



ALTAI C1N SUPER WIFI AP/CPE

WEB-ADMIN CONFIGURATION MANUAL

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Radio Frequency Interference Requirements

This device complies with Part 15 of FCC Rules.

Operation is subject to the following conditions:

- 1. This device may not cause harmful interference.
- 2. This device must accept any interference received, including interference that may cause undesired operation.
- 3. This device should not be co-located or operating in conjunction with any other antenna or transmitter.

Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy. If it is not installed and used in accordance with the instructions, harmful interference to radio communications may be caused.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:



- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example – use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Warning

The user is advised to keep away from the base-station and antenna with at least 45cm when the base-station is in operation.

Please install a lightning arrestor to protect the base station from lightning dissipation during rainstorms. Lightning arrestors are mounted outside the structure and must be grounded by means of a ground wire to the nearest ground rod or item that is grounded.

Disclaimer

All specifications are subject to changes without prior notice. Altai Technologies assumes no responsibilities for any inaccuracies in this document or for any obligation to update information in this document. This document is provided for information purposes only. Altai Technologies reserves the right to change, modify, transfer, or otherwise revise this publication without notice.



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 8. Too 8.1. 8.2. 8.2. 8.2. 	bls Channel Scan Diagnosis .1. Ping to Host .2. Traceroute to Host	
 8. Too 8.1. 8.2. 8.2. 8.2. 8.3. 	bls Channel Scan Diagnosis .1. Ping to Host .2. Traceroute to Host Watchdog.	



Manual Conventions

Bold	Bold type within paragraph text indicates commands, files names, directory names, paths, output, or returned values.
Italic	Within commands, italics indicate a variable that the user must specify. Titles of manuals or other published documents are also set in italics.
	Underline means that you have to pay attention to the words.
Courier	The courier font indicates output or display.
[]	Within commands, items enclosed in square brackets are optional parameters or values that the user can choose to specify or omit.
{}	Within commands, item enclosed in braces are options which the user must choose from.
	Within commands, the vertical bar separates options.
	An ellipsis indicates a repetition of preceding parameter.
>	The right angle bracket separates successive menu selection.

NOTE: This message denotes neutral or positive information that calls out important points to the text. A note provides information that applies only in special cases.

Caution: Cautions call special attention to hazards that can cause system damage or data corruption, to a lesser degree than warnings.



Warnings: Warnings call special attention to hazards that can cause system damage, data corruption, personal injury, or death.



1. Introduction

This manual is to summarize how to perform basic configuration for the Altai C1n AP/CPE through web-admin interface.

2. C1n Model and Firmware Version

This manual is applicable for the following models, hardware and firmware versions:

Product name : C1n AP/CPE

Hardware Platform	Firmware Version
V1.0	1.2.4.x

Table 2-1 C1n Model

3. Getting Started

3.1. Setup Local Area Connection on Your PC

C1n AP/CPE can be connected to your PC in wired mode or in wireless mode. In the following, wired mode will be introduced. This is because the configurations are similar in wireless mode, except SSID has to be configured in both C1n AP/CPE and PC.

C1n AP/CPE can be connected to your PC<u>directly or by a switch or a hub</u>.

Start Network Configuration on your PC.

For **Windows XP** user,

- 1. Click the "Start" menu and choose "Control Panel".
- 2. Click "Network Connections".



🕑 Control Panel								
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools	Help							1
🔇 Back 🝷 🕥 - 🏂 🔎 Se	arch 😥 Folders	s 🛄 -						
Address 📴 Control Panel	-						💌 🛃 Go	Links »
Control Panel 🛞	لمن المن من م	d Hardware	Add or Remov	Administrative Tools	Automatic Updates	Date and Time	S Display	
See Also 🙁	Folder Options	Fonts	Game Controller	Intel(R) GMA Driver for	Internal NIC Configuration	Internet Options	ي Java Plug-in	
Help and Support	کی Keyboard	් Mouse	Network Connections	Network Setup Wizard	Phone and Modem	Power Options	Printers and Faxes	
	Regional and Sc Language	anners and Cameras	Scheduled Tasks	Security Center	SigmaTel Audio	Sounds and Audio Devices	Speech	
	System Ta	askbar and	User Accounts	Windows	Wireless	 颜件 		
	s	itart Menu		Firewall	Network Set			

Figure 3-1 Control Panel in Windows XP

3. Right-click the "Local Area Connection" and select "Properties".







4. After clicking "Properties", you will see the diagram as below.

👃 Local Area Connection Properties 🛛 🔹 💿	X
General Authentication Advanced	_
Connect using:	
Intel(R) PR0/100 VE Network Connection	
Configure	
This connection uses the following items:	
✓ ☞ NWLink NetBIOS	
S= HWEINE IF HISTA HetBIDS Compatible Transport Prot S= Internet Protocol (TCP/IP)	
<	
I <u>n</u> stall <u>U</u> ninstall <u>Pr</u> operties	
Description	
Allows your computer to access resources on a Microsoft network.	
Show icon in notification area when connected	
OK Cancel	

Figure 3-3 Local Area Connection Properties in Windows XP

- 5. Mark the "Internet Protocol (TCP/IP)" and click "Properties".
- 6. Type in an "**IP address**", for example, 192.168.1.2, which is under the same subnet as the Default IP Address of C1n AP/CPE (192.168.1.222).
- 7. Using the default "Subnet mask" (default: 255.255.255.0) setting in the first time.
- 8. Keep the "Default gateway" as "Blank".
- 9. Keep the "Preferred DNS server" and "Alternate DNS server" as "Blank" also.
- 10. Click "**OK**" when you finish setting and close the Window.



automatically if your network supports ed to ask your network administrator
atically
4
192.168.1.2
255 . 255 . 255 . 0
automatically
r addresses:
and the second se

Figure 3-4 Internet Protocol (TCP/IP) Properties in Windows XP

3.2. Check Access

"ping" utility of Command Prompt is a handy tool to check the access to the C1n AP/CPE.

- 1. Go to the Command Prompt by typing "cmd" in "Run".
- 2. Type command:
 - ping 192.168.1.222

The C1n AP/CPE shall respond to your ping request if C1n AP/CPE and your PC have a correct connection.

NOTE: Using the same PC to ping different C1n AP/CPE may cause ping failure. This is because C1n AP/CPE has the same default IP address **but different MAC addresses**. You need to type command "arp –d" in Command Prompt to clear ARP table on PC before each ping.

3.3. Configuration with Web-Admin

The C1n can be accessed through a Web Browser, for example, Internet Explorer (IE).

 Open an IE session and type the IP address of the C1n AP/CPE. Example: <u>http://192.168.1.222</u> or <u>https://192.168.1.222</u>, where 192.168.1.222 is the C1n's IP address. The **default IP Address** is 192.168.1.222.



- A window will pop up, as shown in figure 3-5. Enter the user name and password in the corresponding fields, which are the same as for the CLI. The *default User Name* and *Password* are shown in Table 3-1 C1n default User Name and Password
- 3. -1. They are **<u>case sensitive</u>**.

Firmware version	Default User Name	Default Password
1.2.4.x	admin	admin

Table 3-1 C1n default User Name and Password

Authorization Doquirod

	Aut	thorization Required	
Please enter your username and password.			
User	ername:	admin	
Pass	ssword:		
			Reset Login

Figure 3-5 Enter User Name and Password

4. A login page in IE appears, as shown in figure 4-6. A **Menu Bar** is located on the top of the IE window. Different functions can be accessed through the menu bar.



C	[1n						<u>简体中文</u> <u>Reboot AP</u> <u>Logout</u> Firmware Version: 1.2.4.701
							CPU Load: 0.02, 0.01, 0.00 Uptime: 01h 03min 22s
_							Changes: 0 Download Logs Alarms: 0
Suc	Status Co	Administ	ration Tools	About			L
393	tem i interface i	Loga					
	S	ystem	Network(switch)			<u>More>></u>	
	System Name:	NA	Ethernet				
	Product Name:	C1n	IPv4 DHCP Client:	Disabled			
	CPU Usage:	0%	IPv4 Address:	192.168.1.20			
	- Memory Usage:	15/28 MB (52%)	IPv4 Subnet Mask:	255.255.255.0			
	Time of Day:	Wed Jul 3 19:51:10	IPv4 Default Gateway:	192.168.1.1			
	rinio or buji	2013	IPv4 DNS Server:	NA			
	Uptime:	01h 03min 22s	Interfaces(2)				
			Ethernet				
	П	hin AP	MAC:	00:19:be:a0:b2:b4	Traffic(Tx/Rx):	2.26MB/544.73KB	
			Speed:	100Mb/s	Throughput(Tx/Rx):	0.00/0.00Kbps	
	Thin AP: ()FF	Duplex:	Full	More>>		
			Auto-negotiation:	ON			
			Radio0(2.4G) - AP (on)			
			MAC:	00:19:be:80:b2:b4	Traffic(Tx/Rx):	229.72KB/83.05MB	
			Wireless Mode:	2.4GHz 300Mbps(802.11ng HT40+)	Throughput(Tx/Rx):	0.00/0.00Kbps	
			Channel:	2437MHz(Channel 6)	More>>		
			Transmit Power:	20 dBm			
			Noise Level:	-98 dBm			

Figure 3-6 Web-admin Login Page

3.4. Interface Introduction

C1n interface is separated to 5 levels: Level 1 menu, Level 2 menu, Interface selection, Level 3 menu and Configuration options

C1n	Language Options, Reboot AP & Logout	<u>諸体中文</u> <u>Reboot AP</u> <u>Logou</u> 「 「 「 「 」 」 」 、 、 、 、 、 、 、 、 、 、 、 、 、
Status Configuration Administration Tools	About	enue
Radio0(2.46)	adio0(2.4G) Setting	System Info∉
General WLAN Advanced WEP		
Level 3 menu+ Country Code: Wireless Mode:	ROW V	
Radio Frequency: Transmit Power:	2437MHz(Channel 6)	
Maximum Clients: Disable HT20/HT40 Auto Switch:	64 (1-64)	figuration options₽
Enable Inter-WLAN User Isolation:		

Figure 3-7 C1n Webpage



3.5. Logout from C1n Interface

On the right top corner of C1n Web interface, click "Logout" button to logout from C1n. On the other side, you can directly close C1n webpage to logout from C1n.





4. System Status

C1n Status function gives System information, interface information, Log. You can select **Status** -> **System** to check C1n basic information and real-time status.

Status tem Interfa	Configuration ce Logs	Administration Tools	About			<u>Download Log</u>
	Surtam	Network(switch)			More>>	
ystem Nam roduct Nam	e: NA Ne: C1n	Ethernet IPv4 DHCP Client: IPv4 Address:	Disabled 192.168.1.20		1010	
Memory Usa Time of Day:	ge: 14/28 MB (5 Wed Jul 3 19: 2013	IPv4 Subnet Mask: i1%) IPv4 Default Gatewa IPv4 DNS Server:	255.255.255.0 y: 192.168.1.1 NA			
Uptime:	01h 08min 00 Thin AP	Interfaces(2) Ethernet MAC:	00:19:be:a0:b2:b4	Traffic(Tx/Rx):	2.50MB/565.90KB	
Thin AP:	OFF	Speed: Duplex: Auto-negotiation:	100Mb/s Full ON	Throughput(Tx/Rx): <u>More>></u>	0.00/0.00Kbps	
		Radio0(2.4G) - AP (MAC:	(on) 00:19:be:80:b2:b4	Traffic(Tx/Rx):	241.87KB/87.27MB	
		Wireless Mode: Channel: Transmit Power: Noise Level:	2.4GHz 300Mbps(802.11ng HT40+) 2437MHz(Channel 6) 20 dBm -98 dBm	Throughput(Tx/Rx): <u>More>></u>	0.00/0.00Kbps	

Figure 4-1 System Information

Following information can be found from "System" function:

1) System

System Name : System name for C1n, it can be customized by customer. **Product Name** : C1n.



CPU Loading : C1n CPU Loading. **CPU Usage** : C1n CPU Usage (%). **Memory Usage** : C1n memory Usage (Byte).

2) Thin AP

Show the status of thin AP function (On/Off).

3) Network (Switch/Gateway)

It shows the status and information of network. It is switch mode as default.

IPv4 DHCP Client : Enable/disable IPv4 DHCP Client.

IPv4 Address : C1n current IPv4 address

IPv4 Subnet Mask : C1n IPv4 subnet mask

IPv4 Default Gateway Address : C1n IPv4 gateway address

4) Interfaces (2)

- Ethernet

It shows the status and information of Ethernet including Mac address, Traffic (Tx/Rx), Speed, Throughput (Tx/Rx), Duplex and Auto-negotiation. If click the "More>>", more detail information will be shown.

- Radio (2.4G)

It shows C1n Radio0 interface information including Mac address, Traffic (Tx/Rx), Wireless Mode, Throughput (Tx/Rx), Channel, Transmit Power and Noise Level. If click the "More>>", more detail information will be shown. As default, the 2.4G radio is on.

4.1. Interface

You can select **Status** -> **Interface** to check interface information which includes radio0 (2.4GHz) and Ethernet information.



C1n	
Status Configuration Administration Tools System Interface Logs	About
Radio0(2.4G) - Ethernet Status Statistic Channel Usage WLAN Associa	tion List
Mode:	AP
Radio Enable:	ON
MAC Address:	00:19:be:80:b2:b4
Superwifi Status:	OFF
Country Code:	ROW
Radio Channel:	2437MHz(Channel 6)
Transmit Power:	20 dBm
Wireless Mode:	2.4GHz 300Mbps(802.11ng HT40+)
Figure	4-2 Interface Status

4.1.1.2.4G Interface Status

By selecting **Status** -> **Interface**-> **Radio0 (2.4G)** you can find 2.4G interface (radio0) information which includes following 5 parts: Status, Statistic, Channel Usage, WLAN and Association List.

4.1.1.1. Status

Please select **Status** -> **Interface**-> **Radio0(2.4G)** -> **Status** to check radio0 status, the webpage provides radio0 Mode, Radio Enable/Disable, MAC Address, Superwifi Status, Country Code, Radio Channel, Transmit Power and Wireless Mode.

C1n	
Status Configuration Administration Tools System I Interface Logs	About
Radio0(2.4G) - Ethernet Status Statistic Channel Usage WLAN Associa	tion List
Mode:	AP
Radio Enable:	ON
MAC Address:	00:19:be:80:b2:b4
Superwifi Status:	OFF
Country Code:	ROW
Radio Channel:	2437MHz(Channel 6)
Transmit Power:	20 dBm
Wireless Mode:	2.4GHz 300Mbps(802.11ng HT40+)
Figure	4-3 Interface Status



Mode :Operation modeRadio Enable: Radio0 (2.4G) status (ON/OFF)MAC Address: Radio0 (2.4G) MAC address.Superwifi Status: Superwifi Status (ON/OFF), as default, it is on.Country Code: Country Code.Radio Channel: Radio0 (2.4G) current channelTransmit Power: Radio0 (2.4G) transmit powerWireless Mode: Radio0 (2.4G) wireless mode

4.1.1.2. Statistic

Please select **Status** -> **Interface**-> **radio0(2.4G)** -> **Statistic** to check radio0 statistics information which includes radio0 Tx and Rx Packets, Tx and Rx Packet Rate, Total traffic, Throughput.

C1n	1			
Status System Interface	Configuration Administration	Tools	About	
Radio0(2.4G)	- <u>Ethernet</u> tistic Channel Usage WL	AN Association List	1	
	ТХ		RX	
Packets	0.00K		0.03K	
Packet Rate	0.00Kpps		0.00Kpps	
Total Traffic	0.00KB		5.53KB	
Throughput	0.00Kbps		0.00Kbps	
		Figure 4-4 Ir	nterface	e Statis

Packets : Radio0 (2.4G) received and sent packets.

Packet Rate : Radio0 (2.4G) packet rate.

Total Traffic: Radio0 (2.4G) received and sent total traffic.

Throughput : Radio0 (2.4G) throughput.

4.1.1.3. Channel Usage

Please select **Status** -> **Interface**-> **Radio0(2.4G)** -> **Channel Usage** to check radio0 channel usage information including: state, Tx Frame (%), Rx Frame (%), Busy State (%), Noise Floor (dBm), CTL0, CTL1, EXT0, EXT1, Interference Mitigation Offset(0-50dB) and Traffic Distribution.



C	Ln									
State	us Configu	ration Administrati	on Tools	Abou	t					
Radio0	(<u>2.4G)</u> - <u>Et</u>	s hernet								
Stat	us Statistic	Channel Usage	VLAN Association L	ist						
Cha	nnel Usage Lis	Trat	fic Distribution: <u>Viev</u>	¥						
	Tx% (Avg)	Rx% (Avg)	Busy% (Avg)	Noise Floor (dBm)	CTLO	CTL1	EXT0	EXT1	Interference Mitigation Offset(0-50dB)	
	0%(0%)	25%(23%)	<mark>3</mark> 0%(28%)	-98	-98	-98	-98	-98	0	Apply

Figure 4-5 Channel Usage

Interference Mitigation Offset (0-50dB) : This option will mask all noise / valid signal below "0-50" dB.

The traffic distribution statistics will be shown by clicking "<u>View</u>" on the channel usage page.

		Traffic	Distribution Stat	tistics		
fic Distribution <u>reset stati</u>	<u>stics</u>					Refre
Rate	#Tx	TxBytes	TxBytes%	#Rx	RxBytes	RxBytes%
Control Frame	0	0	0%	0	0	0%
Data Frame	0	0	0%	0	0	0%
Management Frame	660	204600	100%	1938	150567	100%
1M	0	0	0%	0	0	0%
2M	0	0	0%	0	0	0%
5.5M	0	0	0%	0	0	0%
11M	0	0	0%	0	0	0%
6M	660	204600	100%	978	76557	100%
9M	0	0	0%	0	0	0%
12M	0	0	0%	0	0	0%
18M	0	0	0%	0	0	0%
24M	0	0	0%	0	0	0%
36M	0	0	0%	0	0	0%
48M	0	0	0%	0	0	0%
54M	0	0	0%	0	0	0%
MCS0	0	0	0%	0	0	0%
MCS1	0	0	0%	0	0	0%
MCS2	0	0	0%	0	0	0%
MCS3	0	0	0%	0	0	0%
MCS4	н	21	0%	re	si	0%
1 1 011	"	3	0%	я	ล	0%
MPRE	ß	0	0%	0	0	0%
MCS7	0	0	0%	0	0	0%
MCS8	0	0	0%	0	0	0%
MCS9	0	0	0%	0	0	0%
MCS10	0	0	0%	0	0	0%
MCS11	0	0	0%	0	0	0%
MCS12	0	0	0%	0	0	0%



MCS13	0	0	0%	0	0	0%
MCS14	0	0	0%	0	0	0%
MCS15	0	0	0%	0	0	0%
MCS16	0	0	0%	0	0	0%
MCS17	0	0	0%	0	0	0%
MCS18	0	0	0%	0	0	0%
MCS19	0	0	0%	0	0	0%
MCS20	0	0	0%	0	0	0%
MCS21	0	0	0%	0	0	0%
MCS22	0	0	0%	0	0	PIX.
MCS23	0	0	34	0	0	:01
Total	660	204600	Close	978	76557	-

Figure 4-6 Traffic Distribution Statistics

Tx Frame(%)(Avg): Average transmit frames percentage

Rx Frame (%)(Avg) : Average receive frames percentage

Busy State(%)(Avg) : Average busy state percentage

Noise Floor(dBm) : Noise floor

CTLO : Chain 0 Noise Floor of the Control Channel (i.e the operating channel for HT20)

CTL1 : Chain 1 Noise Floor of the Control Channel (i.e the operating channel for HT20)

EXTO : Chain 0 Noise Floor of the Extension Channel (i.e the +/- channel of the HT40)

EXT1 : Chain 1 Noise Floor of the Extension Channel (i.e the +/- channel of the HT40)

4.1.1.4. WLAN

Please select **Status** -> **Interface-**> **Radio0(2.4G)** -> **WLAN** to check radio0 wireless network information including: Device ID WLAN ID, SSID, MAC Address, Auth Mode, Unicast Cipher, Multicast Cipher, Num of Station, Throughput (TX/RX), Download/Upload Byte, State.

When you enable a WLAN, you can find its relevant information in "State".

C	1	n									
	Status	Confi	guration	Administration	Tools		About				
Syst	em i Inter	face L	ogs								
Rad	lio0(2.4G Status) - Statistic	Ethernet Chanr	el Usage WLAN	Associa	ation List					
	Device ID	WLAN ID	SSID	MAC Address	Auth Mode	Unicast Cipher	Multicast Cipher	Num of Station	Throughput (Tx/Rx)	Traffic(Tx/Rx)	State
	Radio0	0	Altai Wi reless N	00:19:be:80:b2:b4	open	none	none	0	0.00Kbps/0.00Kbps	0.00KB/0.00KB	Enabled



Device Id:2.4G interface ID

WLAN : Wireless network number



SSID : C1n default SSID is Superwifi Network x (x is from 0 to 7)
MAC Address : 2.4G wireless network MAC address (BSSID)
Auth Mode : Authentication mode for each wireless network
Unicast Cipher : Unicast cipher mode for each wireless network
Multicast Cipher : Multicast cipher mode for each wireless network
Num of Station : Associated client number
Throughput (TX/RX) : Real Throughput of transmitted and received packets for each wireless network
Download/Upload Byte : Download and Upload packets for each wireless network

4.1.1.5. Association List

Please select **Status** -> **Interface**-> **radio0** -> **Association List** to get associated client information including: Total Client Association, Client Association Histogram, STA ID, Mac Address, WLAN ID, SNR, Download/Bytes, Upload/Bytes, Download Rate/kbps, Upload Rate/kbps.

C1	n							
Status System Int	Configuration A erface Logs	dministration	Tools	About				
adio0(2.4G) - <u>Ethernet</u> Statistic Channel Us	sage WLAN	Association L	ist				
		Update Total Client Assoc	eTime: Wed	Jul 3 20:3	0:23 2013			
	Clier	nt Association Hist	ogram: <u>View</u>	<u>ı Histogram</u>				
First 50 s	tations are listed, for mor	e information, plea	se click <u>Searc</u>	1			Refre	esh
STA ID	MAC Address	IP Address	WLAN ID	SNR(dB)	Throughput STA (Tx/Rx)	Traffic STA(Tx/Rx)	Data Rate STA (Tx/Rx)	
0-1	<u>98:fc:11:c5:a4:c2</u>	10.61.61.252	0	50	5.80Kbps/0.00Kbps	22.85KB/0.00KB	6Mbps/0Mbps	6

Figure 4-8 Association List

Total Client Association : Total associated clients

Client Association Histogram : Association client history records

STA ID: Wireless client ID

Mac Address : Wireless client MAC address

WIan ID : Client associated WLAN ID

SNR : Wireless client SNR



Throughput (Rx/Tx) : Wireless client real throughput received and transmitted traffic (kbps)

Download/Upload Byte: Wireless client download and upload traffic (Bytes)Download/Upload Rate: Wireless client download and upload rate (kbps)

Click this icon, below prompt will pop up. If choice the yes, the associated client will be disconnected and added into rogue station list.

Disconnect	station"98:fc:11:c5:a4:c2",	and it	will	be	added	to	rogue	station	list.	
						OK		Cance	1	

4.1.2. Ethernet Interface

Please select **Status** -> **Interface-**> **Ethernet** to check Ethernet interface information including Status and Statistic.

4.1.2.1. Status

Please select **Status** -> **Interface**-> **Ethernet** -> **Status** to check Ethernet interface status which includes Ethernet MAC Address, Speed, Duplex, Auto-negotiation and Link Detected.

C1n				
Status Configuration	Administration Tools	About		
System Interface Logs				
Radio0(2.4G) atistic				
	MAC Address:	00:19:be:a0:cb:48		
	Speed:	100Mb/s		
	Duplex:	Full		
	Auto-negotiation:	ON		
	Link Detected:	Yes		
	Figure 4-9	Ethernet Inter	ace State	

MAC Address : C1n Ethernet MAC address



Speed: C1n Ethernet speed

Duplex : C1n Ethernet duplex mode (Full/Half)

Auto-negotiation : C1n Ethernet auto-negotiation mode ON or OFF, by default it is "ON".

Link Detected : Whether C1n Ethernet do link detection, by default it is "yes".

4.1.2.2. Statistic

Please select **Status** -> **Interface-**> **Ethernet** -> **Statistic** to check Ethernet statistic information including Ethernet Tx & Rx Packets, Tx & Rx Packet Rate, Total Traffic and Throughput.

(11 m				
	Status	Configuration	Administration	Tools	About
Sys	tem Interfac	e Logs			
Ra	dion(5) Radio0	(2.4G) net			
1.00					
	Status Sta	tistic			
					DV
			IX		KX
	Packets		20.09K		15.65K
	Packet Rate	<u> </u>	0.00Kpps		0.00Kpps
	Total Traffic	C	11.25MB		1.93MB
	Throughput	t	0.00Kbps		0.00Kbps

Figure 4-10 Ethernet Interface Statistic

Packets: Ethernet transmitted and received packetsOctets: Ethernet transmitted and received octetsPacket Rate: Ethernet interface packet rateThroughput: Ethernet interface throughput

4.1.3.Logs

In order to realize easier monitoring and diagnosis, C1n provides log function. Selecting **Status** -> **Logs**, you will find 3 sub-items below: SysLog, Panic Log, and Alarm Logs.

4.1.3.1. System Log



The system log gives C1n system information like: software, hardware, system configuration, and self-checking result. Please select **Status** -> **Logs** -> **Syslog** to check system log:

C1n					
Status	Configuration	Administration	Tools	About	
System Interface	Logs				
Syslog - Par	nic Log – <u>A</u>	larm Log			
			S	stem Logs	
File	Name	Download	S	/stem Logs	
File syslog.0.gz	Name	Download	S	/stem Logs	

Figure 4-11 System Log

File Name : The name of log files, you can click it to open the log file.

Download : Download log file. Please click the green downward arrow to download the log file.

Click **File Name**-> **Syslog**, and you will find the log page below:

Statu	s	Configuration	Administration		Tools		About				
em	Interface	Logs									
loq	- <u>Par</u>	ic Log - A	Jarm Log								
Jul	4 18:04	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:0	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:0	:11 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:09	11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:10	11 kernel:	: systoge<2>	ping	gateway	192	160 1 1	failed			
Jul	4 18:11	.11 kernel:	avalog@<5>	ping	gateway	192	168 1 1	failed			
Jul	4 18:11	111 kernel	svalog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:14	:11 kerpel:	svslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:1	:11 kerpel:	svslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:14	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:1	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:18	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:19	:11 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:20	:11 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:2	:11 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:22	:11 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:23	11 kernel:	: syslog@<5>	ping	gateway	192.	168.1.1	failed			
JUL	4 10:24	11 kernel:	: systog@<5>	ping	gateway	102	168.1.1	failed			
Jul	4 10:2:	:11 kernel:	: sysiog@<5>	ping	gateway	102	168 1 1	failed			
Jul	4 18.2	11 kernel:	avalor@<5>	ping	gateway	192	168 1 1	failed			
Jul	4 18:2	111 kernel	avalor@<5>	ning	gateway	192	168.1.1	failed			
Jul	4 18:2	:11 kernel:	svslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:30	:03 kernel:	syslog@<0>	drop	caches:	Meml	ree:116	12->11596	kB,	Cached: 3756->3548	kB
Jul	4 18:30	:12 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed	,		
Jul	4 18:33	:12 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:32	:12 kernel:	syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:33	:12 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:34	:12 kernel:	: syslog@<5>	ping	gateway	192	168.1.1	failed			
Jul	4 18:3	:12 kernel:	: svslog@<5>	ping	gateway	192	168.1.1	failed			

Figure 4-12 System Log "Download and Back" Button



Please click **Download** to download the system log file and click **Back** at the end of log to come back the previous page:

4.1.3.2. Panic Log

Panic Log is a self-generated log when the system finds some internal errors and need to reboot itself.

Please select **Status** -> **Logs** -> **Panic Log** to go to Panic log page:

C1n					
Status Configu	uration Administration	n Tools	Abo	ut	
System i Interface i Log	S				
<u>Syslog</u> - <u>Panic Log</u>	- <u>Alarm Log</u>				
			Panic L	ogs	
File Name	Devenland	Dalata			

Figure 4-13 Panic Logs

File Name : The name of Panic log files, you can click it to open the log file.

Download : Download Panic log file. Please click the green downward arrow to download the log file.

Delete : Delete Panic log file.

4.1.3.3. Alarm Log

Please select **Status** -> **Logs** -> **Alarm Log** to go to alarm log page.

Status Configuration Administration Tools About System Interface Logs Syslog - Panic Log - Alarm Logs	C1n					
Syslog - Panic Log - Alarm Log Alarm Logs File Name Download	Status Configuration	Administration Too	ols About	L		
Alarm Logs	<u>Sysloq</u> - <u>Panic Loq</u> -	<u>Alarm Log</u>				
File Name Download			Alarm Logs			
	File Name	Download				

Figure 4-14 Alarm Logs



File Name : The name of log files, you can click it to open the log file. **Download** : Download log file. Please click the green downward arrow to download the log file.

5. System Configuration

5.1. C1n Configuration Procedures

1. Users need to click **Submit** button to store the changed settings.

C1n	道体
Status Configuration Administration Too System Network Wireless Thin AP	ls About
Radio0(2.4G)	
Ra	ndio0(2.4G) Setting
General WLAN Advanced WEP	
Enable Radio:	\checkmark
Radio Mode:	AP
Country Code:	ROW
Wireless Mode:	2.4GHz 130Mbps(802.11ng HT20)
Radio Frequency:	2437MHz(Channel 6)
Transmit Power:	20 🗸
Maximum Clients:	64 (1-64)
Enable Inter-WLAN User Isolation:	
	Submit Help
Figure	5-1 Submit Change

 On the right top corner, there is an Unsaved Changes button; you can click it to check submitted items.

C1n	简体中文 <u>Reboot AP</u> <u>Logout</u>
Status Configuration Administration Tools About	Uptime: 17h 56min 51s Unsaved Changes: 7 Save & Apply Download Logs Alarms: 0
System Network Wireless Thin AP	

Figure 5-2 Unsaved Change

3. Please click **Unsaved Changes** button to check changed setting detail information.



C1n Status Configuration Administration Tools About	Riterx Rebot AP Locot Firmware Version: 12.4.700 OPU Load: 0.10, 0.04, 0.01 Uptim: 17h Strim 23h Unsaved Changes: 2 August August A
Configuration / Changes	
Legend: Section added Option changed Option removed	
wireless.device_radio0 wireless.device_radio0.channel=auto wireless.device_radio0.rate_llm=0 wireless.device_radio0.rate_lm=0 wireless.device_radio0.rate_5_sm=0 wireless.device_radio0.transmit_power=17 wireless.device_radio0.wireless_mode=llanonly	
Back Save & Apply Reven	

Figure 5-3 Unsaved Change Detail

4. Click **Save&Apply** button to perform all submitted changes:

C1n	<u>施体中文</u> <u>Reboot AP</u> <u>Loopout</u> Firmware Version: 1.2.4.701
	Uptime: 18h Olmin 03s Download Logs
Status Connguration Administration Tools About	1
Configuration / Apply	
Applying changes	CIICK
Waiting for router	Save&Apply@
The following changes have been committed:	
Legend: Section added Option changed Option removed	
wireless.device radio0	
wireless.device_radio0.channel=auto	
wireless.device_radio0.rate_llm=0	
wireless.device_latio.rate_lm=0	
wireless.device_radio0.rate_5_5m=0	
wireless.device_radio0.transmit_power=17	
witeless.device_radion.witeless_mode-radionry	
Back	

Figure 5-4 Save and Apply Changes

5. You will find "The following changes have been committed"

C1n	Reboot AP Logout Firmware Version: 1.1.2.405 Build Time: 2012:02-03 Load: 1.05, 1.03, 0.88 Uptime: 001337 Channes: 0.6
Status Configuration Administration Tools Statistics About	
Configuration / Apply	
The following changes have been committed:	
Legend:	
Section added Option changed Option removed	
wireless.interface_radio0_2	
wireless.interface_radio0_2.vap_enable=1	

Figure 5-5 Changes have been committed

6. The whole committing changes progress, it is no need to reboot C1n.



5.2. Basic Configuration

5.2.1. Basic System Configuration

System configuration web includes two parts: System Info setting and NTP Setting. NTP is a network time protocol for the C1n to synchronize the system time. NTP is Enable by default. If NTP is needed, IP address of the NTP server must be added and C1n will synchronize with the NTP server. It is useful to maintain the network and make sure all APs are using the same system time by setting the same NTP server.

Please select **Configuration** -> **System** to configure System Info Setting and NTP setting.

C1n					
Status Configuration System Network Wireless T	Administration Tools	About			
	Bas	sic System Set	ting		
System Info Setting		NTP Set	tting		
System Name:			Enable NTP:	V	
System NE ID:			IP Address Type:	IPv4 0 IPv6	
System Location:			NTP Server IP:	0.pool.ntp.org	
			NTP Polling Interval:	600	
			NTP Time Zone:	Asia/Hong Kong	×
		D	aylight Saving Time:		
					Submit <u>Help</u>

Figure 5-6 NTP Setting

System Name : Set system name of the device, the system name can be up to 255 characters long.

System NE ID : Set system NE ID, the system NE ID can be up to 64 characters long.

System Location : Set system location, the system location can be up to 255 characters long.

Enable NTP: Enable or disable NTP function, by default it is selected.

IP Address Type : IPv4 or IPv6. (Please note that IPv6 is available to be select after enable IPv6 in Network setting web page, refer to section 6.3).

NTP Server IP: NTP server IP address, please click """" to add new NTP server IP address.

NTP Polling Interval: By default, it is 600s

NTP Time Zone : Time Zone setting, by default it is Asia/Hong Kong.



Daylight Saving Time : By default, it is not selected.

Procedures:

- 1. Select **Configuration**->**System**, to go to system setting page.
- 2. Type in the system information if it is needed.
- 3. Add NTP IP address in **NTP Server IP**.
- 4. Set NTP Polling Interval
- 5. Choose local NTP Time Zone
- 6. Set Daylight Saving Time (Optional)
- 7. Click **Submit**
- 8. Click **Save&Apply** to commit changes.

5.2.2. Network Configuration

Please select **Configuration** -> **Network** to go to Network configuration page.

5.2.2.1. General Network Configuration

Please select **Configuration** -> **Network** -> **General** and start to configure general settings.



C1n			
System Network Wireless	Administration Tools . Thin AP	About	
<u>General</u> - <u>VLAN</u> - <u>DH</u>	CP - Port Forward - Safe Mode	work Catting	
	General Net	work Setting	
Network Setting		WAN/LAN Interface Assign	iment
Network Setting:	Switch Mode 🗸	Ethernet:	wan ○ Lan
Enable IPv6:		Radio0(5G):	O wan
		Enable NAT Mode:	Y
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type:	Static V	LAN IP Address:	192 • 168 • 0 • 1
IPv4 Address:	192 - 168 - 1 - 222	LAN IP Address Mask:	255 . 255 . 255 . 0
IPv4 Subnet Mask:	255 . 255 . 255 . 0		
IPv4 Default Gateway:	192 • 168 • 1 • 1		
IPv4 DNS Server:			
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type:	Static	Ethernet Mode:	auto 🗸
IPv6 Address:	*		
IPv6 Default Gateway:			
IPv6 DNS Server:	<u></u>		
STP Setting			
Enable STP Mode:			
			Submit Help

Figure 5-7 Network Setting

Network Setting : There are Switch Mode and Gateway Mode being selected. **Enable IPv6** : IPv6 is disable by default.

Internet Connection Type : Static IP or DHCP client IPv4 Address : If C1n uses static IP, please give it a fixed IP IPv4 Subnet Mask : If C1n uses static IP, please give it a subnet mask IPv4 Default Gateway : If C1n uses static IP, please give it a Gateway address IPv4 DNS Server : If C1n uses static IP, please set DNS IP address

Internet Connection Type: Static IP or DHCP clientIPv6 Address: If C1n uses static IP, please give it a fixed IPIPv6 Default Gateway: If C1n uses static IP, please give it a Gateway addressIPv6 DNS Server: If C1n uses static IP, please set DNS IP address

Enable STP Mode : Enable or disable the STP service.

Ethernet/Radio0 (2.4G) : LAN interface or WAN interface, only work in gateway mode. Enable NAT Mode : If NAT Mode is set to "Disabled" then the AP will not perform any network address translations and all IP traffic will be passed from the wireless clients to



the DS (Ethernet) port or wireless bridge (802.11a radio) without any modification. If NAT Mode is set to "Enabled" then the AP will perform network address translations on all traffic being passed from the wireless clients to the DS (Ethernet) port or wireless bridge (802.11a radio). The NAT will translate IP traffic address's between the wireless client subnet and the DS subnet.

LAN IP Address : IP address of local area network. LAN IP Address Mask : IP address mask of local area network.

Ethernet Mode : Auto/manual mode. Ethernet Duplex : AP Ethernet duplex mode (Full/Half).

C1n			
Status Configuration stem Network Wireless	Administration Tools Thin AP	About	
eneral - <u>VLAN</u> - <u>DH</u>	<u> CP - Port Forward - Safe Mode</u>		
	General Net	work Setting	
Network Setting		WAN/LAN Interface Assign	nment
Network Setting:	Switch Mode 🗸	Ethernet:	⊛ wan O lan
Enable IPv6:		Radio0(2.4G):	O WAN () LAN
		Enable NAT Mode:	V
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type:	Static 🗸	LAN IP Address:	192 • 168 • 0 • 1
IPv4 Address:	192 . 168 . 1 . 222	LAN IP Address Mask:	255 • 255 • 255 • 0
IPv4 Subnet Mask:	255 255 255 0		
IPv4 Default Gateway:	192 168 1 1		
IPv4 DNS Server:			
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type:	Static	Ethernet Mode:	auto
STP Setting			
Enable STP Moder			
Enable STT model			
			Submit Help

5.2.2.1.1. Network Setting—Switch Mode

Figure 5-8 Network Mode

In switch mode, C1n works as a switch to deliver data between Ethernet interface and wireless interfaces.

Configuration procedures:

- 1 Select Configuration->Network->General to go to configuration page.
- 2 **Network Setting**: Switch Mode.



- 3 Click **Submit**.
- 4 Click **Save&Apply** to apply changes.

5.2.2.1.2. Network Setting—Gateway Mode

C1n			
Status Configuration System Network Wireless 7	Administration Tools	About	
<mark>General</mark> - <u>VLAN</u> - <u>DH</u>	<u>CP - Port Forward</u> - <u>Safe Mode</u> General Net	work Setting	
Network Setting		WAN/LAN Interface Assign	ment
Network Setting:	Gateway Mode 🗸	Ethernet:	
Enable IPv6:		Radio0(2.4G):	○ WAN
		Enable NAT Mode:	\checkmark
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type:	Static 🗸	LAN IP Address:	192 - 168 - 0 - 1
IPv4 Address:	192 · 168 · 1 · 222	LAN IP Address Mask:	255 - 255 - 255 - 0
IPv4 Subnet Mask:	255 - 255 - 255 - 0		
IPv4 Default Gateway:	192 · 168 · 1 · 1		
IPv4 DNS Server:	2		
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type:	Static 🗸	Ethernet Mode:	auto 🗸
STP Setting			
Enable STP Mode:			
			Submit Help

Figure 5-9 Network Mode

In Gateway mode, the C1n acts as a gateway. The Local IP Address and Local IP Address Mask information must be provided to specify the IP address used to communicate to the wireless client locally (i.e. IP address for 2.4GHz radio interface). The C1n would use another IP address to communicate to the outside network (i.e. IP address for Ethernet interface). If a wireless client sends a packet to the outside network, the packet would send to the C1n with its local IP address in the local network. Then, theC1n will pass this packet to the outside network (Ethernet) using its remote IP address.

Configuration procedures:

- 1 Select Configuration->Network->General to go to configuration page.
- 2 Network Setting: Gateway Mode.
- 3 Click **Submit**.
- 4 Click **Save&Apply** to apply changes.



Warnings: When the Network mode as Gateway mode the VLAN will not be used and it would not be used for the 2.4G Radio.

5.2.2.1.3. WAN Setting (IPv4)

In switch mode and Gateway mode, there are 2 types: Static IP or DHCP client

C1n			
Status Configuration Administration System Network Wireless Thin AP	Tools A	bout	
General - VLAN - DHCP - Port Forwa	rd - <u>Safe Mode</u>		
	General Netv	work Setting	
Network Setting		WAN/LAN Interface Assign	iment
Network Setting: Switch Mode	~	Ethernet:	⊛ wan O lan
Enable IPv6:		Radio0(2.4G):	O WAN 🖲 LAN
		Enable NAT Mode:	
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type: Static	~	LAN IP Address:	192 • 168 • 0 • 1
IPv4 Address: 192 . 168 . 1	- 222	LAN IP Address Mask:	255 • 255 • 255 • 0
IPv4 Subnet Mask: 255 . 255 . 2	55 - 0		
IPv4 Default Gateway: 192 . 168 . 1	- 1		
IPv4 DNS Server:	2		
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type: Static	\checkmark	Ethernet Mode:	auto 🗸
STP Setting			
Enable STP Mode:			
			Submit Help

Figure 5-10 Internet Connection Type

Procedures

- 1 Select Configuration->Network->General
- 2 Internet Connection Type : choose Static or DHCP
- 3 Click **Submit**
- 4 Click **Save&Apply** to apply.

5.2.2.1.4. Static IP (IPv4)

Users need manually configure C1n IP address, subnet mask, gateway address and DNS server IP address:



C1n			
Status Configuration	Administration Tools	About	
System Network Wireless 1	Thin AP		
<u>General</u> - <u>VLAN</u> - <u>DH</u>	<u>CP - Port Forward</u> - <u>Sate Mode</u> General Net	twork Setting	
Network Setting		WAN/I AN Interface Assign	nment
Network Setting:	Switch Mode	Ethernet:	⊛wan Olan
Enable IPv6:		Radio0(2.4G):	O wan ⊚ lan
	_	Enable NAT Mode:	
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type:	Static	LAN IP Address:	192 • 168 • 0 • 1
IPv4 Address:	192 · 168 · 1 · 222	LAN IP Address Mask:	255 • 255 • 255 • 0
IPv4 Subnet Mask:	255 • 255 • 255 • 0		
IPv4 Default Gateway: IPv4 DNS Server:			
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type:	Static	Ethernet Mode:	auto
STP Setting			
Enable STP Mode:			
			Submit Help

Figure 5-11 Static IP

Procedures:

- 1 Select Configuration -> Network -> General
- 2 Internet Connection Type : choose "Static"
- 3 IP Address : input IP address
- 4 **Subnet Mask** : input subnet mask
- 5 Default Gateway Address : input gateway address
- 6 **DNS Server** IP Address: input DNS address
- 7 Click **Submit**
- 8 Click **Save&Apply** to apply

5.2.2.1.5. DHCP (IPv4)

C1n will get IP from DHCP server



C1n	
Status Configuration Administration Tools Administration System Network Wireless Thin AP	About
General - VLAN - DHCP - Port Forward - Safe Mode General Net	work Setting
Network Setting	WAN/LAN Interface Assignment
Network Setting: Switch Mode	Ethernet: WAN OLAN
Enable IPv6:	Radio0(2.4G): O WAN LAN
	Enable NAT Mode: 🗹
WAN Setting(IPv4)	LAN Setting(IPv4)
Internet Connection Type: DHCP	LAN IP Address: 192 . 168 . 0 . 1
	LAN IP Address Mask: 255 . 255 . 255 . 0
WAN Setting(IPv6)	Ethernet Setting
Internet Connection Type: Static	Ethernet Mode: auto
STP Setting	
Enable STP Mode:	
	Submit Help

Figure 5-12 DHCP Client

Procedures:

- 1 Select Configuration->Network->General
- 2 Internet Connection Type : choose DHCP;
- 3 Click **Submit**
- 4 Click **Save&Apply** to apply

1) WAN/LAN Interface Assignment

This option will be available to be edit while the Gateway mode is selected in the network setting.



C1n	
Status Configuration Administration Tools System Network Wireless Thin AP	About
General - VLAN - DHCP - Port Forward - Saf Genera	ie Mode al Network Setting
Network Setting	WAN/LAN Interface Assignment
Network Setting: Gateway Mode	Ethernet: WAN OLAN
Enable IPv6:	Radio0(2.4G): O WAN O LAN
<u> </u>	Enable NAT Mode: 🗹
WAN Setting(IPv4)	LAN Setting(IPv4)
Internet Connection Type: Static	LAN IP Address: 192 . 168 . 0 . 1
IPv4 Address: 192 . 168 . 1 . 222	LAN IP Address Mask: 255 . 255 . 255 . 0
IPv4 Subnet Mask: 255 . 255 . 255 . 0	
IPv4 Default Gateway: 192 . 168 . 1 . 1	
IPv4 DNS Server:	
WAN Setting(IPv6)	Ethernet Setting
Internet Connection Type: Static	Ethernet Mode: auto
STP Setting	
Enable STP Mode:	
	Submit Help

Figure 5-13 WAN/LAN Interface Assignment

Ethernet/Radio (2.4G): LAN interface or WAN interface, only work in gateway mode. Enable NAT Mode: If NAT Mode is set to "Disabled" then the AP will not perform any network address translations and all IP traffic will be passed from the wireless clients to the DS (Ethernet) port or wireless bridge (802.11a radio) without any modification. If NAT Mode is set to "Enabled" then the AP will perform network address translations on all traffic being passed from the wireless clients to the DS (Ethernet) port or wireless bridge (802.11a radio). The NAT will translate IP traffic address's between the wireless client subnet and the DS subnet

2) LAN Setting (IPv4)

LAN IP Address: IP address of local area network. LAN IP Address Mask: IP address mask of local area network

5.2.2.1.6. Ethernet Mode

In switch mode and Gateway mode, there are 2 types: Auto and Manual

1) Auto

C1n Ethernet port duplex and speed will be auto



C1n			
Status Configuration Admini System Network Wireless Thin AP	stration Tools	About	
<u>General</u> - <u>VLAN</u> - <u>DHCP</u> -	Port Forward - Safe Mode General Net	twork Setting	
Network Setting		WAN/LAN Interface Assign	nment
Network Setting: Switch	Mode 🗸	Ethernet:	⊛ wan O lan
Enable IPv6:		Radio0(5G):	O WAN () LAN
		Enable NAT Mode:	\checkmark
WAN Setting(IPv4)		LAN Setting(IPv4)	
Internet Connection Type: Static	~	LAN IP Address:	192 . 168 . 0 . 1
IPv4 Address: 192	168 . 1 . 222	LAN IP Address Mask:	255 . 255 . 255 . 0
IPv4 Subnet Mask: 255	255 . 255 . 0		
IPv4 Default Gateway: 192	168 . 1 . 1		
IPv4 DNS Server:	2		
WAN Setting(IPv6)		Ethernet Setting	
Internet Connection Type: Static	\checkmark	thernet Mode:	auto 🗸
STP Setting			
Enable STP Mode:			
			Submit Help

Figure 5-14 Ethernet Mode

2) Manual

C1n Ethernet port will be manual, and the Ethernet Duplex and Speed will be selected by Full/Half, 100Mbps/10Mbps.

C1n					
Status Configuration System Network Wireless	Administration Thin AP	Tools	About		
<u>General</u> - <u>VLAN</u> - <u>DH</u>	<u>CP - Port For</u>	ward - <u>Safe</u> General	Mode Network	Setting	
Network Setting			WAN/	LAN Interface Assign	iment
Network Setting:	Switch Mode	~		Ethernet:	⊛ wan O lan
Enable IPv6:				Radio0(5G):	O WAN () LAN
				Enable NAT Mode:	
WAN Setting(IPv4)			LANS	Setting(IPv4)	
Internet Connection Type:	Static	~		LAN IP Address:	192 • 168 • 0 • 1
IPv4 Address:	192 . 168 .	1.222		LAN IP Address Mask:	255 . 255 . 255 . 0
IPv4 Subnet Mask:	255 . 255 .	255 - 0			
IPv4 Default Gateway:	192 • 168 • 1 • 1				
IPv4 DNS Server:		1			
WAN Setting(IPv6)			Ether	net Setting	
Internet Connection Type:	Static	\checkmark		Ethernet Mode:	manual 🗸
				Ethernet Duplex:	100Mbps_Full
STP Setting					10Mbps_Half 10Mbps_Full
Enable STP Mode:					100Mbps_Half 100Mbps_Full
					Submit Help





5.2.2.2. VLAN

Select **Configuration** -> **Network** -> **VLAN** to access to VLAN configuration page.

C1n	
Status Configuration Administration Tool System Network Wireless Thin AP	s About
General - VLAN - DHCP - Port Forward -	Safe Mode /LAN Configuration
Enable VLAN: Native VLAN Tagging:	
Native VLAN Tagld: Management VLAN Tagld:	1 (1-4094) 1 (1-4094)
	Submit Help

Figure 5-16 VLAN Setting

By default, C1n VLAN setting is disabled.

Enable VLAN : Enable or Disable VLAN function

Native VLAN Tagging : By default, it is not selected.

Native VLAN TagId : Native VLAN ID

Management VLAN TagId : Management VLAN ID

Procedures:

- 1. Select Configuration->Network->VLAN
- 2. Enable VLAN Enable or disable VLAN
- 3. Native VLAN Tagging : Enable or disable native VLAN tagging
- 4. Native VLAN TagId: input Native VLAN ID
- 5. Management VLAN Tagld: input management VLAN ID
- 6. VLAN TagId : input VLAN ID
- 7. Click **Submit**
- 8. Click **Save&Apply** to apply

5.2.2.3. DHCP Server

Select **Configuration** -> **Network** -> **DHCP Server** to access to DHCP configuration page. And there are two options, Disable and DHCP Server.


Status Configuration Administration Tools About System Network Wireless Thin AP						
<u>General</u> - <u>VLAN</u> -	DHCP - Port Forward	- Safe Mode	tting			
		DHCP Server Se	tting			
	DHCP S	erver: Disable	\sim			
				Subn	it <u>Help</u>	
Status Configuration Administration Tools About						
System Network Wireless	Thin AP					
<u>General</u> - <u>VLAN</u> - <u></u>	OHCP - Port Forward	- Safe Mode				
	DHCP Se	rver: Server Mode	l IIII			
Pool ID	Start IP	End IP	Default Lease Time	Enable	Detail	
1	0.0.0.0	0.0.0.0	86400	No		
2	0.0.0	0.0.0.0	86400	No		
3	0.0.0	0.0.0.0	86400	No		
4	0.0.0.0	0.0.0.0	86400	No	it <u>Help</u>	

Figure 5-17 DHCP Server

If the DHCP Server Mode is set to Server, then the C1n will act as a DHCP server for allocation of IP address to the wireless client associated. The following procedures show the allocation of the IP address, subnets mask, gateway and DNS information. And edit the Pool ID 1.



C1n	
Status Configuration Administration Tools System Network Wireless Thin AP	About
<u>General</u> - <u>VLAN</u> - <u>DHCP</u> - <u>Port Forward</u> -	Safe Mode Idress Pool Setting
Enable Pool:	
Pool ID: Start IP Address:	1 0 - 0 - 0
End IP Address: DNS 1:	0 - 0 - 0 - 0 0 - 0 - 0 - 0
DNS 2: DNS 3:	0 · 0 · 0 · 0 · 0
Default Lease Time:	86400 (60-604800 Seconds)
Back to Pools List	Submit Help

Figure 5-18 DHCP Server

Enable Pool : Enable or Disable Pool

Pool ID : ID of the IP Pool

Start IP Address : Start IP address of the Pool

End IP Address : End IP address of the Pool

DNS1, 2, 3 : DNS IP address of the Pool

Default Lease Time : Time to release the IP address to the clients

5.2.2.4. Port Forwarding

Select **Configuration** -> **Network** -> **Port Forwarding** to access Port forwarding configuration page to set the mapping relation for local IP, Local Port and Global Port.

Please note that Port forwarding service only works at gateway mode.



_	

Status Configuration Administration Tools About								
Sys	tem Network W	ireless Thin AP						
General - VLAN - DHCP - Port Forward - Safe Mode								
Port Forward								
	ID	Local IP	Local Port	Туре	Global Port	Enable	Detail	
	1	0.0.0.0	0	TCP & UDP	0	No	2	
	2	0.0.0.0	0	TCP & UDP	0	No	2	
	3	0.0.0	0	TCP & UDP	0	No	2	
	4	0.0.0.0	0	TCP & UDP	0	No	2	
	5	0.0.0.0	0	TCP & UDP	0	No	2	
	6	0.0.0.0	0	TCP & UDP	0	No	2	
	7	0.0.0.0	0	TCP & UDP	0	No	2	
	8	0.0.0.0	0	TCP & UDP	0	No	2	
	9	0.0.0.0	0	TCP & UDP	0	No	2	
	10	0.0.0.0	0	TCP & UDP	0	No	2	
	11	0.0.0.0	0	TCP & UDP	0	No	2	
	12	0.0.0.0	0	TCP & UDP	0	No	2	
	13	0.0.0.0	0	TCP & UDP	0	No	2	
	14	0.0.0.0	0	TCP & UDP	0	No	2	
	15	0.0.0.0	0	TCP & UDP	0	No	2	
	16	0.0.0.0	0	TCP & UDP	0	No	2	
	17	0.0.0.0	0	TCP & UDP	0	No	2	
	18	0.0.0.0	0	TCP & UDP	0	No	2	
	19	0.0.0.0	0	TCP & UDP	0	No	2	
	20	0.0.0.0	0	TCP & UDP	0	No	2	
							Submit	

Figure 5-19 Port Forwarding-01

C1n	
System Network Wireless Thin AP	Abbut
<u>General</u> - <u>VLAN</u> - <u>DHCP</u> - <u>Port Forward</u> - Po	Safe Mode ort Forward Setting
Enable:	
ID:	1
Local IP Address:	0 - 0 - 0
Local Port:	1
Protocol Type:	TCP & UDP
Giobal Port:	1
Description:	< >>
Back to Port Forward List	Submit Help

Figure 5-20 Port Forwarding-02

Enable Flag: Enabled flag enables or disables the effect of the particular port forwarding entry. All the added firewall entries are saved in system configuration file and only the enabled port forwarding entries will be active.



Local IP Address : This control is used to specify the host which is connected to the internal network and needs to be accessible from the external network.

Local Port : This control is used to specify the TCP/UDP port of the application running on the host which is connected to the internal network. The specified port will be accessible from the external network.

Protocol Type : This control is used to specify the L3 protocol (IP) type which need to be forwarded from the internal network.

Global Port : This control is used to specify the TCP/UDP port of the C1n Wi-Fi Access Point/Bridge based device which will accept and forward the connections from the external network to the host connected to the internal network.

Description : This control is used to specify informal field for the comment of the particular port forwarding entry. Few words about the particular port forwarding entry purpose are saved there usually.

5.2.2.5. Safe Mode

Select Configuration -> Network ->	Safe Mode to access Safe Mode configuration
page.	

C1n							
Status Configuration Administration Tools System Network Wireless Thin AP	s About						
<u>General - VLAN - DHCP - Port Forward</u> -	<u>Safe Mode</u> Safe Mode Setting						
Enable Safe Mode:	Enable Safe Mode:						
Ping Host 1:							
Ping Host 2:							
Ping host s: Ping Interval:	0 - 0 - 0 - 0 10 (3-30s)						
	Submit <u>Help</u>						

Figure 5-21 Safe Mode Setting

Enable Safe Mode : By default, it is disabled.

Ping Host : Three ping hosts can be entered. AP will ping these hosts periodically at the ping interval configured through its current backhaul link. **Ping Interval** : Default setting is 10 seconds.

Procedures:

1 Select Configuration -> Network -> Sate Mode



- 2 **Enable Safe Mode**: Select it to enable safe mode function. By default, it is disabled.
- 3 Ping Host: at least input one host
- 4 **Ping Interval:** input the interval of ping
- 5 Click **Submit**
- 6 Click **Save&Apply** to apply

6. Wireless

Select **Configuration** -> **Wireless** to access wireless network configuration page. There is 1 interfaces, Radio0 (2.4G).

C1n	
Status Configuration Administration Too System Network Wireless Thin AP	ls About
Radio0(2.46) Ra	adio0(2.4G) Setting
General WLAN Advanced WEP	
Enable Radio:	
Radio Mode:	AP
Country Code:	ROW
Wireless Mode:	2.4GHz 130Mbps(802.11ng HT20)
Radio Frequency:	2437MHz(Channel 6)
Transmit Power:	20 🗸
Maximum Clients:	64 (1-64)
Enable Inter-WLAN User Isolation:	

Figure 6-1 2.4G Radio Setting

6.1. 2.4G Radio

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** to change 2.4G radio setting. You can configure the items below: General, WLAN, Advanced, QoS, and WEP.



6.1.1.2.4G General Configuration

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **General** to access 2.4G general configuration page:

C1n	道林
Status Configuration Administration Tool System Network Wireless Thin AP	s About
Radio0(2.4G)	
Ra	dio0(2.4G) Setting
General WLAN Advanced WEP	
Enable Radio:	
Radio Mode:	AP v
Country Code:	ROW
Wireless Mode:	2.4GHz 130Mbps(802.11ng HT20)
Radio Frequency:	2437MHz(Channel 6)
Transmit Power:	20 🗸
Maximum Clients:	64 (1-64)
Enable Inter-WLAN User Isolation:	
	Submit Help

Figure 6-2 2.4G Radio Parameters

Enable Radio: Enable or disable 2.4G radio, by default it is enabled.

Radio Mode: AP or Station or Repeater.

Country Code: ROW is default setting.

Wireless Mode: By default, it is 2.4GHz 300Mbps (802.11ng HT40+). 2.4GHz 130Mbps (802.11ng HT20) is recommended.

Radio Frequency: By default, it is 2437MHz (Channel 6).

Transmit Power: By default, it is 20.

Maximum Clients : By default, it is 64.

Enable Inter-WLAN User Isolation : By default, it is disable.

Disable HT20/HT40 Auto Switch : In HT40 mode, enable or disable auto switch between HT40 and HT20.

Procedures:

Select Configuration->Wireless ->Radio0 (2.4G) ->General

- 1 Enable Radio : Select to enable 2.4G Radio
- 2 Radio Mode: Select to AP mode
- 3 Country Code: Select your country code



- 4 Wireless Mode Select wireless mode
- 5 Transmit Power Set transmit power
- 6 Maximum Clients Set 2.4G maximum clients
- 7 Click Submit
- 8 Click Save&Apply to apply

6.1.1.1. 2.4G WLAN

Select Configuration -> Wireless ->	Radio0 (2.4G) -> WLAN to access to 2.4G radio
WLAN setting page:	

1	n										
Status :m N	Configuration etwork Wireless Th	Adminis in AP	tration	Tools	A	bout					
io0(2.·	<u>4G)</u>			Dadio	0/50) Sotting					
Genera	I WLAN Advance	d Qo	S WEP		0(30) Security					
ILAN (Configuration										
Enable WLAN	SSID	Max Clients	Isolation	VLAN Pass- Through/ID	Auth Mode	Access Traffic Right	\ Uplink C	WLAN (/Downlink ontrol	St Uplink/ Co	ation 'Downlink ntrol	Detai
v 0	Superwifi Network 0	64	✓	Pass through	<u>open</u>	Full Access	0	0	0	0	More
□ 1	Superwifi Network 1	64	✓	1 Pass through	<u>open</u>	Full Access	0	0	0	0	More
□ 2	Superwifi Network 2	64	V	Pass through	<u>open</u>	Full Access	0	0	0	0	More
□з	Superwifi Network 3	64	✓	1 Pass through	<u>open</u>	Full Access	0	0	0	0	More
4	Superwifi Network 4	64	✓	Pass through	<u>open</u>	Full Access	0	0	0	0	More
5	Superwifi Network 5	64	✓	1 Pass through	<u>open</u>	Full Access	0	0	0	0	More
6	Superwifi Network 6	64	✓	Pass through	open	Full Access	0	0	0	0	More
7	Superwifi Network 7	64	✓	1 Pass through	open	Full Access	0	0	0	0	More

Submit Help

Figure 6-3 WLAN Setting

C1n 2.4G radio supports maximum 8 WLANs, and they can be configured separately. **Enable WLAN** : Enable or Disable WLAN from 0-7.

SSID: Support maximum 32 characters, default SSID is : Superwifi Network X, X is WLAN number.

Max Clients : Max. Associated clients



Isolation : Enable or Disable inter-WLAN communication isolation. By default, it is enable.

VLAN Pass-Through/ID : Set VLAN pass through or VLAN TagID this WLAN Access Traffic Right : Access traffic right controls associated stations the ability to permit or deny AP management.

WLAN Uplink/Downlink Control : This option control the uplink and downlink speed for this WLAN.

Station Uplink/Downlink Control: This option control the uplink and downlink speed for the stations which associate to this WLAN.

6.1.1.1.1. WLAN X (0-7) WLAN Setting

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **WLAN** to click "More…" behind the WLAN, and then select **WLAN General**.

C1n	
Status Configuration Administration Too	ols About
System Network Wireless Thin AP	
Radio0(2.4G)	
Radi	oO(2.4G):WLANO Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Enable WLAN	I: 🗹
VLAN Pass Through	κ. 🗌
VLAN Taglo	i: 1 (1-4094)
Hide SSIC):
SSIC): Superwifi Network 0
Enable Intra-WLAN User Isolation	n: 🗹
Allow DHCP Snooping Trusted Por	t: 🗌
Access Traffic Righ	t: Full Access
Max Clients	5: 64 (1-64)
Station Association Requirement	
Value	Range
Minimum signal for association 0	(0-100dB, 0:Disable)
Disconnect Signal Threshold 0	(0-100dB)
Disconnect Packet Threshold 10	(1-256)
Back to WLAN List	Submit Help
Figure 6	-4 WLAN General Setting

Enable WLANEnable or disable this WLAN.VLAN Pass ThroughVLAN pass through for this WLAN.Enable WLANSet VLAN Tagld for this WLAN.



Hide SSID : Hide this SSID or not.

SSID : Set SSID name.

Allow Intra-WLAN User Isolation : Allow or block intra-WLAN user communication. By default, it is enable.

Allow DHCP Snooping Trusted Port : DHCP snooping prevents illegal DHCP servers from offering IP address on untrusted wireless port.

Access Traffic Right : Access traffic right controls associated stations the ability to permit or deny AP management.

Max Clients : Maximum value is 64.

Minimum signal for association: Set the minimum signal value (SNR) for client can associate to this WLAN. The range is 0~100dB, and 0 means disable.

Disconnect Signal Threshold : Set the signal threshold value (SNR) for client to disconnect to this WLAN.

Disconnect Packet Threshold : Set the packet threshold value (SNR) for client to disconnect to this WLAN.

Back to WLAN List : Go back to previous page

Procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to click "More..." behind the WLAN, and then select WLAN General.
- 2. Enable WLAN select to enable this WLAN
- 3. VLAN Pass Through allow or don't allow VLAN pass through
- 4. VLAN TagId Set VLAN ID
- 5. **SSID** set SSID
- 6. Allow Intra-WLAN User Isolation: Allow or block intra-WLAN User communication.
- 7. Max Clients Maximum is 64
- 8. Click **Submit**
- 9. Click **Save&Apply** to apply

6.1.1.1.2. WLAN X (0-7) Security

C1n 2.4GHz supports Open, Shared Key, WPA, WPA-PSK, WPA2, WPA2-PSK, WAPI, WAPI-PSK authentication mode, and Disabled, WEP, AES, TKIP, SMS4 cipher mode. Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **WLAN** to edit "<u>More...</u>" WLAN, and then select **WLAN Security** to access to security configuration page.



C1n	
Status Contiguration Administration Tools System Network Wireless Thin AP	About
Radio0(2.4G)	
Radio	0(2.4G):WLAN0 Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	Open 🗸
Cipher Mode:	Disabled V
Access Control List:	Enabled - Default Allow
ACL Input Method:	● Manual Input O File
Denied MAC Address:	
Beck to WLAN List	Submit Help

Figure 6-5 WLAN Security Setting

1) Open

After selecting Open, you can select Disabled or WEP:

:1n		
Status Configuration Administrati	on Tools Statistics Abou	ut
dio0(2.46)	Padia0(2.4C):WI AND Sotting	
WLAN General WLAN Security QoS	Bandwidth Control	
Authentication Mode:	Open 💌	Changes
Cipher Mode:	Disabled	Submit
Access Control List:	Enabled - Default Allow	SSID:
Denied MAC Address:	<u></u>	Default setting is 'Superwifi Networ X', where 'X' corresponds to the WLAN ID. The SSID can be up to 3 characters long.



Open & No security procedures:

- 1. Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Authentication Mode choose Open
- 3. Cipher Mode choose Disabled
- 4. Click **Submit**
- 5. Click **Save&Apply** to apply

Open – WEP Procedures:



- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Authentication Mode choose Open
- 3. Cipher Mode choose WEP
- 4. **Default WEP Key** set the password
- 5. Click **Submit**
- 6. Click **Save&Apply** to apply

Status Configuration Administration Tools System Network Wireless Thin AP	About
Radio0(2.4G)	0(2.4G):WLAN0 Setting
WLAN General WLAN Security Rogue Station List Authentication Mode:	QoS Bandwidth Control
Cipher Mode: Default WEP Key:	WEP (1-4)
Access Control List: ACL Input Method:	Enabled - Default Allow
Denied MAC Address:	[]*
Back to WLAN List	Submit Help

Figure 6-7 Open & WEP

2) Shared Key

C1n Status Configuration Administration Tools	About
System ; Network ; Wireless ; Thin AP	
Radio0(2.4G)	
Radio	0(2.4G):WLANO Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	Shared 🗸
Cipher Mode:	WEP
Default WEP Key:	1 (1-4)
Access Control List:	Enabled - Default Allow
ACL Input Method:	◉ Manual Input ○ File
Denied MAC Address:	*
Back to WLAN List	Submit Help

Figure 6-8 Shared Key



Shared key Procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Authentication Mode choose Shared
- 3. Cipher Mode choose WEP
- 4. Default WEP Key set the password
- 5. Click **Submit**
- 6. Click **Save&Apply** to apply

3) WPA/WPA2

WPA/WPA2 can be enabled by selecting WPA, WPA2 for Authentication Mode. The AES and TKIP are the two available options for Ciper mode.

C1n	About
System Network Wireless Thin AP	
Radio0(2.4G)	
Radio	(2.4G):WI AND Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	WPA 🗸
Cipher Mode:	
Group Key Undete Interval:	
BADUIS Detry Timeouth	
KADIO3 Keily Tilleout.	200 (0-65535 s)
IP Address Type:	● IPv4 ○ IPv6
RADIUS Server:	0 . 0 . 0
RADIUS Port:	1812
RADIUS Secret:	
	Show Interpretation (1-128)
Secondary RADIUS Server:	
Secondary RADIUS Port:	1812
Secondary RADIUS Secret:	
	Show
Access Control List:	Enabled - Default Allow
ACL Input method:	
Denied MAC Address:	
Back to WLAN List	Submit Help

Figure 6-9 WPA/WPA2



Authentication Mode: WPA or WPA2Cipher Mode: AES and TKIP can be choice.Radius Server: Set Radius server IP addressRadius Port: set Radius server portRadius Secret: Set Radius secretSecondary Radius Server: Set Secondary Radius server IP addressSecondary Radius Port: Set Secondary Radius server portSecondary Radius Secret: Set Secondary Radius server portSecondary Radius Secret: Set Secondary Radius server port

WPA/WPA2 Procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G)-> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Authentication Mode choose WPA or WPA2
- 3. Cipher Mode choose AES+TKIP
- 4. Radius Server set Radius server IP address
- 5. Radius Port set Radius server port
- 6. Radius Secret set Radius password
- 7. Secondary Radius Server set Secondary Radius server IP address (optional)
- 8. Secondary Radius Port set Secondary Radius server port (optional)
- 9. Secondary Radius Secret set Secondary Radius server secret (optional)
- 10. Click **Submit**
- 11. Click **Save&Apply** to apply

4) WPA-PSK/WPA2-PSK

WPA-PSK can be enabled by selecting **WPA-PSK**, **WPA2-PSK** for Authentication Mode. The **AES** and **TKIP** are the two available options for Cipher Mode.



C1n	
Status Configuration Administration Tools System Network Wireless Thin AP	About
Radio0(2.4G)	
Radi	o0(2.4G):WLAN0 Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	WPA-PSK 🗸
Cipher Mode:	AES+TKIP 🗸
Group Key Update Interval:	86400 (s)
Pass Phrase:	Chau
	310W 3 (8-54)
Access Control List:	Enabled - Default Allow
ACL Input Method:	● Manual Input ○ File
Denied MAC Address:	*
Back to WLAN List	Submit Help

Figure 6-10 WPA-PSK/WPA2-PSK

Authentication Mode : WPA or WPA2 Cipher Mode : AES and TKIP can be selected. Group Key Update Interval : By default, it is 3600 Pass Phrase : From 8-64 bits

WPA-PSK/WPA2-PSK Procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Authentication Mode choose WPA-PSK or WPA2-PSK
- 3. Cipher Mode choose AES+TKIP
- 4. Group Key Update Interval: set interval
- 5. Pass Phrase set the password
- 6. Click **Submit**
- 7. Click **Save&Apply** to apply

5) ACL Configurations

C1n supports ACL (Access Control List), it bases on MAC address filter.



C1n					
Status Configuration Administration Tools About System Network Wireless Thin AP					
Radio0(2.4G)					
	Radio	0(2.4G):WLAN0 Setting			
WLAN General WLAN Security	Rogue Station List	QoS Bandwidth Control			
	Authentication Mode:	Open V			
	Cipher Mode:	Disabled			
	Cipner Mode:				
	Access Control List:	Enabled - Default Allow			
	ACL Input Method:	Manual Input O File			
	Denied MAC Address:	*			
Back to WLAN List	Figur	e 6-11 ACL-Disable	Submit Help		
Status Configuration Administration Tools About					
System Network Wireless Thin Af)				
Radio0(2.4G)					
	Radio	0(2.4G):WLAN0 Setting			
WLAN General WLAN Security	Rogue Station List	QoS Bandwidth Control			
	Authentication Mode:	Open 🗸			
	Cipher Mode:	Disabled V			
	Access Control List:	Enabled - Default Deny			
	ACL Input Method:	Manual Input O File			
	Allowed MAC Address				
Back to WLAN List			Submit Help		

Figure 6-12 ACL-Deny MAC Address



C1n Status Configuration Administration Tools	a About
System Network Wireless Thin AP	
Radio0(2.4G)	
Radio	0(2.4G):WLAN0 Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	Open 🗸
Cipher Mode:	Disabled
Access Control List:	Enabled - Default Allow
ACL Input Method:	Manual Input O File
Denied MAC Address:	[] ²
Back to WLAN List	Submit Help

Figure 6-13 ACL-Allow MAC Address

Access Control List : There are 3 modes: Disabled, Enabled-Default Allow, and Enable-Default Deny.

Denied MAC Address : All MAC address in the list will be blocked.

Allowed MAC Address : Only MAC address in the list can access.

ACL Procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select WLAN Security to access to security configuration page
- 2. Access Control List choose the control mode.
- 3. Denied MAC Address input MAC address
- 4. Allowed MAC Address input MAC address
- 5. Click **Submit**
- 6. Click **Save&Apply** to apply





Status Configuration Administration Tools	About
System Network Wireless Thin AP	
Radio0(2.4G)	
Radio0(2.4G):WLANO Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	Open 🗸
Cipher Mode:	Disabled V
Access Control List:	Enabled - Default Deny
ACL Input Method:	Manual Input O File
Allowed MAC Address:	11:22:33:44:55:66
Back to WLAN List	Submit Help



Status Configuration Administration Tools	About
System Network Wireless Thin AP	
Radio0(2.4G)	
Radio	0(2.4G):WLAN0 Setting
WLAN General WLAN Security Rogue Station List	QoS Bandwidth Control
Authentication Mode:	Open 🗸
Cipher Mode:	Disabled
Access Control List:	Enabled - Default Allow
ACL Input Method:	Manual Input O File
Denied MAC Address:	11:22:33:44:55:66
Beck to WLAN List	Submit Help

Figure 6-15 ACL-Add Allowed MAC Address

6.1.1.1.3. WLAN X (0-7) Rogue Station List

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **WLAN** to edit "<u>More...</u>" WLAN, and then select **Rogue Station List** to access to Rogue Station List configuration page

Cln	
Status Configuration Administration Tools About	
System Network Wireless Thin AP Radio0(2.4G)	
Radio0(2.4G):WLAN Setting WLAN General WLAN Security Rogue Station List QoS Bandwidth Control	
Rogue Station: 11:22:33:44:55:66	
Back to WLAN List	Submit Help





Rogue Station : Type in the MAC address of rogue station.

6.1.1.1.4. WLAN X (0-7) QOS

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **WLAN** to edit "<u>More...</u>" WLAN, and then select **QoS** to access to QoS configuration page

C1n						
Status Coveli	auration Adv	ninistration	Tools	About		
System Network Wi	reless Thin AP					
Radio0(2.4G)						
			Radio0(2.	4G):WLAN	0 Setting	
WLAN General V	VLAN Security	Rogue Statio	n List QoS	Bandwidth	Control	
	Enable D	SCP-to-WMM Ma	apping: 🗹			
				NC/TB		
			(0-63,cannot b	e in the same valu	ж)	
BestEff	ort (BE)	24				
Backgro	und(BK)	16				
Vide	o(VI)	40				
Voio	e(VO)	56				
WLAN(Client-side) WMM Parat	neters				
	CWMIN	CWMAX	AIFS (0.1E)	TXOP (0.8107)	ACM	
BestEffort (BE)	7	(0-15)	2	2048		
Background(BK)	7	10	7	0		
Video(VII)	8	4	 7	3008	П	
Voice(VD)	2	8	2	1504		
					_	
Radio(AP-side) W	/MM Paramet	ers				
	CWMIN	CWMAX	AIFS	TXOP	NOACK	
BestEffort (BE)	5	7	1	4096	0	
Background(BK)	5	10	7	0	0	
Video(VI)	3	4	1	3008	0	
Voice(VO)	2	3	1	1504	0	
P + + + 10 + 111 + +						0 4 - Y 1/-
Back to WLAN List						Submit Help



Enable DSCP-to-WMM Mapping : Enable mapping from DSCP to WMM.

DSCP: 4 priorities: BestEffort 、 Background 、 Video 、 Voice

WLAN (Client-side) WMM Parameters : Set CWMIN 、 CWMAX 、 AIFS 、 TXOP value Radio (AP-side) WMM Parameters : List WMM parameters

WLAN X QoS configuration procedures:

 Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..." WLAN, and then select QoS to access to QoS configuration page



- 2. Enable DSCP-to-WMM Mapping (optional)
- 3. **DSCP** choose one of priorities
- 4. WLAN (Client-side) WMM Parameters Set CWMIN, CWMAX, AIFS, TXOP value
- 5. Click **Submit**
- 6. Click **Save&Apply** to apply

6.1.1.1.5. WLAN X (0-7) Bandwidth Control

C1n	1		
Status	Configuration Administration	Tools About	
System Network	Wireless Thin AP		
Radio0(2.4G)			
		Radio0(2.4G):WLAN0 Setting	
WLAN General	WLAN Security Rogue Statio	n List QoS Bandwidth Control	
	Based On WLAN	Based On Station	
	(0-1000000 Kbps, 0: Disable)	(0-1000000 Kbps, 0: Disable)	
Uplink	0	0	
Downlink	0	0	
Back to WLAN Li	ist		Submit Help

Figure 6-18 WLAN Bandwidth Control

Uplink : Uplink bandwidth control, from 0-1000000Kbps **Downlink** : Downlink bandwidth control, from 0-1000000Kbps

WLAN X bandwidth control procedures:

- Select Configuration -> Wireless -> Radio0 (2.4G) -> WLAN to edit "More..."WLAN, and then select Bandwidth Control to access to Bandwidth Control configuration page
- 2. **Uplink** set uplink bandwidth limitation
- 3. **Downlink** set downlink bandwidth limitation
- 4. Click Submit
- 5. Click **Save&Apply** to apply

6.1.1.2. 2.4G Advanced Configuration

Select **Configuration** -> **Wireless** -> **Radio0 (2.4G)** -> **Advanced** to access to Advanced configuration page

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r				•			'n
9	CTU						
s	Status Configuration ystem Network Wireless 1	Administration Thin AP	Tools	About			
1	Radio0(2.4G)						1
			Radio0(2	4G) Setting			
	General WLAN Advan	ced QoS WEP					
	Advanced Setting			Data Rate Setting			
	AMPDU:	Y		Data Rate:	best	V (Mbps)	
	AMPDU Limit:	64	(1-64)	Data Rate Setting:			
	AM SDU:	V		1Mbps:	Enable O Disable		
	Max Tx Streams:	2	¥	2Mbps:	Enable O Disable		
	Max Rx Streame:	2	¥	5.5Mbps:	Enable O Disable		
	Beacon interval:	100		11Mbps:	Enable O Disable		
		(40-3500)		CMbps:	Enable Disable		
	DTIM:	1 (1-255)		SMbpe:	Enable Disable		
1	Fragmentation Threshold:	2348		12Mbpe:	Enable O Disable		1
	•	(256-2346)		18Mbpe:	Enable O Disable		
	Protection Mode:	CTS-only	~	24Mbps:	Enable Disable		
	Protection Rate:	2Mbps	~	36Mbps:	Enable Disable		
	RTS/CTS Threshold:	2348		48Mbps:	Enable Disable		
		(0-2347)		S4Mbpa:	Enable Disable		
	Distance:	2		Multicast Data Rate:	min	V (Mbps)	
	KNR Income	(0-50km)					
	town- strooping.	Disable	~				
	Multicast Traffic:	M					
	Enable Optimization Mode:	2					
	Optimization Mode:	Default	~				
	AirFi Setting	_					
	AirFi Mode:						
	AITFI Level:	Level I	~				
						Submit Help	
				-			1

Figure 6-19 Radio Advanced Setting

C1n provides advanced parameter setting, it would change C1n performance. **Default setting is recommended.**

1) Advance Setting

AMPDU : IEEE802.11n aggregation of MAC protocol data unit.

AMPDU Limit : Maximum number frames in 11n frame aggregation.

AMSDU : IEEE802.11n aggregation of MAC service data unit.

Max Tx/Rx Streams : Maximum number of transmit streams/receive streams in 11n MIMO.

Beacon Interval : Default setting is 100 ms (equivalent to 10 beacons per second). The amount of time between C1n BTS beacon transmissions for each supported BSS,



with each BSS using the same beacon interval. The beacon interval can be configured between 20 and 1000 ms.

DTIM : Default setting is 1. DTIM Interval, always a multiple of the beacon period, determines how often the beacon contains a traffic indicator map (TIM). The TIM alerts clients in sleep state to stay awake long enough to receive their data frames. The value range is from 1 to 255.

Fragmentation Threshold : Default setting is 2346 bytes. The fragmentation threshold, specified in bytes, determines whether data packets will be fragmented and at what size. Frames that are smaller than the specified fragmentation threshold value will not be fragmented. Frames that are larger than the fragmentation threshold will be fragmented into smaller packets and transmitted a piece at a time instead of all at once. The setting must be within the range of 256 to 2346 bytes. It is recommended to use the default value or only minor reductions of this default value.

Protection Mode : Default setting is "None". If set to "CTS-Only" then when protection is turned on and prior to the transmission of an 802.11g frame, the AP sends out a CTS frame (also known as CTS-to-Self) to set the NAV in all the clients so that they will not transmit during the time period of the subsequent data packet from the AP. If set to "RTS-CTS" then the AP sends a RTS frame, waits for the clients CTS frame and then sends the data packet. Setting "RTS-CTS" will allow more robust operation, but at the expense of additional overheads.

RTS/CTS Threshold : If a frame is smaller than the RTS/CTS threshold, it will be sent by the AP without modification. If a frame is larger than the RTS/CTS threshold, then two frames will be sent by the AP. The first frame is an RTS (request to send) frame. After the RTS frame is sent, the AP listens for the corresponding CTS from the target client. Upon reception of the CTS, the AP then sends the data frame. There are trade-offs when considering what value you should set for the RTS/CTS threshold. Smaller values will cause RTS to be sent more often, increasing overheads. However, the more often RTS packets are sent, the sooner the system can recover from collisions. It is recommended to use the default value or only minor reductions of this default value. The value range is from 0 to 2347.

Distance : Target area distance.

IGMP Snooping : AP is a Layer 2 device when it is configured as Switch mode. However, IGMP Snooping implementation on AP is a little bit different than that of standard Layer 2 Switch.

Each Virtual AP (VAP) port is similar to a Layer 2 switch port. With IGMP Snooping enabled in the AP, clients associated to a VAP will only receive multicast packets if there is at least one client joined the multicast group in that VAP. Unlike ordinary IGMP Snooping implementation, where Layer 2 switch converts multicast to unicast and delivers them to devices registered with the multicast group, AP should simply send out the multicast packets from the VAP which has at least one client joined the



multicast group. This is done because the wireless media is a broadcast media. It does not need to be sent multiple times when there are more than one registered clients.

When IGMP Snooping is turned on, multicast packets should be dropped at the VAP exit if there is no client from the VAP who has joined the corresponding multicast group.

The IGMP snooping forwarding table (port and multicast MAC address mapping table) should support aging mechanism to age out the entry which has no multicast traffic for a period of time (120 seconds in C1n).

The default setting of the IGMP Snooping is "Disabled".

Multicast Traffic : Default setting is "**Enabled**". If set to "**Enabled**", the system allows multicast traffic in all VAPs. If set to "**Disabled**", all multicast traffic in all VAPs will be dropped.

Enable Optimization Mode : Set the Optimization mode to optimize the performance depending on different deployment environment.

Optimization Mode : There are three modes, default, optimized for throughput and optimized for capacity.

2) Data Rate Setting

Data Rate : Default setting is "**best**". The transmission data rate that appears on the drop-down

C1n supports "*Multicast Traffic Data Rate Setting*" to transmit all multicast traffic of the 2.4G interface at the configured multicast data rate. The multicast data rate must be set to any of the basic data rates. Default setting is 1 Mbps.

3) AirFi Setting

AirFi Mode : Enable AirFi mode to get enhanced throughput experience.

AirFi Level : There are four options for AirFi level: Level I, Level II, Level III and Custom. AirFi level I is recommended.

Advanced configuration procedures:

- 1. Select Configuration->Wireless->Radio0(2.4G)->Advanced
- 2. **AMPDU** selected by default
- 3. **AMSDU** selected by default
- 4. Data Rate by default it is "best"
- 5. Beacon Interval set beacon interval



- 6. **Distance** set target area distance
- 7. IGMP Snooping choose IGMP snooping mode if need
- 8. Multicast Traffic allow or block multicast traffic
- 9. Multicast Data Rate set multicast data rate
- 10. Click **Submit**
- 11. Click **Save&Apply** to apply

Warnings: The default setting for advance is recommended.

6.1.1.3. 2.4G Wireless QoS Configuration

C1n					
Status Confi	guration Ad	ministration	Tools	About	
System Network Wi	reless Thin A	Ρ			
Radio0(2.4G)					
			Radio	oO(2.4G) S	etting
General WLAN	Advanced	QoS WEP]		
Radio(AP-side) W	/MM Paramet	ers			
	CWMIN	CWMAX	AIFS	ТХОР	NOACK
RostEffort (RE)	(0-15)	(0-15)	(0-15)	(0-8192)	
Background(BK)	5	10	7	0	
Video(VI)	3	4	1	3008	
Voice(VO)	2	3	1	1504	
					_

Figure 6-20 2.4G Radio QoS Parameters

QoS parameters configuration procedures:

- 1. Select Configuration->Wireless->Radio0(2.4G)->QoS
- 2. Set values for this Priority-WMM table
- 3. Click **Submit**
- 4. Click **Save&Apply** to apply



6.1.1.4. 2.4G WEP Key

C1n

Status Configuration Administration Tools	About
System Network Wireless Thin AP	
Radio0(2.4G)	
Ra	dio0(2.4G) Setting
General WLAN Advanced QoS WEP	
Key Entry Method:	○ Ascii Text
WEP Key 1:	Show
WEP Key 2:	Show
WEP Key 3:	Show
WEP Key 4:	Show
	Submit Help

Figure 6-21 2.4G Radio WEP Key

Procedures:

- 1. Select Configuration->Wireless->Radio0(2.4G)->WEP
- 2. Key Entry Method select the key format
- 3. Input key phrase in related WEP Key
- 4. Click **Submit**
- 5. Click **Save&Apply** to apply

6.2. Thin AP Configuration



C1n	
Status Configuration Administration Tools	About
System Network Wireless Thin AP	
Th	in AP Configuration
Enable Thin AP:	
Primary AC Address:	0.0.0
Secondary AC Address:	0.0.0
AP Name:	
AP Location:	
AC debug level:	0
Managed Radio:	Radio0(5G)
	Submit

Figure 6-22 Thin AP Configurations

Thin AP: Enable or disable Thin AP modeAC IP Address: Set static IP address or automatically get AC IP address

AP Name : Thin AP name

AP Location : Thin AP location information

AC debug level : AC debug level, from 0-10

7. Administration Configuration

7.1. Administration General Setting

Please select **Administration**-> User Admin to change login and password. The user account: admin. Default username is : **admin**, default password is : **admin**.



C1n

	Status	Configuration	Administration	Tools	About			
U	lser Admin 🛛 W	eb Admin 🕴 SNMP	Certificate Firr	mware Update	Factory Default	Backup / Restore	License	
				L L	Jser Admin			
			U	serName: adm	in			
			P	accword:			1	
							_	
			Confirm P	assword:]	
								submit
				Eiguro '	7 1 Lloor Ad	dmin		
				rigule i				

Procedures:

- 1. Select Administration -> User Admin,
- 2. Password set password
- 3. Confirm Password input password again to confirm
- 4. Click **Submit**
- 5. Click **Save&Apply** to apply

7.2. Web Admin

1n			
atus Configuration Administra	a tion Tools	About	Customization License
	Web Ad	ministration	
B Setting		System Log Setting	
Auto Refresh Interval: 10	✓ (s)	Enable Syslog	r 🗹
		Server IP Address	. 0 . 0 . 0
		Severity	Informational V
		Severity	Informational

Figure 7-2 WEB Administration

1) WEB Setting

Auto Refresh Interval : Set auto refresh interval

2) System Log Setting



Enable Syslog : Enable or disable Syslog.

Server IP Address : Type in the IP address of syslog server.

Severity : There are eight kinds of severities: Emergency, Alert, Critical, Error, Warning, Notice, Information and Debug.

7.3. SNMP Setting

C1n					
Status Configuratio	on Administration	Tools About	: Backup / Restore Customi	zation License	
		SNMP Configu	ration		
	Enable S	NMP:			
	Read Comm	unity: public			
	Write Comm	Show			
Trap Host ID	Trap Host	Trap Port	Trap Community	Enable	Detail
1	0.0.0.0	162	public	No	2
2	0.0.0.0	162	public	No	2
3	0.0.0.0	162	public	No	2
4	0.0.0.0	162	public	No	2
				Sub	mit <u>Help</u>

Figure 7-3 SNMP Configuration

Enable SNMP: Enable or disable SNMP.

Read Community : SNMP protocol read community; by default it is "public"

Write Community : SNMP protocol write community, by default it is "write"

Show : Show write community phrase

Trap Host ID : SNMP Trap host ID, it supports Max. 4 Trap Host

Trap Host : Trap Host IP address

Trap Port: Trap port, by default it is 162

Trap Community : Trap community information

Enable : Trap Host state (enabled or disabled)

Press 🗹 : To edit Trap Host



C1n	
Status Configuration Administration Tools	s About
User Admin Web Admin SNMP Certificate Firmware Upd	ate : Factory Default : Backup / Restore : Customization : License
	Trap Host Setting
Enable Trap:	
Trap Host ID:	1
Trap Host:	0 - 0 - 0
Trap Port:	162
Trap Community:	public
Back to Trap Host List	Submit Help

Figure 7-4 SNMP Trap Host

7.4. Certificate Management

C1n	
Status Configuration Administration Tools memail Web Admin SNMP Certificate SysLog Firmware	Statistics About
Certifi	icate Management
Http Cert Fi Http Cert File:	Browser No file selected. Upload
Http Key Fi Http Key File:	Browse*** No file selected. Upload
MIICBTCCAW4CCQC9nFXv4ItaNT TjELMAKGA1UEBwvCQ04xDTALBqJ BqNYBANGHEFXU1QvHholMITXMjJ CQYDVQQEwJDTjELMAKGA1UEBw BEFXU1QxDTALBqNYBAMGBEFXU1Q AOGCPTHPmkFrhymk+6EIXTyrXK c+5VSNh13SNc2YSNia1PQaw7j3x quc4dvmtHtclC4qrWuagBlpCzhJ AQEFBQADqYEABohsAZdBeZavLtz BoohJ3d2b8OTKequPRBmyMFAX vCyVqI+ghDkSWXZPaGA9qLI EN BEGIN MIICXqIBAAKBqQDnQj0xz5pBa4d /JzPOKATmyVT9KPuVUjYZd0jbd jvkidPLRfc5maqrnOH55rRTXNQU AcGBAMHqLzxZLe6nKn05/L0dvr OdomIFezN9QMBnNv51LH3BCV3vZ dIaLVB24kaAZocMa41N3R509cQ	ANBgkghk129w0BAQUFADBHNQswCQYDVQQSEvJD NVBAOMBEFXUlQxDTALBgNVBASMBEFXUlQxDTAL A4MDYW4XM2NhcNM1EXMJAINDYW4XM2M9BHNQsw wCQ04xDTALBgNVBAOMBEFXUlQxDTALBgNVBASM Qxq28xDQYXKoILhveNAQEBBQADgY0AMIGJAoGB tP90GJMf07zEbCNyXhFSWKeyXSnM846B0bJVP0 w2QhV0SAB6fhyNKkwnzTGeS0+8J08tF9zm2q JX4071qH7zOCh2kX1jAgNBAAEwDQYJKo2IhveN Z1PJPEVMoeyL011+866XC7WKIqt9eefyXqqaDe zxbpU/k32peCInlDRGBSH28ADvSe1N+11yuLhY LatadUMDW8PChhc9LfNNwwe01b1VP2VM= UD CERTIFICATE I R3A PRIVATE XEY cppFuhCPF08syTf/d51TH908xGwjM14RU1ins1 mATIrYT0G80498ENKIVTtwB=n4c3SpJNJ60xnk uIK1rmoAdaQs4SoeKOyKh+8zg0W2F4owIDAQAB mppq937FNM4dcAT3N92znGFV9XUA2JJ6GUndd AfKezK9ferOwgJRgVG+rAmIFH30Fj9f4fJxnlo HQR40yHSeDmkVTENDMJWHAKEA9CeT5+b5IBs

Figure 7-5 Certificate Management

Procedures:

- 1. Press Administration -> Certificate
- 2. Http Cert File Click "Browse" to choose Http Certificate file, and then click Upload.
- 3. Http Key File click "browse" to choose Http Key file, and then click Upload.



7.5. Firmware Update

Go to **Administration** -> Firmware Update to update the firmware of C1n :

C1	n						
Status	Configuration	Administration	Tools	About			÷
User Admin	Web Admin SN	MP Certificate	Firmware Update	Factory Default	Backup / Restore	Customization	License
			Firm	ware Upda	te		
Flash Fi	rmware						
Upload an F	Firmware image file	to reflash the de	vice:				
Browse	No file selec	ted.					
◉ Keep all	settings O Keep I	Network Address	settings only \bigcirc Fi	ull Factory Reset			
							Upload image
		-					

Figure 7-6 Firmware Upgrade

Caution: Do not interrupt the process of firmware update. Please maintain network connection and power supply. C1n will not function properly if interruption happened during firmware update.

Procedures:

- 1. Go to Administration -> Firmware Update
- 2. Press **Browse**, select the firmware.



		Eirmwara Undata		
Flash Firmware	🗿 Choose File to Upload	rinnware opuate		X
loload an Eirmusan inn	🚱 🔵 📲 🕨 Firmware	- 4	Search Firmware	P
pioad an Firmware image	Organize • New folder		# • 🗇	0
	😤 Favorites	Name	Date modified Typ	pe
Keep configuration file	Desktop Downloads Recent Places	C1N_V1_2_0_700.031310552013	2013/6/28 10:34	BIN Upload imag

Figure 7-7 Select Firmware File

3. Press **Upload image** to begin the update, the **keep configuration files** allow user to keep the current configuration after update.

C1n					
Status Configuration Administratio	n Tools	About			
User Admin Web Admin SNMP Certificate	Firmware Update	Factory Default	Backup / Restore	Customization	License
	Firm	ware Updat	te		
Flash Firmware					
Upload an Firmware image file to reflash the o	levice:				
Browse Cln_1. 2. 4. 701_2013-07-03. b	in				
● Keep all settings ○ Keep Network Addres	s settings only O Fu	ull Factory Reset			Upload image

Figure 7-8 Press Upload Image to start firmware update

4. C1n will run the checksum on the firmware, once it validate the firmware, press proceed to continue,



Status Configurat	ion Administration	Tools St	atistics /	About	
rnal Web Admin St	VMP Certificate SysLo	Firmware Update	Factory Default	Backup / Restore	Customization
		Firmwar	e Update		
lash Firmware					
l ash Firmware le flash image was uploa	ded. Below is the checksur	n and file size listed, o	ompare them with	n the original file to	ensure data integrity.
lash Firmware he flash image was uploa ick "Proceed" below to st • Checksum: bizee@use • Size: 9.31 MB	ded. Below is the checksur art the flash procedure. 19d176a7be99346fd62bfe3	n and file size listed, o	ompare them with	n the original file to	ensure data integrity.

5. You will find following notification:

Configuration Admin SNMP	Administration Certificate SysLog	Tools S Firmware Update	Factory Default	Nbout Backup / Restore	Customization	
		Firmwa	re Update			
nware						
flashing now. IR OFF THE DEVIX nutes until you try	CE! to reconnect. It might	t be necessary to ren	ew the address of	your computer to rea	ach the device again, de	pending o
pgrade start. et: usyslog 5 fig files process monit		re update start	(keep configur	ration files)		
	Configuration Admin SNMP Inware Rashing now. IR OFF THE DEVX utes until you try process monits fig files	Configuration Administration Admin SNMP Certificate System WWARE Reshing now. IR OFF THE DEVICE! We until you try to reconnect. It might prove start ti wayalog info -> Firmwa: fig files	Configuration Administration Tools S Admin SNMP Certificate SysLog Firmware Update Firmware Firmware Firmware Firmware RoeFF THE DEVICEI Number of the processary to ren Signific -> Firmware Signific -> Firmware Signific Si	Configuration Administration Tools Statistics Administration Admin SNMP Certificate SysLog Firmware Update Factory Default Massing now. ROFF THE DEVICEI Might be necessary to renew the address of Operade start recommend. It might be necessary to renew the address of Operade start recommend start (keep configuration of the start of the star	Configuration Administration Tools Statistics About Admin SNMP Certificate SysLog Firmware Update Factory Default Backup / Restore Firmware Update Firmware Update Firmware Update Bashing now. IR OFF THE DEVICEI Image to reconnect. It might be necessary to renew the address of your computer to recorded start ts: usysLog info -> Firmware update start(keep configuration files) fig files process monitor Statistics	Configuration Administration Tools Statistics About Admin SNMP Certificate SysLog Firmware Update Factory Default Backup / Restore Customization Firmware Update Firmware Update Market Update Bashing now. ROFF THE DEVICEI Index until you try to reconnect. It might be necessary to renew the address of your computer to reach the device again, de Oprade start trig files Simple start Simple start

Figure 7-10 Progress of firmware update

- 6. C1n will reboot and load the Main page after firmware update.
- 7. Login with username and password, check the firmware version on the top right corner or go to the "About" page.

Cln	REACE Reboot AP Logest Firmware Version: 12.4.2. Consume and added added Uptime: Point Office And added added added Uptime: Point Office Added add
Status Configuration Administration Tools About	Download Logs 1 Alerma: 0
Product Version	
C1an Super WiFi Base Station	
Product Information Product Name: Clan Software: Version Version: 1.2-A-701 HB: 1.1 Company Information Company Name: Altai Technologies Limited Technical Support: Support:Builtechnologies.com Web Site: http://www.atabechnologies.com	

Figure 7-11 Information after firmware update



7.6. Reset Back to Factory Default via User Interface

Under **Administration** -> **Factory Default**, user can reset the C1n back to Factory Default Configuration.

C1	n				
Status	Configuration	Administration	Tools	About	
User Admin	Web Admin SNMP	Certificate Firm	nware Update	Factory Default	Backup / Restore Customization License
Restore to I	Factory Default		Restore	to Factory	Default
🗹 Keep Net	work Address settin	gs			
All Settings Warning: If are applied	s would be reset to the checkbox is u l.	factory defaults. nchecked, Web an	d Telnet coni	nections with th	e current IP address will be lost once the default settings

Figure 7-12 Restore to Factory Default

Procedures:

- 1. **Reset to Factory Default** : Press this button to reset C1n to Factory Default Configuration.
- 2. Keep Network Address Settings: Select this if user doesn't wish to reset the IP address configuration to factory default. If this option is not selected, the IP address of C1n will be set back to default IP address: 192.168.1.222.
- **3.** Once restore to factory default configuration, user can login to the C1n with the following information:

C1n default IP address : 192.168.1.222

Username: admin

 $\mathsf{Password}: \textbf{admin}$

7.7. Backup/Restore

C1n supports Backup/Restore, Press **Administration** -> **Backup/Restore** to open the configuration interface



	C1	n						
	Status	Configuration	Administration	Tools Firmware Undate	About	Backup / Restore	Customization	licansa
-0					- ractory Delaure	Buckup / Kesture	Custonii28001	
				Admin I	Backup/Res	tore		
	Backup (Configuration	File					
	• Creat	<u>e backup</u>						
	Restore	Configuration	File					
	Uploa Bro	d Backup Archive:	selected					
	510							Restore backup
				7 10 01	D 1 1	D 1		

Figure 7-13 C1n Backup/Restore

Procedures:

- 1. Select Administration->Backup/Restore
- 2. Press Create backup and save it.

C	1n							
Stat	tus Con	figuration	Administration	Tools	About			F
User Ad	Imin Web Ac	dmin SNMF	Certificate	Firmware Update	Factory Default	Backup / Restore	Customization	License
				Admin I	Backup/Res	store		
Bac	kup Config	juration F	ile					
•	Create backu	Þ						
Res	tore Config	guration	File					
•	Upload Backu	p Archive:						
	Browse	No file s	elected.					
								Restore backup



3. To restore configuration, Under **Backup Archive**, press **Browse...**, and select the backup file, press **Restore backup** to start restore.



C1n



Figure 7-15 Select the Backup File

C1n				
Status Configuration Admin semal Web Admin SHMP Certific	stration Tools ate SysLog Firmware Upd	Statistics	About Backup / Restore	Customention
	Admin B	ackup/Restore	9	
Applying changes				
Backup / Restore				
ere you can backup and restore your ro	uter configuration and - if pos	sible - reset the router	r to the default setting	35.
Create backup				
ackup Archive:	Browse***			
	Browse			Restore backu

Figure 7-16 Press "Restore backup" to start restore

8. Tools

C1n provides useful tools, this enable the user to have better radio planning.

8.1. Channel Scan



Through the channel scan tool of C1n , user is able to know the status of 2.4GHz channels around the C1n, this provides useful information to the user on how to configure C1n and radio planning.

Press on **Tools** -> **Channel Scan** to open the channel scan.

C1	n					
Status Channel Scan	Configuration Diagnosis Wated	Administr	ation	Tools		About
Radio0(2.4G)					Cha	anal Ccar
	s	tart Scan:	Start S	200	Chai	nnei Scan
		Duration:	100			
	Sci	an Status:	Ready	1000)ms		

Figure 8-1 Channel Scan

Details of 2.4G channel scan:

Start Scan : Press Start Scan to start channel scan.

Duration : The switching time of the channel scanning interval, setting range is 100-1000ms · default is 100ms.

Scan Status : C1n Base station channel scan status, "Ready" means it can start scan. "Success" means scan finished.

Procedures:

- 1. In the main menu, select Tools -> Channel Scan
- 2. Press Start Scan
- 3. Wait until the scan status change to "**Success**". The scanning will take approximately 20 seconds



Status	Configuration	Admir	estration	1	Tools	-	About								
nnel Sa	an Diagnosis Wate	chdog													
dio0(2	.4G)														
					C	hann	el Sca	in							
		Start Sca	n: Ste	rt Scen											
		Duratio	n: 100	+00.+0005											
	55		-	100-10003	rris.										
	Se	can Statu	Succ	ess											
	3	Scan Tim	e The	lul 4 07-1	19-05 20	13									
	1	Scan Tim	e: Thu	Jul 4 07:1	19:05 20	13									
		Scan Tim	e: Thu	Jul 4 07:1	19:05 20	13									
		Scan Tim	e: Thu	Jul 4 07:1	19:05 20 Chan	13 nnel S	ican R	tesult							
Chann	nel Usage Info	Scan Tim	e: Thu	Jul 4 07:1	19:05 20 Chan	nnel S	Scan R	tesult							
Chann	nel Usage Info	Scan Tim	e: Thu	Jul 4 07:1	19:05 20 Chan	nnel S	Scan R	tesult	1	2.			10.00		
Chann	nel Usage Info	Scan Tim	e: Thu	Jul 4 07:1	19:05 20 Chan	nnel S	GCAN R	tesult 7	8	9	10	11	12	13	1
Chann	nel Usage Info Ore CH Noise Floor	Scan Tim nil 855 1 -98	e: Thu Info 2 -98	Jul 4 07:1	19:05 20 Chan 4 -98	13 mel S 5 -97	6 -96	7 -97	8 -96	9 -96	10 -95	11 -96	12 -95	13 -95	1
Chann N Nois	nel Usage Info CH Noise Floor Noise Floor (CTO)	Scan Tim rail (1551) -98 -98	e: Thu nfo 1 2 -98 -98	3ul 4 07:1 155 Info 3 -98 -98	19:05 20 Chan -98 -98	5 -97 -97	6 -96 -96	7 -97 -97	8 -96 -96	9 -96 -96	10 -95 -95	11 -96 -96	12 -95 -95	13 -95 -95	1 1 1
Chann N Nois Nois	nel Usage Info CH Noise Floor Noise Floor (CT0) Noise Floor (CT1)	Scan Tim nul 853 1 -98 -98 -94	e: Thu nfo 2 -98 -98 -95	Jul 4 07:1 ISS Info 3 -98 -98 -95	19:05 20 Chan -98 -98 -95	5 -97 -95	6 -96 -95	7 -97 -97 -95	8 -96 -94	9 -96 -95	10 -95 -95	11 -96 -96	12 -95 -95 -95	13 -95 -95 -94	1
Chann N Nois Nois Nois	nel Usage Info CH Noise Floor Noise Floor (CT0) Noise Floor (CT1) Noise Floor (EX0)	Scan Tim rail 853 1 -98 -98 -94 0	e: Thu nfo 2 -98 -98 -95 0	Jul 4 07:1 ISS Info -98 -98 -95 0	19:05 20 Chan -98 -98 -95 0	5 -97 -95 0	6 -96 -95 -96	7 -97 -97 -95 0	8 -96 -94 0	9 -96 -95 0	10 -95 -95 -95 0	11 -96 -94 0	12 -95 -95 -95 0	13 -95 -95 -94	1 -5 -5 (
Chann N Nois Nois Nois Nois	el Usage Info CH Noise Floor Noise Floor (CT0) Noise Floor (CT1) Noise Floor (EX0) Noise Floor (EX1)	Scan Tim rail 855 1 -98 -98 -94 0 0	e: Thu nfo 2 -98 -98 -95 0 0 0	Jul 4 07:1 ISS Info -98 -98 -95 0 0 0	19:05 20 Chan -98 -98 -95 0 0	5 -97 -97 -95 0 0	6 -96 -95 -96 -95	7 -97 -97 -95 0	8 -96 -94 0	9 -96 -95 0 0	10 -95 -95 0 0	11 -96 -96 -94 0 0	12 -95 -95 -95 0 0	13 -95 -95 -94 0 0	1 -5 -9 (
Chann N Nois Nois Nois	el Usage Info CH Noise Floor Noise Floor (CT0) Noise Floor (CT0) Noise Floor (EX0) Noise Floor (EX0) Noise Floor (EX1) Busy %	Scan Tim rail 853 1 -98 -94 0 0 51	e: Thu nfo 2 -98 -98 -98 -95 0 0 21	Jul 4 07: ISS Info -98 -98 -98 -98 0 0 39 39	4 -98 -95 0 0 28	13 5 -97 -97 -95 0 0 52	6 -96 -95 -95 -95 -95 89	7 -97 -97 -95 0 0 55	8 -96 -96 -94 0 0 24	9 -96 -95 0 0 25	10 -95 -95 0 0 34	11 -96 -96 -94 0 0 91	12 -95 -95 -95 0 0 21	13 -95 -95 -94 0 0 18	

Figure 8-2 2.4G Channel Usage

From the Channel Scan Result, press on **Channel Usage Info** user will see the condition of 2.4G channel around C1n.Overall BBS Info :

C1n						
Status Configur Durnel Scan Disprovi	ation Administration	Tools	About			
tadio0(2.4G)		Chan	nel Scan			
	Duration: 100 0 (100 Scan Status: Success Scan Time: Thu Jul	1000)ms 4 07:19:05 2013 Channel	Scan Resul	t		
Channel Utage Info.	Overall BSS Info	Infu	Colum	church	Rober (Phone)	cup/da)
leaguer111	Lcfa:68:fd:56:fa	wpa2-psk	aes	149	450000	7
555	00:0b:6b:7e:79:97	open	none	149	130000	46
CITYUSRI	00:23:89:34:92:c0	wpa-psk	tkip	153	54000	23
CITYUSRI-WPA	00:23:89:34:92:c1	wpa	tkip	153	54000	23

Figure 8-3 2.4G BSS Info


In Channel Scan Result, press **Overall BSS Info** for 2.4G BSS Info, it shows information of BSSID around C1n. BSS Info :

C1n									
Char	Status Co vnel Scan Diagn	nfiguration osis Watch	Administration hdog	Tools	About				
Radio0(2.4G) Channel Scan									
Start Scan: Start Scan Duration: 100 @ (100-1000)ms Scan Status: Success Scan Time: Thu Jul 4 07:19:05 2013 Channel Scan Result									
	SSID		BSSID	Auth Mode	Cipher	Channel	Rate(Kbps)	SNR(dB)	
	leaguer111	10	::fa:68:fd:56:fa	wpa2-psk	aes	149	450000	7	
	555	00:	:0b:6b:7e:79:97	open	none	149	130000	46	
	CITYUSRI	00:	:23:89:34:92:c0	wpa-psk	tkip	153	54000	23	
	CITYUSRI-WP	PA 00:	:23:89:34:92:c1	wpa	tkip	153	54000	23	
	CITYUCB	00:	:23:89:34:92:c2	wpa-psk	tkip	153	54000	24	
Figure 8-4 BSS information									

In Channel Scan Result, press **BSS Info** and it shows information of BSSID from C1n.

Base on C1n 2.4G Channel Scan Result, user can select 2.4G channel with lower noise floor, less busy and less SSID as the channel for C1n's SSID.

Caution: During the process of channel scan, all WiFi clients associated to C1n via 2.4G channel will be drop for approximately 15-20 seconds.

8.2. Diagnosis

Press **Tools** -> **Diagnosis** to start the diagnosis.



8.2.1. Ping to Host

Press Tools -> Diagnosis -> Ping to start the ping.

C1n	
Status Configuration Administration Tools Channel Scan Diagnosis Watchdog	About
Ping - Traceroute	Ding Test
Ping IP Address/Host Name:	
Packet Count:	 (example www.domain.com) (1-10000)
Packet Size:	(0-65500Bytes)
Output	Start Stop
No results returned	~

Figure 8-5 Ping to Host

Ping IP Address/Host Name : Type in the target IP address or target Host name.

Packet Count: The range for Packet count is 1-10000.

Packet Size: Type in the packet size for ping.

8.2.2. Traceroute to Host

Press Tools -> Diagnosis -> Traceroute to start the trace.



C1n	
Status Configuration Administration Tools Channel Scan Diagnosis Watchdog	About
<u>Ping</u> - <u>Traceroute</u>	Traceroute Test
Destination IP Address/Host Name:	(example www.domain.com)
Enable Resolve IP addresses:	
Timeout:	3 (1-100s)
Pings Per TTL:	3 (1-100)
Maximum TTL:	30 (1-100)
Output	Start Stop
No results returned	^
	~

Figure 8-6 Traceroute

Destination IP Address/Host Name : Type in the target IP address or target Host name. **Enable Resolve IP Address** : Enable or disable IP address resolve.

Timeout : Type in the timeout value.

Ping per TTL : Type in the TTL value for ping.

Maximum TTL : Type in the maximum TTL value for ping.

8.3. Watchdog

Press **Tools** -> **Watchdog** to start the watchdog. Watchdog is for periodic reboot setting and periodic upload log setting.

Periodic reboot function can make the unit reboot in the specified time while it is enabled.

Periodic upload log function can make the unit upload the log to the ftp server in the specified time while it is enabled.



C1n								
Status Configuration Administration Tools Channel Scan Diagnosis Watchdog	a About							
Watchdog								
Periodic Reboot: Random Delay: Schedule Mode:	Sun Mon Tues Wed Thur Get Get Option Ved							
Periodic Mode:	Image: Construction Image: Construction 0 (Days) Image: One of the original state of the original s							
Periodic Upload Log:	V							
Random Delay:								
FTP Server User Name:								
FTP Server Password:	Show							
FTP Server IP Address:	0 - 0 - 0							
FTP Server Port:	21							
Schedule Mode:	□ Sun □ Mon □ Tues □ Wed □ Thur □ Fri □ Sat 00:00 ▼							
Periodic Mode:	(Days) Image: Organ strength of the strengt of the strength of the strength of the streng of the st							
	Submit Help							
Figure 8-7	Watchdog Setting							

9. C1n Information

The "About" in the web layout shows product information

	C1r	ו									
	Status	Configuration	Administration	Tools		About					
P	roduct Version										
				C1n Su	per V	ViFi Base	e Station	1			
	Product Information Product Name: C1n										
	Software Version Version: 1.2.4.701 MIB: 1.1										
	<u>Company Information</u> Company Name: Altai Technologies Limited Technical Support: support@altaitechnologies.com Web Site: http://www.altaitechnologies.com										

Figure 9-1 C1n"About"



Details of C1n Information :

Production Information: This shows the name, code, serial number, product mode,

supported power supply and etc.

Software Version: Display the version of firmware and MIB.

Company Information : Display information of Altai