

## EDGECORE - VWE VYOM QUICK START GUIDE

1 March 2023



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## PART 1

#### 1. INTRODUCTION

This document is to provide step-by-step instructions for testing the ecCLOUD VWE add-on with EAP101, EAP102 and EAP104 models of Edgecore. This document covers how to register, logging in to the ecCloud, adding a router to the site, attaching a license to the router and monitoring the router and its clients and the analytics.

#### 2. LOGGING INTO ECCLOUD AND REGISTERING A USER.

On the browser, please enter the URL <u>https://cloud.ignitenet.com/cloud</u>.

Here it is assumed that a cloud has been created and the same cloud id is used.



If you already have an account on cloud, just enter your email and password to login. If not, click "I want to register" and follow the instructions to create a new account.

Note that the email address must be valid to receive the verification email for account creation.





After logging into the ecCloud, the following screen is seen



## 3. ADDING AP TO A SITE

i. Go to the devices page of the testing site, click the "ADD DEVICE" button.

- 6000	Addan Text 2 add on testing 2 Devices	Q = 🗗 🖡 🛱 📥 Adden Test + 😝 Hil. Seb +
< SITE MENU	Managa davicas	3
add-on testing ·	Mariage devices	wwwee and weapon + yoo place + publicit + publicit
B Dashbeard	ф астона С намези ∓илта X III сизтомат Флагонт	Q, dawth
Devites	🗆 🖬 O 🔦 O NAME PRODUCT FW	REG. STATE CREATED ON & CLEWITS TRAFFIC
🔦 Configuration 🚽	No data to display.	
II Activity		Rowsperpage 25 = 60.010 < >
W Masters Chests		

ii. Input the serial number, the MAC address of the AP, and the AP name. Click



* and	Addon Text > add-on fictory > Add Dewise Q 🚍 🗗 🌲 🕰 Addon Text - 😝 Hi, Seb -
< -SITE MENU	Peolister neu devicer
add on testing	Register new devices
S Darkboard	A new device can be added to a site by inputting (or pcanning) the serial number and MAC address of the device. Learn more 🖾 You can third the serial number and MAC address on the product took or on the back of the product toe?.
Devices	Add the following devices to the following site add-on texting
4 Configuration v	infant site-level settings
Activity	Shabis this if you want to manage the devices in this site. We a single unit with a common configuration. Learn more 😫
¥ Wireless Clients	De Bradia barcode scarving mode 🛛 🚳
Manage	Batch Upload File * UPLOAD
# Maps ~ ~	
III Add-orn	Serial Number MAC Address
- Site Properties	You can register up to 3d devices.
A Notificatives	CT ALLET

the "SAVE" button to add the AP to the cloud.

iii. Check the devices page, the added AP should be on the list with "Pending Registration" state.

-Court	testuddon + Devices	् 💷 🗗 🧬 🙀 📥 lini_assen + 😝 H. JHD-Fir +
CLOUD MENU	Manage devices	[
Choose a Site	Manage devices	+ ADD DEVICE
B Dashboard	🛱 ACTOM C REALEM 🗢 PLUE 🕺 III CUSTOMEZ 🔷 DOORT	R, Search
Devices	E E O 4 O NAVE PRODUCT PW	REG. STATE CREATED ON & SITE
C Activity		Pending Regulation 8 fours age addition testing 3002-07-05 10206
Marage B: Site management		Язикі реградіі. 25 ж. 1-1 об 1 ( )

## 4. LICENSE MANAGEMENT / APPLYING VOUCHER

i. Go to "Add-ons" page. Find VWE add-on and click the "SUBSCRIBE / REDEEM" button to get to the add-on subscription page.

CLOUD MINU         Partners         I Dashbeard         Devices         I Dashbeard         Devices         I Activity         Integr         Adipsys         Free to convect         Use the Addrssy Sourd Wit Free to convect         User management         Userum management			Partners	CLOUD MENU hoose a Sile
	-			
and monetze your W-E hospots. integration with your Goudéliei integration with your SOOR IN-E User management cears more Volare account. Monetzation account. Learn more Learn more	Virtual Wireless Expert 515.00 / Icense / year Eruble Aprecorrers Af Engre.	SOCIFI Francis Lincolett Diveble thirs Address for easy	Adipsys Free to correct Use the Adopsys Cloud to secure	Dashbeard     Devices     Activity  bridge     Size management
Add-ees 1 Licenses & milling	1 Vintual Wineless Experts to perceive and improve Real Time Customer Learn more	integration with your SOCIR (80-8) Monetication account. Learn more	and monetize your W-R hotopote. Inte Ceare more Woo Line	User management Addres

ii. In the subscription page for VWE add-on, click the "APPLY VOUCHERS" button. A modal will pop-up for filling the voucher codes.

+ and the	Acctan > Subscribe Add-on Q := 💕 🏚
CLOUD MENU	Subscribe Add.on: Virtual Wireless Expert
Choose a Site	Subscribe Add-on. Virtual Wireless Expert
E Dashboard	Link status
<ul> <li>Devices</li> </ul>	
II Activity	CONNECT NOW
Manage	
B: Site management	Subscribe details
O User management	
18 Add-ons	Available Loonses 0 Used Licenses 0
Licenses & Billing	MANUAGE LICENSES
<ul> <li>Properties</li> </ul>	
Notifications	Subscribe method
	Use available credit for number(s) of AP to enable Virtual Wireless Expert: 0 APPLY VOUCHERS
	CANCEL CONTINUE

iii. Get a voucher code from Edge-core team. Enter the voucher code and click the "ADD" button. The the voucher code is valid, the voucher value will be listed below. After inputing all of your valid voucher codes, click the "APPLY" button.

Note that the voucher code is not consumed after click "APPLY" button. The input voucher code is verified and waiting for a final confirmation to be used.



Apply vouchers Please enter your voucher codes Com BvD13134	A20 COUTE. ATTLY
Apply vouchers Please enter your voucher codes Code	×
	EVD13134 B16-00 REMOVE

iv. The input voucher code will be listed with the number of license, and the total available licenses after applying vouchers will also be shown. If the information is correct, click "CONTINUE" button, and a dialog box will be pop-up for your confirmation. Click "BUY" to actually covert the vouchers to the VWE license. Note that the licenses can never be coverted back to vouchers.

Subscribe Add-on: Virtual Wireless Expert

Link status	
Status CONNECT NOW	None
Subscribe detail	5
Available Licenses Daed Licenses MANAGE LICENSES	
Subscribe metho	bd
Use available credit	for number(0) of AP to enable Virtual Wireless Expert: 1 APPSY VOUCHERS
Available Lice	enses: 1
	CANCEL CONTINUE

## 5. ACTIVATING THE VWE ADD-ON

i. On the ecCloud main menu page, Go to the "Add-Ons"



On this page, the Aprecomm Virtual Wireless Expert is seen along with many addons. Select the second option "Login to Aprecomm", the following screen appears. This is the beginning of the VWE. Part-2 gives the VWE usage in detail.

		● Live [Pas ~ Mar 7, 2023 1:24 PM →	Mar 7, 2023 5:24 PM thomas.varghese@aprecomm.ai 🕫 EN 🗸
Dashboard Sites Coses Points		iss poerts 2 CLIENTS a Critical	S 1     Issues     ✓
Cheres Analysis	CUSTOMER QOE (QUALITY OF EXPERIENCE)		
Provisioning	8 0 133000 13.4500 14.05.00 14.1500 14.3500 Mar-7 Mar-7 Mar-7 Mar-7 Mar-7	07 14-45:00 15:00:00 15:10:00 15:00:00 15:45:00 16:00 14-7 Mar-7 Mar-7 Mar-7 Mar-7 Mar-7 Mar-1	703/2023, 16:15:00 PS are UP 0 16:45:00 17:00:00 17:15:00 Mar- 7 Mar- 7 Mar- 7
	8 m 5 m 4 m 5 m 5 m 12 m 1	0 1446 1500 1515 1520 1545 1500	763/2023, 16:15:60 06E: No Active Connected Client
	Mar-7 Mar-7 Mar-7 Mar-7 Mar-7	Mar-7 Mar-7 Mar-7 Mar-7 Mar-7 Mar-7	Mar-7 Mar-7 Mar-7 Mar-7 Mar-7
	APPLICATION PERFORMANCE What applications are most popular	CONNECTION PERFORMANCE How are clients connecting	ROAMING PERFORMANCE Are clients moving between APs seamlessly
	Total Bytes	Total Connections	Total Roaming Attempts
	6.91 MBytes	2	Screenshot



## PART - 2

The following sections detail the VWE specific screens and usage.

## COMMON ACROSS ALL PAGES

				V1 Live [Past	t Hours] -	10/05/2020 →	10/05/2020	admin@relay2.com	₽ V2 #	ENI V3
Dashboard Sites	D Critical	~	ි 6 access po	DINTS	0 Critical, 32	34 CLIENTS	~	⊗ 8 issue	s <b>V4</b>	VWE Ask Me!
Clients Analysis Provisioning	CUSTOMER QOE (QUALITY OF	F EXPERIENCE)	~~~~~	~~~~~	,	~~~~		~~~~	50 '	experience In %
	11:00 11:15 Oct- 5 Oct- 5	11:30 11:45 Oct- 5 Oct- 5	12:00 12:15 Oct- 5 Oct- 5	12:30 12:45 Oct- 5 Oct- 5	13:00 Oct- 5	13:15 13:30 Oct- 5 Oct- 5	13:45 14:0 Oct- 5 Oct-	10 14:15 5 Oct- 5	0 14:30 14:45 Oct- 5 Oct- 5	<u>**</u>
	APPLICATION PERFORMANCE What applications are most popul	<b>CE</b> lar	C H	ONNECTION PERFORMA ow are clients connecting	NCE		ROAMING F Are clients mo	ERFORMANCE oving between APs sea	mlessly	
	Total Bytes 19.2 GBytes			Total Co	onnections 04	_	_	Total Roaming A	Attempts	
V1	Se	elect Tim	neline							

This symbol (V1) denotes the provision to select the timeline in which the Vyom dashboard will provide the information in all the page which you select, except for Analytics and Provisioning page, which will be overall observation.



This symbol (V2) denotes the login information, depend on the login some section of Vyom dashboard will be enabled / disabled.





This symbol (V3) denotes the selected language, Vyom dashboard can support English and Japanese language.

## 1. DASHBOARD

#### Steps:

- Click Dashboard on the left side corner.

				Live [Past 4 H	łours] – 09/30/2	020	020	admin@relay2.com	•	📻 EN 🗸
Conj) Dashboard Sites Access Points	Critical	~ 0 CH	6 D2 ACCESS POINTS	~	CLIENTS		~	Solution Series Ser	, I	VWE Ask Me!
Cients	CUSTOMER QOE (QUALITY OF E	EXPERIENCE)								
Analysis Provisioning	09:30 10	00 1030	11:00	11:30	12:00	12:30	13:00	13:30	50 14:00	Experience In %
	Sep-30 Sep	p-30 Sep-30	Sep-30	Sep-30	Sep-30	Sep-30	Sep-30	Sep-30	Sep-30	

#### FIGURE 2 DASHBOARD

Symbol	Description
D1	Count of sites and its performance status
D2	Count of Access Point with its down status count and performance status under this customer account
D3	Count of Client with its connection and performance status under this customer account
D4	Count of critical issue under this customer account

## 1.1 DASHBOARD – SITES

- Click Dashboard Tab on the left side.
- Click the Sites down arrow button.



	m					Past Week	k - 09/23/2020 $\rightarrow$ 09/30/2020 admin@relay2.com $\bigcirc$ · $\bowtie$ EN $\sim$
Dashboard		1 s	TES		ി 1 ACCESS POI	NTS	CLIENTS
Access Points	•	1 Critical	Site	Status	A 1 Critical	Affected Clients	A 3 Critical, 0 Connected
Anatysis		1	default	Critical	1	3	
Provisioning							Connectivity Application Roaming Steering
							BEHAVIOR
			Previous	Page 1	of 1	Next	MIPAD-MIPad3.  Connectivity failures has impacted 1/1 AP(s) and 6 Client(s).  Clients were steered to a radio with low throughput affecting 1/1 AP(s) and 2 Client(s).

#### FIGURE 3 DASHBOARD SITES

Symbol	Description
D5	Shows the list of critical Sites.
D6	Provides the wireless experience of critical Sites.

### 1.2 DASHBOARD - ACCESS POINT

- Click Dashboard Tab on the left side.
- Click Access Points down arrow



	n					Past Week	- 09/23	/2020 → 09/30/2020	admin@relay2.com	👤 🗸 🛤 EN 🔶
Dashboard Sites		1 BITES		9)	1 ACCESS POINTS		⊐ 38	TS	S 5	VWE
Access Points	A 1 Critical		~	A 1 Critical		^	A 3 Critical, 0 Conn	ected ~	<b>A</b>	Ask Me!
Clients	SNo	Access Points	Name	Status	IP Address	Site	WIRELESS EXPERI	ENCE OF 'ap-28:6b'	-	
Analysis	1	b4:82:c5:00:28:6 b	ap-28:6b	Critical	192.168.100.106	default				
Provisioning										
							Connectivity	Application Experience	Roaming	Steering
							BEHAVIOR			
							Identified 2 issues	in AP .		
		Previous	Page	1 of 1		Next	<ul> <li>Connectivity f</li> <li>2 clients were</li> </ul>	allures has impacted 6 Client(s). e steered to a radio with low throu	ghput.	

#### FIGURE 4 DASHBOARD ACCESS POINT

Symbol	Description
D7	Shows the list of critical Access Points.
D8	Provides the wireless experience of critical Access Points.



### 1.3 DASHBOARD - WIRELESS CLIENT

#### Steps:

- Click Dashboard Tab on the left side.
- Click Clients down arrow

	n				Past Week	- 09/23/2020	→ 09/30/2020	admin@relay2.com	👤 🗸 📾 EN 🗸
Dashboard Sites	88	1 sites		ി <b>1</b> access poin	ITS	□ 38 clients		S 5	VWE
Access Points	🛕 1 Critic	al	~ 4	1 Critical	~	A 3 Critical, 0 Connected	^	<b>A</b>	Ask Me!
Clients	SN	0 Client		19 Model	Site	WIRELESS EXPERIENCE OF	Pramod-iphone	10	
'''' Analysis	1	84:3a:4b:5c:95:10	Admin-PC	Intel Corporate- Laptop	default		·		
Provisioning	2	da:b4:c5:01:ab:96	Pramod-iphone	MacBook	default				<b>C</b>
	3	a0:86:c6:4e:3e:8a	MIPAD-MiPad3e	Mi Pad	default	Connectivity	Application Experience	Roaming	Steering
						BEHAVIOR			
						Identified 2 issues in Clien	nt Pramod-iphone.		
		Previous	Page 1	of 1	Next	<ul> <li>Connectivity failures ( the client.</li> <li>Client got steered to a</li> </ul>	Client failed to Authentica a radio with low throughpu	ate due to invalid password ) t.	has majorly impacted

#### FIGURE 5 DASHBOARD WIRELESS CLIENTS

Symbol	Description
D9	Shows the list of critical Clients.
D10	Provides the wireless experience of critical Clients.



## 1.4 DASHBOARD - ISSUES

Steps:

- Click Dashboard Tab on the left side.
- Click Issues down arrow

	_		• Live [Past 4 Hours] ~ 09/30/2020	→ 09/30/2020	admin@relay2.co	om 🚺 🗸 🙀 EN 🗸
Dashboard Sites	D Critical	ි 6 ACCESS POINTS	CLIENTS	~	○ 10 ISSU	) JES
Clients Analysis Provisioning		Application Affect Slow Reaming Application Affect EAPOL Failure (Cl Bad Steering to R Sticky client EAPOL Failure (W Poor Overlag Application Affect EAPOL Failure du	ed (Low Rate) ed (Congestion) ent not Responding) kilo with higher Conge to Poor Signal Strengt to Poor Signal Strengt to Poor Signal Strengt Stoke Congestion) EAPOL Failure (Viend Aprication Atflected (Congestion) Sticky client EAPOL Failure (Wrong Key)	Affected Sites	Allected APs	Affected Clients  4 4  4 4  4  5 4  5 4  5 5 5 5 5 5 5
			Bad Steering to Radio with higher Congestion Poor Overlap	<ul><li>✤ 1</li><li>✤ 1</li></ul>	<ul><li>2</li><li>2</li></ul>	+ 2 + 2
			Previous	Page 1	of 2	Next

FIGURE 6 DASHBOARD ISSUES

Symbol	Description
D11	Shows list of issues and affected Sites, APs, Clients.



## 1.5 DASHBOARD - CUSTOMER QOE

#### Steps:

- Click Dashboard Tab on the left side.
- Click Customer QoE Graph

			• Live [Past 4 Hours] - 09/30/2020 -	→ 09/30/2020 admin@relay2.com	🗸 😝 EN 🗸
Dashboard Sites Access Points	Critical	Critical	CLIENTS	Solution State Solution Not State	VWE Ask Me!
Clients Analysis Provisioning	CUSTOMER QOE (QUALITY OF EXPEN	ENCE)	ay, 569 20, 1435 58: 86 %	<b>√</b>	50 % Experience in %
	13:00 13:15 13:30 Sep-30 Sep-30 Sep-30	13:45 14:00 14:15 14:3 Sep-30 Sep-30 Sep-30 Sep-	10 14:45 15:00 15:15 15:30 30 Sep-30 Sep-30 Sep-30 Sep-30	15:45 16:00 16:15 16:30 Sep-30 Sep-30 Sep-30 Sep-30	16:45 Sep-30
	APPLICATION PERFORMANCE What applications are most popular	CONNECTI How are cile	ION PERFORMANCE	ROAMING PERFORMANCE Are clients moving between APs seamlessly	

#### FIGURE 7 DASHBOARD QOE DISTRIBUTION

Symbol	Description
Dia	HiSense graph, shows the customer Quality of experience across all
D12	deployments of a customer. It is computed taking into account of all
	parameters affecting the experience of users across all the sites.
	You can click on any point to obtain the status of all the sites at that
	specific point in time.

Please check the below snapshot for detailed information of QoE metrices.

# 

Coprec	Inference: 0	Good Customer Experience @ We	ed, Sep 30, 2020 2:35 PM				× ×	
Dashboard	SITE DIS	TRIBUTION		ISSUES			VWE	
Access Paints Cores Paints Cores Analysis Previsioning	TOP 10 SITE	<ul> <li>Poor (QoE &lt; 40% )</li> <li>Good (QoE &gt; 70%)</li> </ul>	100.0% Good 1 Sites • Moderate (QoE - 40 - 70%) Inactive (Down)		1.0%		Experience in %	
	SNo	Sit	eName	QoE				
	1	d	efault	86%		More Details		

FIGURE 8 INFERENCE OF QOE METRICES

## 1.6 DASHBOARD - PERFORMANCE ANALYSIS

Steps:

- Click Dashboard Tab on the left side.
- Scroll down the Dashboard page.
- Go to the performance section

			Live [Past 4 Hours]	09/30/2020 →	09/30/2020	admin@relay2.com	🔪 🗸 😖 EN 🗸
کی) Dashboard							0 %
Sites	13:00 13:15 13:30 13:45 14:00 Sep-30 Sep-30 Sep-30 Sep-30 Sep-30	14:15 14:30 Sep-30 Sep-30	14:45 15:00 Sep-30 Sep-30 5	15:15 15:30 Sep-30 Sep-30	15:45 16:00 Sep-30 Sep-30	16:15 16:30 Sep-30 Sep-30	16:45 Sep-30
Access Points	1		r = - 1				Ask Me!
Clients	APPLICATION PERFORMANCE U13	CONNECTIO How are client	DN PERFORMANCE	1	ROAMING PI Are clients mo	ERFORMANCE D15 ving between APs seamless	ly ly
Analysis	Total Bytes		Total Connections			Total Roaming Attemp	ots
Provisioning	67.3 GBytes		145			99	
	Youtube		$\sim$			$\sim$	
	Browsing		97%			86%	
	Skype	- Si	140 Success	5 ailed	Su	85	14 Failed
	Amazon Prime						
	0 15 30 45 60 GBytes						

FIGURE 9 PERFORMANCE ANALYSIS

Symbol	Description



D13	This is overall data traffic usage under this customer account
D14	This shows how many connections had been established by clients with APs across all the sites in this customer account.
D15	This shows how many roaming activities have been performed by the clients across APs under this customer account.

#### 1.7 DASHBOARD - CLIENT ANALYSIS

- Click Dashboard Tab on the left side.
- Scroll down the Dashboard page.
- You will find Client models, Wireless Radios, Behavior, Usage.

		● Live [Past 4 Hours]  v 09/30/2020  → 09/30/2020	admin@relay2.com  🖉 🗸 🙀 EN 🗸
Control of the second of the s	Image: Display training tr	CLIENT WIRELESS RADIOS D17 Which Clients Radios are most popular Total Clients 48 40 30 20 10 0 11AC 11N CLIEN Station Rapidi CLIEN High L Moder Low U	IT BEHAVIOR D18
	AP MODELS What AP Models are deployed	CONNECTED CLIENTS How many clients are being served	



Symbol	Description
D16	Shows a pie chart with client models and its distribution under this customer account.



D17	Shows a vertical bar chart with classification as 11ac, 11n and legacy client and its count under this customer account.					
D18	Show a horizontal bar chart with classification as stationary / Agile clients with percent depend on the no of clients under this customer account.					
D19	Shows a horizontal bar chart with classification as higher/moderate/low usage with percent depend in the no of clients under this customer account.					



#### 1.8 DASHBOARD - ACCESS POINT ANALYSIS

#### Steps:

- Click Dashboard Tab on the left side.
- Scroll down the Dashboard page.
- We can see the Access Point Analysis.



FIGURE 11 ACCESS POINT ANALYSIS

Symbol	Description
D20	Shows as pie chart of different models of AP (eg: DIR 825/ DIR xxx) and its distribution under this customer account.
D21	Shows the number of connected clients in this site.



## 2. Site

## 2.1 SITE - DETAILS

Steps:

- Click Site Tab on the left side.

Coprecor	mm										• Li	ive [Past 4 Hour	s] - 10/01/2	$220 \rightarrow 10$	/01/2020	admin@rela	y2.com 🚺 -	- 100 EN -
Deskboard Silves		SITES	default				S2				S	3				S4	•	VWE
Access Prints	<b>S1</b>	6 APs	6 Up	o Down		43 Clien	ts	1 Connected		89.0 GByte Usage	ıs 60 D	6.6 GBytes ownload	22.4 GBytes Upload	Active	a AP e Client	corride	or_2 L-PC	Ask Me!
		HISENSE	- QUALITY OF	EXPERIENCE - Ç	QOE													
Provisioning						v		~~~~		~							73	
		11:30 Oct- 1	11:45 Oct-1	12:00 12:11 Oct- 1 Oct-	5 12:30 1 Oct- 1	12:45 Oct- 1	13:00 Oct- 1	13:15 13:30 Oct-1 Oct-1	13:45 Oct- 1	14:00 Oct- 1	14:15 Oct- 1	14:30 1 Oct-1 0	4:45 15:00 Det- 1 Oct- 1	15:15 Oct- 1	15:30 Oct- 1	15:45 16:00 Oct- 1 Oct- 1	0 16:15 1 Oct-1	
		ENABL	ED WLANS		All				×									
		APP.	LICATION USAG	GE : ALL WLANS		WIREI	ESS EXPERI	ENCE										
		90	0.0 GB		•		96	%		100%	)		92%			70%		

F	IGU	IRE	12	SITE	DETAILS

Symbol	Description
S1	Shows status of APs. Total number of APs in the Site, APs which are
'J	up and down.
S2	Shows total number of clients seen during the selected period and
'J	current connected clients in the site.
S3	Shows the total usage in the site with the download and upload data
' J	usage.
	Shows the most active AP and the active client in the selected site

## 2.2 SITE - HISENSE - QOE



Steps:

- Click Site Tab on the left side.
- Click on the Hisense QoE Graph

								• Live [Past 4 Hou	rs] - 10/01/2020	→ 10/01/2020	admin@relay2.com	• •	📾 EN 🗸
Duckboard Sime	SITES	default											(VWE
Access Points	6 APs	6 Up	o Down	43 Clients	3 Conn	cted	86.4 GBytes Usage	64-5 GBytes Download	21.9 GBytes Upload	Active AP Active Client	corridor_2 Admin-PC		Ask Me!
Anadysta	HISENSE -	QUALITY OF EX	PERIENCE - QOE										
Providencing		V		~~~~		S5		~			~ ~	75 50 75	
	12:15 Oct- :	12:30 0 ct- 1	12:45 13:00 Oct- 1 Oct- 1	13:15 13:30 Oct- 1 Oct- 1	13:45 54:00 Oct- 1 Oct- 1	54135 54130 Oct- 1 Oct- 1	54545 5 Oct- s 0	5:00 15:15 et-1 Oct-1	15:30 15:45 Oct- 1 Oct- 1	s6000 s61s5 Oct-s Oct-s	16:30 16:45 Oct-1 Oct-1	o 87500 Oct- s	
	ENABLE	D WLANS	A	l.									
	APPLI	CATION USAGE	: ALL WLANS	WIRELESS	EXPERIENCE								
	86.	4 GB		A	97%		100%		92%		73%		

#### FIGURE 13 SITE QOE HISENSE

Symbol	Description				
S5	<ul> <li>Shows the hi-sense value with the wireless experience (number of issues in the site).</li> <li>Click on any point of hi-sense to understand the experience and issues affecting experience at that specific time.</li> </ul>				



FIGURE 14 SITE QOE HISENSE – POINT SELECTION



Symbol	Description
S6	Selected timeframe is highlighted
S7	Wireless experience is updated per the selected time period. Issues related to connectivity, application, roaming, steering etc are also shown.

## 2.3 SITE - APPLICATION USAGE

Steps:

- Click Site Tab on the left side.
- Scroll down the Site page and check for the Site Application Usage

			● Live [Past 4 Hours] → 09/29/2020 → 09/29/202	20 admin@relay2.com 👤 🗸 😝 EN 🗸
Dathson	ENABLED WLANS			VWE
<u>்</u>	APPLICATION USAGE : ALL WLANS	WIRELESS EXPERIENCE		Ask Me!
cliens	Total Bytes 59.9 GB S8	96%	00% 96%	71%
Provisioning		3 Failures, 2 Clients Affected 6 Active 50 Connection Attempts 6 Client Connectivity App	Applications a Failures at s.difected 46 Reaning Attempts Alterations Roaming	a Fallures 7 Steering Steering
		CONNECTIVITY ISSUES	EAP 4-WAY (CLIENT NOT RESPONDING	5) FORT ANALYSING
	<ul> <li>Tostube</li> <li>Browsing</li> <li>Skope</li> <li>Amazon Prime</li> <li>Whatsapp</li> <li>Zoom</li> </ul>	DICP Post Expired DICP Not Initiated Store DICP Response DICP Not Initiated DICP Response DICP Respo	1 = / 2 WLANo are affected 23% = / 6 APs are affected 5% = / 30 Clients are affected	
https://devng.vyom.apreco	omm.ai/#/site			· · · · · · · · · · · · · · · · · · ·

#### FIGURE 15 SITE APPLICATION USAGE

Symbol	Description
<b>S8</b>	For All or Selected WLANs from "ENABLED WLANS" dropdown,
L	different applications used by the clients in the site with their
	respective percentage usage are shown.



2.4 SITE - ISSUES

Steps:

- Click Site Tab on the left side.
- Scroll to find wireless experience.



FIGURE 16 SITE ISSUES

Symbol	Description
S9	Shows different category of wireless issues such as connectivity, performance, roaming and stability. Upon clicking on each category, users will have an option to select the specific Issue from the bar chart.
	Aprecomm's AI Engine will scope this problem as either a WLAN Specific, AP Specific, Client Specific Issue based on the Nature of the issue

## 2.5 Site - Issues – Root Cause Analysis – Connection Issues – DHCP – Affected AP

- Click Site Tab on the left side.
- Scroll to find wireless experience.

# Raprecomm

		@Lire(Past_4 Hours) - $10/01/2020 \rightarrow 10/01/2020$ admin@relayz.com	- 🕫 EN 🗸
Dashboard	ENABLED WLANS	(All *)	VWE
Sites	APPLICATION USAGE : ALL WLANS	WIRELESS EXPERIENCE	Ask Me!
Cienti	91.4 GB	(96%) (100%) (92%) (80%)	
Analysis		Fallows, a Cliente Affected     Po Construction     Po	
Provisioning		S10 Consectivity Applications Boarning Streeting	
		CONNECTIVITY ISSUES EAP 4-WAY (FAR AWAY) 5007E- WLAN	
	<ul> <li>Youtube</li> </ul>	(Fisher Educations Related and and	
	<ul> <li>Browsing</li> </ul>	DHCP Pool Expired [ LINK to zerect rostle berow]	
	<ul> <li>Skype</li> </ul>	DHCP Net Indiated	
	Amazon Prime	DHCF Server (blade to C11 225)	
	Zoom	EAP 4-Way (AP Not initiated)	
	Netflix	Wrong Password	
	<ul> <li>File Download</li> </ul>	EAP 4-Way (Clear too Res	
	<ul> <li>Webex</li> </ul>	Rejected by AP	
		Number of Issues	

FIGURE 17 SITE ISSUES – RCA - CONNECTION ISSUES – AFFECTED WLANS

Symbol	Description
510   S10	Click on the connectivity button. This shows different Connection problems that happened in the deployment.
	Shows DHCP failures, DHCP Server crashes, DHCP Server slow response, EAPOL failures etc. Select one issue (e.g: EAP 4-way)
 	It shows you the affected WLANS, affected APs and affected clients. User can Click on the WLANs/APs/Clients to see the more details about which WLAN, AP, Client is most affected.

## 2.6 SITE - ISSUES - ROOT CAUSE ANALYSIS - ROAMING ISSUES - SLOW ROAMING

- Click Site Tab on the left side.
- Scroll to find wireless experience.
- Click on Roaming button



Correcomm			● Live [Past 4 Hours] - 09/29/2020 → 09/29/2020	admin@relay2.com 🚺	∨ ∰ EN ∨
Laboration Laboration Analysis Laboration Laborati	APPLICATION USAGE : ALL WLANS Total Bytes 75.4 GB	VIRELESS EXPERIENCE 95% 1 Faliures, 3 Clinita Affected 10 Consectivity Consectivity 0 Consectivity 0 Consectivity 0 Consectivity	93% 5 Stiflarss 67 Sounding Attempt Rounding	o Falleres Steering Attempts Steering	NAL ME
	<ul> <li>Voutube</li> <li>Brouge</li> <li>Annacon Prime</li> <li>Wintrapp</li> <li>Methic</li> <li>Wicket</li> <li>Zoom</li> </ul>	ROAMING USUES	SLOW ROADLING 10 <sup>50</sup> x / 2 WLANs are affected 23 <sup>50</sup> x / 6 APs are affected 3 <sup>50</sup> x / 30 Clients are affected 4	SOTE CLIENT	

FIGURE 18 SITE ISSUES – RCA – ROAMING ISSUES – AFFECTED CLIENTS

Symbol	Description
S13	This shows different Roaming problems that happened in the deployment such as slow roaming, roaming failures due to sticky clients etc. Click on clients to see the insight details as shown below.



FIGURE 19 SITE ISSUES- RCA – ROAMING ISSUES – AFFECTED CLIENTS LIST

Symbol	Description
S14	Click on the number of Clients to see the affected clients. Click on the client Name, switches to the Client Page.



#### 2.7 SITE - ISSUES - ROOT CAUSES ANALYSIS - CONNECTION ISSUES - AFFECTED APS

Steps:

- Click Site Tab on the left side.
- Scroll to find the Wireless Experience

Coprecomm				•	□ Live [Past 4 Hours] - 10/01/2020 → 10/01/20	admin@relay2.com	∨ <b>⊮</b> ∎ en ∨
C-0 Distbourt	ENABLED WLANS	All					VWE
<u>.</u>	APPLICATION USAGE : ALL WLANS		WIRELESS EXPERIENCE				Ask Me!
Access Points	Total Bytes						
Circus Analysia	91.4 GB		96%	100%	92%	80%	
Tat Previouning			8 Failures, 4 Clients Affected 179 Connection Attempts	9 Active Applications 8 Clients Affected	10 Failures 131 Roaming Attempts	2 Failures 10 Steering Attempts	
			Connectivity	Applications	Roaming	Steering	
			CONNECTIVITY ISSUES		EAP 4-WAY (FAR AWAY)	SCOPE WLAN	
	<ul> <li>Youtube</li> </ul>		1000	e Falastiana Balant			
	<ul> <li>Browsing</li> </ul>		DHCP Pool Expired	to select issue below]	1/2 WLANs are affected	l	
	<ul> <li>Skype</li> </ul>		DHCP Not Initiated				
	<ul> <li>Amazon Prime</li> </ul>		DHCP server (Unable to				
	Whatsapp		EAP 4-Way (AP Not Initiated)		33.20 2 / 6 APs are a S	15 ¦	
	<ul> <li>Zoom</li> <li>Zoom</li> </ul>		Wrong Password		· · · · · · · · · · · · · · · · · · ·	'	
	File Download		EAP 4-Way (Client not Res	A May (Parama)	-14		
	Weber		EAP 4-Way (Far away)	issues: 1	2 / 44 Clients are affecte	d	
	- 11 COLL	-	Rejected by AP	2 3 4 5 6			
				Number of Issues			

FIGURE 20 SITE ISSUES – RCA – CONNECTION ISSUES – AFFECTED AP

Symbol	Description
S15	Click on APs to see the detailed insights.

Coprecon	nm			Live[Pas	t 4 Hours] - 10/01/2020 -> 10/01/2020	admin@relay2.com 👤 🗸 😖 EN 🗸
Dastboard	ENA					VWE
Bitted	А	Scope: Cli	ent		:	<
Access Points	Te	Wlan	# of Failures	Affected %	Affected APs	
ctient:	5	Corp-Net	4	300%	2 APs     bq:82xeg:00:20:09     bq:82xeg:00:24xe2	S16
Provisioning						s Hittprts
						ENT
		Previous	Page	1 of 1	Next	
					Close	





Symbol	Description
S16	<ul> <li>Click on the number of APs to see the detailed insights.</li> <li>Click on the AP name, switches to the AP Page.</li> </ul>

#### 2.8 SITE - AP PERFORMANCE ANALYSIS

Steps:

- Click Site Tab on the left side.
- Click on the Site Performance Analysis

Coprecomm						• Live	[Past 4 Hours] - 09/2	g/2020	admin@relay2.com 👤	V 😹 EN V
Dathoart Sile:				, , , , , , , , , , , , , , , , , , ,	Number of Iss	ues				VWE
		S17	Performance Analysis				Behavi	or Analysis		Ask Me
Audiyite	Access Po	ints	Ŧ							
Few initiality	SNo	AP	Mac Address	IP Address	Status (present)	Devices (present)	Usage	Issues	Firmware	
	1	b4:82:05:00:26:00	b4:82:05:00:26:00	192.168.100.52	•	3	2.0 GB	4	1.9.6-20200826_ra2xx	
	2	b4:82:05:00:24:02	b4:82:05:00:24:02	192.168.100.54	•	6	5-4 GB	3	1.9.6-2020	1
	3	b4:82:05:00:24:00	b4:82:05:00:24:00	192.168.100.112	•	8	21.3 GB	3	1.9.6-2020, S20	]
	4	b4:82:05:00:24:bb	b4:82:05:00:24:bb	192.168.100.104	•	4	1.1 GB	S19	1.9.6-20200826_F82XX	
	5	b4:82:05:00:21:8b	S18	192.168.100.51	•	10	8.3 GB	'	1.9.6-20200826_ra2xx	
	6	b4:82:e5:00:20:f9		192.168.100.114	•	18	35.2 GB	3	1.9.6-20200826_ra2xx	
				_						

#### FIGURE 221 SITE PERFORMANCE ANALYSIS – ACCESS POINTS

Symbol	Description
S17	Shows the usage of the AP, Mac Address, IP Address, status (Up/Down), number of devices connected, Issues and firmware updates.
S18	Clicking on Mac Address switches to the AP Page.
S19	Clicking on the number of issues shows more details about when and what kind of issues has happened
S20	Clicking on Firmware shows the Firmware updates.

#### 2.9 SITE - BEHAVIOR ANALYSIS – CONNECTED CLIENTS



#### Steps:

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Select connected clients



#### FIGURE 23 SITE BEHAVIOUR ANALYSIS – CONNECTED CLIENTS

Symbol	Description
S31	Displays average number of clients connected to the APs in the selected site
S32	Displays minimum number of devices connected to the APs in the selected site.
S33	Displays average number of devices connected to the APs in the selected site.
S34	Displays maximum number of devices in the selected site.

## 2.10 SITE - BEHAVIOR ANALYSIS - CONNECTION TIMES

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Click on Connection Time





#### FIGURE 24 SITE BEHAVIOUR ANALYSIS – CONNECTION TIMES

Symbol	Description
S21	Displays the baseline connection times across all clients in the deployment.
522	Shows the minimum connection time across all clients in the site.
S23	Shows the average connection time across all clients in the site.
S24	Shows the maximum connection time across all clients in the site.



## 2.11 SITE - BEHAVIOR ANALYSIS – OPERATING SIGNAL (DETECTS POOR AP POSITIONING IN DEPLOYMENT)

#### Steps:

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Select Connection Signal



#### FIGURE 25 SITE BEHAVIOUR ANALYSIS – OPERATING SIGNAL

Symbol	Description
S25	Displays the distribution of Connection signal across the sites in a histogram fashion. This helps the users to understand what % of users are facing poor signal in the deployment. If there is a large % of users facing poor signal, then repositioning of APs would be necessary.
S26	Displays minimum operating signal across all clients in the site
S27	Displays average operating signal across all clients in the site.
S28	Displays maximum operating signal across all clients in the site



## 2.12 SITE - BEHAVIOR ANALYSIS – LATCH TIMES

Steps:

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Select Latch Times



#### FIGURE 26 SITE BEHAVIOUR ANALYSIS - LATCH TIME

Symbol	Description
S29	Displays typical duration for which the clients are latched to an AP in the site. This would give an indication of how dynamic our
	Deployment is. Eg: Desktops in office environments would have large
	latch times over mobiles.

#### 2.13 SITE - BEHAVIOR ANALYSIS - ROAMING LATENCY

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Select Roaming Latencies





#### FIGURE 27 SITE BEHAVIOUR ANALYSIS – ROAMING LATENCIES

Symbol	Description
<b>S30</b>	Displays the average roaming latency in the deployment. It also shows the roaming anomalies that have occurred which are way beyond this baseline threshold.

### 2.14 SITE - BEHAVIOR ANALYSIS - TRAFFIC

- Click Site Tab on the left side.
- Click on the Site Behavior Analysis
- Select traffic



	@ Live [Fast 4 Hours] → 09/29/2020 → 09/29/2020 admin@relay2.com	🛤 EN 🗸 🅈
Con Desilioard		
ales.		
Access Points	Performance Analysis Belavior Analysis	Ask Me!
clients	Connected Citents Connection Time Signal Latch Time Roaming Time Traffic	
Analysis	Minimum Average Maximum	
Provisioning	o Mbps S36 42.38 Mbps S37 166.6 Mbps S38	
	150	
	multimenter and the second for the s	
	54p-29	

#### FIGURE 28 SITE BEHAVIOUR ANALYSIS – CONNECTED CLIENTS

Symbol	Description
S35	Displays average traffic usage across all the clients in the site. This will help the users to understand usage trends.
S36	Displays minimum usage in the site
S37	Displays average usage in the site
S38	Displays maximum usage in the site


## 3. ACCESS POINT

## 3.1 AP - STATUS

Steps:

- Click Access Points Tab on the left side.
- Use the dropdown to select specific AP

Caprecomm					Sites	default	~	• Live [Past 4 Hours]	- 09/30/202	10 → 09/30/20	20 admin	§relay2.com	× 😼 EN 🗸
Duthbard Sites	ACCESS POINTS	b4:82:05:00:20:f9	× *	10 Incidents	Detected					A2			VWE
Access Points	corridor_2 A1 NAME	92.168.100.114 	RA270 MODEL	1.9.6-2020082 FIRMWARE	default SITE		35-8 GBytes USAGE	30.3 GBytes DOWNLOAD	5.6 GBytes UPLOAD	2 RADIOS	2 WLANS	16 CLIENTS	Ask Me!
Analysis	HISENSE - QUALITY O	F EXPERIENCE - QOE											
Fight Providening										v U		75	
												50 25	
	13:00 13 Sep-30 Sep	145 13330 P-30 Sep-30	13:45 14:00 Sep-30 Sep-30	s4:15 Sep-30	s4:30 Sep-30	14:45 Sep-30	15:00 Sep-30	15:15 15:30 Sep-30 Sep-30	15:45 Sep-30	stico Sep-30	16:15 Sep-30 5	0 10:30 10:45 lep-30 Sep-30	
	ENABLED WLANS	1	Л										
			Wireless Experience						Client	8			
	WIRELESS EXF	PERIENCE											
													•

#### FIGURE 29 ACCESS POINT DETAILS

Symbol	Description
A1	It shows selected Access Point's Details like Name, IP Address, Site, Model and Firmware.
A2	It shows Access Point's, download and upload usage along with number of radios, WLANs and connected clients.



3.2 AP - HISENSE - QOE

#### Steps:

- Click AccessPoints Tab on the left side.
- Click on any point of the Hisense QoE graph



#### FIGURE 30 AP QOE HISENSE

Symbol	Description
A3	Shows the Quality of experience of the AP w.r.t the connected clients AP Hisense correlates various parameters of the AP such as
	<ul> <li>AP Radio Status (of 2.4 and 5Ghz)</li> </ul>
	<ul> <li>Type, Number of Clients connected and their demands</li> </ul>
	° Position of Clients.
	° DHCP Server responses.
	<ul> <li>Network Congestion Status</li> </ul>
	<ul> <li>Internet Latency Status</li> </ul>
	<ul> <li>Application traffic and amount of the time it got impacted</li> </ul>



Correcor	nm			Sites defz	ult -	ive [Past 4 Hours] v 10/02/2020 -> 1	o/o2/2020 admin@relay2.com	•	🗯 EN 🗸 🔺
Destaboard		ENABLED WLANS	All						VWE
3765		_	Wireless Experie	nce		Clients			Ask Me!
Access Polans		EVOLV INSIGHTS :							
cliens					Δ4			A	
				Good Wireless Expe	rience				
			Г			7			
		1	WiFi	Backhaul Interne		Applications			
			SignalCoverage : Good			Browsing: Not Affected			
			WiFi Packet Drops : Good Capacity : Good		_	Amazon : Not Affected			
			Connectivity: Good Roaming: Good	Download: 6.49 Upload: 2.14 Mi Backet Downs : 6	Mbps ops				
			Steering: Good	Latency: Good					

#### FIGURE 31 AP HISENSE EVOLV INSIGHTS

Symbol	Description
A4	Select a point on AP hi-sense to see the detailed insights. Or Users can zoom to on any specific region on hi-sense to understand the experience in the Period of Interest.



## 3.3 AP - INCIDENTS

- Click AccessPoints Tab on the left side.
- Click on Incidents Detected adjacent to Access Points dropdown

Caprecomm			Sites default - Past 3 Days	s	29/2020 -> 10/02/3	1020	admin@relay2.com	- 1988 EN - V
Delbard	ACCES		,					
sites		£ b4:82:05:00:20:f9 Incidents	A5			×		
cons Points	corrido. NAME	EventTime	Incident	Severity			o CLIENTS	Ask M
dies		Thursday, Oct, 1st, 17:52:45	2 roaming failure(s) due to Slow Roaming.	P4	More Details			
Analysis	HISEN	Thursday, Oct, 1st, 16:52:45	Browsing affected due to Low Rate.	P4	More Details			
es		Thursday, Oct, 1st, 16:52:45	1 roaming failure(s) due to AP slow response.	P4	More Details			
wisioning		Thursday, Oct, 1st, 16:52:45	Spoorzecký Indelents       AS         EventTime       Incident       Sevetity         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to Selve Roaming.       P.4       More Details         lav, Okt, str. tyrgat 43       a reaming fulture(s) dae to EAPOL Fulture dae TPOR Signal.       P.4       More Details         lav, Okt, str. tyrgat 43       g connaction fulture(s) dae to EAPOL Fulture dae TPOR Signal.       P.4       More Details         lav, Okt, str. tyrgat 43       g connaction fulture(s) dae to EAPOL Fulture dae TPOR Signal.       P.4       More Details         lav, Okt, str. tyrgat 43       g connaction fulture(s) dae to EAPOL Fulture dae TPOR Signal.       P.4       More Details					
		Thursday, Oct, 1st, 15:52:45	1 roaming failure(s) due to Slow Roaming.	P4	More Details		73	
		Thursday, Oct, 1st, 15:52:45	Browsing affected due to Low Rate.	P4	More Details		50	
		Thursday, Oct, 1st, 14:52:45	a connection failure(s) due to EAPOL Failure due to Poor Signal.	P4	More Details		25	
		Thursday, Oct, 1st, 14:52:45	s roaming failure(s) due to AP slow response.	P4	More Details		0 00:00	
		Thursday, Oct, 1st, 12:52:45	YouTube affected due to Low Rate.	P4	More Details		Oct- 2 Oct- 2	S 
		Thursday, Oct, 1st, 12:52:45	3 connection failure(s) due to EAPOL Failure (Client not Responding).	P4	More Details			
		Thursday, Oct, 1st, 12:52:45	YouTube affected due to Poor Signal Strength.	P4	More Details			
	ENAB	Thursday, Oct, 1st, 08:52:45	1 connection failure(s) due to EAPOL Failure due to Poor Signal.	P4	More Details			
		Thursday, Oct, 1st, 08:52:45	Browsing affected due to Congestion.	P4	More Details			
		Thursday, Oct, 1st, 06:52:45	3 connection failure(s) due to EAPOL Failure (Client not Responding).	P4	More Details	-		
		< Previous	Page 1 of 4 Showing 1 - 15 of 46 total rows	N	ext	>		
						Close		

FIGURE 32 ACCESS POINTS INCIDENTS DETECTED

Symbol	Descript	tion
A5	•	Shows the incidents (issues) detected in the selected AP during selected time period Click on More Details of any incident to see the details about it



## 3.4 AP - WIRELESS EXPERIENCE

- Click AccessPoints Tab on the left side.
- Scroll down to wireless experience
- Check the wireless experience



FIGURE 33 AP WIRELESS EXPERIENCE – CONNECTIVITY

Symbol	Description
A6	<ul> <li>Shows different category of wireless issues such as connectivity, performance, roaming and stability. Upon</li> <li>Clicking on each category, shows User Experience, no. of issues with affected clients and the recommendations.</li> </ul>
A7	Click on More Details. Screen will scroll down to show all relevant events that happened to result in this specific experience. User can click on any events to get more Insights as below



FIGURE 34 AP WIRELESS EXPERIENCE – EVENT ANALYSIS DETAILS



Steps:

- Click Access Points Tab on the left side.
- Scroll down to wireless experience
- Click on Applications tab

		Sites default - Past 12 Hours	$\label{eq:10} $$ $$ $$ 10/05/2020 $$ $$ $$ $$ 10/05/2020 $$ admin@relay2.$$ $$ $$ admin@relay2.$$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $	com 🕘 - 🕫 EN -
colourt diana accordination	WIRELESS EXPERIENCE	80%	77%	VWE Skie Mer
Gleen Andynk Freithanng	o Failures, o Clients Affected 6 Application / Detected 73 Connection Attempts 1 Clients Affected Connectivity Applications	1 Fallmes 10 5 Steering Attempts 41 Roam Steering Ro	Failures Up for 12 hrs unlig Attempts Stability	
	SNo         User Experience           1         Browsing Experience is affected for 1 minute, 53 seconds, with intermittent delays/buffering issues.	Issue Foor Signal Strength affected 1 Clients A8	Recommendation I: Move the client closer for better performance	asights Info
	$_{2}$ YouTube is facing slight glithes in experience, may not be obvious to end user.	Poor Signal Strength affected 1 Clients	No action required at this moment.	More Info
	Parelana	Page 1 of 1	Next	

#### FIGURE 35 AP WIRELESS EXPERIENCE - APPLICATION

Symbol	Description
A8	It shows affected applications with the number of clients which are facing issues. Click on "Clients" to see the Affected Client List as shown below figure 36.
A9	Click on More info in Insights to see the events as shown below in Figure 37.



Raprecomm				Sites default	- Live [Past 4 Hours] -	10/05/2020	admin@relay2.com	✓ ₩ EN ✓
Con Desbloard Sites	ENABLED WLANS							VWE
Access Palats		Affected Clie	ent List			×		Ask Me
Cimts		SNo	Client	Client MAC	Radio			
	WIRELESS EXPERIENCE	1	ea:79:80:49:d5:75	ear79:80:49:d5:75	SGhz			
Providening	100%					(	100%	
	o Failures, o Clients A 28 Connection Atte					Uj	o for 4 hrs	
	Connectivity						Stability	
	SNo					mendation	Insights	
	Browsing is facing sl					red at this moment.	More Info	
						_		
			Previous	Page 1 of 1	Next			
					Cio			

FIGURE 36 AP WIRELESS EXPERIENCE- AFFECTED CLIENT LIST



FIGURE 37 AP WIRELESS EXPERIENCE – MORE INFO – EVENT INSIGHTS

## 3.5 AP - DEMAND ANALYSIS

- Click AccessPoints Tab on the left side.
- Scroll down to demand analysis



aprecomm		Sites default	- Live [Past 4 Hours] - 10/02/2	$020 \rightarrow 10/02/2020$ admin@relay2.com	V 📾 EN
50 sard					
					Asi
in s	Demand Analysis	Airtime Analysis	Event Analysis	Behavior analysis	
	17.6 GBytes	·		* Update every minute	
e la		A10		100	
				MByre So	
		minum	man when the	mon .	
	08:00:00 08:15:00 08:30:00 08:45:00 Oct-2 Oct-2 Oct-2 Oct-2	09:00:00 09:15:00 09:30:00 09:45:00 0ct-2 0ct-2 0ct-2 0ct-2	10:00:00 10:15:00 10:30:00 10:45:00 11 Oct- 2 Oct- 2 Oct- 2 Oct- 2 Oct- 2 O	00:00 11:15:00 11:30:00 11:45:00 ct- 2 Oct- 2 Oct- 2 Oct- 2	
	APPLICATIONS				
		70.9.0	asy. to	0.0	
	Voice/Video Calls	Entertainment	Browsing	File Sharing	

#### FIGURE 38 AP DEMAND ANALYSIS

Symbol	Description
A10	Shows the different application usages by the connected clients that are connected to the selected AP

## 3.6 AP - AIRTIME ANALYSIS

Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Airtime Analysis tab.

Coprecomm		Sites default	- Live [Past 4 Hours] -	10/02/2020 $\rightarrow$ 10/02/2020 admin@relay2.com	✓ 100 EN ✓
Deabhard Jana Alam	Previous	Page	i ofi	Next	VWE Ask Me:
clients	Demand Analysis	Airtime Analysis	Event Analysis	Behavior analysis	
Analysis Provisioning	CHANNEL LOAD 2.4G RADIO	- CURRENT CHANNEL: 2412 MHZ	5G RADIO	- CURRENT CHANNEL: 5240 MHZ	
	0 L M	A11	Radio		
	αεώταο σεύσοο σενόσοο σενόσοο τονάσοο Οστ-2 Οστ-2 Οστ-2 Οστ-2 Οστ-2	183680 11.0050 11.1686 Oct-2 Oct-2 Oct-2	X 08:0000 08:5100 09:0000 09:5100 00:-2 00:-2 00:-2 00:-2	10x0000 1020000 11x0000 11x000 0α-2 0α-2 0α-2 0α-2	
Aprecomm © 2020.				Version 3+240	7dza 🗸

#### FIGURE 39 AP AIRTIME ANALYSIS



Symbol	Description
A11	<ul> <li>Shows the channel usage and the channel interference in 2.4 and 5Ghz. Displays the current channel used by the Radios</li> <li>Along with the current channels selected by the radios, it also shows channel transitions by the selected AP during the period of interest.</li> </ul>



## 3.7 AP - EVENT ANALYSIS

#### Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Event Analysis



#### FIGURE 40 AP EVENT ANALYSIS

Symbol	Description
A12	<ul> <li>Displays all the events happened in the AP during the selected time period</li> <li>Clicking on the events gives the list of events during that time with a provision to see more details about those events</li> </ul>



## 3.8 AP EVENT ANALYSIS - INSIGHTS

Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Event Analysis
- Click on the Event Analysis of the AP
- Click on any event which would need analysis



FIGURE 41 AP EVENT ANALYSIS - INSIGHTS

Symbol	Description
A13	Click on any event to see the detailed insights. This will show Event Insights window. Connected AP Information or the APs between which the client is roaming or the Radio Information in case of Steering is displayed.
	client's behavior with the connected AP and comparing its behavior with other APs in the site can also be seen here.

## 3.9 AP - BEHAVIOR ANALYSIS – CONNECTION TIMES

Steps:

- Click AccessPoints Tab on the left side.



- Scroll down to Behavior Analysis
- Select Connection Times



#### FIGURE 42 AP BEHAVIOUR ANALYSIS - CONNECTION TIMES

Symbol	Description
A14	Shows the average Connection time of all clients connected to AP. It also marks anomalies which are above acceptable limit
A15	Shows minimum time taken by the client to connect to the selected AP during the selected time window
A16	Shows average time for which the client is connected to the selected AP during the selected time window
A17	Shows maximum time taken by the client to connect to the selected AP during the selected time window

## 3.10 AP - BEHAVIOR ANALYSIS - SIGNAL

- Click AccessPoints Tab on the left side.
- Scroll down to Behavior Analysis
- Select Signal



	Demand Ana	lysis		Airtime A	Analysis		Ev	ent Analysis			Beha	ivior analysis	
	Clients	Si	ignal	Connection T	îme	Latch Time		Traffic Patterns		Latency		System Stati	stics
	0	Minimum -59dBm	A19			Average -51dBm	A2(	כ			Maximum -44dBm	A2	L
	-25											* Updated every	minute
Signal Strength (cBm	-50				Friday, Oct, 2nd, 11:0 Lient: a0:86:c6:4e:30 Rssi: -48 dBm	M:23 :2a		A18					
	-100 10:50:00 10:52 Oct= 2 Oct-	::00 10:54:00 2 Oct- 2	10:56:00 10:58:00 Det- 2 Oct- 2	0 11:00:00 11:02 Oct- 2 Oct-	00 11:04:00 11 2 Oct- 2 O	06:00 11:08:00 ct- 2 Oct- 2	11:10:00 11:1 Oct- 2 Oct	2:00 11:14:00 - 2 Oct- 2	11:16:00 Oct- 2	11:18:00 11:2 Oct- 2 Oct	0:00 11:22:00 - 2 Oct- 2	11:24:00 11:2 Oct- 2 Oc	6:00 t- 2

FIGURE 432 AP BEHAVIOUR ANALYSIS – SIGNALS

Symbol	Description
A18	Shows the signal strength in which clients are connect to AP.
A19	Shows minimum signal at which a client is connected to selected AP in the selected time window
A20	Shows average signal at which a client is connected to selected AP in the selected time window
A21	Shows maximum signal at which a client is connected to selected AP in the selected time window

## 3.11 AP - BEHAVIOR ANALYSIS - CLIENTS

- Click Access Points Tab on the left side.
- Scroll down to Behavior Analysis
- Select clients





#### FIGURE 44 AP BEHAVIOUR ANALYSIS – CLIENTS

Symbol	Description
A22	Show how many clients are connected to this AP in that timeline.
A23	Shows minimum number of clients connected to the selected AP within the selected time window
A24	Shows average number of clients connected to the selected AP within the selected time window
A25	Shows maximum number of clients connected to the selected AP within the selected time window
A26	Shows average per day connections in the selected AP within the selected time window

## 3.12 AP - BEHAVIOR ANALYSIS – LATCH TIME

- Click AccessPoints Tab on the left side.
- Scroll down to Behavior Analysis
- Select Latch Time



Coprecomm		Sites default	- Live [Past 4 Hours] -	10/02/2020 $\rightarrow$ 10/02/2020	admin@relay2.com 👔 🗸 😖 EM
Cost Deshboard	Previous	Page 1 of	1	Next	(III
and a state of the					Ask
cress Points					
clients */	Demand Analysis	Airtime Analysis	Event Analysis	Behavio	or analysis
Andysis	Clients Signal	Connection Time Latch Time	Traffic Patterns	Latency	System Statistics
Available g	10 8 6 4 2 0 <1 min <15 min	< 30min < Ibur	with Latched Time < 4 hours 07 15 do 56 do 38 45 4b adu do 70 < 4 hours < 12 km	<28m	1 day or more
Aprecomm © 2020.					Version 3.1-2407dza

#### FIGURE 45 AP BEHAVIOUR ANALYSIS – LATCH TIME

Symbol	Description
A27	Shows how much time clients are connected to this AP in this timeline.

## **3.13** AP - BEHAVIOR ANALYSIS - TRAFFIC PATTERNS Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Behavior Analysis
- Select Traffic Patterns



FIGURE 46 AP BEHAVIOUR ANALYSIS - TRAFFIC PATTERNS



Symbol	Description
A28	Shows the traffic usage patterns between the clients and in the selected AP during the timeline.
A29	Shows minimum traffic usage between clients and selected AP in selected timeframe
A30	Shows average traffic usage between clients and selected AP in selected timeframe
A31	Shows maximum traffic usage between clients and selected AP in selected timeframe

## 3.14 AP - BEHAVIOR ANALYSIS – LATENCY

Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Behavior Analysis
- Select Latency



#### FIGURE 47 AP BEHAVIOUR ANALYSIS – LATENCY

Symbol	Description
A32	Shows wireless and internet latency in this AP around this timeline.



## 3.15 AP - BEHAVIOR ANALYSIS – SYSTEM STATISTICS

#### Steps:

- Click AccessPoints Tab on the left side.
- Scroll down to Behavior Analysis
- Select System statisitcs.



#### FIGURE 48 AP BEHAVIOUR ANALYSIS – SYSTEM STATISTICS

Symbol	Description
A33	Shows CPU and Memory usage in this AP in this timeline.



## CLIENTS

## 4.1 CLIENT DETAILS

Steps:

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address

Coprecomm					Sites	default	- Past 3 Days	y 09/29/2020 → 10/	/02/2020 admin@relay	2.com 🚺 🗸	🛤 EN 🗸
Desilicard Siles	CLIENTS	o:b5:5f:f2:af:b2		x =		C1					VWE
Across Prints	Sandeeps-MBP NAME	192.168.100.134 IP ADDRESS	MacBook MODEL	Mae / -10.15. FIRMWARE	-7 11AC, Agile PROFILE	-> 5Gh	b4:82:e3:00:20:f9 CONNECTED AP	Corp-Net WLAN	- è BAND S	🕅 -95 dBm ignal & Rate	Ask Me!
	CONNECTED ACCES	SS POINTS (HISTORIC	AL)		WIRELESS EXPERIENCE						
Provisioning	AP	WLAN	Average Signal		$\frown$		$\frown$	$\frown$			
	b4:82:e5:00:21:8b	Corp-Net, 5G	-61 dBm		100%		100%	100%	100	%	
	b4:82:05:00:20:f9	Corp-Net, 2.4G	-56 dBn		$\cup$			$\bigcirc$			
	b4:82:65:00:20:f9	Corp-Net, 5G	-60 dBn		o Failures 13 Connection Attemp	7 Apj ots 0	plication/s Detected problems found	o Failures 6 Roaming Attempts	o Fail 1 Steering	ures Attempts	
	b4:82:e5:00:24:e0	Corp-Net, 5G	🔷 -44 dBn		Connectivity		Applications	Roaming	Steer	ing	
					SNo 1	Experience	Iss	te	Resolution	Insights	
							No Connectivity p	roblems detected			

#### FIGURE 493 CLIENT STATUS

Symbol	Description
·	Shows the Client Details such as client model, client capability
C1	(11ac/n/ Legacy), affinity to 2.4Ghz/ 5Ghz and firmware running on
	the client device.
	Shows the Client radio information such as connected WLAN, Band,
	Signal & Rate etc.

## 4.2 CLIENT - DETAILS

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address



	192,168,100,176	2 Pro	Android / -10	11AC. Agile	-> sGhz				-os dBm
NAME	IP ADDRESS	MODEL	FIRMWARE	PROFILE	AFFINITY	CONNECTED AP	WLAN	BAND Si	gnal & Rate
CONNECTED ACCESS	POINTS (HISTORICA	L)	WIREL	ESS EXPERIENCE					
C2	WLAN	Average Signa	1	0			0	-	
04:82705:00:26:00	Corp-Net, 5G	-54 dB	m	94%	1	00%	89%	100	%
b4:82:05:00:26:00	Corp-Net, 2.4G	🥣 -66 dE	im.				$\cup$		
b4:82:65:00:21:8b	Corp-Net, 5G	-63 dE	im	8 Failures 128 Connection Attempts	6 Applica 3 prob	tion/s Detected lem/s found	12 Failures 107 Roaming Attem	o Failu pts 2 Steering 3	ires Attempts
b4:82:05:00:21:8b	Corp-Net, 2.4G	-55 dB	m	Connectivity	Apr	olications	Roaming	Steeri	ing
b4:82:05:00:24:02	Corp-Net, 5G	💗 -65 dB	m						
h4:8ate5:00124te2	Corp-Net, 2.4G	-80 dE	im SNo	Expe	rience	Issue		Resolution	Insigh
b4:82:05:00:24:bb	Corp-Net, 5G	💗 -79 dB	m 1	Unable to connect / Unable to Access Internet 3 Failure attempt(s) due to EAPOL Failure (Client Specific problem, try enabling) wife or present decoding	3 Failure attempt(s) due to EAPOL Failure (Client		lient specific problem, try enabling/di wifi or nowar down/up	isabling Detai	
	Corp-Net, 5G	🤝 -68 dE	m						
b4:82:03:00:20:59									
b4:82:05:00:20:59	Corp-Net, 5G	-56 dE	m 2	Unable t	o connect	2 Failure attempt(s) due to	EAPOL Failure	Check your WiFi password	Detai
b4:8ategrootaotfg	Corp-Net, 5G	-56 dE	m 2	Unable 1	to connect	2 Failure attempt(s) due to (Wrong Key)	EAPOL Failure	Check your WiFi password	Detai
b4:82x5:00:2019 b4:82x5:00:24:00	Corp-Net, 5G	-56 dE	im 2 3	Unable t Connection failures / U	to connect Inable to Access Internet	2 Failure attempt(s) due to (Wrong Key) 3 Failure attempt(s) due to EAI Poor Signal	EAPOL Failure POL Failure due to	Check your WiFi password Move client closer to AP	Detai

#### FIGURE 504 CLIENT DETAILS

Symbol	Description
C2	Shows list of previously connected Access Points

## 4.3 CLIENT - WIRELESS EXPERIENCE

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address
- Click Wireless Experience



oprecomm						Sites	default	*	Past Week	- 09/25/2020 -	→ 10/02/2020	admin@relay2.com		🗰 EN
<u>م</u>	realme-2-Pro	192.168.100.176	2 Pro	Android / -10		11AC, Agile	-> 5Ghz					W -95	dBm	
abbrard	NAME	IP ADDRESS	MODEL	FIRMWARE		PROFILE	AFFINITY		CONNECTED AP	WLAN	BAND	Signal & R	ate	(
ins (														
Prozes	CONNECTED ACCES	S POINTS (HISTORIC	AL)	v	WIRELE:	SS EXPERIENCE			6					Asi
2	AP	WLAN	Average Signal			$\frown$		-				$\frown$		
	b4:82:05:00:26:00	Corp-Net, 5G	-54 dB:	3		94%		10	»»»	89%	)	( 100% )		
yst .	b4:82:e5:00:26:0e	Corp-Net, 2.4G	🤝 -66 dBr	1		$\cup$						$\bigcirc$		
riscolag	b4:82:05:00:21:8b	Corp-Net, 5G	-63 dBr	1		8 Failures 138 Connection Atten	1pts 6	Applicati 3 proble	on/s Detected m/s found	12 Failure 107 Roaming At	s tempts	o Failures 2 Steering Attempts		
	b4:82:05:00:21:8b	Corp-Net, 2.4G	💎 -55 dBr	1		Connectivity		Appli	ications	Roaming		Steering		
	b4:82:05:00:24:02	Corp-Net, 5G	💗 -65 dBa	1										
	b4:82:05:00:24:02	Corp-Net, 2.4G	-So dBr	•	SNo		Experience		Issu	•	Re	esolution	Insights	
	b4:82:05:00:24:bb	Corp-Net, 5G	💗 -79 dBr	1	1	Unable to connec	t / Unable to Access Inter	3 Failure attempt(s) due to EAPOL Failure (Client		Client specific probl	lem, try enabling/disabling	Details		
	b4:82:05:00:20:f9	Corp-Net, 5G	🤝 -68 dBr	2					not Kespo	nding)	will or p	lower down/up		
	b4:82:05:00:24:00	Corp-Net, 5G	-56 dB:	1	2	Un	able to connect		2 Failure attempt(s) du	e to EAPOL Failure	Check you	ır WiFi password	Details	
									(wrong	pay)				
					3	Connection failure	es / Unable to Access Inter	met <sup>3</sup>	Failure attempt(s) due to Poor Si	EAPOL Failure due to gnal	Move cli	ent closer to AP	Details	
		Berr	6			Previous			Page 1	of 1		Next		
	Prévious	rage 1 0	C1 Next											

#### FIGURE 51 CLIENT WIRELESS EXPERIENCE - CONNECTIVITY

Symbol	Description
C3	Shows selected client specific issues related to Connectivity, Applications, Roaming and Steering. Clicking on specific issue shows insights and the resolution to it Click on Details in Insights to see the specific event as shown below.



#### FIGURE 52 CLIENT WIRELESS EXPERIENCE – MORE DETAILS- EVENT ANALYSIS

Symbol	Description
C4	Click on any event to see the detailed insights as shown below.



Roprecon	mm							Sites	default		Past Wee	k	•	09/25/2020	→ 10/02	/2020	admin@relay2.com	• <b>9</b> -	en 🗸
Dashboard		00:00:00 Sec-26	12:00:00 Sep-26	00:00:00 Sep-27	12:00:00 Seo-27	00:00:00 Sep-28	12:00:00 Sep-28	00:00:00 Sep-29	12:00 Sto-	00 003 29 Set	00:00	12:00:00 Sep-30	00	00:00 ct- 1	12:00:00 Oct- 1	00:00:00 Oct- 2	12:00:00 Oct- 2	0	UWE
din Sins																			
Access Polens		<u>A</u> <sup>○</sup> Even	t Insights: @ Wed,	, Sep 30, 2020 5:17	PM												×		VIL ACK
clima						HomePC(58:9	4:6b:db:eb:70	)						FAILE	D TO CON	NECT WITH			
1														Access Po	at bạs	82:e5:00:24:bb	-		
		As	sociated								EAP 1/4			Channel	522 3×3	o Mhz, 80 Mhz -			
Provisioning			ÂS											WLAN	Cor	p-Net			
														Signal	-64	dBm			
														Client Bandy	oidth 401	Mhz - 2x2			
			17:17:42 Sep-30								17:17:42 Sep-30								
																	*		
		Rssi				Rate						Channel B	usy						
		-0 				Mbps)	20					so en el							
		-60		-		Rate(	0					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							
			17:17:00 Sep-30	17:18:00 Sep-30	17:19:00 Sep-30			17:17:00 Sep-30	17:18:00 Sep-30	17:19:00 Sep-30			17: Se	17:00 p-30	17:18:00 Sep-30	17:19:00 Sep-30		9	
			🗧 Si	ignal				🗧 Ra	le.				2.4 Gha	Channel	5 Ghz Cha	innel			
																	Close		
	Aprecomm @ s																	on 3.1-2407ds	a 🗸 🗸

#### FIGURE 53 CLIENT WIRELESS EXPERIENCE – EVENT INSIGHTS

- Click AccessPoints Tab on the left side.
- Scroll down to wireless experience
- Click on Applications tab

CONNECTED ACCESS F	POINTS (HISTORICAL)		WIREI	ESS EXPERIENCE					VV
AP	WLAN	Average Signal		$\cap$	$\sim$	$\frown$	$\frown$		( 4
b4:82:05:00:20:59	Corp-Net, 2.4G	-61 dBm		96%	99%	100%	N/A		Asi
b4:82:05:00:24:00	Corp-Net, 2.4G	-60 dBm				$\mathbf{O}$	$\bigcirc$		
b4:82:65:00:24:bb	Corp-Net, 2.4G	-60 dBm		1 Failures 4 Applic	ation/s Detected	o Failures	o Failures		
				25 Connectivity	coering 5 sound	D noming	Staaning		
				connections		rounnes	During		
			SNo	Experience	Issue	Resolut	ion	Insights	
			1	YouTube Experience is affected for 59 minutes, 23 seconds, with intermittent delays/buffering issues.	Poor Signal Strength	Move the client closer for	better performance	Details	
			2	YouTube Experience is affected for 3 minutes, ,with intermittent delays/buffering issues.	Backhaul Packet Loss	Backhaul Packet Loss, Plea	se check with your ISP	Details	C
Previous	Page 1 of 1		3	YouTube Experience is affected for 13 minutes, 14 seconds	Low Rate	Client is switching to pow disabling power save may i	er save aggressively, mprove performance.	Details	
				Previous	Page 1 of 3		Next		

FIGURE 54 CLIENT WIRELESS EXPERIENCE – APPLICATIONS



Symbol	Description
C5	Shows selected client specific issues related to Applications. Click on Details in Insights to see the events as shown below.



FIGURE 55 CLIENT WIRELESS EXPERIENCE – DETAILS – EVENTS INSIGHTS

Symbol	Description
C6	Shows events related to applications. Click on any event to see the detailed insights as shown below.



#### FIGURE 56 CLIENT WIRELESS EXPERIENCE- EVENT INSIGHTS



## 4.4 CLIENT – APPLICATION USAGE

Steps:

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address
- Scroll to Client Data Usage

Correcomm		Sites default		admin@relay2.com 👔 🗸 😸 EN 🗸
Dathoard Sine			No Connectivity problems detected	VWE
Access Points	Previous Page 1 of 1 Next			Ask Me
Analysis			Page 1 of 1	Next
	APPLICATION USAGE  598.# MBytes  C7  Unice/Video Call: 0 MBytes  File Sharing: 0 MBytes  File Sharing: 0 MBytes			* Update every minute
	(ride), 0x2 (1327) 0.411         (bcg)         18 (150)         18 (150)         16 4(50)           (ride), 0x2 (1327) 0.411         (bcg)         0x1 (200)         0x1 (200)         0x1 (200)           (ride), 0x2 (1327) 0.411         (bcg)         0x1 (200)         0x1 (200)         0x1 (200)           (ride), 0x2 (1327) 0.411         (bcg)         0x1 (200)         0x1 (200)         0x1 (200)           (ride), 0x2 (1327) 0.411         (bcg)         0x1 (200)         0x1 (200)         0x1 (200)           (ride), 0x2 (1327) 0.411         (bcg)         (bcg)         0x1 (200)         0x1 (200)           (ride), 0x2 (1327) 0.411         (bcg)         (bcg)         (bcg)         0x1 (200)           (ride), 0x2 (1320)         (bcg)         (bcg)         (bcg)         0x1 (200)           (ride), 0x2 (1320)         (bcg)         (bcg)         (bcg)         0x1 (200)	17:05:00 17:15:00 17:30:00 17:45:00 Oxt- 2 Oxt- 2 Oxt- 2 Oxt- 2 Oxt- 2	18:00:00 18:15:00 18:00:00 18:45:00 19:00:0 Oct-2 Oct-2 Oct-2 Oct-2 Oct-2	0 19:15:00 19:50:00 Oct-2 Oct-2
	e gi	6.2%	93.5%	0%

FIGURE 57 CLIENT DATE USAGE

Symbol	Description
C7	Shows the different application usage by the client. Zoom on the application usage graph displays the percentage usage of specific application w.r.t total usage Hover on the application usage graph displays the application usage in terms of number of Bytes/ KB/MB

## 4.5 CLIENT - EVENT ANALYSIS

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address



- Scroll to event analysis
- Click on the Event Analysis



#### FIGURE 58 CLIENT EVENT ANALYSIS

Symbol	Description	escription					
[]	<ul> <li>Shows selected client specific events in the</li> </ul>						
C8	selected timeli	ne					
	Click on a spec	fic event shows insights of that					
	event						



Correcto	nm					Sites default		Past Week	- 09/25/2020 →	10/02/2020	admin@relay2.com	•	
Dationard Bits	r	<u>60000.00 12.00.00</u> 601.76 60.000	0 00:90:00 See27	12:01:00 Sep-27	00:30:00 12:00:00 59:0-28 5:0-28	00:00:00 11 See-20 S	2:00:00 00:00:0 im-26 Sep-80	e 12:00:00 5:ee-30	00:00:80 12 00:-1 0	L. AlL. 96:00 00:00:00 41-1 Ort-2	) 12:00:00 Ort-2	0	VWE Ask Me
dan Z				Tei	ilme-2-Pro ( ea:79:80:49:d;	e75)			CON Access Point	NECTED TO	*		
Analysis Frank Seeing		Associated	EAF 1/4	EAP 2/4	EAP 3/4	EAF 4/4	DHCP Request	DHCP Response	Channel Tr'LAN	g180 Mhz, 80 Mhz - 333 Corp-Net			
			16:09:26 Oct- 2			16.09.26 Oct- 2	16:09-28 Oct- 2	16.09.28 Oct- 2	Signal Client Randwoldth	-49 dBm 80 Mhr - 313 <b>C9</b>			
		Connection Time Co	mparision deco 16:09:00 16: tt=2 Oct=2 O panection Times of AP panection Times of Site	10:00 16:11:00 II-2 Oct-2	Channel Congest	Ion Isolaco Dol-2 Arz Channel © 5 Char Cl	16:11:00 Oct- 2 hannel	Client Density of 1998	16:05:00 0(1-2 in 2.4G Radio O Cl	10:00 16:11:30 α-2 0α-2 ients in 5G Radio		20	l
	Aprecomm © :										Close	<b>im</b> 3.4-2.407d2r	1 v

FIGURE 59 CLIENT EVENT ANALYSIS - CONNECTION EVENT

Symbol	Description
<b>C9</b>	<ul> <li>Shows Information of the AP (WLAN, Channel, Signal) the client got connected</li> <li>Shows time take to connect, DHCP completion time, EAP completion time etc</li> <li>Shows relative connection time graphs w.r.t AP and the site</li> <li>Shows Channel congestion in 2.4 &amp; 5Ghz radio of the connected AP (5 minutes around the connection event)</li> <li>Shows client density in 2.4 &amp; 5Ghz radio of the connected AP (5 minutes around the connection event)</li> </ul>

## 4.6 CLIENT - BEHAVIOR ANALYSIS – CONNECTION TIME

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address
- Scroll to Behavior Analysis
- Click on the connection time

APPLIC	TIONS		s	default	<ul> <li>Live (Past 4 Hours)</li> </ul>	] → 10/02/2020	10/02/2020 admin@	relay2.com 👤
	0.3% Voice/Video Calls		6.a% Entertainment	93.5% Browing File Starts				
		Event analyzis				Behavior analysis		
	Connection Ti	me	_	Latch Time		Rate & Signal		
1	3	,,			Friday, Oct Connection	, 2nd, 16:00:10 Time: 3.412 seconds		•
e e e e e e e e e e e e e e e e e e e	2	C10						•

FIGURE 60 CLIENT BEHAVIOUR ANALYSIS - CONNECTION TIME

Symbol	Description
C10	<ul> <li>Shows the Connection time baseline of the selected client which was connected to various APs in the selected timeline.</li> <li>Marks anomalous connection times which are above acceptable limit</li> </ul>

## 4.7 CLIENT - BEHAVIOR ANALYSIS – LATCH TIME

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address
- Scroll to Behavior Analysis
- Click on the latch time



Caprecomm		Sites default - Eive [Past 4 F	Hours] - 10/02/2020 -> 10/02/2020 admin@relays.com	✓ 198 EN ✓
Deshinari Atter Printi Caren	APPLICATIONS	6.2% Entertainment Bowsing	o% File Sharing	WWE
anilysis Provisioning	Event analysis		Behavior analysia	
	<1 min <15 min < 50 min	C11 <1ber <4ber	<12tm GMm 1 day or more	
	Þ			

FIGURE 61 CLIENT BEHAVIOUR ANALYSIS – LATCH TIME

Symbol	Description
C11	Shows how much duration the selected client is connected to the APs

## 4.8 CLIENT - BEHAVIOR ANALYSIS – DATA RATE & SIGNAL

Steps:

- Click Clients Tab on the left side.
- Select specific client using MAC address or IP Address
- Scroll to Behavior Analysis
- Click on the rate and signal



#### FIGURE 62 CLIENT BEHAVIOUR ANALYSIS - RATE & SIGNAL



Symbol	Description
C12	Shows the data rate at which the client is connected to the APs along with the connected radio information (2.4/5.Gbz) in the selected
۲	timeline
C13	Shows the signal strength of the selected client which is connected to different APs in the selected timeline

### 5. PROVISIONING

## 5.1PROVISIONING - SITES

Steps:

- Click Provisioning --> Sites Tab on the left side.

										adm	in@relay2.com	🔰 🗸 📾 EN 🗸
Dashboard	+ New	P2					P1					VWE
Access Points	Sno	Site	Assigned APs	Customer	MSP	OEM	City	State	Country	Latitude	Longitude	Ask Me!
Clients	1	default	6	8589934703	relay2_msp	relay2	milpitas	california	usa	37.4070	-121.9199	
Analysis												

#### FIGURE 63 PROVISIONING - SITES

Symbol	Description
P1	This table shows the list of Sites and its relevant information.

## Raprecomm Drive Device Evolution

P2	Click +New to add new Sites. This shows a
1111	form as shown in Figure 63 to add the Site
	information.
P3	This allows to modify any Site information.
	When click <i>(</i> , this shows a form as shown in
	Figure 64 where Site information can be
	modified.
P4	This allows to delete an existing Site.



FIGURE 64 PROVISIONING - ADD SITES

## Raprecomm

Caprecomm	Modify Site				× 🗰 en 👒
Oashboard		s	e Name		
	default				VWE
Sites		Cust	omer Name		
Access Points	8589934703			~	Ask Me!
			MSP		1007000
Clients	relay2_msp				
Analysis			OEM		
114	relay2			~	
Provisioning			City		
	milpitas				
			State		
	california				
			Country		
	usa				
		1	atitude		
	37.40696				
		L	ingitude		
	-121.91994				
					_
				Modify Cancel	



## 5.2PROVISIONING - AP INVENTORY

#### Steps:

- Click Provisioning --> AP Inventory Tab on the left side.

								adminiereia	y2.com	I
	Provisioned P5	<u>]</u> u	cense Expired	- 1 5 I Lic	ense Unassigned		Detected <b>P8</b>			All F
Uplo	Ad CSV P10 Mac Address	AP Name	Site	Customer	MSP	OEM	License	Validity		
									P11	P12
1	b4:82:c5:00:20:f9	corridor_2	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	ß	a,
2	b4:82:c5:00:24:bb	office_2	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	Ø	a,
3	b4:82:c5:00:24:c0	labarea_2	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	Ø	a,
4	b4:82:c5:00:24:c2	conference_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	Ø	a.
5	b4:82:c5:00:26:0c	reception_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	Ø	a,
6	b4:82:c5:00:21:8b	server_room_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	Ø	a,





Symbol	Description
P5	This table shows the list of Access Points which has license and its relevant information.
P6	Shows the list of Access Points whose license have expired.
P7	Shows the list of Access Points which has no license and its relevant information.
P8	Shows the list of Access Points
P9	Shows the list of all Access Points with and without license and its relevant information.
P10	This allows to add new Access Points by uploading csv file. As shown in Figure 66 choose the csv file with information as follows:
	AP Name
	Site
	Customer
	MSP
	OEM
	License
	Validity
P11	This allows to transfer/Assign an AP from one
	Click , this shows a form as shown in Figure
P12	This allows to modify the license type of an AP.
	Click , shows the available licenses of the customer. This is shown in Figure 68
P13	This allows to delete an existing Access Point.

0	
Caprecomm Drive Device Evolution	

								_	admin@relay	2.com	2	~	aren 🗸
) Dashboard			Add APs	3				×					
stes .		Provisioned			AP	CSV				,	uli		
Access Paints	Uploa	id CSV	C	hoose file No file chosen	1								
Clients	Sno	Mac Address						Add	Validity				
Analysis	1	b4:82:c5:00:20:f9						_	Oct 23, 2020	ø	Q.		
Provisioning	2	b4:82:c5:00:24:bb						_	Oct 23, 2020	Ø	٩,	Û	
	3	b4:82:c5:00:24:c0	labarea_2	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	8	94		
	4	b4:82:c5:00:24:c2	conference_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	8	<i>a</i> ,		
	5	b4:82:c5:00:26:0c	reception_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	C	94		
	6	b4:82:c5:00:21:8b	server_room_1	default	8589934703	relay2_msp	relay2	Advanced-Demo	Oct 23, 2020	ß	Q.		



Caprecomm			✓ ₩1 EN ✓
Dashboard	Assign AP	×	VIME
stes —	Router Name		
Access Points	corridor_2		
	Site Name		
	default	~	
Analysis	Customer Name		
124	8589904703	~	œ
Provisioning	MSP Name		0
	relay2_msp	~	œ
	OEM Name		<u> </u>
	relay2	~	0
			ŵ
		Assign Cancel	
	· · · · · · · · · · · · · · · · · · ·		

FIGURE 68 PROVISIONING -- ASSIGN ACCESS POINTS

# Raprecommon

AP ID       Lionse Type       CUSTOMER AVAILABLE LICENSES       P16         b4.82c5002039       Select.       P16       LicensoType       Available         Basic-Demo       0         Advanced-Demo       0         Basic-Bundel-2Yr       0         Basic-Bundel-3Yr       0	~ •
Edital         Select         LicensoType         Available           1         Basic-Demo         0         0           Advanced-Demo         0         0         0           Basic         Basic         0         0           Basic-Bundel-2Yr         0         0         0           Basic-Bundel-3Yr         0         0         0	×
Basic-Demo     0       Advanced-Demo     0       Basic     0       Basic-Bundel-2Vr     0       Basic-Bundel-3Vr     0	
Advanced-Demo         0           Basic         0           Basic-Bundel-2Yr         0           Basic-Bundel-3Yr         0	
Basic         0           Basic-Bundel-2Yr         0           Basic-Bundel-3Yr         0	
Basic-Bundel-2Yr 0 Basic-Bundel-3Yr 0	Û
Basic-Bundel-3Yr 0	0
	0
Basic-Bundel-SYr 0	0
1 - 6 of 12 License Types 1 2	> 0
Modify Car	ncel



Symbol	Description
P14	Options to choose license type to change the license.
P15	Shows licenses available for the customer.



## 6. ANALYTICS

## 6.1. MAJOR ISSUES

Steps:

- Click on Analytics on the left side
- Select Major Issues tab



#### FIGURE 70 ANALYTICS – MAJOR ISSUES

Symbol	Description
AN1	On an average in a month data, it shows the accumulated issues distribution across the sites present in the deployment.

- Click on Analytics on the left side
- Select Major Issues tab
- Hover on the Sites graph

#### aprecomm . 😸 EN AP FIRMWARES AP MODELS AN2 75 75 75 59 2988 in default 50 25 CLIENT MODELS 75 50 R17 Net Lat

#### FIGURE 71 ANALYTICS – MAJOR ISSUES – SITES

Symbol	Description
AN2	On an average in a month data, it shows the number of issues in the site.

- Click on Analytics on the left side
- Select Major Issues tab
- Hover on the AP Firmware graph



FIGURE 72 ANALYTICS – MAJOR ISSUES – AP FIRMWARES



Symbol	Description
AN3	On an average in a month data, it shows the number of issues with the AP Firmware.

Steps:

- Click on Analytics on the left side
- Select Major Issues tab
- Hover on the AP Models graph



#### FIGURE 73 ANALYTICS - MAJOR ISSUES - AP MODELS

Symbol	Description
AN4	On an average in a month data, it shows the number of issues with each AP Models.

- Click on Analytics on the left side
- Select Major Issues tab
- Hover on the Client Models graph




FIGURE 74 ANALYTICS – MAJOR ISSUES – CLIENT MODELS

Symbol	Description
AN5	On an average in a month data, it shows the number of issues with each Client Models.

## **6.2 CONNECTIVITY PATTERNS**

- Click on Analytics on the left side
- Select Connectivity Patterns tab
- Hover on the Sites graph





#### FIGURE 75 ANALYTICS – CONNECTIVITY PATTERNS - SITES

Symbol	Description
AN6	On an average in a month data, it shows the average connection time of the site.

- Click on Analytics on the left side
- Select Connectivity Patterns tab
- Hover on AP Models graph



FIGURE 76 ANALYTICS - CONNECTIVITY PATTERNS - AP MODELS



Symbol	Description
AN7	On an average in a month data, it shows the average connection time of each AP Model.

- Click on Analytics on the left side
- Select Connectivity Patterns tab
- Hover on AP Firmware graph



FIGURE 77 ANALYTICS – CONNECTIVITY PATTERNS – AP FIRMWARE

Symbol	Description
AN8	On an average in a month data, it shows the average connection time of AP Firmware.

- Click on Analytics on the left side
- Select Connectivity Patterns tab
- Hover on Client Models graph



FIGURE 78 ANALYTICS - CONNECTIVITY PATTERNS - CLIENT MODELS

Symbol	Description
AN9	On an average in a month data, it shows the average connection time of each Client Model.

### **6.3. ROAMING PATTERNS**

- Click on Analytics on the left side
- Select Roaming Patterns tab
- Hover on Sites graph in Roaming Latency



FIGURE 79 ANALYTICS – ROAMING PATTERNS – SITES



Symbol	Description
AN10	On an average in a month data, it shows the average roaming latency of the site.

- Click on Analytics on the left side
- Select Roaming Patterns tab
- Hover on AP Models graph in Roaming Latency



FIGURE 80 ANALYTICS - ROAMING PATTERNS - AP MODELS

Symbol	Description
AN11	On an average in a month data, it shows the average roaming latency of each AP Model.

- Click on Analytics on the left side
- Select Roaming Patterns tab
- Hover on Client Models graph in Roaming Latency





FIGURE 81 ANALYTICS - ROAMING PATTERNS - CLIENT MODELS

Symbol	Description
AN12	On an average in a month data, it shows the average roaming latency of each Client Model.

- Click on Analytics on the left side
- Select Roaming Patterns tab
- Hover on Roaming Rssi graph



FIGURE 82 ANALYTICS - ROAMING PATTERNS - ROAMING RSSI



Symbol	Description
AN13	On an average in a month data, it measures the average signal strength of each client model.

## 6.4. STEERING ATTEMPTS

Steps:

- Click on Analytics on the left side
- Select Steering Patterns tab



#### FIGURE 83 ANALYTICS – STEERING PATTERNS – STEERING ATTEMPTS

Symbol	Description
AN14	On an average in a month data, it shows the total number of steering attempts.
AN15	It shows the number of good and bad steering attempts and also the percentage.
AN16	It shows the number of clients steered to 5G and 2.4G bands.



- Click on Analytics on the left side
- Select Steering Patterns tab
- Hover on the Sites graph



FIGURE 84 ANALYTICS – STEERING PATTERNS – SITES

Symbol	Description
AN17	On an average in a month data, it shows the number of good and bad steering decisions in the site.

- Click on Analytics on the left side
- Select Steering Patterns tab
- Hover on the AP Models graph



FIGURE 85 ANALYTICS – STEERING PATTERNS – AP MODELS



Symbol	Description
AN18	On an average in a month data, it shows the number of good and bad steering decisions in each AP Model.

- Click on Analytics on the left side
- Select Steering Patterns tab
- Hover on the AP Firmwares graph



FIGURE 86 ANALYTICS – STEERING PATTERNS – AP FIRMWARES

Symbol	Description
AN19	On an average in a month data, it shows the number of good and bad steering decisions in AP Firmware.

- Click on Analytics on the left side
- Select Steering Patterns tab
- Hover on the Client Models graph

Rap	recomm			
Concerned Concerned	CLENT MODELS DO DO DO DO DO DO DO DO DO DO	Bo Bo Rezro Redro R	06 Jurio	
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FIGURE 87 ANALYTICS – STEERING PATTERNS – CLIENT MODELS

Symbol	Description
AN20	On an average in a month data, it shows the number of good and bad steering decisions in each client models.

# 6.4. DISCONNECTION REASONS

- Click on Analytics on the left side
- Select Disconnection Reasons tab



FIGURE 88 ANALYTICS – DISCONNECTION REASONS



Symbol	Description
AN21	On an average in a month data, it shows the number of reasons which are causing disconnection from the AP.

- Click on Analytics on the left side
- Select Disconnection Reasons tab
- Hover on the Bubble chart



FIGURE 89 ANALYTICS – DISCONNECTION REASONS – BUBBLE CHART

Symbol	Description
AN22	It shows the particular issue and the average number of times it occurred.

- Click on Analytics on the left side
- Check or uncheck boxes on the right side





FIGURE 90 ANALYTICS – SETTINGS

Symbol	Description
AN23	Select the particular client modals to see the connection performance of specific clients.

