FPM-7620F Processing Module Guide

FortiGate-7000F Series

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September 25, 2023
FPM-7620F 7.0.5 Processing Module Guide
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Change log

Date	Change description
September 25, 2023	Corrected the appearance of the FPM-7620F front panel.
December 12, 2022	New section: Changing the FPM-7620F 1 and 2 (P1 and P2) interfaces on page 7.
September 16, 2022	Corrected the speeds of the 1 and 2 (P1 and P2) front panel fabric channel data interfaces.
April 8, 2021	Removed information about the console port, which is not supported. Added the average power consumption.
March 30, 2021	Minor fixes.
March 16, 2021	Initial release.

FPM-7620F processing module

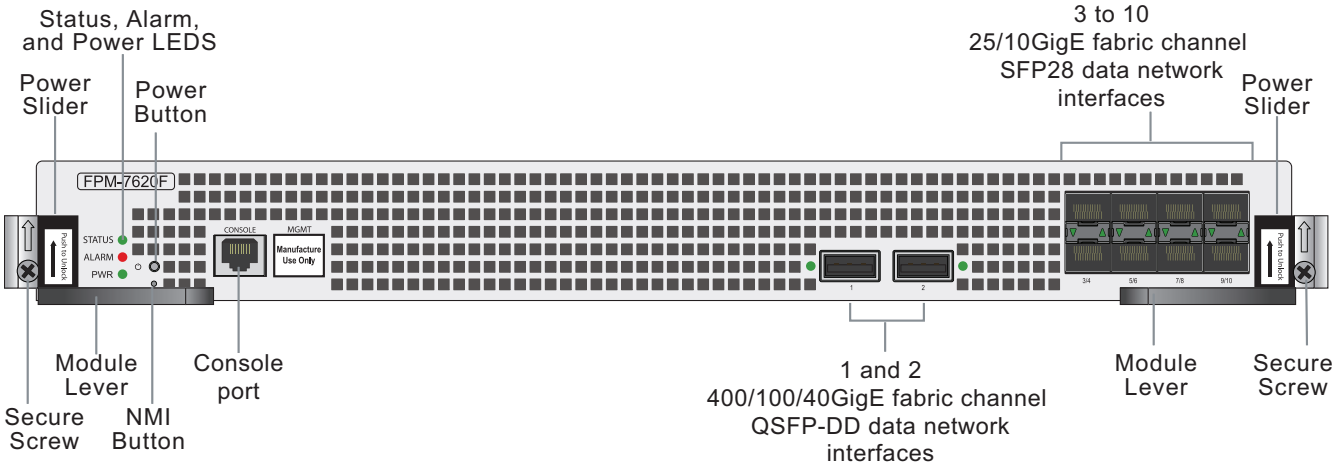
The FPM-7620F processor module is a high-performance worker module that processes sessions load balanced to it by FIMs over the chassis fabric backplane. The FPM-7620F includes two 400Gbps data connections to the FIMs over the chassis fabric backplane and two 50Gbps management connections to the FIMs over base backplane. FPM-7620Fs are installed in chassis slots 3 and up.

The FPM-7620F also includes two front panel 400GigE QSFP-DD fabric channel data interfaces (1 and 2) and eight 10/25GigE SFP28 fabric channel data interfaces (3 to 10). Interfaces 1 and 2 can be connected to 400Gbps data networks. Interfaces 3 to 10 can be connected to 25Gbps data networks. You an also change the speeds of the front panel data interfaces.

FPM fabric channel data interfaces increase the number of data interfaces supported by FortiGate 7000F. Data traffic received by these interfaces is sent over the fabric backplane to the FIM NP7 processors to be load balanced back to the FPMs.

The FPM-7620F processes sessions using a dual CPU configuration, accelerates network traffic processing with two NP7 processors and accelerates content processing with eight CP9 processors. The NP7 network processors are connected by the FIM switch fabric so all supported traffic types can be fast path accelerated by the NP7 processors.

FPM-7620F front panel



Mounting hardware

Use the module levers, power sliders, and secure screws to insert, secure and remove the module from the chassis.

Module levers

Carefully slide the module all of the way into the chassis slot and fully close the module levers to seat the module into the chassis slot and to connect the module to the chassis backplane connectors. When both module levers are fully closed, the power sliders can be lowered to their bottom position, locking the module levers and turning on power to the module.

Raise the power sliders to unlock the module levers and turn off module power. Then open the module levers to eject the module from the backplane connectors; allowing the module to be removed from the chassis.

The module lever mechanism helps reduce the engagement force required to insert or eject the module from the backplane connectors.

The module levers do not fully secure the module in the chassis. The secure screws must be tightened to reliably secure the module in the chassis and to make sure the module remains securely connected to the backplane for power and network connectivity.

Power sliders

Close the module levers and move the power sliders to their bottom position to lock the module levers and turn the module power switch on.

Move the power sliders to the top position to unlock the module levers and turn the module power switch off.

Gently push the power sliders down to make sure they are in their bottom position. If the module LEDs do not light the module is not receiving power. If this happens check the power sliders to make sure they are in their bottom position.

Secure screws

Fully tighten the secure screws to lock the module in the chassis providing a secure and reliable connection with the backplane.

Loosen the secure screws before ejecting the module from the chassis.

Front panel interfaces

You can connect the FPM-7620F to your networks using the front panel fabric channel data interfaces described in the following table. You can create link aggregation groups (LAGs) that can include data interfaces from multiple FIMs and FPMs in the same chassis.

Connector	Type	Speed	Protocol	Description
1 and 2	QSFP-DD	400Gbps 100Gbps 40Gbps 4 x 100Gbps (split) 4 x 25Gbps (split)	Ethernet	Two front panel 400GigE QSFP-DD fabric channel data interfaces can be connected to 400Gbps data networks to distribute sessions to the FPMs in chassis slots 3 and up. These interfaces can also operate as 100GigE QSFP28 or 40GigE QSFP+ interfaces. If the FortiGate

Connector	Type	Speed	Protocol	Description
		4 x 10Gbps (split)		7000F includes two FIM-7941Fs, these interfaces can be split into four interfaces that can operate at 100Gbps, 25Gbps, or 10Gbps.
3 to 10	SFP28	25Gbps 10Gbps	Ethernet	Eight front panel 25GigE SFP28 fabric channel data interfaces that can be connected to 25Gbps data networks to distribute sessions to the FPMs in chassis slots 3 and up. These interfaces can also operate as 10GigE SFP+ interfaces.

Changing the FPM-7620F 1 and 2 (P1 and P2) interfaces

You can change the speed of the 1 and 2 (P1 and P2) interfaces to 400G, 100G, or 40G using the `config system interface` command.

When the FPM-7620F is installed in a FortiGate 7000F with two FIM-7941Fs, you can also make the following changes:

- Split the interface into four 100GigE CR2 interfaces.
- Split the interface into four 25GigE CR or 10GigE SR interfaces.

All of these operations, except changing the interface speed using the `config system interface` command, require a system restart. Fortinet recommends that you perform these operations during a maintenance window and plan the changes to avoid traffic disruption.

You should change interface types or split interfaces on both FortiGate 7000Fs before forming an FGCP HA cluster. If you decide to change interface type or split interfaces after forming a cluster, you need to remove the secondary FortiGate 7000F from the cluster and change interfaces as required on both FortiGate 7000Fs separately. After the FortiGate 7000Fs restart, you can re-form the cluster. This process will cause traffic interruptions.

Splitting the P1 or P2 interfaces into four 100GigE CR2 interfaces

When the FPM-7620F is installed in a FortiGate 7000F with two FIM-7941Fs, you can use the following command to split the P1 or P2 interfaces into four 100GigE CR2 interfaces. To split P1 of the FPM-7620F in slot 6 (6-P1) and P2 of the FPM-7620F in slot 7 (7-P2) enter the following command:

```
config system global
   set split-port 6-P1 7-P2
end
```

The FortiGate 7000F reboots and when it starts up:

- Interface 6-P1 has been replaced by four 100GigE CR2 interfaces named 6-P1/1 to 6-P1/4.
- Interface 7-P2 has been replaced by four 100GigE CR2 interfaces named 7-P2/1 to 7-P2/4.

Splitting the P1 or P2 interfaces into four 25GigE CR or 10GigE SR interfaces

When the FPM-7620F is installed in a FortiGate 7000F with two FIM-7941Fs, you can use the following command to split the P1 or P2 interfaces into four 25GigE CR interfaces. The following command converts the interface into a 100GigE QSFP28 interface then splits this interface into four 25 GigE CR interfaces. To split P1 of the FPM-7620F in slot 8 (8-P1) and P2 of the FPM-7620F in slot 9 (9-P2) enter the following command:

```
config system global
   set qsfpdd-100g-port 8-P1 9-P2
   set split-port 8-P1 9-P2
end
```

The FortiGate 7000F reboots and when it starts up:

- Interface 8-P1 has been replaced by four 25GigE CR interfaces named 8-P1/1 to 8-P1/4.
- Interface 9-P2 has been replaced by four 25GigE CR interfaces named 9-P2/1 to 9-P2/4.

If you want some or all of these interfaces to operate as 10GigE SR interfaces you can use the `config system interface` command to change the interface speed. You can change the speed of some or all of the individual split interfaces depending on whether the transceiver installed in the interface slot supports different speeds for the split interfaces.

Physical description

Dimensions	1.69 x 17.11 x 18.56 in. (43 x 435 x 471 mm) (Height x Width x Length)
Weight	16.19 lb. (7.35 kg)
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	-13 to 158°F (-25 to 70°C)
Relative Humidity	20 to 90% (Non-condensing)
Power consumption	Max: 716W; Average: 675W
Max Current	60A
Heat Dissipation	2577KJ/h (2442BTU/h)

Front panel LEDs

From the FPM-7620F font panel you can view the status of the module LEDs to verify that the module is functioning normally.

LED	State	Description
STATUS	Off	The FPM-7620F is powered off.
	Green	The FPM-7620F is powered on and operating normally.

LED	State	Description
	Flashing Green	The FPM-7620F is starting up.
ALARM	Red	Major alarm.
	Amber	Minor alarm
	Off	No alarms
POWER	Green	The FPM-7620F is powered on and operating normally.
	Off	The FPM-7620F is powered off.
1 and 2	Green	The correct cable is connected to the interface and the connected equipment has power and is connected at 400Gbps.
	Flashing green	Network activity at the interface.
	Off	No link is established.
3 to 10	Green	This interface is connected at 25Gbps with the correct cable and the attached network device has power.
	Flashing green	Network traffic on this interface.
	Off	No Link

Turning the FPM-7620F on and off

You can use the front panel power button to turn the FPM-7620F power on or off. If the FPM-7620F is powered on, press the power switch to turn it off. If the FPM-7620F is turned off and installed in a chassis slot, press the power button to turn it on.

NMI switch

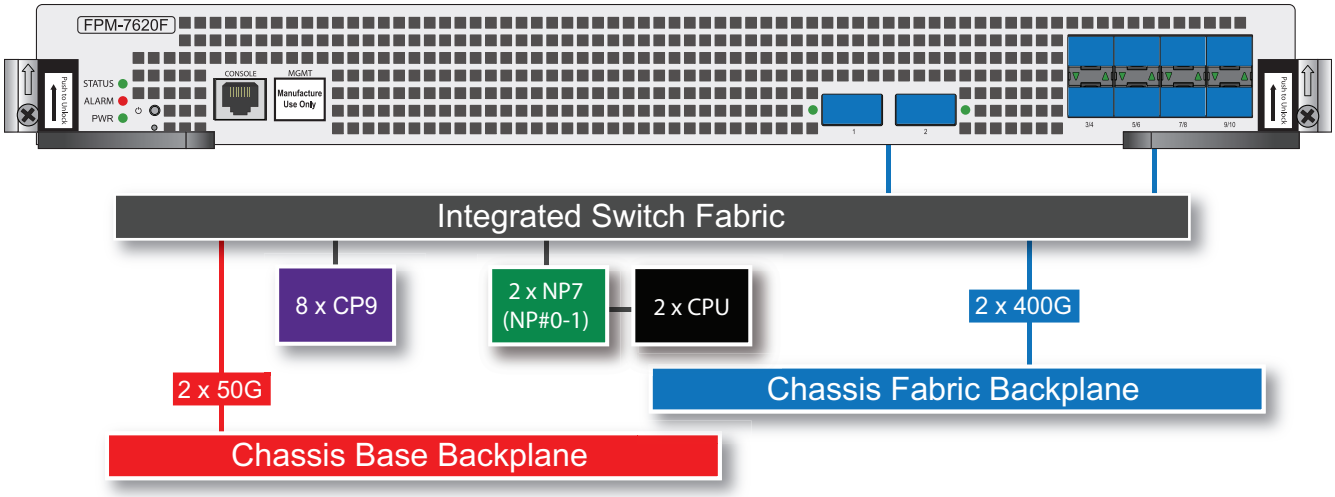
When working with Fortinet Support to troubleshoot problems with the FPM-7620F you can use the front panel non-maskable interrupt (NMI) switch to assist with troubleshooting. Pressing this switch causes the software to dump registers/backtraces to the console. After the data is dumped the FPM-7620F reboots. While the FPM-7620F is rebooting, traffic is temporarily blocked. The FPM-7620F should restart normally and traffic can resume once the it is up and running.

FPM-7620F hardware architecture

The two FPM-7620F NP7 network processors provide hardware acceleration by offloading data traffic from the FPM-7620F CPUs. The result is enhanced network performance provided by the NP7 processors plus the network processing load is removed from the CPU. The NP7processor can also handle some CPU intensive tasks, like IPsec VPN encryption/decryption. Because of the integrated switch fabric, all sessions are fast-pathed and accelerated.

Traffic from FPM-7620F front panel data interfaces is sent over the fabric channel backplane to the FIMs where NP7 processors use SLBC to distribute sessions to individual FPMs. The FPM-7620F can be processing traffic received from FIM data interfaces and from FPM data interfaces.

FPM-7620F hardware architecture



Accelerated IPS, SSL VPN, and IPsec VPN (CP9 content processors)

The FPM-7620F includes eight CP9 processors that provide the following performance enhancements:

- Flow-based inspection (IPS, application control etc.) pattern matching acceleration with over 10Gbps throughput
- IPS pre-scan
- IPS signature correlation
- Full match processors
- High performance VPN bulk data engine
- IPsec and SSL/TLS protocol processor
- DES/3DES/AES128/192/256 in accordance with FIPS46-3/FIPS81/FIPS197
- MD5/SHA-1/SHA256/384/512-96/128/192/256 with RFC1321 and FIPS180
- HMAC in accordance with RFC2104/2403/2404 and FIPS198
- ESN mode
- GCM support for NSA "Suite B" (RFC6379/RFC6460) including GCM-128/256; GMAC-128/256
- Key Exchange Processor that supports high performance IKE and RSA computation
- Public key exponentiation engine with hardware CRT support

- Primary checking for RSA key generation
- Handshake accelerator with automatic key material generation
- True Random Number generator
- Elliptic Curve support for NSA "Suite B"
- Sub public key engine (PKCE) to support up to 4096 bit operation directly (4k for DH and 8k for RSA with CRT)
- DLP fingerprint support
- TTTD (Two-Thresholds-Two-Divisors) content chunking
- Two thresholds and two divisors are configurable

Hardware installation

This chapter describes installing a FPM-7620F processing module into a FortiGate-7000 chassis.

Installing QSFP28 and SFP28 transceivers

You must install QSFP28 transceivers into the FPM-7620F front panel 1 and 2 fabric channel interfaces before connecting them to 100Gbps networks. You can install the transceivers before or after inserting the FPM-7620F module into a chassis.

You must install SFP28 transceivers into the FPM-7620F front panel 3 to 10 fabric channel interfaces before connecting them to 25Gbps networks. You can install the transceivers before or after inserting the FPM-7620F module into a chassis.

Access to interfaces 6, 8, and 10 is restricted by the module lever. To make it easier to remove transceivers, Fortinet recommends using transceivers with extended pull tabs. Another option could be to use a cable extraction tool to assist in removing these transceivers.

To install transceivers

To complete this procedure, you need:

- A FPM-7620F
- Transceivers to install
- An electrostatic discharge (ESD) preventive wrist strap with connection cord

FPM-7620Fs must be protected from static discharge and physical shock. Only handle or work with FPM-7620Fs at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FPM-7620Fs.

Handling the transceivers by holding the release latch can damage the connector. Do not force transceivers into their cage slots. If the transceiver does not easily slide in and click into place, it may not be aligned correctly. If this happens, remove the transceiver, realign it and slide it in again.

1. Attach the ESD wrist strap to your wrist and to an available ESD socket or wrist strap terminal.
2. Remove the caps from the cage sockets on the FPM-7620F front panel.
3. Hold the sides of the transceiver and slide it into the cage socket until it clicks into place.

FortiGate 7121F cable bracket kit

The FortiGate 7121F chassis includes an optional cable bracket kit that you can install to help manage the network cables connected to FIMs and FPMs installed in the chassis.

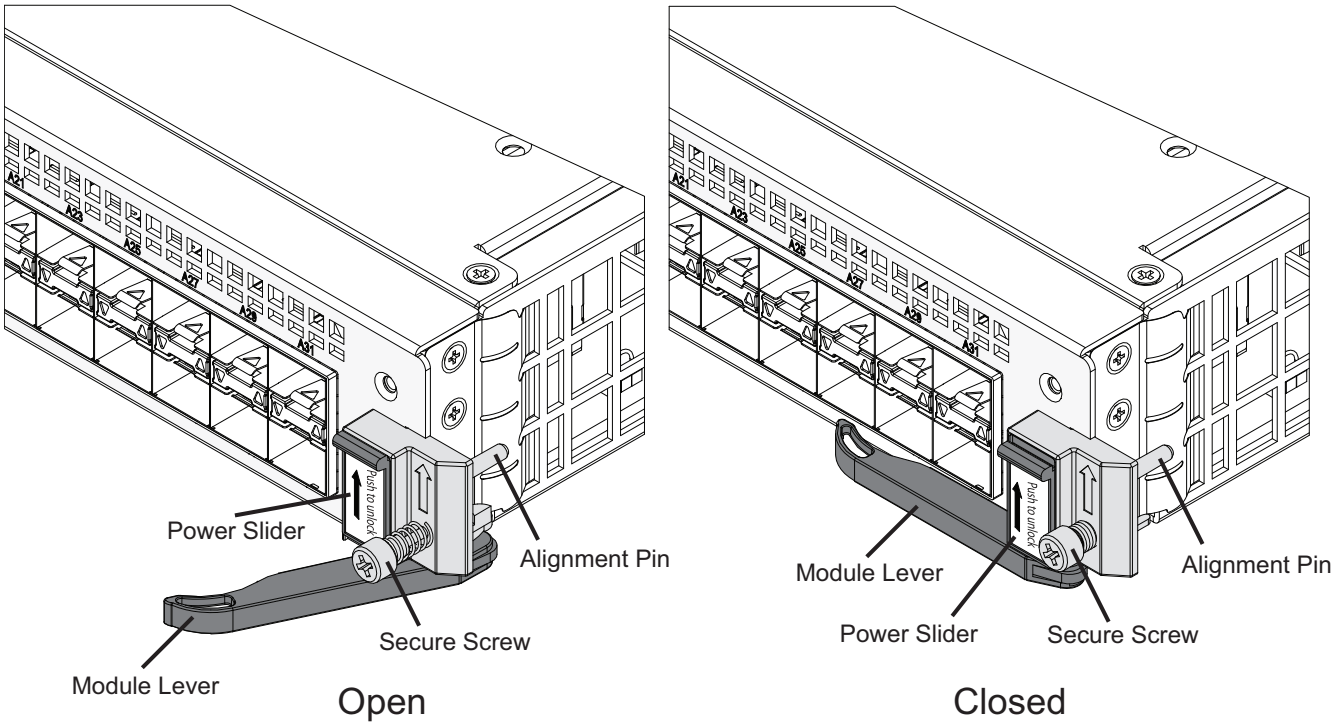
FPM-7620F mounting hardware

To install a FPM-7620F you slide the module into a hub/switch slot in the front of an FortiGate-7000 series chassis (either 3 to 12) and then use the mounting hardware, described in FPM-7620F processing module on page 5, to lock the module into place in the slot. When locked into place and positioned correctly, the module front panel is flush with the chassis front panel and connected to the chassis backplane.

To position the module correctly you must use the mounting hardware shown below for the right of the FPM-7620F front panel. The mounting hardware on the left of the front panel is the same but reversed. The FPM-7620F mounting hardware aligns the module in the chassis slot and is used to insert and eject the module from the slot.

On some FPM modules there may be very little clearance between the front panel interfaces and the module lever on the right side of the FPM-7620F. In fact, you may have to remove network connectors from some front panel interfaces to open the module lever. In most cases you should remove all network connectors from the front panel before opening the module levers to remove an FIM module from a chassis slot.

FPM-7620F mounting hardware



(to open move the power slider up about 2 mm)

The FPM-7620F module levers align the module in the chassis slot and insert and eject the module from the slot. The power sliders activate micro switches that turn on or turn off power to the module. When both sliders are raised, the module cannot receive power. When the sliders are fully closed, the module can receive power if it is fully inserted into a chassis slot.

Inserting a FPM-7620F module into a chassis

This procedure describes how to insert a FPM-7620F module into slot 3 or up of a FortiGate-7000 chassis. The procedure includes photographs to illustrate the procedure steps. The photos were taken in one of Fortinet's hardware labs using a generic module and FortiGate-7000 chassis.

FIM and FPM backplane connectors are shipped with a backplane connector protection label and plastic cover. Before inserting the FIM or FPM module into the chassis slot, remove the label and plastic cover and check the backplane connectors to make sure they are clean and undamaged.

To install an FIM or FPM into a chassis, carefully slide the module all the way into the chassis slot, close the module levers to seat the module into the slot, and tighten the secure screws to make sure the module is fully engaged with the backplane and secured. You must also make sure that the power sliders are fully closed by gently pushing them down.

Installation Highlights:

1. Remove backplane connector protection label.
2. Module levers must be closed.
3. Secure screws must be tightened.
4. Power sliders must be fully closed for the module to get power and start up.

If the module is not receiving power all LEDs remain off.

FPM-7620F modules are hot swappable. This procedure is the same whether or not the chassis is powered on.

Do not carry the FPM-7620F module by holding the module levers or secure screws. When inserting or removing the FPM-7620F from a chassis slot, handle the module by the front panel. The levers are not designed for carrying the module. If the levers become bent or damaged, the FPM-7620F may not align correctly in the chassis slot.

To complete this procedure, you need the following equipment and tools:

- a FPM-7620F
- a FortiGate-7000 chassis with an empty slot
- an electrostatic discharge (ESD) preventive wrist strap with connection cord
- a Phillips screwdriver

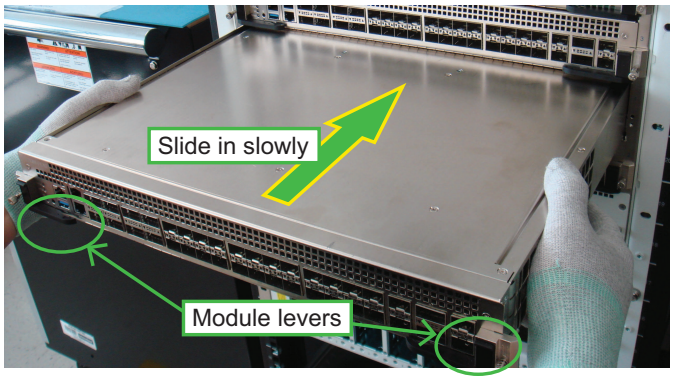
FPM-7620Fs must be protected from static discharge and physical shock. Only handle or work with FPM-7620Fs at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FPM-7620Fs. Attach the ESD wrist strap to your wrist and to an ESD socket or to a bare metal surface on the chassis or frame. (An ESD wrist strap is not visible in the photographs below because they were taken in an ESD safe lab environment.)

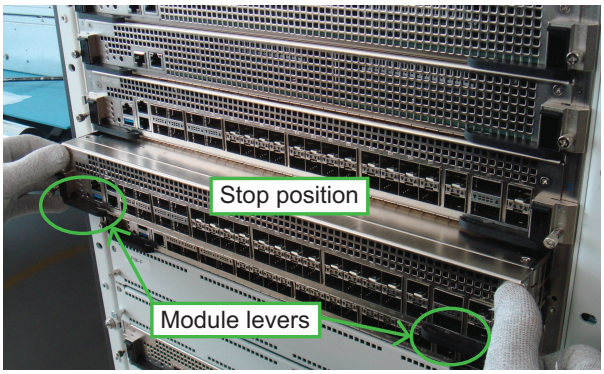
1. Remove the FPM-7620F module from its packaging.

The module levers are closed when you first remove a new module from its packaging.

Module backplane connectors may be covered by a backplane connector protection label and plastic cover. Before inserting the module into the chassis slot, remove the label and cover and check the backplane connectors to make sure they are clean and undamaged.

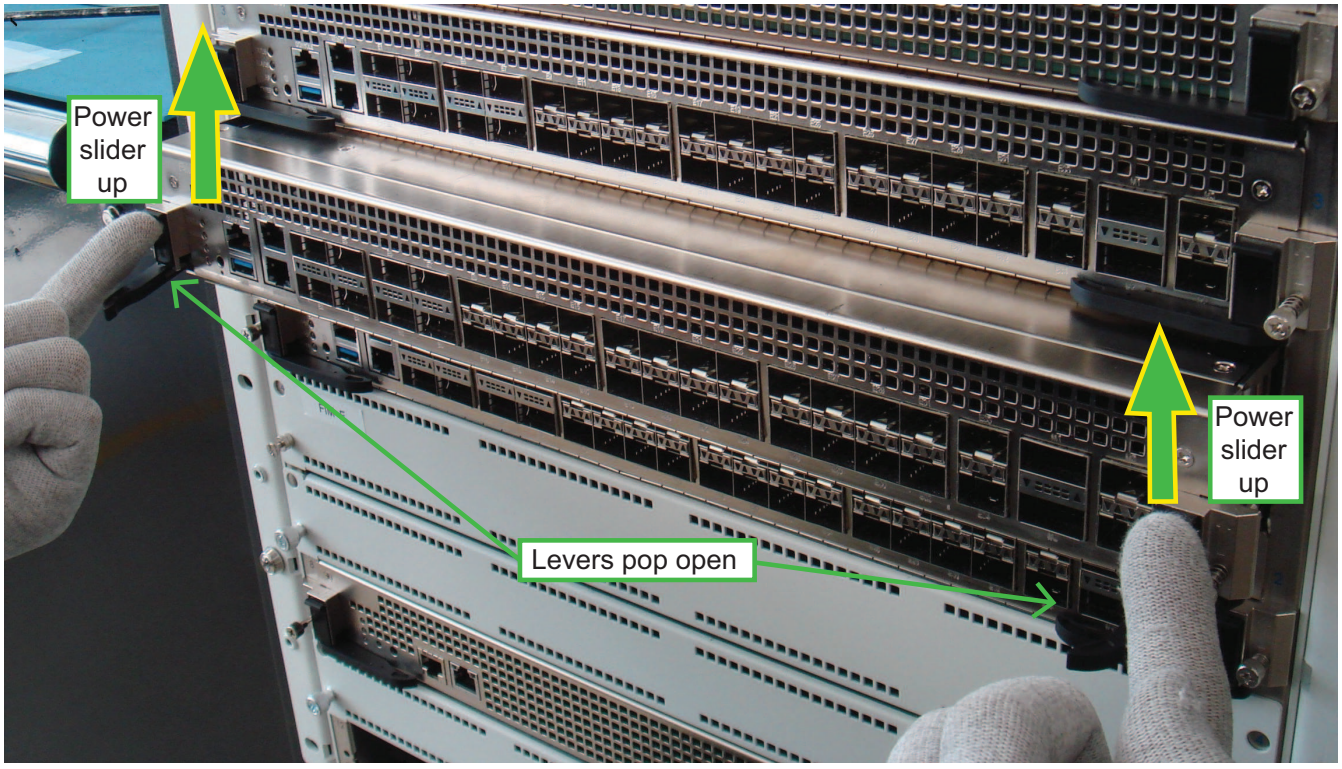
2. Align the module with the chassis slot, slowly slide the module into the slot, stop at about 1-2 inches from fully inserting it.





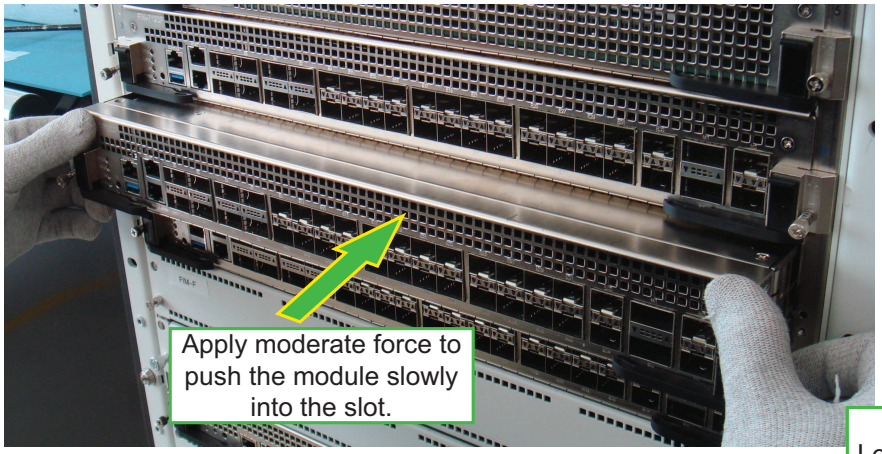
3. Unlock the left and right module levers by pushing the power sliders up until the levers pop open.

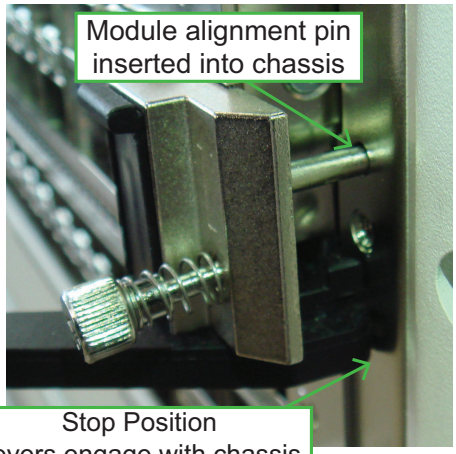
Before sliding the final portion of the module into the chassis fully open both levers by pushing the power sliders up. Fully open both levers to avoid damaging the lever mechanism. Damaging the levers can prevent the module from connecting to power.



4. Continue pushing the module into the slot until the levers engage with the sides of the chassis slot.

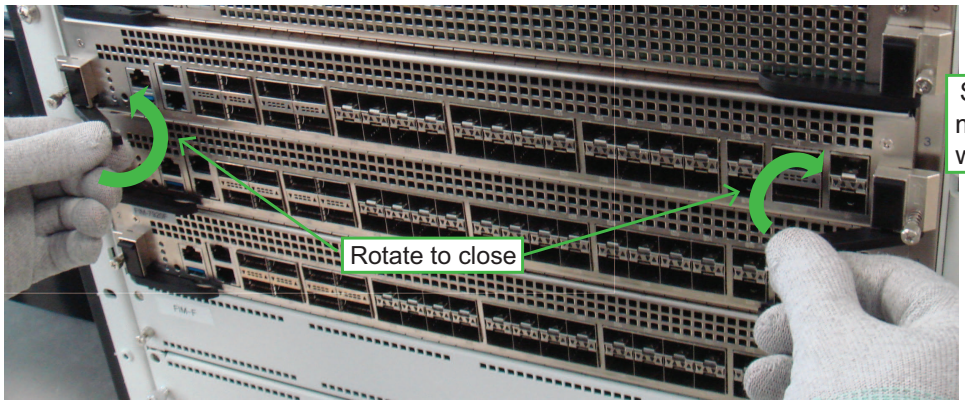
Insert the module by applying moderate force to the front faceplate (not the levers) to slide the module into the slot. The module should glide smoothly. If you encounter any resistance, the module could be aligned incorrectly. Pull the module back out and try inserting it again.

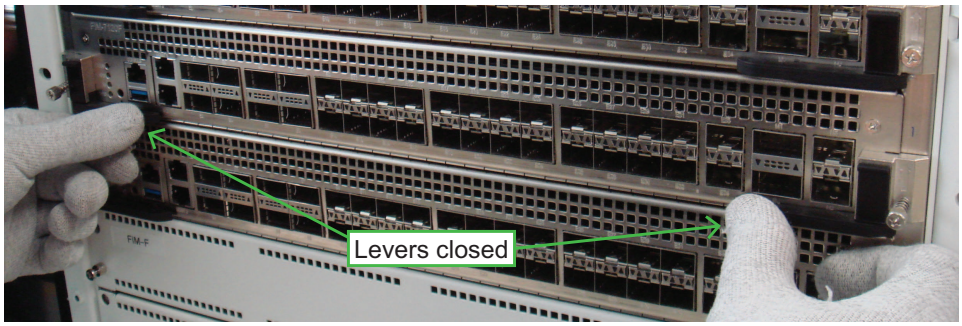




5. Close both levers by pushing them into contact with the module front panel.

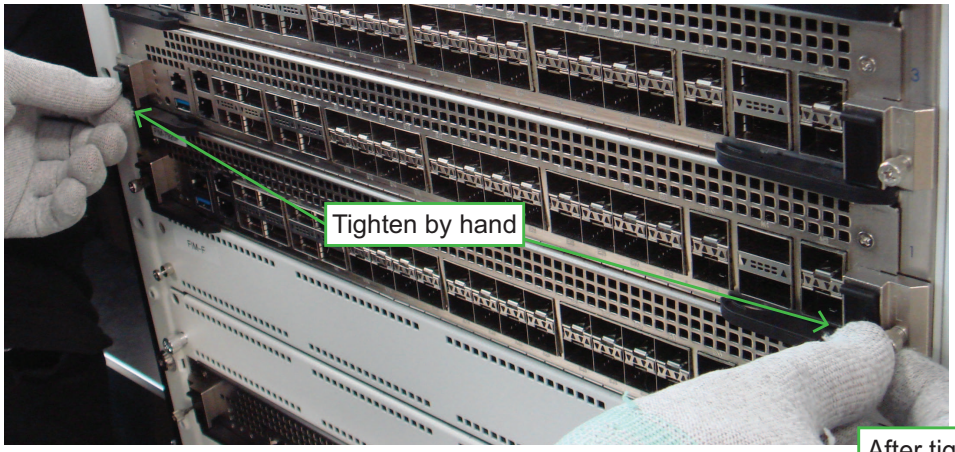
Closing the levers draws the module into the chassis slot and connects the module rear connectors to the chassis backplane. The design of the levers leaves gaps to compensate for tolerances. So even when the levers are fully closed, the module may not be fully into position and in contact with the chassis backplane.

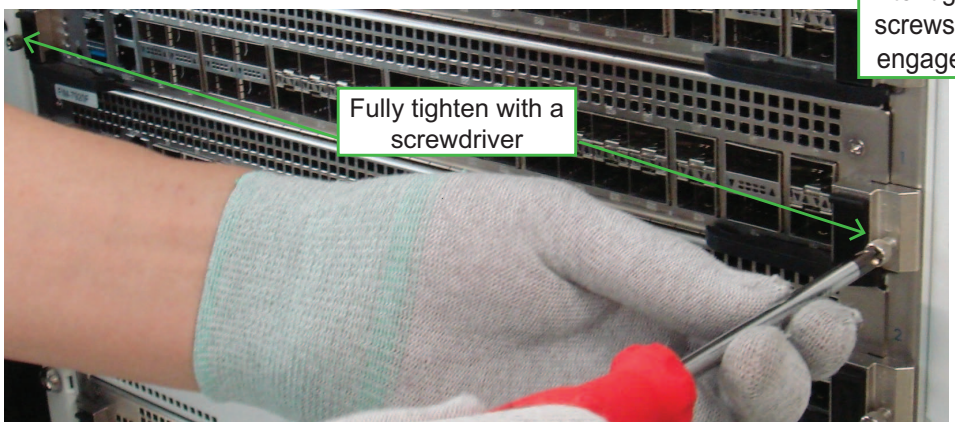




6. Tighten both secure screws to close the gap between the module and the chassis.

Begin by engaging the secure screws into the chassis tapped hole by hand and roughly tighten them. Then use a Phillips screwdriver to fully tighten the two secure screws. Do not use a power screwdriver, because the high torque and speed can damage the chassis or screw thread. After tightening both secure screws, the module is fully seated in the chassis slot and the module connectors are fully in contact with the chassis backplane.

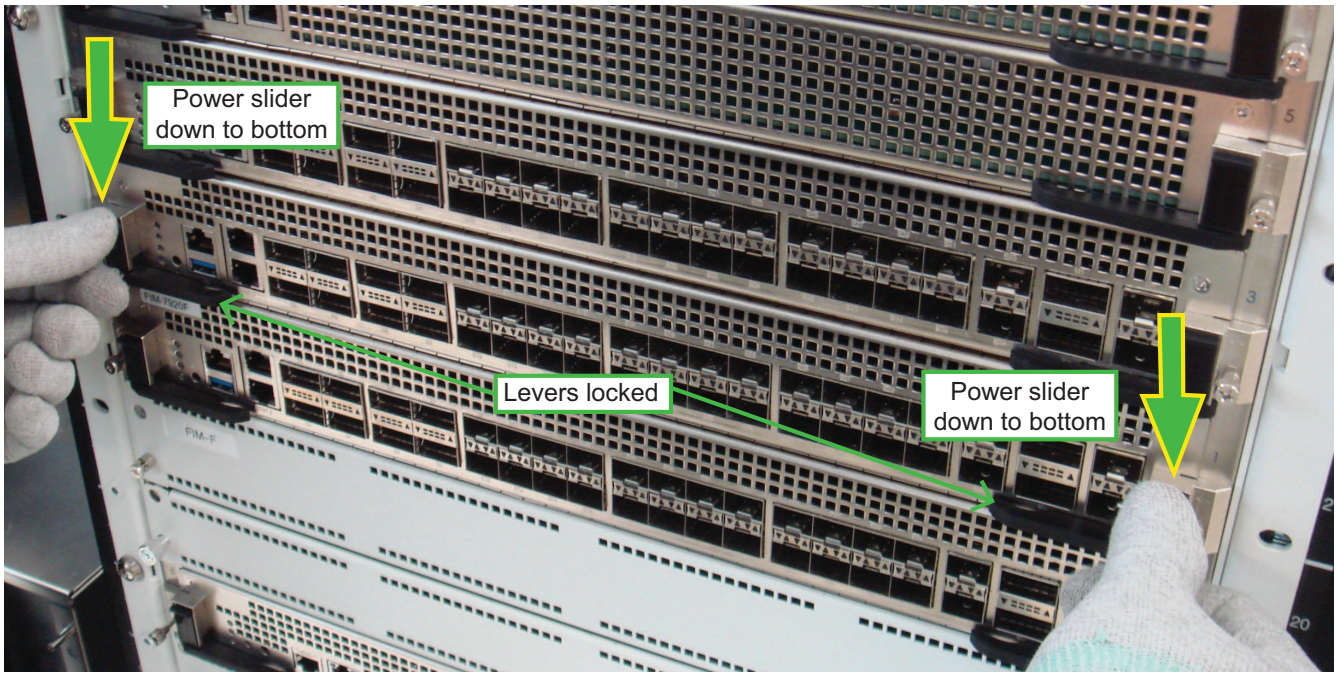




After tightening both secure screws, the module is fully engaged with the chassis.

7. Push down both power sliders to make sure the module power switch is on.

When the module is fully in position, the power sliders should drop down, lock the levers, and turn module power on. Gently push both power sliders down to their bottom position to make sure they are fully closed.



8. If the chassis is powered on, check the module LEDs to verify that the module is operating correctly

LED	Normal operation state
Status	Green
Alarm	Off
HA	Off
Power	Green

Shutting down and removing a FPM-7620F board from a chassis

This procedure describes how to shut down and remove a FPM-7620F module from FortiGate-7000 chassis. The procedure includes photographs to illustrate the procedure steps. The photos were taken in one of Fortinet's hardware labs using a generic module and FortiGate-7000 chassis.

FPM-7620Fs are hot swappable. This procedure is the same whether or not the chassis is powered on.

Do not carry the FPM-7620F by holding the module levers or secure screws. When inserting or removing the FPM-7620F from a chassis slot, handle the module by the front panel. The levers are not designed for carrying the module. If the levers become bent or damaged, the FPM-7620F may not align correctly in the chassis slot.

To complete this procedure, you need the following equipment and tools:

- a FortiGate-7000 chassis with a FPM-7620F module installed
- an electrostatic discharge (ESD) preventive wrist strap with connection cord
- a Phillips screwdriver

FPM-7620Fs must be protected from static discharge and physical shock. Only handle or work with FPM-7620Fs at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FPM-7620Fs. (An ESD wrist strap is not visible in the photographs below because they were taken in an ESD safe lab environment.)

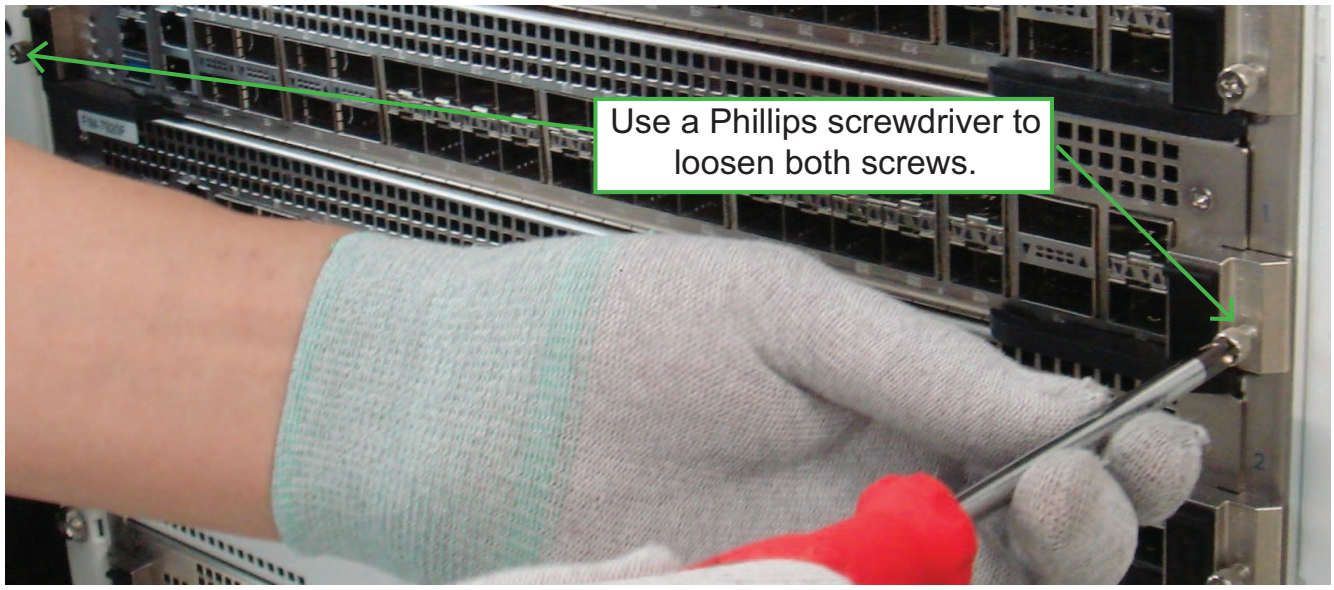
1. Shut down the module operating system properly.

To avoid potential hardware problems, always shut down the module operating system properly before removing the module from a chassis slot or before powering down the chassis. To shutdown the module, connect to the module GUI and select **Shutdown** from the administrator menu. Or, from the module CLI, enter the `execute shutdown` command.

2. Disconnect all cables from the module, including all network cables and USB cables or keys.

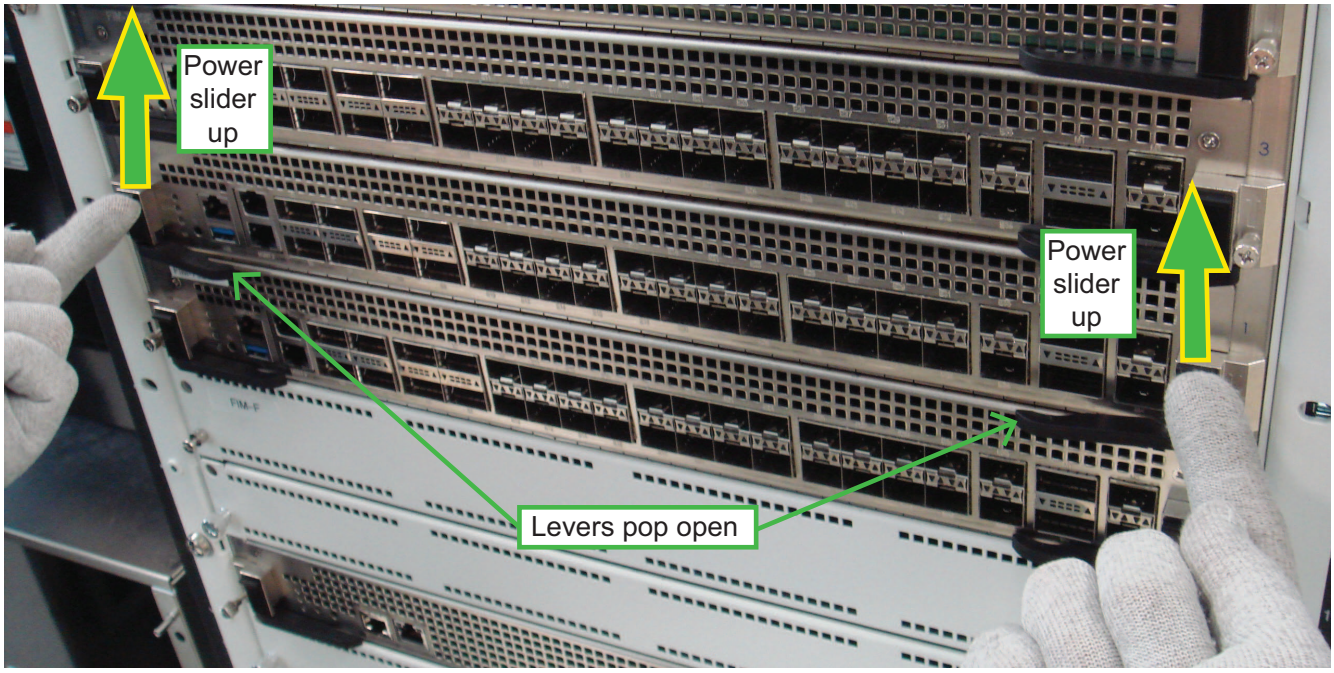
3. Use a Phillips screwdriver to loosen both secure screws and then fully loosen them by hand.

Fully loosen the secure screws, otherwise the levers may be damaged when used to eject the module from the chassis slot. Do not use a power screwdriver, because the high torque and speed can damage the chassis or screw thread.

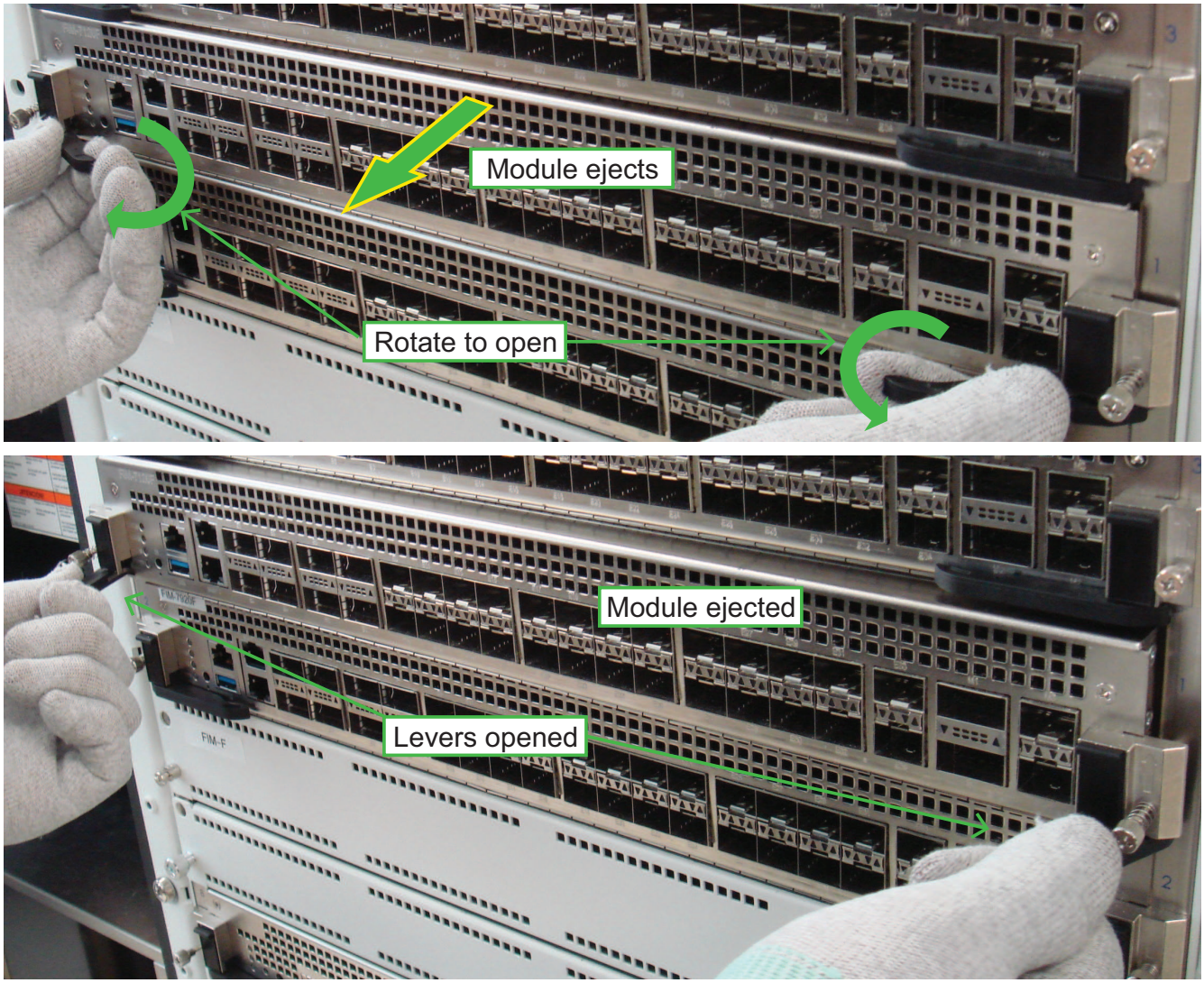


4. Unlock the left and right levers by pushing the power sliders up until the levers pop open.

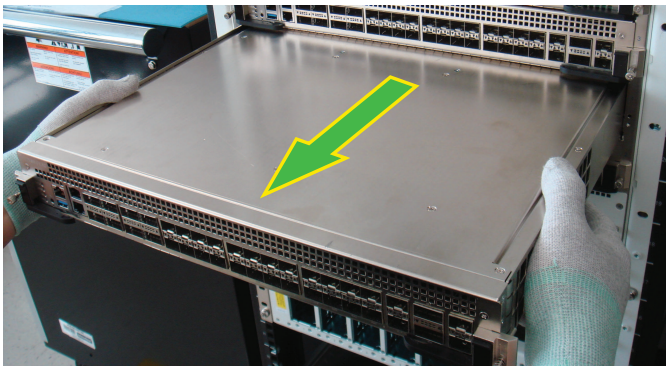
Push the power sliders up to fully open both levers. If the chassis is powered on, this step turns off the module's power.



5. Use moderate force to fully open the levers and eject the module from the chassis.



6. Hold the levers to slide the module part way out of the chassis slot. Then grasp the module by the sides and carefully slide it out of the slot.



Troubleshooting

This section describes some common troubleshooting topics:

FPM-7620F does not startup

Positioning of FPM-7620F mounting hardware and a few other causes may prevent a FPM-7620F from starting up correctly.

Power sliders and module levers not fully closed

If the power sliders or module levers are damaged or positioned incorrectly, the FPM-7620F may not start up. Make sure the sliders are fully closed and the levers are correctly aligned, fully inserted, and locked and the secure screws are tightened.

Firmware problem

If the FPM-7620F is receiving power and the sliders and levers are fully closed, and you have restarted the chassis and the FPM-7620F still does not start up, the problem could be with FortiOS. Connect to the FPM-7620F console and try cycling the power to the board. If the BIOS starts up, interrupt the BIOS startup and install a new firmware image. See your FortiGate-7000 chassis system guide for information about accessing and installing firmware on individual modules.

If this does not solve the problem, contact Fortinet Technical Support.

FPM-7620F status LED is flashing during system operation

Normally, the FPM-7620F Status LED is off when the FPM-7620F is operating normally. If this LED starts flashing while the module is operating, a fault condition may exist. At the same time the FPM-7620F may stop processing traffic.

To resolve the problem you can try removing and reinserting the FPM-7620F in the chassis slot. Reloading the firmware may also help.

If this does not solve the problem there may have been a hardware failure or other problem. Contact Fortinet Technical Support for assistance.

Cautions and warnings

Environmental specifications

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 inégal.

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 concern.

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).

Equipment must be used only with UL Listed ITE or Equivalent.

L'équipement doit être utilisé uniquement avec UL ITE ou équivalent.

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).

The equipment is intended to be used with the system, manufactured by Fortinet Inc., model FG-7121F series.

O equipamento destina-se a ser utilizado com o sistema, fabricado pela Fortinet Inc., modelo da série FG-7121F.

Safety

Warning: Equipment intended for installation in Restricted Access Location.

Avertissement: Le matériel est conçu pour être installé dans un endroit où l'accès est restreint.

Skilled person must install the equipment.

L'équipement doit être installé par une personne qualifiée

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. IMPORTANT: 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:
There is a danger of explosion if a battery is incorrect replaced. Replace only with the same or equivalent type.
Dispose batteries of according to the manufacturer's instructions.
Disposing a battery into fire, a hot oven, mechanically crushing, or cutting it can result in an explosion.
Leaving a battery in an extremely hot environment can result in leakage of flammable liquid, gas, or an explosion.
If a battery is subjected to extremely low air pressure, it may result in leakage of flammable liquid, gas, or an explosion.

WARNUNG:
Lithium-Batterie Achtung: Explosionsgefahr bei fehlerhafter Batteriewechsel. Ersetzen Sie nur den gleichen oder gleichwertigen Typ. Batterien gemäß den Anweisungen des Herstellers entsorgen.

Beseitigung einer BATTERIE in Feuer oder einen heißen Ofen oder mechanisches Zerkleinern oder Schneiden einer BATTERIE, die zu einer EXPLOSION führen kann

Verlassen einer BATTERIE in einer extrem hohen Umgebungstemperatur, die zu einer EXPLOSION oder zum Austreten von brennbarer Flüssigkeit oder Gas führen kann

Eine BATTERIE, die einem extrem niedrigen Luftdruck ausgesetzt ist, der zu einer EXPLOSION oder zum Austreten von brennbarer Flüssigkeit oder Gas führen kann.

Caution: Slide/rail mounted equipment is not to be used as a shelf or a work space.

Attention: Un équipement monté sur bâti ne doit pas être utilisé sur une étagère ou dans un espace de travail.

Laser Class 1 optical transceiver shall be used only

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

Fiber optic transceiver must be rated 3.3V, 22mA max, Laser Class 1, UL certified component.

Le transceiver optique doit avoir les valeurs nominales de 3.3 V, maximum 22 mA, Laser Class 1, homologué UL

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 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 measures.

CE

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よう要求されることがあります。 VCCI- A

Product Safety Electrical Appliance & Material (PSE) – Japan

日本では電気用品安全法(PSE)の規定により、同梱している電源コードは本製品の専用電源コードとして利用し、他の製品に使用しないでください。

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

此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

英屬蓋曼群島商防特網股份有限公司台灣分公司

地址:台北市內湖區行愛路176號2樓

電話:(02) 27961666

China

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。这种情况下，可能需要用户对其采取切实可行的措施。

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."

Para maiores informações, consulte o site da ANATEL www.anatel.gov.br.