



F900 Appliance Installation Guide

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Valid from Firmware Version 5.0

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General Introduction	6
About this Manual	6
Warranty Note	6
Safety Instructions	7
Electrical Safety	7
General Safety	7
ESD Precautions	8
Introduction and Package Contents	9
Hardware Configuration	9
Inspecting the Package	10
Powering Up and Down	11
Powering Up the Appliance	11
Powering Down the Appliance	11
The Status LED	12
Installation and Recovery Using ART	13
Using the ART Menu via Serial Console or SSH	13
ART and Central Management	15
Performing a Recovery Process	15
Using a PAR file on an USB Stick	15
Using ART Recovery without USB Stick	15
Errors During Recovery	16
Connecting to the Network and Configuring	17
Default Configuration	17
Passwords	17
Network	17
Configuring the Appliance	18
Serial Connection via Console Port	18
Additional Modules	18
Module and Port Labelling	18
Table of Valid Port Module Combinations	19

Using LCD Display and Keypad 21
 Navigating 21
 LCD Display Menu 21
F900 Rack Mount Installation 23

General Introduction

The information in this user guide has been carefully reviewed and is believed to be accurate. It is valid from **Barracuda NG Firewall** firmware version **5.0**. Barracuda Networks assumes no responsibility for any inaccuracies that may be contained in this document. This manual may be updated from time to time. The most up-to-date version of this manual can be found at www.barracuda.com.

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About this Manual

This manual provides information for installation and use of the appliance. Installation and maintenance should be carried out by experienced technicians only.

Warranty Note

Note



Opening your Barracuda Networks appliance or removing its warranty label unless instructed to do so by Barracuda Networks support will void your warranty and hardware support.

Safety Instructions

The following information relates to the safety of installation and maintenance personnel.

Read all instructions before attempting to unpack, install or operate this equipment, especially before connecting the power adapter.

Electrical Safety

Basic electrical safety precautions should be followed to protect yourself from harm and the appliance from damage:

- ***Be aware of the power switch locations on the appliance's chassis as well as the emergency power-off switch for the housing room, the disconnection switch or the electrical outlet. Knowing these locations enables you to quickly remove electrical power from the system in case an electrical accident occurs.***
- ***Do not work alone when working with high voltage components.***
- ***When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.***
- ***Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.***
- ***Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.***
- ***The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.***
- ***To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.***
- ***Avoid installation of this product during a lightning storm.***
- ***Ensure that the air vents (openings along the sides and at the backside) are never blocked and that there is sufficient airflow through the vents to prevent over-heating.***

General Safety

- ***Keep the area around the appliance clean and free of clutter.***
- ***Locate a safe and dry location to place this product. Keep it away from wet surfaces/surroundings.***
- ***While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.***
- ***Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.***

ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards.

The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- ***Use a grounded wrist strap designed to prevent static discharge.***
- ***Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.***
- ***Touch a grounded metal object before removing the board from the antistatic bag.***
- ***Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.***
- ***Handle a board by its edges only; do not touch its components, peripheral memory modules or contacts.***
- ***When handling chips or modules, avoid touching their pins.***
- ***Put the server board and peripherals back into their antistatic bags when not in use.***
- ***For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the server board.***
- ***After accessing the inside of the system, close back the system and secure it to the rack unit with the retention screws after ensuring that all connections have been made.***

Introduction and Package Contents

Your new Barracuda NG Firewall F900 is an integrated security appliance preinstalled with Barracuda NG Firewall firmware. This winning combination offers a ready to run security solution that is flexible, affordable and easy to deploy.

Hardware Configuration

Table 1 *Hardware*

Component	Description
CPU	Intel Quad Core
Memory	12 GB
HDD (formatted)	2 x 500 GB
Flash Disk	128 MB
LCD Module	2x 20 character LCD
Form Factor	2U Rack Mount
Dimensions (W/D/H)	8.8 cm x 44.2 cm x 66.0 cm
Net Weight	18 kg
Power Supply	Dual, hot swap
Power Supply Input Voltage	100 - 240 V, AC
Power Supply Frequency	47 Hz - 63 Hz
Power Supply Watts	2 x 500 W
Storage Temperature	-20 °C - +60 °C
Operation Temperature	0 °C - 40 °C
Relative Humidity	5% - 95%, non-condensing
Certifications	CE, FCC, ROHS

Note



The hardware configuration list in Table 1 was valid at the time this manual was published. The listed components are subject to change at any time, as Barracuda Networks may change hardware components due to technological progress. Therefore, the list may not reflect the current hardware configuration of the Barracuda Networks NG Firewall or NG Control Center appliance it was delivered with.

Inspecting the Package

The following items are included in the package:

- ***One security appliance***
- ***One power cord***
- ***One ethernet crossover cable (red)***
- ***One ethernet standard cable (grey)***
- ***One serial cable (console)***
- ***Printed Quick Start Guide***
- ***One USB flash drive including documentation and administrative tools***
- ***One rack mount kit***

Please contact Barracuda Networks support if any of these items is missing.

Powering Up and Down

This chapter describes the procedure used to install your appliance and perform the initial configuration.

Powering Up the Appliance

- **Connect and power on the appliance. The power LED indicates green.**
- **The current status of the boot process will be shown on the appliance's LCD display. You may also use the serial console for this purpose.**
- **After a few seconds, the boot process will be initiated and the status LED should start to blink green.**
- **Wait until the status LED indicates constant green: The booting procedure is finished.**

Powering Down the Appliance

Warning



You must never turn off the appliance by simply switching it off or otherwise removing power from it. Always initiate a proper system shutdown as described below.

- **The system shutdown must be initiated either using the Barracuda NG Admin tool, a remote logon to the appliance or by using the LCD display and keypad on the appliance.**
- **The current status of the shutdown process will be shown on the appliance's LCD display. You may also use the serial console for this purpose. Also, the status LED will blink green.**
- **The status LED will turn off at the end of the shutdown procedure.**

The Status LED

Your appliance is equipped with a variety of LEDs. One of them is the Status LED. It is either labeled with a *heart symbol* or the term *Status*. It indicates the appliance's operational state by changing colors between **green**, **orange** and **red** and by changing between blinking and steady glowing.

The table below shows the different meanings of the different glowing states.

Table 2 *Status LED Conditions*

Color	Glowing State	Meaning Installation	Meaning Normal Operation or ART
Off	Off	Appliance is powered off or installation has not initialized far enough for LED control when installation is started.	Appliance is powered off.
Green	Blinking	Normal installation.	Appliance is either booting, shutting down or performing a system update.
Green	Steady	Installation was completed successfully, appliance is halted for reboot or installation was not yet initialized far enough for LED control.	Barracuda NG Firewall is up and running.
Red	Blinking	Error during installation.	An error has appeared preventing Barracuda NG Firewall from entering the up state. If no orange light available: appliance is in ART mode.
Red	Steady	-	Appliance is halted and may be disconnected.
Orange	Blinking	-	-
Orange	Steady	-	Appliance is in ART mode.

Note



Not all appliances support orange and/or red LED colors. Depending on the appliance type, the status LED might be on by default and it might take some time during boot and installation to start either blinking or changing the color. Furthermore, the status LED might blink at different frequencies.

Installation and Recovery Using ART

Note



When your Barracuda NG Firewall is booted for the first time after the installation, ART will generate its configuration. Therefore, ART is not available unless this process, that is typically running for 5 to 10 minutes, has been finished.

Active Recovery Technology (ART) enables you to perform certain basic configuration operations in order to recover or reconfigure your appliance outside Barracuda OS. ART is based on a very small-sized Linux system. It can be accessed either via the serial console or via SSH. On appliances featuring LCD display and keypad, ART can be invoked from the display as well.

Using the ART Menu via Serial Console or SSH

You get access to the ART menu either by activating *Start ART on reboot* via the appliance's LCD display or by rebooting the appliance while being connected to it via serial console or SSH and pressing any key during the boot process while `Press any key to enter ART` is displayed.

Once the appliance has booted into ART, you will see this menu:

```
*****
* Active Recovery Technology *
*****

=> Test hard disk drive
Test CPU
Get hardware info
Test RAM
System recovery
Configuration reset
Start shell >>
Reboot
Exit

Test the appliance hard disk drives.
```

Use the *Cursor keys*, *Enter* and *Escape* to navigate.

- **Test hard disk drive**

Evokes a hard disk check tool. A hard disk can be selected first, then read-only checks for bad blocks are performed. In case of a positive, hard disk file system repair actions may be triggered via the CLI only.

- **Test CPU**

Performs a load test of all available CPUs.

- **Get hardware info**

Displays all available information stored in a hidden partition on the appliance such as serial number, initial installation date, etc.

- **Test RAM**

Evokes a RAM checking utility. Note that not the whole existing RAM can be tested as ART OS occupies some RAM by itself.

- **System recovery**

Effectively invokes a reinstall of the appliance.

For hard disk based appliances, an installation “*.iso” image as well as a backup PAR file are stored within a dedicated partition on the hard drive and will be used. Optionally, an *.iso image on an USB thumb drive connected to the appliance may be used. If no PAR file is available, the default installation for the corresponding appliance type is chosen. See also **Performing a Recovery Process, page 15**.

For flash-only appliances, this option always requires an USB thumb drive connected to the system.

Caution



The system will be recovered either to the release version of Barracuda NG Firewall it was first installed in, losing the updates installed since then, or to the state stored in a PAR file residing within the `art` partition of the system drive. Once your appliance is readily configured, you may save the configuration for ART recovery through **Box > Active Recovery > Save Current Config**. This will generate an ISO file within the `art` partition that will be used during the next recovery process.

Note



ART system recovery only works if the appliance was installed with Barracuda NG Firewall 5.0. It is not possible to use ART system recovery on systems that were updated from 4.0 or 4.2.

See **Using ART Recovery without USB Stick, page 15**, in order to learn about the ART recovery process.

- **Configuration reset**

Allows the definition of a new host name, management IP address, default route and optionally a network driver. This functionality comes in handy if connectivity to an appliance was lost due to some misconfiguration or activation of an erroneous PAR file.

- **Start shell**

Enables access to a bash shell within which you may perform certain commands included with ART.

- **Reboot**

Reboots the appliance into Barracuda OS.

- **Exit**

Exits into Barracuda OS.

Currently the only possible reason the ART recovery OS is invoked automatically for is a hard disk drive flagged as "dirty". This may indicate a hardware failure or a corrupt file system on the hard disk. The latter might be remedied by an administrator through the shell via a remote login.

ART and Central Management

Appliances that are centrally managed using a Barracuda NG Control Center will obviously no longer be normally centrally manageable once the recovery system is up and running. However, ART is aware of the appliance being centrally managed and therefore invokes a connection back to the Control Center, indicating its presence. An administrator can then login remotely to the appliance using SSH, invoking the ART menu or a command line in order to debug the problem or perform a recovery process.

Performing a Recovery Process



Related
Docs

See the **Barracuda NG Firewall Administrator's Guide** in order to learn about creating Portable Archive (PAR) files.

Using a PAR file on an USB Stick

- ***Be sure that the appliance is powered off.***
- ***Then, insert the USB stick into one of the USB connectors of the appliance and switch the appliance on. Depending on the appliance type, it may take a few minutes until the recovery process will start.***
- ***During the recovery process, the status LED of the appliance will flash with varying speeds. If your appliance is equipped with an LCD display, then the process information will be displayed there.***
- ***At the end of the recovery process, the status LED's flashing will be replaced by steady green glowing and the appliance will beep once.***
- ***Now, power off the appliance and remove the USB stick.***
- ***Switch the appliance on again. If the appliance was recovered with a standard Barracuda manufactured USB stick (autodetection), the appliance will perform another reboot after adjusting some settings. If the appliance was recovered using an USB stick generated with the Barracuda NG Install application specifically for this appliance type, the second reboot is not necessary and the appliance will boot directly into operation mode.***

Using ART Recovery without USB Stick

- ***If you want to recover using your current configuration, first save your configuration for ART through Barracuda NG Admin using [Box > Active Recovery > Save Current Config](#) or put a PAR file named `box.par` into the art partition's root directory.***
- ***Boot into the ART menu as described above in (the Status LED blinks orange when ART is running) and choose [Start recovery](#). Then, follow the on-screen instructions.***

- ***Recovery is finished as soon as the Status LED steadily indicates green.***

Errors During Recovery

If difficulties are encountered during the recovery process, the Status LED will blink **red**.

Furthermore, error messages will be displayed on the appliance's LCD display. You may also trace the output using the serial console.

Connecting to the Network and Configuring

Fig. 1 F900 appliance equipped with three 8 GbE Copper RJ45 modules. The **MGMT** port is right beside the LCD display.



The F900 has three slots for ethernet modules.

Unless specifically ordered with port brackets installed in slots A, B or C, the F900 appliance has only the management port, while the port brackets are, unlike in the figure above, empty and equipped with blind plugs.

The default management port is right from the LCD display and labelled **MGMT**. The RJ45 serial port, labelled **Console**, is below it.

Default Configuration

Passwords

Table 3 *Default User and Password*

Account Type	User Name	Password
Administrator	root	ngf1r3wall

You need a valid Barracuda Networks license in order to change the administrator password. In the demo mode, restrictions in the firmware prevent the appliance from being used in productive environments.

Network

The ethernet connector **MGMT** is preconfigured with the IP address `192.168.200.200` and the netmask `255.255.255.0`.

In standard configuration and upon delivery, no other ethernet connector is configured.

Configuring the Appliance

In order to configure the appliance please copy the Barracuda NG Admin application from the USB flash drive to your management PC first.

Serial Connection via Console Port

In order to establish a console connection to the appliance using a serial cable, you need to configure the serial port on the terminal using the following parameters:

Table 4 *Default User and Password*

Parameter	Value
Baud	19200
Bits	8
Stop bit	1
Parity	None
Handshake	None

Additional Modules

F900 appliances offer the possibility to expand the total amount or type of network connectors by simply adding or changing modules.

Module and Port Labelling

The labelling of the ports depends on where the modules are residing. These modules are internally labelled **A**, **B** and **C** from top-left to bottom-right. Hence, the appropriate ports are **portA1** to **portA8**, **portB1** to **portB8** and **portC1** to **portC2**.

Example:

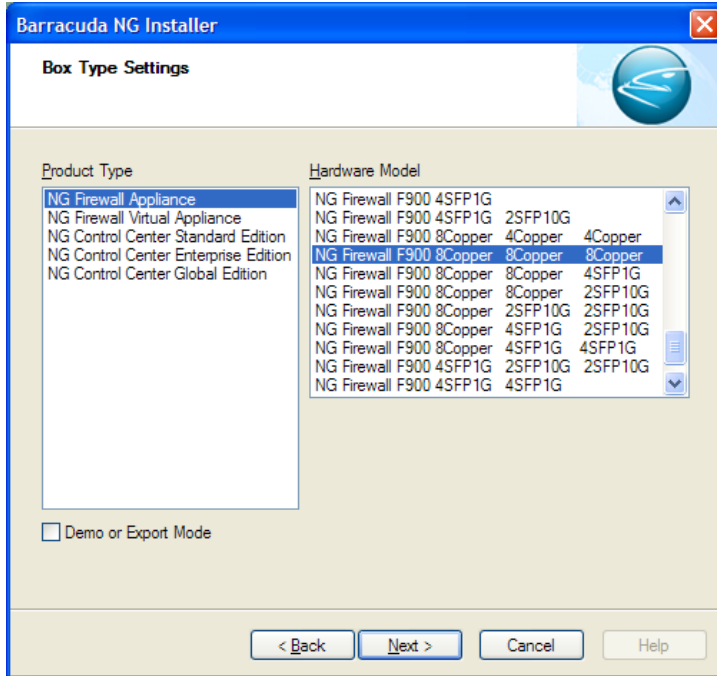
The appliance in Figure 1 is assembled with three modules. Modules **A**, **B** and **C** are **8RJ** modules. Therefore, the ports are labelled **portA1** to **portA8** on module **A**, **portB1** to **portB8** on module **B** and **portC1** to **portC8** on module **C**.

Note



When adding/changing modules be aware to always configure the correct interface combination within Barracuda NG Installer and Barracuda NG Admin.

Fig. 2 Barracuda NG Installer Box Type Settings (example using 3 x 8Copper)



To modify the network settings in Barracuda NG Admin, navigate to [Config > Box Properties > Identification Settings](#) and [Config > Network > Interfaces > Network Interface Configuration](#).

Table of Valid Port Module Combinations

The port module combinations listed in the table below are valid for Barracuda NG Firewall 4.2.12 and later.

Table 5 Legend

Shortcut	Description
8Copper	8 x 1 Gbit ethernet RJ45
4Copper	4 x 1 Gbit ethernet RJ45
4SFP1G	4 x 1 Gbit ethernet SFP
2SFP10G	2 x 10 Gbit ethernet SFP+

Table 6 Valid Port Module Combinations

A	B	C	Remarks
-	-	-	Default
8Copper	-	-	
8Copper	8Copper	-	
8Copper	8Copper	8Copper	
8Copper	8Copper	4SFP1G	
8Copper	8Copper	2SFP10G	
8Copper	4Copper	-	

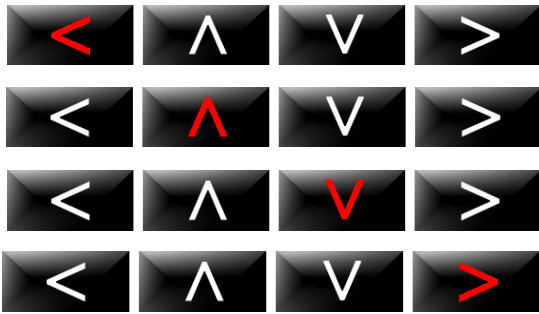
Table 6 *Valid Port Module Combinations*

A	B	C	Remarks
8Copper	4Copper	4Copper	
8Copper	4SFP1G	-	
8Copper	2SFP10G	-	
8Copper	2SFP10G	2SFP10G	
8Copper	4SFP1G	2SFP10G	
8Copper	4SFP1G	4SFP1G	
4Copper	-	-	
4Copper	2SFP10G	-	
4Copper	4SFP1G	-	
2SFP10G	2SFP10G	2SFP10G	
4SFP1G	-	-	
4SFP1G	2SFP10G	-	
4SFP1G	2SFP10G	2SFP10G	
4SFP1G	4SFP1G	-	
4SFP1G	4SFP1G	4SFP1G	

Using LCD Display and Keypad

Navigating

This security appliance features a key pad with four keys and an LCD panel on the left side of the front panel. These may be used to obtain certain information and to perform certain commands directly on the appliance.



The **left arrow** key navigates **back** or acts like an **Escape** key while working in the LCD menu.

The **up arrow** key navigates **up** or **increases** a value.

The **down arrow** key navigates **down** or **decreases** a value.

The **right arrow** key navigates **forth** or acts like an **Enter** key for confirming a configuration step.

LCD Display Menu

You may use the LCD display and the keypad to access certain appliance features. Use the **up** and **down** keys to navigate through the items of the main menu.

The LCD menu features the following items from top to bottom:

- ***Appliance type, OS version and release number***

This is the default display.

- ***IP address and subnet mask***

Shows the configured IP address and subnet mask of the appliance.

- ***Time and date***

Shows time and date currently configured on the appliance.

- ***Uptime of Barracuda OS***

The uptime in days, hours and minutes.

- ***Serial number of the appliance***

Unique identifier for the appliance.

- ***Shutdown menu***

Enables you to shut down the appliance.

- ***Reboot menu***

Enables you to reboot the appliance.

- ***Menu to change the management IP address***

Configure the IP address for the management port.

- ***Menu to boot into ART during the next reboot***

Enables you to set a flag that will cause the appliance to boot into ART the next time it is rebooted.

Once set, this flag can not be deleted through the menu. When rebooted, the appliance will not start Barracuda OS, but ART instead. You may connect to the appliance by using the serial console or by SSH. A Control Center managed box running in ART mode cannot be managed through the CC, although it will build a connection to the CC signalling its presence.

See **Installation and Recovery Using ART**, page 13 in order to get in-depth information about Active Recovery Technology.

F900 Rack Mount Installation

Verify that the kit is complete, as shown here. It should contain all the parts as listed in the table below:

Table 7 Hardware

Quantity	Component
4	Inner-slide assemblies, 2 of which attached to slide kit and 2 loose inside the kit's box
2	Preassembled slide rail kits with L-brackets already riveted to the slide rails
8	Washers (see figure below)
4	Type A screws (see figure below)
20	Type B screws (see figure below)
8	Type C screws (see figure below)

Fig. 3 Part List: One Washer Type and Three Screw Types



1.) Start out by disassembling the rail construction.

This must be done prior to mounting.

Fig. 4 Rail Construction Disassembly

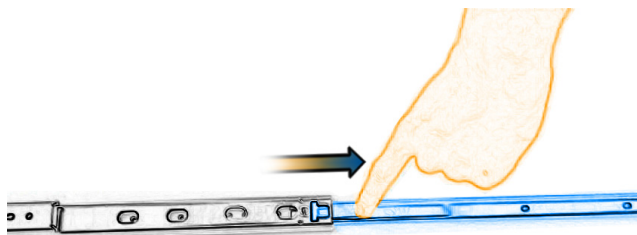


Fig. 5 Rail Construction Disassembly



2.) Then, assemble the two inner slides.

For this, use the type B screws on each side of your appliance.

Fig. 6 Inner-Slide Assembly

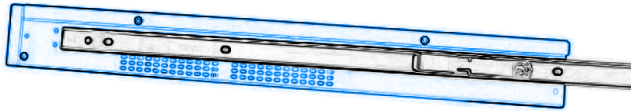


Fig. 7 Inner-Slide Assembly

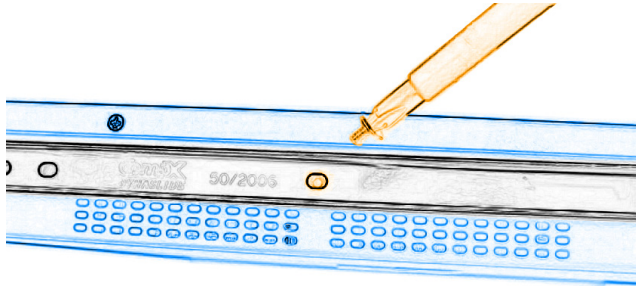
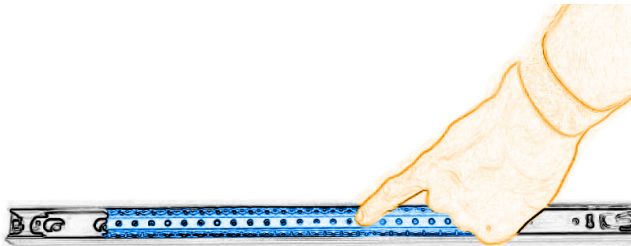


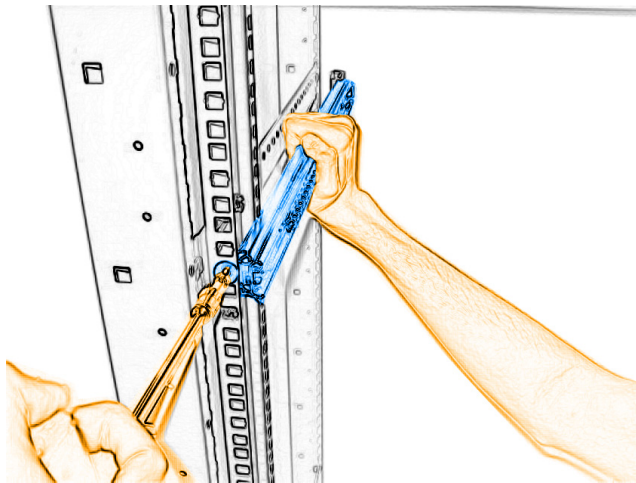
Fig. 8 Inner-Slide Assembly



3.) Then, mount the rail construction into the rack.

Use the L-brackets to achieve this.

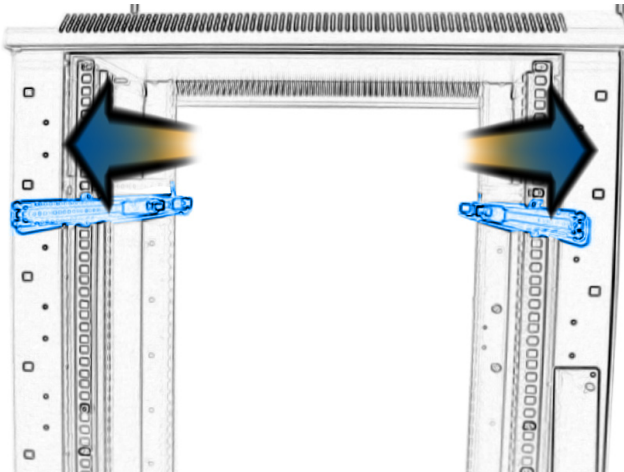
Fig. 9 Mounting the Rail into the Rack



4.) Pull out the middle rail of the rail construction.

The figure below shows you how to do this.

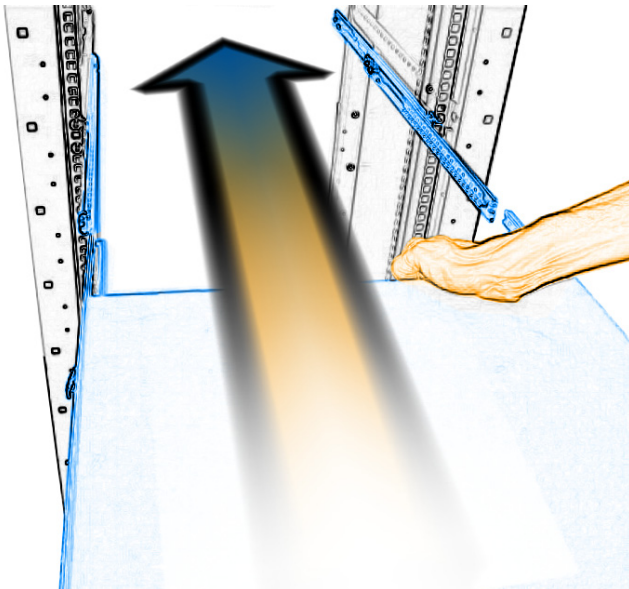
Fig. 10 Pulling Out the Middle Rail



5.) Insert the appliance.

Carefully push it into the middle slide.

Fig. 11 Inserting the Appliance



6.) The installation is finished.

Your rack-mounted appliance is now ready for use.

Fig. 12 Built-In Appliance Ready for Operating

