Grandstream Networks, Inc.

Captive Portal

Authentication via Facebook

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SUPPORTED DEVICES

Following table shows Grandstream devices supporting Captive Portal with Facebook Authentication feature:

Table 1: Supported Devices

Model	Supported	Firmware
GWN7610	Pending	Pending
GWN7600	Yes	1.0.3.19 or higher
GWN7000	Pending	Pending

INTRODUCTION

Captive Portal feature on GWN760X Access Points allows to define a Landing Page (Web page) that will be displayed on WiFi clients' browsers when attempting to access Internet.

Once connected to GWN760X AP, WiFi clients will be forced to view and interact with that landing page before Internet access is granted.

Captive portal can be used in different environments including airports, hotels, coffee shops, business centers and others offering free WiFi hotspots for Internet users.

This guide describes how to setup the captive portal feature on the GWN760X series using Facebook Authentication.

The following figure illustrates an example of the landing page feature using Facebook authentication.

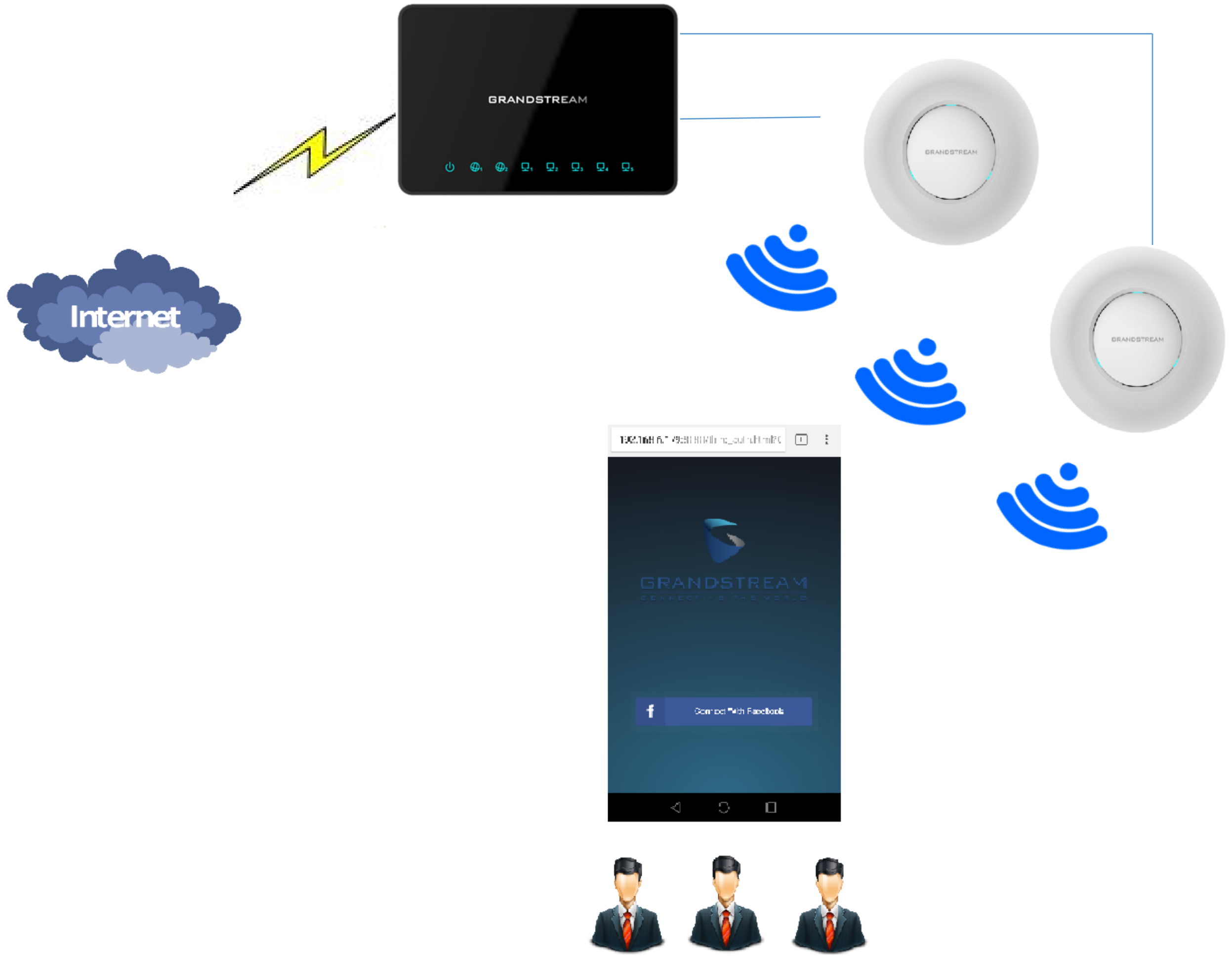


Figure 1: General Architecture

CAPTIVE PORTAL SETTINGS

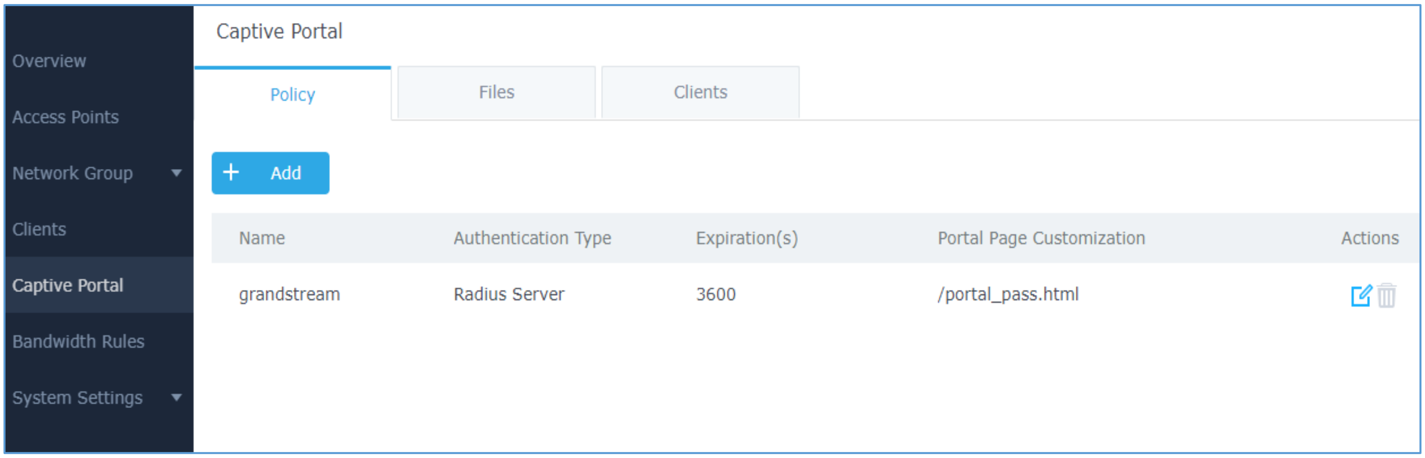
The Captive Portal feature can be configured from the GWN760X web page, by navigating to "**Captive Portal**".

The page contains three tabs: **Policy**, **Files** and **Clients**.

- **Policy Tab**: In this page, users can configure multiple portal policies which then can be assigned to specifc network groups under the menu "**Network Groups**". (For example having non-authentication based portal for temporary guests and setting up an authentication based portal policy for the internal staff).

- **Files Tab**: Under this tab, users could download and upload customized portal landing page to display to the users when they try to connect over the WiFi.

- **Clients Tab**: This tab lists the authenticated clients MAC addresses.



Name	Authentication Type	Expiration(s)	Portal Page Customization	Actions
grandstream	Radius Server	3600	/portal_pass.html	

Figure 2: Captive Portal web GUI menu

Policy Configuration Page

The Policy configuration allows users to configure and customize different captive portal policies which then can be selected on network group configuration page, giving the admin the ability to set different captive portals for each network group.

The following table describes all the settings on this page:

Table 2: Policy Configuration Page

Field	Description
Name	Enter a name to identify the created policy (ex: Guest Portal).
Expiration	Enter the expiration time for the landing page, this field must contain an integer between 60 or 604800 in minutes. If this field is set to 0 the landing page will never expire.
Authentication Type	Three types of authentication are available: • **No Authentication:** when choosing this option, the landing page feature will not provide any type of authentication, instead it will prompt users to accept the license agreement to gain access to internet. • **RADIUS Server:** Choosing this option will allow users to set a RADIUS server to authenticate connecting clients. • **Third Authentication:** Choosing this option will allow users to log in using WeChat or Facebook. We will be using this authentication type on this guide.
Facebook Authentication	Check this box to enable Facebook Authentication.
Facebook App ID	Enter the app ID to use Facebook Login API.
Facebook App Secret	Enter the app secret to use Facebook Login API.
Portal Page Customization	This option allows users to choose the landing page that will be shown once a client tries to connect to the GWN, three pages are available: • **Portal Default:** This page is used when no authentication is specified, users will have only to accept license agreement to gain access to internet. • **Portal Pass:** This option provides authentication textbox when using RADIUS authentication mode, to enter username and password stored in RADIUS database. • **Third Auth:** Choose this page when using authentication via WeChat or Facebook.
Landing Page	Select page where authenticated clients will be redirected to. • **Redirect to the original URL:** Sends the authenticated client to the original requested URL. • **Redirect External Page:** Enter URL that you want to promote to connected clients (ex: company's website).
Redirect External Page URL	When setting the landing page to (Redirect External Page), enter the URL where to send authenticated clients.
Enable HTTPS	Check this box to enable captive portal over HTTPS.

Pre-Authentication Rules	From this menu, users can set matching rules to allow certain types of traffic before authentication happens or simply allow the traffic for non-authenticated end points.
Post Authentication Rules	This tool can be used to block certain type of traffic to authenticated clients, anything else is allowed by default. (Ex: Settings a rule that matches HTTP will ban all authenticated clients to not access web server that are based on HTTP).

Landing Page Redirection

This feature can be configured using the option "Redirect External Page URL" under the policy settings, and could be useful in the case the network admin wants to force all connected guest clients to be redirected to a certain URL (ex: company's website) for promotion and advertisement purposes.

Note: Supported on GWN7600 Access Points only.

Pre-Authentication Rules

Using this option, users can set rules to match traffic that will be allowed for connected WiFi users before authentication process. This can be needed for example to setup Facebook authentication where some traffic should be allowed to Facebook server(s) to process the user's authentication. Or simply to be used to allow some type of traffic for unauthenticated users.

Note: Supported on GWN7600 Access Points only.

Post-Authentication Rules

On the other hand, post authentication rules are used to match traffic that will be banned for WiFi clients after authentication. As an example, if you want to disallow connected WiFi clients to issue Telnet or SSH traffic after authentication then you can set post authentication rules to match that traffic and once a connected client passes the authentication process they will be banned from issuing telnet and SSH connections.

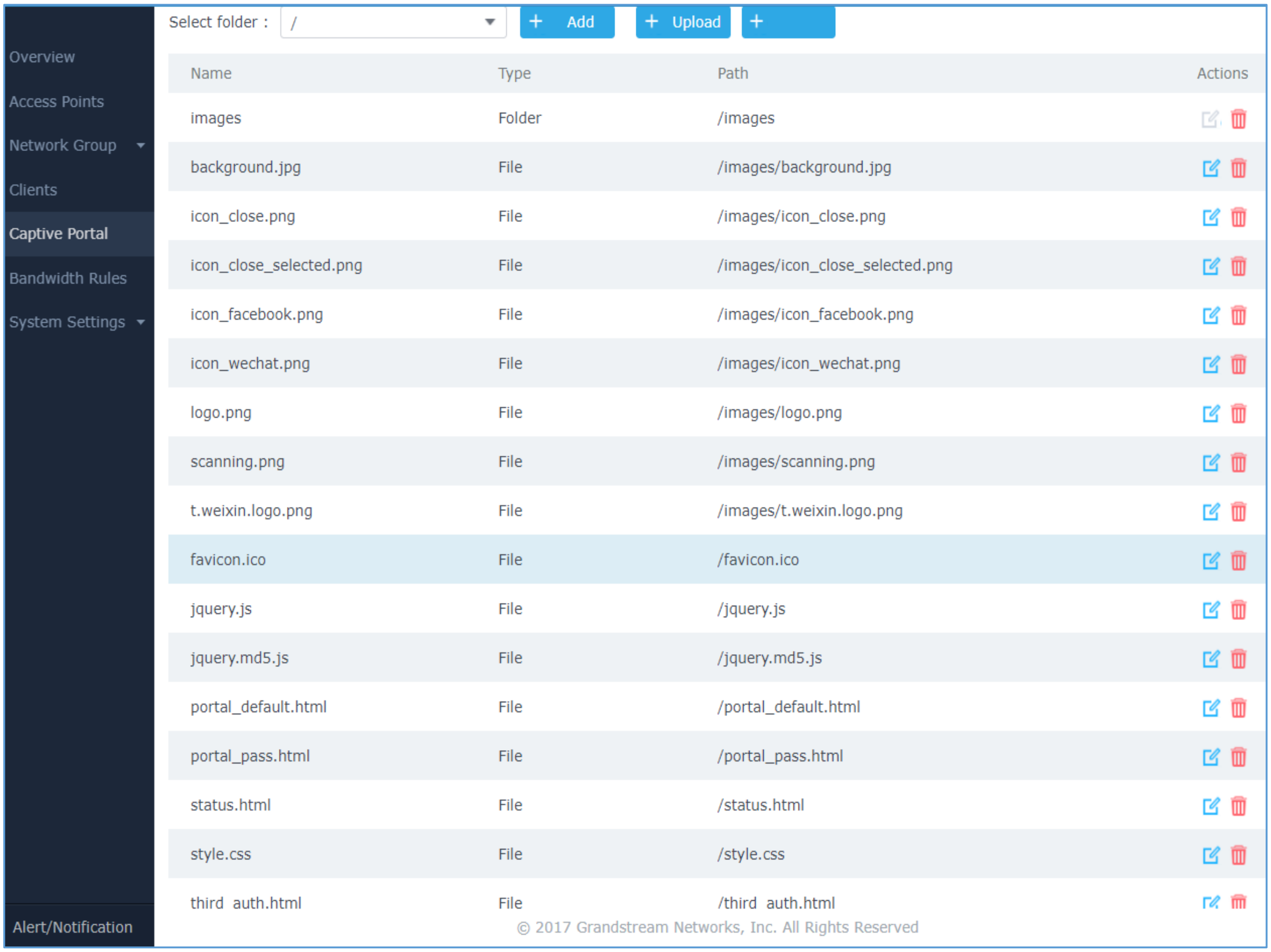
Note: Supported on GWN7600 Access Points only.

Files Configuration Page

Files configuration page allows to view and upload HTML pages and related files (images…).

The captive portal uses portal_default.html as default portal page. When using Facebook authentication, users need to select **third_auth.html** as the portal page to let the user login via Facebook.

The following figure shows default files used for Captive Portal in GWN Access point.



Name	Type	Path	Actions
images	Folder	/images	✎ 🗑
background.jpg	File	/images/background.jpg	✎ 🗑
icon_close.png	File	/images/icon_close.png	✎ 🗑
icon_close_selected.png	File	/images/icon_close_selected.png	✎ 🗑
icon_facebook.png	File	/images/icon_facebook.png	✎ 🗑
icon_wechat.png	File	/images/icon_wechat.png	✎ 🗑
logo.png	File	/images/logo.png	✎ 🗑
scanning.png	File	/images/scanning.png	✎ 🗑
t.weixin.logo.png	File	/images/t.weixin.logo.png	✎ 🗑
favicon.ico	File	/favicon.ico	✎ 🗑
jquery.js	File	/jquery.js	✎ 🗑
jquery.md5.js	File	/jquery.md5.js	✎ 🗑
portal_default.html	File	/portal_default.html	✎ 🗑
portal_pass.html	File	/portal_pass.html	✎ 🗑
status.html	File	/status.html	✎ 🗑
style.css	File	/style.css	✎ 🗑
third_auth.html	File	/third_auth.html	✎ 🗑

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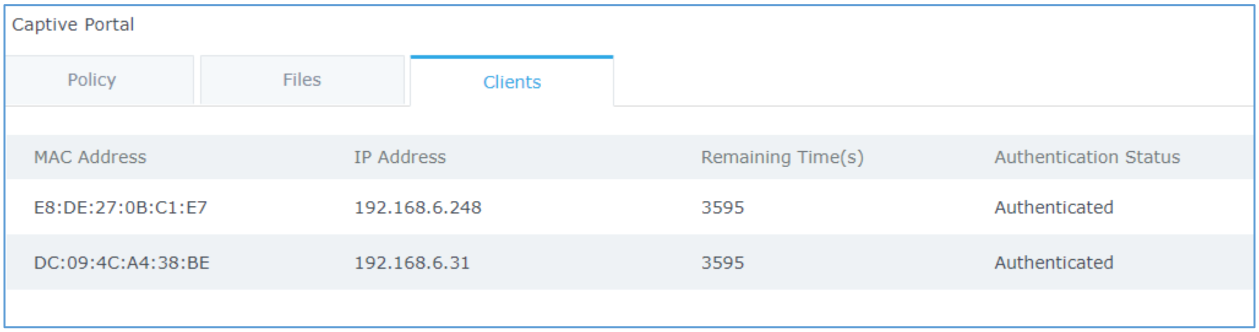
Figure 3: Files Web Page

- Click ✎ to upload a new web page.
- Click ⊕ Add Folder to add a new folder.
- Click ⊕ Upload to upload files to the selected folder.
- Folder can be selected from the dropdown list. Select folder : /images ▼

Clients Page

For Information Purposes Clients page lists MAC addresses of authenticated devices using captive portal. As we can see on the below figure, two WiFi clients have been authenticated and granted internet access from the GWN7610 access points:

- ✓ Client 1 → ***E8:DE:27:0B:C1:E7***
- ✓ Client 2 → ***DC:09:4C:A4:38:BE***



MAC Address	IP Address	Remaining Time(s)	Authentication Status
E8:DE:27:0B:C1:E7	192.168.6.248	3595	Authenticated
DC:09:4C:A4:38:BE	192.168.6.31	3595	Authenticated

Figure 4: Client Web Page

CONFIGURATION STEPS

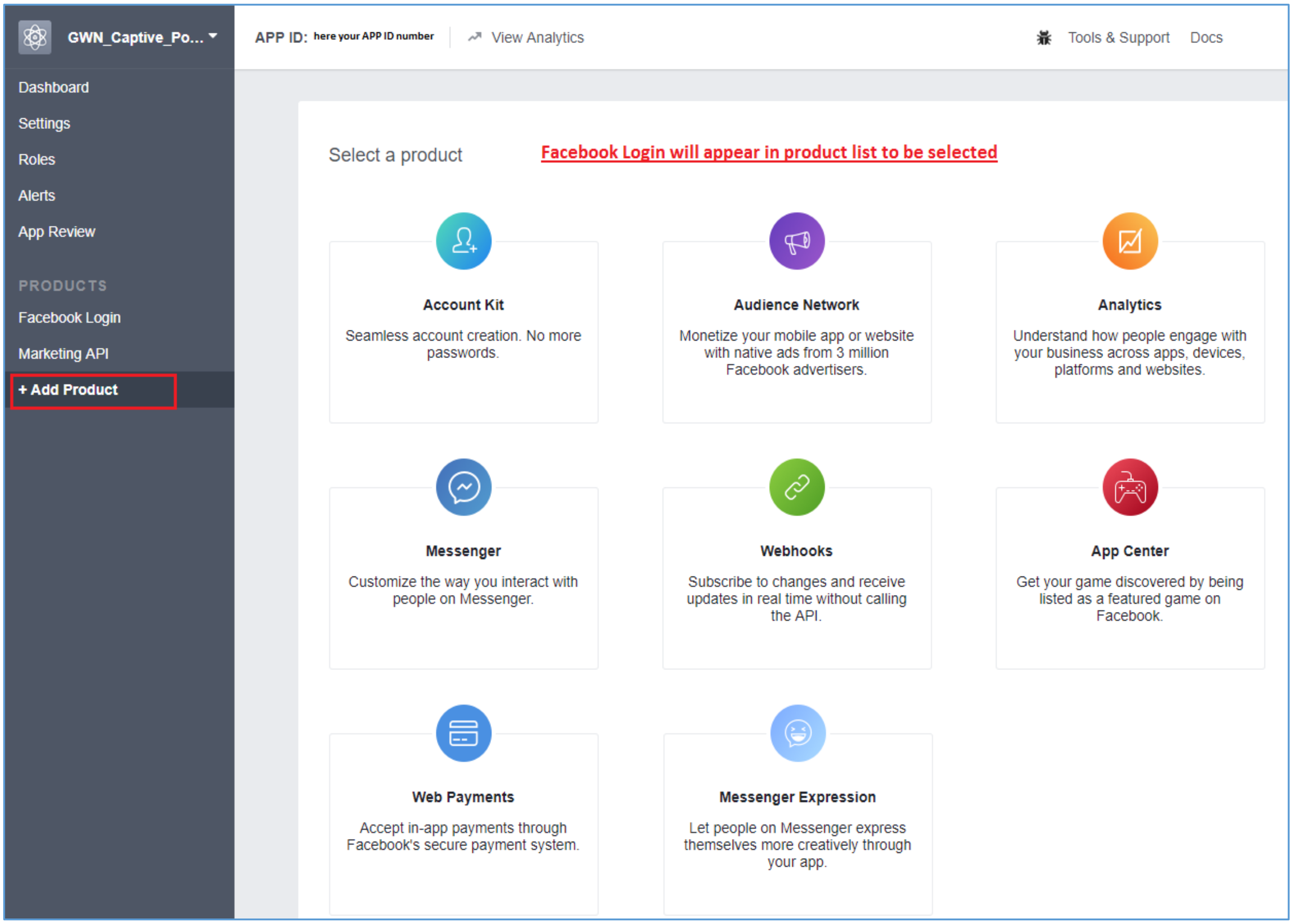
In this section, we will provide all steps needed to use Captive Portal with Facebook authentication.

Create Facebook App

To use Facebook Login API, users need first to create an APP under developers' platform and set some OAuth settings to allow login authentication between GWN Access Points and Facebook servers.

We summarize in the following section the required steps:

1. Go to Facebook developers' platform: https://developers.facebook.com/apps
2. Login using your account and enter your phone number to receive verification code.
3. Create a new APP and give it a name (ex: GWN_Captive_Portal).
4. On the left bar, click on **+Add Product** to add Facebook login feature:



Facebook Login will appear in product list to be selected

Account Kit
Seamless account creation. No more passwords.

Audience Network
Monetize your mobile app or website with native ads from 3 million Facebook advertisers.

Analytics
Understand how people engage with your business across apps, devices, platforms and websites.

Messenger
Customize the way you interact with people on Messenger.

Webhooks
Subscribe to changes and receive updates in real time without calling the API.

App Center
Get your game discovered by being listed as a featured game on Facebook.

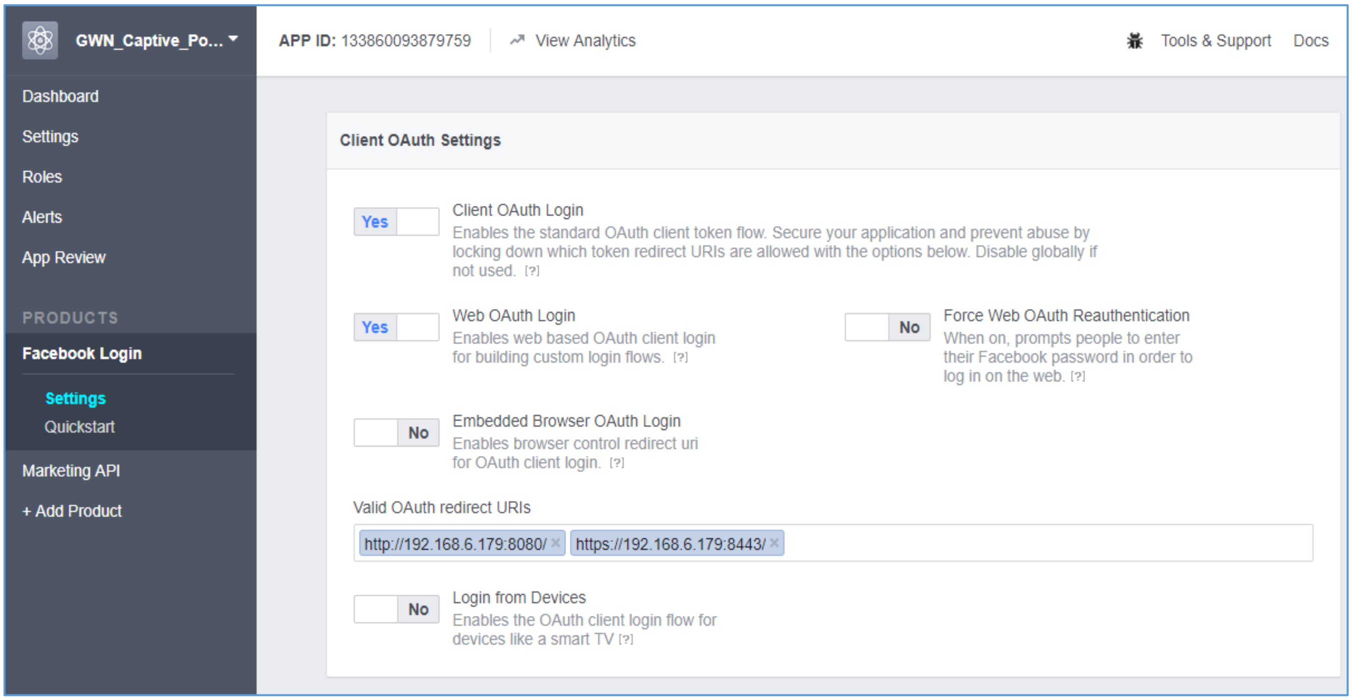
Web Payments
Accept in-app payments through Facebook's secure payment system.

Messenger Expression
Let people on Messenger express themselves more creatively through your app.

Figure 5: Facebook Dev - Add product

5. Under Facebook Login settings, enter the valid OAuth redirect URIs to allow authentication requests from your access points. For each AP, note its IP address and make sure to enter two URIs per access point as following:

   - **http://IP_ADDRESS:8080**
   - **https://IP_ADDRESS:8443**



Client OAuth Settings

Yes — Client OAuth Login
Enables the standard OAuth client token flow. Secure your application and prevent abuse by locking down which token redirect URIs are allowed with the options below. Disable globally if not used. [?]

Yes — Web OAuth Login
Enables web based OAuth client login for building custom login flows. [?]

No — Force Web OAuth Reauthentication
When on, prompts people to enter their Facebook password in order to log in on the web. [?]

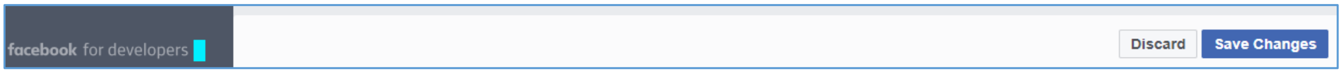
No — Embedded Browser OAuth Login
Enables browser control redirect uri for OAuth client login. [?]

Valid OAuth redirect URIs
http://192.168.6.179:8080/ × https://192.168.6.179:8443/ ×

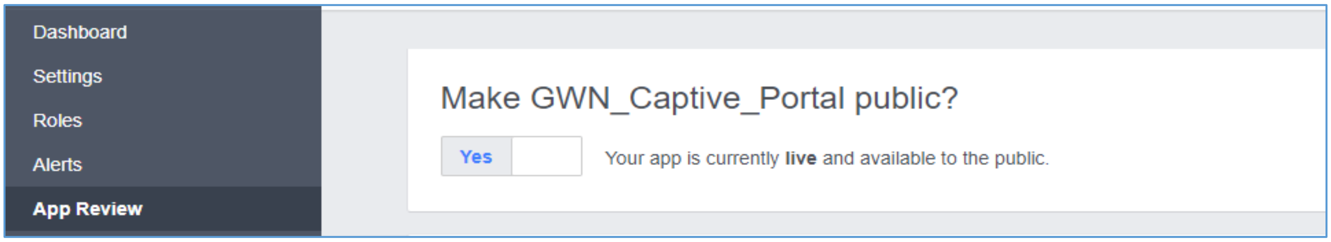
No — Login from Devices
Enables the OAuth client login flow for devices like a smart TV [?]

Figure 6: Facebook Login Settings

6. Press **Save Changes**.



7. Next, make sure to set the Facebook App public by going under **App Review** and settings it to Yes.

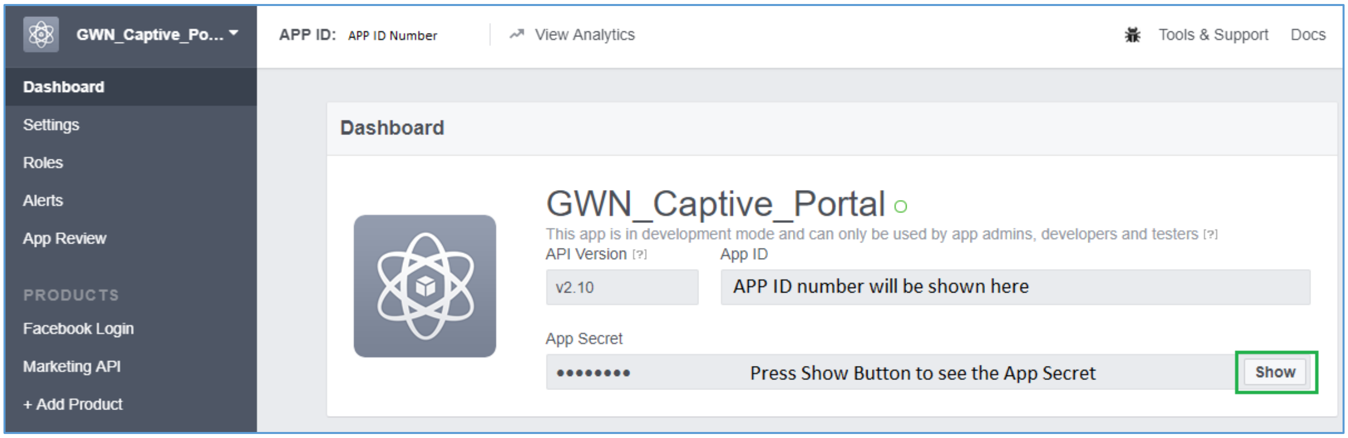


Make GWN_Captive_Portal public?

Yes — Your app is currently **live** and available to the public.

Figure 7: Make Facebook App Public

8. Finally, got to Dashboard page and take note of the APP ID and App Secret (press **Show** to display it) since these two credentials will be used on the GWN configuration as shown on the following sections.



APP ID: APP ID Number

Dashboard

GWN_Captive_Portal

This app is in development mode and can only be used by app admins, developers and testers [?]

API Version [?]: v2.10

App ID: APP ID number will be shown here

App Secret: •••••••• Press Show Button to see the App Secret

Figure 8: Facebook Developers Dashboard

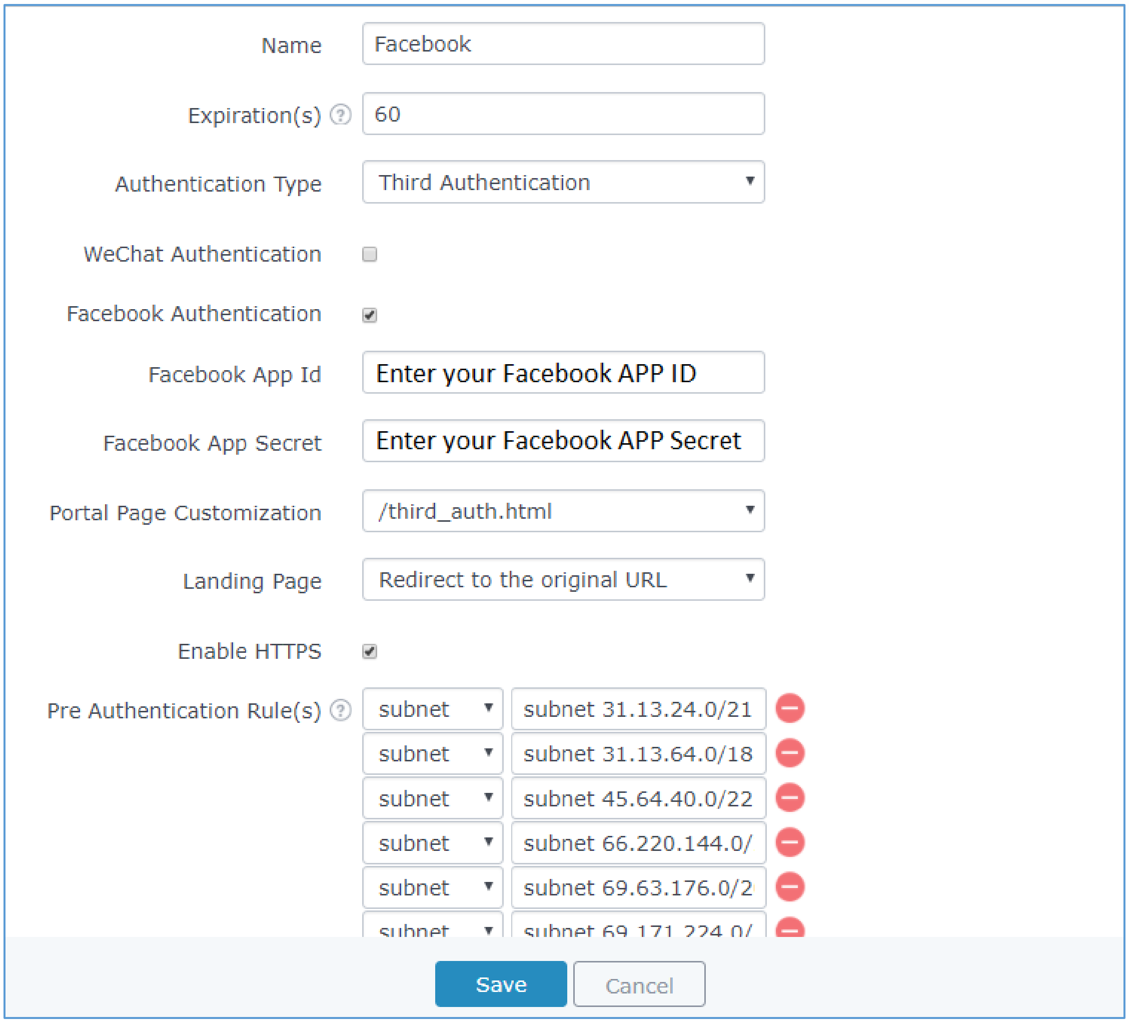
Configure Captive Portal Policy with Facebook Authentication

After configuring the basic settings for the Facebook app, make sur to take note of the APP ID and Secret ID to use them when configuring captive portal policy.

Users could navigate on the web GUI under Captive Portal menu and add new policy with Facebook authentication and configure the following required options.

- **Authentication Type:** Third Authentication.
- Enable **Facebook Authentication.**
- Enter the Facebook **App ID** and **Secret**.
- Portal Page Customization: **/third_auth.html**

Following figure shows a sample configuration for Facebook authentication based on portal policy.



Name: Facebook

Expiration(s) ?: 60

Authentication Type: Third Authentication ▾

WeChat Authentication: □

Facebook Authentication: ☑

Facebook App Id: Enter your Facebook APP ID

Facebook App Secret: Enter your Facebook APP Secret

Portal Page Customization: /third_auth.html ▾

Landing Page: Redirect to the original URL ▾

Enable HTTPS: ☑

Pre Authentication Rule(s) ?:

subnet ▾	subnet 31.13.24.0/21
subnet ▾	subnet 31.13.64.0/18
subnet ▾	subnet 45.64.40.0/22
subnet ▾	subnet 66.220.144.0/
subnet ▾	subnet 69.63.176.0/2
subnet ▾	subnet 69.171.224.0/

Figure 9: Captive Portal Policy Sample Configuration

Pre-Authentication Rules

When using Facebook authentication for captive portal policy, users need to make sure to setup the following subnets under pre-authentication rules to allow communication with Facebook server during the authentication process and before deciding to allow or deny the WiFi client the access to Internet.

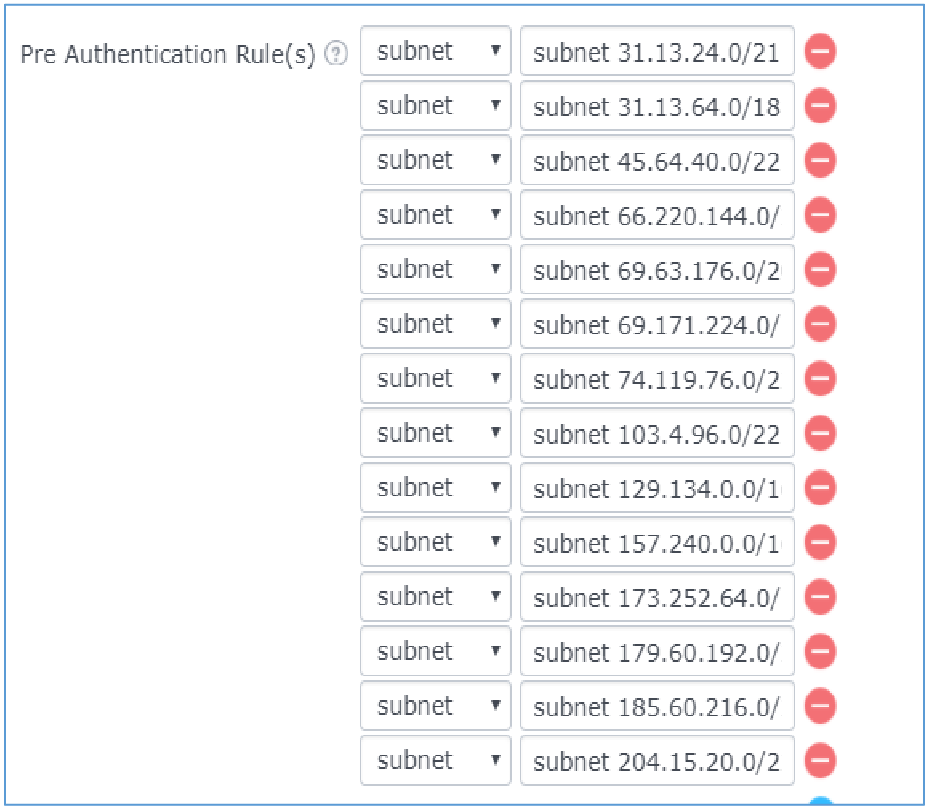
The following table lists all subnets to be entered when using Facebook Authentication.

Table 3: Pre-Authentication Rules for Facebook Authentication

Pre-Authentication Rule(s) Type	Value
subnet	subnet 31.13.24.0/21
subnet	subnet 31.13.64.0/18
subnet	subnet 45.64.40.0/22

subnet	subnet 66.220.144.0/20
subnet	subnet 69.63.176.0/20
subnet	subnet 69.171.224.0/19
subnet	subnet 74.119.7.0/22
subnet	subnet 103.4.96.0/22
subnet	subnet 129.134.0.0/16
subnet	subnet 157.240.0.0/16
subnet	subnet 173.252.64.0/18
subnet	subnet 179.60.192.0/22
subnet	subnet 185.60.216.0/22
subnet	subnet 204.15.20.0/22

Following figure shows the list of the subnets that should be included.



Pre Authentication Rule(s) ?	subnet ▾	subnet 31.13.24.0/21
	subnet ▾	subnet 31.13.64.0/18
	subnet ▾	subnet 45.64.40.0/22
	subnet ▾	subnet 66.220.144.0/
	subnet ▾	subnet 69.63.176.0/2
	subnet ▾	subnet 69.171.224.0/
	subnet ▾	subnet 74.119.76.0/2
	subnet ▾	subnet 103.4.96.0/22
	subnet ▾	subnet 129.134.0.0/1
	subnet ▾	subnet 157.240.0.0/1
	subnet ▾	subnet 173.252.64.0/
	subnet ▾	subnet 179.60.192.0/
	subnet ▾	subnet 185.60.216.0/
	subnet ▾	subnet 204.15.20.0/2

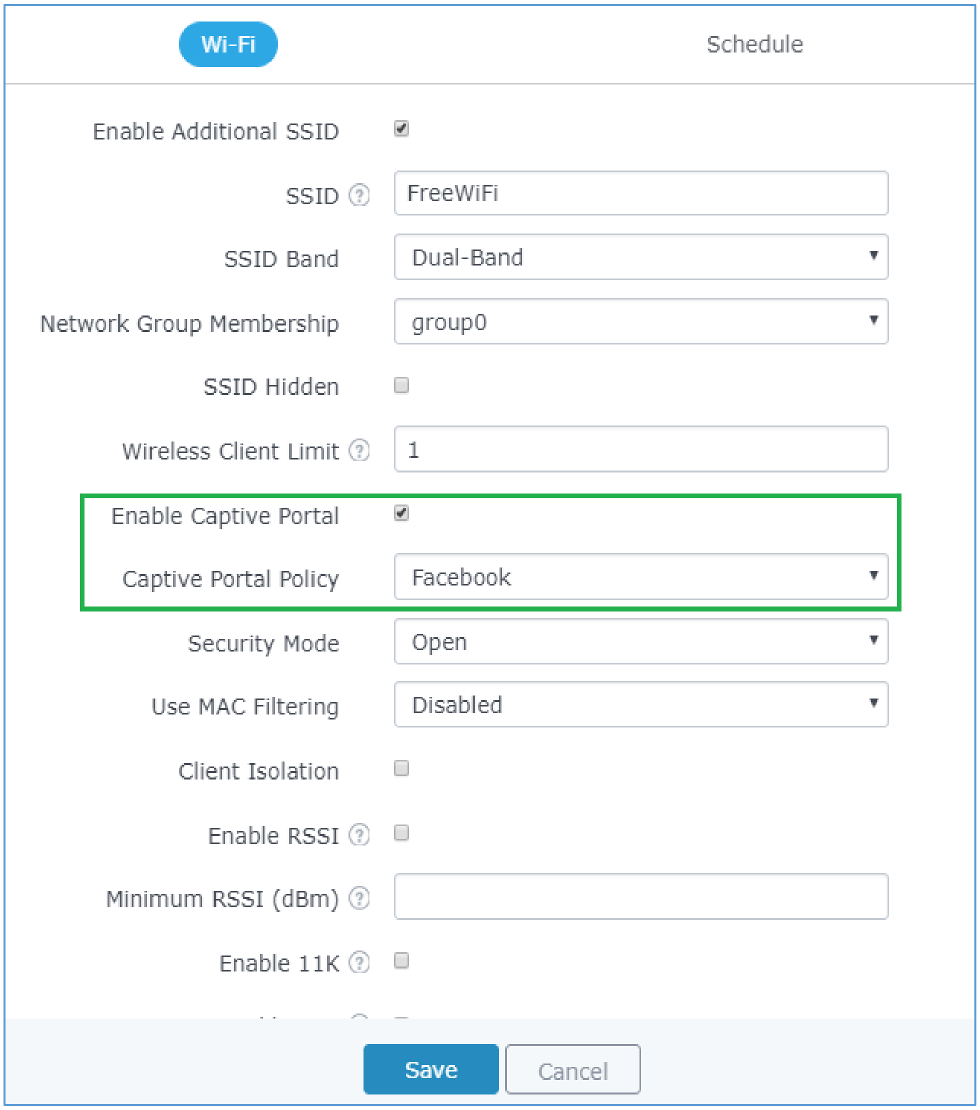
Figure 10: Pre-Authentication Rules for Facebook Authentication

Once this is done, make sure to save and apply the configuration and we will check on the next steps how to assign the configured policy to network groups and SSIDs.

Assign Captive Portal Policy to Network Groups and SSIDs

Once the captive portal policy has been configured with correct settings and pre-authentication rules for Facebook Authentication, users can assign the created policy to a network group or additional SSID under WiFi settings tab.

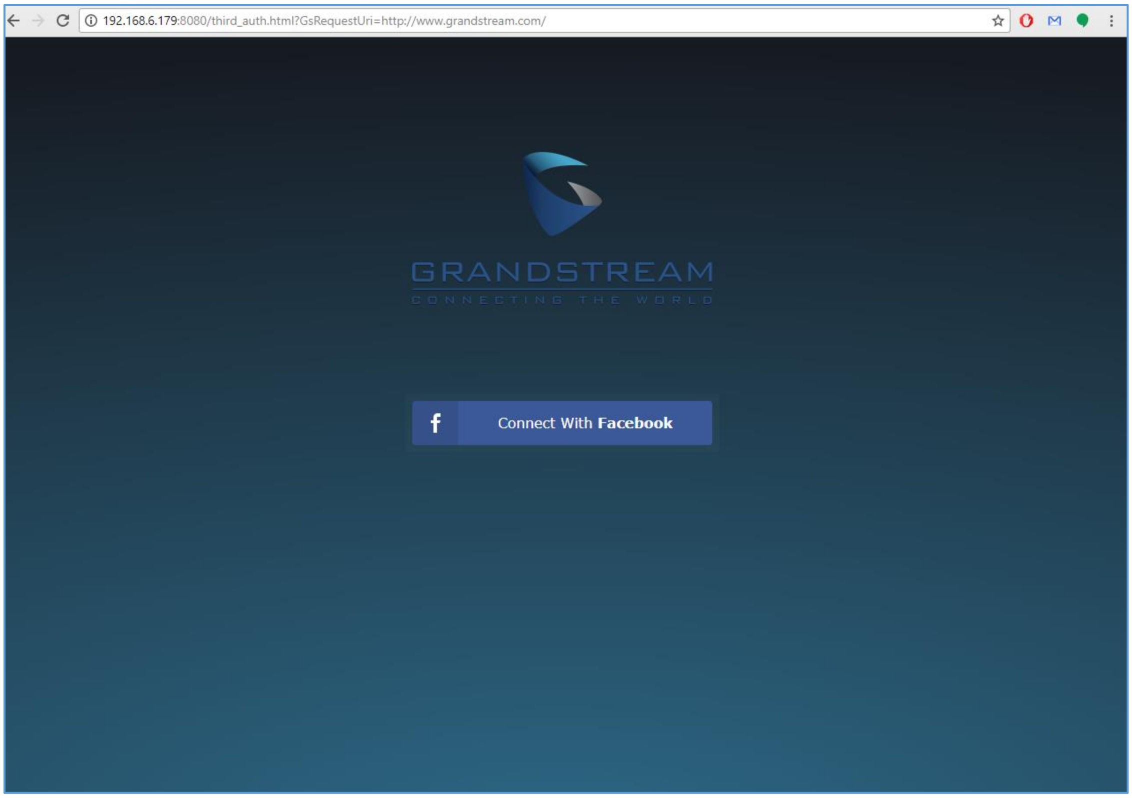
Navigate to Network Groups menu and under WiFi settings click on “Enable Portal Policy”, then select the configured policy from the drop-down policy as shown on the following figure.



Enable Additional SSID	☑
SSID	FreeWiFi
SSID Band	Dual-Band
Network Group Membership	group0
SSID Hidden	□
Wireless Client Limit	1
Enable Captive Portal	☑
Captive Portal Policy	Facebook
Security Mode	Open
Use MAC Filtering	Disabled
Client Isolation	□
Enable RSSI	□
Minimum RSSI (dBm)	
Enable 11K	□

Figure 11: Enable Captive Portal on WiFi Settings

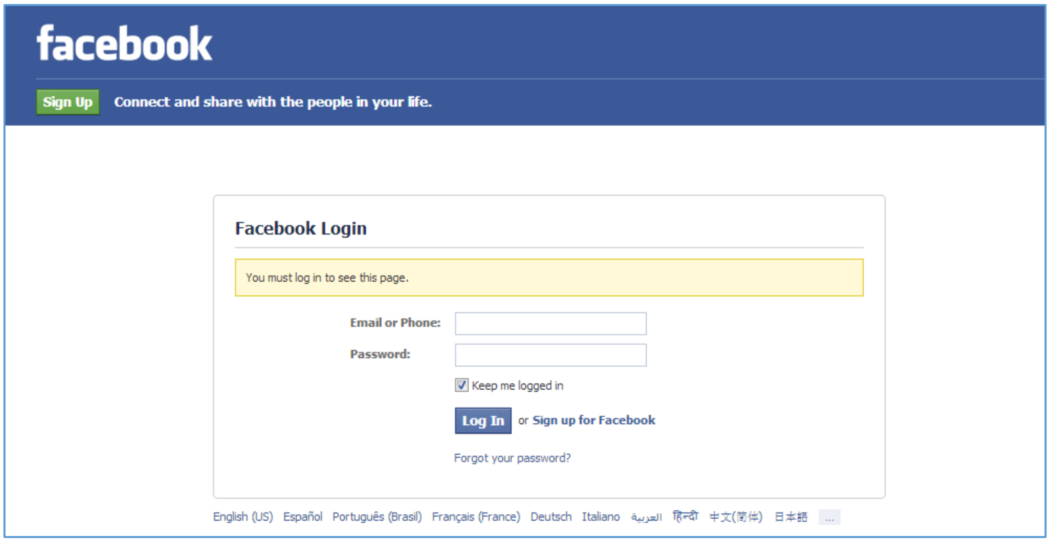
After this is done, save and apply the settings then the AP will broadcast the new WiFi settings for the users. Once a client tries to connect to the Internet via WiFi, they will be request to login using their Facebook account.



192.168.6.179:8080/third_auth.html?GsRequestUri=http://www.grandstream.com/

Figure 12: Login via Facebook Portal

The user then clicks on the button **« Connect with Facebook »** and will be redirected to Facebook login page to enter his/her account credentials as shown on the following figure.



You must log in to see this page.

facebook
Sign Up
Connect and share with the people in your life.
Facebook Login
Email or Phone:
Password:
☑ Keep me logged in
Log In
or Sign up for Facebook
Forgot your password?
English (US) Español Português (Brasil) Français (France) Deutsch Italiano العربية हिन्दी 中文(简体) 日本語 ...

Figure 13: Facebook Login

If authentication credentials are correct, the user will be forwarded to the requested URL or redirected to a configured external URL depending on the setting of the option **Landing Page** on captive portal **policy**.