

Grandstream Networks, Inc.

GWN76xx - Rogue AP Detection Guide



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The GWN Access Points offer the ability to prevent malicious intrusion to the network and increases the wireless security access of clients when introducing Rogue AP Detection feature.

A Rogue AP is an access point that has been installed on a secure network without explicit authorization from network administrators. Rogue access points can negatively impact the performance of wireless networks and pose a security threat because anyone with access to the premises can ignorantly or maliciously plug a wireless AP to the local network which can undermine the security of an enterprise network by potentially allowing unchallenged and unauthorized access.

In this guide, we will go through the configuration steps to enable the AP Rogue Detection feature on a GWN76xx access point.

ROGUE AP DETECTION CONFIGURATION

Configuration Steps

In the next sections, we provide the needed configuration steps to enable Rogue AP Detection feature on GWN access points:

Enabling Rogue AP Detection Feature

To enable the Rogue AP Detection feature, Access the GWN76xx web GUI, and navigate to "**Security**" ->

"**Rogue AP**" -> "**Configuration**" as shown in below screenshot.

Access Points

SSIDs

Clients

Access Control

Captive Portal

Radio

Security

Rogue AP

Firewall

Service

System

Enable Rogue AP Detection ☒

Detect range ☒ Same channel ☐ All channels

Countermeasure level

Containment Range ☒ Same channel ☐ All channels

Sub-string for Spoofing SSID

Add new item

Trusted AP

Add new item

Untrusted AP

Add new item

Save Reset

Figure 1 Enable Rogue AP Detection Feature

In below table you can find the description for the related parameters and options.

Field	Description
Enable Rogue AP Detection	Select to either to enable or disable Rogue AP scan.
Detect range	Specify the Rogue AP detect range. Same channel: AP will execute simple detection on the APs around, this mode almost has no effects on the wireless network communication. All channels: AP will execute a deep detection every 5 minutes. And the client connecting to the AP will have few seconds of communication interrupt. Default is Same channel.
Countermeasure level	Countermeasures level specifies the type of attacks which will be suspected by the AP. Select different levels: High: Untrusted BSSID, Illegal access without authentication, Illegal access, Spoofing SSID. Medium: Untrusted BSSID, Illegal access without authentication, Illegal access. Low: Untrusted BSSID, Illegal access without authentication. Default is Disabled. Notes: Illegal access: Rogue AP does not use open authentication and encryption in local network. For example, if you need a password to connect to the SSID of the rogue AP, then it belongs to "Illegal access". Illegal access without authentication: Rogue AP use open authentication and encryption in local network. For example, if you do not need a password to connect to the SSID of rogue AP, then it belongs to "Illegal access without authentication".
Containment Range	Specify the containment range: Same channel: detect AP will countermeasure the APs in the same channel. All channels: detect AP will countermeasure the APs in all channels at the cost of consuming of much AP performance. Default is Same channel.
Sub-string for Spoofing SSID	The AP broadcasting SSID with the specified string will be classified as a Spoofing SSID.
Trusted AP	You can specify MAC address of the trusted AP, which should be formatted as XX:XX:XX:XX:XX:XX. If an AP is defined as trusted AP, no countermeasures will be executed on it.
Untrusted AP	You can specify MAC address of the untrusted AP, which should be formatted as XX:XX:XX:XX:XX:XX. If an AP is defined as untrusted AP, countermeasures will be executed on it when countermeasure is enabled.

Adding the Spoofing SSID String

Users can specify an SSID string to be checked for potential rogue access points transmitting the same SSID, this is to prevent SSID spoofing rogue access points from masquerading the legitimate SSID broadcasted by GWN76xx. In the example from below screenshot we have added **Test_SSID** as the spoofing SSID string.

Configuration

Detected

Enable Rogue AP Detection

Detect range

Same channel

All channels

Countermeasure level

High

Containment Range

Same channel

All channels

Sub-string for Spoofing SSID

Test_SSID

Figure 2 Spoofing SSID String

Once the GWN76xx detects an AP broadcasting the exact SSID string like in our example "Test_SSID", it will be reported in the "Detected" page as "Spoofing SSID", and if enabled a countermeasure to contain that AP could be taken from the GWN76xx AP to prevent wireless clients from associating with that SSID.

1	netis	00:72:63:6D:2...	8	802.11n/g	WPA/WPA2	00:0B:82:AF:...	-84	2020-12-29 1...	No	Wireless inter...		
1	Tenda_8E1D00	C8:3A:35:8E:1...	9	802.11n/g	WPA2	00:0B:82:AF:...	-88	2020-12-29 1...	No	Wireless inter...	TENDA	
1	Test_SSID	10:62:EB:19:B...	9	802.11n/g	WPA/WPA2	00:0B:82:AF:...	-57	2020-12-29 1...	No	Spoofing SSID	D-LINK	
1	TP-LINK_AD8...	34:E8:94:AD:8...	8	802.11n/g	WPA2	00:0B:82:AF:...	-75	2020-12-29 1...	No	Wireless inter...	TP-LINK	

Figure 3 Detected Spoofing SSID

Adding Trusted AP

Users can add trusted access points by specifying their MAC addresses under "Security" -> "Rogue AP" -> "Configuration"

Enable Rogue AP Detection ☒

Detect range ☒ Same channel ☐ All channels

Countermeasure level

Containment Range ☒ Same channel ☐ All channels

Sub-string for Spoofing SSID

Add new item

Trusted AP

Add new item

Untrusted AP

Add new item

Figure 4 Add Trusted AP Configuration Page

You can also define an AP as trusted from the **"Actions"** tab located under **"Security"** -> **"Rogue AP"** -> **"Detected"** by clicking the icon as shown in below screenshot.

SSID	BSSID	Channel	Protocol	Securit...	Detect...	RSSI	Last S...	Counter...	Rogue r...	Manuf...	Actions
MA	28:3B:82:...	2	802.11n/g	WPA2	00:0B:82:...	-16	2020-12-2...	No	Unclassified	D-LINK	
Test_SSID	10:62:EB:1...	9	802.11n/g	WPA/WPA2	00:0B:82:...	-49	2020-12-2...	No	Spoofing ...	D-LINK	 
D-Link	F0:B4:D2:...	2	802.11n/g	WPA	00:0B:82:...	-77	2020-12-2...	No	Wireless i...	D-LINK	 

Figure 5 Add Trusted AP Detected Page

Once an AP is added as trusted, it will be displayed under **"Detected"** page as **"Trusted AP"**

SSID	BSSID	Channel	Protocol	Security Mode	Detected by	RSSI	Last Seen	Countermeasure	Rogue reason
MA	28:3B:82:DE:D7:DF	2	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-16	2020-12-29 10:38:24	No	Trusted AP
Test_SSID	10:62:EB:19:B0:09	9	802.11n/g	WPA/WPA2	00:0B:82:AF:D2:E0	-49	2020-12-29 10:38:24	No	Spoofing SSID
D-Link	F0:B4:D2:7C:C3:29	2	802.11n/g	WPA	00:0B:82:AF:D2:E0	-77	2020-12-29 10:30:28	No	Wireless interference

Figure 6 Detected Trusted AP

Note: If an AP is defined as trusted AP, no countermeasures will be executed on it when countermeasure is enabled.

Adding Untrusted AP

Users can add Untrusted access points by specifying their MAC addresses under "Security" -> "Rogue AP" -> "Configuration".

Enable Rogue AP Detection

Detect range

Same channel

All channels

Countermeasure level

High

Containment Range

Same channel

All channels

Sub-string for Spoofing SSID

Add new item

Trusted AP

Add new item

Untrusted AP

10:62:EB:19:B0:09

Add new item

Save

Reset

Figure 7 Add Untrusted AP Configuration Page

You can also define an AP as Untrusted from the "Actions" tab located under "Security" -> "Rogue AP" -> "Detected" by clicking the icon as shown in below screenshot.

D-Link	F0:B4:D2:7C:C...	2	802.11n/g	WPA	00:0B:82:AF:...	-77	2020-12-29 1...	No	Untrusted AP	D-LINK	 
MA	28:3B:82:DE:...	2	802.11n/g	WPA2	00:0B:82:AF:...	-16	2020-12-29 1...	No	Unclassified	D-LINK	 
netis	00:72:63:6D:2...	8	802.11n/g	WPA/WPA2	00:0B:82:AF:...	-82	2020-12-29 1...	No	Wireless inter...		 

Figure 8 Add Untrusted AP Detected Page

Note: If an AP is defined as Untrusted AP, countermeasures will be executed on it when countermeasure is enabled.

DETECTED ROGUE ACCESS POINTS

The **"Detected"** page shows all the SSIDs within the Wi-Fi coverage of the GWN76xx, including the APs that have been set as Trusted or Untrusted.

SSID	BSSID	Channel	Protocol	Security Mode	Detected by	RSSI	Last Seen	Countermeasure	Rogue reason
Test_SSID	10-62-EB-19-B0-09	4	802.11n/g	WPA/WPA2	00:0B:82:AF:D2:E0	-6	2020-12-30 15:45:47	Yes	Untrusted AP
MA	28-3B:82-DE:D7-DF	1	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-25	2020-12-30 15:45:47	No	Trusted AP

Figure 9 Detected Trusted and Untrusted APs

When the GWN76xx AP detects the signal of another neighboring wireless access point, it compares the characteristics of the AP to a list of configured Trusted or Untrusted APs. If the discovered access point does not match any trusted or untrusted AP, the GWN76xx reports the device as a **"Wireless interference"** under the web GUI **"Detected"** page as shown in below screenshot.

Configuration

Detected

All

Dual-Band

SSID

Search SSID

	SSID	BSSID	Channel	Protocol	Security Mode	Detected by	RSSI	Last Seen	Countermeasure	Rogue reason	Manufacture	Actions
1	TP-LINK_4831AB	34:E8:94:48:31:AB	5	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-95	2020-12-28 17:37:31	No	Wireless interference	TP-LINK	 
1	TP-LINK_425406	C4:71:54:42:54:06	5	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-94	2020-12-28 17:37:31	No	Wireless interference	TP-LINK	 
1	KARIKA	EC:08:6B:D0:B8:A0	11	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-92	2020-12-28 17:37:31	No	Wireless interference	TP-LINK	 
	Tenda_8E1D00	C8:3A:35:8E:1D:01	9	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-90	2020-12-28 17:37:31	No	Wireless interference	TENDA	 
1	netis	00:72:63:6D:28:B8	8	802.11n/g	WPA/WPA2	00:0B:82:AF:D2:E0	-89	2020-12-28 17:37:31	No	Wireless interference		 
1	manolo2020	E8:65:D4:3F:5F:71	1	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-88	2020-12-28 17:37:31	No	Wireless interference	TENDA	 
1	Ahmedziyad	E8:65:D4:3F:5F:72	1	802.11n/g	WPA/WPA2	00:0B:82:AF:D2:E0	-88	2020-12-28 17:37:31	No	Wireless interference	TENDA	 
1	ZTE_H108N	B0:AC:D2:2E:7B:4B	11	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-87	2020-12-28 17:37:31	No	Wireless interference	ZTE	 
1	D-Link	F0:B4:D2:7C:C3:29	2	802.11n/g	WPA	00:0B:82:AF:D2:E0	-87	2020-12-28 17:37:31	No	Wireless interference	D-LINK	 
1	TP-LINK_AD81D2	34:E8:94:AD:81:D2	8	802.11n/g	WPA2	00:0B:82:AF:D2:E0	-82	2020-12-28 17:37:31	No	Wireless interference	TP-LINK	 

Total 11

10/page

<

1

2

>

Go to

1

Figure 10 Detected Rogue Page

Note: An Access point is considered to be an interfering AP if it is seen in the RF environment but is not connected to the wired network. While the interfering AP can potentially cause RF interference, it is not considered a direct security threat since it is not connected to the wired network. However, an interfering AP may be reclassified as a rogue AP.

ROGUE AP CONTAINMENT

When the countermeasure option is enabled and a client tries to associate with an untrusted or spoofing SSID access point, The GWN76xx AP automatically begins sending broadcast de-authentication messages spoofing the rogue's BSSID (MAC) to prevent wireless clients from connecting to that malicious rogue AP.

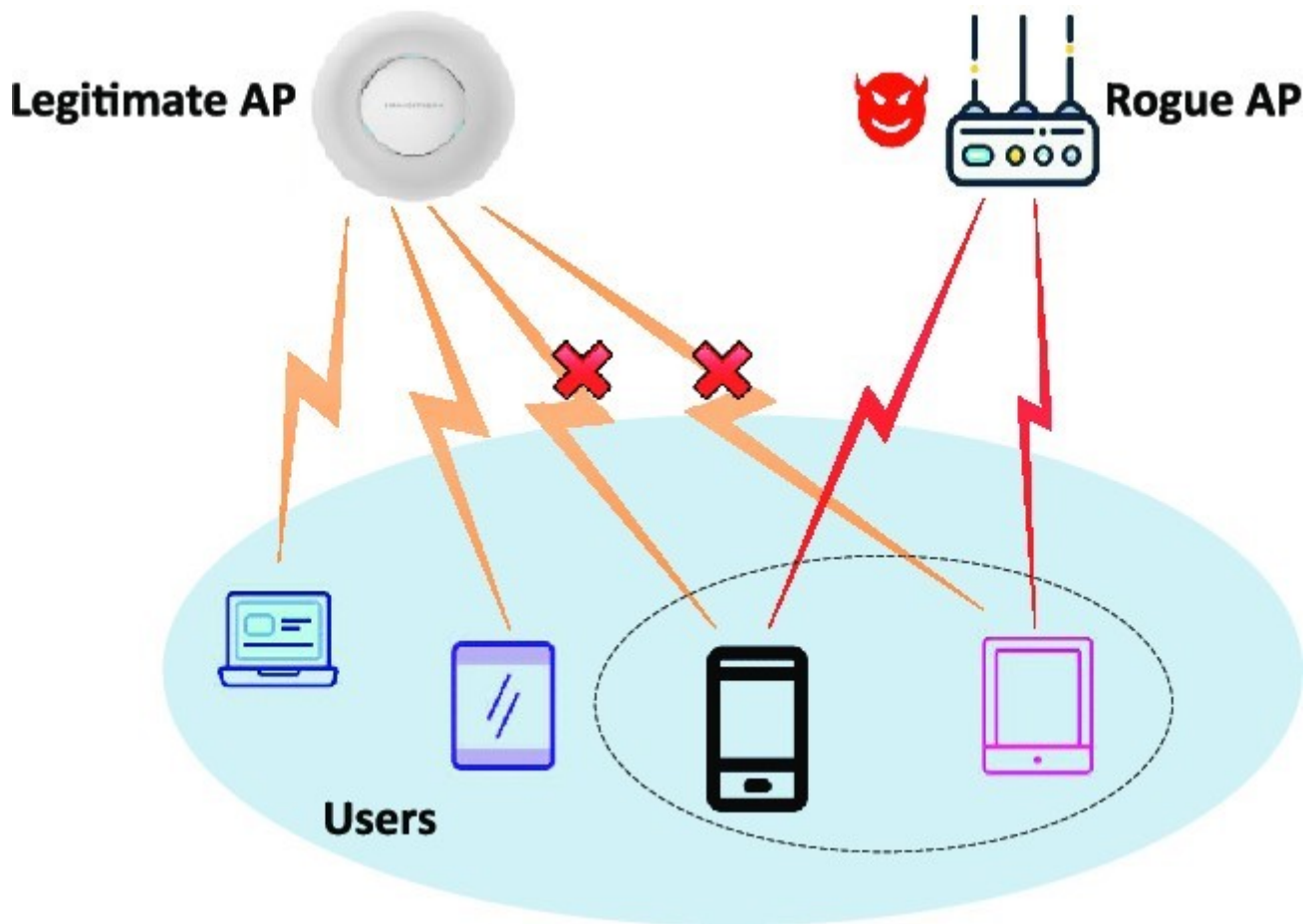


Figure 11 Rogue AP Containment

When a countermeasure is taken against a rogue Untrusted AP, It will be displayed in "**Detected**" page under **Security**" -> "**Rogue AP**" as shown in below screenshot.

SSID ⇅	BSSID ⇅	Channel ⇅	Protocol ⇅	Security Mode ⇅	Detected by ⇅	RSSI ⇅	Last Seen ⇅	Countermeasure ⇅	Rogue reason ⇅
Test_SSID	10:62:EB:19:B0:09	4	802.11n/g	WPA/WPA2	00:0B:82:AF:D2:E0	-6	2020-12-30 15:45:47	Yes	Untrusted AP

Figure 12 Contained AP Detected Page

Please make sure that the rogue device is within your network and poses a security risk before you launch the containment. As Containment can have legal implications when launched against legitimate neighbor networks.

Supported Devices

Rogue AP Detection is supported on **Grandstream GWN76xx indoor and outdoor access points**, except **GWN7610** and **GWN7602**, which are end-of-life (EOL) models and do not support this feature.

Configure Rogue AP Detection through the interface that manages your access points:

- **Primary access point:** Use the local web interface of the access point acting as the primary controller for itself and any other access points it manages.
- **GDMS Networking (cloud-based management):** Configure the feature in the cloud platform managing your access points.
- **GWN Manager (on-premises management):** Configure the feature in the locally hosted management

platform.

This walkthrough uses the **local web interface of a primary access point**. Menu locations and screen layouts may differ between management platforms.