

# **Understanding the Access Point GUI**

This chapter provides the following information:

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- Configuration Page, page 2-5
- Event Log Page, page 2-14
- Network Diagnostics, page 2-15

# **Accessing the GUI**

Follow these steps to access the Cisco Aironet 1815t Series OfficeExtend access point GUI.

Step 1 Connect your laptop to the local Ethernet port 1, or 2 on the 1815t Series OfficeExtend access point. Note Ethernet port 4 (Remote LAN port) may not be used to configure the 1815t Series OfficeExtend access point. Step 2 With the 1815t Series OfficeExtend access point connected to your home router/gateway as described in the procedure "Installing the Access Point in the Network" section on page 1-2, enter the IP address of the 1815t Series OfficeExtend access point in the Address field of your Internet browser (http://*<ap-ipaddress>*) and click **Go**. The default IP address is 10.0.0.1. Note Make sure your laptop is not connected to your company's network using a virtual private Note network (VPN) connection. The 1815t Series Office Extend Access Point Login page is displayed. Step 3 When prompted, enter the username and password to log into the access point. Ø Note The default username and password are *admin* and *admin*.

**Cisco Aironet 1810 Series OfficeExtend Access Point User Guide** 

The 1815t Series OfficeExtend Access Point welcome page is displayed.

**Step 4** On the 1815t Series OfficeExtend Access Point welcome page, click **Enter**. The 1815t Series Office Extend Access Point Home page is displayed.

Figure 2-1 Home Page with AP Info Tab View

	110145			NETWORK	<u>R</u> efresh <u>L</u> ogout
CISCO		CONFIGURATION	EVENT_LOG	DIAGNOSTICS	TELEWORKE
AP Info	Home: S	ummary			
SSID		anniar y			
	General I	nformation			
Client	AD Name	mormation	rtaval budra		
	AP Name				
	AP IP Addres	55	40.40.40.11		
	AP Mode		FlexConnect	40	
	AP MAC Add	ress	00:fe:c8:2d:e7:4	48 O minutes 50 minutes in	
	AP Uptime		1 days, 20 hours	s, 9 minutes, 52 seconds	i -
	AP Software	Version	8.2.102.121		
	WLC Info	•	[Cisco_7d:88:00	][1/1./0.35.131]	
	CAPWAP Sta	itus	Run		
	WAN Gatewa	ay Status	Good		
	AP Statis	tics			
	Radio	Admin Status	Chan/BW	Tx Power	Pkts In/Out
	2.4 GHz	Enabled	1/20MHz	20dBm	527030/527211
	5 GHz	Enabled	36/80MHz	20dBm	720432/720651
	LAN Port				
	Port No	Admin Status	Port Type	Link Status	s Pkts In/Out
	1	Enabled	Corporate	Down	0/0
	2	Enabled	Local	Down	0/0

The GUI consists of these pages:

- Home Page
- Configuration Page
- Event Log Page
- Network Diagnostics
- Help Page

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When modifying any of the settings described in the following sections, ensure that you click **Apply** for the settings to take effect.

# Home Page

This is a multi-tab page showing general information about the AP settings, information about configured Local SSIDs and available Corporate SSIDs, and a summary of the client association statistics. It contains the following tabs:

- AP Info
- SSID
- Client

### **AP Info**

The AP Info tab (see Figure 2-1) shows the access point name, IP address, AP mode, AP MAC address, AP uptime, software version, WLC information, CAPWAP status, and WAN gateway status.

This page also shows radio-specific information, under **AP Statistics**, which shows radio status, channel/bandwidth, transmit power, and number of packets in and out.

This page also displays LAN Port statistics such as port number, admin status, port type, link status, and number of packets in and out.

The CAPWAP status shows the status of the AP's CAPWAP connection with the controller.

If the WAN connection is established and the AP's Gateway is reachable then the **WAN** status is shown as *Reachable*, else it is shown as *Not Reachable*.

### SSID

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The SSID tab (see Figure 2-2) lists configured Local SSIDs and available Corporate SSIDs and the configured security policy.

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AP Info						
SSID	Local SSID	)				
3310	SSID Name	Secur	ity Policy	Radio Type		
Client	OEAP24	[WPA/	PSK][AES]	2.4GHz		
	OEAP50	[WPA/	PSK][AES]	5GHz		
	Corporate	SSID				
	SSID Name	Secur	ity Policy	Radio Type		
	alpha	[WPA/	'8021x][AES]	2.4GHz		
	alpha_phone	[WPA/	'8021x][AES]	2.4GHz		
	alpha	[WPA/	8021x][AES]	5GHz		
	alpha_phone	[WPA/	8021x][AES]	5GHz		

#### Figure 2-2 Home–SSID Tab

# Client

The Client tab (see Figure 2-3) gives the details of associated clients with Local as well as Corporate SSIDs. For each connected client, this page reports the client MAC address, client IP address, WLAN SSID, Radio/LAN, elapsed association time, number of packets in and out.

#### Figure 2-3 Home–Client Tab

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AP Info SSID	Associati	ion				Show all
Client	Local Clie Client MAC 88:1F:A1:00	nts Client IP 0:50:FA 100.0.0.190	WLAN SSID OEAP24	Radio/LAN 2.4GHz	Association Time 00d:00h:00m:49s	Pkts In/Out 9813/19138
	70:48:0F:71 48:D7:05:E9	::54:A2 100.0.0.144   9:E0:99 100.0.0.169	OEAP50	5GHz LAN-Port 3	00d:00h:01m:49s 22d:17h:50m:13s	9070/37767 8704/8051
	Corporate Client MAC	Clients Client IP	WLAN SSID	Radio/LAN	Association Time	Pkts In/Out
	A4:5E:60:F0	):7C:BD 10.33.248.2	39 alpha	2.4GHz	00d:00h:52m:31s	128568/88415

# **Configuration Page**

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The Configuration page is a multi-tab page with the following options:

- System Tab
- SSID Tab
- DHCP Tab
- WAN Tab
- Firewall
- Backup/Restore

Wherever applicable, default values are shown.

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## System Tab

The Configuration System (see Figure 2-4) tab displays and allows the user to configure general system information.

The Login section allows the user to change the username and password for the access point.



You can leave the username and password fields, along with the router's user name and password fields blank, to disable access control.

The **Radio** section allows the user to configure radio interface parameters. You can configure the parameters for both the 2.4 GHz and the 5 GHz radios. To set these parameters, first click the radio you want to configure from under the **System** tab.

You can set the following parameters for each radio:

- Status—Enable/disable the selected radio interface (i.e. 2.4 GHz or 5 GHz).
- **802.11ac mode**—Enable/disable the 802.11ac mode. This parameter is present only for the 5 GHz radio.
- 802.11n mode—Enable/disable the 802.11n mode.
- Bandwidth—Select the channel bandwidth. You can choose 20MHz, 40MHz, or 80MHz.
- Channel Selection—Select a particular channel to operate in. For automatic selection, choose Auto.

CISCO	<u>H</u> OME	<u>C</u> ONFIGURATION	EVENT_LOG	<u>N</u> ETWORK DIAGNOSTICS	HELP	TELEWORKER
System	Configura	tion				Anni
<b>2.4GHz</b> 5GHz	Login					Арріу
SSID	Username Password		admin	••••		
DHCP	Radio					
WAN	Radio Interfac	ce	2.4Ghz			
	Status		Enabled ᅌ			
Firewall	802.11 n-mod	le	Enabled ᅌ			
Declary (Dectary	Bandwidth		20 Mhz 🗘			
Backup/Restore	Channel Selec	tion				

#### Figure 2-4 Configuration–System Tab

# SSID Tab

The Configuration SSID tab (see Figure 2-5) contains fields necessary for you to configure your personal SSIDs, for the 2.4 GHz and the 5 GHz radio interface.

The **Personal Network** section allows the user to configure the following:

- Enabled—Check this check box to set a personal SSID on this radio.
- Broadcast—Check this check to broadcast the personal SSID on this radio.
- **SSID**—Specify the personal SSID, which will be the network's name.

The **MAC Filter** section allows for MAC filtering. Check the **Enabled** check box to enable MAC filtering. Specify the MAC addresses that are to be allowed wireless access, in the table provided.

The **Security Section** allows the user to configure security parameters for the selected SSID and radio interface. The following authenticated key management parameters can be configured:

- WPA-PSK—Enable/disable WPA-PSK security.
- **WPA2/PSK**—Enable/disable WPA2-PSK security. If you enable this, ensure that the client is configured for WPA2/PSK and AES encryption.
- WPA Encryption—The WPA data encryption algorithm is set to AES.
- **WPA Passphrase**—Enter a passphrase having 8 to 32 ASCII characters. The passphrase is case-sensitive.

#### Figure 2-5 Configuration–SSID Tab

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System	Configurat	ion				Apply
SSID 2.4GHz 5GHz	Personal N Radio Interfac Enabled Broadcast SSID	<b>etwork</b> e	2.4 GHz			(49)
WAN Firewall Backup/Restore	MAC Filter Enabled Allowed MAC Addresses	e.g.00:1D:E0:34:E2	2:1F	MAC	Address Descripti	00
	Security WPA-PSK WPA2-PSK WPA Encryptic WPA passphra	nn se	Enabled 🔹 Enabled 📚 AES	Click here to displa		

# **DHCP** Tab

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The Configuration DHCP tab (see Figure 2-6) contains the fields necessary for configuring the local DHCP server.

The following parameters can be set for the LAN interface:

- IP Address—Set the IP address.
- Subnet Mask—Set the IP net mask.
- **Default Gateway**—Set the default gateway.
- DHCP Server—Enable/disable the DHCP server functionality on the LAN.
- DHCP Starting IP Address—Set the start of the IP address range that the DHCP server will use.
- DHCP Ending IP Address—Set the end of the IP address range that the DHCP server will use.
- DHCP Lease Time (minutes)—Set the time for which the DHCP leases will be valid.

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CISCO	<u>H</u> OME	<u>C</u> ONFIGURATION	Ēv	ENT_LOG	DIAGNOSTICS	<u>H</u> ELP	TELEWORKER
System	Configura	ation					Annha
SSID	Local DHC	P					Арріу
DHCP	IP Address		100.0.0	.1			
	Subnet Mask	( )	255.25	5.255.0			
WAN	Default Gate	way	100.0.0	.1			
Firewall	DHCP Server	•	Enable	ed ᅌ			
i newan	DHCP Startir	ng IP Address	100.0.0	.100			
Backup/Restore	DHCP Ending	IP Address	100.0.0	.200			
	DHCP Lease	Time(minutes)	1440				

#### Figure 2-6 Configuration–DHCP Tab

## WAN Tab

The Configuration Wireless Access Network (WAN) tab (see Figure 2-7) contains the fields necessary for you to configure the IP address of the Wireless LAN controller on your access point.

In the **Controller** section's **IP Address** field, set the IP address of the primary wireless controller to which the AP will join.

In the **Uplink IP Configuration** section, you can set the following parameters for IP configuration of the WAN port:

- Static IP—Check this check box to specifying a static IP for the WAN port.
- IP Address—Set the IP address of the connection.
- Subnet Mask—Set the IP netmask of the connection.
- Default Gateway—Set the IP address of the default gateway for the connection.
- Domain Name—Enter the domain name as provided by your ISP. This is an optional field.

The DNS configuration section is optional. You can set the following parameters here:

- Primary DNS Server—Enter the IP address of a primary DNS server for resolving host names.
- Secondary DNS Server—Enter the IP address of a secondary DNS server for resolving host names.

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System	Configura	tion				
SSID	Controller					Apply
DHCP	IP Address		171.70.35.131			
WAN	Uplink IP	Configuration				
Firowall	Static IP					
Filewall	IP Address					
Backup/Restore	Subnet Mask					
	Default Gate	way				
	Domain Nam	e				
	DNS Confi Primary DNS Secondary DI	<b>guration</b> Server NS Server				

#### Figure 2-7 Configuration-WAN Tab

### **Firewall**

The Configuration Firewall tab (see Figure 2-8) contains fields to enable/disable the access point's firewall and set various firewall parameters.

Set the **Firewall Status** as **Enabled** to apply client filtering and port forwarding rules. To disable the firewall, from the drop-down list choose **Disabled**, and then click **Apply**. The firewall is disabled by default.

The following firewall settings are available:

- Selective unblocking of traffic based on application types such as HTTP, HTTPS, SSH, and FTP.
- Unblocking of traffic based on LAN destination addresses, protocols and ports.
- Port forwarding, with 10 or less total entries for separate port numbers.



All firewall settings are applicable on the WAN port for local traffic (traffic sent directly to the Internet, and not to the corporate network). Firewall protection for CAPWAP traffic and traffic sent through the controller to the corporate office is configured and monitored on the WLC.

### Sections and Precedence of Firewall Settings

The following are the sections in the Firewall tab, listed in the order of precedence of the firewall settings:

- 1. Port Forwarding
- **2**. DMZ
- 3. Client Filtering

#### **Client Filtering**

The Client Filtering sections allows you to add filtering rules to filter traffic from clients, by specifying the following for each rule:

- Set the rule for all LAN clients or only for clients in a specified IP address range.
  - To set the rule for all local clients, check the All Clients check box.
  - To set the rule for a range of IP address, specify the Local IP Address Range.
- Set the rule to filter access to applications using the any of the following protocols:
  - FTP
  - Telnet
  - SMTP
  - DNS
  - TFTP
  - HTTP
  - POP3
  - NNTP

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- SNMP
- HTTPS

Select the required protocol for the rule by choosing it from the **Protocol** drop-down list.

- Set the rule to filter the traffic to specified destination port range, or to TCP or UDP ports as a whole. Depending on your requirement, you can use the **Destination Port Range** fields, or select **TCP** or **UDP** from the **Protocol** drop-down list.
- Set the rule as an allow or disallow rule for the combination of the aforementioned parameters. Check the **Allow** check box to make this an allow rule. Else, uncheck it.

#### **Port Forwarding**

The Port Forwarding settings allow you to configure port forwarding rules for packets from WAN port to Local LAN clients and back. A maximum of 10 Port Forwards can be set, but their ranges should be of the same size and should not overlap. For each rule you can set the following parameters:

- Protocol—You select either of the following options as per your requirements:
  - Select TCP or UDP and then set the WAN Port Start and WAN Port End values.
  - Select one of these protocols— FTP, Telnet, SMTP, DNS, TFTP, HTTP, POP3, NNTP, SNMP, or HTTPS.



If HTTP or HTTPS protocol is selected, the OfficeExtend GUI will not be accessible from the WAN side because the port is overridden to the client destination.

- WAN port range—You can manually set this, using the WAN Port Start and WAN Port End fields, only if the protocol is specified as TCP or UDP. For all other protocols this range displays the pre-configured port number.
- Local IP address—Specify the Local LAN client IP Address where the traffic is to be forwarded to.
- LAN port range—Set this range using the Local Port Start and Local Port End fields.

### DMZ

The DMZ feature allows one network computer connected to a local LAN or WLAN to be exposed to the Internet for using special-purpose services such as Internet gaming. The DMZ feature forwards all the ports terminating on a WAN IP to one internal computer, whose address is set as the **DMZ IP** Address.

The DMZ feature, if enabled, will forward all incoming WAN packets to the LAN machine, except the CAPWAP control/data and packets which are destined to any ports and which have a port forwarding rule. The DMZ feature is not applicable to corporate networks such as Remote-LAN and Corp WLAN.

However, the Port Forwarding feature is more secure, compared to DMZ feature because the former only opens the ports you want to have opened, while DMZ opens all the ports of one computer, exposing the computer to the Internet/WAN.

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System	Configu	uration		-				DIA	GNC	STICS	•		TELEWORKER
System	El	Mada											Apply
SSID	Firewall	Mode											
DHCP	Client F	iltering			D	Isabled	~						
WAN	All Clients	Local I	P Address	Range	Pr	rotocol		Des	tina t Ra	tion	Allow		
Firewall	$\checkmark$	100.0.0.100	- 10	0.0.0.200	DN	IS (	\$	53	-	53	$\checkmark$		
Backun/Restore	$\checkmark$	100.0.0.100	- 10	0.0.0.200	HT	TP 🗧	\$	80	-	80	$\checkmark$		
Dackup/Restore	$\checkmark$	100.0.0.100	- 10	0.0.0.200	HT	TPS 🗧	\$	443	-	443	$\checkmark$		
			- [		TC	P (	\$		-				
			- [		TC	P (	\$		-				
			-		TC	P (	\$		-				
					TC	P (	\$		-				
			-		TC	P (	\$		-				
			- [		тс	P (	\$		-				
			- [		TC	P (	\$		-				
	+Add Entry	ý	-Delete E	Entry	F	leset Filt	ters						
	Port For	rwarding											
	Protocol	WAN Port Start	WAN Port End	Local IP A	Address L	ocal Po Start	ort	Local Er	Por	<sup>t</sup> Enabl	ed		
	TCP	-					•						
	TCP	-					-						
	TCP	≎ -					•						
	TCP	≎ -					-						
	TCP						•	·					

#### Figure 2-8 Firewall Settings Page

### **Backup/Restore**

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The Backup/Restore tab (see Figure 2-9) allows the following functions;

- To backup the contents of the AP's NVRAM (that is, the configuration file) for archiving or management purposes. For this, click **Backup**.
- To upload a configuration file to the access point. For this, click **Browse**, browse to and choose the configuration file, and then click **Restore**.

#### Figure 2-9 Backup/Restore Tab

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cisco	<u>H</u> OME	<u>C</u> ONFIGURATION	<u>E</u> VENT_LOG	DIAGNOSTICS	<u>H</u> ELP	TELEWORKER
System	Configura	ation				
SSID						
DHCP			Backup			
WAN	Choose File	No file chosen	Restore			
Firewall						
Backup/Restore	Foot Notes	:				
	1. To backup 2. To restore 3. AP will rebo	current configuration on AP,click previously saved configuration,cli oot while restoring config.	Backup button. ick Browse, pick the file,	and then click <b>Restore button</b>		

# **Event Log Page**

This page shows you the logged errors and allows you to clear the log. Click Clear to clear the log.

Figure 2-10 Event Log Page

				NETWORK		<u>R</u> efresh <u>L</u> ogout
CISCO	<u>H</u> OME	<u>C</u> ONFIGURATION	EVENT_LOG	DIAGNOSTICS	<u>H</u> ELP	TELEWORKER
Event Log						
May 16 16:34:06 syslogd starte May 16 16:34:06 kernel: klogd May 16 16:34:06 kernel: [*01/0 May 16 16:34:06 kernel: [*01/0 gdab339dc-kalairam May 16 16:34:06 kernel: [*01/0 May 16 16:34:06 kernel: [*01/0	d: BusyBox v1.20.2 started: BusyBox v1.2 1/1970 00:00:16.2751 1/1970 00:00:16.2850 1/1970 00:00:16.2850 1/1970 00:00:19.5440 1/1970 00:00:19.5440 1/1970 00:00:19.740 1/1970 00:00:19.7740	0.2 (2016-05-05 21:17:02 PDT) buginf() enabled. Made it into bootsh: May 5 201 bootsh build T-dab339dce8d6bl ^Minit started: BusyBox v1.20.2 Active version: 8.2.102.121 Backup version: 8.2.102.99 AP1810 nss_driver - Turbo Support 1 Supported Frequencies - 110Mi	6 21:51:32 bd52d4b7a339db2a900ab9 2 (2016-05-05 21:17:02 PDT nz 550Mhz 733Mhz	a74bb-		Clear
May 16 16:34:06 kernel: [*01/0' loaded May 16 16:34:06 kernel: [*01/0' May 16 16:34:06 kernel: [*01/0'	1/1970 00:00:25.8820 1/1970 00:00:25.9220 1/1970 00:00:25.9220 1/1970 00:00:25.9220 1/1970 00:00:26.1020 1/1970 00:00:26.5018 1/1970 00:00:26.5418	module (platform - IPQ806x, Bu ssdk_plat_init start Register QCA PHY driver PHY ID is 0x4dd036 qca probe f1 phy driver succeeded qca-ssdk module init succeeded Swtich config done.	uild - May 5 2016:21:52:13) ded! d!			
May 16 16:34:06 kernel: [*12/2;   May 16 16:34:06 kernel: [*12/2;   May 16 16:34:06 kernel: [*05/11   May 16 16:34:06 kernel: [*05/12   May 16 16:34:06 kernel: [*05/12   May 16 16:34:06 kernel: [*05/14   May 16 16:34:06 kernel: [*05/14	1/1970 00:00:26.8917 3/2015 23:59:59.0000 5/2016 16:34:05.0000 5/2016 16:34:05.0899 5/2016 16:34:05.0899 5/2016 16:34:05.0899 5/2016 16:34:05.0899 5/2016 16:34:06.6095 el.	Current value of FACTORY_RES Last reload time: May 16 16:34: Setting system time Mon May 1 device wired0 entered promiscu device eth1 entered promiscuou eth1: 1000 Mbps Full Duplex stile_Im_ft_corsica: module licer	ET=0 05 2016 6 16:34:05 UTC 2016 ious mode is mode nse 'Copyright (c) 2014-2015	5 by		

# **Network Diagnostics**

The Network Diagnostics page (see Figure 2-11) allows you to run the Speed Test and Link Test for the Network between AP and Controller. To run diagnostics, click **Start Diagnostics**.

արդերություն				NETWORK	
CISCO	HOME	<u>C</u> ONFIGURATION	EVENT_LOG	DIAGNOSTICS	
Network Diagnosti	cs				
Start Diagnostics					
SPEED TEST					
Non-Dtls Upload Speed (Mbps)	6.027219				
Non-Dtls Download Speed (Mbps)	23.682948				
Upload Speed (Mbps)	5.426348				
Download Speed (Mbps)	16.680845				
LINK TEST					
Link Latency (msec)	158				
Jitter (msec)	39				

#### Network Diagnostics Last Run

Thu May 19 03:03:29 UTC 2016

The functionalities of the Network Diagnostics tab are as follows:

• **Speed Test**—The Speed test feature calculates both the download and upload speeds (DTLS and non-DTLS) between the controller and the AP. It provides the network speed with DTLS and Non-DTLS connections.

Using the Speed Test feature you can determine the non-DTLS throughput of the system, by running a speed test on demand. This allows for root cause failure analysis and debugging of network bottlenecks.

- Link Test—The Link test provides the link latency and the jitter values. Link latency monitors the round-trip time of the CAPWAP packets (echo request and response) from the access point to the controller. The round-trip time is calculated in milliseconds. The jitter value is then calculated using the link latency values. Jitter is the amount of variation in latency/response time, in milliseconds.
- Network Diagnostics Last Run—Shows the details of the last run diagnostics along with its timestamp.



You can run the Speed and Link tests from the AP's GUI, the controller's GUI, and the controller's CLI.

#### **Running Network Diagnostics via Controller CLI**

From the wireless LAN controller CLI, you can use the following command to run network diagnostics: **show ap network-diagnostics** *ap-name* 

#### **Example:**

#### **Running Network Diagnostics via Controller GUI**

You can initiate the network diagnostics tests from the **Network Diagnostics** tab in the controller GUI. This tab is available at **Wireless > All APs > Details**.