Introduction to
OW-400-A2

CERIO
Amplify your Wireless Network

eXtreme Power AC1200 Dual Band +17dBi
+Heater Outdoor Access Point (800mW)

# Contents

Product Overview

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- 800mW AC1200 Dual Band Outdoor Access Point
- 2.4GHz Data Rate of up to 300Mbps (TxRx)
- 5GHz Data Rate of up to 867Mbps (TxRx) for 80MHz channel bandwidth
- Supports IEEE 802.3af/at Power over Ethernet
- Built-in 17dBi 5GHz Directional Panel Antenna
- 4 N-Type Connectors for external antennas
- Supports 5 Operation Modes (CenOS 5.0)
- Integrates a long-range power amplifier and high sensitivity receiver to deliver unmatched reliability and performance at large coverage application
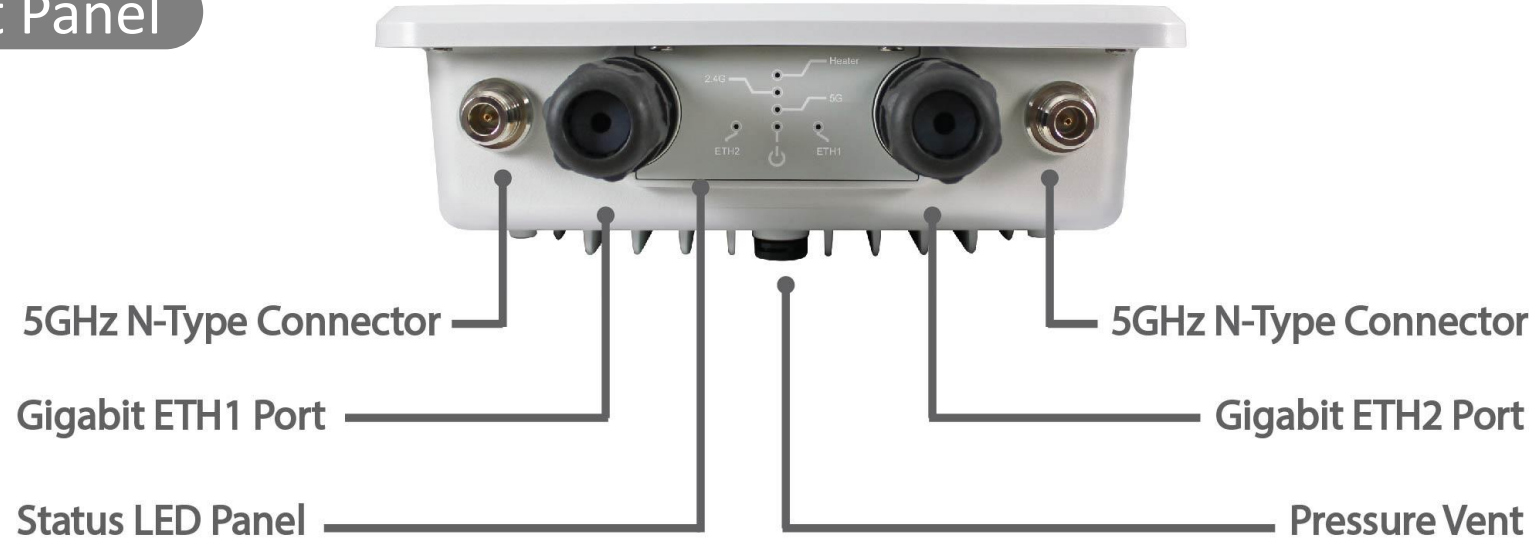
Advanced Features

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- ➢ Supports up to 100 concurrent users
  - ➢ Approximately 60-65 Clients on the 5Ghz band
  - ➢ Approximately 35-40 Clients on the 2.4GHz band
- ➢ Supports 802.11ac/11n/11an/11a wireless standards
- ➢ Operation modes include: AP with WDS Mode and Captive Portal, Router AP Mode, Control Access Point Mode, Client Bridge Mode, and WISP/ CPE Mode
- ➢ Built-in 802.1x RADIUS Server authentication
- ➢ Supports Band Steering technology
- ➢ Incorporates 802.11r/k Fast Roaming Protocol
- ➢ Software includes LED Control
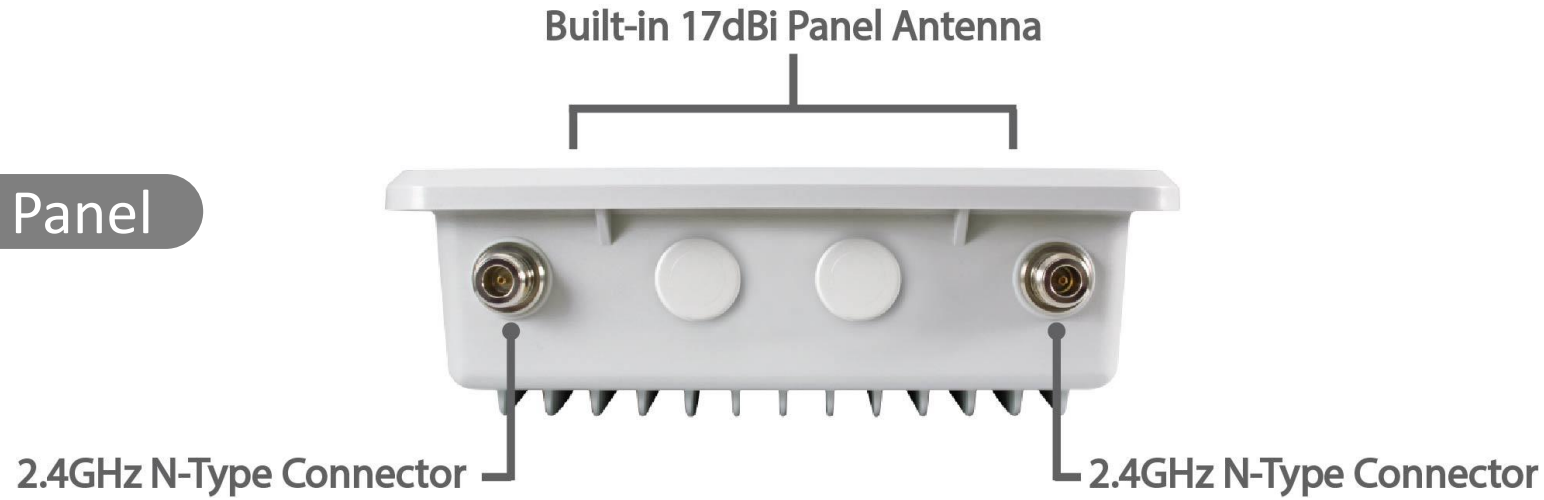- ➢ Supports PoE Bridge function

Dual-Band Application

CERIO
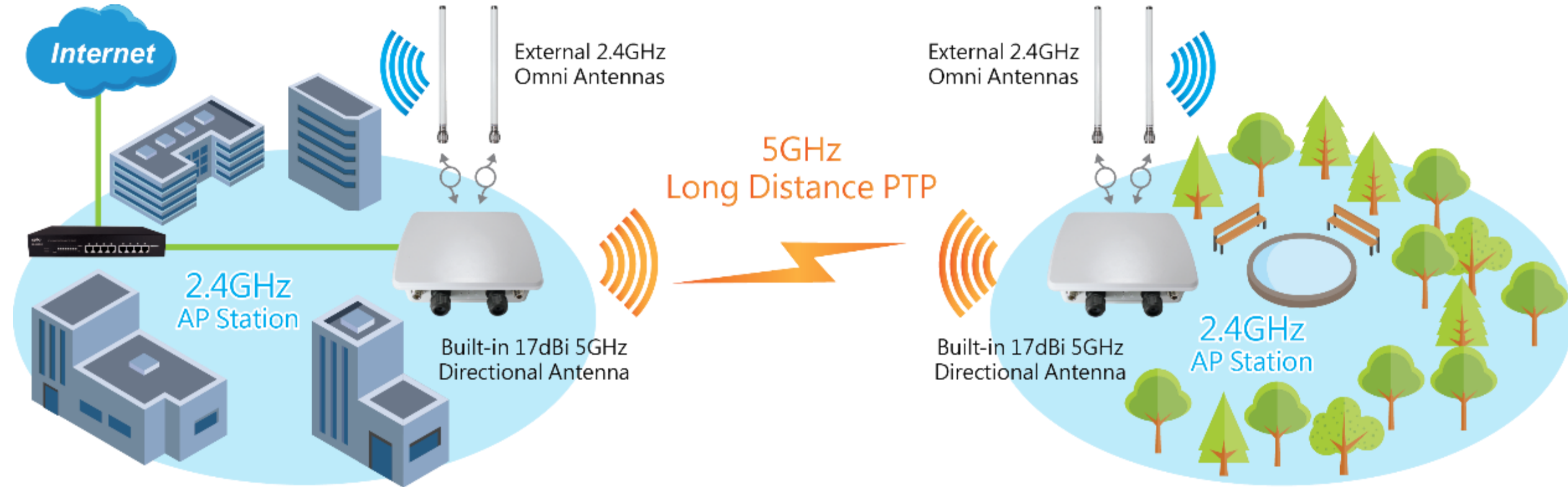
OW-400-A2's 11ac dual-band design is perfect for long distance PTP connections over the 5GHz frequency band, while simultaneously operating as an AP station over the 2.4GHz frequency band.
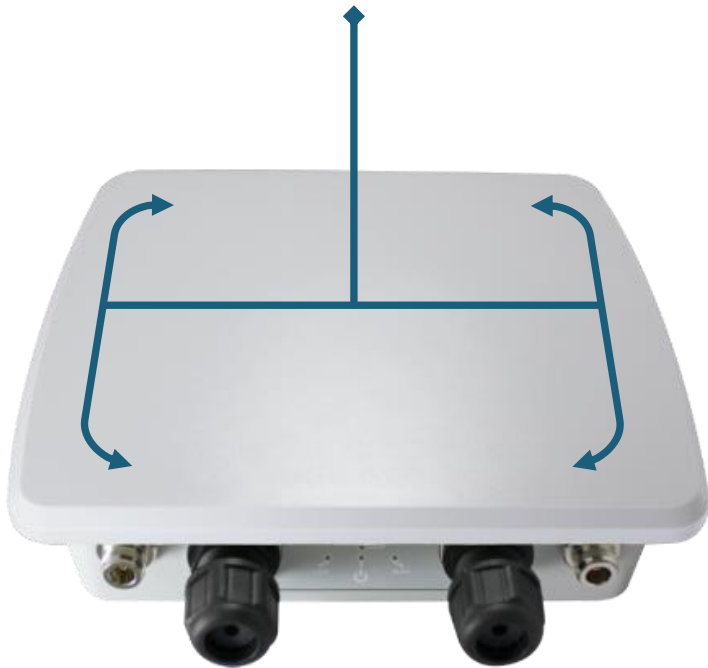
Hardware Overview

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Front Panel

5GHz N-Type Connector

Gigabit ETH1 Port

Status LED Panel

5GHz N-Type Connector

Gigabit ETH2 Port

Pressure Vent

Built-in 17dBi Panel Antenna

Back Panel

2.4GHz N-Type Connector

2.4GHz N-Type Connector

Optional Antenna

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Integrated 17 dBi Directional Antenna

External 25 dBi Directional Antenna

General Setup

MAC Address	8c:4d:ea:04:f4:78
Country	Taiwan
Band Mode	802.11ac
Auto Channel	● Enable ○ Disable
Channel	
Tx Power	Level 9
Antenna Switch	● Internal ○ External
Slot Time	9 Distance
ACK Timeout	30

Administrators can choose between using the **built-in 5GHz directional antenna** or the external **N-Type connectors** by logging into the software user interface.

Pressure Vent

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The integrated pressure vent allows the IP67 enclosure to breathe safely.

Pressure Vent

This auto-adjusting technology **equalizes pressure** inside the device and **reduces condensation** from building up inside.

The overall result of the Pressure Vent is that product performance and durability are increased. This effectively gives users peace of mind when deploying out OW-400-A2
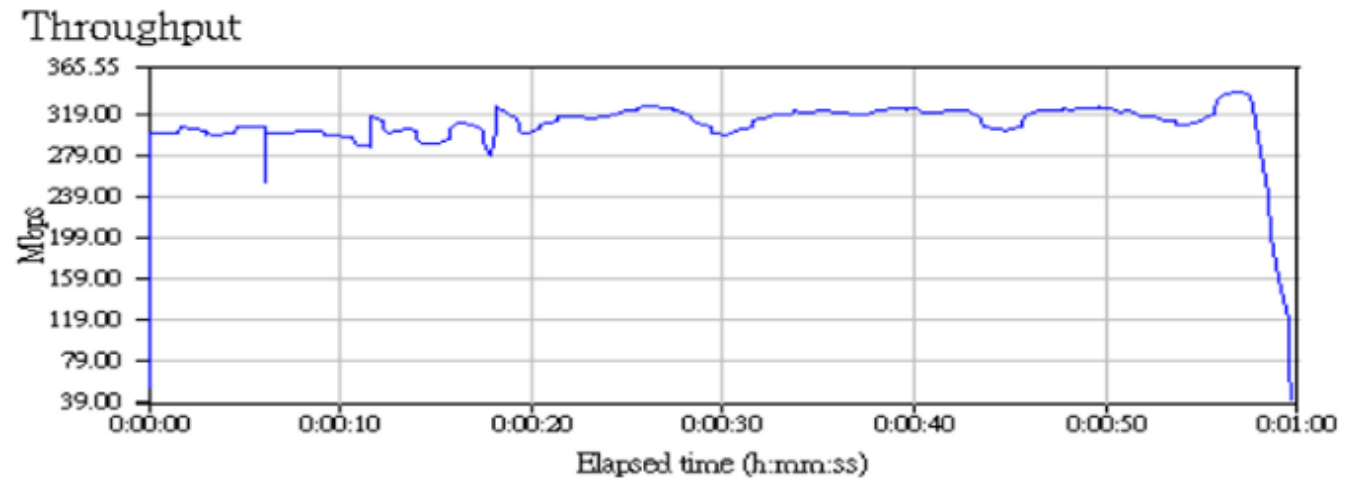
Versatile Mounting

CERiO

Wall Mount Supported

Pole Mount Supported

Proven Test Results

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OW-400-A2's high performance design maintained a high bandwidth of **309Mbps** during a **3.7KM outdoor point-to-point test** (5GHz) using a built-in 17 dBi antenna.

| Group	Pair Group Name	Run Status	Timing Records Completed	95% Confidence Interval	Average (Mbps)	Minimum (Mbps)	Maximum (Mbps)	Measured Time (sec)	Relative Precision
All Pairs			**231**		**309.579**	**12.081**	**54.091**		
Pair 1	No Group	Finished	32	-1.822 : +1.822	43.024	37.471	53.691	59.502	4.234
Pair 2	No Group	Finished	32	-1.848 : +1.848	42.901	37.506	53.945	59.672	4.307
Pair 3	No Group	Finished	32	-1.762 : +1.762	42.930	36.866	52.840	59.632	4.104
Pair 4	No Group	Finished	32	-1.838 : +1.838	43.024	36.281	53.512	59.501	4.271
Pair 5	No Group	Finished	23	-7.460 : +7.460	31.379	12.081	41.429	58.638	23.775
Pair 6	No Group	Finished	31	-1.738 : +1.738	42.753	37.700	54.091	58.008	4.066
Pair 7	No Group	Finished	26	-6.571 : +6.571	35.246	13.514	46.350	59.014	18.643
Pair 8	No Group	Finished	23	-7.493 : +7.493	31.504	12.208	41.929	58.405	23.784

Test Setup | Throughput | Transaction Rate | Response Time | Raw Data Totals | Endpoint Configuration

High Durability Design

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OW-400-A2 utilizes an integrated heater in it's circuit board design. This heater uses **sensor technology** to automatically activate when device temperatures drop below 0° Celsius.

Along with the **built-in heater**, OW-400-A2's **IP67** housing design makes this device perfect for rugged outdoor environments such as extreme cold or rainy installations.

Built-In Heater

Powerful Performance
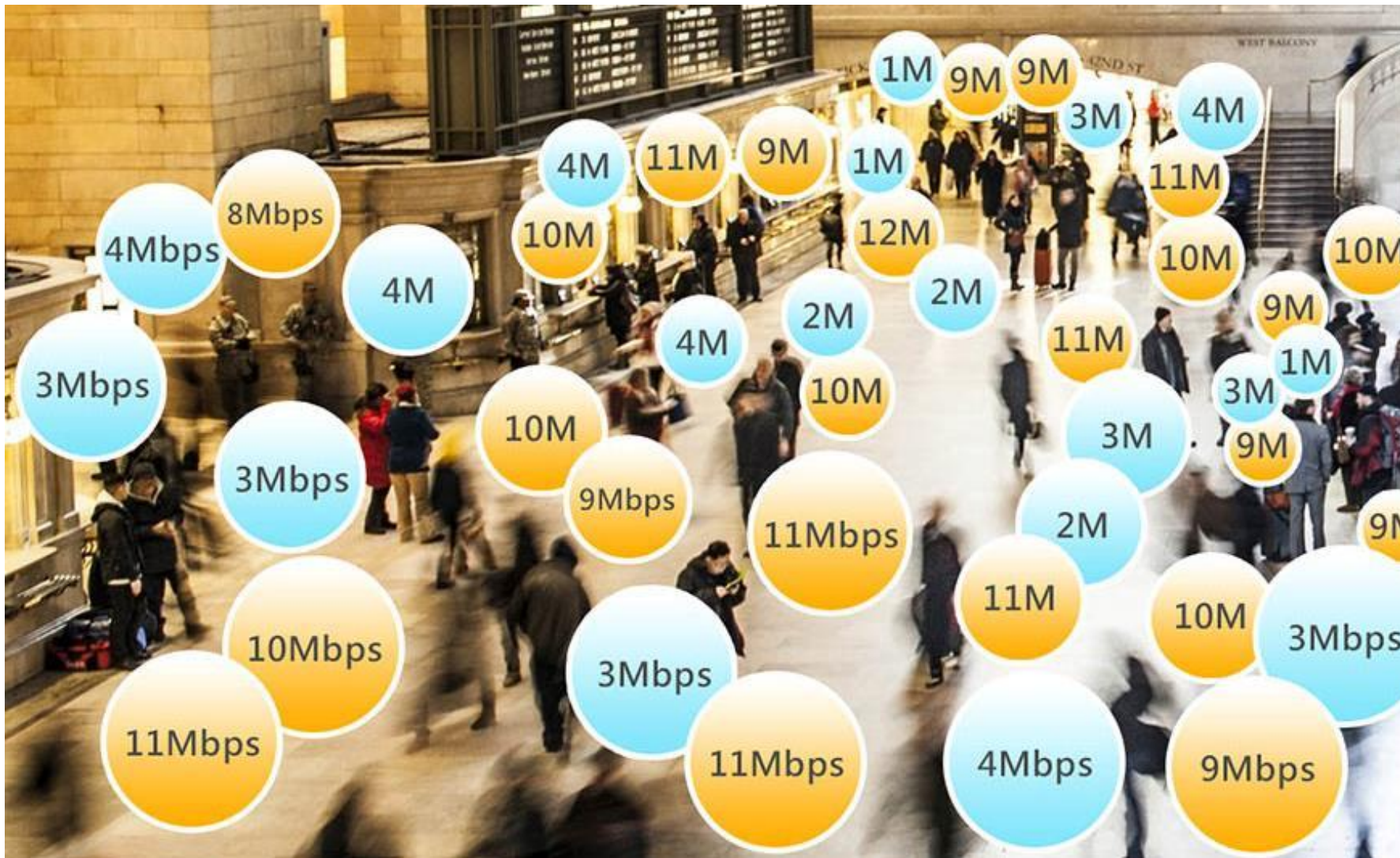
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Captive Portal Authentication

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Captive Portal Authentication conveniently allows wireless clients to access the network through a customized web login portal.

Administrators can deploy a customized Captive Portal with the following login methods

1. Guest Login
2. Local Account Login
3. OAuth2.0 Login

(Facebook/Google/etc.)

Local Account Login

Facebook Login

*Router Mode does **NOT support** Captive Portal Login*

Ideal Deployment

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Public Parks

Universities

Sports Stadium

PTP Link

Software Overview

Client Bridge + Universal Repeater
Operation Mode
Bridge + Repeater
Extension WiFi AP

AAP
Operation Mode
Guest Portal
Hotspot
Authentication AP

Core CenOS 5.0

Router AP
Operation Mode
Router + WiFi
Access Point

WISP/CPE Repeater
Operation Mode
WISP/CPE for Router
+ WiFi Repeater AP

CAP
Operation Mode
Centralize Control
Access Point
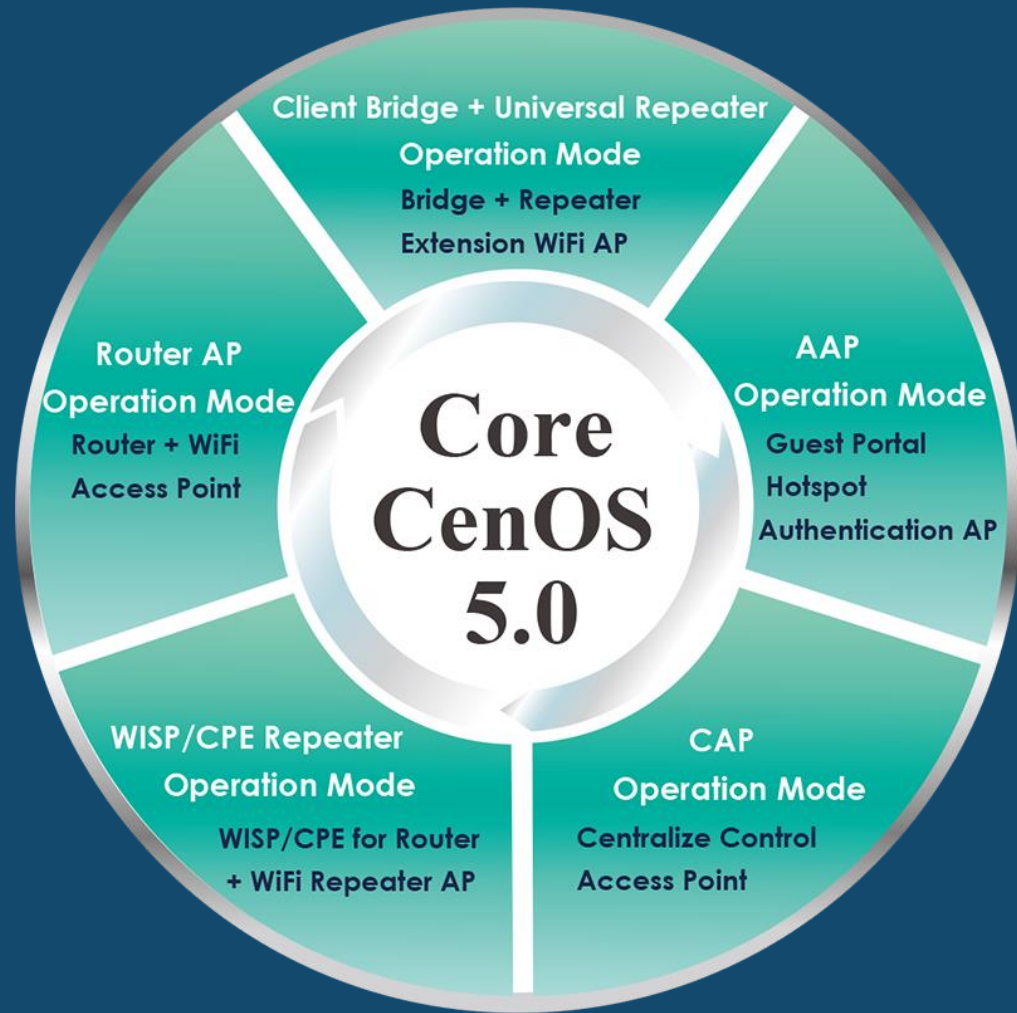
Only Cerio's special model supports CAP / Router mode

Operation Modes

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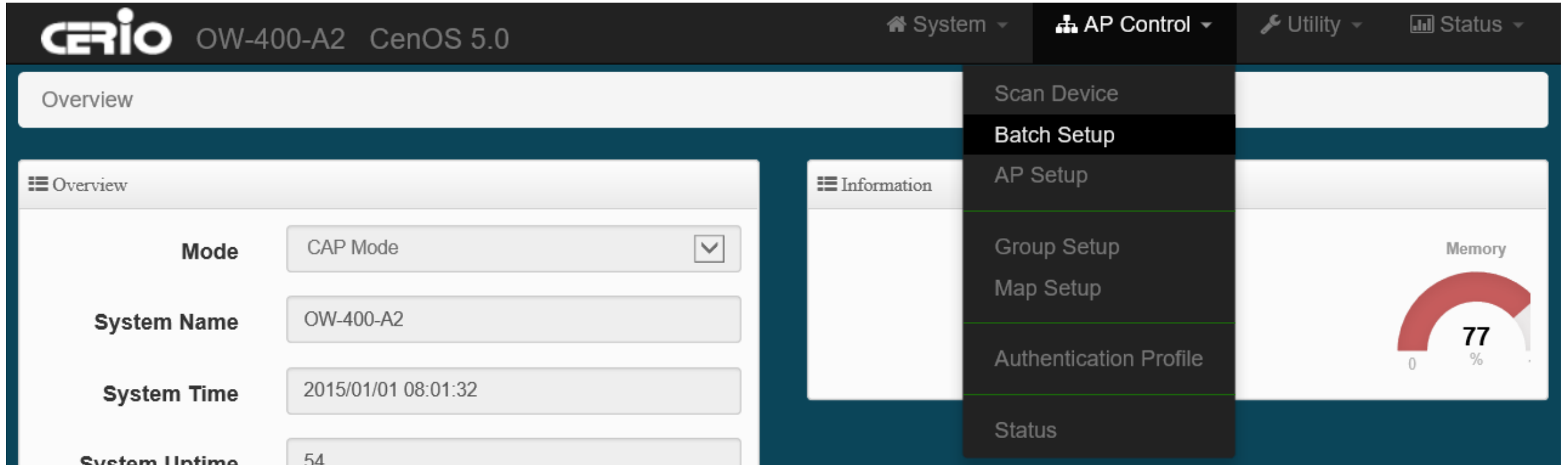
OW-400-A2 supports five different Operation Modes: Control Access Point, Access Point Mode with WDS and Captive Portal Authentication, Client Bridge + Repeater Mode, WISP/CPE Repeater AP Mode, and finally Router Mode

*Notice: Router Mode does **NOT support** Client Authentication*

Control Access Point

Control Access Point (CAP) Mode's converts the device into a centralized AP management controller. When OW-400-A2 is in CAP Mode, it can centrally manage up to 128 AP devices.

Scan and Import

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CAP Mode allows administrators to scan for AP devices within their virtual LAN and import them into the management database. Once imported, administrators can make quick changes such as changing IP addresses for organization and easy management

Batch Setup

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CAP Mode's control function supports centralized configuration of managed APs. This allows administrators to make convenient batch changes to the network of AP devices from one centralized location. This main function of CAP mode can save time and cost by reducing servicing and installation time.

Batch Setup

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VLAN Setup   Apply

VLAN   VLAN 0

VLAN Mode   ⦿ Enable   ○ Disable

Access Point 0 ⦿ Enable   ○ Disable

Access Point 1 ⦿ Enable   ○ Disable

802.1d Spanning Tree ⦿ Enable ○ Disable

Control Port   ⦿ Enable   ○ Disable

IAPP   Access Point 1

IP Setup

Apply   ⦿ Enable   ○ Disable

IP Mode   ⦿ Enable   ○ Disable

IP Address   192.168.2.10

Netmask   255.255.255.0

ETH0 VLAN Tag Setup

ETH0   ⦿ Enable   ○ Disable

VLAN TAG   ☐ 1-4096

Administrators can enable VLAN Mode, Spanning tree, Control Port capabilities, IAPP Roaming, change IP settings and setup VLAN tag for batches of access points. These changes can be implemented differently for each VLAN, allowing for both centralized and organized control.

Map Setup

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CAP Mode also supports Map Setup function for organizing your AP network. Administrators can create maps by uploading floor plan URLs and dragging APs to the correct location. Once complete, administrators can monitor AP statuses such as uptime, data rates, and connected clients

#	Name	Description	Action
1	1F_plan	Looation Map for man...	View

IP Address	192.168.2.253
MAC Address	8c:4d:ea:04:d0:6e
Hostname	CW-400NAC-E1
Uptime	09:08
Channel	5 / 100
Rate	11.0 Mb/s / 866.7 Mb/s
Client	0

Authentication AP

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CenOS 5.0 supports Authentication Access Point Mode for versatile AP deployment. Administrators can choose from many authentication options to best suit their network needs.
This enables convenient access to the wireless network for public clients, as well as improved management and organization for network administrators
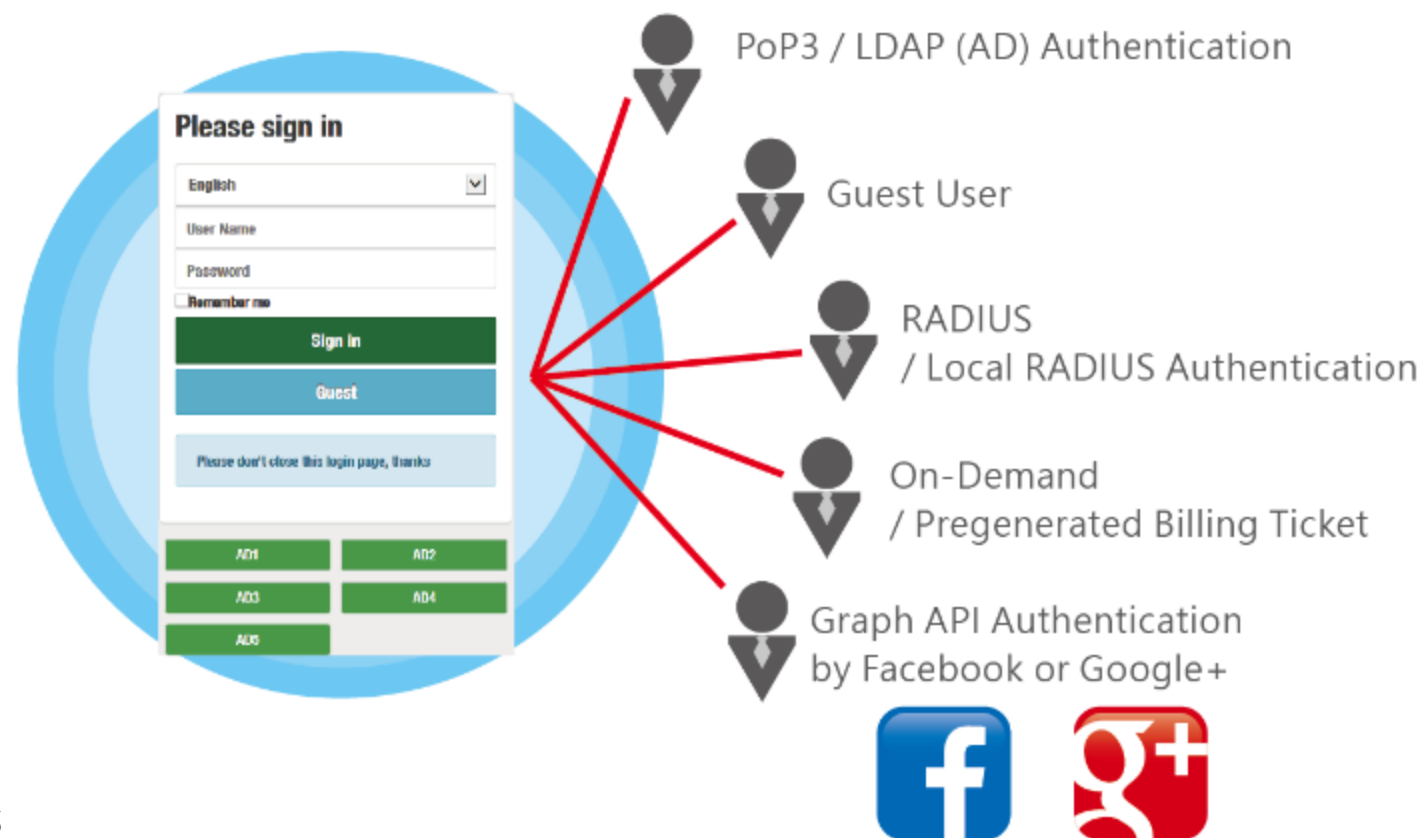
*Notice: Router Mode does **NOT support** Client Authentication*

Authentication

CenOS 5.0 supports multiple methods of authentication for user management, security and convenience.

OAuth2.0 : Allows devices to use third-party credentials such as Facebook and Google+ for user authentication. This provides login convenience for public clients and also allows administrators to collect data through Facebook / Google analytics.

Authentication

Guest Login : Provides limited Wifi connection to clients to an open network. Limitations can be put in place to manage client limits, connection time, and control bandwidth

Local User: Provides fixed authentication user accounts for controlled client login and data management. Administrators can track Local Account usage, connection time, etc. CenOS 5.0 supports up to 10 Local User accounts
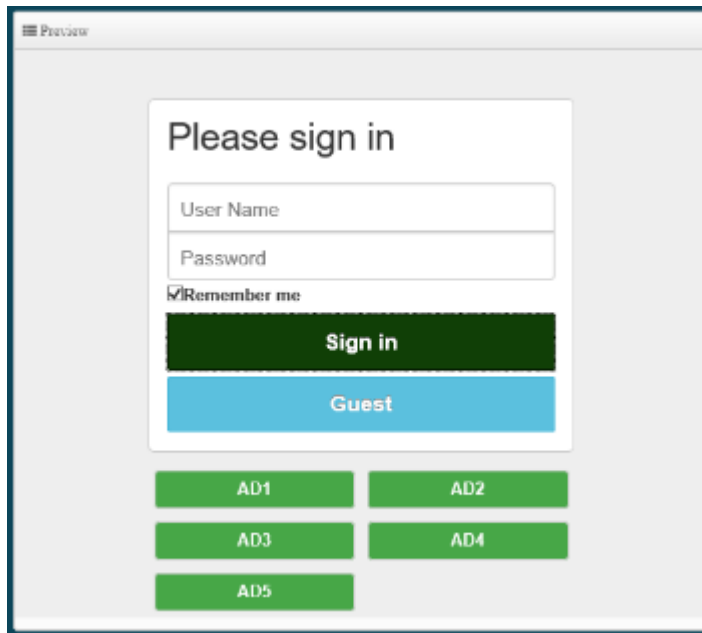
Customized Login Page

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Administrators can create a customized Login Page which can become a platform for:
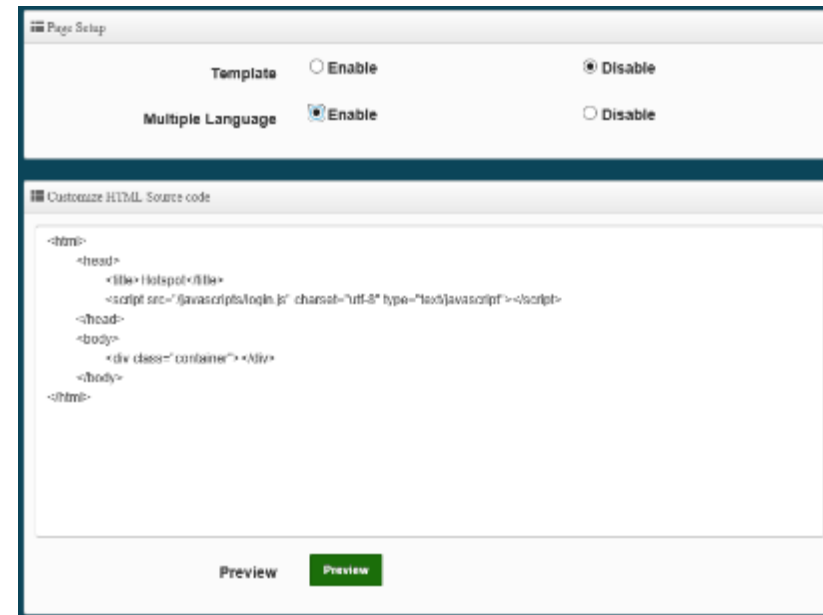
(1.) Promotions **(2.)** Brand Exposure **(3.)** Advertisements **(4.)** Platform for providing Information

This customized Captive Portal supports login through **1.** Guest Users **2.** Local Accounts

3. Facebook, Google+, etc using OAuth2.0.

Default Template

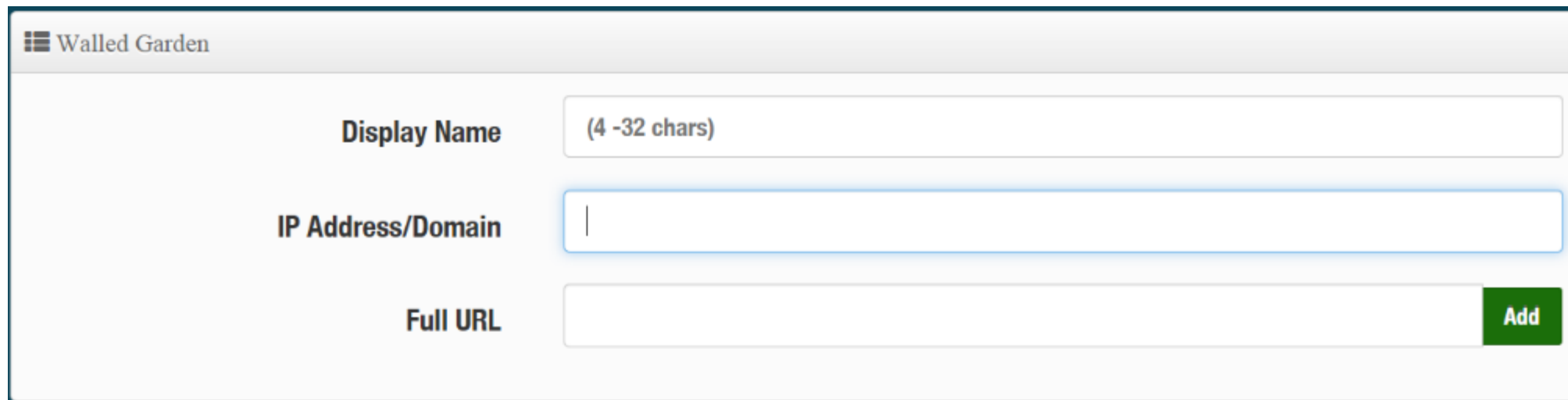**Customize through HTML Code**

Bandwidth Control

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Bandwidth Control of connected clients allows administrators to control individual user upload and download speeds, as well as set a maximum limit on the total amount of bandwidth that can be used at a single time.

Walled Garden

Modes Walled Garden function allows administrators to create a browsing environment that controls user access and accessible information. This function is ideal for directing users to specific parts of the Web such as;

1. Paid Content
2. Self-Promotions
3. Limited Free Internet Service
4. Advertisement web pages before login and authentication

Built-in 802.1x RADIUS

Supports integrated 802.1x RADIUS Server authentication for small to medium network environments. This supports a maximum of 50 built-in RADIUS Users.

Increased Security- Individual user sessions are encrypted uniquely, which prevents other users from acquiring private information

Cost Efficient – The built-in RADIUS server design removes the need to purchase additional equipment such as external servers.

Virtual LANs & SSIDs

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OW-400-A2's Dual Band radio design supports a total of 16 Virtual LANs (VLAN) and 32 SSIDs. Each VLAN supports two SSIDs, one on the 2.4GHz frequency band and one on the 5GHz frequency band.

#	VLAN Mode	Flag	IP Address	Netmask	Radio 0	Radio 1	Action
0	On	Native ETH0 Access Control	192.168.2.254	255.255.255.0	2.4G_0_0	5G_0_1	Network

★

Supports 16 VLANS
(#0 to 15)

★ ★

Each VLAN supports 2 SSIDs, one for 2.4G and one for 5G

WDS Support

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WDS Setup

WDS Setup	⦿ Enable	◯ Disable
Authentication	Disable	▾
PassPhrase		

WDS Client Setup

	Radio 0(2.4G)		Radio 1(5G)	
Enable	MAC Address	Enable	MAC Address	
☐		☐		
☐		☐		
☐		☐		
☐		☐		
☐		☐		
☐		☐		
☐		☐		
☐		☐		

OW-400-A2 with **CenOS 5.0** supports **WDS Setup** when operating in **Access Point Mode**

OW-400-A2's Access Point mode supports **8** WDS links per radio for a total of **16 links** per OW-400-A2

(*8x WDS on the 2.4GHz frequency band* **)**

(*8x WDS on the 5GHz frequency band* **)**

Fast Roaming

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802.11r/802.11k Fast Roaming

Fast Roaming	● Enable	○ Disable

Fast Roaming Settings

Mobility Domain	a1b2
R0 Key Lifetime	10000
Reassoc deadline	1000
R0/NAS Identifier	ap.example.com
R1 Identifier	000102030405
R1 Push	○ Enable ● Disable

802.11k- Smartly provides roaming client with information regarding nearby APs and their channels, which prepares the client for easier roaming.

802.11r- Stores encryption keys on all the APs within the network. This simplifies the authentication process when clients roam to new APs, greatly reducing CPU loading and latency.

Additional Features

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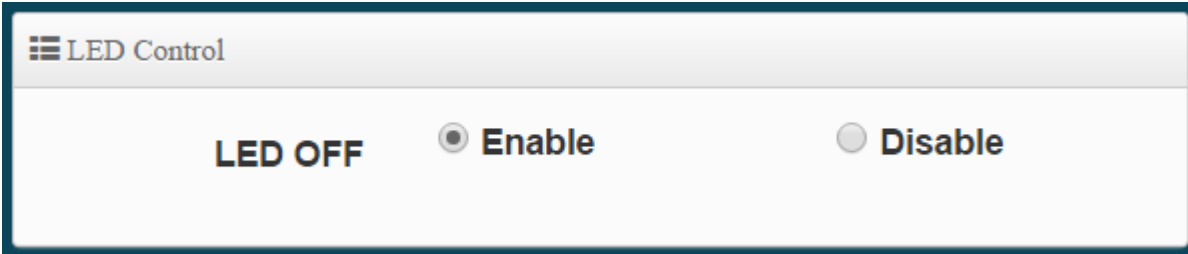
LED Control- Allows the devices LED lights to be disabled to reduce blinking irritation in sensitive environments.
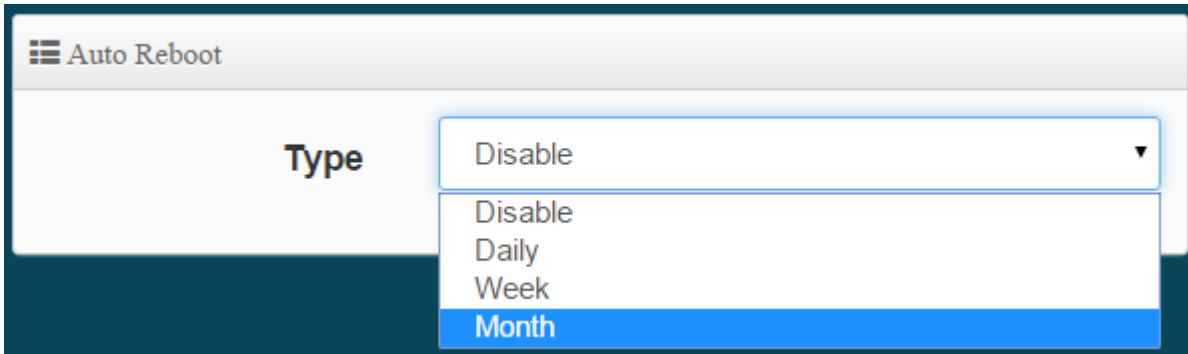
Auto Reboot- Setup device auto reboot schedule to reduce CPU overloading and device crashes.

PoE Bridge- Supply power to subsequent devices such as IP Cameras and Access Points through RJ45 cabling.

What we do

Innovation & Design
Our R&D team continues to incorporate the newest wireless protocols and features to make our products perfect for enterprise deployment.

Wireless Solutions
Our Field Application Engineers and Specialists have unparalleled experience providing the perfect solution for any wireless projects (e.g. Hotels, Long Distance PTP Backhaul, Universities)

Software Development & Design
Our software provides a high featured and easily operated User Interface and also supports centralized AP Management for convenient device deployment.

Outstanding Customer Service
CERIO's customer service staff are experts on our products and possess clear and patient communication skills.

www.cerio.com.tw

Contact Information

CERIO

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