

Introduction to CW-400NAC

CenOS 5.0 Software Core

CERIO
Amplify your Wireless Network



eXtreme Power AC1200 2.4GHz / 5GHz
2x2 Ceiling Wall PoE Access Point (800mW)

Contents

Product Overview	4
Advanced Features	5
Hardware Overview	6
Versatile Mounting	7
Highlight Features	8
Software Overview	12
What we do	32
Contact Information	33



File Transfers

HD Video Streaming

E-mail Sending

Web Surfing

File Sharing

Check E-mail

Viewing Photos

Online Meeting

File Download

HD Video Streaming

Online Chatting

2.4G WiFi Band

5G WiFi Band



Product Overview

CERIO

- 800mW AC1200 Dual Band Ceiling 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
- 4 Built-in Smart Omni-directional Antennas (2x2 for 2.4GHz radio and 2x2 for 5GHz radio)
- Supports 4 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

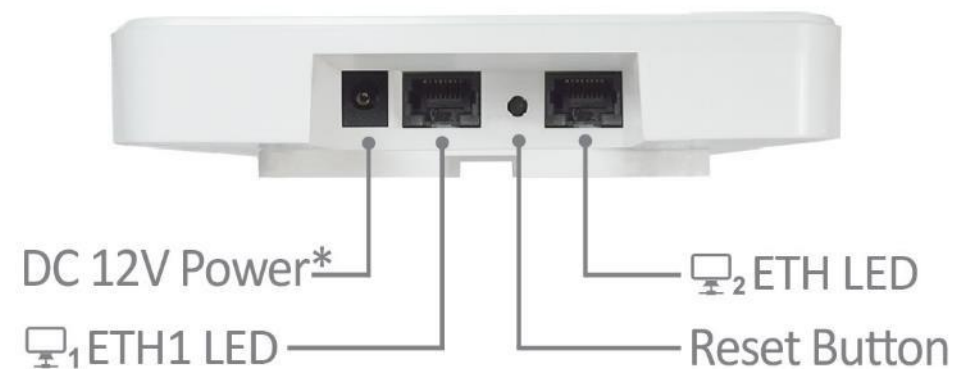


- Supports up to 100 concurrent users
 - Approximately 60-65 Clients on the 5Ghz band
 - Approximately 35-40 Clients on the 2.4GHz band
- Supports 802.11ac/11n/11an/11a wireless standards
- Operation modes include: AP with WDS Mode, Control Access Point Mode, Client Bridge Mode, and WISP Mode
- Built-in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

Front Panel



Side Panel

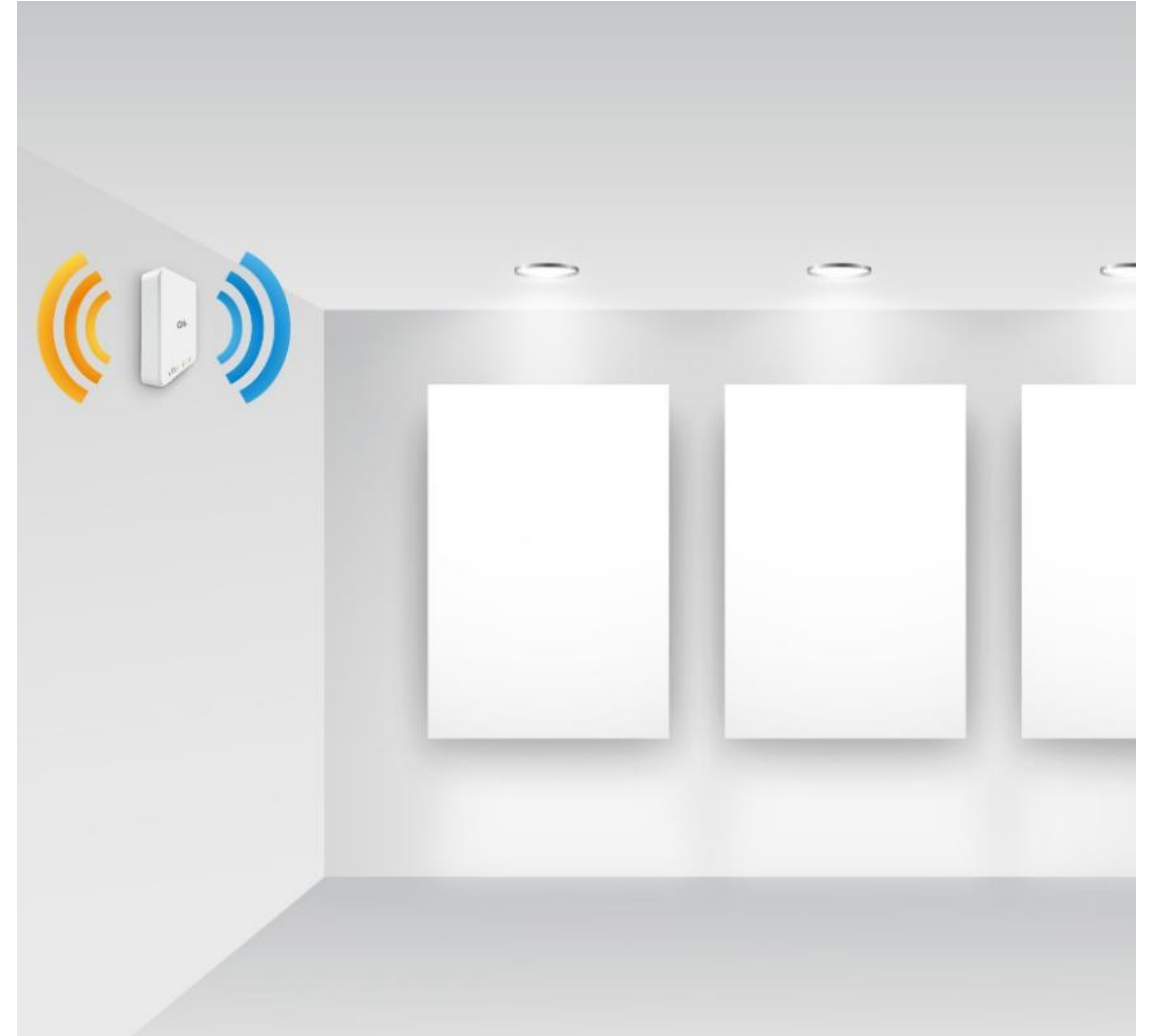


Versatile Mounting

Ceiling Mount Supported

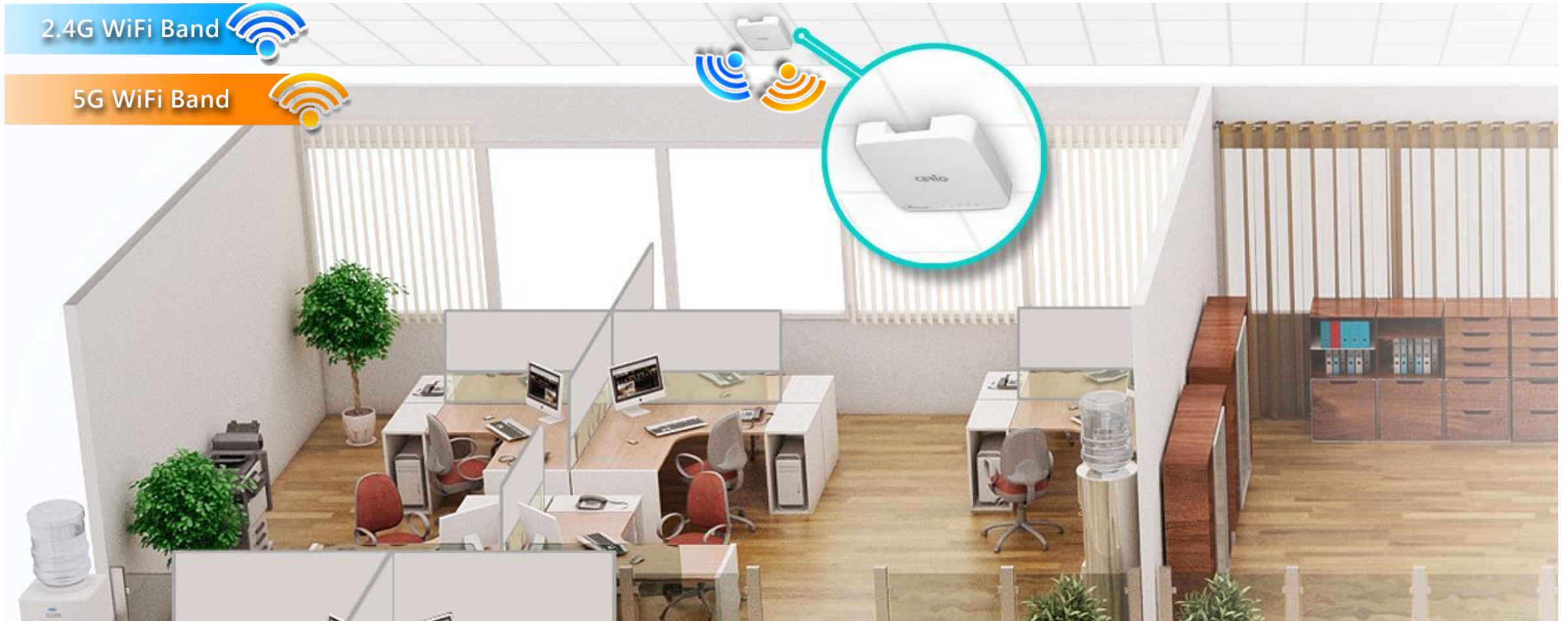


Wall Mount Supported



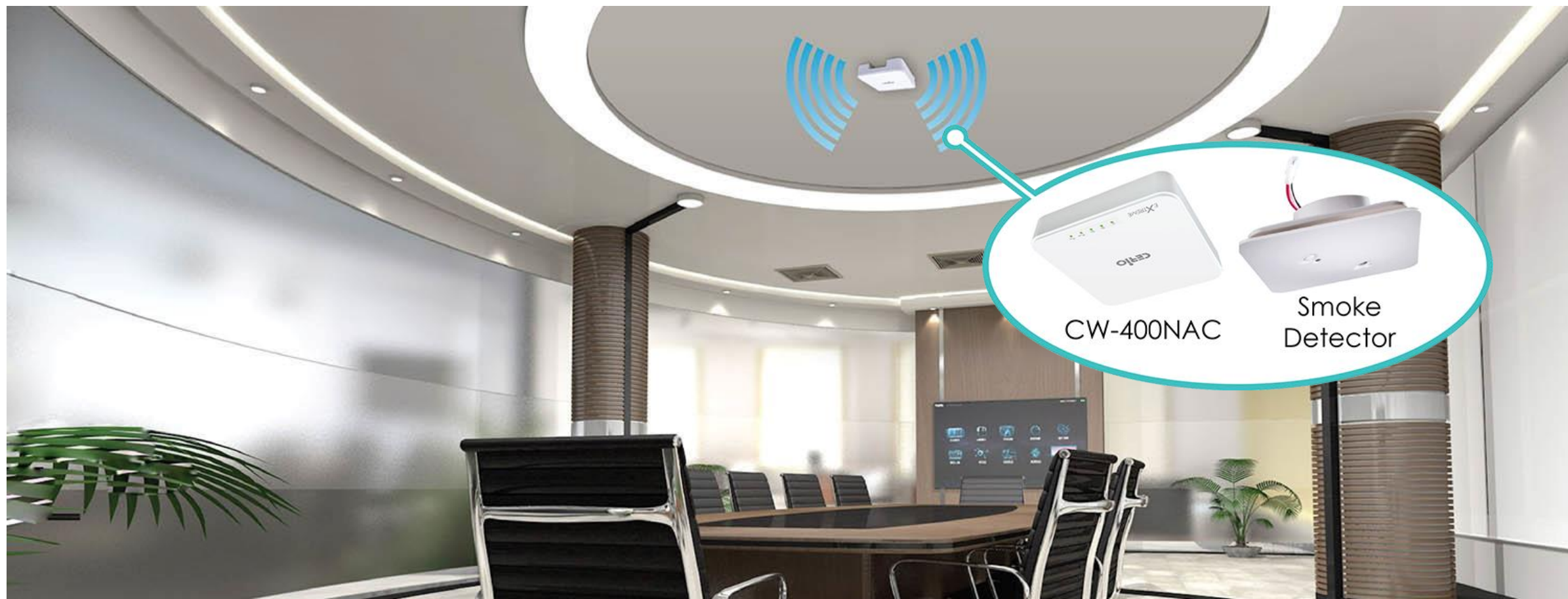
Interference Reduction — CERIO

CW-400NAC's ceiling mount design **reduces line-of-sight signal interferences** and ensures deployment environments such as offices **do not have Wi-Fi dead zones**.



Seamless Integration — CERIO

CW-400NAC's elegant design makes it perfect for a wide range of deployments. The device also looks similar to a smoke detector, allowing it to reduce visibility and blend into its environment.



Powerful Performance — CERIO

2.4G WiFi Band

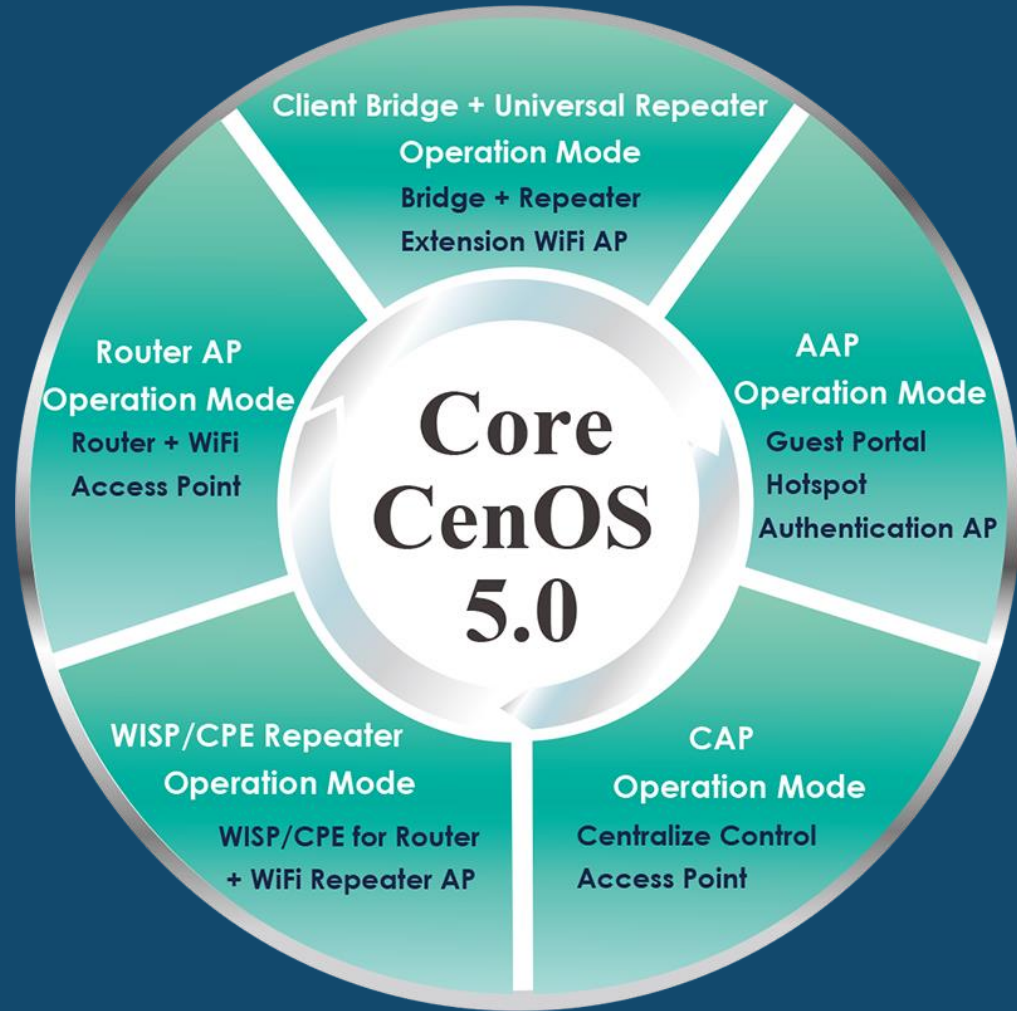
5G WiFi Band

CW-400NAC Dual Band AP Supports:
100 Concurrent Users
Band Steering Technology

Ideal Deployment



Software Overview

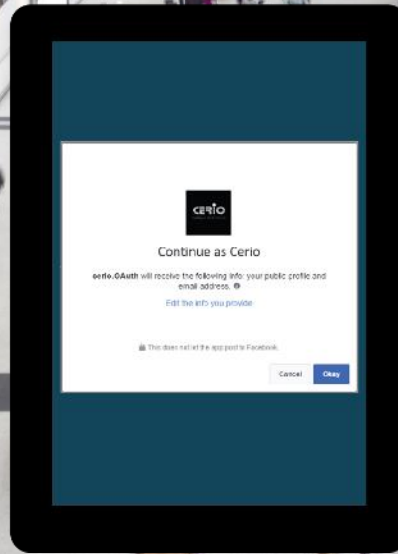


Only Cerio's special model supports CAP / Router mode

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



Local Account Login



Facebook Login



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.)

Integrated AP Management

Centralized AP Management

AP Management

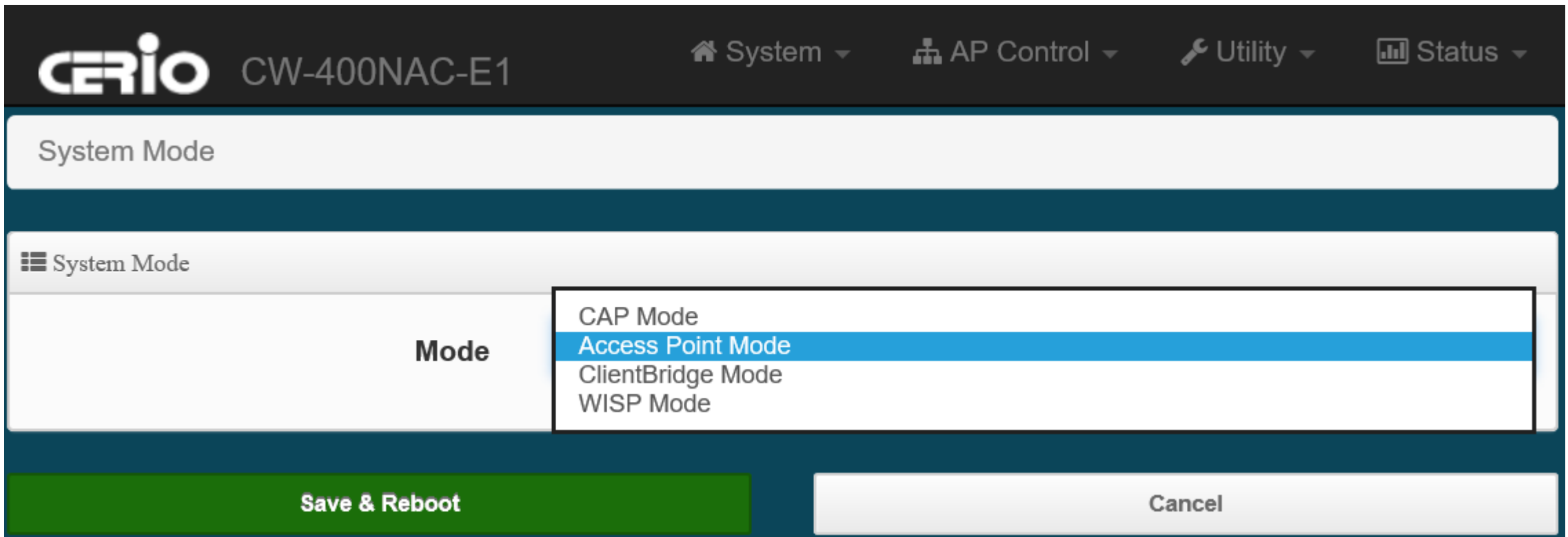
AP Controller



Fast and Convenient Client Login

Captive Portal Authentication

CW-400NAC supports four different Operation Modes: Control Access Point, Access Point Mode with WDS and Captive Portal Authentication, Client Bridge + Repeater Mode, and WISP/CPE Repeater AP Mode



The screenshot shows the CERIO CW-400NAC-E1 web interface. The top navigation bar includes the CERIO logo, the device model CW-400NAC-E1, and menu items for System, AP Control, Utility, and Status. The main content area is titled "System Mode" and contains a "System Mode" section with a "Mode" label. A dropdown menu is open, listing four options: CAP Mode, Access Point Mode (highlighted in blue), ClientBridge Mode, and WISP Mode. At the bottom, there are two buttons: "Save & Reboot" (green) and "Cancel" (white).

Mode
CAP Mode
Access Point Mode
ClientBridge Mode
WISP Mode

Control Access Point



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

The screenshot displays the CERIO CW-400NAC-E1 web interface. At the top, there is a navigation bar with the CERIO logo, the device name 'CW-400NAC-E1', and several menu items: 'System', 'AP Control', 'Utility', and 'Status'. The 'AP Control' menu is currently expanded, showing a list of options: 'Scan Device', 'Batch Setup', 'AP Setup', 'Group Setup', 'Map Setup', 'Authentication Profile', and 'Status'. On the left side, the 'Overview' section shows system information: Mode is set to 'CAP Mode', System Name is 'CW-400NAC-E1', System Time is '2015/01/01 08:02:42', and System Uptime is '01:44'. On the right side, there is a 'Memory' gauge showing 76% usage, with a scale from 0 to 100.

Scan AP Device

Filter Device

VLAN#

Default Password

Sort

Update IP Address & Netmask

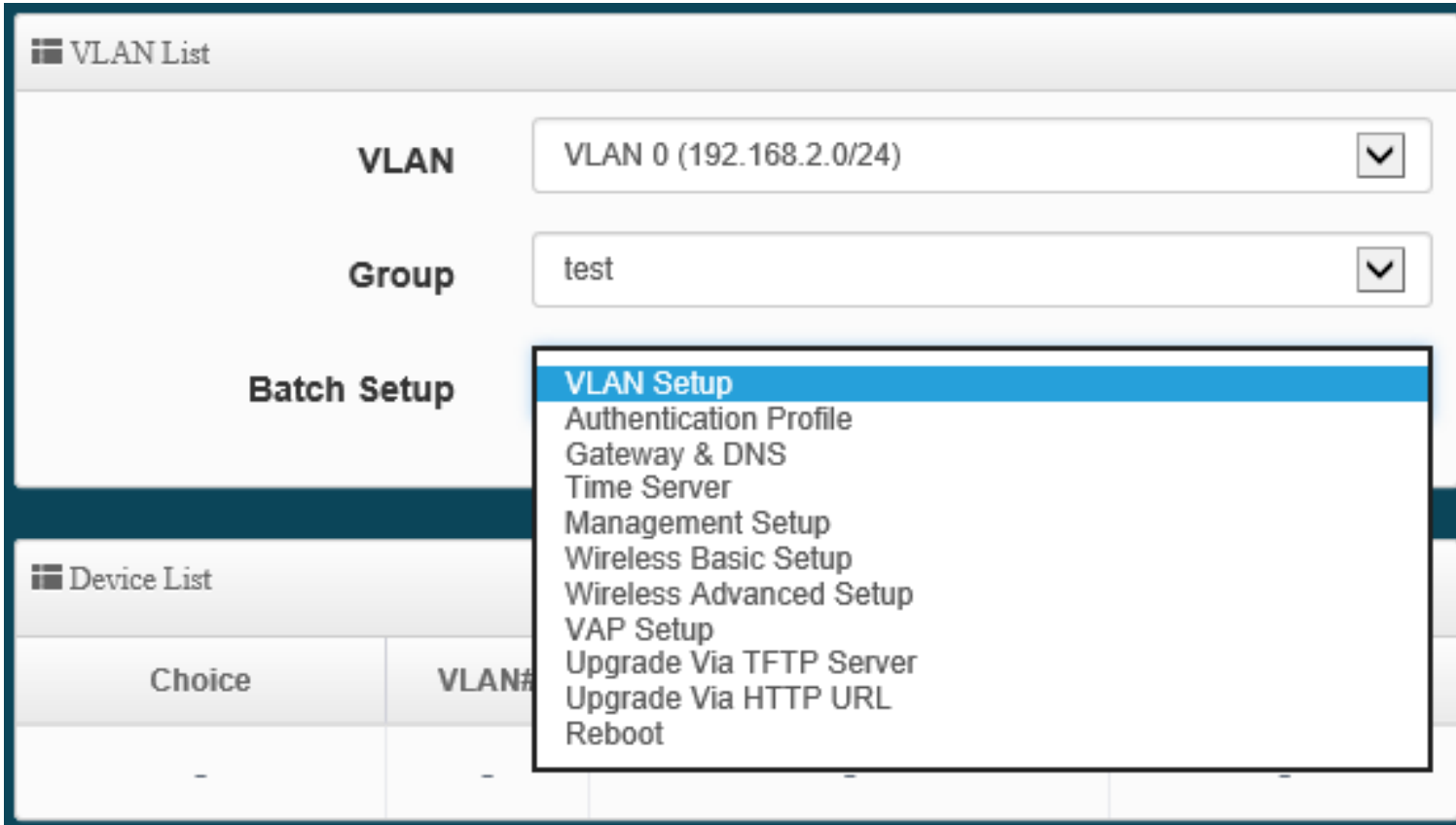
Control Port

VLAN TAG

IP Address

Netmask

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



The screenshot shows the 'Batch Setup' interface in CERIO. It features a 'VLAN List' section with two dropdown menus: 'VLAN' set to 'VLAN 0 (192.168.2.0/24)' and 'Group' set to 'test'. Below these is a 'Batch Setup' dropdown menu that is open, showing a list of configuration options: 'VLAN Setup' (highlighted), 'Authentication Profile', 'Gateway & DNS', 'Time Server', 'Management Setup', 'Wireless Basic Setup', 'Wireless Advanced Setup', 'VAP Setup', 'Upgrade Via TFTP Server', 'Upgrade Via HTTP URL', and 'Reboot'. At the bottom, a 'Device List' table is partially visible with columns for 'Choice' and 'VLAN#', showing a single row with dashes.

Choice	VLAN#
-	-

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.

VLAN Setup

Apply

VLAN

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

IP Setup

Apply Enable Disable

IP Mode Enable Disable

IP Address

Netmask

ETH0 VLAN Tag Setup

ETH0 Enable Disable

VLAN TAG

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.

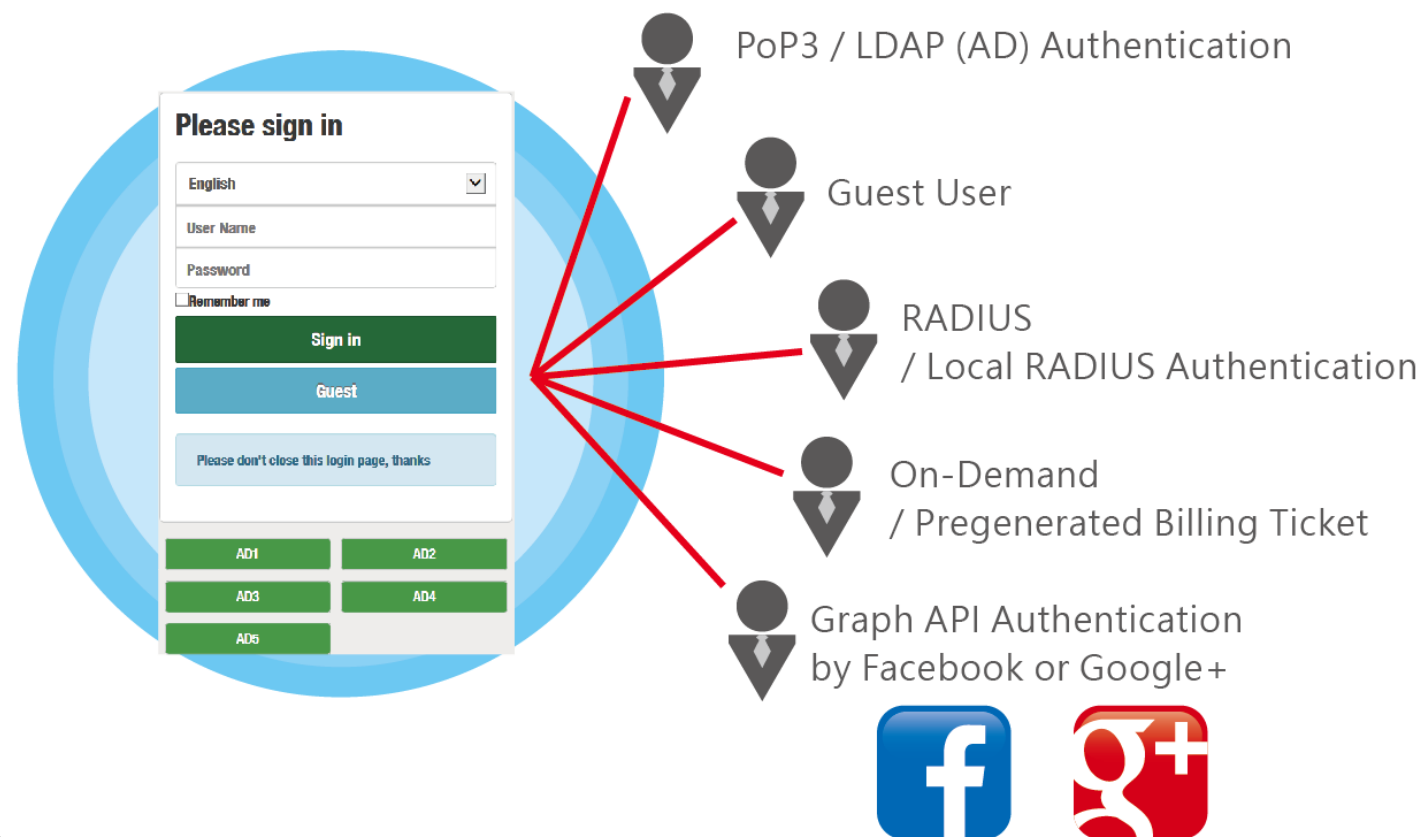
CAP Mode also supports Map Setup function for organizing your AP network. Administrators can create maps by uploading floor plan URLs and dragging APs to the correct location. Once complete, administrators can monitor AP statuses such as uptime, data rates, and connected clients

Map List				Create New Map
#	Name	Description	Action	
1	1F_plan	Location Map for man...	View	▼



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



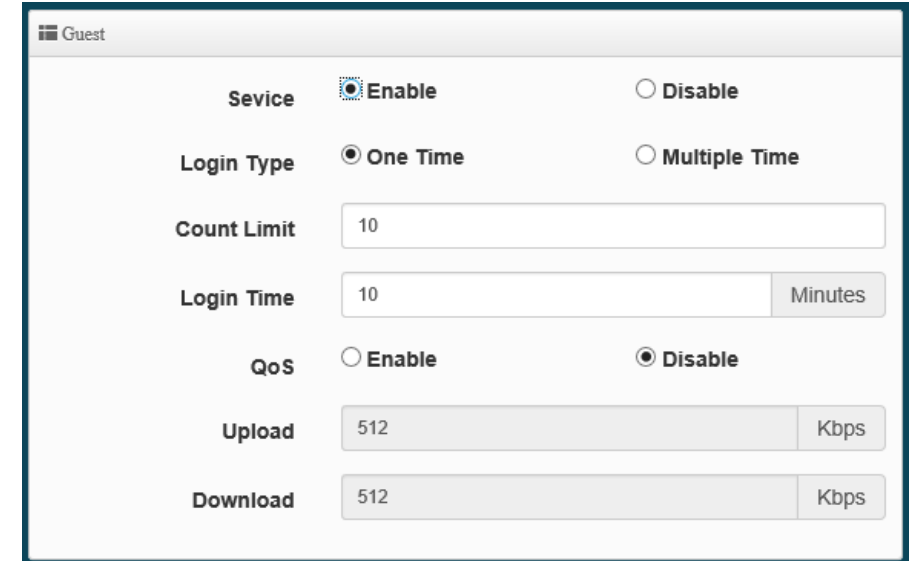
CenOS 5.0 supports multiple methods of authentication for user management, security and convenience.

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.

OAuth 2.0 Provider List Create New Provider			
#	Active	Provider	Action
1	On	Google	Edit ▾
2	On	Facebook	Edit ▾



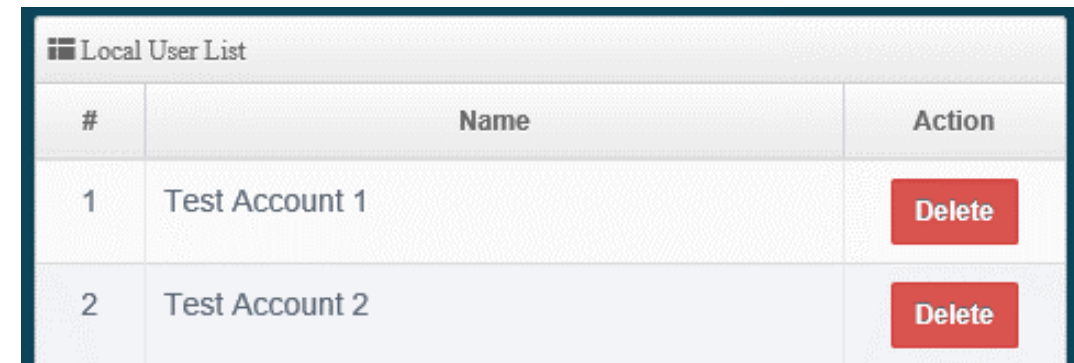
Guest Login : Provides limited Wifi connection to clients to an open network. Limitations can be put in place to manage client limits, connection time, and control bandwidth



The screenshot shows the 'Guest' configuration page. It includes the following settings:

- Service**: Enable, Disable
- Login Type**: One Time, Multiple Time
- Count Limit**:
- Login Time**: Minutes
- QoS**: Enable, Disable
- Upload**: Kbps
- Download**: Kbps

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



The screenshot shows the 'Local User List' table with the following data:

#	Name	Action
1	Test Account 1	Delete
2	Test Account 2	Delete

Customized Login Page — CERIO

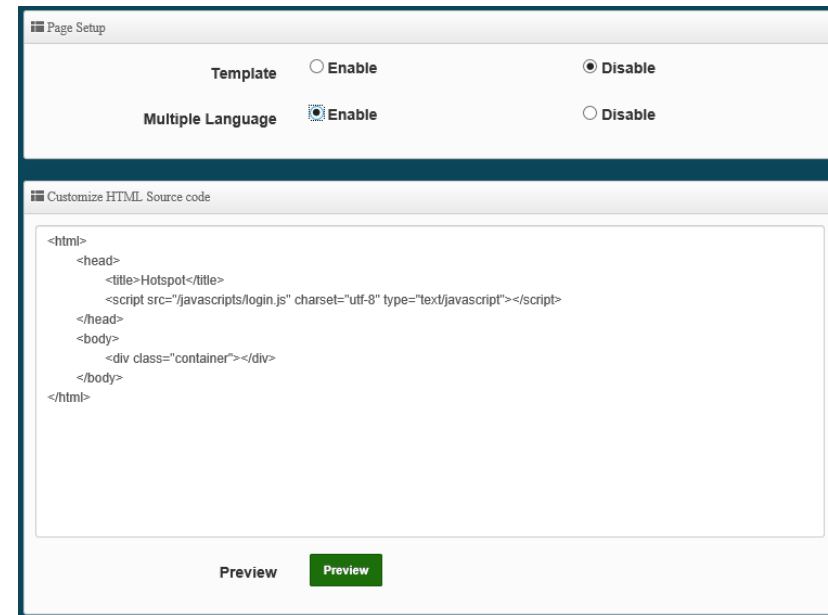
Administrators can create a customized Login Page which can become a platform for:

(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.




Customized Login Page



Customize through HTML Code

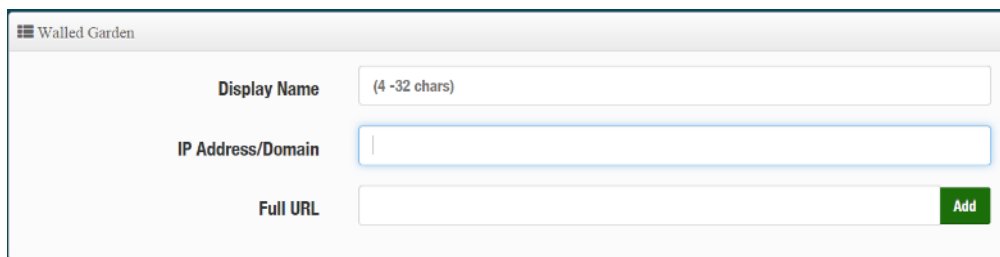
Bandwidth Control of connected clients allows administrators to control individual user upload and download speeds, as well as set a maximum limit on the total amount of bandwidth that can be used at a single time.

 Bandwidth Control

Peer Users	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable
Upload	<input type="text" value="512"/>	Kbps
Download	<input type="text" value="512"/>	Kbps
Total	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable
Upload	<input type="text" value="1024"/>	Kbps
Download	<input type="text" value="1024"/>	Kbps

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. Free access to specific websites
4. Advertisement web pages



Walled Garden configuration interface showing fields for Display Name (4-32 chars), IP Address/Domain, and Full URL, with an Add button.

Enabled Walled Garden Websites



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.

The screenshot displays the CERIO RADIUS management interface, divided into three main sections:

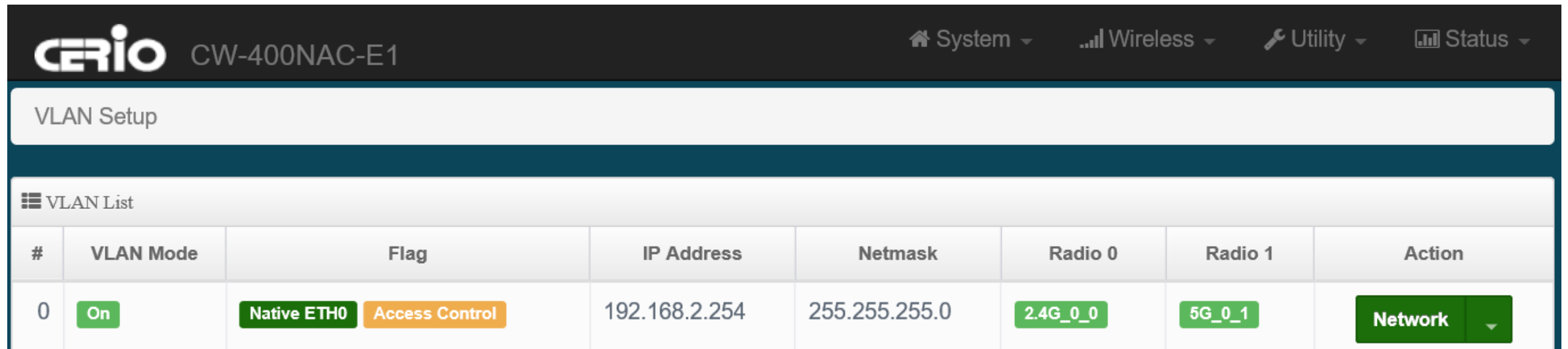
- Radius User:** A form for creating a new user. It includes a "User Name" field (3-32 chars) and a "Password" field (4-32 chars) with an "Add" button.
- Export/Import Users:** A section for managing user data. It features an "Export User File" button and an "Import From PC" section with a file selection field and a "Browse..." button, followed by an "Import" button.
- Radius List:** A table listing existing RADIUS users.

#	Name	Action	#	Name	Action
1	test1	Delete	2	test2	Delete

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.

CW-400NAC'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.



The screenshot shows the CERIO CW-400NAC-E1 web interface. At the top, there are navigation tabs for System, Wireless, Utility, and Status. The main heading is 'VLAN Setup'. Below it is a 'VLAN List' table with the following columns: #, VLAN Mode, Flag, IP Address, Netmask, Radio 0, Radio 1, and Action. The table contains one entry for VLAN #0, which is 'On', has flags 'Native ETH0' and 'Access Control', IP address 192.168.2.254, netmask 255.255.255.0, and is associated with Radio 0 (2.4G_0_0) and Radio 1 (5G_0_1). The Action column shows a 'Network' dropdown menu.

#	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

The image shows two screenshots of a web interface for WDS configuration. The top screenshot is titled 'WDS Setup' and contains the following elements: 'WDS Setup' with radio buttons for 'Enable' (selected) and 'Disable'; 'Authentication' with a dropdown menu set to 'Disable'; and 'PassPhrase' with an empty text input field. The bottom screenshot is titled 'WDS Client Setup' and features a table with columns for 'Radio 0(2.4G)' and 'Radio 1(5G)'. Each radio column has sub-columns for 'Enable' (checkbox) and 'MAC Address' (text input). There are 8 rows of configuration options for each radio.

Radio 0(2.4G)		Radio 1(5G)	
Enable	MAC Address	Enable	MAC Address
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>

CW-400NAC with **CenOS 5.0** supports **WDS Setup** when operating in **Access Point Mode**

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

(8x WDS on the 2.4GHz frequency band)

(8x WDS on the 5GHz frequency band)

802.11r/802.11k Fast Roaming

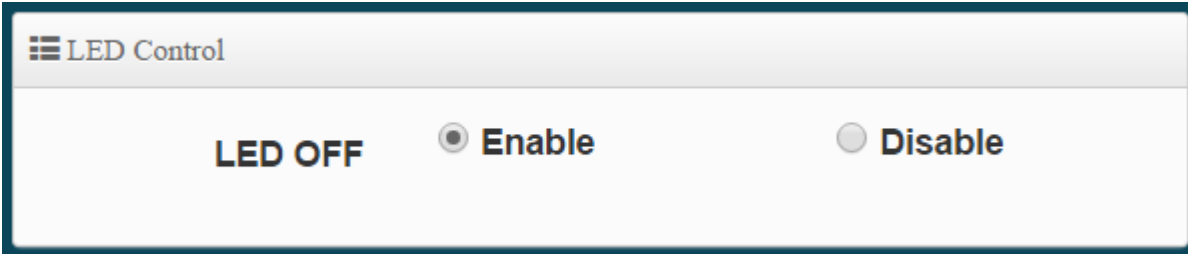
Fast Roaming **Enable** **Disable**

Fast Roaming Settings

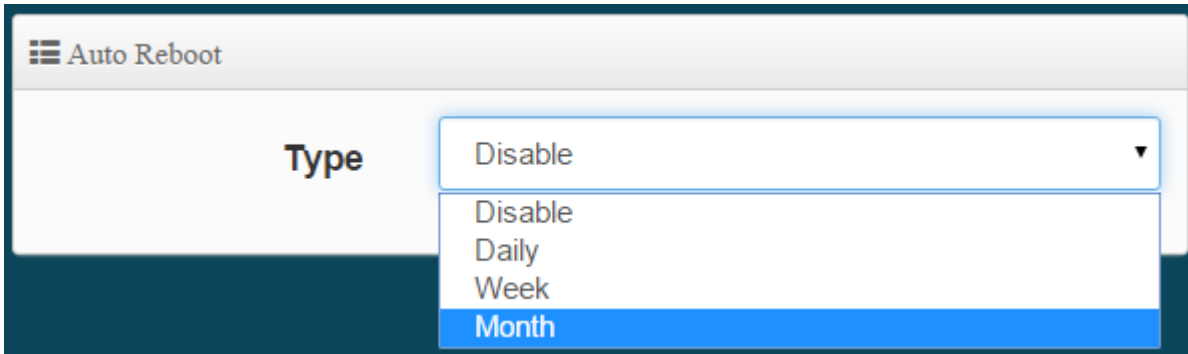
Mobility Domain	<input type="text" value="a1b2"/>
R0 Key Lifetime	<input type="text" value="10000"/>
Reassoc deadline	<input type="text" value="1000"/>
R0/NAS Identifier	<input type="text" value="ap.example.com"/>
R1 Identifier	<input type="text" value="000102030405"/>
R1 Push	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

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

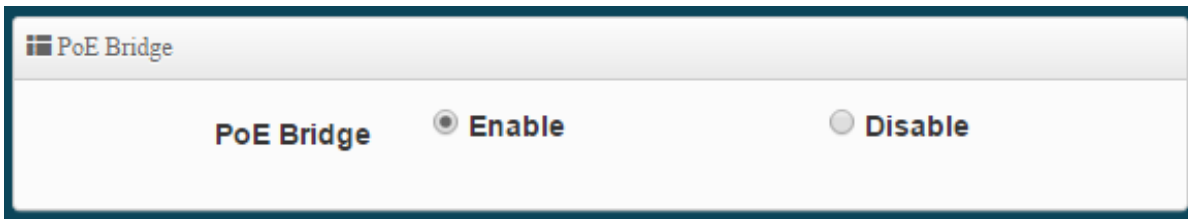
802.11r- Stores encryption keys on all the APs within the network. This simplifies the authentication process when clients roam to new APs, greatly reducing CPU loading and latency.



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.

Contact Information

CERIO

CERIO Corporation

4F.-3., No.192, Sec. 2, Zhongxing Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

Telephone : +(886) 02-8911-6160

Fax : +(886) 02-8911-6180



www.cerio.com.tw



issales@cerio.com.tw



www.facebook.com/center.ww



www.linkedin.com/company/cerio-corporation



www.youtube.com/channel/UCejUL-o3rQavyItXEEMyK1A

CERIO

Amplify your Wireless Network