



Cisco Support Community Expert series Webcast

How to use WLAN Controller Configuration Analyzer (WLCCA)

Javier Contreras

Senior Tech Lead, CCIE Security & Wireless #10749

April 17th 2018



News & Upcoming events



Ask the Expert following the Webcast

Now through Friday April 17th 2018

With Javier Contreras

http://bit.ly/ATE_WLCCA-WCAE



Javier Contreras
Senior Tech Lead



Cisco Support Community – Ask the Expert

NX-OS Troubleshooting tools & Methodology

Till Friday
27th, April 2018

With
Aleksandr & Nikoleta



The banner features a blue header with a photo of Aleksandr and Nikoleta, the session hosts, and the text "Ask the Expert". Below this, the main title "Ask all your doubts about NX-OS Troubleshooting Tools & Methodology" is displayed over a background image of people in a professional setting. The bottom of the banner includes the Cisco Support Community logo, the dates "APR 16- APR 27, 2018", the note "-Event open only to Customers & Partners-", and a "Join the discussion!" button.

Ask the Expert

Ask all your doubts about
NX-OS Troubleshooting Tools & Methodology

Aleksandr & Nikoleta

 SUPPORT
COMMUNITY

APR 16- APR 27, 2018
-Event open only to Customers & Partners-

Join the discussion!

http://bit.ly/ATE-NX-OS_april2018

Cisco Support Community – Spanish Webcast

Meet Cisco Start and Take Advantage of the Tools to Increase Sales

On Thursday
26th, April 2018

With
Jorge Ramirez

<http://bit.ly/SPwebcast-CiscoStart>

**Webcast
en Vivo**

Participe en este evento interactivo
Conoce Cisco Start y aprovecha las
herramientas para vender más



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DE SOPORTE

JUEVES 26 DE FEBRERO 2018
10hrs de la Ciudad de México (UTC-5)

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Cisco Designated VIPs

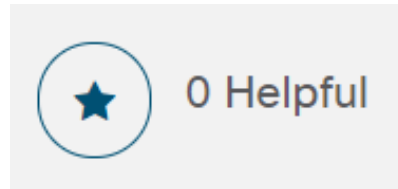


The Cisco Designated VIP program recognizes the top external individual contributors in Cisco's online communities, including the Cisco Support Community (CSC), Cisco Learning Network (CLN) and the Cisco Developers Network (CDN). Cisco Designated VIPs are recognized by their peers for their expertise and tireless contributions, and their abundant participation is vital to community success. With this program, Cisco formally recognizes the positive, valuable influence our top individual members exert on the communities overall. [FAQs](#)

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Cisco Support community Experts



Javier Contreras
CUSTOMER SUPPORT ENGINEER
CCIE Wireless & Security #10749

Question Manager



Luis Alvarez
WIRELESS ARCHITECT

Thank You For
Joining Us Today!



Download Today's Presentation
http://bit.ly/WLCCA-WCAE_slides

Submit Your Questions Now!

Use the **Q&A** panel to submit your questions and the panel of experts will respond.

They will be answered eventually



Please take a moment to complete the survey at the end of the webcast



How to use WLAN Controller Config Analyzer (WLCCA - WCAE)

Javier Contreras
Senior Tech Lead
04/17/2018

Agenda

- What is the WLC Config Analyzer
- Features
- RF Analysis
- What is the Wireless Config Analyzer Express
- How to use
- Displaying Results

Polling Question 1

Did you know WLCCA before this session?

- A. Yes
- B. No

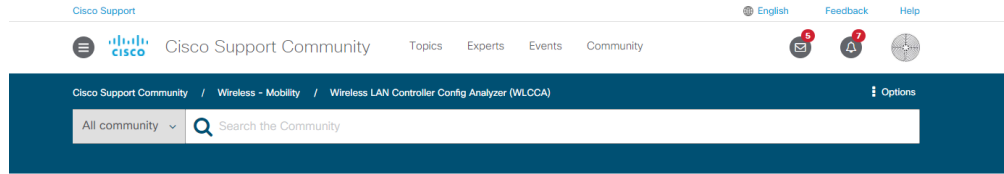
What is the WLC Config Analyzer?

What is the WLCCA?

- It is a support tool
- Main Objective: Save time processing WLC configurations
- Secondary Objective: RF Analysis
- Secondary Objective: Audit config against a rule set
- It is not a monitoring or management tool
- It is offline to the WLC
- Not TAC supported
- Problems/bugs: wlc-conf-app-dev@cisco.com
- General Discussion: wlc-conf-app@external.cisco.com





Where?

- <https://supportforums.cisco.com/t5/wireless-lan-controller-config/bd-p/12168506-discussions-wlc-config-analyzer>



WLCCA download link: <https://upload.cisco.com/cgi-bin/swc/filexg/main.cgi?CONTYPES=wlc-conf-app-dev>
To request access to WLCCA tool, please send an e-mail to wlc-conf-app-dev@cisco.com. Important: include your Cisco.com username. This forum is only for WLCCA posts, please use different forum for WLC/AP/PI questions, thanks!

Wireless LAN Controller Config Analyzer (WLCCA)

	Replies	Helpful Votes	Views
 New WLCCA 4.3.7 by Javier Contreras on 02-16-2017 02:29 AM · Latest post on 01-07-2018 10:31 AM by Miguel_Velez11	13	5	2388
 Flex AP WLAN-VLAN mappings by nikhilcherian on 10-23-2017 09:20 PM · Latest post on 12-26-2017 12:03 AM by Zain Khan	1	0	869
 How to create sh run-config and copy to... by Kyle Stewart on 10-26-2017 01:49 PM · Latest post on 12-25-2017 11:59 PM by Zain Khan	3	0	710
 Capturing "Show Run-config" on a 5520 by pwwiddicombe on 10-23-2017 12:58 PM · Latest post	9	0	1391

Create

- + Discussion
- + Event
- + Blog
- + Video
- + Document

Related Content

- Discussions
- Blogs
- Documents
- Events
- Videos

What is needed - AireOS

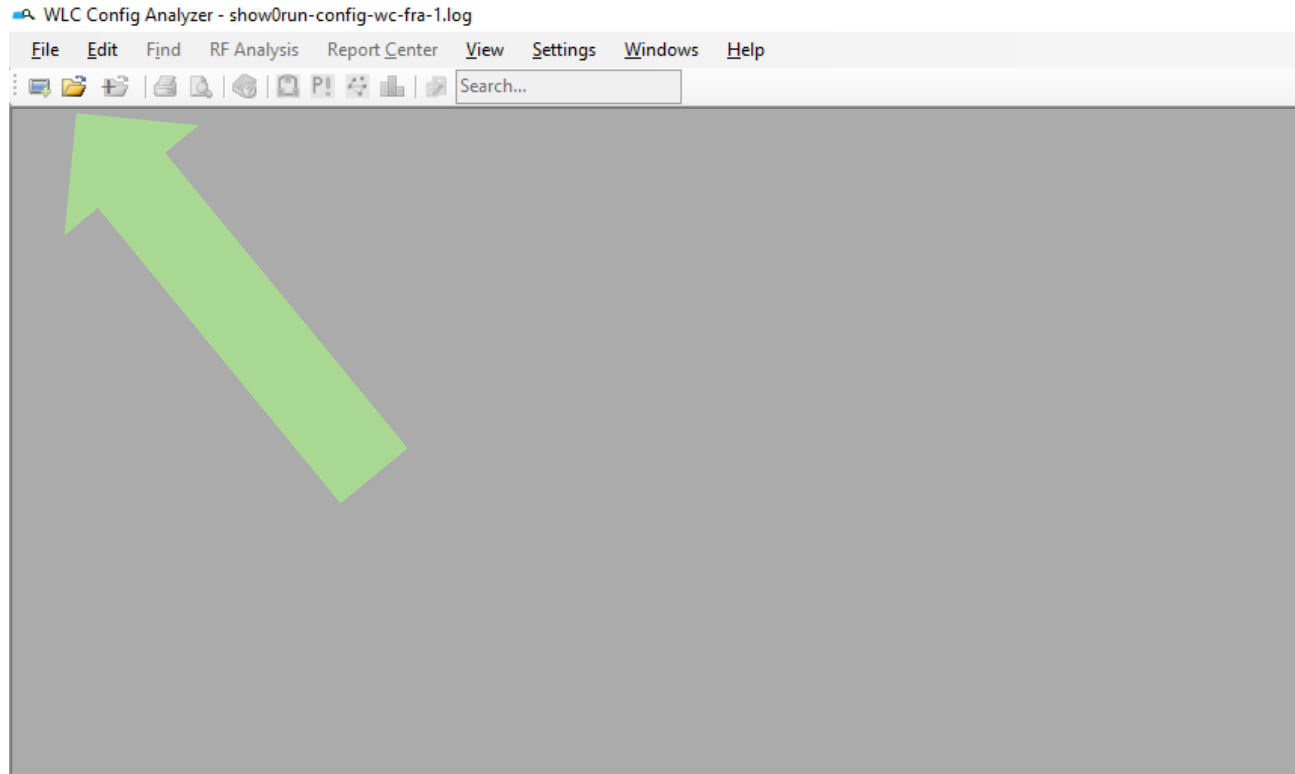
- Full config file: Sh run-config
- It does not work with TFTP config backup, or sh tech
- “sh run-config” is like a “picture ” of the current config state and RF information
- Best way to get it: using SSH with paging disabled
- Alternate: using TFTP with “transfer upload data run-conf”

What is needed – IOS-XE

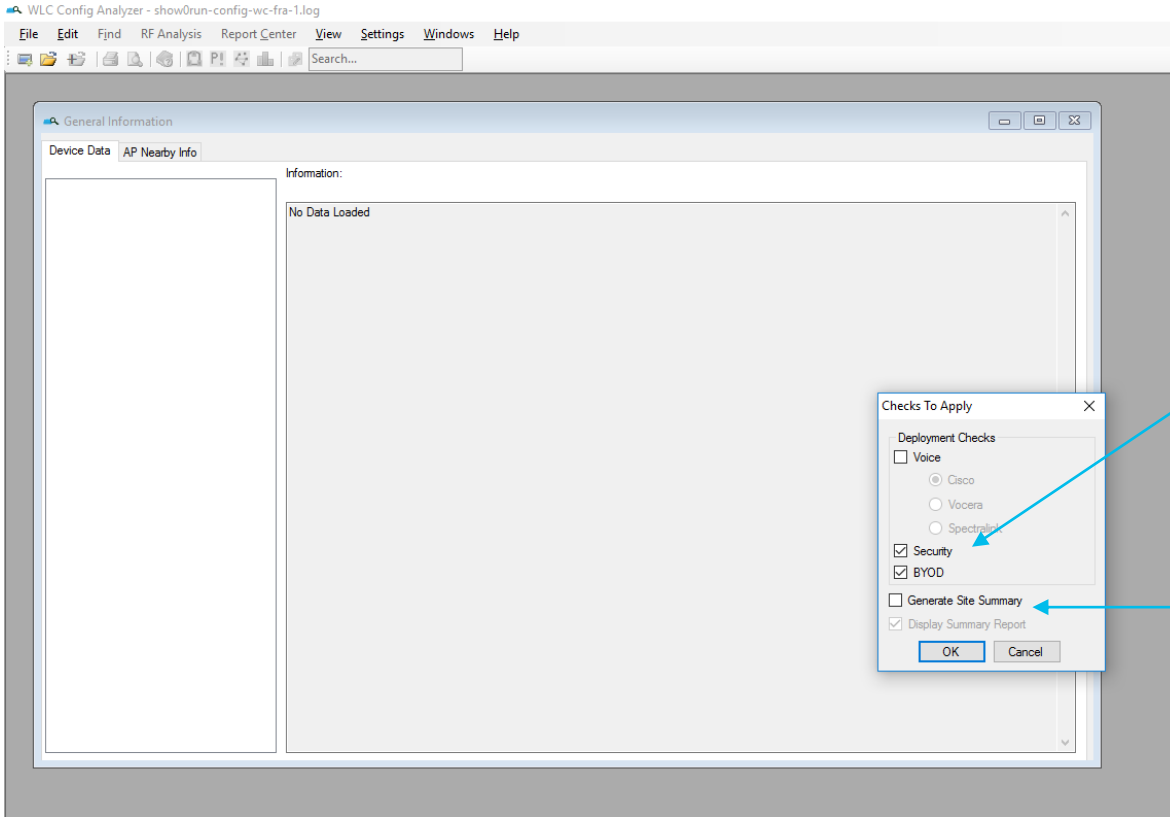
- 3.x versions
 - Sh tech
 - Sh tech wireless
- 16.x version
 - Sh tech wireless

How to use it

Load files



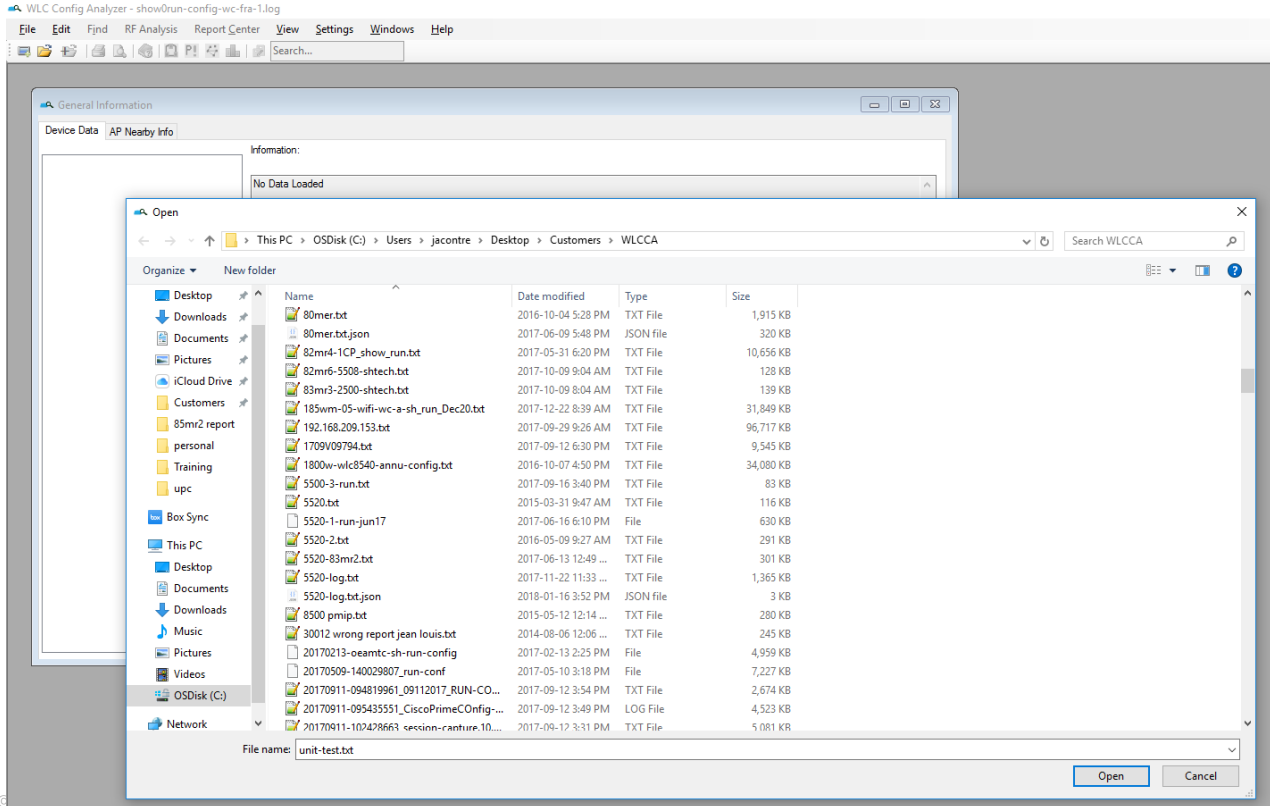
Load Files



Choose audit type

Enable/Disable final report

Load Files



Done!

WLC Config Analyzer - unit-test.bt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 2 File: C:\Users\jacontre\Desktop\Customers\WLCCA\unit-test.bt

Device Data AP Nearby Info Global Messages AP Messages Parsing Errors

Controllers
Access Points
RF Stats
RF Health

Controller Information:wlc.customer.net

Total Messages	
Best Practices:	59
Informational:	85
Config Errors:	33
Parsing Errors:	2

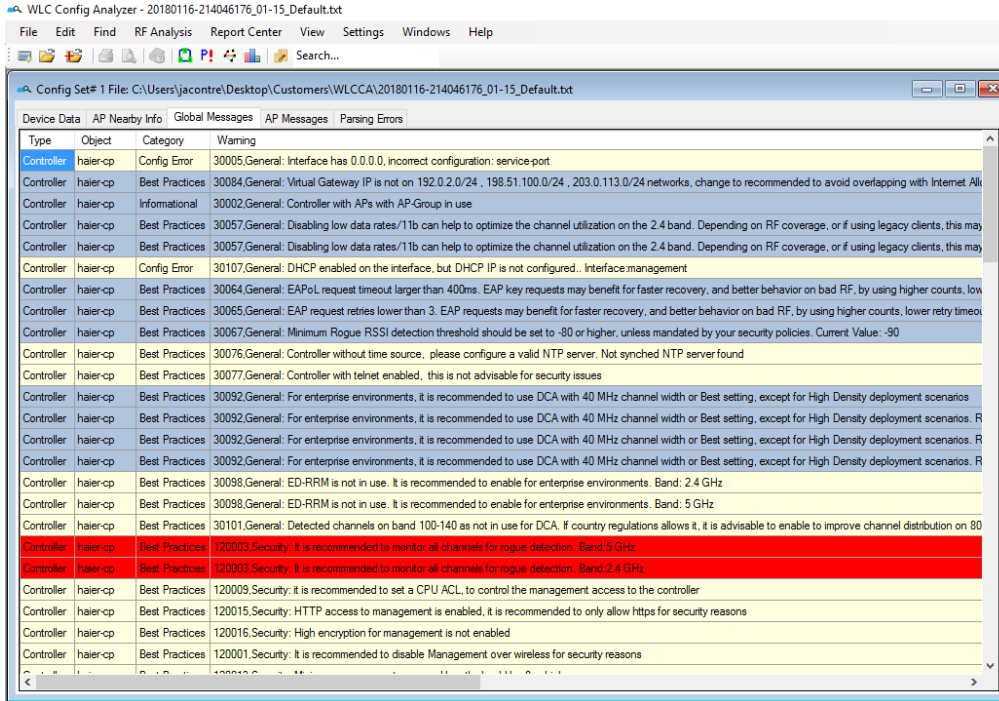
Global Info

Controller:	wlc.customer.net
Temperature:	67
Version:	8.3.130.8
Active Clients	11
FUS Version:	PIC 16.0
Model:	AIR-CT5504-K9
Uptime:	2 days 5 hrs 30 mins 49 secs
IPv4 Management Address:	192.168.10.28
IPv6 Management Address:	2001:bbb:aaaa:1310::28
Time Sync:	Enabled
Total Memory:	692MB
Free Memory:	243MB 35%
Time Sync:	Enabled
At least one WLAN has AAA Overided enabled	
Multicast:	Enabled
Multicast Mode:	Multicast forwarding
Multicast Address:	224.0.0.251

Features

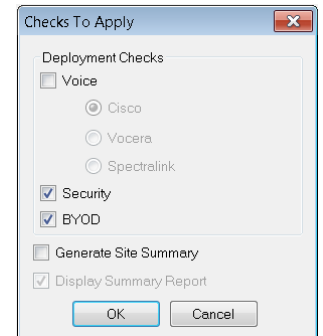
Features

- Configuration Checks



Configuration Checks

- More than 340 checks
- Based on TAC and WNG escalation cases experience
- Some are obvious, some are hard to catch
- They are not “blind change this” scenarios, always check context
- Three levels: Informational, Warning, Critical
- It can compare details across multiple WLCs (multicast, mobility, wlans, RRM)



Features

- Config Visualization

WLC Config Analyzer - 20180116-214046176_01-15_Default.txt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 1 File: C:\Users\jacontre\Desktop\Customers\WLCCA\20180116-214046176_01-15_Default.txt

Device Data AP Nearby Info Global Messages AP Messages Parsing Errors

Controllers

- haier-cp
 - Interfaces
 - Ports
 - AP Groups
 - WLANs
 - RF Profiles
 - Mobility Peers
 - Radius Servers
 - DHCP Servers
 - RF Summary
 - Webauth Profiles
 - Redundancy
 - Rogue Policies
 - Best Practices
 - mDNS
 - Hotspot 2.0
 - NTP Servers
 - Health Data
- Access Points
- RF Stats
- RF Health

RF Health Summary. Controller:haier-cp

Clients Associated	
2.4 Band:	544
5 Band:	852
Total APs:	130
RF Health 2.4 Band:	
Low Health Count	52
Medium Health Count	1
High Health Count	77
Average Health Count	60
RF Health 5.0 Band:	
Low Health Count	8
Medium Health Count	14
High Health Count	108
Average Health Count	87
Power Level Distribution 2.4 Band:	
Number of 2.4 Band Enabled Radios with Power Level 1:	7 (13.21%)
Number of 2.4 Band Enabled Radios with Power Level 2:	5 (9.43%)
Number of 2.4 Band Enabled Radios with Power Level 3:	16 (30.19%)
Number of 2.4 Band Enabled Radios with Power Level 4:	14 (26.42%)
Number of 2.4 Band Enabled Radios with Power Level 5:	10 (18.87%)
Number of 2.4 Band Enabled Radios with Power Level 6:	1 (1.89%)
Power Level Distribution 5 Band:	
Number of 5.0 Band Enabled Radios with Power Level 1:	29 (53.70%)
Number of 5.0 Band Enabled Radios with Power Level 2:	13 (24.07%)

Features

- AP data

WLC Config Analyzer - 20180116-214046176_01-15_Default.txt

File Edit Find RF Analysis Report Center View Settings Windows Help

Search...

Config Set# 1 File: C:\Users\jacontre\Desktop\Customers\WLCCA\20180116-214046176_01-15_Default.txt

Device Data AP Nearby Info Global Messages AP Messages Parsing Errors

Controllers

- Access Points
 - Configuration
 - RF Summary
 - WLANs per Slot
 - CleanAir Persistent Devices
 - RF Stats
 - RF Health

AP Configuration

ID	Name	Model	Admin Status	Radio Mac	Eth Mac	Serial	Approx Cert Expiration	Controller	Mode	Cert Type	AP Group	Flex Group
0	CP_9F_N_901D	AIR-AP2802I-H-K9	Enabled	50:0f:80:53:a9:e0	70:d7:2f:6d:78:88	FGL2127A62R	2027 June	haier-cp	Local	MIC	CP_L6_L9	
1	CP_9F_N_901A	AIR-AP2802I-H-K9	Enabled	50:0f:80:52:29:20	00:a3:8e:90:dc:76	FGL2127A61R	2027 June	haier-cp	Local	MIC	CP_L6_L9	
2	CP_7F_B_703E	AIR-AP2802I-H-K9	Enabled	50:0f:80:52:28:e0	00:a3:8e:90:dc:72	FGL2127A62J	2027 June	haier-cp	Local	MIC	CP_L6_L9	
3	CP_7F_B_703B	AIR-AP2802I-H-K9	Enabled	50:0f:80:1c:aba:a0	00:a3:8e:90:da:5e	FGL2127A62F	2027 June	haier-cp	Local	MIC	CP_L6_L9	
4	CP_7F_B_703C	AIR-AP2802I-H-K9	Enabled	50:0f:80:52:29:80	00:a3:8e:90:dc:7c	FGL2127A62L	2027 June	haier-cp	Local	MIC	CP_L6_L9	
5	CP_8F_B_803C	AIR-AP2802I-H-K9	Enabled	50:0f:80:53:ac:20	70:d7:2f:6d:78:ac	FGL2127A62T	2027 June	haier-cp	Local	MIC	CP_L6_L9	
6	CP_1F_B_101A	AIR-AP2802I-H-K9	Enabled	50:0f:80:13:0a:c0	70:d7:2f:8e:1a:2c	FGL2127A62G	2027 June	haier-cp	Local	MIC	CP_L1_L5	
7	CP_7F_Z_705B	AIR-AP2802I-H-K9	Enabled	40:ce:24:89:fb:60	a0:23:9f:65:1b:52	FGL2127A62U	2027 June	haier-cp	Local	MIC	CP_L6_L9	
8	CP_5F_N_501C	AIR-AP2802I-H-K9	Enabled	50:0f:80:05:19:00	40:ce:24:a4:64:28	FGL2127A61W	2027 June	haier-cp	Local	MIC	CP_L1_L5	
9	CP_5F_Z_501B	AIR-AP2802I-H-K9	Enabled	50:0f:80:51:b3:20	18:80:90:e5:d4:f2	FGL2127A62H	2027 June	haier-cp	Local	MIC	CP_L1_L5	
10	CP_5F_Z_505B	AIR-AP2802I-H-K9	Enabled	50:0f:80:51:9a:40	18:80:90:e6:d3:64	FGL2127A61Q	2027 June	haier-cp	Local	MIC	CP_L1_L5	
11	CP_5F_B_502A	AIR-AP2802I-H-K9	Enabled	50:0f:80:56:f1:e0	a0:23:9f:67:15:d0	FGL2127A61F	2027 June	haier-cp	Local	MIC	CP_L1_L5	
12	CP_3F_N_303B	AIR-AP2802I-H-K9	Enabled	50:0f:80:34:66:80	40:ce:24:a4:74:a0	FGL2127A62B	2027 June	haier-cp	Local	MIC	CP_L1_L5	
13	CP_3F_B_303C	AIR-AP2802I-H-K9	Enabled	50:0f:80:35:5e:00	a0:23:9f:67:13:f2	FGL2127A61U	2027 June	haier-cp	Local	MIC	CP_L1_L5	
14	CP_2F_AP01	AIR-CAP2602I-C-K9	Enabled	ec:e1:a9:8a:09:30	4c:00:82:16:55:c2	FGL1725X37J	2023 June	haier-cp	Local	MIC	CP_L1_L5	
15	CP_2F_AP02	AIR-CAP2602I-C-K9	Enabled	ec:e1:a9:78:e0:80	4c:00:82:27:d0:27	FGL1725X62Z	2023 June	haier-cp	Local	MIC	CP_L1_L5	
16	CP_1F_Z_101_Zoulang_1	AIR-CAP2602I-C-K9	Enabled	0c:68:03:e5:da:80	4c:00:82:16:52:d5	FGL1725X36W	2023 June	haier-cp	Local	MIC	CP_Zhong101	
17	CP_1F_B_103B_AP01	AIR-CAP2602I-C-K9	Enabled	ec:e1:a9:78:e6:30	4c:00:82:27:d0:6a	FGL1725X36K	2023 June	haier-cp	Local	MIC	CP_L1_L5	
18	CP_1F_Z_101_Zoulang_2	AIR-CAP2602I-C-K9	Enabled	ec:e1:a9:96:11:20	f8:72:ea:d7:4e:e3	FGL1725X37A	2023 June	haier-cp	Local	MIC	CP_Zhong101	
19	CP_1F_Nan_Xuxiao	AIR-CAP2602I-C-K9	Enabled	0c:68:03:eb:f6:f0	f8:72:ea:d7:4d:45	FGL1725X36X	2023 June	haier-cp	Local	MIC	CP_L1_L5	
20	CP_1F_B_105_Zoulang_1	AIR-CAP2602I-C-K9	Enabled	0c:68:03:eb:f4:f0	f8:72:ea:d7:4d:24	FGL1725X37I	2023 June	haier-cp	Local	MIC	CP_Zhong101	
21	CP_1F_Z_118_AP01	AIR-CAP3702I-H-K9	Enabled	74:a0:2f:ce:cb:60	74:a0:2f:b1:48:f8	FGL1849X0H8	2024 December	haier-cp	Local	MIC	CP_Zhong118	

Features

- Compare different config sets

The screenshot shows the WLC Config Analyzer interface. The main window displays 'Config Set# 1' with a file path: C:\Users\jacontre.CISCO\Desktop\Customers\WLCCA\up\voltan-run-config.txt. A smaller window, titled 'Config Set# 2', is overlaid on top, showing a comparison of configuration parameters for controller 5500-3. The parameters are listed in a table format.

Global Info	
Controller:	5500-3
Temperature:	33
Version:	7.3.101.0
Model:	AIR-CT5508-K9
Uptime:	0 days 0 hrs 20 mins 5 secs
At least one WLAN has AAA Overrided enabled	
Multicast:	Enabled
Multicast Mode:	Unicast forwarding
LWAPP Transport Mode:	Layer 3
IP Address check:	Enabled
APs	
Max APs supported:	25
Number of APs in Local Mode:	1
Groups	
Mobility Group:	wism
RF Group:	group1
Wireless	
802.11b status:	Enabled

RF Analysis

- Nearby Data

WLC Config Analyzer - 20180116-214046176_01-15_Default.bt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 1 File: C:\Users\jacentre\Desktop\Customers\WLC\CA\20180116-214046176_01-15_Default.bt

Device Data | AP Nearby Info | Global Messages | AP Messages | Parsing Errors

RX Neighbors

- CP_1F_B_101A
- Band 2.4 GHz
- Band 5 GHz
- CP_1F_B_102
- CP_1F_B_103B
- CP_1F_B_103B_AP01
- CP_1F_B_105_Zoulang_1
- CP_1F_B_105_Zoulang_2
- CP_1F_Nan_Xuxiqu
- CP_1F_Z_101_Zoulang_1
- CP_1F_Z_101_Zoulang_2
- CP_1F_Z_118_AP01
- CP_1F_Z_118_AP02
- CP_2F_AP01
- CP_2F_AP02
- CP_2F_B_201A
- CP_2F_B_202A
- CP_2F_B_203B_AP1
- CP_2F_B_203E_AP1
- CP_2F_B_205
- CP_2F_B_206
- CP_2F_B_206A_AP1
- CP_2F_N_201A
- CP_2F_N_202A
- CP_2F_N_202C_AP1
- CP_2F_N_202C_AP2
- CP_2F_N_203
- CP_2F_N_205A
- CP_2F_N_205B
- CP_2F_Z_201
- CP_2F_Z_202B
- CP_3F_B_301B
- CP_3F_B_302A_AP1
- CP_3F_B_302B
- CP_3F_B_303A_AP1

Information: Neighbors received by selected AP

AP: CP_1F_B_101A
Mode: Local
Controller: haier-cp
Ethernet MAC: 70:d7:2f:9e:1a:2c
Radio MAC: 50:0f:80:13:0a:c0
RF Index 2.4 GHz: 1455 RF Index 5.0 GHz: 0

Total Nearby Aps (unfiltered): 49

Filter by: Heard Power > -90 Displayed Neighbors: 41 Current AP: 2.4 Channel: 1 5.0 Channel: 157

Neighbor Name	Radio Mac	RX Slot	Heard Channel	Heard Power	Compensated Heard Power	RF Health	TX Slot	Configured Channel	Conf TX Power Level	Configured Mode
CP_2F_B_201A	0c:68:03:e5:13:10	0	1	-67	-73	0	0	1*	3*	Local
Not known	50:0f:80:35:05:a0	0	1	-76	0	0	0	0	N/A	N/A
CP_3F_B_303C	50:0f:80:35:5e:00	0	11	-76	-90	0	0	11	6*	Local
Not known	50:0f:80:51:b3:80	0	11	-55	0	0	0	0	N/A	N/A
CP_5F_B_502A	50:0f:80:56:f1:e0	0	6	-84	-90	0	0	6	3*	Local
CP_3F_B_302A_AP1	6c:99:89:98:dd:d0	0	11	-67	-76	0	0	11*	4*	Local
Not known	6c:99:89:98:f0:20	0	11	-86	0	0	0	0	N/A	N/A
Not known	6c:99:89:98:f1:d0	0	1	-84	0	0	0	0	N/A	N/A
CP_2F_B_203B_AP1	6c:99:89:a0:f9:e0	0	11	-76	-88	0	0	11*	5*	Local
Not known	6c:99:89:a0:f9:20	0	8	-86	0	0	0	0	N/A	N/A
CP_2F_B_203E_AP1	6c:99:89:a1:00:e0	0	11	-85	-85	0	0	11*	1	Local
Not known	6c:99:89:a1:16:f0	0	11	-86	0	0	0	0	N/A	N/A
Not known	6c:99:89:a1:58:00	0	1	-82	0	0	0	0	N/A	N/A
Not known	6c:99:89:a7:5e:90	0	1	-87	0	0	0	0	N/A	N/A
CP_4F_B_405A	6c:99:89:a7:63:a0	0	11	-80	-89	0	0	11*	4*	Local
CP_3F_B_305A_AP1	6c:99:89:a7:7c:00	0	1	-84	-96	0	0	1*	5*	Local
CP_2F_B_206A_AP1	6c:99:89:a7:ce:50	0	11	-81	-93	0	0	11*	5*	Local

RF Analysis

- Nearby Data
 - Based on NDP Exchange between APs
 - Used by RRM to make channel and power allocation decisions
 - Think of it as the “RF distance” vs the physical placement of the AP
 - RX data is displayed based on the config file information. TX data is calculated

RF Analysis

- RF Stats Summary

WLC Config Analyzer - 20180116-214046176_01-15_Default.txt

File Edit Find RF Analysis Report_Center View Settings Windows Help

Search...

Config Set# 1 File: C:\Users\jacontre\Desktop\Customers\WLCCA\20180116-214046176_01-15_Default.txt

Device Data AP Nearby Info Global Messages AP Messages Parsing Errors

RF Stats Summary. Controller:haier-cp

Controllers
Access Points
RF Stats
Band 2.4 GHz
Band 5 GHz
RF Health

Clients Associated		
2.4 Band:		544
APs:		
Total		130
Enabled 2.4 Radios		53
Busiest APs 2.4 GHz Band		
AP Name:CP_5F_Z_501B		Clients:44
AP Name:CP_5F_N_501C		Clients:31
AP Name:CP_7F_B_703C		Clients:29
AP Name:CP_5F_Z_505B		Clients:24
AP Name:CP_3F_B_303C		Clients:20
Power Level Distribution 2.4 Band:		
Number of 2.4 Band Enabled Radios with Power Level 1:		7 (13.21%)
Number of 2.4 Band Enabled Radios with Power Level 2:		5 (9.43%)
Number of 2.4 Band Enabled Radios with Power Level 3:		16 (30.19%)
Number of 2.4 Band Enabled Radios with Power Level 4:		14 (26.42%)
Number of 2.4 Band Enabled Radios with Power Level 5:		10 (18.87%)
Number of 2.4 Band Enabled Radios with Power Level 6:		1 (1.89%)
Channel Distribution 2.4 Band:		
Number of Radios on channel 1:		21 (53.85%)
Number of Radios on channel 6:		11 (28.21%)
Number of Radios on channel 11:		21 (53.85%)
Client RSSI Distribution 2.4 Band:		
Number of Clients with RSSI >= -92:		1 (0.7%)

RF Analysis

- RF Summary
 - Look for non-average channel distributions
 - Look for power levels (all high, too many low)
 - Client SNR (too far, too close)
 - Quick check for change monitoring (example: TPC threshold change effects)
 - AP role distribution
 - Summary per controller, and per all files loaded

RF Analysis

- RF Stats per AP group/Flex group

The screenshot displays the WLC Config Analyzer interface. The main window title is "WLC Config Analyzer - 20180116-214046176_01-15_Default.txt". The menu bar includes File, Edit, Find, RF Analysis, Report Center, View, Settings, Windows, and Help. The toolbar shows various icons for file operations and search. The main content area is titled "RF Stats AP Groups - 2.4 GHz Band" and contains a table with the following data:

Group Name	Total Clients	Clients High SNR	Clients Low SNR	Total APs	APs with High Cochannel Interf.	APs with High Noise	APs with High Utilization	APs with Auto Channel	APs with Manual Channel	APs with Auto Power
CP_Bei805B	0	0	0	1	0	0	2	0	0	0
CP_I1_L5	398	246	152	64	9	0	73	29	9	34
CP_L6_L9	89	65	24	50	2	0	58	0	7	7
CP_Zhong101	19	12	7	4	0	0	4	4	0	2
CP_Zhong118	19	7	12	2	0	0	2	2	0	0
GE-caigou	10	7	3	3	0	0	3	2	0	2
Haier_Lab_Test	0	0	0	1	0	0	2	0	0	0
Haier_Lab_Test default-group	0	0	0	5	0	0	7	0	0	0

The left sidebar shows a tree view with the following structure:

- Controllers
- Access Points
- RF Stats
 - Band 2.4 GHz
 - AP Groups
 - CP_Bei805B
 - CP_I1_L5
 - CP_L6_L9
 - CP_Zhong101
 - CP_Zhong118
 - GE-caigou
 - Haier_Lab_Test
 - default-group
 - Client Distribution
 - Neighbor List
 - Channel View
 - All APs
 - Band 5 GHz
 - RF Health

RF Analysis

- Neighbor stats per group

The screenshot shows the WLC Config Analyzer interface. The main window displays a tree view on the left and a table of neighbor statistics on the right. The tree view is expanded to show the 'Neighbor List' for the 'AP Groups' under the 'Band 2.4 GHz' section. The table, titled 'AP Neighbours. Controller:haier-cp - 2.4 GHz Band', lists various AP groups and their corresponding neighbor statistics.

Group Name	Average RX Neigh Count	Average TX Neigh Count	Average Neigh On Channel	Average Lowest Neighbours	Average Highest Neighbours
CP_Bei805B	36	0	0	0	0
CP_L1_L5	32	14	0	2	4
CP_L6_L9	36	1	0	0	1
CP_Zhong101	24	16	0	2	3
CP_Zhong118	20	12	0	6	4
GE-caigou	25	25	0	1	2
Haier_Lab_Test	52	0	0	0	0
default-group	36	0	0	0	0

RF Analysis

- Per channel usage stats

WLC Config Analyzer - wlc feb9.txt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 3 File: C:\Users\jacontre\JACONTRE-WS03\Desktop\Customers\WLCCA\wlc feb9.txt

Device Data AP Nearby Info Global Messages AP Messages

RF Stats Channel View AP Groups - 5 GHz Band

Group Name	Channel	APs on Channel	Average AP Power	Average Client Count	Average Channel Utilization	Average Neighbour Count	Total Clients in Channel
GB	36	129	14	1	1	1	106
GB	40	29	13	3	1	1	76
GB	44	90	13	1	1	1	85
GB	48	26	12	2	1	1	44
GB	52	64	13	1	0	1	33
GB	56	52	12	1	1	1	42
GB	60	18	14	1	0	1	15
GB	64	150	14	1	1	1	118
GB	100	121	13	1	1	2	81
GB	104	5	16	0	0	0	1
GB	108	11	13	0	0	1	5
GB	112	187	14	1	1	2	114
GB_Bestand	36	9	15	1	0	1	8
GB_Bestand	40	7	14	1	0	0	5
GB_Bestand	44	7	14	1	1	1	7
GB_Bestand	48	7	13	1	0	1	5
GB_Bestand	52	3	14	1	0	1	4
GB_Bestand	56	1	8	1	0	1	1
GB_Bestand	60	2	16	0	0	0	1
GB_Bestand	64	4	15	1	1	1	3
GB_Bestand	100	1	8	0	1	1	0
GB_Bestand	104	1	11	1	0	0	1
GB_Bestand	108	1	11	1	0	0	1
GB_Bestand	112	3	10	1	1	1	2
GB_Philips	36	1	14	1	0	0	1
GB_Philips	40	1	14	0	0	0	0

RF Analysis

- AP RF data summarization

WLC Config Analyzer - wlcupv2-run-config.txt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 1 File: C:\Users\jacontr\JACONTRE-W503\Desktop\WLCCA\UP\Sept\wlcupv2-run-config.txt

Device Data AP Nearby Info Global Messages AP Messages

Name	Radio Mac	Controller	Slot	Channel	RF Health	RF Index	TX Power	RX Neighbors	TX Neighbors	Hi Ne
ac1-arq2fe2so	00:1e:4a:5b:51:e0	voltan	0	1*	0	170	1*	11	13	-65
ac1-arq2fe2so	00:1e:4a:5b:51:e0	voltan	1	64*	-95	0	1*	5	4	-75
ac1-bib4l0ne	00:19:07:34:d5:b0	voltan	0	11*	60	0	1*	7	10	-62
ac1-bib4l0ne	00:19:07:34:d5:b0	voltan	1	56*	-95	0	1*	3	4	-76
ac1-tel4d3sco	00:28:0b:16:eb:80	voltan	0	1*	45	0	1*	11	11	-68
ac1-tel4d3sco	00:28:0b:16:eb:80	voltan	1	116*	-95	10	1*	4	5	-73
ac1-ccp4e2so	00:25:84:95:f9:60	voltan	0	1*	50	10	1*	12	12	-55
ac1-ccp4e2so	00:25:84:95:f9:60	voltan	1	48*	-95	20	1*	4	5	-68
ac1-ccsalu4k2s	00:19:07:04:fd:20	voltan	0	1*	50	0	1*	11	11	-64
ac1-ccsalu4k2s	00:19:07:04:fd:20	voltan	1	108*	-95	0	1*	3	2	-68
ac1-ccp4h2so	00:28:0b:16:ee:50	voltan	0	11*	50	0	1*	14	12	-68
ac1-ccp4h2so	00:28:0b:16:ee:50	voltan	1	100*	-95	10	1*	4	6	-81
ac1-ccp4e2no	00:19:07:34:de:f0	voltan	0	6*	52	0	1*	18	18	-70
ac1-ccp4e2no	00:19:07:34:de:f0	voltan	1	44*	-95	0	1*	7	7	-82
ac1-ccp4e0o	00:19:07:35:3b:70	voltan	0	1*	53	0	1*	9	6	-78
ac1-ccp4e0o	00:19:07:35:3b:70	voltan	1	36*	-95	10	1*	3	1	-73
ac1-ccsalu4k3s	00:19:07:04:05:f0	voltan	0	6*	52	10	1*	14	12	-64
ac1-ccsalu4k3s	00:19:07:04:05:f0	voltan	1	132*	-95	0	1*	2	2	-73
ac1-ccp4g2c	00:19:07:35:3d:50	voltan	0	1*	49	628	1*	18	15	-63
ac1-ccp4g2c	00:19:07:35:3d:50	voltan	1	52*	-95	10	1*	6	7	-82
ac1-arq2fe2se	00:28:0b:16:81:d0	voltan	0	6*	48	180	3*	18	12	-60
ac1-arq2fe2se	00:28:0b:16:81:d0	voltan	1	44*	-95	0	1*	9	8	-82
ac1-tel4d3sce	00:28:0b:16:e9:90	voltan	0	6*	53	20	1*	11	9	-73
ac1-tel4d3sce	00:28:0b:16:e9:90	voltan	1	140*	-95	0	1*	3	3	-82
ac1-arq2a3s	00:25:84:96:02:b0	voltan	0	6*	54	120	1*	9	10	-63
ac1-arq2a3s	00:25:84:96:02:b0	voltan	1	140*	-95	0	1*	3	5	-58
ac1-ccp4h2se	00:28:0b:16:f5:b0	voltan	0	1*	59	100	1*	10	9	-73
ac1-ccp4h2se	00:28:0b:16:f5:b0	voltan	1	56*	-95	0	1*	5	5	-82
ac1-ccsalu4k2s	00:19:07:35:9e:00	voltan	1	11*	60	0	1*	7	6	-68

RF Analysis

- Identify co-location problems
- See total neighbors per AP, detect the most visible ones
- Find the highest channel utilization points, or associated clients with just one click
- Find AP quickly with large number of low SNR clients

RF Analysis

- RF Health per Group

The screenshot shows the WLC Config Analyzer interface. The main window displays the 'RF Health WLC: GWLC01- 2.4 GHz Band' report. The report includes a table with the following data:

Type	Name	Health Summary	APs Low Health	APs Medium Health	APs High Health	Health Average
Controller	GWLC01	High	158	241	694	68
AP Group	GB	High	105	193	586	68
AP Group	GB_Bestand	High	4	12	30	68
AP Group	GB_Philips	High	2	2	6	58
AP Group	GB_Psychosomatik	High	2	11	16	68
AP Group	default-group	Low	45	23	56	49

RF Analysis

- RF Health per Group – AP details

WLC Config Analyzer - wlc feb9.txt

File Edit Find RF Analysis Report Center View Settings Windows Help

Config Set# 3 File: C:\Users\jacontre.JACONTRE-W503\Desktop\Customers\WLCCA\wlc feb9.txt

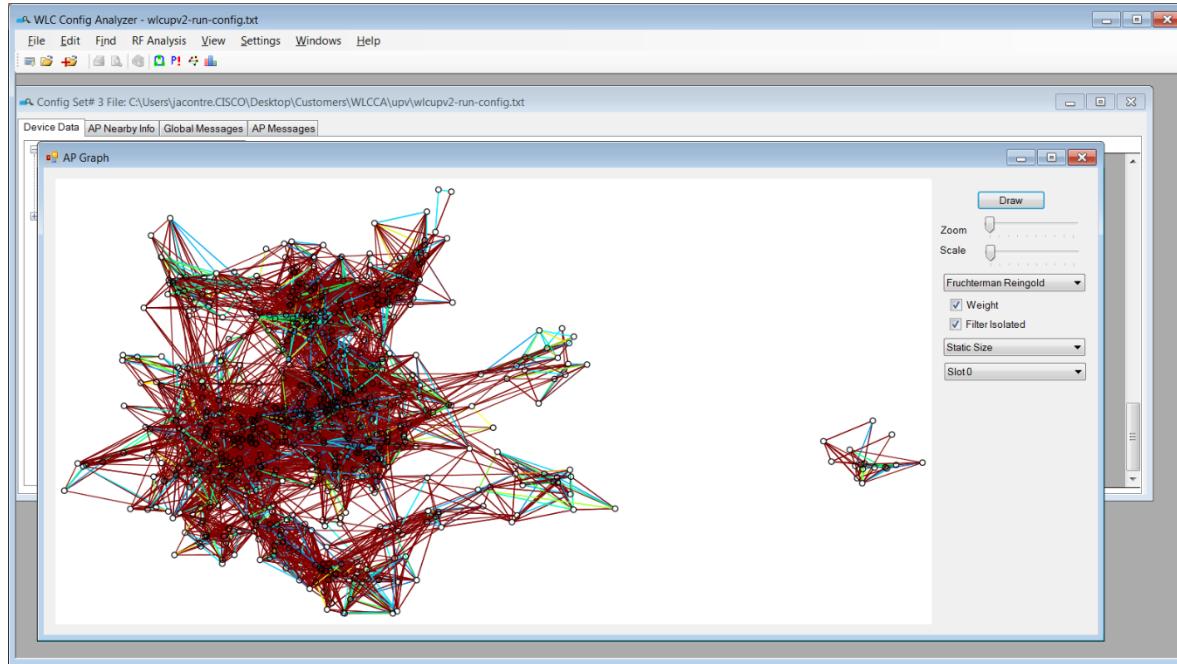
Device Data AP Nearby Info Global Messages AP Messages

RF Health. AP Group:GB - 2.4 GHz Band

AP Name	Health	Neighbor Channel Capacity	Neighbor Overlap Avoidance	Neighbor Impact Side Channel	AP Channel Capacity	Noise Same Channel	Noise Side Channel	Interf Semi
G-AP-K5-024	66	95	91	100	66	100	97	100
G-AP-K7-030	73	91	100	100	73	100	100	100
G-AP-D5-012	92	100	100	100	92	100	100	100
AP00e2.ee00.865c	93	100	100	100	93	100	100	100
G-AP-C4-006	41	86	41	100	58	100	100	100
G-AP-K4-020	50	81	50	100	77	100	97	100
G-AP-L8-017	72	87	72	100	83	100	100	100
G-AP-N1-015	86	98	100	100	86	100	100	100
G-AP-D4-014	33	88	33	100	83	100	100	100
G-AP-L2-001	95	100	100	100	95	100	100	100
G-AP-M5-008	52	90	52	100	73	100	100	100
G-AP-L8-027	50	87	67	100	50	100	100	100
G-AP-K5-018	56	90	88	100	56	100	100	100
G-AP-N4-018	25	84	25	100	83	100	100	100
G-AP-M1-007	80	98	97	100	80	100	98	100
G-AP-M5-019	63	92	72	100	63	100	99	100
G-AP-K4-004	73	94	100	100	73	100	100	100
G-AP-K4-010	14	83	14	100	77	100	100	100
APecbd.1de1.85ec	59	85	59	100	75	100	100	100
G-AP-K6-020	44	81	44	100	70	100	100	100
AP0462.732d.e776	75	92	81	100	75	100	100	100
G-AP-M1-012	83	98	100	100	83	100	100	100
G-AP-L2-010	83	95	83	100	88	100	100	100
G-AP-N7-012	81	84	81	100	85	100	96	100
G-AP-M5-015	47	88	47	100	75	100	88	100

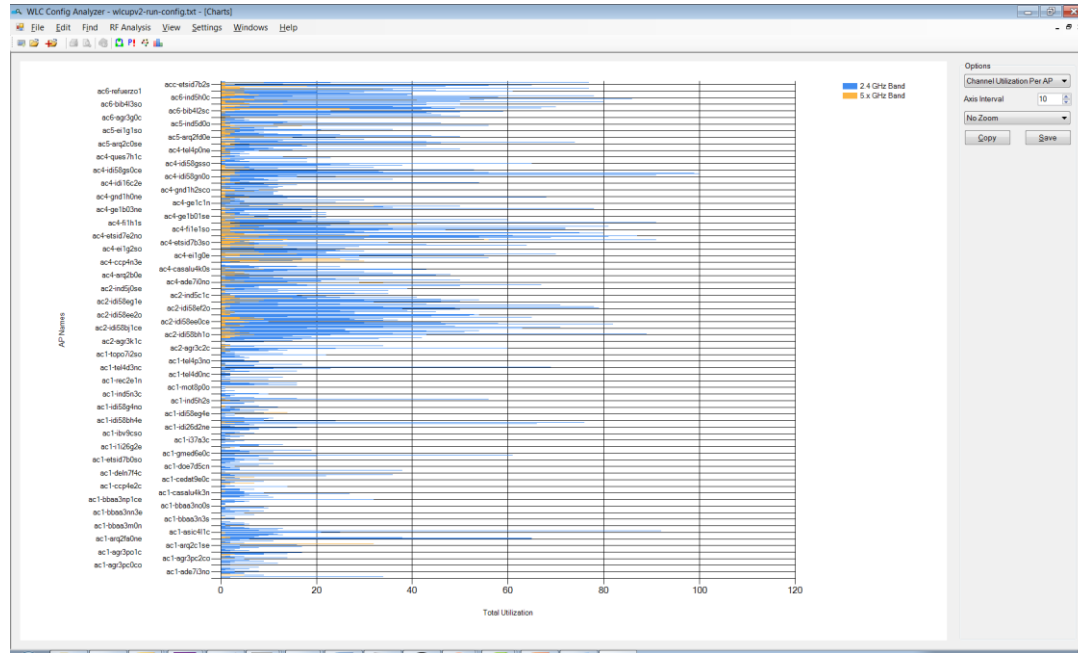
RF Analysis

- AP Graph



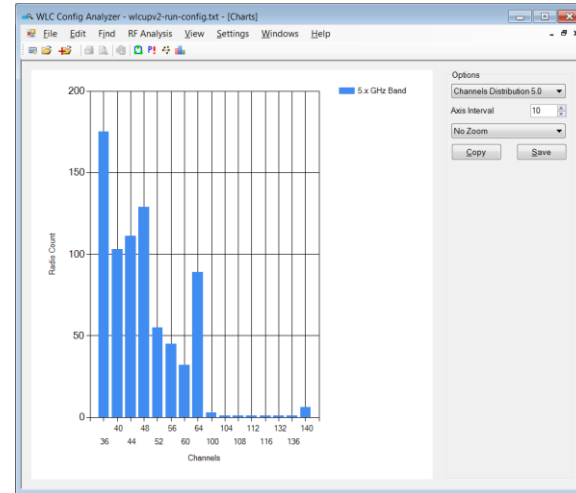
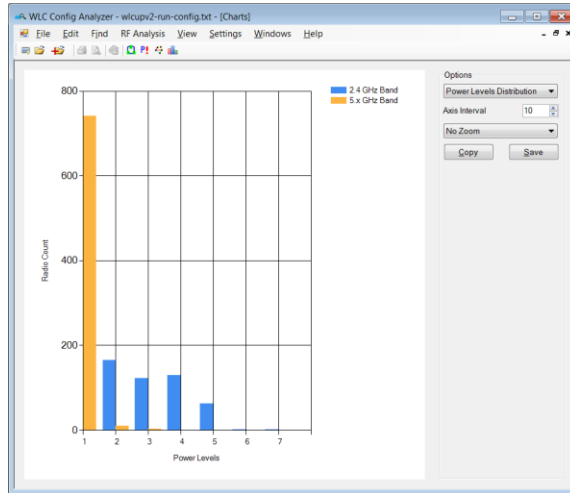
RF Analysis

- Channel utilization distribution



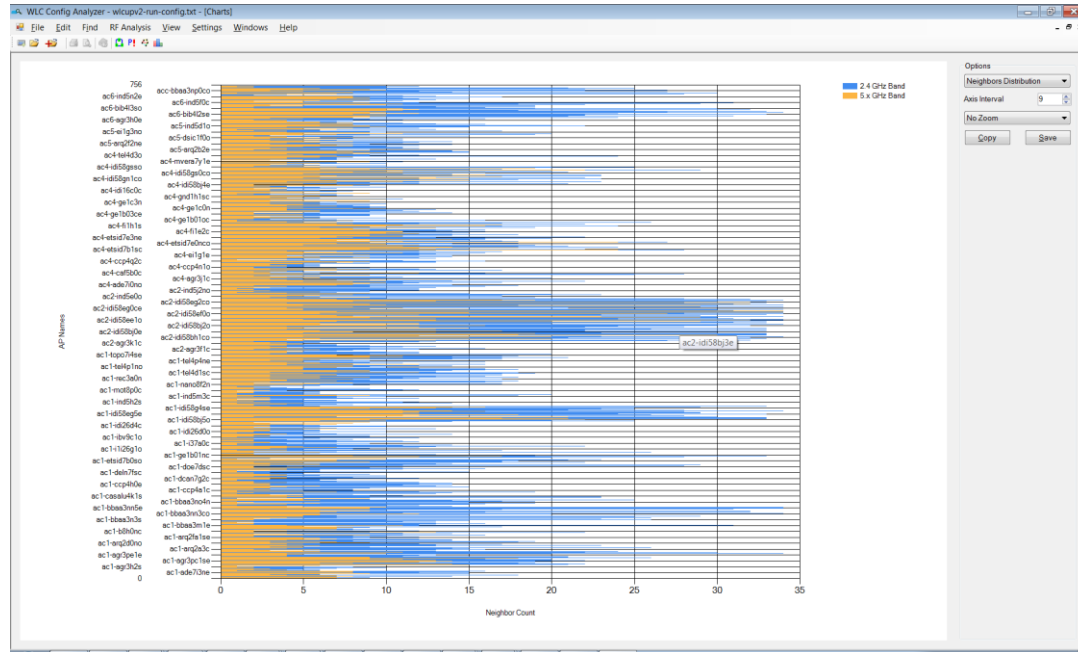
RF Analysis

- Channel/power distribution



RF Analysis

- Neighbor distribution



RF Analysis

- Profile Analysis

The screenshot displays the WLC Config Analyzer interface. The main window shows a table of Access Points Profiles with columns for AP Name, Noise Actual, Noise Predicted, Interference Actual, Interference Predicted, Load Actual, Load Predicted, Coverage Actual, and Coverage Predicted. The table lists various AP models and their performance metrics. A 'Prediction Parameters' dialog box is open on the right, showing settings for Noise Threshold dBm, Interference Threshold %, Load Threshold %, Client Threshold, Coverage Threshold SNR, Coverage Exception Level %, and Coverage Ex. Min Clients. A 'Recalculate' button is visible at the bottom of the dialog.

AP Name	Noise Actual	Noise Predicted	Interference Actual	Interference Predicted	Load Actual	Load Predicted	Coverage Actual	Coverage Predicted
acc-bib42nco	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac5-asic40c	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43nce	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43no	PASSED	NA	PASSED	NA	FAILED	NA	PASSED	NA
ac6-bib42no	PASSED	NA	FAILED	NA	PASSED	NA	PASSED	NA
ac6-bib42sc	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43sc	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43nco	PASSED	NA	FAILED	NA	PASSED	NA	PASSED	NA
ac6-bib43nc	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43sce	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib42se	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43se	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43so	PASSED	NA	PASSED	NA	FAILED	NA	PASSED	NA
ac6-bib42ne	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-bib43ne	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
acc-bib42nc	PASSED	NA	PASSED	NA	FAILED	NA	PASSED	NA
ac6-tel42ne	PASSED	NA	FAILED	NA	PASSED	NA	PASSED	NA
ac6-tel42no	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
ac6-arq2c1no	PASSED	NA	PASSED	NA	PASSED	NA	PASSED	NA
acc-arq2c1so	PASSED	NA	PASSED	NA	FAILED	NA	PASSED	NA

Prediction Parameters

Noise Threshold dBm: 70
Interference Threshold %: 10
Load Threshold %: 80
Client Threshold: 12
Coverage Threshold SNR: 12
Coverage Exception Level %: 25
Coverage Ex. Min Clients: 3

Recalculate

Note: Coverage Profile will not match exactly controller; sh run only have client aggregated data for SNR/RSSI

RF Analysis

- RF Groups

The screenshot displays the WLC Config Analyzer interface. The main window shows the configuration for 'wlcupv2-run-config.txt'. The 'RF Summary-All' tab is active, showing a tree view of the configuration. A dialog box titled 'RF GroupsFor Config Set# 3' is open, displaying a table of RF Groups and their parameters.

Group Num	AP Name	Radio MAC
1	ac1-gmed6e0c	00:12:44:b3:64:40
1	ac1-gmed6e1c	00:19:07:35:4f:c0
1	ac1-gmed6e1o	00:25:84:95:a0:d0
2	ac1-arq2fa2ne	00:1e:7a:a6:96:e0
2	ac1-arq2fa2ne	00:1e:7a:a6:87:70
2	ac1-arq2fa2so	00:1e:7a:a6:97:90
2	ac6-arq2c1no	20:3a:07:06:02:20
2	ac1-arq2c3n	00:1e:7a:a6:5e:00
2	ac1-arq2d0so	00:1e:7a:a6:91:60
2	ac1-arq2d1se	00:1e:7a:a6:93:00
2	ac1-arq2b1e	00:26:0b:16:fb:80
2	ac6-arq2c2so	00:3a:9a:aa:9e:e0
2	ac4-arq2b0e	5c:50:15:05:a5:c0
2	ac4-arq2c2no	b8:be:bf:69:fa:00
2	acc-arq2c1so	B:4f:57:a1:8a:e0
2	ac5-asic40c	44:e4:d9:85:b5:10
2	ac1-asic41c	00:16:9c:ba:68:00

RF Group Parameters

RF Groups Threshold: -80

Recalculate

RF Analysis

- RF group, non-voice deployment

The screenshot displays the WLC Config Analyzer interface. The main window shows the configuration for 'wlcupv2-run-config.txt'. A dialog box titled 'RF Group Parameters' is open, showing a table of RF groups and their parameters.

RF Group Parameters

RF Groups Threshold: -80

Recalculate

Group Num	AP Name	Radio MAC
9	ac1-doe7d5cn	00:15:2c:4a:71:40
10	ac1-ag3h2s	00:12:44:b3:7a:a0
10	ac1-ag3h1s	00:1e:7a:29:5f:d0
11	ac2-ind5k1c	34:a8:4e:57:41:f0
11	ac1-ind5k0c	00:12:44:b2:7b:50
11	ac2-ind5k1no	34:a8:4e:57:42:a0
12	ac1-b8k0no	00:19:07:07:26:00
12	ac1-b8k0se	00:19:07:06:e3:50
12	ac1-b8k1ne	00:19:07:34:d7:c0
12	ac1-b8k1so	00:19:07:35:41:f0
12	ac1-8k0ne	00:1e:4a:56:4b:40
12	ac1-8k0so	00:1e:4a:56:4f:10
12	ac1-8k1no	00:1e:7a:a6:9b:d0
12	ac1-8k1se	00:1e:7a:a6:8d:f0
13	ac4-ques7h1c	88:f0:77:2f:8b:70
14	ac6-refuerzo2	00:3a:9a:a9:56:f0
15	ac1-b8h0nc	00:19:07:34:d8:70

Tips and Tricks

- TPC threshold Adjustments
- Neighbor power does not change
- SNR client connection levels in the RF summary
- Channel distribution
- RF groups, check they are not per site

Polling Question 2

What is your current AireOS version?

- A. 7x
- B. 8.0
- C. 8.2
- D. 8.3
- E. 8.4
- F. 8.5
- G. 8.6

Demo

New!!

What is the Wireless Config Analyzer Express?

Wireless Config Analyzer Express

- Evolution from WLCCA
- Focus on **Summaries** not Details
- Main Objective: Quick config analysis and RF state
- Provides around 184 automatic checks
- Checks in : General, RF, Mobility, Security, AP, Flex
- Coming Soon: Voice Audit
- Only one WLC per set supported. No multi-WLC comparison

Wireless Config Analyzer Express

- RF data summary
- RF Health
- Message summarization (msglog)
- AP model summary, and their operating mode
- TAC: same results are attached internally to TAC case every time you send a “sh run”

Where?

- <https://cway.cisco.com/tools/WirelessAnalyzer/>
- <https://www.cisco.com/c/en/us/support/docs/wireless/wireless-lan-controller-software/212795-wireless-config-analyzer-express.html>
- Alias: cisco-com-apps-wlccconfiganalyzer@cisco.com

Wireless Config Analyzer Express

Wireless Config Analyzer Express BETA Contributors

Input Parameters ▼

Run

Wireless Analyzer Results

- **WLC Messages**
- AP Messages Summary
- RF Stats WLC Summary
- RF Stats AP Groups Summary
- RF Stats Flex Groups Summary
- RF Health WLC Summary
- RF Health AP Groups Summary
- RF Health Flex Groups Summary
- AP Models Summary
- AP Modes Summary
- Best Practices Score
- Show All
- Hide All

Total Unique Messages:

Error:	28
Warning:	62
Info:	37
Parsing Errors:	0
Processing Errors:	5

WLC Results: wlc.customer.net

30001	General: Controller with not recommended code version:8.3.130.8 Action: Controller is running deferred or not recommended code and should be upgraded. Refer http://www.cisco.com/c/en/us/support/docs/wireless/wireless-lan-controller-software/200046-TAC-Recommended-AireOS.html
30008	General: Controller with high temperature: +67 C Action: Interface created without any port assignment, incomplete config. Use config interface port command to correct this problem
30028	General: Max AP count reached on controller Action: WLC is running at its maximum capacity. No more APs will be able to join
30056	General: HA is active, but no vlan set on Manager interface Action: HA is only supported on tagged management interfaces. This is also recommended for WGB or IPv6 features, you should configure vlan on management interface. Command: config interface vlan management

Wireless Config Analyzer Express

- I have 5000 Aps... How do I find which ones have problems?
- How to find config errors?
- If my current code correct?
- How is my implementation of best practices?
- Where are my RF problems?

The screenshot displays the 'Wireless Config Analyzer Express' interface. At the top, it says 'Wireless Config Analyzer Express BETA' and 'Contributors'. Below that is an 'Input Parameters' section with a 'Run' button. The main area is titled 'Wireless Analyzer Results' and contains a 'Total Unique Messages' table and a list of messages.

Total Unique Messages:	
Error	28
Warning	62
Info	37
Parsing Errors	0
Processing Errors	5

Wireless Analyzer Results

- WLC Messages
 - AP Messages Summary
 - RF Stats WLC Summary
 - RF Stats AP Groups Summary
 - RF Stats Flex Groups Summary
 - RF Health WLC Summary
 - RF Health AP Groups Summary
 - RF Health Flex Groups Summary
 - AP Models Summary
 - AP Modes Summary
 - Best Practices Score
 - Show All
 - Hide All

WLC Results: wlc.customer.net

30001	General: Controller with not recommended code version 8.3.130.8 Action: Controller is running deferred or not recommended code and should be upgraded. Refer http://www.cisco.com/c/en/us/support/docs/wireless/wireless-lan-controller-software/200046-TAC-Recommended-AireOS.html
30008	General: Controller with high temperature: +67 C Action: interface created without any port assignment, incomplete config. Use config interface port command to correct this problem
30028	General: Max AP count reached on controller Action: WLC is running at its maximum capacity. No more APs will be able to join
30056	General: HA is active, but no vlan set on Manager interface Action: HA is only supported on tagged management interfaces. This is also recommended for WGB or IPv6 features, you should configure vlan on management interface. Command: config interface vlan man/management

Usage

How to use

- Tool supports: “sh run-config”, “sh tech” and “sh msglog”
- Always prefer “sh run-config” as it provides the best information (RF/Config)
- Best way to capture it:
 - ssh with config paging disabled
 - Use: *transfer upload datatype run-config (max 32MB)*

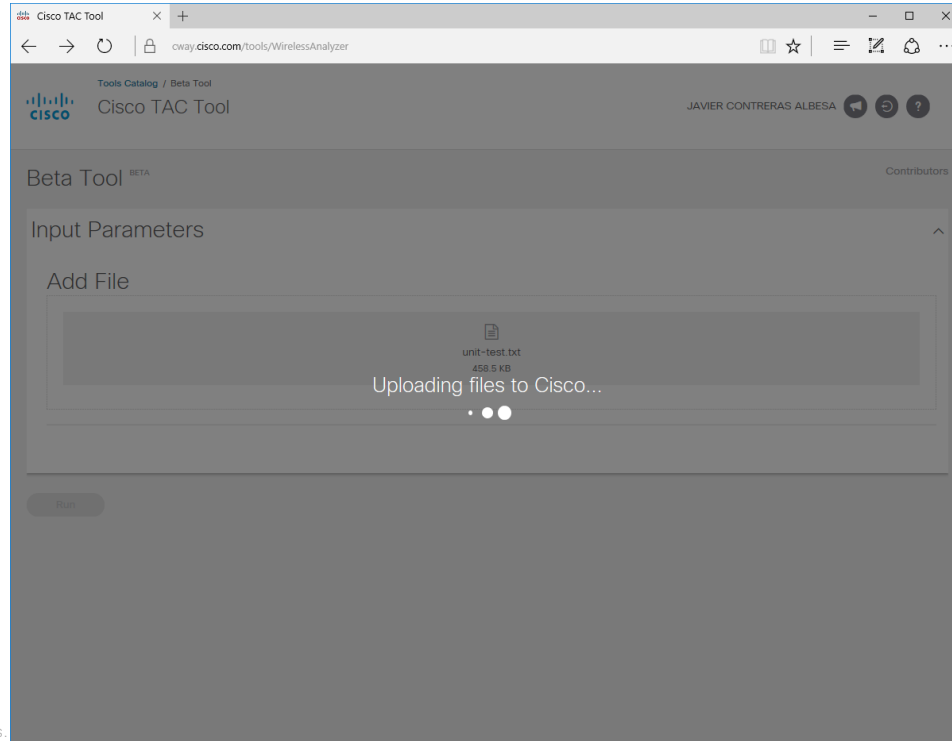
How to use

- Go to : <https://cway.cisco.com/tools/WirelessAnalyzer/>

The screenshot shows the Cisco TAC Tool interface. At the top left is the Cisco logo and the text "Tools Catalog / Beta Tool" and "Cisco TAC Tool". At the top right is the user name "JAVIER CONTRERAS ALBESA" and three circular icons: a left-pointing arrow, a refresh icon, and a question mark. The main content area is titled "Wireless Config Analyzer Express BETA" with a "Contributors" link on the right. Below the title is a section labeled "Input Parameters" with an upward-pointing chevron icon. Underneath is an "Add File" section with a large dashed border containing a downward arrow above an upward arrow and the text "Click or drop files here". At the bottom left of the interface is a "Run" button.

How to use

- Upload file, analysis will start



How to use

- Done!

Wireless Config Analyzer Express BETA Contributors

Input Parameters ▼

Run

Wireless Analyzer Results

- **WLC Messages**
- AP Messages Summary
- RF Stats WLC Summary
- RF Stats AP Groups Summary
- RF Stats Flex Groups Summary
- RF Health WLC Summary
- RF Health AP Groups Summary
- RF Health Flex Groups Summary
- AP Models Summary
- AP Modes Summary
- Best Practices Score
- Show All
- Hide All

Total Unique Messages:

Error	28
Warning	62
Info	37
Parsing Errors	0
Processing Errors	5

WLC Results: wlc.customer.net

30001	General: Controller with not recommended code version:8.3.130.8 Action: Controller is running deferred or not recommended code and should be upgraded. Refer http://www.cisco.com/c/en/us/support/docs/wireless/wireless-lan-controller-software/200046-TAC-Recommended-AireOS.html
30008	General: Controller with high temperature: +67 C Action: interface created without any port assignment, incomplete config. Use config interface port command to correct this problem
30028	General: Max AP count reached on controller Action: WLC is running at its maximum capacity. No more APs will be able to join
30056	General: HA is active, but no vlan set on Manager interface Action: HA is only supported on tagged management interfaces. This is also recommended for WGB or IPv6 features, you should configure vlan on management interface. Command: config interface vlan management

Polling Question 3

Do you do Voice over Wireless?

- A. Sí
- B. No

Checking Results

Interface

Menu Area

Wireless Config Analyzer Express BETA Contributors

Input Parameters

Run

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Message Counts


Open summary

Initial View

Wireless Config Analyzer Express BETA Contributors

Input Parameters ^

Add File


show0run-config-wc-fra-1.log
21.6 MB

Run

Wireless Analyzer Results

- [WLC Messages](#)
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- [AP Modes Summary](#)
- [Best Practices Score](#)
- [Show All](#)
- [Hide All](#)

Total Unique Messages:

Error:	3
Warning:	9
Info:	23
Parsing Errors:	0
Processing Errors:	0

Click to open option

Scroll here

Another click to hide it

WLC Messages

Run

WLC Results: wc-fra-1

30129	General: HTTPS intersection for Webauth may have severe performance impact due to scalability problems, only use on small deployments Action:
30076	General: Controller without time source, please configure a valid NTP server Action: No time source detected for this controller. It could be incomplete configuration, check that NTP servers are configured. Command: config time ntp server
120009	Security: No CPU ACL detected, it is recommended it, to restrict management access to the controller Action:
120013	Security: Minimum management password length should be 8 or higher Action:
120014	Security: The following Management Password policy ies not enabled: Position Check,Case Digit Check Action:
120016	Security: High encryption for HTTPS management is not enabled. Some older web browsers may not support these stronger cryptos Action:
120022	Security: SSH high encryption is not enabled, it is good security practice to enable it. Some older SSH clients may not support these stronger cryptos Action:
30064	General: EAPoL request timeout larger than 400 ms. EAP key requests may benefit for faster recovery, and better behavior on bad RF, by using higher counts, lower retry timeout. Please validate on your specific client types before enforcing the changes Action: EAPoL request timer found to be higher than 400ms. In most scenarios, 400 would allow faster recovery in case of problems. Some devices may need longer timers, so always check. Use command: config advanced eap eapol-key-timeout, to adjust
30067	General: Minimum Rogue RSSI detection threshold should be set to -80 or higher, unless mandated by your security policies Action: Min RSSI feature allows to filter out unwanted rogues from the network (out of building). It is advisable to use -70 to -80 depending on your physical location and security policies. Command: config rogue detection min-rssi
30081	Enterprise: Aggressive Load Balancing is a recommended best practice for enterprise environments with proper AP density, for local mode APs. Do not use for WLANs with interactive applications (voice/video) Action: Load Balancing could help on load distribution on some scenarios, it must be avoided for networks with interactive traffic like voice or video. Command: config wlan load-balance allow enable ID
	General: Band Select is not in use on any WLAN. It is a recommended feature when there is a good AP density in Enterprise deployments. Do not use for WLANs with interactive applications

Error

Warning

Information

AP Messages

APs Message Summary

60032	<p>RF: AP has high channel count (more than 10) per day on radio slot1. Check RF conditions or RRM configuration .</p> <p>APS: ap-lwb09a20-01</p> <p>Action: Frequent channel changes can cause severe impact in client stability. This could be triggered due to bad RF, RRM issues, or incorrect RRM configuration</p>
60016	<p>RF: CleanAir device with high duty cycle on channel.</p> <p>APS: ap-lwb-1c25-01</p> <p>Action:</p>
60028	<p>RF: AP shows low coverage (all neighbors < -75 dBm) on 2.4GHz band. This could affect roaming and be indication of poor RF design or NDP issues.</p> <p>APS: More than 10 APs affected, use standalone tool for more details</p> <p>Action:</p>
60029	<p>RF: AP shows low coverage (all neighbors < -75 dBm) on 5GHz band. This could affect roaming and be indication of poor RF design or NDP issues.</p> <p>APS: More than 10 APs affected, use standalone tool for more details</p> <p>Action:</p>
20012	<p>Empty primary controller.</p> <p>APS: AP00f2.8b89.6b78</p> <p>Action: Primary controller name is not set, this is not recommended as it can lead to random AP join across controllers (salt and pepper scenario). Recommendation is to have it explicitly configured</p>
60011	<p>RF: AP Cochannel interference above threshold, 2.4 GHz Band.</p> <p>APS: More than 10 APs affected, use standalone tool for more details</p> <p>Action:</p>
20010	<p>Antenna gain set to zero.</p> <p>APS: More than 10 APs affected, use standalone tool for more details</p> <p>Action: Antenna gain may not be valid. If antenna gain was previously configured, then this may indicate an invalid template push from PI. This may lead to wrong TPC power calculation</p>
30050	<p>RX-SOP in use.</p> <p>APS: More than 10 APs affected, use standalone tool for more details</p> <p>Action: This is informational message, no action required, if this was changed intentionally</p>

RF Stats WLC

RF Stats WLC Level Summary

	2.4GHz Band	5GHz Band	
Radio states	Total Radios:	542	580
	Total Enabled:	542	580
	Total Disabled:	0	0
	Total Missing Config:	0	0
	Total Client Servicing:	542	580
Radio Types	Legacy:	0	0
	11n:	542	275
	11ac:	0	305
	Unknown:	0	0
Radio RRM State	TPC Auto Power:	540	578
	Manual Power:	2	2
	DCA Auto Channel:	4	42
	Manual Channel:	538	538
RF State	Radios High CoChannel:	502	260
	Radios High Utilization:	40	11
	Isolated Radios:	0	0
	Poor Coverage Radios:	538	576
	High Channel Change:	0	1

RF Stats WLC

- Summary per AP Group or Flex Group
- Reports if any AP is missing radios

RF Stats AP Groups Level Summary			
DML			
		2.4GHz Band	5GHz Band
Radio states	Total Radios:	65	65
	Total Enabled:	65	65
	Total Disabled:	0	0
	Total Missing Config:	0	0
	Total Client Servicing:	65	65
Radio Types	Legacy:	0	0
	11n:	65	58
	11ac:	0	7
	Unknown:	0	0
Radio RRM State	TPC Auto Power:	64	65
	Manual Power:	1	0
	DCA Auto Channel:	0	0
	Manual Channel:	65	65
	Radios High CoChannel:	60	14
	Radios High Utilization:	3	0
	Isolated Radios:	0	0
	Poor Coverage Radios:	65	64

RF Health WLC/AP Groups/Flex Groups

General Evaluation

Total Radios per Level

		RF Health WLC Level Summary					
		2.4GHz Band			5GHz Band		
Stats	Total Radios:	542			580		
	Health Assesment:	Low			High		
	Lowest Metric Average:	53			80		
		2.4GHz Band			5GHz Band		
		Low	Medium	High	Low	Medium	High
AP Radio Count per RF Health Metrics	Co-Channel Neighbor Utilization:	25	80	437	0	0	580
	Co-Channel Overlapping:	53	80	409	0	3	577
	Side Channel Overlapping:	0	0	542	0	0	580
	Noise Same Channel:	0	1	541	0	0	580
	Noise Side Channel:	1	4	537	0	0	580
	Interference Same Channel:	0	2	540	0	0	580
	Interference Side Channel:	0	0	542	0	0	580
	Low SNR Clients:	4	10	528	23	63	494
	Radio Utilization:	131	114	297	25	11	544
	Cleanair Interferers:	0	0	542	0	0	580

Individual Metrics

RF Health WLC/AP Groups/Flex Groups

- Co-Channel Neighbor Utilization
 - Summary of Nearby Aps on channel, activity vs distance
- Co-Channel Overlapping
 - Summary of Nearby Aps on channel, tx power vs distance
- Side Channel Overlapping
 - Summary AP on sides of current channel (channel distance for 2.4 GHz, 5GHz bonding options)
- Noise Same Channel
 - Noise level of current channel. -80 dBm is 0, 50 is 100%
- Noise Side Channel:
 - Noise levels of sides of adjacent channels

RF Health WLC/AP Groups/Flex Groups

- Interference Same Channel
 - Interference (wifi) on same channel. -90 dBm is 0, -50 is 100%
- Interference Side Channel
 - Interference (wifi) on adjacent channels, including 5GHz bonding options
- Low SNR Clients
 - For Aps with >5 clients. Percentage of clients < 25 SNR
- Radio Utilization
 - 60% utilization is 0% health
- Cleaner Interferers:
 - Relation of interferers for their RSSI vs Duty cycle



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Javier Contreras
Senior Tech Lead



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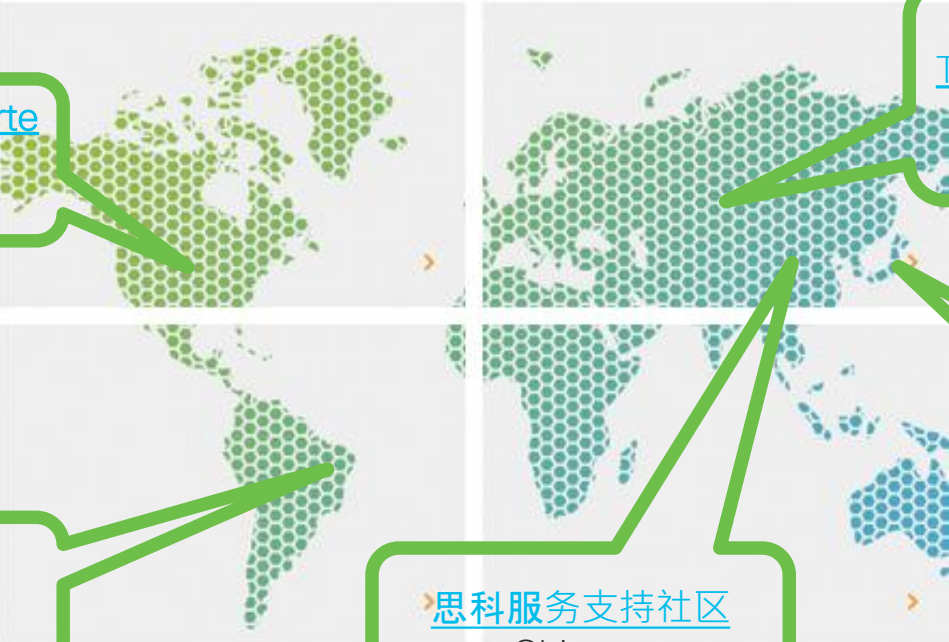
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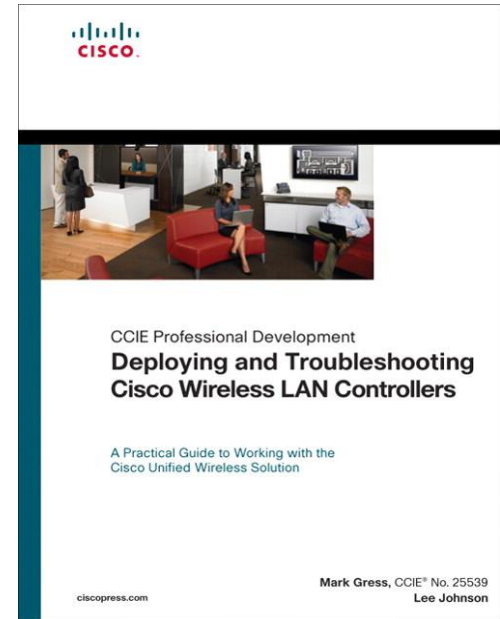
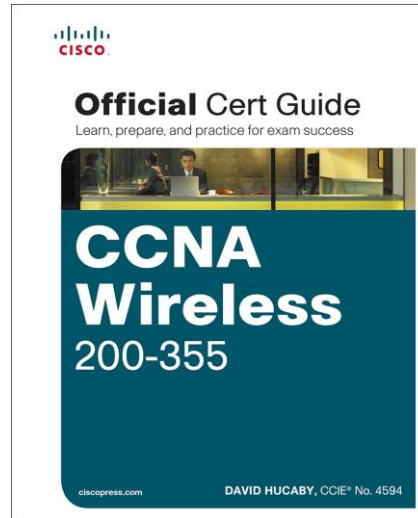
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