



# FortiSwitch 548D / 548D-FPOE



November 10, 000

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- New product features
- Protection from new threats

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- Nouvelles fonctionnalitées du produit
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https://support.fortinet.com

# Box Includes



FortiSwitch 548D / 548D-FPOE



Power Cable



Console Cable



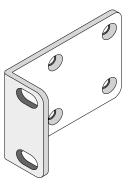
USB micro-B to RJ-45 port Cable



4 Rubber Feet



QuickStart Guide



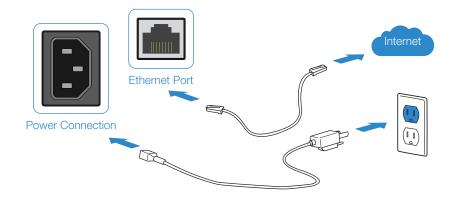
2 Rack-Mount Brackets



8 Bracket Screws

5

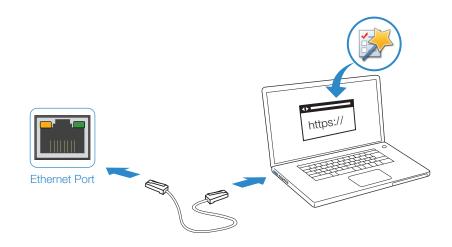
# 1 Basic Connections



Connect your device to a power outlet and an Internet connection. This is usually a modem, but could also be another device on your network.

# 2 Setup Options

# Web Browser



### To Connect to the GUI

- 1. Connect the Ethernet cable.
- 2. Configure the management computer to be on the same subnet as the internal interface as the FortiSwitch unit:

IP address: 192.168.1.2 Netmask: 255.255.255.0

- 3. Visit 192.168.1.99 in your web browser.
- 4. Login using username "admin" and no password.
- 5. Configure your device and save your settings.
- 6. Register your device from the dashboard page.

## **Terminal Emulation**



### To Connect to the CLI

- Connect the device's console port to the management computer using the provided console cable.
- 2. Start a terminal emulation program on the management computer, select the COM port, and use the following settings:

**Baud Rate:** 115200

Data bits: 8
Parity: None
Stop bits: 1

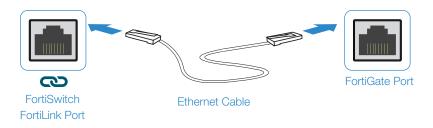
Flow Control: None

- 3. Press Enter on your keyboard to connect to the CLI.
- 4. Login using username "admin" and no password. You can now proceed with configuring your device.

Get started by typing "?" for a list of available commands.

Begin typing a command then type "?" for a list of available ways to complete. For example "config?" will show the lowest level of configuration options.

## FortiLink



- Connect a FortiSwitch FortiLink Port directly using an Ethernet Cable to a FortiGate FortiLink Port or any FortiGate Port that is not an HA port
- Login to the FortiGate and go to the WiFi & Switch Controller --> FortiLink Interface
- Add a FortiGate Port in the FortiLink interface and choose Automatically authorize devices
- 4. When the FortiSwitch is online in the WiFi & Switch Controller --> Managed FortiSwitch section, you can now manage your FortiSwitch

# Cloud Management

Connect a port to the Internet)

- 1. Visit support.fortinet.com to register your device and cloud management license
- 2. Sign in at https://fortilan.forticloud.com to manage your Inventory List

# Installation

The FortiSwitch unit can be placed on any flat surface, or mounted in any standard 19 inch rack unit with the provided rack-mount brackets and screws. *Please read* "Cautions and Warnings" prior to installing your device.

**Caution:** Electrostatic discharge (ESD) can damage your Fortinet equipment. Do not place heavy objects on the unit. To avoid personal injury or damage to the unit, it is recommended that two or more people install the unit into the rack.

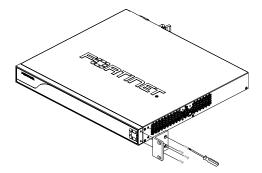
Attention: les décharges électrostatiques (ESD) peuvent endommager votre équipement Fortinet. Ne placez pas d'objets lourds sur l'appareil.

Pour éviter des blessures corporelles ou des dommages à l'unité, il est recommandé que deux personnes ou plus installent l'unité dans le rack.

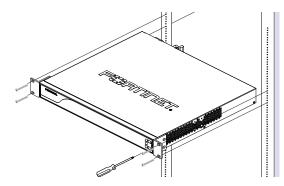
**Note:** If the unit has a redundant power supply, each power cable should be connected to a different power source. In this way, if one power source fails, the other may still be operational and the unit will not lose power.

### To install the FortiSwitch unit into a rack

- Ensure that the FortiSwitch unit is placed on a stable surface prior to rack-mount installation.
- Attach the provided rack-mount brackets to the sides of the unit using the provided bracket screws.



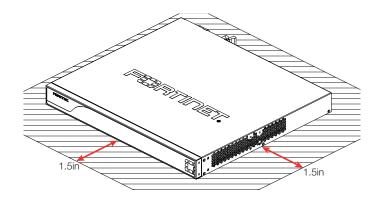
- Position the FortiSwitch unit in the rack. Ensure there is enough room around the unit to allow for sufficient air flow.
- 4. Line up the rack-mount bracket holes to the holes on the rack and ensure that the FortiSwitch unit is level.
- 5. Finger tighten four rack-mount screws to attach the unit to the rack.



- 6. Verify that the spacing around the FortiSwitch unit conforms to requirements and that the unit is level, then tighten the rack-mount screws with an appropriate screwdriver.
- 7. Plug the provided power cable into the rear of the unit, and then into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).

#### To install the unit on a flat surface

- 1. Ensure that the surface onto which the FortiSwitch unit to be installed is clean, level, and stable and that there is at least 1.5in (3.8cm) of clearance on all sides to allow for adequate airflow.
- 2. Attach the provided rubber feet to the bottom of the FortiSwitch unit.
- 3. Place the unit in the designated location.
- 4. Verify that the spacing around the FortiSwitch unit conforms to requirements and that the unit is level.
- 5. Plug the provided power cable into the rear of the unit, and then into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).



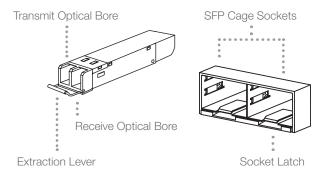
## SFP Transceivers

**Caution:** SFP transceivers are static sensitive devices. Use an ESD wrist strap or similar grounding device when handling transceivers. Do not force the SFP transceivers into the cage slots. If the transceiver does not easily slide in and click into place, it may not be aligned correctly or may be upside down. If this happens, remove the SFP transceiver, realign it or rotate it and slide it in again.

**Attention**: les émetteurs-récepteurs SFP sont des appareils sensibles à l'électricité statique. Utilisez un bracelet antistatique ESD ou un dispositif de mise à la terre similaire lorsque vous manipulez des émetteurs-récepteurs.

N'installez ni ne retirez les émetteurs-récepteurs SFP alors que les câbles à fibres optiques sont toujours connectés. Cela peut endommager les câbles, les connecteurs de câbles et les interfaces optiques. Cela peut également empêcher l'émetteur-récepteur de se verrouiller correctement dans le connecteur femelle

**Note:** Installing and removing SFP transceivers can shorten their useful life. Do not install or remove transceivers more than is necessary.



### To install the SFP transceivers

- 1. Ensure that you are properly grounded.
- 2. Remove the caps from the SFP cage sockets on the front panel of the unit.
- 3. Position the SFP transceiver in front of the cage socket opening and ensure that the transceiver is correctly oriented. When the transceiver is correctly oriented, the extraction lever will be level with the socket latch.

**Note:** SFP cage socket orientation may vary. Ensure that the SFP transceiver module is correctly oriented each time that you are inserting a transceiver.

- Hold the sides of the SFP transceiver and slide it into the cage socket until it clicks into place.
- 5. Press the transceiver firmly into the cage socket with your thumb.

**Caution:** Do not install or remove SFP transceivers while fiber-optic cables are still attached. This can cause damage to the cables, cable connectors, and the optical interfaces. It may also prevent the transceiver from latching correctly into the socket connector.

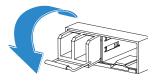
Attention: ne forcez pas les émetteurs-récepteurs SFP dans les logements de cage. Si l'émetteur-récepteur ne glisse pas facilement et ne clique pas en place, il se peut qu'il ne soit pas correctement aligné ou à l'envers. Si cela se produit, retirez l'émetteur-récepteur SFP, réalignez-le ou faites-le pivoter et faites-le glisser à nouveau.

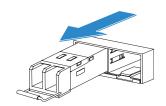
**Note:** Follow proper fiber-optic handling procedures when installing and removing SFP transceivers to ensure the devices remain clean and are not damaged.

6. Verify that the transceiver is latched correctly by grasping the sides of the transceiver and trying to pull it out without lowering the extraction lever.
If the transceiver cannot be removed, it is installed and latched correctly.
If the transceiver can be removed, reinsert it and press harder with your thumb.
If necessary, repeat this process until the transceiver is securely latched into the cage socket.

### To remove the SFP transceivers

- 1. Ensure that you are properly grounded.
- 2. If applicable, disconnect the fiber-optic cable from the transceiver connector and install a clean dust plug in the transceiver's optical bores.
- 3. Pull the extraction lever out and down to eject the transceiver. If you are unable to use your finger to open the lever, use a small flat-head screwdriver or other similar tool to open the lever.
- 4. Hold the sides of the transceiver and carefully pull it away from the cage socket.
- 5. Replace the cap on the SFP cage socket and place the removed SFP transceiver into an antistatic bag.





#### Power 1 & 2

- Green: Power supply normal
- Amber: Power supply fault
- Off: No power supply present

#### System

- Green: System diagnostic okay
- Flashing Green: System diagnostic in progress
- Amber: System diagnostic failed

#### Stack

Not used

#### Fan

- Green: Fan operating normally
- Amber: Fan has failed



#### **Ethernet Ports**

- Green: Connected without PoE
- Flashing Green: Transmitting & receiving data without PoE
- Amber: Connected with PoE
- Flashing Amber: Transmitting & receiving data with PoE

#### MGMT Port

- Green: Connected
- Flashing Green: Transmitting & receiving data

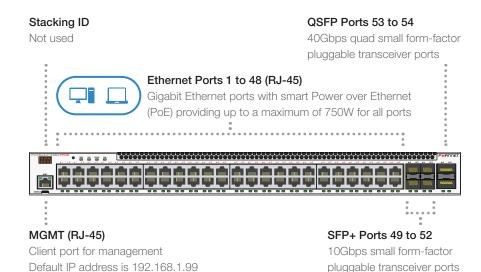
#### SFP+ Ports

- Green: Connected at 10Gbps
- Flashing Green: Transmitting & receiving data at 10Gbps
- Amber: Connected at 1Gbps
- Flashing Amber: Transmitting & receiving data at 1Gbps
- Off: No link established

#### **QSFP Ports**

- Green: Connected at 40Gbps
- Flashing Green: Transmitting & receiving data at 40Gbps
- Amber: Connected at 10Gbps
- Flashing Amber: Transmitting & receiving data at 10Gbps
- Off: No link established

# FortiSwitch-548D-FPOE



Console (USB micro-B)

USB client port connection

#### Power

100-240V AC, 13-6.5A max, 50/60Hz



#### Power 1 & 2

- Green: Power supply normal
- Amber: Power supply fault
- Off: No power supply present

#### System

- Green: System diagnostic okay
- Flashing Green: System diagnostic in progress
- Amber: System diagnostic failed

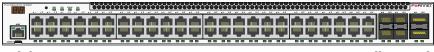
#### Stack

Not used

#### Fan

- Green: Fan operating normally
- Amber: Fan has failed

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#### **Ethernet Ports**

- Green: Connected
- Flashing Green: Transmitting & receiving data

#### MGMT Port

- Green: Connected
- Flashing Green: Transmitting & receiving data

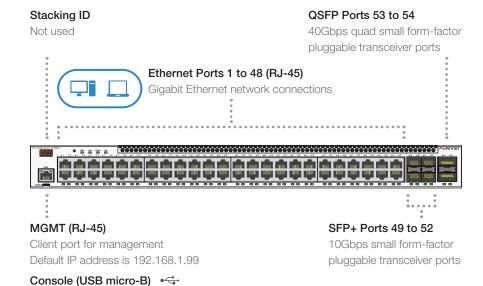
#### SFP+ Ports

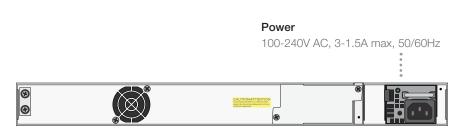
- Green: Connected at 10Gbps
- Flashing Green: Transmitting & receiving data at 10Gbps
- Amber: Connected at 1Gbps
- Flashing Amber: Transmitting & receiving data at 1Gbps
- Off: No link established

#### **QSFP Ports**

- Green: Connected at 40Gbps
- Flashing Green: Transmitting & receiving data at 40Gbps
- Amber: Connected at 10Gbps
- Flashing Amber: Transmitting & receiving data at 10Gbps
- Off: No link established

# FortiSwitch-548D





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USB client port connection

#### Cautions and Warnings

#### **Environmental Specifications**

Ambient operating temperature: 0°C to 40°C

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions: Instructions de montage en rack - Les instructions de montage en rack suivantes ou similaires sont incluses avec les instructions d'installation

Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

Température ambiante élevée - S'il est installé dans un rack fermé ou à unités multiples, la température ambiante de fonctionnement de l'environnement du rack peut être supérieure à la température ambiante de la pièce. Par conséquent, il est important d'installer le matériel dans un environnement respectant la température ambiante maximale (Tma) stipulée par le fabricant.

Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Ventilation réduite - Installation de l'équipement dans un rack doit être telle que la quantité de flux d'air nécessaire au bon fonctionnement de l'équipement n'est pas compromise.

Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. Chargement Mécanique - Montage de l'équipement dans le rack doit être telle qu'une situation dangereuse n'est pas lié à un chargement mécanique

Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this

Surtension - Il convient de prendre l'ensemble des précautions nécessaires lors du branchement de l'équipement au circuit d'alimentation et être particulièrement attentif aux effets de la suralimentation sur le dispositif assurant une protection contre les courts-circuits et le câblage. Ainsi, il est recommandé de tenir compte du numéro d'identification de l'équipement.

Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Fiabilité de la mise à la terre - Fiabilité de la mise à la terre de l'équipement monté en rack doit être maintenue. Une attention particulière devrait être accordée aux connexions d'alimentation autres que les connexions directes au circuit de dérivation (par exemple de l'utilisation de bandes de puissance).

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

Béférez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité

#### Safety

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

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

CAUTION: Shock Hazard. Disconnect all power sources.

ATTENTION: Risque d'électrocution. Débranchez toutes les sources d'alimentation.

Laser Class 1 optical transceiver shall be used only

L'émetteur-récepteur optique de classe 1 laser doit être utilisé uniquement

#### Regulatory Compliance

#### 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 A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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

#### Industry Canada Equipment Standard for Digital Equipment (ICES) - Canada

CAN ICES-003 (A) / NMB-003 (A)

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

#### European Conformity (CE) - EU

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



#### Voluntary Control Council for Interference (VCCI) - Japan

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるょう要求されることがあります。

#### Product Safety Electrical Appliance & Material (PSE) - Japan

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#### Bureau of Standards Metrology and Inspection (BSMI) - Taiwan

The presence conditions of the restricted substance (BSMI RoHS table) are available at the link below: 限用物質含有情況表 (RoHS Table) 請到以下 網址下載:

https://www.fortinet.com/bsmi

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地址: 台北市內湖區行愛路176號2樓

電話: (02) 27961666

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#### Korea Certification (KC) - Korea

A급 기기 (업무용 방송통신기자재)

#### Agência Nacional de Telecomunicações (ANATEL) - Brazil

Este produto não é apropriado para uso em ambientes domésticos, pois poderá causar interferências eletromagnéticas que obrigam o usuário a tomar medidas necessárias para minimizar estas interferências.

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

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Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for your own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place. e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together

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a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above

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