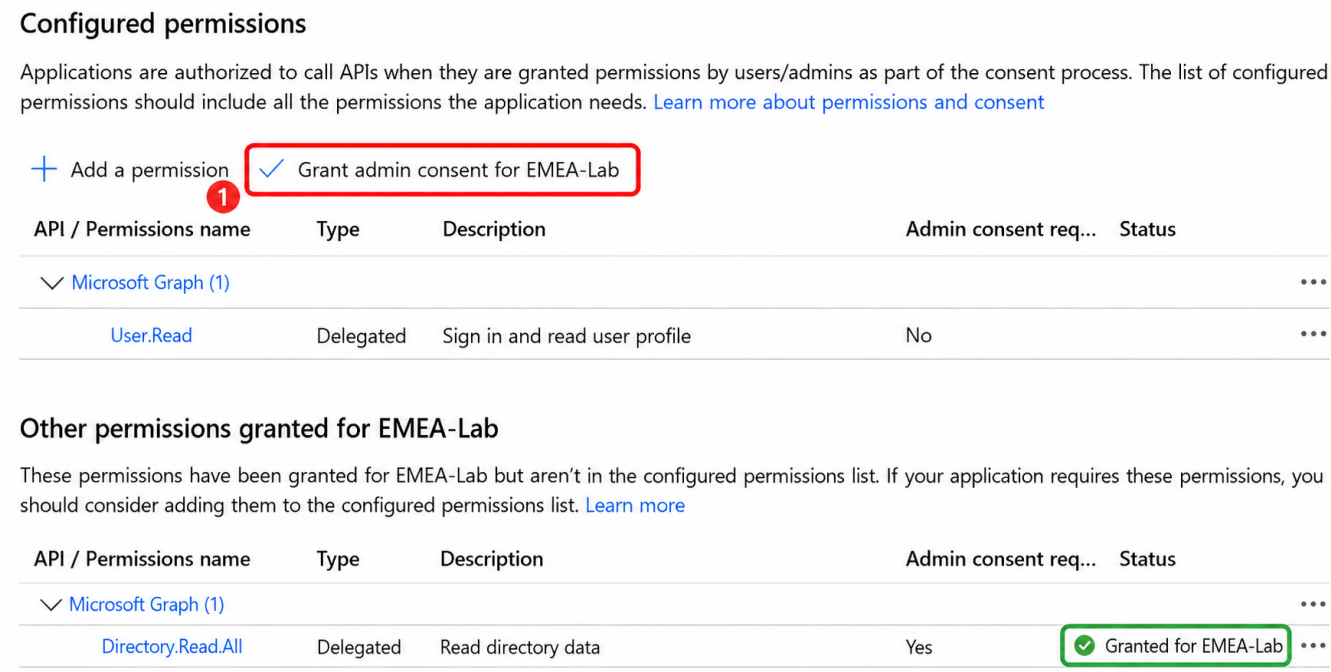
1. On the application **Overview** page, copy **Application (client) ID**. This is the value entered as Microsoft 365 Client ID on the access point.

2. Open **Certificates & secrets > Client secrets > New client secret**. Enter a description and choose an expiration, then select **Add**.
3. Copy the new secret **Value** immediately and keep it securely. Enter this value as Microsoft 365 Client Key on the access point. The **Secret ID** is not the client key.
4. Record the expiration date. Replace the secret and update the portal configuration before it expires. Do not put the secret in screenshots or share it with visitors.

Approve the Requested Permissions

The tested portal requests delegated access to read directory data. An administrator must approve that request for the organization whose accounts will sign in. Merely creating the application or selecting a multi-tenant audience does not grant this permission.

1. After the portal and SSID are configured in Part 2, perform an initial sign-in using an authorized administrator account for the visitor organization.
2. On **Permissions requested**, verify the application name and review the requested access. The tested flow requested **Read directory data**, permission to maintain access, the user email address, and sign-in.
3. If granting access for the organization is intended, select **Consent on behalf of your organization**, then **Accept**. Complete the portal login.
4. In the application **API permissions** view, verify that the delegated **Directory.Read.All** permission is granted. It may appear under **Other permissions granted**, as shown below.



Configured and administrator approved Microsoft permissions

Read directory data is broader than basic profile sign-in. Have the administrator review it before approval. An approval in one organization does not approve the application for every other organization. If a visitor sees **Need admin approval**, their organization must approve the application before that account can proceed.

Part 2: Configure the Grandstream Captive Portal

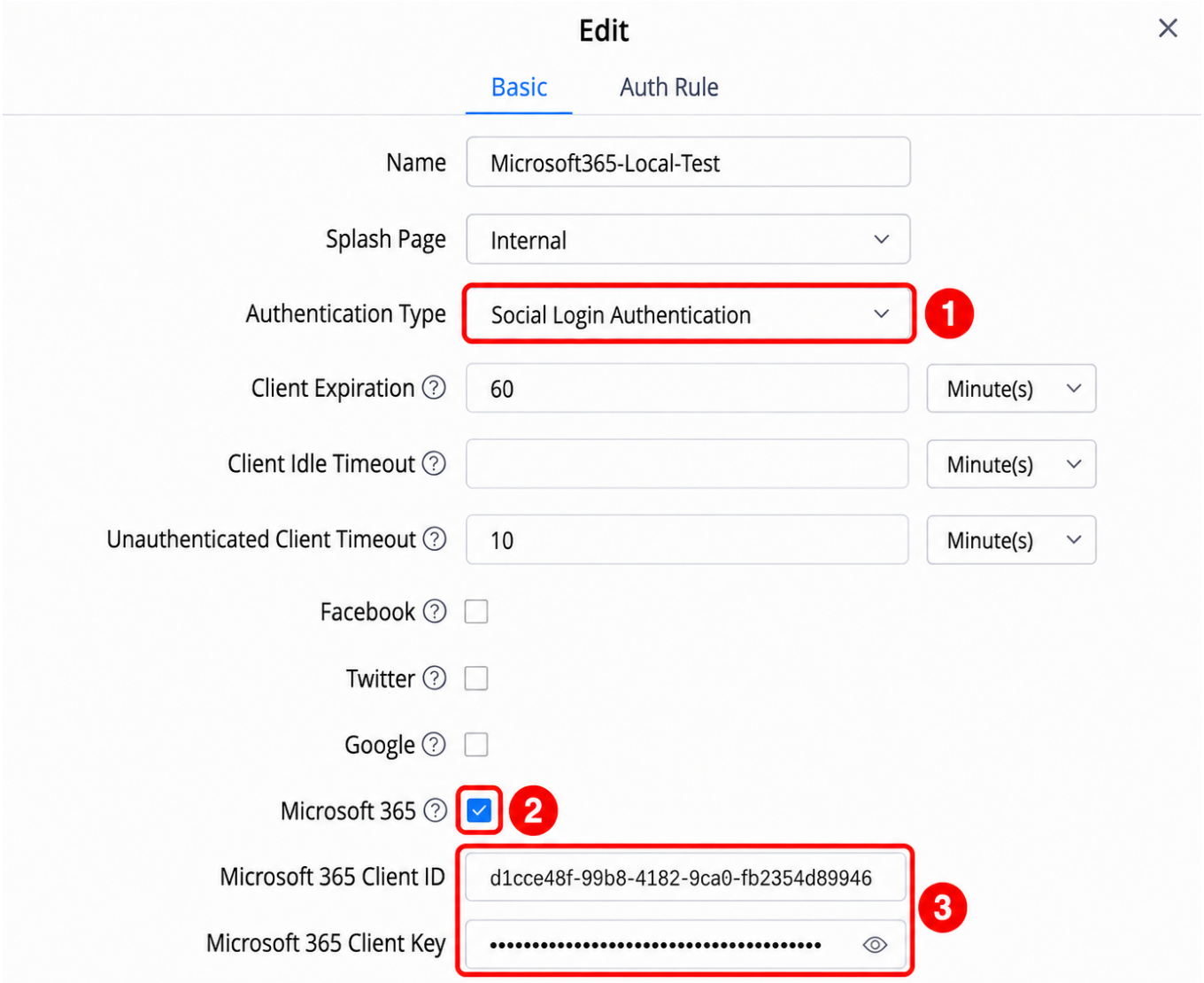
Choose the path that matches how your access points are managed: **A** for a primary AP, or **B** for a management platform. Complete only the applicable path, then continue to **Test the Visitor Experience**. The Microsoft application prepared in Part 1 is used in either case.

A. Using the Primary Access Point

Use this path when you configure the guest network through the primary AP's local web interface. You can configure the Microsoft 365 login directly in the portal policy; creating a separate splash page first is not required.

Create the Captive Portal Policy

1. Open **Captive Portal > Policy List** and select **Add**.
2. On the **Basic** tab, enter a policy name, such as **Microsoft365-Guest**. Set **Splash Page** to **Internal** and **Authentication Type** to **Social Login Authentication**.
3. Enable **Microsoft 365**. Leave the other social providers unchecked for a Microsoft-only portal.
4. Paste the application client ID into **Microsoft 365 Client ID** and the secret value into **Microsoft 365 Client Key**.
5. Configure the portal page and session options shown below.



Microsoft 365 captive portal policy

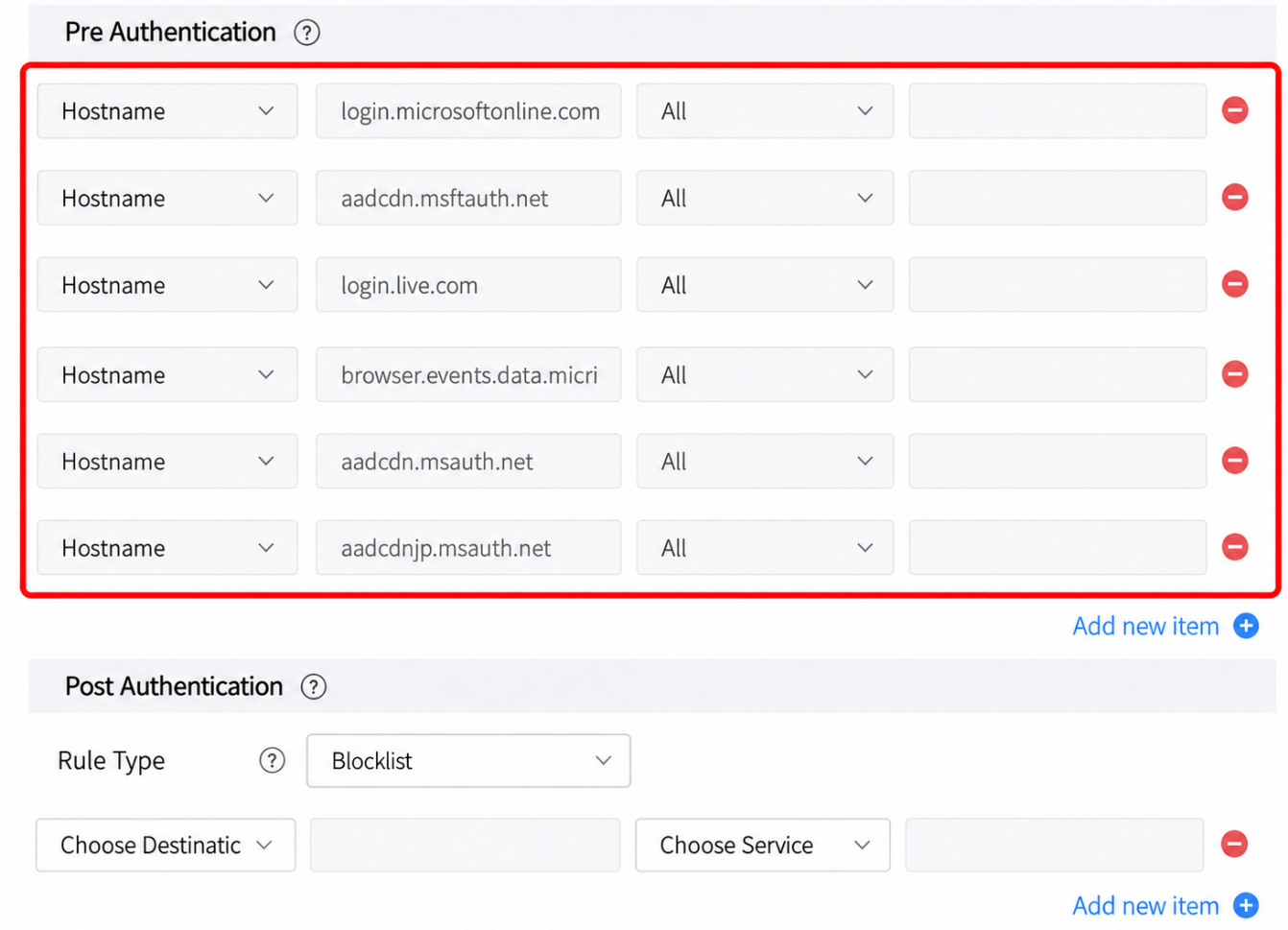
Setting	Configuration
Microsoft 365 Client ID	Application (client) ID from Microsoft Entra.
Microsoft 365 Client Key	Client secret Value from the same application.
Client Expiration	Set the allowed session duration. This example uses 60 minutes.

Unauthenticated Client Timeout	Allow enough time to complete sign-in and any additional verification. This example uses 10 minutes.
Use Default Portal Page	Enable for the built-in Microsoft sign-in page. The selected social-login template is /social_auth.html.
Landing Page	Select Redirect to the Original URL, or configure your chosen post-login destination. This is separate from the Microsoft redirect URI.
Enable Secure Portal	Keep enabled so the captive portal uses HTTPS. It is enabled in the tested Microsoft 365 configuration.
Enable Daily Limit	The example leaves this disabled so repeat testing is possible. Set session limits according to the deployment.

Microsoft 365 portal policy settings

Check Pre-Authentication Access

Visitors must reach Microsoft before the portal grants normal internet access. Open the **Auth Rule** tab and check the pre-authentication entries. In the tested firmware, enabling Microsoft 365 supplies these entries automatically; they appear as read-only fields.



Microsoft pre authentication rules

The full pre-authentication entries are listed below for easy copying. Use the hostname only, without https://.

Destination Type	Hostname	Service
Hostname	login.microsoftonline.com	All
Hostname	aadcdn.msftauth.net	All
Hostname	login.live.com	All

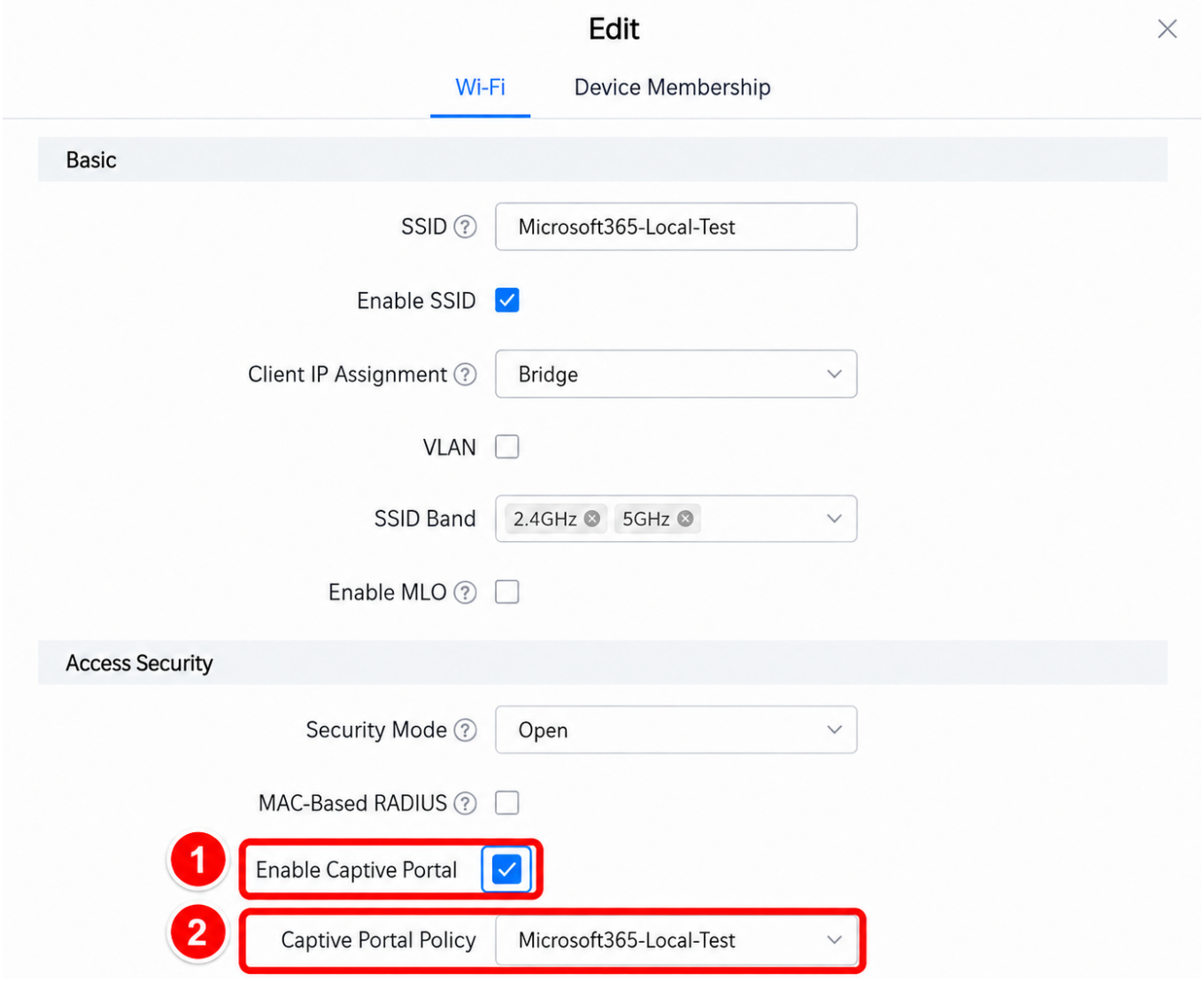
Hostname	browser.events.data.microsoft.com	All
Hostname	aadcdn.msauth.net	All
Hostname	aadcdnjp.msauth.net	All

Keep these entries available and ensure the upstream network allows DNS resolution and access to the required sign-in services. An organization using an additional identity or verification service may require additional access.

Select **Save** to create the policy.

Apply the Policy to the Guest SSID

1. Open **Wi-Fi > SSID**. Add a dedicated guest SSID or edit the intended guest network.
2. Enter the SSID name and enable **Enable SSID**. Select the appropriate bands and IP assignment for your network. The example uses **Bridge** and **2.4 GHz / 5 GHz**, with DHCP and internet access supplied by the upstream network.
3. Under **Access Security**, select **Open** for this example. Enable **Enable Captive Portal** and select the policy created above in **Captive Portal Policy**.
4. Open **Device Membership** and ensure the access points that should broadcast the guest SSID are in **Member Devices**.
5. Select **Save** and allow the configuration to take effect before connecting a test device.



Guest SSID associated with the Microsoft 365 portal

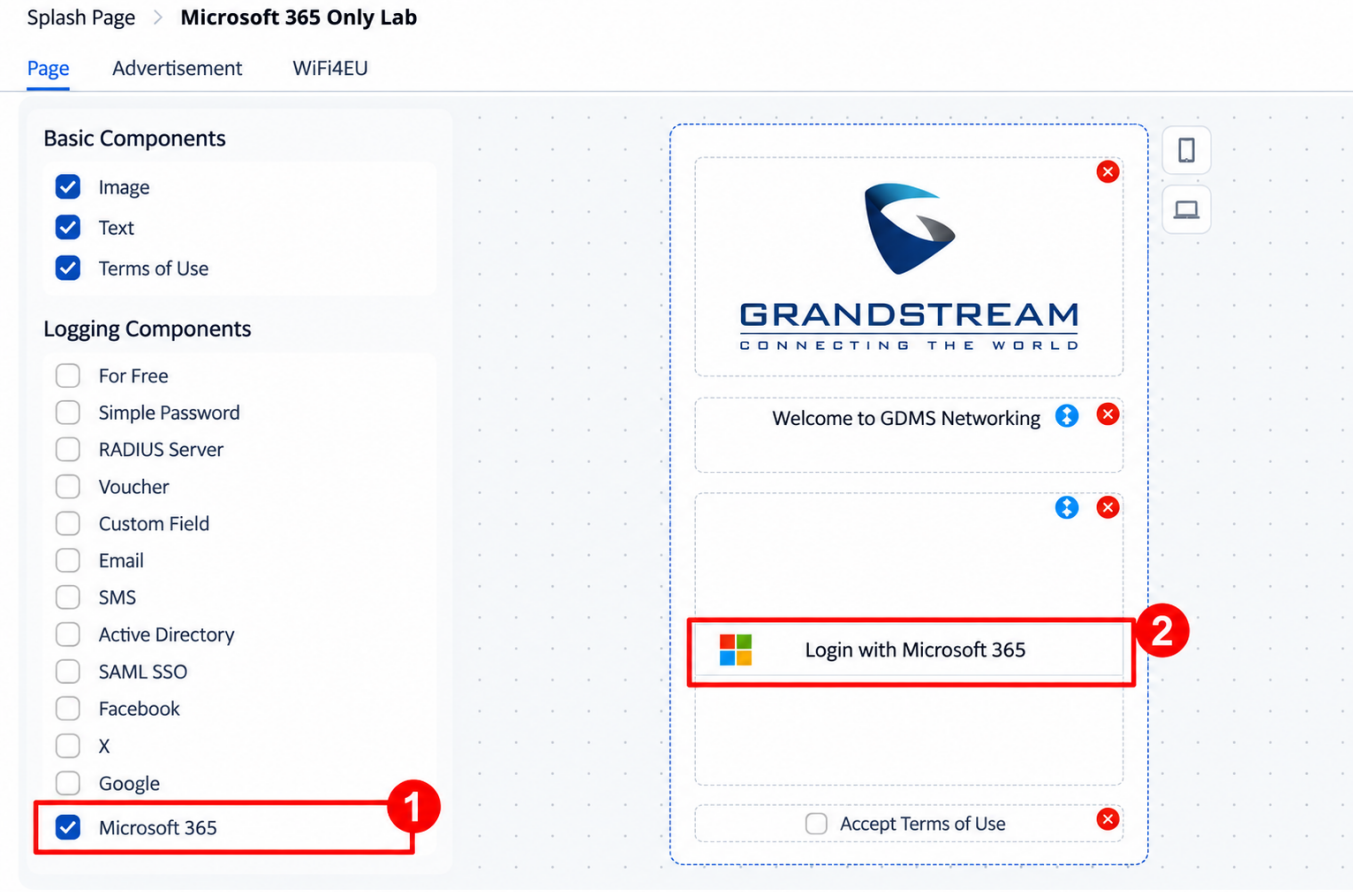
A captive portal controls admission to the network; it does not encrypt an Open SSID or isolate guests from internal resources. Apply guest VLAN, firewall, and isolation settings appropriate to your deployment.

B. Using a Management Platform

Use this path when the APs are managed through GDMS Networking or GWN Manager. The following example uses **GDMS Networking**. Here, create the splash page and configure its Microsoft 365 login component first, select that splash page in a portal policy, and assign the policy to the wireless network. Menu labels and available options can vary with the managing platform and software version.

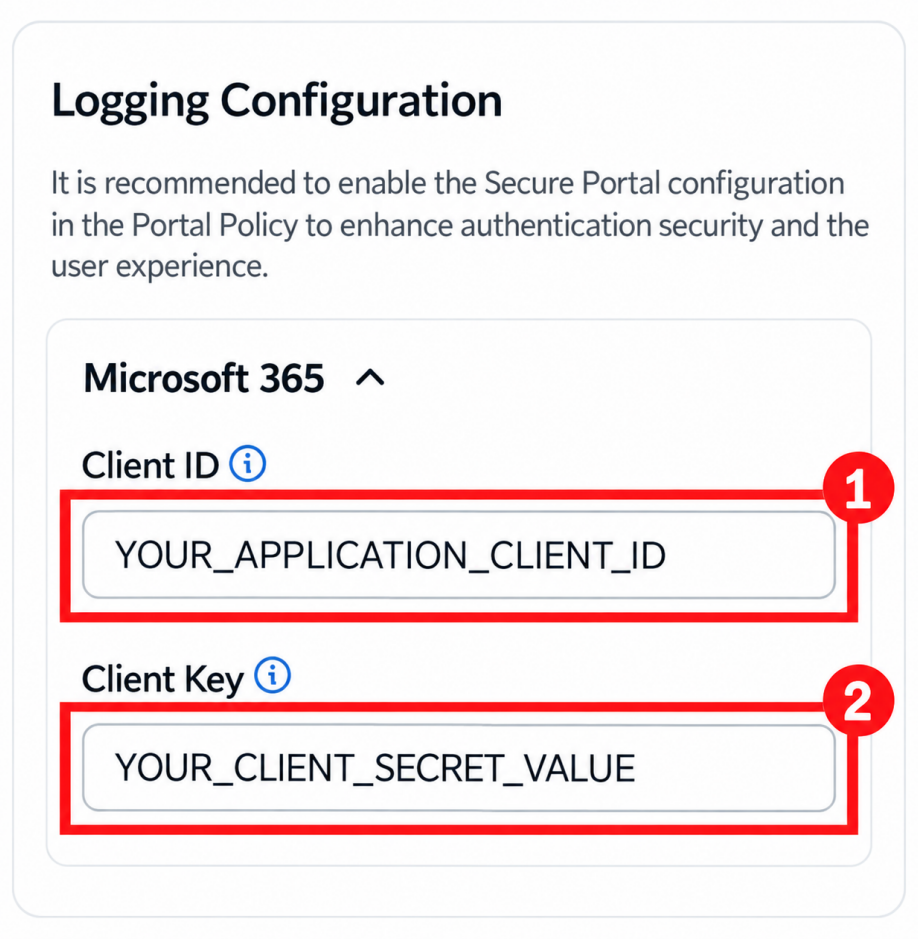
Create the Splash Page and Configure Microsoft 365

1. In GDMS Networking, select the network containing your access points. Open **Settings > Wi-Fi > Splash Page** and select **Add**.
2. Enter a recognizable splash-page name, such as **Microsoft 365 Only Lab**. On the **Page** tab, select **Microsoft 365** under **Logging Components**. For a Microsoft-only portal, leave **For Free** and the other login components unselected.
3. Select the Microsoft 365 component in the page preview to open its **Logging Configuration** settings.



Add Microsoft 365 to the splash page and select its login component

In the Microsoft 365 settings, enter the **Client ID** and **Client Key** obtained in Part 1. Client ID is the application's Application (client) ID; Client Key is the client secret **Value**, not its Secret ID. The placeholders below show where to enter your own values.

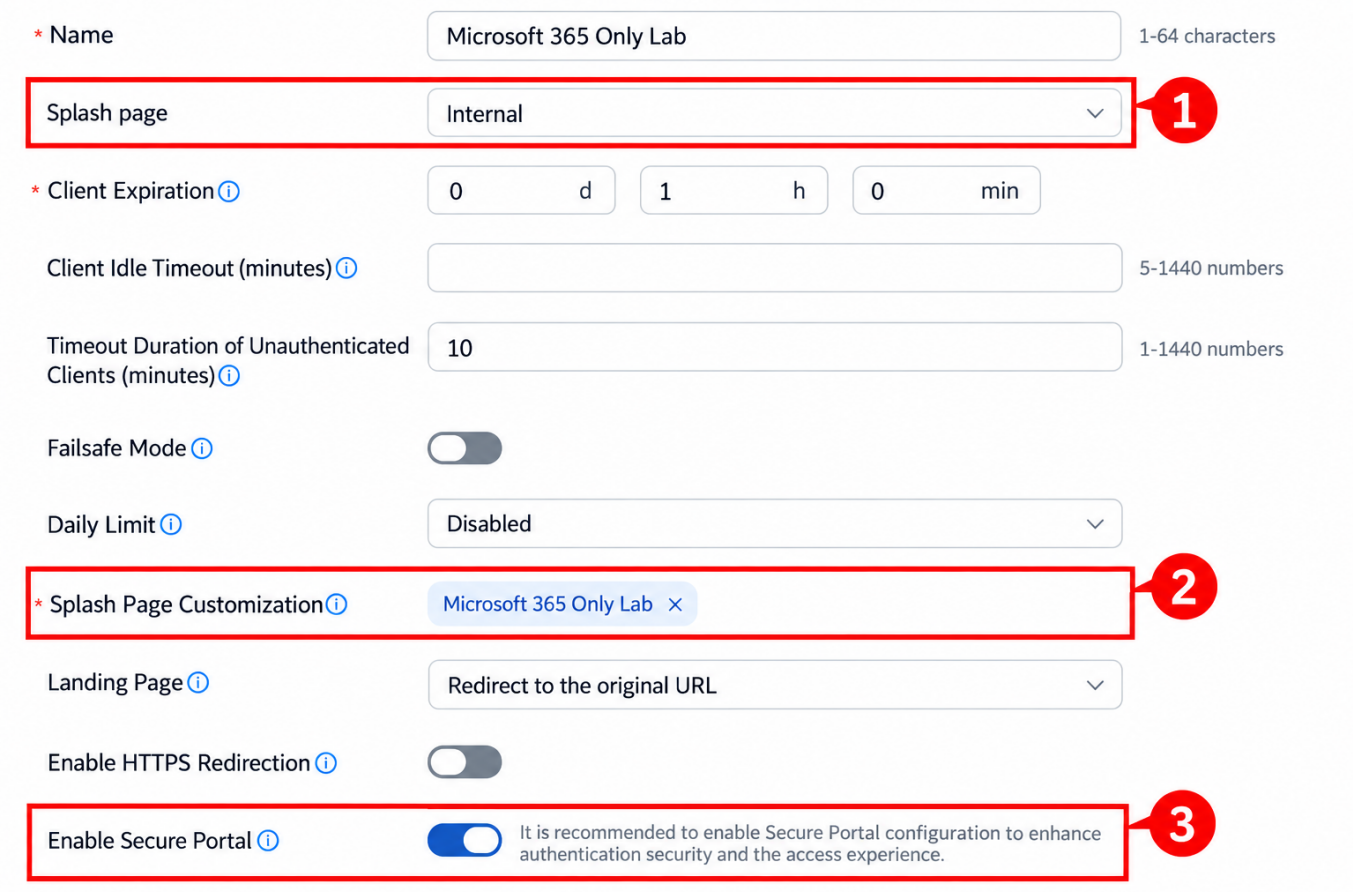


Enter the Microsoft application Client ID and client secret Value

Customize the logo, welcome text, and terms of use as needed, then select **Save**. The saved splash page will be available when you create the portal policy.

Create the Portal Policy and Select the Splash Page

1. Open **Settings > Wi-Fi > Portal Policy** and select **Add**. Enter a policy name, such as **Microsoft 365 Only Lab**.
2. Set **Splash page** to **Internal**. Under **Splash Page Customization**, select the splash page you just saved.
3. Set the session limits for your deployment. This example uses a **Client Expiration** of **1 hour** and a **Timeout Duration of Unauthenticated Clients** of **10 minutes**.
4. Enable **Secure Portal**. For the example shown, leave **Landing Page** set to **Redirect to the original URL**.

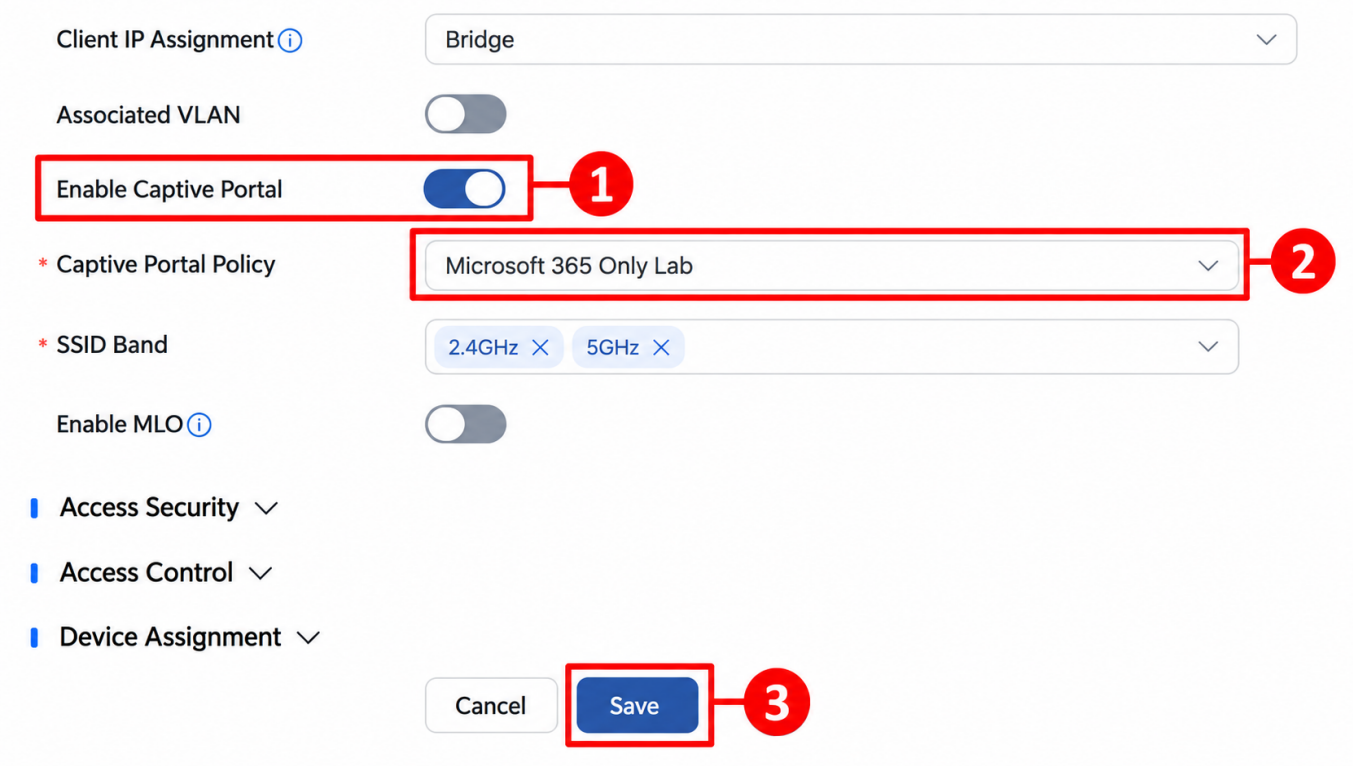


Select the internal splash page in the portal policy and enable Secure Portal

Under **Pre Authentication Rule(s)**, check that the Microsoft sign-in hostnames are allowed before authentication. Use the full, copyable hostnames in the pre-authentication table above, with destination type **Hostname** and service **All**. Add or correct entries as needed, then select **Save**.

Apply the Policy to the Wireless Network

1. Open **Settings > Wi-Fi > Wireless LAN** and add or edit the guest wireless network.
2. In **Basic**, enable **Captive Portal**. Select the policy you just created in **Captive Portal Policy**.
3. Configure the SSID, bands, access security, and network settings for your deployment. Under **Device Assignment**, select the access points that will broadcast the network.
4. Select **Save**. Allow the configuration to reach the assigned APs before testing the visitor login.



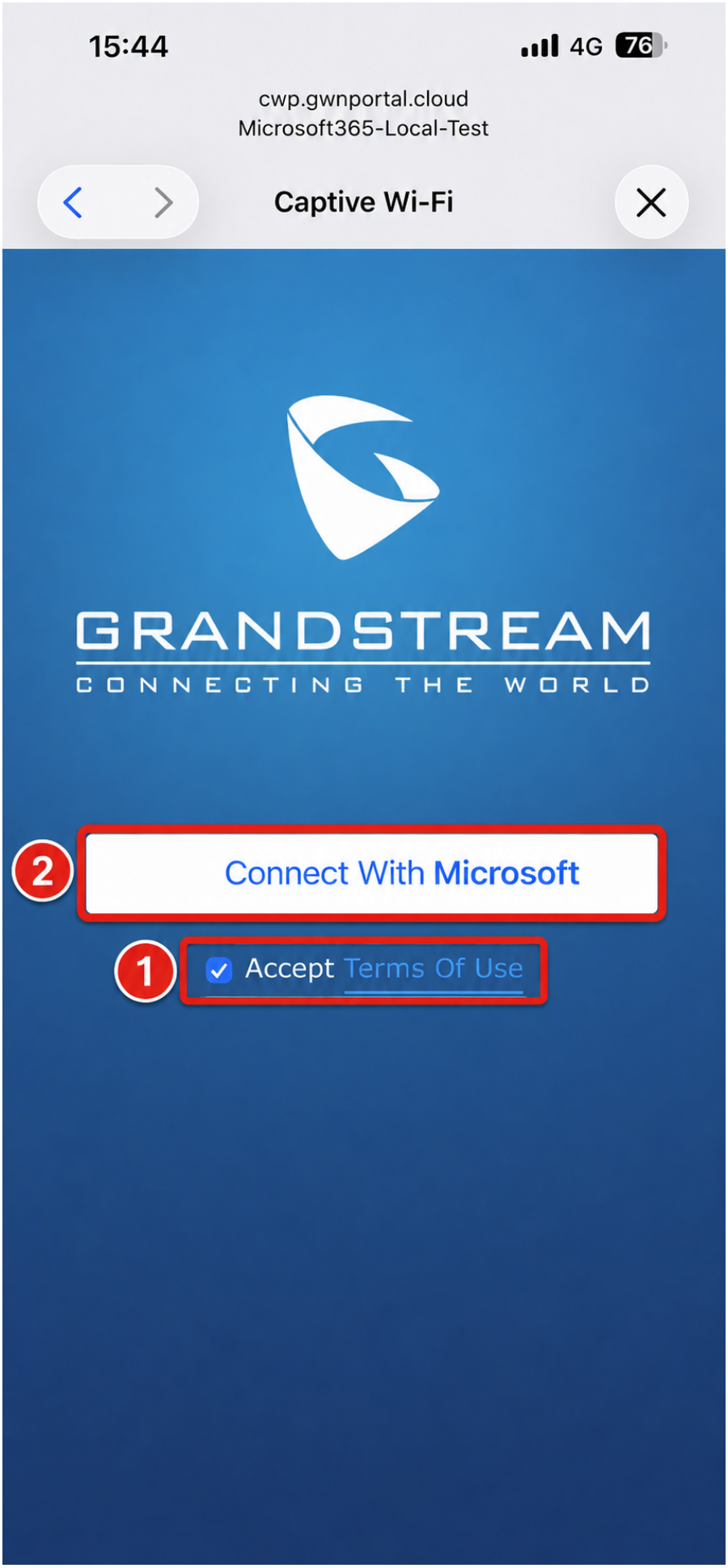
Enable Captive Portal on the wireless network and select the Microsoft 365 policy

The splash page, policy, and wireless network are now linked. Continue with the visitor test below; the Microsoft sign-in steps are shared by both configuration paths.

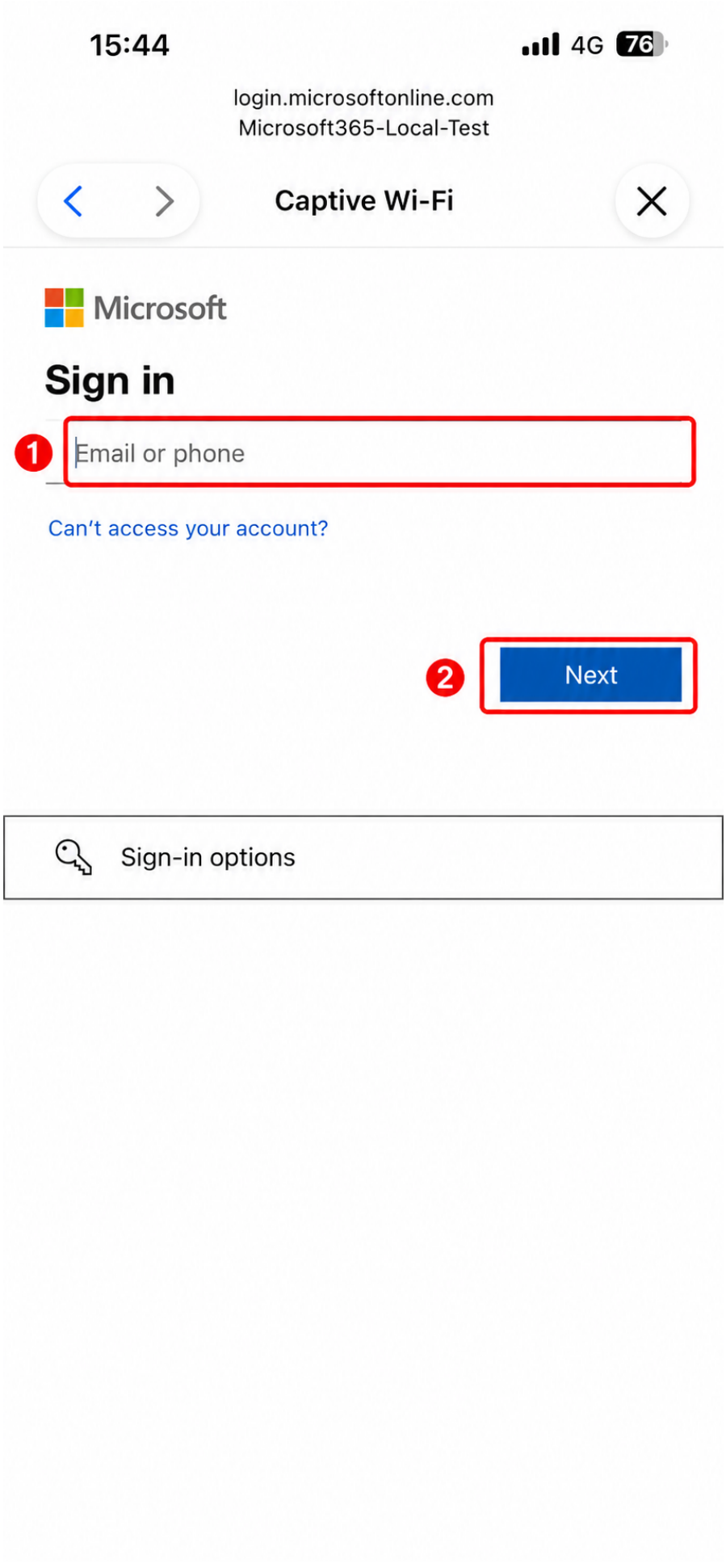
Test the Visitor Experience

1. Open the Portal and Start Microsoft Sign-In

Connect the test device to the guest SSID and open its captive portal prompt. If the prompt does not appear, open an HTTP website to trigger it. Accept the terms of use and select **Connect With Microsoft**. On the Microsoft sign-in page, enter your work or school account and select **Next**.



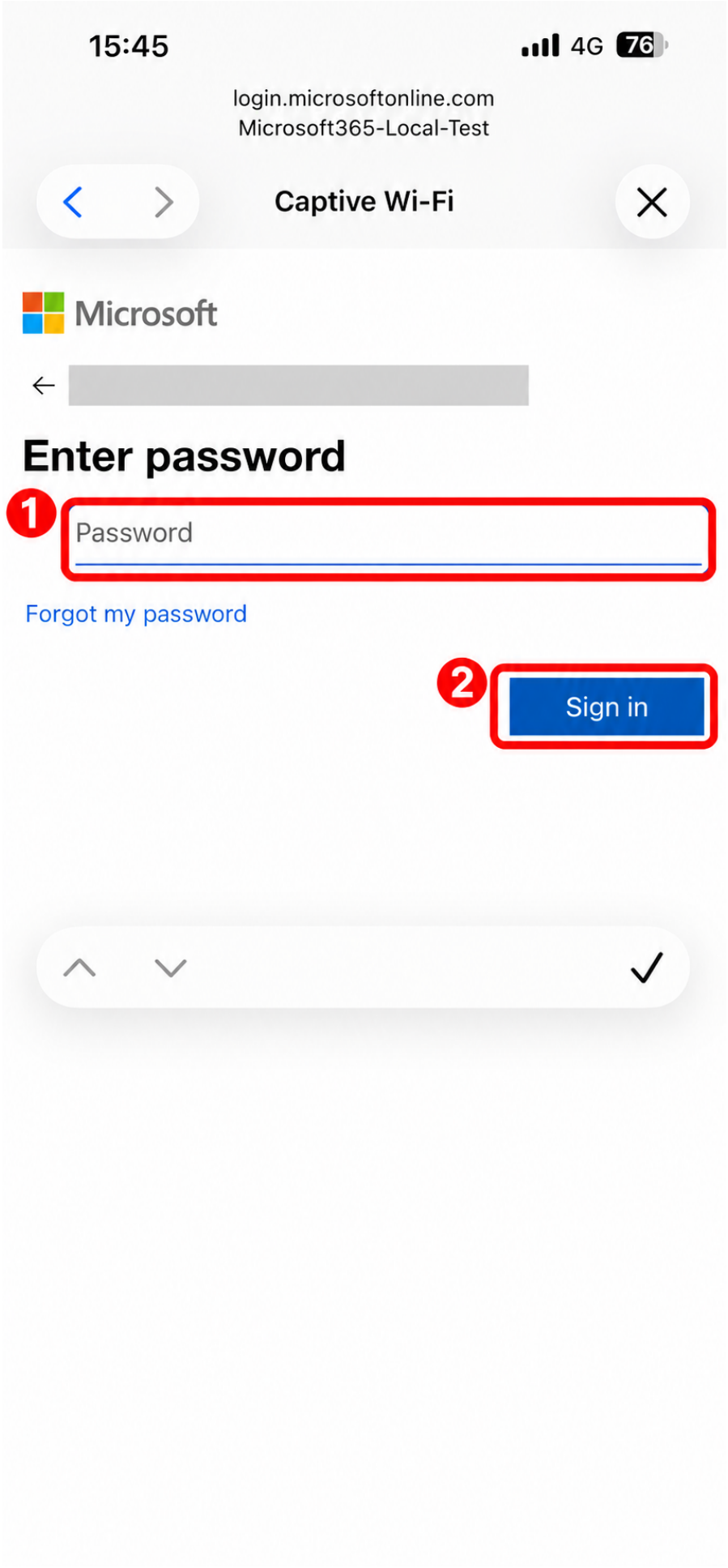
Accept the terms and connect with Microsoft



Enter the Microsoft work or school account

2. Complete Microsoft Sign-In

Enter the account password and select **Sign in**. Complete any additional verification requested by your organization. If the **Stay signed in?** prompt appears, choose whether to keep the Microsoft session signed in; select **No** on a shared device. If administrator approval is requested, complete the approval described in Part 1 before continuing.

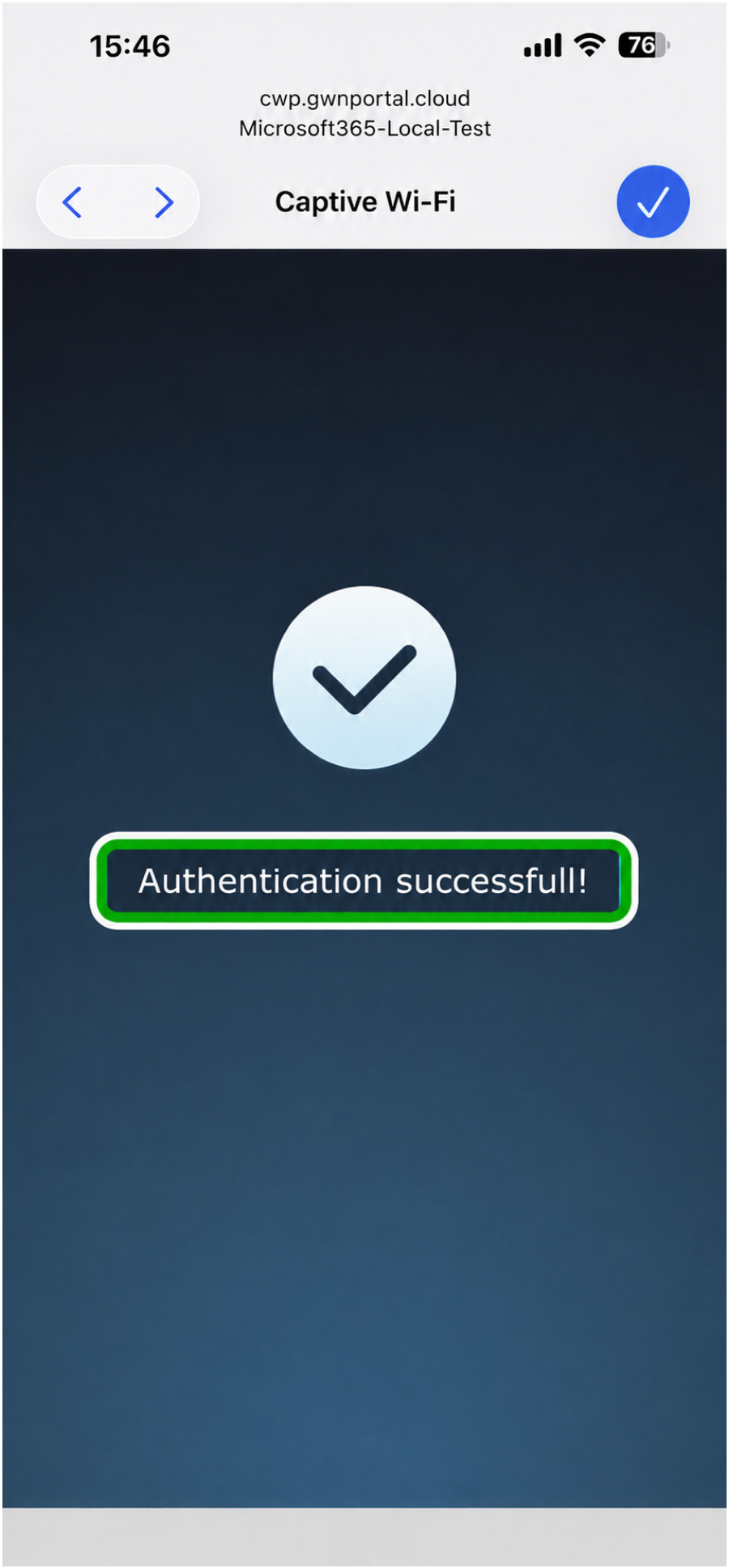


Enter the password on the Microsoft page

Choose whether to stay signed in

3. Confirm Authentication and Internet Access

After sign-in, the browser returns to the captive portal and displays **Authentication successful!**. In this iPhone example, the subsequent connectivity check displays **Success** and a blue checkmark. Close the portal window and open a website. Temporarily disable mobile data during this check to confirm that internet access is using the guest Wi-Fi rather than cellular data.



The portal confirms successful authentication

The iPhone connectivity check reports success

On the primary AP, open **Captive Portal > Guest** to check the visitor session. Confirm that the test client is authenticated. A returning visitor may not be asked to enter credentials again while a portal or Microsoft session is still valid.

Supported Devices and Management Options

This guide covers **Grandstream GWN76xx indoor and outdoor access points**, except **GWN7610** and **GWN7602**, which are end-of-life (EOL) models and are not covered by this Microsoft 365 configuration.

Configure the Microsoft 365 captive portal through the interface that manages your access points:

- **Primary access point:** Use the local web interface of the access point acting as the primary controller for itself and any other access points it manages.
- **GDMS Networking (cloud-based management):** Configure the captive portal in the cloud platform managing your access points.
- **GWN Manager (on-premises management):** Configure the captive portal in the locally hosted management platform.

This walkthrough uses the **local web interface of a primary access point** and **GDMS Networking**. The same Microsoft 365 configuration principles apply to the other management option; menu locations and screen layouts may differ.