

FortiGate Secure LAN Controller

FortiGate, a Dedicated LAN Controller



The FortiGate, in addition to its full suite of security functions, is a fully capable Wi-Fi and Switch Controller, able to manage FortiAPs, FortiSwitches, and extend Network Access Control (FortiLink NAC) to throughout the LAN — Fortinet's Secure LAN solution.

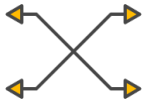


The Fortinet Secure LAN solution consolidates network management into our industry leading FortiGate. This solution provides comprehensive security for the LAN and WLAN infrastructure. With a single console for security and network functions, management is greatly simplified on a day-to-day basis, and security is fully integrated with every part of the network.



FortiGate Secure LAN Functions

All FortiGates include the following Secure LAN functions out of the box. No additional licensing is needed.



The FortiGate Wi-Fi and Switch Controller

The FortiGate Wi-Fi and Switch Controller manages FortiAP and FortiSwitch units in the network via FortiLink (below), extending the Fortinet security fabric throughout the LAN, where end-devices connect to the network. In an overused phrase, a single pane of glass manages all the LAN access ports — FortiSwitch physic FortiAP virtual.



FortiLink

FortiLink technology enables FortiAPs and FortiSwitches to become extensions of the FortiGate security appliance. When connected via FortiLink, traffic is tunneled to the FortiGate for full security inspection without the need to configure trunk lines on the FortiSwitches. Please note that FortiAPs do not require FortiSwitches to connect via FortiLink to their FortiGate controller. FortiAPs and FortiSwitches are complementary, but not mutually required.



FortiLink NAC

FortiLink NAC can dynamically assign devices to VLANs based on multiple criteria detected by FortiAPs or FortiSwitches. It can identify devices by multiple criteria, including device pattern (such as OS, MAC address, or HW vendor), user identity, VLAN attributes, IoT/OT vulnerabilities, or integrate with FortiClient EMS tags. For example, Internet of Things (IoT) sensors could be automatically identified and assigned to a specific VLAN with targeted policies that only allow communication with their control server. FortiLink NAC will also generate an inventory of connected devices, providing network administrators greater visibility.

PRODUCT OFFERINGS



FortiAP—Standard and Unified Threat Protection Models

FortiAP devices come in a variety of models that support the latest Wi-Fi technologies, including Wi-Fi 6 (F series), 6E (G series), and even Wi-Fi 7 (K series). Indoor, outdoor, and high-density models are available, as well as wall-plate models for the hospitality industry. The U-series (Unified Threat Protection) offer the additional power of FortiGuard services on the FortiAP.

Both the standard FortiAP and FortiAP-U families are available in 2×2 (two MIMO stream) and 4×4 (four MIMO stream) models. Several models support dual 5 GHz operation mode for the most demanding Wi-Fi environments. The FAP-831 is an 8×8 Multi-User MIMO model for high density cases, such as lecture halls or auditoriums. FortiGates require no additional licenses to manage FortiAPs, although there are FortiGate model-specific AP limits.

FortiAP K series WiFi-7 models along with support for 6 GHz spectrum are designed to meet the next generation of wireless connectivity needs by supporting generational improvements of Wi-Fi 7 (802.11be) over Wi-Fi 6/6E (802.11ax) which includes 4K-QAM, support for 320 MHz, Multi-Link Operation (MLO), Multi-RU and puncturing capability for better use of spectrum. In order to support these multi-gig over the air transmissions these APs can be powered by FortiSwitch with 802.3bt PoE and Multi-Gigabit connectivity.

FortiSwitch—Ethernet Switching



Reliable, highly-performing, and purpose-built, Ethernet FortiSwitches are available in a variety of models to address needs from the small office access layer to the datacenter. All models support FortiLink and can be managed and configured directly from a FortiGate. MCLAG (Multi-Chassis Link Aggregation Group) is supported on most models for network redundancy.

In a Secure LAN deployment, it is vital to align the switch uplink speed with the capacity of the FortiGate. Avoid too little FortiGate with too much FortiSwitch. PoE (Power over Ethernet) access switches can provide power for FortiAPs. FortiGates require no additional licenses to manage FortiSwitches, although there are FortiGate model-specific switch limits.

PRODUCT OFFERINGS

Secure LAN Design

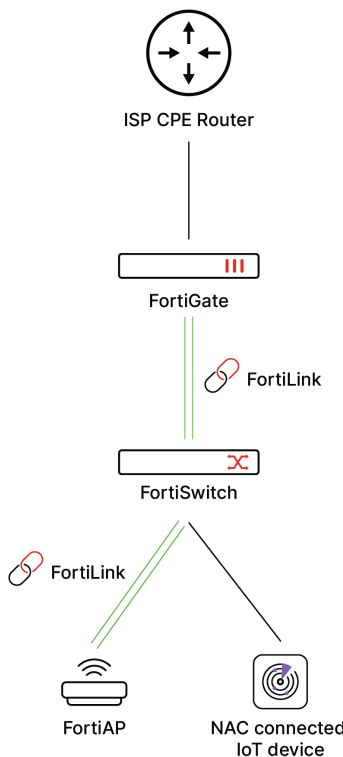
Fortinet Secure LAN Solutions are very flexible and can be adapted to a wide variety of network needs. Some guidelines follow, but it is best to work with an experienced Fortinet reseller to ensure the chosen products align with your networking needs.

Dedicated vs Perimeter Secure LAN Controller

There are two broad design approaches to using a FortiGate as a Secure LAN Controller: SD-Branch and Dedicated Controller.

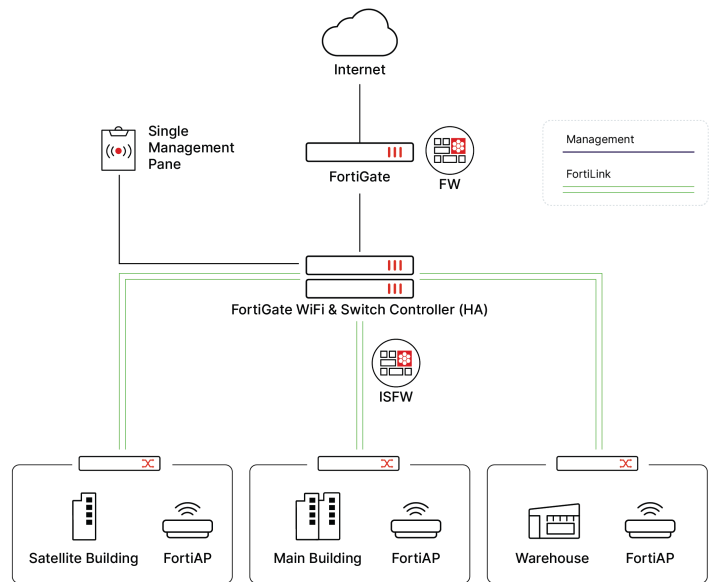
SD Branch/Branch

The SD-Branch/Branch design is built around the main internet access FortiGate also directly controlling any Secure LAN devices. This design is typical of Branch and SMB offices. Total number of FortiAPs should initially be around 50% of the FortiGates listed tunneled-traffic maximum. That quantity leaves capacity for growth and new, advanced Wi-Fi technologies. FortiSwitches in these type of deployments will be access layer models that deliver PoE (Power over Ethernet) to the FortiAPs and connect directly to the FortiGate.



Dedicated Secure LAN Controller/ISFW Firewall

The dedicated Secure LAN Controller/ISFW Firewall, also sometimes called an overlay design is typical for campus networks with larger numbers of FortiAPs and a pre-existing switching network. The FortiGate Secure LAN Controller is usually dedicated to the Wi-Fi traffic. The FortiGate provides Wi-Fi controller functions, and serves as a Wi-Fi traffic concentrator and security inspection point, but is an ISFW (Internal Segmentation Firewall), rather than the primary Internet uplink. FortiAPs can tunnel FortiLink to the FortiGate Secure LAN Controller through an existing switch network, or FortiSwitches may be deployed specifically to support the FortiAPs.



FortiAP Requirements

Determine the number of FortiAPs needed first, which is primarily driven by how much floor space needs to be covered, with adjustments to the local wireless conditions. Wi-Fi design is highly location dependent, and a wireless site- survey from your reseller is always recommended.

For planning purposes, a FortiAP typically covers 1500 sq ft (150 sq m) and accommodates 60 active devices per service radio, or 120 devices per FortiAP. The 2x2 models are common in retail, public access, and similar lighter use. The 4x4 models are more common in offices and heavier use environments. However, all devices will perform well with all FortiAP models. Consult a Fortinet reseller about external antenna or specialty models, such as the FAP-23JF.

The UTP (Unified Threat Protection) models can deliver FortiGuard services on the FortiAP itself, offloading from the FortiGate.

FortiAPs can be powered by standards-based PoE access switches that match the requirements of the particular model. Power injectors or AC power can be used when PoE switches are unavailable. FortiAPs can connect to a FortiGate via FortiLink over any IP network with full functionality, including providing FortiLink NAC for wireless devices; FortiSwitches are not necessary but can optionally be added if required.

More in depth wireless design resources can be found [here](#).

Number of FortiSwitches — Access Ports

Start with the determining the number of access ports for your needs, both for the FortiAPs and for any other wired devices. PoE access layer FortiSwitches can be used to power the FortiAPs as well as power other devices such as IoT devices or desk phones. The total power budget needs to be aligned with the powered device needs.

FortiSwitches can also provide the wired port-based FortiLink NAC function, identifying devices by various criteria and assigning them to policy determined VLANs automatically. If such devices need PoE power, that must be covered by the access switch PoE power budget.

A switch FortiLink uplink must be directly connected to either a FortiGate Secure LAN Controller or another FortiSwitch that is, in turn, FortiLink connected to a FortiGate. Unlike FortiAPs, they cannot be tunneled through another vendor's switch.

In an SD-Branch design, a single access FortiSwitch connected directly to a FortiGate may be all that is needed. However, a large campus with hundreds or thousands of FortiAPs will certainly require core and distribution switch layers with MLAG redundancy. Full Ethernet switch network design is beyond the scope of this document, but more in depth wired design resources can be found [here](#).

Size the Secure LAN Controller FortiGate

The scale of the FortiAP and FortiSwitch network will determine the necessary sizing of the FortiGate Secure LAN Controller. The FortiGate should be sized as usual, based on throughput (by inspection type), but with the addition of accounting for the tunneled FortiAP and FortiSwitch limits.

In order to leave room for growth, we recommend the FortiGate have a capacity for twice the number of FortiAPs (tunneled) and FortiSwitches to be deployed. Because of the different ways traffic is handled on the FortiGate, the FortiAP and FortiSwitch numbers are independent and can be evaluated separately. One Secure LAN device type does not affect the limit on the other type.

The most conservative FortiGate throughput number is the Threat Protection Throughput (Enterprise Mix), and that will be cited in the following examples. However, keep in mind that FortiAP-U series APs can offload FortiGuard Services. When that is the case, the higher NGFW number should be used for the FortiGate. In a branch deployment, the throughput should be more than the Internet uplink. In a dedicated controller environment, it is likely to be the same number in that the wireless end users are probably the primary Internet users.

Finally, the more critical and larger the Secure LAN Network, the more likely the Secure LAN Controller should actually be a pair of FortiGates in High Availability (HA) mode.

Cloud Management and Network Transition Options

Fewer and fewer networks of any size are deployed as pure greenfield. Most are established and have a refresh cycle with the NGFW, Ethernet, and Wi-Fi — all refreshed at different times. Fortinet has options for those who want to transition to our Secure LAN solution but are unable to do so all at once.

FortiLAN Cloud provides central cloud management for FortiAPs and FortiSwitches without an onsite FortiGate. Fortinet Secure LAN equipment can be deployed to a site and managed in FortiLAN Cloud, and later transitioned to FortiGate in the future.

FortiGate Cloud also provides cloud-based and remote management of FortiGates, and is completely compatible with everything above. FortiGate Cloud, via cloud management of a FortiGate, in turn manages the Secure LAN FortiAPs and FortiSwitches. FortiGate Cloud also adds one year of cloud log storage and backups, and is included in the FortiGate SMB bundles.

Example Specs/BoMs — FortiGate, FortiAP, FortiSwitch

NB – these are example BoMs, and should not be used as strict ‘recipes.’ Customer environments vary, and a full network design will be necessary to get the right number of FortiAPs, FortiSwitches, ports, and power requirements.

LIGHT RETAIL / SMALL BRANCH		
PRODUCTS	NEED	SUGGESTED SOLUTIONS
FortiAPs	4000 square feet, no walls, light Wi-Fi	FAP-231G / 431F
Access FSW	4 PoE ports, at power	FSW-108-FPOE
Aggregation FSW	Not needed	—
FortiGate	SMB class firewall + WiFi and switch controller	FGT-60F
SFP	Not needed	—

MID SIZE BRANCH		
QTY	SKU	SUPPORT
FortiAPs	30,000 square feet (20 FAP)	FAP-441K/431G/231G
Access FSW	Multi-Gig switches, bt/at PoE	FSW-M426E, FSW-648F or similar
Aggregation FSW	MCLAG, SFP+ connectors	FSW-1024E, 1048E, 2048F
FortiGate	Enterprise package, redundant pair	Dual FGT-100F, HA mode
SFPs	10GE copper	10GE SFP+ copper connectors

MID RANGE ENTERPRISE		
QTY	SKU	SUPPORT
FortiAPs	225 000 sq ft (150 FAP)	FAP-441K/431G/231G
Access FSW	Multi-Gig switch, bt PoE	FSW-M426E, FSW-648F, or similar
Aggregation FSW	MCLAG, SFP+ connectors	FSW-1024E, 1048E, 2048F
FortiGate	Enterprise package, redundant pair	2 FGT-600F, HA mode
SFPs	SFP	10GE SFP+ copper connectors

LARGE CAMPUS / SCHOOL DISTRICT		
QTY	SKU	SUPPORT
FortiAPs	Indoor and outdoor coverage	FAP-441K/431G + FAP-432G/234G
Access FSW	Multi-Gig switch, bt PoE	FSW-M426E, FSW-648F, or similar
Aggregation FSW	MCLAG, SFP+ connectors	FSW-1024E/1048E/2048F/3032E
FortiGate	Enterprise package, redundant pair	2 FGT-1800F, or similar
SFPs	SFP	10/40 GE fiber

Light Retail / Small Branch

An open area allows wider FAP coverage, Wi-Fi use is light, one wired register, one wireless printer, cost conscious, SMB Bundle.

Mid Size Branch

Thirty thousand square feet, multi-gig access switches in a redundant MCLAG pair, extra PoE ports for PoE desk phones, redundant FortiGates as dedicated Wi-Fi and Switch controllers (ISFW), Enterprise Bundle.

Mid Range Enterprise

Large office building, multiple floors, 225 000 sq ft (150 FAPs), switch redundancy, redundant FortiGates as dedicated WiFi and Switch controllers (ISFW), Enterprise bundle.

Large Campus / School District

Eight hundred Indoor FortiAPs, 100 outdoor FortiAPs, Multi-Gig PoE access switches, aggregation switches, switch redundancy, redundant FortiGates as dedicated Wi-Fi and Switch controllers (ISFW), Enterprise Bundle.

Top Sellers

Secure LAN FortiGates

BASE PRODUCT	RECOMMENDED FORTIAP (TUNNELED)	MAX FORTIAP (TUNNELED)	MAX FORTISWITCH	RECOMMENDED BUNDLE	SUPPORT BUNDLE	RENEWAL
SMALL RETAIL / BRANCH						
FG-40F	4	8	8	Enterprise	FG-40F-BDL-809-DD	FC-10-0040F-809-02-DD
FG-60F	16	32	24	Enterprise	FG-60F-BDL-809-DD	FC-10-0060F-809-02-DD
FG-70F	16	32	24	Enterprise	FG-70F-BDL-809-DD	FC-10-0070F-809-02-DD
FG-80F	24	48	24	Enterprise	FG-80F-BDL-809-DD	FC-10-0080F-809-02-DD
FG-90G	24	48	24	Enterprise	FG-90G-BDL-809-DD	FC-10-0090G-809-02-DD
LARGE BRANCH / MID RANGE						
FG-100F	32	64	32	Enterprise	FG-100F-BDL-809-DD	FC-10-F100F-809-02-DD
FG-120G	32	64	32	Enterprise	FG-120G-BDL-809-DD	FC-10-F120G-809-02-DD
FG-200F	64	128	64	Enterprise	FG-200F-BDL-809-DD	FC-10-F200F-809-02-DD
FG-400F	128	256	72	Enterprise	FG-400F-BDL-809-DD	FC-10-0400F-809-02-DD
FG-600F	256	512	96	Enterprise	FG-600F-BDL-809-DD	FC-10-0600F-809-02-DD
FG-900G	256	512	96	Enterprise	FG-900G-BDL-809-DD	FC-10-FG9H0-809-02-DD
HIGH END / LARGE CAMPUS / SCHOOL DISTRICT						
FG-1000F	1024	2048	196	Enterprise	FG-1000F-BDL-809-DD	FC-10-F1K0F-809-02-DD
FG-1800F	1024	2048	196	Enterprise	FG-1800F-BDL-809-DD	FC-10-F18HF-809-02-DD
FG-2600F	1024	2048	196	Enterprise	FG-2600F-BDL-809-DD	FC-10-F26HF-809-02-DD
FG-3000F	1024	2048	300	Enterprise	FG-3000F-BDL-809-DD	FC-10-F3K0F-809-02-DD
FG-3200F	1024	2048	300	Enterprise	FG-3200F-BDL-809-DD	FC-10-F3K2F-809-02-DD
FG-3500F	1024	2048	300	Enterprise	FG-3500F-BDL-809-DD	FC-10-F3K0F-809-02-DD
FG-3700F	1024	2048	300	Enterprise	FG-3600E-BDL-809-DD	FC-10-F3K6E-809-02-DD
FG-4200F	2048	4096	300	Enterprise	FG-4200F-BDL-809-DD	FC-10-F42HF-809-02-DD
FG-4400F	2048	4096	300	Enterprise	FG-4400F-BDL-809-DD	FC-10-F44HF-809-02-DD
FG-4800F	2048	4096	300	Enterprise	FG-4800F-BDL-809-DD	FC-10-F48HF-809-02-DD

Top Sellers

FORTIAP

PRODUCT	SKU	SUPPORT
WiFi-7		
ADD NEW MODELS*		
STANDARD MODELS		
FAP-441K	FAP-441K -suffix*	FC-10-PG431-247-02-DD
FAP-443K	FAP-443K -suffix*	FC-10-FP43K-247-02-DD
FAP-431G	FAP-431G-suffix*	FC-10-PG431-247-02-DD
FAP-432G	FAP-432G-suffix*	FC-10-P432G-247-02-DD
FAP-433G	FAP-433G-suffix*	FC-10-PG433-247-02-DD
FAP-231G	FAP-231G-suffix*	FC-10-PG231-247-02-DD
FAP-233G	FAP-233G-suffix*	FC-10-PG233-247-02-DD
FAP-234G	FAP-234G-suffix*	FC-10-P234G-247-02-DD
FAP-431F	FAP-431F-suffix*	FC-10-F431F-247-02-DD
FAP-433F	FAP-433F-suffix*	FC-10-F433F-247-02-DD
FAP-432F	FAP-432F-suffix*	FC-10-PF432-247-02-DD
FAP-432FR	FAP-432FR-suffix*	FC-10-FR432-247-02-DD
FAP-231F	FAP-231F-suffix*	FC-10-PF231-247-02-DD
FAP-234F	FAP-234F-suffix*	FC-10-P234F-247-02-DD
UTP MODELS		
FAP-U431F	FAP-U431F-suffix*	FC-10-P431F-247-02-DD
FAP-U433F	FAP-U433F-suffix*	FC-10-P433F-247-02-DD
FAP-U432F	FAP-U433F-suffix*	FC-10-PU432-247-02-DD
FAP-U231F	FAP-U433F-suffix*	FC-10-P231-247-02-DD
FAP-U234F	FAP-U433F-suffix*	FC-10-PU234-247-02-DD

FPoE FORTISWITCH

PRODUCT	SKU	SUPPORT
MODELS		
FortiSwitch-108F-FPOE	FS-108F-FPOE	FC-10-F108F- 247-02-DD
FortiSwitchRugged-112D-POE	FSR-112D-POE	FC-10-W112D-247-02-DD
FortiSwitch-124F-FPOE	FS-124F-FPOE	FC-10-S124F-247-02-DD
FortiSwitch-148F-FPOE	FS-148F-FPOE	FC-10-148FF-247-02-DD
FortiSwitch-224D-FPOE	FS-224D-FPOE	FC-10-W0226-247-02-DD
FortiSwitch-248E-FPOE	FS-248E-FPOE	FC-10-W248E-247-02-DD
FortiSwitch-424E-FPOE	FS-424E-FPOE	FC-10-S424F-247-02-DD
FortiSwitch-448E-FPOE	FS-448E-FPOE	FC-10-S448F-247-02-DD
FortiSwitch-524D-FPOE	FS-524D-FPOE	FC-10-W0505-247-02-DD
FortiSwitch-548D-FPOE	FS-548D-FPOE	FC-10-W0501-247-02-DD
FortiSwitch-624F-FPOE	FS-624F-FPOE	FC-10-624FF-247-02-DD
FortiSwitch-648F-FPOE	FS-648F-FPOE	FC-10-648FF-247-02-DD

* FortiAP country code suffix explanation.

A country suffix code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiAP models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

** C1D2 certified for hazardous conditions.

Order Information: FortiGate as a Secure LAN Controller

The Fortinet Secure LAN solution consolidates network management into our industry leading FortiGate. This solution provides comprehensive security for the LAN infrastructure and simpler management on a day-to-day basis. Fortinet enables the deployment of large-scale networks with minimal technical expertise via built-in best-practice configurations. Zero-touch provisioning delivers quick and easy application of device templates to sites at scale. FortiLink NAC creates improved visibility and segmentation, enabling auto-discovery of devices to implement “least privilege” access.

FORTIGATE APPLIANCES	FG/FWF-40F	FG/FWF-60F	FG-70F	FG/FWF-80F	FG-90G
NGFW / PERIMETER FIREWALLS					
Maximum FortiAPs (Total/Tunnel)	16 / 8	64 / 32	64 / 32	96 / 48	96 / 48
Max FortiSwitches	8	24	24	24	24
Firewall Throughput (1518/512/64 byte UDP)	5 / 5 / 5 Gbps	10 / 10 / 6 Gbps	10 / 10 / 6 Gbps	10 / 10 / 7 Gbps	28 / 28 / 27.9 Gbps
BRANCH AND MID RANGE BUNDLES					
FortiGate	FG/FWF-40F	FG/FWF-60F	FG-70F	FG/FWF-80F	FG-90G
Enterprise Bundle	FG-40F-BDL-809-DD FWF-40F-code*-BDL-809-DD	FG-60F-BDL-809-DD FWF-60F-code*-BDL-809-DD	FG-70F-BDL-809-DD	FG-80F-BDL-809-DD FWF-80F-code*-BDL-809-DD	FG-90G-BDL-809-DD
- Enterprise Renewal	FC-10-0040F-809-02-DD	FC-10-0060F-809-02-DD	FC-10-0070F-809-02-DD	FC-10-0080F-809-02-DD	FC-10-0090G-809-02-DD
FortiGate Cloud alone	FC-10-0040F-131-02-DD	FC-10-0060F-131-02-DD	FC-10-0070F-131-02-DD	FC-10-0080F-131-02-DD	FC-10-0090G-131-02-DD
SELECT BRANCH VARIANTS					
Variant	FG-40F-3G4G	61F Storage	71F Storage	81F storage	90G storage
Enterprise Bundle	FG-40F-3G4G-BDL-809-DD	FG-61F-BDL-809-DD	FG-71F-BDL-809-DD	FG-81F-BDL-809-DD	FG-91G-BDL-809-DD
- Enterprise Renewal	FC-10-F40FG-809-02-DD	FC-10-0061F-809-02-DD	FC-10-0071F-809-02-DD	FC-10-0081F-809-02-DD	FC-10-0091G-809-02-DD
FortiGate Cloud alone	FC-10-F40FG-131-02-DD	FC-10-0061F-131-02-DD	FC-10-0071F-131-02-DD	FC-10-0081F-131-02-DD	FC-10-0091G-131-02-DD
Variant	FortiWiFi 40F	FortiWiFi 60F		FortiWiFi 80F-2R	
Enterprise Bundle	FWF-40F-code*-BDL-809-DD	FWF-60F-code*-BDL-809-DD		FWF-80F-2R-code*-BDL-809-DD	
- Enterprise Renewal	FC-10-W040F-809-02-DD	FC-10-W060F-809-02-DD		FC-10-W080F-809-02-DD	
FortiGate Cloud alone	FC-10-W040F-131-02-DD	FC-10-W060F-131-02-DD		FC-10-W080F-131-02-DD	
Variant	FortiWiFi 40F-3G4G	FortiWiFi 61F storage		FortiGate 80F-PoE	
Enterprise Bundle	FWF-40F-3G4G-code*-BDL-809-DD	FWF-61F-code*-BDL-809-DD		FG-80F-POE-BDL-809-DD FG-81F-POE-BDL-809-DD	
- Enterprise Renewal	FC-10-F40FI-809-02-DD	FC-10-W061F-809-02-DD		FC-10-F80FP-809-02-DD FC-10-F81FP-809-02-DD	
FortiGate Cloud alone	FC-10-F40FI-131-02-DD	FC-10-W061F-131-02-DD		FC-10-F80FP-131-02-DD FC-10-F81FP-131-02-DD	

* FortiWiFi country code suffix explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiWiFi models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

FortiGate Appliances

FORTIGATE APPLIANCES	FG/FWF-40F	FG/FWF-60F	FG-70F	FG/FWF-80F	FG-90G
SELECT BRANCH VARIANTS					
Variant				FortiWiFi 81F-2R storage	
Enterprise Bundle				FWF-81F-2R-code*-BDL-809-DD	
- Enterprise Renewal				FC-10-W081F-809-02-DD	
FortiGate Cloud alone				FC-10-W081F-131-02-DD	
Variant				FortiWiFi 80F-PoE	
Enterprise Bundle				FWF-81F-2R-POE-code*-BDL-809-DD	
- Enterprise Renewal				FC-10-WP81F-809-02-DD	
FortiGate Cloud alone				FC-10-WP81F-131-02-DD	

FORTIGATE APPLIANCES	FG-100F	FG-200F	FG-400F	FG-600F	FG-900G	FG-1000F
NGFW / PERIMETER FIREWALLS						
Maximum FortiAPs (Total/Tunnel)	128 / 64	256 / 128	512 / 256	1024 / 512	1024 / 512	4096 / 2048
Max FortiSwitches	32	64	72	96	96	196
Firewall Throughput (1518/512/64 byte UDP)	20 / 18 / 10 Gbps	27 / 27 / 11 Gbps	78.5 / 78.5 / 70 Gbps	139 / 137.5 / 70 Gbps	164 / 163 / 153 Gbps	196 / 196 / 134 Gbps
MID RANGE AND HIGH END BUNDLES						
Enterprise Protection Bundle						
Enterprise Bundle	FG-100F-BDL-809-DD	FG-200F-BDL-809-DD	FG-400F-BDL-809-DD	FG-600F-BDL-809-DD	FG-900G-BDL-809-DD	FG-1000F-BDL-809-DD
- Enterprise Renewal	FC-10-F100F-809-02-DD	FC-10-F200F-809-02-DD	FC-10-0400F-809-02-DD	FC-10-0600F-809-02-DD	FC-10-FG9H0-809-02-DD	FC-10-F1K0F-809-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F100F-131-02-DD	FC-10-F200F-131-02-DD	FC-10-0400F-131-02-DD	FC-10-0600F-131-02-DD	FC-10-FG9H0-131-02-DD	FC-10-F1K0F-131-02-DD
Unified Threat Protection Bundle						
UTP Bundle	FG-100F-BDL-950-DD	FG-200F-BDL-950-DD	FG-400F-BDL-950-DD	FG-600F-BDL-950-DD	FG-900G-BDL-950-DD	FG-1000F-BDL-950-DD
- UTP Bundle Renewal	FC-10-F100F-950-02-DD	FC-10-F200F-950-02-DD	FC-10-0400F-950-02-DD	FC-10-F6H0F-950-02-DD	FC-10-F9H0G-950-02-DD	FC-10-F1K0F-950-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F100F-131-02-DD	FC-10-F200F-131-02-DD	FC-10-0400F-131-02-DD	FC-10-0600F-131-02-DD	FC-10-F9H0G-131-02-DD	FC-10-F1K0F-131-02-DD

* FortiWiFi country code explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiWiFi models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

FortiGate Appliances

FORTIGATE APPLIANCES	FG-1800F	FG-2600F	FG-3000F	FG-3200F	FG-3500F
NGFW / PERIMETER FIREWALLS					
Maximum FortiAPs (Total/Tunnel)	4096 / 2048	4096 / 2048	4096 / 2048	4096 / 2048	4096 / 2048
Max FortiSwitches	196	196	300	300	300
Firewall Throughput (1518/512/64 byte UDP)	198 / 197 / 140 Gbps	198 / 196 / 120 Gbps	397 / 389 / 221 Gbps	387 / 385 / 178.5 Gbps	595 / 590 / 420 Gbps
MID RANGE AND HIGH END BUNDLES					
Enterprise Protection Bundle					
Enterprise Bundle	FG-1800F-BDL-809-DD	FG-2600F-BDL-809-DD	FG-3000F-BDL-809-DD	FG-3200F-BDL-809-DD	FG-3500F-BDL-809-DD
- Enterprise Renewal	FC-10-F18HF-809-02-DD	FC-10-F26HF-809-02-DD	FC-10-F3K0F-809-02-DD	FC-10-F3K2F-809-02-DD	FC-10-F3K0F-809-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F18HF-131-02-DD	FC-10-F26HF-131-02-DD	FC-10-F3K0F-131-02-DD	FC-10-F3K2F-131-02-DD	FC-10-F3K5F-131-02-DD
Unified Threat Protection Bundle					
UTP Bundle	FG-1800F-BDL-950-DD	FG-2600F-BDL-950-DD	FG-3000F-BDL-950-DD	FG-3200F-BDL-950-DD	FG-3500F-BDL-950-DD
- UTP Bundle Renewal	FC-10-F18HF-950-02-DD	FC-10-F26HF-950-02-DD	FC-10-F3K0F-950-02-DD	FC-10-F3K2F-950-02-DD	FC-10-F3K5F-950-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F18HF-131-02-DD	FC-10-F26HF-131-02-DD	FC-10-F3K0F-131-02-DD	FC-10-F3K2F-131-02-DD	FC-10-F3K5F-131-02-DD

FORTIGATE APPLIANCES	FG-3700F	FG-4200F	FG-4400F
NGFW / PERIMETER FIREWALLS			
Maximum FortiAPs (Total/Tunnel)	4096 / 2048	8192 / 4096	8192 / 4096
Max FortiSwitches	300	300	300
Firewall Throughput (1518/512/64 byte UDP)	589 / 589 / 420 Gbps	800 / 788 / 400 Gbps	1.15 / 1.14 / 0.5 Tbps
MID RANGE AND HIGH END BUNDLES			
Enterprise Protection Bundle			
Enterprise Bundle	FG-3600E-BDL-809-DD	FG-4200F-BDL-809-DD	FG-4400F-BDL-809-DD
- Enterprise Renewal	FC-10-F3K6E-809-02-DD	FC-10-F42HF-809-02-DD	FC-10-F44HF-809-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F3K7F-131-02-DD	n/a	n/a
Unified Threat Protection Bundle			
UTP Bundle	FG-3600E-BDL-950-DD	FG-4200F-BDL-950-DD	FG-4400F-BDL-950-DD
- UTP Bundle Renewal	FC-10-F3K6E-950-02-DD	FC-10-F42HF-950-02-DD	FC-10-F44HF-950-02-DD
FortiGate Cloud -Management, Analysis, 1y Log Retention	FC-10-F3K7F-131-02-DD	n/a	n/a

* FortiWiFi country code explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiWiFi models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

FortiGate VM Virtual Machines

FORTIGATE VM VIRTUAL MACHINES	VM-01/01V/01S	VM-02/02V/02S	VM-04/04V/04S	VM-08/08V/08S
NGFW / PERIMETER FIREWALLS				
Maximum FortiAPs (Total/Tunnel)	64 / 32	1024 / 512	1024 / 512	4096 / 1024
Max FortiSwitches	Implementation dependent	Implementation dependent	Implementation dependent	Implementation dependent
Firewall Throughput (1518/512/64 byte UDP)	12 Gbps	15 Gbps	28 Gbps	33 Gbps
PRIVATE CLOUD				
ATP bundle	FC1-10-FGVVS-993-02-DD	FC2-10-FGVVS-993-02-DD	FC3-10-FGVVS-993-02-DD	FC4-10-FGVVS-993-02-DD
UTP Bundle	FC2-10-FGVVS-990-02-DD	FC2-10-FGVVS-990-02-DD	FC3-10-FGVVS-990-02-DD	FC4-10-FGVVS-990-02-DD
Enterprise bundle	FC2-10-FGVVS-814-02-DD	FC2-10-FGVVS-814-02-DD	FC3-10-FGVVS-814-02-DD	FC4-10-FGVVS-814-02-DD
NB - FortiGate VM does not have a FortiGate Cloud option				

FORTIGATE VM VIRTUAL MACHINES	VM-16/16V/16S	VM-32/32V/32S	VM-UL/ULV/ULS
NGFW / PERIMETER FIREWALLS			
Maximum FortiAPs (Total/Tunnel)	4096 / 1024	4096 / 1024	4096 / 1024
Max FortiSwitches	Implementation dependent	Implementation dependent	Implementation dependent
Firewall Throughput (1518/512/64 byte UDP)	36 Gbps	50 Gbps	Resource dependent
PRIVATE CLOUD			
ATP bundle	FC5-10-FGVVS-993-02-DD	FC6-10-FGVVS-993-02-DD	FC7-10-FGVVS-993-02-DD
UTP Bundle	FC5-10-FGVVS-990-02-DD	FC6-10-FGVVS-990-02-DD	FC7-10-FGVVS-990-02-DD
Enterprise bundle	FC5-10-FGVVS-814-02-DD	FC6-10-FGVVS-814-02-DD	FC7-10-FGVVS-814-02-DD
NB - FortiGate VM does not have a FortiGate Cloud option			

FortiAP

FORTIAP	FAP-441K	FAP-443K
STANDARD		
Wi-Fi Generation	7	7
MIMO/Antennas	4x4, Internal	4x4 External
Use	Indoor	Indoor
Majority of clients	Laptops, all	Laptops, all
Radios	4	4
Ethernet ports	2x 10GE	2x 10GE
PoE (802.3xx)	1bt, or 2at	1bt, or 2at
Hardware	FAP-441K-suffix*	FAP-443K-suffix*
NB - no license required for FortiGate management	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud		
FortiCare Premium	FC-10-FP41K-247-02-DD	FC-10-FP43K-247-02-DD
FortiCare Elite	FC-10-FP41K-284-02-DD	FC-10-FP43K-284-02-DD

FortiAP

FORTIAP	FAP-431G	FAP-432G	FAP-433G	FAP-231G	FAP-233G	FAP-234G
STANDARD						
Wi-Fi Generation	6E	6E	6E	6E	6E	6E
MIMO/Antennas	4x4, Internal	4x4 External	4x4 External (6GHz Int)	2x2, Internal	2x2 External	2x2, External
Use	Indoor	Outdoor	Indoor	Indoor	Indoor	Outdoor
Majority of clients	Laptops, all	Phones/Tablets, all	Laptops, all	Phones/Tablets, all	Phones/Tablets, all	Phones/Tablets, all
Radios	3	3	3	3	3	3
Ethernet ports	2 x 5GE	1 x 10GE, 1GE	2 x 5GE	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE	1x 5GE, 1GE
PoE (802.3xx)	1bt, or 2at	bt	1bt, or 2at	at	at	bt
Hardware	FAP-431G-suffix*	FAP-432G-suffix*	FAP-433G-suffix*	FAP-231G-suffix*	FAP-233G-suffix*	FAP-234F-suffix*
NB - no license required for FortiGate management	-	-	-	-	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud						
FortiCare Premium	FC-10-PG431-247-02-DD	FC-10-P432G-247-02-DD	FC-10-PG433-247-02-DD	FC-10-PG231-247-02-DD	FC-10-PG233-247-02-DD	FC-10-P234G-247-02-DD
FortiCare Elite	FC-10-PG431-284-02-DD	FC-10-P432G-284-02-DD	FC-10-PG433-284-02-DD	FC-10-PG231-284-02-DD	FC-10-PG233-284-02-DD	FC-10-P234G-284-02-DD

FORTIAP	FAP-831F	FAP-431F	FAP-433F	FAP-432F	FAP-432FR
STANDARD					
Wi-Fi Generation	6	6	6	6	6
MIMO/Antennas	8x8, internal	4x4, Internal	4x4 External	4x4 External	4x4 External
Use	stadium/auditorium	Indoor	Indoor	Outdoor	Outdoor/Hazardous
Majority of clients	Phones/Tablets, all	Laptops, all	Laptops, all	Laptops, all	Laptops, all
Radios	3	3	3	3	3
Ethernet ports	1 x 5GE, 1GE	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE
PoE (802.3xx)	2at/bt (30W)	at	at	bt	bt
Hardware	FAP-831F-suffix*	FAP-431F-suffix*	FAP-433F-suffix*	FAP-432F-suffix*	FAP-432FR-suffix*
NB - no license required for FortiGate management	-	-	-	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud					
FortiCare Premium	FC-10-F831F-247-02-DD	FC-10-F431F-247-02-DD	FC-10-F433F-247-02-DD	FC-10-PF432-247-02-DD	FC-10-PF432-247-02-DD
FortiCare Elite	FC-10-P831F-284-02-DD	FC-10-F431F-284-02-DD	FC-10-F433F-284-02-DD	FC-10-PF432-284-02-DD	FC-10-PF432-284-02-DD

* FortiAP country code explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiAP models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

** C1D2 certified for hazardous conditions.

FortiAP

FORTIAP	FAP-231F	FAP-234F	FAP-23JF
STANDARD			
Wi-Fi Generation	6	6	6
MIMO/Antennas	2x2, Internal	2x2, Internal	2x2, Internal
Use	Indoor	Outdoor	Indoor wall plate
Majority of clients	All, light use	All, light use	Hotel Rooms
Radios	3	3	3
Ethernet ports	2 x GE	2 x GE	4 x GE
PoE (802.3xx)	at	at	at
Hardware	FAP-231F-suffix*	FAP-234F-suffix*	FAP-23JF-suffix*
NB - no license required for FortiGate management	-	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud:			
FortiCare Premium	FC-10-PF231-247-02-DD	FC-10-P234F-247-02-DD	FC-10-P23JF-247-02-DD
FortiCare Elite	FC-10-PF231-284-02-DD	FC-10-P234F-284-02-DD	FC-10-P23JF-284-02-DD

FORTIAP	FAP-221E	FAP-223E
STANDARD		
Wi-Fi Generation	5	5
MIMO/Antennas	2x2, Internal	2x2 External
Use	Indoor	Indoor
Majority of clients	All, light use	All, light use
Radios	2	2
Ethernet ports	1 x GE	1 x GE
PoE (802.3xx)	af	af
Hardware	FAP-221E-suffix*	FAP-223E-suffix*
NB - no license required for FortiGate management	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud:		
FortiCare Premium	FC-10-PE221-247-02-DD	FC-10-PE223-247-02-DD
FortiCare Elite	FC-10-PE221-284-02-DD	FC-10-PE223-284-02-DD

* FortiAP country code suffix explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiAP models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

FortiAP

FORTIAP	FAP-U431F	FAP-U433F	FAP-U432F
UTP			
Wi-Fi Generation	6	6	6
MIMO/Antennas	4x4, Internal	4x4 External	2x2, External
Use	Indoor	Indoor	Outdoor
Majority of clients	Laptops, all	Laptops, all	All
Radios	3	3	3
Ethernet ports	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE	1 x 2.5GE, 1GE
PoE (802.3xx)	1at or 2af	1at or 2af	bt (injector included)
Hardware			
Hardware	FAP-U431F-suffix*	FAP-U433F-suffix*	FAP-U433F-suffix*
UTP Subscription	FC-10-90APU-443-02-DD	FC-10-90APU-443-02-DD	FC-10-90APU-443-02-DD
NB - no license required for FortiGate management	-	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud:			
FortiCare Premium	FC-10-P431F-247-02-DD	FC-10-P433F-247-02-DD	FC-10-PU432-247-02-DD
FortiCare Elite	FC-10-P431F-284-02-DD	FC-10-P433F-284-02-DD	FC-10-PU432-284-02-DD

FORTIAP	FAP-U231F	FAP-U234F
UTP		
Wi-Fi Generation	6	6
MIMO/Antennas	2x2, Internal	2x2, Internal
Use	Indoor	Outdoor
Majority of clients	All	All
Radios	2	3
Ethernet ports	2GE	1 x 2.5GE, 1GE
PoE (802.3xx)	at	bt (injector included)
Hardware		
Hardware	FAP-U433F-suffix*	FAP-U433F-suffix*
UTP Subscription	FC-10-90APU-443-02-DD	FC-10-90APU-443-02-DD
NB - no license required for FortiGate management	-	-
FortiLAN Cloud Management (when NOT managed by FortiGate)	FC-10-90AP1-639-02-DD	FC-10-90AP1-639-02-DD
FortiCare when managed by FortiLAN Cloud:		
FortiCare Premium	FC-10-P231-247-02-DD	FC-10-PU234-247-02-DD
FortiCare Elite	FC-10-P231F-284-02-DD	FC-10-PU234-284-02-DD

For additional FortiAP details, external antennas and accessories, please see <https://www.fortinet.com/products/wireless-access-points>.

* FortiAP country code suffix explanation.

A country code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all FortiWiFi models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.

FortiSwitch

FORTISWITCH	100 SERIES	200 SERIES	400 SERIES	500 SERIES	600 SERIES	1000 SERIES	2000 SERIES	3000 SERIES
Main Port Speed	1 Gbps	1 Gbps	1 Gbps	1 Gbps	1G/2.5G/5G	10/40 Gbps	10/25 Gbps	40/100 Gbps
Main Port Count Options	8, 24, 48	24, 48	24, 48	24, 48	24, 48	24, 48	48	32
Uplink Port Speed	1 or 10 Gbps	1 Gbps	10 Gbps	10 Gbps	25 Gbps	40 or 100 Gbps	40 or 100 Gbps	n/a
Redundant Power Supplies	n/a	Some Models	Some Models	Optional RSU	Yes	Yes	Yes	Yes
PoE Options	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a
Examples Full PoE FortiSwitches								
8-port FPoE								
Hardware Bundle	FS-108F-FPOE							
Renewal	FC-10-F108F- 247-02-DD							
24-port FPoE								
Hardware Bundle	FS-124F-FPOE	FS-224D-FPOE	FS-M426E-FPOE	FS-524D-FPOE	FS-624F-FPOE			
Renewal	FC-10-S124FP- 247-02-DD	FC-10-W0226-247-02-DD	FC-10-M426E- 247-02-DD	FC-10-W0505- 247-02-DD	FC-10-624FF-247-02-DD			
48-port FPoE								
Hardware Bundle		FS-248E-FPOE	FS-448E-FPOE	FS-548D-FPOE	FS-648F-FPOE			
Renewal		FC-10-W248E- 247-02-DD	FC-10-S448F- 247-02-DD	FC-10-W0501- 247-02-DD	FC-10-648FF-247-02-DD			
NB - no license required for FortiGate management	-	-	-	-	-	-	-	-
FortiLAN Cloud Management (when not managed by FortiGate)	FC-10-FSW00-628-02-DD	FC-10-FSW10-628-02-DD	FC-10-FSW10-628-02-DD	FC-10-FSW20-628-02-DD		FC-10-FSW30-628-02-DD		n/a
FortiCare is only applicable when used with FortiLAN Cloud								

For additional models, accessories, advanced licenses, etc, please see the FortiSwitch Ordering Guide: <https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/og-fortiswitch.pdf> .

Additional Wireless Management Products

PRODUCT	DESCRIPTION	SKU LICENSE
FortiGate Cloud / FortiLAN Cloud - Multi Tenancy Account		
	FortiGate Cloud or FortiLAN Cloud Multi Tenancy service for a Managed Service Provider (MSP) to create and manage multiple SubAccounts.	FCLE-10-FCLD0-161-02-DD
FortiAIops Monitoring		
	FortiAIops Monitoring subscription for 25 extension device. Includes FortiCare Premium	FC1-10-AOVMS-668-01-DD
	FortiAIops Monitoring subscription for 25 extension device. Includes FortiCare Premium	FC2-10-AOVMS-668-01-DD
	FortiAIops Monitoring subscription for 25 extension device. Includes FortiCare Premium	FC3-10-AOVMS-668-01-DD
	FortiAIops Monitoring subscription for 25 extension device. Includes FortiCare Premium	FC4-10-AOVMS-668-01-DD
FortiAIops AI Insights		
	FortiAIops AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC1-10-AOVMS-669-01-DD
	FortiAIops AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC2-10-AOVMS-669-01-DD
	FortiAIops AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC3-10-AOVMS-669-01-DD
	FortiAIops AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC4-10-AOVMS-669-01-DD
FortiAIops Monitoring and AI Insights		
	FortiAIops Monitoring & AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC1-10-AOVMS-670-01-DD
	FortiAIops Monitoring & AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC2-10-AOVMS-670-01-DD
	FortiAIops Monitoring & AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC3-10-AOVMS-670-01-DD
	FortiAIops Monitoring & AI Insights subscription for 25 extension device. Includes FortiCare Premium	FC4-10-AOVMS-70-01-DD
FortiPresence-VM		
	FortiPresence Analytics VM version. Consists of 2 VMs for installation. Per AP Licenses sold separately.	LIC-FPA-VM
	Per AP Perpetual License for FortiPresence-VM.	LIC-FPA-AP
	50 AP Perpetual License for FortiPresence-VM	LIC-FPA-AP-50
	250 AP Perpetual License for FortiPresence-VM	LIC-FPA-AP-250
	500 AP Perpetual License for FortiPresence-VM	LIC-FPA-AP-500
	1000 AP Perpetual License for FortiPresence-VM	LIC-FPA-AP-1000
	24x7 FortiCare Contract	FC-10-FPAVM-248-02-DD
Training Services		
	NSE 6/Secure Wireless LAN (FortiWiFi, FortiGate, FortiAP)	FT-FWF
	NSE 6 Exam Voucher	NSE-EX-SPL6
	NSE 6 Exam Bundle	NSE-EX-BUN6
Additional Ordering Guides		
All	https://www.fortinet.com/resources/ordering-guides	
NGFW	https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/og-next-generation-firewall.pdf	
FortiAP	https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/og-wireless.pdf	
FortiSwitch	https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/og-fortiswitch.pdf	

Frequently Asked Questions

What makes a FortiGate a Secure LAN Controller?

A FortiGate combines security enforcement, FortiAP management, FortiSwitch management and secure network fabric traffic into a unified whole — Security Driven Networking. Security is enforced not only at the perimeter, but extended out to the edge of the network — where the clients connect to FortiAPs and FortiSwitches.

What is the difference between FortiGate Cloud and FortiLAN Cloud?

With FortiGate as a Secure LAN Controller it manages the on-site FortiAPs and FortiSwitches, so FortiGate Cloud manages the Secure LAN devices via the managed FortiGate. For locations that need Fortinet Secure LAN devices that are not associated with a FortiGate (for whatever reason), FortiLAN Cloud can directly manage the FortiAPs and FortiSwitches.

How can an MSSP use FortiGate or FortiLAN Cloud with multiple customers?

They can add a multi-tenancy license to either, which will enable the creation of sub-accounts with full data isolation.

What are typical licenses for customer deployments with NGFW with FortiGates?

The Unified Threat Protection (UTP) and the Enterprise bundles, which provide extensive coverage for device-, content-, and web-based threats, comprehensively cover most customer use cases.

See FortiGuard Security Services [here](#).

What does the Enterprise bundle include?

- The Enterprise bundle includes IPS, Advanced Malware Protection, Application Control, URL, DNS and Video Filtering, Antispam, Security Rating, IoT Detection, Industrial Security, FortiConverter Service, and FortiCare Premium
- FortiGate cloud must be added when purchasing enterprise bundle

What does the UTP license include?

- The UTP license includes IPS, advanced malware protection, application control, botnet DB, mobile malware, outbreak prevention, web and video filtering, Cloud Sandbox, secure DNS filtering, antispam service, and 24x7 support. For more information click [here](#).
- FortiGate Cloud would need to be added

Why the difference between “Tunnel vs Total” FortiAPs?

On a per SSID basis, FortiAPs can tunnel traffic back to the FortiGate for a full security stack inspection – the default behavior. However, some customer environments may have a need for local-only Wi-Fi or low inspection guest traffic. Under such circumstances, more FortiAPs.

How do I license FortiAPs and FortiSwitches on the FortiGate?

No need. There are no licensing limits for on any FortiGate for Secure LAN devices. Each one comes out of the box able to manage the full number of FortiAPs and FortiSwitches, with only the hardware-based limits above.

How many FortiAPs does my customer need?

Every physical site is different. Any FortiAP deployment should have a site survey and a wireless deployment plan from a capable Wi-fi engineer to insure good coverage and performance over a site. As an estimate for planning purposes, most sites require approximately one for FortiAP for 1500 sq ft (150 sq m) and about 60 active devices per FortiAP (30 devices per service radio).

What is the difference between 4x4 vs 2x2?

MIMO is a feature of Wi-Fi that uses multiple antennas to send simultaneous signals and so increase throughput. However, the number of antennas must align on both the client and the FortiAP to maximize the potential benefits. Phones and tablets normally have one antenna, at most two, and so cannot take significant advantage of a 4x4 FortiAP vs a 2x2, while laptops, which usually have three antennas, get a significant boost from a 4x4 FortiAP. Of course, all FortiAPs work with all Wi-Fi client devices, so sometimes budget is the deciding factor or 2x2 performance is plenty. The FAP-831F is an 8x8 FortiAP that supports Multi-User MIMO, able to divide its multiple traffic streams among clients simultaneous, boosting total Wi-Fi performance and is meant for high density environments such as auditoriums and stadiums.

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