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ION 3000 Hardware Reference

docs.paloaltonetworks.com

Contact Information

Corporate Headquarters:
Palo Alto Networks
3000 Tannery Way
Santa Clara, CA 95054
www.paloaltonetworks.com/company/contact-support

About the Documentation

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Before You Begin

Read the following topics before you install or service a Palo Alto Networks® next-generation firewall or appliance. The following topics apply to all Palo Alto Networks firewalls and appliances except where noted.

Tamper Proof Statement

To ensure that products purchased from Palo Alto Networks were not tampered with during shipping, verify the following upon receipt of each product:

- The tracking number provided to you electronically when ordering the product matches the tracking number that is physically labeled on the box or crate.
- The integrity of the tamper-proof tape used to seal the box or crate is not compromised.
- The integrity of the warranty label on the firewall or appliance is not compromised.

Third-Party Component Support

Before you consider installing third-party hardware, read the Palo Alto Networks Third-Party Component Support statement.

Product Safety Warnings

To avoid personal injury or death for yourself and others and to avoid damage to your Palo Alto Networks hardware, be sure you understand and prepare for the following warnings before you install or service the hardware. You will also see warning messages throughout the hardware reference where potential hazards exist.

All Palo Alto Networks products with laser-based optical interfaces comply with 21 CFR 1040.10 and 1040.11.

The following safety warnings apply to all Palo Alto Networks firewalls and appliances, unless a specific hardware model is specified.

- When installing or servicing a Palo Alto Networks firewall or appliance hardware component that has exposed circuits, ensure that you wear an electrostatic discharge (ESD) strap. Before handling the component, make sure the metal contact on the wrist strap is touching your skin and that the other end of the strap is connected to earth ground.

  French Translation: Lorsque vous installez ou que vous intervenez sur un composant matériel de pare-feu ou de dispositif Palo Alto Networks qui présente des circuits exposés, veillez à porter un bracelet antistatique. Avant de manipuler le composant, vérifiez que le contact métallique du bracelet antistatique est en contact avec votre peau et que l'autre extrémité du bracelet est raccordée à la terre.
- Use grounded and shielded Ethernet cables (when applicable) to ensure agency compliance with electromagnetic compliance (EMC) regulations.

  French Translation: Des câbles Ethernet blindés reliés à la terre doivent être utilisés pour garantir la conformité de l'organisme aux émissions électromagnétiques (CEM).
- (ION 7000 and ION 9000 only) At least two people are recommended for unpacking, handling, and relocating the heavier firewalls.
- Do not connect a supply voltage that exceeds the input range of the firewall or appliance. For details on the electrical range, refer to electrical specifications in the hardware reference for your firewall or appliance.

  French Translation: Veillez à ce que la tension d'alimentation ne dépasse pas la plage d'entrée du pare-feu ou du dispositif. Pour plus d'informations sur la mesure électrique, consulter la rubrique des caractéristiques électriques dans la documentation de votre matériel de pare-feu ou votre dispositif.
- WAN and LAN ethernet ports are suitable for interconnection to other local device ethernet ports. These ports are not designed for direct connection to Public Switched Telephone Network (PSTN) ports or interfaces. In addition, copper-based WAN ports, LAN ports, and copper-based modular transceivers are not rated to connect to Telecommunications Outside Plant (OSP) cabling.

- (Devices with serviceable batteries only) Do not replace a battery with an incorrect battery type; doing so can cause the replacement battery to explode. Dispose of used batteries according to local regulations.

  French Translation: Ne remplacez pas la batterie par une batterie de type non adapté, cette dernière risquerait d'exploser. Mettez au rebut les batteries usagées conformément aux instructions.

- I/O ports are intended for intra-building connections only and not intended for OSP (Outside Plant) connections or any network connections subject to external voltage surge events.

• 	(All Palo Alto Networks appliances with two or more power supplies) Caution: Shock hazard Disconnect all power cords (AC or DC) from the power inputs to fully de-energize the hardware. **French Translation:** (Tous les appareils Palo Alto Networks avec au moins deux sources d'alimentation) Débranchez tous les cordons d'alimentation (c.a. ou c.c.) des entrées d'alimentation et mettez le matériel hors tension.

ION 3000 Overview

Learn about the Instant-On Networks (ION) 3000 and then plan your deployment.

ION 3000

The Prisma SD-WAN Instant-On Network (ION) 3000, designed for the enterprise branch, transforms legacy wide area networks (WANs), enables you to combine heterogeneous underlying transports into a unified hybrid WAN. It establishes service-level agreements (SLAs) for security, path selection, and application performance. It helps gain direct insight into end-user application performance for traditional, SaaS, modern, encrypted applications.

ION 3000 participates in bi-directional communications with the Prisma SD-WAN controller, enabling configuration of devices, applications, and WANs, providing analytics on devices and applications.

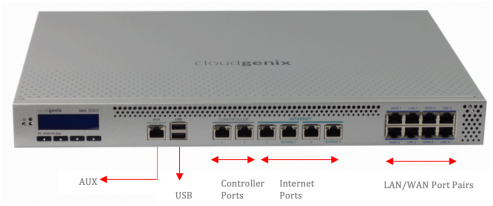
You can deploy the Prisma SD-WAN ION 300 in a standalone fashion without a data center device, enabling granular control and visibility for direct-to-internet deployment scenarios, or in conjunction with ION 7000 or ION 9000 in the data center, creating a secure, full-mesh fabric across the WAN.

You can deploy the ION 3000 as follows:

- Standalone Prisma SD-WAN ION 3000 (No HA)
- Prisma SD-WAN ION 3000 + Existing Router HA
- Prisma SD-WAN ION 3000 + Prisma SD-WAN ION 3000 HA

ION 3000 Ports

The ports on the ION 3000 are used as follows:



Ports	Description
AUX	This port is an auxiliary access port intended for offline access, configuration, and troubleshooting of a system during installation.
USB	This port is reserved for future use.
Controller	This port is used by the ION device to communicate with the Prisma SD-WAN controller.
Internet	This port is used to connect to internet service. By default, this port is protected by a firewall.
Internet Bypass	This port is only used in ION 3000 HA scenarios. It should not be used in single ION device scenarios.
LAN	This port is intended for private LAN network connectivity. By default, this port is bridged to the corresponding WAN port.
WAN	This port is intended for private router/MPLS connectivity. By default, this port is bridged to the corresponding LAN port.
Fail-to-Wire Port Pair	Up to 6 pairs - all ports (RJ45). These ports can be configured as discrete ports or as fail-to wire pairs.

ION 3000 Front Panel with LEDs

The ION 3000 LEDs indicate the status of the disk, power, and the controller connectivity:

Icons	Description
Displays disk status.	Orange light (Blinking)—Disk Activity.
Displays controller connectivity status.	Blue light—Connected.  Red light—Not Connected 
Displays power status.	Green light—Powered on.  No light—Powered off. 

ION 3000 Specifications

The Prisma SD-WAN ION 3000 specifications are shown below:

I/O	
Controller	2 x 10/100/1000 RJ-45
Console	1 x RJ-45
WAN/LAN/Internet	6 pairs of 10/100/1000 RJ-45 with programmable inline fail-to-wire capability.
Power and Mechanical	
Type or Watts	1 PSU 150W
Power Input	AC 100~240 V @50~60 Hz
Fan cooling	1 smart fan, direction of air-flow is from front to rear.
Certifications	
Certifications	IEC 60950-1, cULus, FCC & CE Class A, BIS, CCC, KCC
Environmental	
Operating temperature	32°F to 104°F (0°C to 40°C)
Storage temperature	-4°F to 158°F (-20°C to 70°C)
Operating humidity	5% to 90% (non-condensing)
Storage humidity	5% to 95% (non-condensing)
Physical	
Weight	8.8lbs
Dimensions	16.81" x 11.89" x 1.72"
Local network Access	Typically a downstream Layer 2 (L2) or Layer 3 (L3) Ethernet switch and/or a Wireless Access Point (WAP).
Internet connectivity	This connectivity is used to reach the Cloud Registration Service and the Network Controller. It can be in the form of a private connection via an

	MPLS network through a corporate data center. It can also be a public internet connection provided using a local or broadband connection.

ION Device Compliance Statement

The following compliance statements apply to this ION device:

- **VCCI**—This section provides the compliance statement for the Voluntary Control Council for Interference by Information Technology Equipment (VCCI), which governs radio frequency emissions in Japan.

  The following information is in accordance to VCCI Class A requirements:

  この装置は、クラスA情報技術装置です。この装置を家庭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

  Translation: 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 corrective actions.

- **Nationally Recognized Testing Laboratory (NRTL)**—Product Maximum Ambient Temperature: 40 oC (ION 3200) and 60 oC (ION 3200H and ION 3200H-C5G-WW)

  Risk of explosion if battery is replaced by an incorrect type. Dispose of used battery according to local regulations.

- **CE (European Union (EU) Electromagnetic Compatibility Directive)**

  The ION device is in conformity with the harmonized standards and fulfills the essential requirements of the LVD Directive 2014/35/EU, EMC Directive 2014/30/EU, WEEE Directive 2012/19/EU, and RoHS Directives 2011/65/EU and 2015/863/EU.

  The device complies with the requirements relating to electrical equipment designed for use within certain voltage limits.

- **United Kingdom Declaration of Conformity (UKCA) Directives**

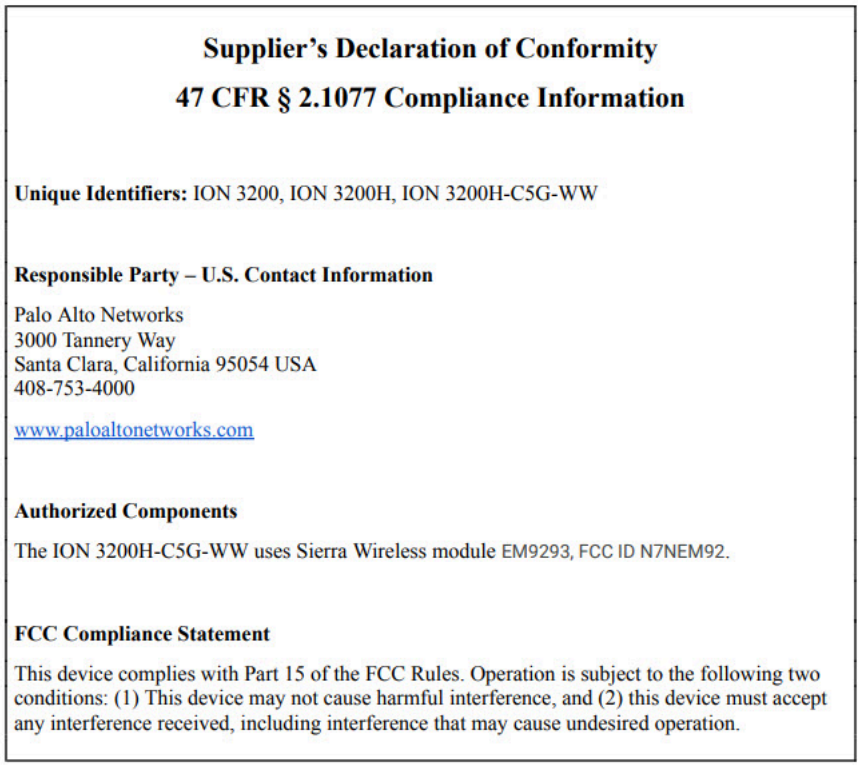
  The ION device is in conformity with the designated standards and fulfills the requirements of the Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, and The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

- **Federal Communications Commission (FCC) statement for a Class A digital device or peripheral**—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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be

determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit that is different from the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

- **Federal Communications Commission (FCC) Compliance Statement**



Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Unique Identifiers: ION 3200, ION 3200H, ION 3200H-C5G-WW

Responsible Party – U.S. Contact Information

Palo Alto Networks
3000 Tannery Way
Santa Clara, California 95054 USA
408-753-4000

www.paloaltonetworks.com

Authorized Components

The ION 3200H-C5G-WW uses Sierra Wireless module EM9293, FCC ID N7NEM92.

FCC Compliance Statement

This device complies with Part 15 of the 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.

- **ICES (Canadian EMC Compliance Statement)**—This Class A digital apparatus complies with Canadian ICES-003.

  French translation: Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

- **Korean Communications Commission (KCC) Class A Statement**—This equipment is an electromagnetic compatible device for business purposes (Class A). The provider or user should be aware that the equipment is intended for use outside the home.

- **Taiwan Declaration of the Presence Condition of the Restricted Substances Marking.**

限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

證書號碼／受理編號：(No.) 新申請

商品標籤及商品檢驗標識：(Picture)

Certificate No./Application No.

樣張及其標示位置：(Description and Picture)

Product Label and Commodity Inspection Mark.

設備名稱： 網路服務器 ，型號（型式）：ion 3000

Equipment Name Type designation (Type)

單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
內部電源供應器 POWER SUPPLY	-	○	○	○	○	○
輸出/入裝置 I/O	○	○	○	○	○	○
固態硬碟HDD	○	○	○	○	○	○
儲存裝置 FLASH DISK	○	○	○	○	○	○
風扇 FAN	-	○	○	○	○	○
金屬機構件 ME metal part	○	○	○	○	○	○
塑膠機構件 ME plastic part	○	○	○	○	○	○
配件(例: 電源線等) Accessory (ex:cable, etc.)	○	○	○	○	○	○
印刷電路板元件 PCBA	-	○	○	○	○	○

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

如果將鋰電池更換成錯誤類型的電池，會有爆炸的危險。 電池只能更換為與製造商建議相同或等同類型的電池。

備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。

Note 1: "Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2: "○" indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3.〝 - 〞係指該項限用物質為排除項目。

Note 3: The "–" indicates that the restricted substance corresponds to the exemption.

- **Thailand Regulation for Non-Radio Equipment**:

  เครื่องโทรคมนาคมและอุปกรณ์นี้มีความสอดคล้องตามมาตรฐานหรือข้อกำหนดทางเทคนิคของ กสทช
  (This telecommunication equipment conforms to the technical standards or requirements of NBTC.)

ION 3000 Fail-to-Wire Cabling Matrix

The ION 3000 fail-to-wire cabling matrix is shown below:

Port Type / Speed	WAN Port Device	LAN Port Device	Recommended Cable WAN Port- to-WAN Device	Recommended Cable LAN Port-to-LAN Device	Recommended Settings ION 3000 Port	Recommended Cable Connection End Result
Gigabit Ethernet	All	All	Any Ethernet Cable**	Any Ethernet Cable**	Auto Negotiation	Varies
10/100 Ethernet (Hardcoded or Auto Detection)	Router/ PC (NIC MDI)	Router/ PC (NIC MDI)	Crossover Ethernet Cable	Crossover Ethernet Cable	Hardcode to Match Both Devices	Crossover
	Router/ PC (NIC MDI)	Hub/ Switch (HUB MDI)	Crossover Ethernet Cable	Crossover Ethernet Cable	Hardcode to Match Both Devices	Straight Through
	Hub/ Switch (HUB MDI)	Router/ PC (NIC MDI)	Straight Through Ethernet Cable	Straight Through Ethernet Cable	Hardcode to Match Both Devices	Straight Through
	Hub/ Switch (HUB MDI)	Hub/ Switch (HUB MDI)	Straight Through Ethernet Cable	Straight Through Ethernet Cable	Hardcode to Match Both Devices	Crossover

** Gigabit-rated Crossover or Straight-Through Copper Ethernet Cable.

ION 3000 Installation Kit Components

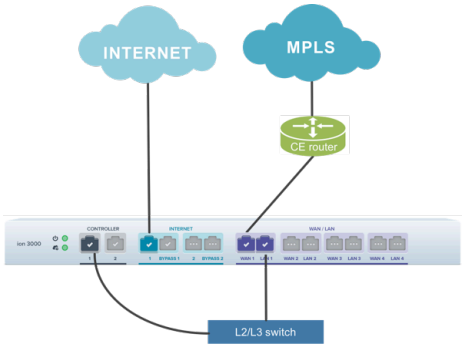
The ION 3000 installation kit contains the following parts and tools to install the device.

- 1x 19-inch 1U rack mount kit with two ears with 3-hole rail patterns with corresponding screws.
- 2x Red Cat6 Crossover/Rollover Ethernet Cable.
- 1x Power cord, which varies depending on the country/region.
- 1x Screwdriver.
- 1x USB to Cat5 serial cable.

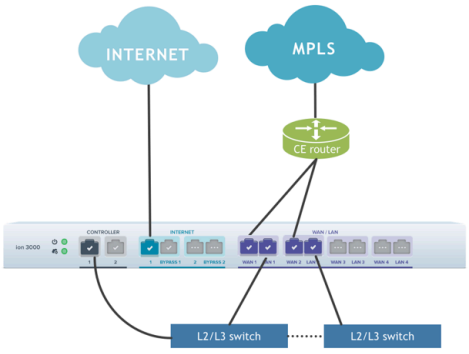
ION 3000 Common Insertion Topologies

You can install the ION 3000 in three possible insertion scenarios in analytics or control mode with an existing router:

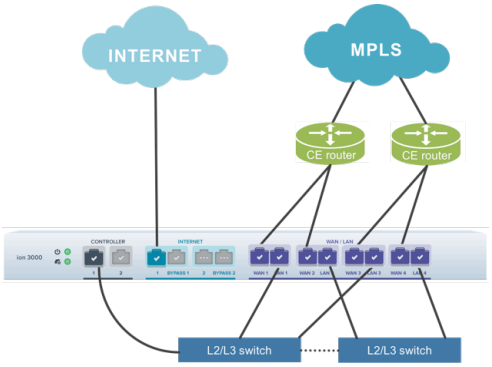
- Single Router or Single Switch—The following image illustrates the deployment architecture of an ION 3000 as single router or single switch.



- Single Router or Dual Switch—The following image illustrates the deployment architecture of an ION 3000 as single router or dual switch.



- Dual Router or Dual Switch—The following image illustrates the deployment architecture of an ION 3000 as dual router or dual switch.



Power on the ION 3000

Connect the power cables to the ION device and plug the device power cable into an AC power outlet. When you switch on the power, the device is powered on and the power indicator turns green.

Shut Down the ION 3000

Shut down the ION 3000 in the following ways:

Do not shut down the ION devices abruptly by pulling the power cord.

- Shut down using the Device Toolkit commands

  Run the device toolkit command `debug shutdown` to shut down the device.

  Ensure the device is physically accessible to turn it back on, before executing the command.

- Shut down using the Power Switch

  Press the power switch 5 times (press and hold for 1 second, then, release) to shut down the device.

- Shut down using a Python script

  Gracefully shut down a single ION device or multiple ION devices using a script.

  First generate an API token and add it to `cloudgenix_settings.py` and then execute the command `./shutdown.py --serial <20-019291-9468>`. To shut down multiple devices, add the serial numbers of the ION devices as shown below:

```
./shutdown.py --serial 20-019291-9468
        ./shutdown.py --serial 20-019291-9469
        ./shutdown.py --serial 20-019291-9470
```

Reboot the ION 3000

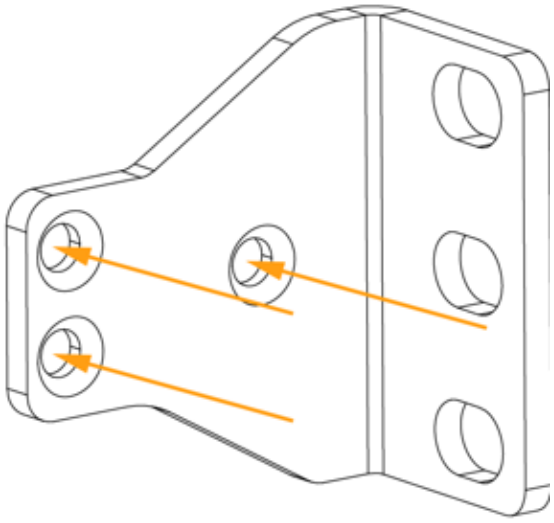
Press the power switch 3 or 4 times to reboot the ION 3000.

Install ION 3000

The Prisma SD-WAN ION 3000 can be installed in two different modes—in analytics or control mode with an existing router or in the control mode by replacing the router. By installing the ION with an existing router, you can physically insert the ION 3000 into a network, thereby reducing interruption and insertion planning to a minimum. Or you can install the ION 3000 to replace an existing router, especially in environments where routers are not already present or required.

Rack Mount the ION 3000

Rack mount the ION 3000 on a standard 19 inch rack. Two identical ears that can be attached to either side of the ION 3000 with three (3) screws are included with the ION 3000 accessory kit.



After you attach the ears, mount the ION 3000 to any standard 19 inch rack using three appropriate screws for the specific 19 inch rack.

Set Up the ION 3000 with an Existing Router

Set up the ION 3000 in the analytics or control mode with an existing router. This allows you to insert the ION 3000 in the network without making any modification to network settings at the remote office. To accomplish this, the ION 3000 utilizes an inline insertion method with fail-to-wire redundancy.

The inline insertion method enables the ION device to inspect and process traffic by only making physical changes to the network while maintaining or enabling additional redundancy.

STEP 1 | Plan and select a private WAN insertion topology that you will use to insert the ION 3000 into the network.

Ensure that internet access using a private WAN connection or direct internet broadband is available at the site to allow remote configuration of the ION 3000.

STEP 2 | Mount the ION 3000 in the required installation location.

STEP 3 | Connect the cables in the following order:

1. Controller port—The controller port is used for ION-to-network controller communication and monitoring. Connect the controller port to an ethernet port. The controller port is configured as a DHCP client by default.
2. Internet port(s)—Plug the internet ports inf a broadband internet source. These ports are protected by a firewall and can be plugged directly to the internet source. They can also exist behind a traditional firewall or NAT device. These ports are configured as DHCP by default. If the internet ports require static IP configuration, it is highly recommended that you configure the controller port to an existing DHCP-enabled LAN with access to the internet using a private network to configure the static internet ports.

STEP 4 | Prepare to install the private WAN connections.

Physically cabling these links may result in a 1 to 5 seconds network interruption. It is best practice to execute steps 4-7 during low traffic time or a network maintenance window where 1 to 5 seconds outages can be tolerated.

STEP 5 | Cable the private WAN connections as designed in step 1.

After cabling, the devices connected to corresponding WAN/LAN pairs should reconnect link state up. If this does not happen, verify cabling/settings on the connected devices, along with the fail-to-wire cabling matrix.

STEP 6 | Power on the ION 3000.

Verify the power-off link on the ION 3000 before powering on the device.

STEP 7 | Verify communication between devices connected to the corresponding WAN/LAN connections after the ION 3000 power sequence is completed.

At this point, the ION 3000 appears as **Connected** and **online-restricted**.

STEP 8 | Next Step: Proceed to claim and configure the device on the Prisma SD-WAN console.

Set Up the ION 3000 by Replacing the Router

Set up the ION 3000 by replacing the existing router. This mode allows you to configure the ION 3000 as a drop-in replacement for a WAN router in control mode and is most useful for saving cost at new sites that are designed without a traditional router in mind.

While this mode is used to remove an existing router at a site, it is often simpler and less intrusive to deploy the ION in control mode with an existing router.

STEP 1 | Plan and prepare to cable and connect the ION 3000 to the network.

Ensure there is internet access using broadband or a private network connection at the site to allow remote configuration of the ION 3000.

STEP 2 | Power on the ION 3000.

STEP 3 | Connect the following cables:

1. Controller port—The controller port is used for ION-to-network controller communication and monitoring. Connect the controller port to an ethernet port. The controller port is configured as a DHCP client by default.
2. Internet port(s)—Plug the internet ports in a broadband internet source. These ports are protected by a firewall and can be plugged directly to the internet source. They can also exist behind a traditional firewall or NAT device. These ports are configured as DHCP by default. If the internet ports require static IP configuration, it is highly recommended that you configure the controller port to an existing DHCP-enabled LAN with access to the internet using a private network to configure the static internet ports.

At this point, the ION 3000 appears as **connected** and **online-restricted**.

STEP 4 | Next Step: Proceed to claim and configure the device on the Prisma SD-WAN console.

