

# FortiAP U431F/U433F

**Quick Start Guide** 

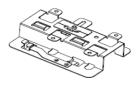
# FAP-U433F Box Includes



FAP-U433F



QuickStart Guide



Wall/Ceiling Mount & Standard
Tile T-rail Bracket (2 Sizes)



5.0 GHz Antennas (4) 2.4/5.0 GHz Antennas (6)



Screws (16)

# FAP-U431F Box Includes



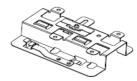




FAP-U431F

QuickStart Guide

Screws (16)



Wall/Ceiling Mount & Standard Tile T-rail Bracket (2 Sizes)

# About FAP-U43xF

MPORTANT: Supported only from FortiWLC Release 8.5.1 or later and FortiGate with FOS version 6.2.2 and later.

The FortiAP-U431F and FortiAP-U433F access points are 802.11ax, Wave 2, 4x4 MIMO, tri-radio, dual band access points and are compliant with the IEEE 802.3at PoE specifications. The access points operate with a default TX power of +24dBm in 2.4GHz channels and +23dBm in 5.0GHz channels.

The FAP-U43xF is compatible with FortiWLC enterprise wireless LAN controllers, integrated FortiGate enterprise firewall LAN controllers, and FortiAPCloud management platform.

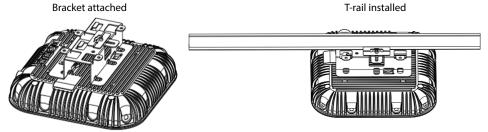
This device can be wall mounted or ceiling mounted. Use the supplied hardware components to complete installing the unit.

# Installing FAP-U43xF

Follow this procedure to attach the unit to a wall or ceiling using the supplied mounting bracket.

- Slide and attach the ceiling mount bracket to the bottom cover of the FortiAP unit.
   If extra space is required to accommodate drop ceiling tiles, use the taller ceiling mount bracket.
- Select an appropriate location, hold the device against the ceiling t-rail, and push the FortiAP unit onto the ceiling until it snaps into place.

The unit can be removed from the bracket by pressing on the bracket tab and sliding the device out.



#### Notes:

- One standard ceiling mount bracket is included in sizes: 1.43cm (9/16in) and 2.38cm (15/16in).
- Mounting above the ceiling: FAP-U431F and FAP-U433F are UL2043 plenum rating certified.
   However, mounting FAP-U433F above the ceiling is restricted to the FortiAP either facing up or facing down; mounting FAP-U433F vertically is not allowed.
- To protect your device from unauthorized removal, use the Kensington™ Security Slot to attach a cable lock (not included).

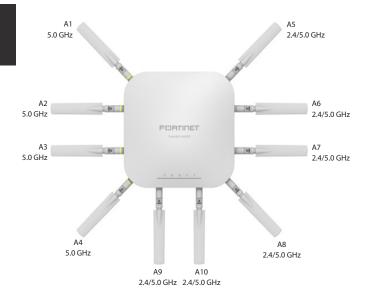
# Antennas (Applicable for FAP-U433F only)

The FortiAP unit is a tri-radio, dual band access point. Use the 2.4/5.0 GHz antennas to access the 2.4GHz and 5GHz radio signals and the 5.0 GHz antennas to access the 5GHz radio signals. To use all three radios concurrently, all ten WiFi antennas are required

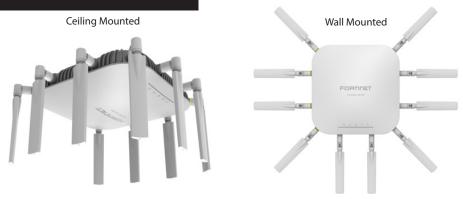
# Installing the WiFi Antennas

- 1. Insert the antenna base firmly into the appropriate antenna mount.
- 2. Securely hand tighten the fastening collar.
- 3. Repeat for the remaining antennas.

# **Antennas**

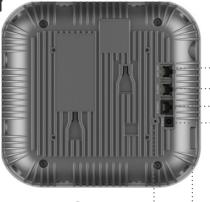


# AP Mounting and Antenna Position



All 5.0 GHz antennas and 2.4/5.0 GHz antennas are vertically oriented.

## **Ports**



Reset ·····

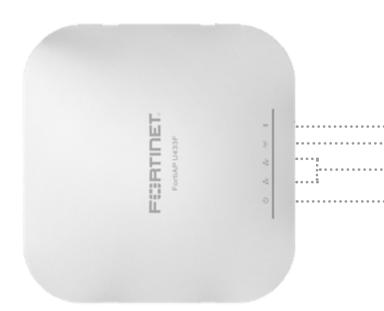
USB Port --

LAN1 2.5G & LAN2 1G Ethernet Port (RJ-45) Gigabit Ethernet port with Power over Ethernet (PoE) Powered Device (PD) support

Console Port (RJ-45)
Optional management
computer connection
Provides access to the
Command-Line Interface (CLI)
Serial Baud Rate
115200

Power 12V, 2.5A

# **LED Status**



5 - Bluetooth and Radio 3 scanning No light: Radio 3 is powered off.

Green: Radio 3 and BLE scanning enabled.

Orange: Radio 3 is up.

Blue: BLE scanning enabled

4 - WiFi (Radio 1 and 2)

No light: Radio 1 and 2 are powered Off

Blue: Radio 1 is up.

Blinking Blue: Data Tx/Rx on Radio 1.

Orange: Radio 2 is up.

Blinking Orange : Data Tx/Rx on Radio 2.

Green: Both Radio 1 and 2 are up.

Blinking Green: Data Tx/Rx on both Radio 1 and 2.

2 - LAN1 2.5Gbps

No light: Link Down

Green: Link up.

Blinking Green: Data Tx/Rx at 2.5Gbps.

Blinking Orange: Data Tx/Rx at 100Mbps/1Gbps.

1 - Power

Steady Green: Power On

Blinking Green: Booting Up or Upgrading Firmware.

Orange: Wireless controller found and the device is not managed.

No light: Power Off/Wireless controller not found

Blinking Green: Data Tx/Rx on Radio 3 and BLE.
Blinking Orange: Data Tx/Rx on Radio 3.

Blinking Blue: Data Tx/Rx on BLE.

3 - LAN2 1Gbps

No light: Link Down

Green: Link up.

Blinking Green: Data Tx/Rx at 1Gps.

Blinking Orange: Data Tx/Rx at 100Mbps.

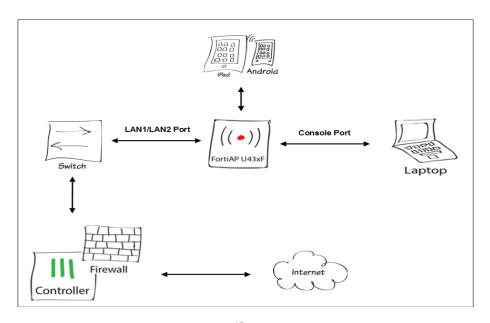
# Connecting

Adequate grounding must be provided to the FortiAP unit in compliance with the local electrical code.

Caution: Do not use any PoE injectors that are not IEEE 802.3at compliant, as they may damage your device.

- Connect one end of the Ethernet cable into the LAN1 or LAN2 port of the FortiAP unit.
- 2. Connect the other end of the Ethernet cable into your switch.
- Connect one end of the console cable to the RJ-45 console port on the FortiAP. Connect the other end to a management computer for CLI access.
- 4. If you are not using PoE, connect the DC plug of the optional power adapter into the DC power jack on the FortiAP unit, and then insert the other end into an appropriate power outlet.

The power LED will light up.



# Supported Controller Types

FAP-U433F and FAP-U431F are compatible with FortiWLC enterprise wireless LAN controllers, integrated FortiGate enterprise firewall LAN controllers, and FortiAPCloud management platform.

- If FortiWLC controller is discovered, the unit continues booting up with the default FortiWLC image.
- If the FortiGate controller or the FortiAPCloud management platform is discovered, the unit reboots with the FortiAP image.

For the FortiAP to discover the FortiAPCloud management platform, you need to add the unique FortiAPCloud key labelled on the device to the FortiAPCloud. See section *FortiAPCloud Deployment*.

For the FortiAP to complete the FortiGate discovery, you need to authorize the FortiAP on the FortiGate. See section *FortiGate Deployment*.

To bring the FortiAP back to factory default setting, insert a pin into the reset point on the FortiAP unit and hold on for 10 seconds. Release the pin.

On the FortiAP image, run the reload default factory command to reset the FortiAP to factory default.

# FortiAPCloud Deployment

Follow these steps to complete the FortiAPCloud discovery.

- Visit https://login.fortiapcloud.com and sign in or create a new account.
- Click Inventory > Import AP Key and enter the unique FortiAPCloud key, then click Submit.
   Note: The FortiAPCloud key is located on the back of your FortiAP unit.



3. Deploy the FortiAP to an existing AP network, or create a new AP network, then click Submit.

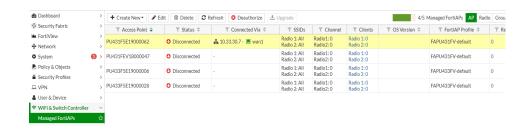
- 4. Follow the prompts to associate the FortiAP device to an SSID.
- Connect your FortiAP to an Internet connection. This can be a modem or another source of Internet connectivity.

Configure the discovered FortiAP.

# FortiGate Deployment

To complete the FortiGate controller discovery process, you need to authorize the FortiAP on FortiGate.

192.168.1.2 is the default FortiAP IP address when it boots up with the FortiAP image managed by FortiGate.



# Zero Configuration

The FortiAP unit is designed to require no configuration in most networks. Zero configuration mode works if the unit is on the same layer-2 network and subnet as the FortiWLC, or if the unit is on the same layer-3 network and subnet as the FortiGate controller or FortiAPCloud management platform.

If the FortiAP wireless controller's IP address cannot be determined using Zero Configuration mode, or if the network uses static IP addresses, it can be configured to use a static IP address.

To enable the FortiAP with a static IP address:

# Zero Configuration

To enable the FortiAP using Zero Configuration:

- After connecting the FortiAP unit as described in the previous chapter, the unit goes through its boot procedure and requests an IP address from the DHCP server.
- If the IP address is retrieved successfully, the FortiAP enters discovery mode to locate a Controller.

The discovery modes for the FortWLC controller are:

- DHCP option 43
- DHCP option 138
- DNS
- Static Controller IP address

The discovery modes for FortiGate controller are:

- DHCP option 138
- DNS
- Multicast
- Broadcast
- Static Controller IP address

# Zero Configuration

The discovery mode for FortiAPCloud management platform is:

- DNS (for an FQDN pointing to the FortiAPCloud)
- 3. Verify that the FortiAP has successfully connected to the controller in the FortiWLC/FortiAPCloud/FortiGate WebUI.

# Manual IP Configuration & Controller Discovery

To enable the FortiAP with a static IP address:

- 1. Connect the FortiAP device to a separate private switch or hub.
- 2. Access the AP console through the serial port.
- To configure FortiAP's own IP address, type ip config net static address < ip-address > netmask < netmask ip-address > gateway < gateway ip-address >.
- 4. [FortiWLC only] To discover the controller, type **ip config 1213** <*l2only* | *l2preferred* | *l3only* | *l3preferred*>.
- To configure a designated wireless controller's IP address, type ip config controller name < controller ip-address>.
- 6. Save the configuration by typing **ip config save**.
- Move the FortiAP to the intended deployment location and connect the Ethernet cable.

#### **Cautions and Warnings**

Environmental specifications Ambient operating temperature: 0C to 45C

Refer to specific Product Model Data Sheet for Environmental Specifications (Operating Temperature, Storage Temperature, Humidity, and Altitude)

Référez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité et l'altitude).

Safety

Battery – Risk of explosion if the battery is replaced by an incorrect type. Do not dispose of batteries in a fire. They may explode. Dispose of used batteries according to your local regulations. IMPORT-ANT: Switzerland: Annex 4.10 of SR814.013 applies to batteries.

Batterie – Risque d'explosion si la batterie est remplacée par un type incorrect. Ne jetez pas les batteries au feu. Ils peuvent exploser. Jetez les piles usagées conformément aux réglementations locales. IMPORTANT: Suisse: l'annexe 4.10 de SR814.013 s'appliquent aux batteries.

警告 本電池如果更換不正確會有爆炸的危險 請依製造商說明書處理用過之電池

Caution: This equipment is to be used in a Network Environment 0 per IECTR 62101. This product is connected only to PoE networks without routing to the outside plant.

Attention: Ce matériel doit être utilisé dans un Environnement Réseau 0 par IECTR 62101. Ce produit est uniquement connecté aux réseaux POE sans installation externe de routage.

This product is intended to be supplied by a Listed Direct Plug-In Power Unit marked LPS or Class 2 and rated 12 Vdc, 2.5A or by 54 Vdc from PoE source.

Le produit doit être alimenté par un bloc d'alimentation à courant

continu homologué UL de 12 Vdc, 2.5A nominal marqué LPS ou Class 2 ou par une source d'alimentation par Ethernet de 54 Vdc (PoF).

Only for Horizontal Orientation: Suitable for use in environmental air space in accordance with Section 300-22(C) of the National Electrical Code, and Sections 2-128, 2-010(3) and 12-100 of the Candadian Electrical Code, Part 1, CSA C22.1.

Seulement pour l'orientation horizontale: Convient pour une utilisation dans l'espace aérien conformément à l'article 300-22 (C) du Code National de l'Electricité, et des articles 2-128, 2-010 (3) et 12-100 du Code de l'electricité canadien. Partie 1, CSA C22.1.

#### Regulatory Notices

Federal Communication Commission (FCC) - USA

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- · Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

WARNING: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 32cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Caution: Operation of this device is restricted to indoor use only.

For operation within 5.15  $\sim$  5.25GHz frequency range, it is restricted to indoor environment.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Innovation, Science and Economic Development (ISED) – Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canda's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le frontionnement.

For product available in the USA/Canada market, only channel  $1\sim11$  can be operated. Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 36cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 36cm de distance entre la source de rayonnement et votre corps.

Caution: The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

The maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5650-5850 MHz and that these radars could cause interference and/or damage to IF-I AN devices

Attention: Le dispositif de la bande 5150-5250 MHz est réservé à un usage intérieur afin de réduire l'interférence nuisible potentielle aux systèmes mobiles par satellite co-canal.

Le gain maximal d'antenne permis (pour les dispositifs utilisant la

bande 5725-5850 MHz)

doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

This device has been designed to operate with an antenna having a maximum gain of 4 dBi for 2.4GHz and 6 dBi for 5GHz. Antenna having a higher gain is strictly prohibited per regulations of ISED. The required antenna impedance is 50 ohms.

Under ISED regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by ISED. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotopically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Ce dispositif a été conçu pour fonctionner avec une antenne ayant un gain maximal de 4 dBi pour 2.4 GHz et 6 dBi pour 5GHz. Une antenne ayant un gain supérieur sont strictement interdites par la réglementation d'ISED. L'impédance d'antenne requise est de 50 nhms.

Conformément à la réglementation d'ISED, cet émetteur radio peut fonctionner seulement avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par ISED. Dans le but de réduire les risques de brouillage radiolétectrique aux autres utilistaeturs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication réussie.

This radio transmitter (IC.7280B-3111BB056) has been approved by ISED to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device. Le présent émetteur radio (IC: 7280B-31118B056) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou d'ont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

This device and it's antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with IC multi-transmitter product procedures.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

#### Internal antenna Model:

Antenna	Qty	Antenna Type	Connector	Gain (dBi)	
				2.4GHz	5GHz
2.4/5 GHz Wi-Fi Antenna	6	PIFA	IPEX	4	6
5 GHz Wi-Fi Antenna	4	PIFA	IPEX	-	6
BT Antenna	1	PIFA	IPEX	3	-

#### External antenna Model:

	Antenna	Qty	Antenna Type	Connector	Gain (dBi)		
					2.4GHz	5GHz	
	2.4/5 GHz Wi-Fi Antenna	6	Dipole	RP SMA Plug	3.5	5	
	5GHz Wi-Fi Antenna	4	Dipole	RP SMA Plug	-	4.3	
	BT Antenna	1	PIFA (inter-	IPEX	3	-	

#### European Conformity (CE) - EU

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.



Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate/.

The product transmits within the frequency ranges and less than or equal to the power listed below: 2412-2472MHz less than 20dBm

5180-5240MHz less than 23dBm 5260-5320MHz less than 23dBm \* 5500-5700MHz less than 30dBm \*

Note: \* Only with DFS bands certification.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

#### Simplified EU Declaration of Conformity

This declaration is only valid for Fortinet products (including, combinations of software, firmware and hardware) provided by Fortinet or Fortinet's authorized partners to the end customer directly for use within the EU or countries that have implemented the EU Directives and/or spectrum regulation. Any Fortinet products not obtained directly from Fortinet or Fortinet's authorized partners may not comply with EU Directives and Fortinet makes no assurances for such products.

#### Български

Този продукт е в съответствие с Директива 2014/53/ЕС.

#### Česky

Tento produkt je v souladu se směrnicí 2014/53/EU.

#### Dansk

Dette produkt er i overensstemmelse med direktiv 2014/53/EU.

#### Deutsch

Dieses Produkt entspricht der Richtlinie 2014/53/EU.

#### Festi

See toode vastab direktiivile 2014/53/EL.

#### English

This product is in compliance with Directive 2014/53/EU.

#### Español

Este producto cumple con la Directiva 2014/53/UE.

#### Ελληνική

Το προϊόν αυτό συμμορφώνεται με την Οδηγία 2014/53/ΕΕ.

#### Français

Ce produit est conforme à la Directive 2014/53/UE.

#### Hrvatski

Ovaj proizvod je u skladu s Direktivom 2014/53/EU.

#### Italiano

Questo prodotto è conforme alla Direttiva 2014/53/EU.

#### I atviski

Questo prodotto è conforme alla Direttiva 2014/53/EU.

#### Lietuviu

Šis gaminys atitinka direktyvą 2014/53/ES.

#### Malti

Dan il-prodott huwa konformi mad-Direttiva 2014/53/UE.

#### Magyar

Ez a termék megfelel a 2014/53/EU irányelvnek.

#### Nederlands

Dit product is in overeenstemming met Richtlijn 2014/53/EU.

#### Norsk

Dette produktet er i samsvar med direktiv 2014/53/EU.

#### Polski

Ten produkt jest zgodny z dyrektywą 2014/53/UE.

#### Português

Este produto está em conformidade com a Diretiva 2014/53/UE.

#### Rumunski

Acest produs este în conformitate cu Directiva 2014/53/UE.

#### Slovensky

Tento produkt je v súlade so smernicou 2014/53/EÚ.

#### Slovensko

Ta izdelek je v skladu z Direktivo 2014/53/EU.

#### Suomi

Tämä tuote on direktiivin 2014/53/EU mukainen.

#### Svenska

Denna produkt överensstämmer med direktiv 2014/53/EU.

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range in the following countries:



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#### 1. License Grant.

This is a license, not a sales agreement, between you and Fortinet. The term "Software", as used throughout this Agreement, includes all Fortinet and third party firmware and software provided to you with, or incorporated into. Fortinet appliances and any stand-alone

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