

WebSphere DataPower Machine Type 7198 and Machine
Type 7199
Version 1.0

Installation and User's Guide



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Type 7199
Version 1.0

Installation and User's Guide



Note

Before using this information and the product it supports, read the information in "Safety" on page v and, if necessary, the language-specific information for your locale in *IBM Systems: Safety Notices*, G229-9054.

Before using this information and the product it supports, read the information in "Notices" on page 67.

Fifth Edition (April 2013)

This edition applies to IBM WebSphere DataPower Machine Type 7198 and Machine Type 7199 until otherwise indicated in new editions.

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Safety

Before installing this product, read the Safety Information.

Arabic

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Brazilian Portuguese

Antes de instalar este produto, leia as Informações de Segurança.

Chinese (simplified)

在安装本产品之前，请仔细阅读 **Safety Information** (安全信息)。

Chinese (traditional)

安裝本產品之前，請先閱讀「安全資訊」。

Croatian

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Czech

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Danish

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Dutch

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Finnish

Ennen kuin asennat tämän tuotten, lue turvaohjeet kohdasta Safety Information.

French

Avant d'installer ce produit, lisez les consignes de sécurité.

German

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Greek

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

Hebrew

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

Hungarian

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Italian

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

Japanese

製品の設置の前に、安全情報をお読みください。

Korean

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Macedonian

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Norwegian

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

- Polish** Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).
- Portuguese**
Antes de instalar este produto, leia as Informações sobre Segurança.
- Russian**
Перед установкой продукта прочтите инструкции по технике безопасности.
- Slovak**
Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.
- Slovenian**
Pred namestitvijo tega proizvoda preberite Varnostne informacije.
- Spanish**
Antes de instalar este producto, lea la información seguridad.
- Swedish**
Läs säkerhetsinformationen innan du installerar den här produkten.

Guidelines for servicing electrical equipment

You must observe the guidelines when servicing electrical equipment.

The guidelines include:

- Check the area for electrical hazards, such as moist floors, non-grounded power extension cords, and missing safety grounds.
- Use only approved tools and test equipment. Some hand tools have handles that are covered with a soft material that does not provide insulation from live electrical current.
- Regularly inspect and maintain your electrical hand tools for safe operational condition. Do not use worn or broken tools or testers.
- Do not touch the reflective surface of a dental mirror to a live electrical circuit. The surface is conductive and can cause personal injury or equipment damage if it touches a live electrical circuit.
- Some rubber floor mats contain small conductive fibers to decrease electrostatic discharge. Do not use this type of mat to protect yourself from electrical shock.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Locate the emergency power-off (EPO) switch, disconnecting switch, or electrical outlet so that you can turn off the power quickly in the event of an electrical accident.
- Disconnect all power before you perform a mechanical inspection, work near power supplies, or remove or install main units.
- Before you work on the equipment, disconnect the power cord. If you cannot disconnect the power cord, have the customer power off the wall box that supplies power to the equipment and lock the wall box in the off position.
- Never assume that power has been disconnected from a circuit. Check it to make sure that it has been disconnected.
- If you have to work on equipment that has exposed electrical circuits, observe the following precautions:
 - Make sure that another person who is familiar with the power-off controls is near you and is available to turn off the power if necessary.

- When you are working with powered-on electrical equipment, use only one hand. Keep the other hand in your pocket or behind your back to avoid creating a complete circuit that could cause an electrical shock.
- When using a tester, set the controls correctly and use the approved probe leads and accessories for that tester.
- Stand on a suitable rubber mat to insulate you from grounds such as metal floor strips and equipment frames.
- Use extreme care when measuring high voltages.
- To ensure proper grounding of components, such as power supplies, pumps, blowers, fans, and motor generators, do not service these components outside of their normal operating locations.
- If an electrical accident occurs, use caution, turn off the power, and send another person to get medical aid.

Inspecting for unsafe conditions

Use this procedure to identify potential unsafe conditions in an IBM® product that you are working on.

About this task

Each IBM product, as it was designed and manufactured, has required safety requirements to protect users and service technicians from injury. Use good judgment to identify potential unsafe conditions that might be caused by attachment of non-IBM features or options that are not addressed in this section. If you identify an unsafe condition, you must determine how serious the hazard is and whether you must correct the problem before you work on the product.

Consider the following conditions, and the safety hazards that they present:

- Electrical hazards (especially primary power). Primary voltage on the frame can cause serious or fatal electrical shock.
- Explosive hazards, such as a damaged CRT face or a bulging capacitor.
- Mechanical hazards, such as loose or missing hardware.

Procedure

1. Make sure that the power is off and the power cords are disconnected.
2. Make sure that the exterior cover is not damaged or broken, and observe any sharp edges.
3. Check the power cords:
 - a. Make sure that the third-wire ground connector is in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
 - b. Make sure that the power cords are the correct type.
 - c. Make sure that the insulation is not frayed or worn.
4. Check for pinched cables.

Safety statements

The safety statements in this section apply to the Type 7198 and 7199 appliances.

These statements are duplicate statements from the *IBM Systems: Safety Notices* document. However, the *IBM Systems: Safety Notices* document provides the complete list of all the safety notices for IBM Systems Software.

You can access the *IBM Systems: Safety Notices* document on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD.

Danger notices

You must observe the precautions when working on or around the system.

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

Caution notices

You must observe the caution notices when working on or around the system.

CAUTION:

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

- Do not throw or immerse into water.
- Do not heat to more than 100° C (212° F).
- Do not repair or disassemble.

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

CAUTION:

Type 7198: This part or unit is heavy but has a weight smaller than 18 kg (39.7 lb). Use care when lifting, removing, or installing this part or unit. (C008)

CAUTION:

Type 7199: The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb). It takes two persons to safely lift this part or unit. (C009)



Use the following general safety information for all rack-mounted devices.

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment — personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

(R001 part 1 of 2)

CAUTION:

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001 part 2 of 2)

DANGER

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there are no stabilizer brackets installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

Labels

You must observe the labels when working on or around the system.

DANGER

Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)



DANGER

Rack-mounted devices are not to be used as shelves or work spaces. (L002)



DANGER

Multiple power cords. The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords. (L003)



CAUTION:

Hazardous moving parts nearby. (L008)



Preface

This publication includes installation, configuration, and maintenance information for the IBM WebSphere® DataPower SOA Appliances. IBM WebSphere DataPower® appliances are available as 1U and 2U rack-mountable appliances.

- The Type 7198 is a 1U appliance.
- The Type 7199 is a 2U appliance.

Who should read this guide

This guide is intended for personnel who will install, configure, diagnose, and service the IBM WebSphere DataPower SOA Appliances Type 7198 and 7199.

The tasks addressed in this guide include:

- Installing rails in the rack frame for the appliance.
- Installing the appliance in the rack.
- Performing the base, initial configuration of the appliance.
- Diagnosing and troubleshooting hardware problems.
- Ordering customer replaceable units.

How this guide is organized

This guide is organized into sections. Each section references both the Type 7198 and 7199 appliances, unless otherwise noted.

This guide includes the following sections:

- “Safety” on page v
Provides safety information for Type 7198 and 7199 appliances.
- Chapter 1, “Introducing the IBM DataPower appliance,” on page 1
Provides the features and specifications for Type 7198 and 7199 appliances.
- Chapter 2, “Preparing for installation,” on page 13
Provides information about the rack, required tools, and the installation overview.
- Chapter 3, “Installing the appliance in a rack,” on page 19
Provides instructions for installing the rails in the rack, inserting the appliance in the rack, connecting the appliance to a power source, and connecting the appliance to the network.
- Chapter 4, “Setting up the initial firmware configuration,” on page 25
Provides instructions for defining the initial firmware configuration.
- Chapter 5, “Diagnosing your appliance,” on page 33
Provides information about the diagnostic features of Type 7198 and 7199 appliances.
- Chapter 6, “Troubleshooting your appliance,” on page 39
Provides information about troubleshooting hardware problems with Type 7198 and 7199 appliances.
- Chapter 7, “Removing or replacing the appliance or parts,” on page 43

Provides information about removing and replacing hardware, removing Type 7198 and 7199 appliances from the rack, and finding and ordering replacement parts.

- “Getting help and technical assistance” on page 65
Provides information about getting support.

The Resource Kit CD

This section introduces the Resource Kit CD.

The *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD contains documentation for your Type 7198 and 7199 appliance in Portable Document Format (PDF).

Available documents

This section describes the documents that the Resource Kit CD contains.

The *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD contains the following documents:

- *IBM WebSphere DataPower Type 7198 and 7199: Quick Start Guide*
Provides basic instructions for installing and powering up the Type 7198 and 7199 appliances and placing the appliance in operation.
- *IBM WebSphere DataPower Type 7198 and 7199: Installation and User's Guide*
Provides complete instructions for installing and maintaining the Type 7198 and 7199 appliances. Installation information provides details about powering up the Type 7198 and 7199 appliances, creating a startup configuration script, and placing the appliance in operation. Maintenance information provides details about diagnosing and troubleshooting hardware problems; ordering, removing, and replacing hardware; and getting additional support to diagnose hardware problems.
- *IBM Systems: Environmental Notices and User Guide*
Contains information on recycling or discarding the Type 7198 and 7199 appliances according to your applicable local and national regulations.
- *IBM Systems: Safety Notices*
Contains all safety notices, by language, for Type 7198 and 7199 appliances.
- *IBM Statement of Limited Warranty*
Contains information about the terms of warranty for Type 7198 and 7199 appliances.
- *IBM Software Maintenance Agreement*
Contains information about the remote support agreement for the Type 7198 and 7199 appliance.

For access information that this document references, see the IBM WebSphere DataPower SOA Appliances information center at <http://www.ibm.com/software/integration/datapower/library/documentation/>.

Warranty information

This section provides the warranty information.

The *IBM Statement of Limited Warranty* for this product is provided on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD that comes with this product. The statement is also available in 29 languages from the IBM web site at http://www.ibm.com/servers/support/machine_warranties/ without the product-specific terms.

Notices conventions

This section introduces the notices and statements that are used in this information.

The caution and danger statements in this information are also in the multilingual *IBM Systems: Safety Notices*, which is on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD. Each statement references the corresponding statement in your language in the *IBM Systems: Safety Notices*.

The following notices and statements are used in this information:

Note This section provides important tips, guidance, or advice.

Best Practice

This section provides guidance about best practices.

Attention

This section indicates potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage might occur.

Caution

This section indicates situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.

Danger

This section indicates situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Typeface conventions

This section introduces the typeface conventions that are used in this information.

bold Identifies commands, programming keywords, and GUI controls.

italics Identifies words and phrases used for emphasis and user-supplied variables.

monospaced

Identifies user-supplied input or computer output.

Chapter 1. Introducing the IBM DataPower appliance

IBM WebSphere DataPower appliances are network devices that communicate with other nodes on an IP network.

DataPower appliances are easy-to-deploy network devices that help simplify, accelerate, and secure your XML and Web services. DataPower appliances can help extend the capabilities of your infrastructure by providing service-orientation architecture (SOA) connectivity, gateway functionality, or business-to-business (B2B) connectivity.

Identifying models

This section introduces the models in which the Type 7198 and 7199 appliances are available.

The Type 7198 and 7199 appliances are available in the following models:

WebSphere DataPower Service Gateway XG45 (1U appliance)

Provides a security-enforcement point for XML and Web services transactions.

WebSphere DataPower Integration Appliance XI52 (2U appliance)

Provides highly manageable, security-enhanced, scalable SOA solutions.

WebSphere DataPower B2B Appliance XB62 (2U appliance)

Provides a high throughput, secure entry point at the edge for routing data into the enterprises.

Specifications and features

This section contains information about the specifications and features of the appliances. Unless otherwise stated, these specifications apply to all models.

Specifications

This section describes the specifications for the Type 7198 and 7199 chassis.

Table 1 summarizes the specifications for the Type 7198 and 7199 chassis.

Table 1. Appliance specifications

	Type 7198	Type 7199
Dimensions:		
Height	1.7 in. (4.32 cm)	3.5 in. (8.89 cm)
Width	17 in. (43 cm)	17.25 in. (42.8 cm)
Depth	25 in. (63.5 cm)	23 in. (58.4 cm)
Weight	Maximum: 33 lb. (15 kg)	Maximum: 46.2 lb. (21 kg)
Electrical input:		
Sine-wave	50 - 60 Hz (single-phase) required	
110 Voltage AC	Minimum: 100 V _{RMS} Maximum: 127 V _{RMS}	
220 Voltage AC	Minimum: 200 V _{RMS} Maximum: 240 V _{RMS}	

Table 1. Appliance specifications (continued)

Power usage	10 A for 110 V AC 5 A for 220 V AC <ul style="list-style-type: none"> The Type 7198 appliance contains two 650-watt power modules The Type 7199 appliance contains two 720-watt power modules Both power supply modules must be connected to the same power source to prevent a difference in ground voltage between the two power modules.	
Heat output	Idle: 240 watts (820 Btu) per hour Maximum: 350 watts (1200 Btu) per hour	Idle: 276 watts (941 Btu) per hour Maximum: 396 watts (1350 Btu) per hour
Environment:		
Air temperature	Turned on: <ul style="list-style-type: none"> Altitude 0 to 914.4 m (3000 ft.) 50° to 95° F (10° to 35° C) Altitude: 914.4 m (3000 ft.) to 2133.6 m (7000 ft.) 50° to 89.6° F (10° to 32° C) Maximum altitude: 2133.6 m (7000 ft.) Turned off: 50° to 109.4° F (10° to 43° C) Shipping: -40° to 140° F (-40° to 60° C)	
Humidity	8% to 80%	
Acoustics ¹	L _A =68 dB to L _A =78 dB	L _A =73 dB to L _A =78 dB
¹ The lower limits indicate the fans during normal operating conditions. The upper limits indicate the fans during startup or high temperature situations.		

Features

The features of the Type 7198 and 7199 appliances are dependent on the model type of the appliance.

Table 2 describes the hard disk space and memory capacity that is standard for each model.

Table 2. Type 7198 and 7199 features each model

Model type		Description	Hard disk space	Memory
7198-32X	2426-32X	XG45: 1U	Two 300 GB HDD	24 GB
	2426-33X	XG45 HSM: 1U		
7199-42X	2426-42X	XI52: 2U	Four 600 GB HDD	96 GB
	2426-43X	XI52 HSM: 2U		
7199-62X	2426-62X	XB62: 2U	Four 600 GB HDD	96 GB
	2426-63X	XB62 HSM: 2U		

Note: For the Type 7198 appliance, there are two 300 GB hard drives with a total of 300 GB of storage (RAID 1). For the Type 7199 appliance, there are four 600 GB hard drives with a total of 1200 GB of storage (RAID 10). Of the 1200 GB of storage, you can only use 600 GB. The remaining 600 GB of storage is reserved.

Table 3 on page 3 summarizes the storage options for appliances.

Table 3. Data storage options

Feature	Description
Local capacity	16 GB of storage on the local file system
Hard disk array	Simple swap Serial Attached SCSI (SAS) hard disk drive Capacity: 300 GB (Type 7198) or 600 GB (Type 7199)

Identifying components

To work with the product, you need to understand the components on the front and rear on the appliance.

This section introduces the components on the appliance and how to identify the components.

Front view

This section provides graphics for the front view of Type 7198 and Type 7199 appliances.

Figure 1 shows the controls, connectors, and light-emitting diodes (LEDs) on the front of Type 7198 appliances.

Figure 2 on page 4 shows the controls, connectors, and LEDs on the front of Type 7199 appliances.

The Ethernet modules and the hard disk drive modules are installed from the front of the appliances, as discussed in Chapter 7, “Removing or replacing the appliance or parts,” on page 43.

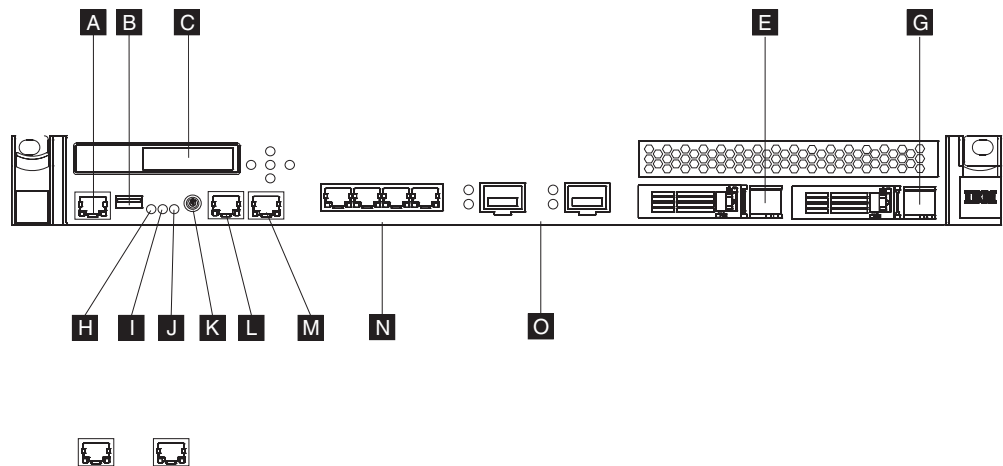


Figure 1. Type 7198 front view

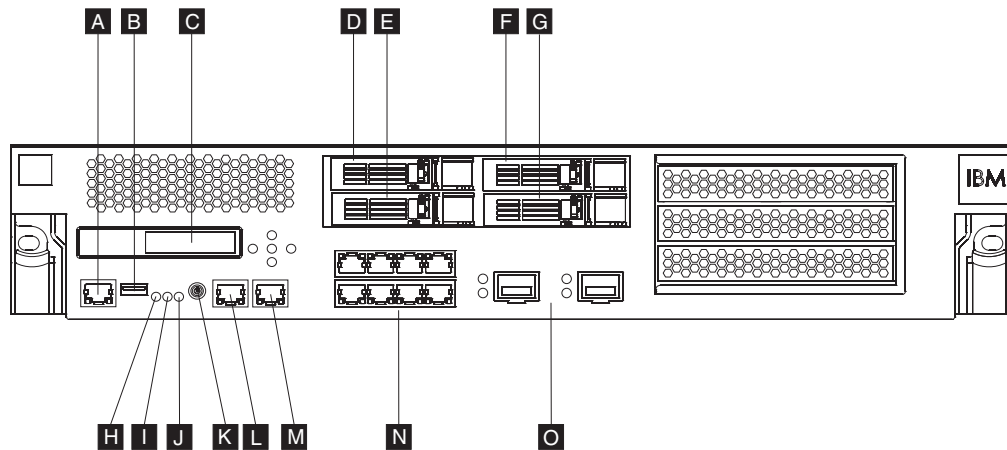


Figure 2. Type 7199 front view

The labels in Figure 1 on page 3 and Figure 2 correspond to the following components on the front of the appliances:

- A Console connector
- B USB port
- C LCD module
- D Hard disk drive module 2
- E Hard disk drive module 0
- F Hard disk drive module 3
- G Hard disk drive module 1
- H Fault LED
- I Locate LED
- J Power LED
- K Power button
- L MGT0 Ethernet connector
- M MGT1 Ethernet connector
- N Left Ethernet modules
- O Right Ethernet modules

Console connector

The front panel has a console connector. The console connector is an 8-position modular jack (ISO 8877, often called RJ45).

For initial configuration, use the supplied cable to connect from an ASCII terminal¹ to the appliance or to connect from a PC that is running terminal emulation software to the appliance.

1. A simple device that transmits (inputs) and receives (outputs) ASCII data.

USB port

The front panel has a USB interface that conforms to USB 2.0 devices.

This USB connector is not enabled and therefore does not provide any connection.

LCD module

The front panel has an liquid crystal display (LCD) module that includes an LCD and five menu buttons.

See Figure 3 for more information. The LCD provides information on the model type of the appliance; however, the menu buttons are not functional.

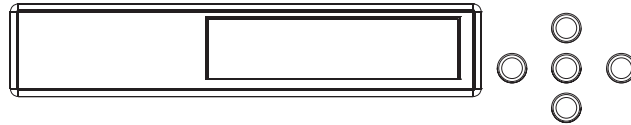


Figure 3. LCD module

LEDs

The front panel has three standalone LEDs.

See “Understanding LEDs” on page 33 for information about using the LEDs for troubleshooting.

Fault LED:

The first LED is the amber fault LED.

The amber fault LED is illuminated when the appliance detects a critical hardware event.

Locate LED:

The second LED is the blue locate LED.

The blue locate LED is illuminated when activated by the DataPower firmware. You can control whether this LED is illuminated from the WebGUI or from the command line. The LED remains lit until deactivated.

WebGUI

To activate or deactivate the locate LED:

1. Click **Administration** → **Main** → **System Control**.
2. Locate the **Control Locate LED** section.
 - To activate, click **on**.
 - To deactivate, click **off**.
3. Click **Control Locate LED**.

Command line

Use the **locate-device** command in Global configuration mode.

- To activate, enter `locate-device on`
- To deactivate, enter `locate-device off`

Power LED:

The third LED is the power LED.

The power LED is illuminated when the appliance is connected to a power source and you have turned on the appliance.

- The green power LED is illuminated when the appliance is on and fully functioning.
- If the LED is not illuminated, the appliance is turned off.

Power button

The power button is on the front panel of the appliance.

Press the power button to:

- Turn the appliance on.
- Start a graceful shutdown (if the appliance is already turned on).

Pressing the power button and holding for five seconds performs an immediate hardware shutdown. See “Turning off the appliance” on page 49 for detailed information on turning off the appliance.

Note: When you press the power button to turn off the appliance, there is still electrical current flowing to the device. To disconnect all electricity to the appliance, unplug all power cords.

Network connectors

The front panel has two LAN management Ethernet ports and two Ethernet modules.

See “Ethernet network configuration” on page 10 for a description of the Ethernet numbering convention.

LAN management Ethernet ports:

The MGT0 and MGT1 management Ethernet ports provide connection to the LAN.

These ports provide remote management access to the appliance and should not be used as data ports. Use the interfaces in the Ethernet modules for handling data traffic and for logging functions to and from the DataPower services.

Best Practice: Use the MGT0 or MGT1 Ethernet interface for system-wide management functions to handle network traffic for incoming SNMP, SSH, and Web Management (WebGUI) functions on your intranet.

MGT0 Ethernet connector

This Ethernet interface can manage all transaction data on the appliance. The MGT0 Ethernet connector also supports IPMI over LAN, including serial over LAN.

MGT1 Ethernet connector

This Ethernet interface can manage all transaction data on the appliance.

Both MGT0 and MGT1 have an associated speed LED and activity LED.

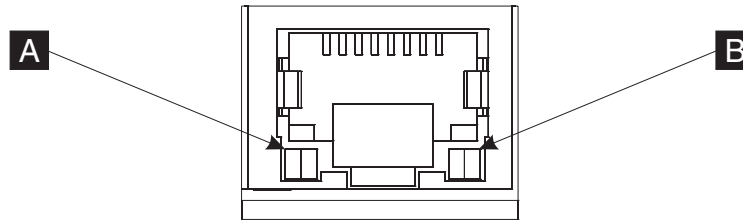


Figure 4. Ethernet port LEDs

Speed LED (A)

- The green LED indicates a 1 Gbps connection.
- The amber LED indicates a 10 Mbps or 100 Mbps connection.

Activity LED (B)

- The green LED indicates the port is linked.
- The green blinking LED indicates the port is active.

Ethernet modules:

The DataPower appliance has two Ethernet modules for Ethernet connectivity.

Use the interfaces in the Ethernet modules for handling data traffic and for logging functions to and from the DataPower services.

Attention: You cannot hot-swap Ethernet modules. Hot swapping the modules could cause the appliance to crash and possibly damage your appliance.

Left Ethernet module

On Type 7198, has four unshielded, twisted-pair (RJ45) Ethernet ports. The Ethernet numbers range from ETH10 to ETH13.

On Type 7199, has eight RJ45 Ethernet ports. The Ethernet numbers range from ETH10 to ETH17

The Ethernet numbers correlate to the number of available ports.

Right Ethernet module

Has two 10 Gigabit small-form-factor pluggable (SFP+) ports. The Ethernet numbers range from ETH20 to ETH21 and correlate to the number of available ports.

See “Ethernet network configuration” on page 10 for a description of the Ethernet numbering.

The 1 Gigabit module supports Ethernets with unshielded, twisted-pair interface standards and includes:

- 10BASE-T
- 100BASE-TX
- 1000BASE-T

The 10 Gigabit module supports SFP+ ports with interface modules and patch cables that always use autonegotiation:

- 10GBASE-SR
- 10GBASE-LR

Hard disk drive modules

The front panel includes 2.5 inch hard disk drive modules.

The Type 7198 appliance has two modules. The Type 7199 appliance has four modules.

Attention: You cannot hot-swap hard disk drive modules. Hot swapping the modules could cause the appliance to crash and possibly damage your appliance.

The appliance supports SAS hard disk drives. Each module has two LEDs.

- For Type 7198 appliances, the left LED monitors hard disk activity, and the right LED is nonfunctional.
 - A green activity LED indicates that the hard drive is active.
 - A green blinking activity LED indicates that the hard drive is being accessed.
 - A amber blinking fault LED is nonfunctional.
 - No LED illuminated indicates the hard drive is not active.
- For Type 7199 appliances, the left LED monitors hard disk activity, and the right LED indicates a potential problem.
 - A green activity LED indicates that the hard drive is active.
 - A green blinking activity LED indicates that the hard drive is being accessed.
 - A amber blinking fault LED indicates that the hard drive has failed.
 - No LED illuminated indicates the hard drive is not active.

Rear view

This section illustrates the components on the rear of the appliances.

Figure 5 shows the components on the rear of Type 7198 appliances.

Figure 6 on page 9 shows the components on the rear of Type 7199 appliances.

The fan modules and power modules are installed from the rear of the appliance, as discussed in Chapter 7, “Removing or replacing the appliance or parts,” on page 43.

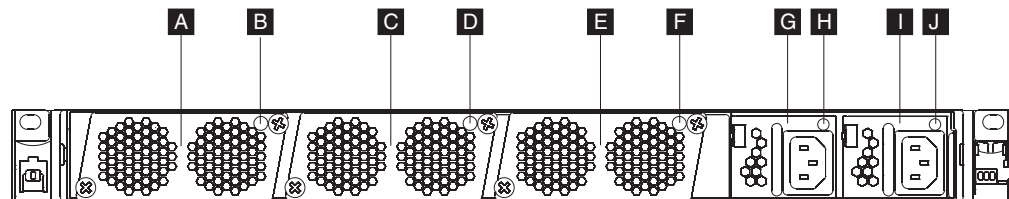


Figure 5. Type 7198 rear view

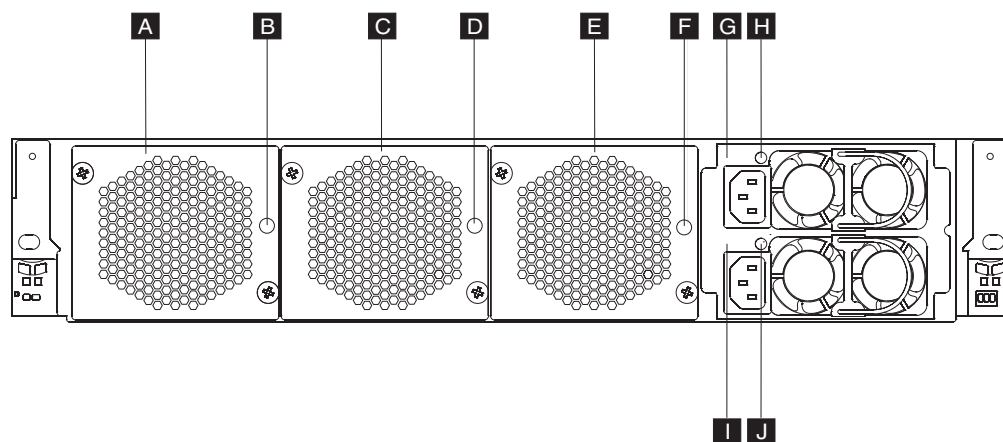


Figure 6. Type 7199 rear view

The labels in Figure 5 on page 8 and Figure 6 correspond to the following components on the rear of the appliance:

- A Fan module 1
- B LED for fan module 1
- C Fan module 2
- D LED for fan module 2
- E Fan module 3
- F LED for fan module 3
- G Power supply module 1
- H LED for power supply module 1
- I Power supply module 2
- J LED for power supply module 2

Fan modules

The appliance has three fan modules.

Each fan module contains cooling fans with an LED that indicates the status of the module.

- If the LED is illuminated, there is a problem with the module.
- If the LED is not illuminated, the module is operating normally.

The speed of the fans is dependent on the temperature of the appliance. As the temperature increases, the fan speed increases to maintain a balanced temperature.

Power supply modules

The appliance is powered by two redundant power supply modules.

A single power supply module can supply the power to support appliance operations. You can hot-swap the power supply modules. In other words, you can replace a power supply module without powering down the appliance. Each power supply module contains an LED that indicates the status of the module.

- If the LED is illuminated in green, the appliance is connected to a power source and fully functioning.

- If the LED is green and blinking one time per second, the appliance is in standby mode. Standby mode is when the module is connected to a power source but the appliance is not turned on.
- If the LED is red and blinking three times per second, the module has an error.
- If the LED is not illuminated, there is no power to the module.

See “Turning off the appliance” on page 49 for information about turning off the appliance.

Note: When you press the power button to turn off the appliance, there is still electrical current flowing to the appliance. To disconnect all electricity to the appliance, unplug all power cords.

Ethernet network configuration

The Ethernet modules expand the network connectivity options.

Each appliance has two Ethernet modules. The Ethernet modules are numbered from left to right, but if a module has less than eight ports, the module will use the lowest port number in the range. The numbering convention for configuring Ethernet interfaces and installing network cables is:

- Left module ranges from ETH10 to ETH17
- Right module ranges from ETH20 to ETH21

Type 7198 connections

The Type 7198 appliance has six Ethernet connections.

Each Ethernet module has one of the following configurations:

- The left Ethernet module has four 1 Gigabit Ethernet ports, which are RJ45 connectors.
- The right Ethernet module has two 10 Gigabit Ethernet ports, which are small-form-factor pluggable (SFP+) transceivers.

The Ethernet interface names are ETH10, ETH11, ETH12, ETH13, ETH20, and ETH21 (as shown in Figure 7):



Figure 7. Type 7198 4 by 2 Ethernet connection

Type 7199 connections

The Type 7199 appliance has ten Ethernet connections.

Each Ethernet module has one of the following configurations:

- The left Ethernet module has eight 1 Gigabit Ethernet ports, which are RJ45 connectors.
- The right Ethernet module has two 10 Gigabit Ethernet ports, which are small form-factor pluggable (SFP+) transceivers.

The Ethernet interface names are ETH10 through ETH17, ETH20, and ETH21 (as shown in Figure 8 on page 11).

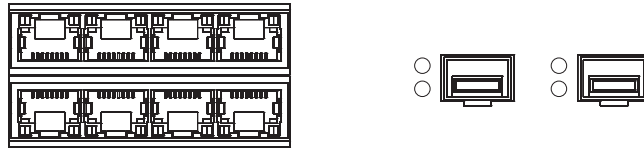


Figure 8. Type 7199 8 by 2 Ethernet connection

Chapter 2. Preparing for installation

This section provides information about the rack, required tools, and an installation overview.

Rack requirements

This section introduces the rack requirements when you plan the installation.

The Type 7198 and 7199 appliances can use a standard 19 in (48.26 cm) rack with a minimum of 28 in. (71.1 cm) of depth. When planning the installation, keep in mind:

- The rack must provide rear mounting columns. The appliance requires both front and rear mounting support.
- There must be at least 30 in. (76.20 cm) of free space behind the rack frame to remove replaceable parts.
- The ambient temperature in the operating environment and within the rack should not exceed 95° F (35° C).

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment — personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

(R001 part 1 of 2)

CAUTION:

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001 part 2 of 2)

DANGER

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there are no stabilizer brackets installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

Tool requirements

This section describes the tool requirements for installing the appliance rack-mounting kit.

You will need the following tools, hardware, and cables to install the appliance rack-mounting kit:

- A medium Phillips screwdriver
- Two (2) standard rack screws

You will need the following cables to connect the appliance to your network:

- At least two (2) network cables, but up to eight (8) for the Type 7198 appliance, and up to 12 for the Type 7199 appliance.

Installation overview

This procedure describes the high-level processes to fully set up and test the appliance in your network.

About this task

The overall installation process makes the following assumptions:

- You have fully unpacked the appliance and have located the included two (2) power cords, one (1) USB-A to DB9-M serial adapter cable, and one (1) RJ45 to DB9-F serial console cable.
- You need to install the mounting rails and have the rack-mounting kit.

Procedure

1. Install the appliance in a rack:
 - a. Install the rails in the rack.
 - b. Secure the appliance in the rack.
 - c. Connect the appliance to an AC source.
 - d. Connect the appliance to the network.
2. Set up the initial firmware configuration:
 - a. Connect the USB serial cable to the serial port.
 - b. Initialize the appliance.
 - c. Verify the initial firmware configuration from the WebGUI.
3. Define the base configuration.

Note: If the intrusion switch was tripped during installation, clear the intrusion-detection. See “Considerations for the intrusion switch” on page 27 for more information.

Chapter 3. Installing the appliance in a rack

Use the procedures in this section to install the appliance in a rack.

The rails for the Type 7198 and 7199 are for a 19 in. (48.26 cm) rack. The appliance ships with a slide rail kit and a shipping bracket kit. The contents of the slide rail kit are required to install the appliance. You can use the shipping bracket kit if you plan to transport the rack cabinet to another location. If any of the items listed below are not included in your shipment, contact your place of purchase.

The slide rail kit includes the following parts:

- Two (2) slide rails
- Four (4) screws (M6) to secure the brackets to the appliance
- Two (2) screws (10-32)

The shipping bracket kit includes the following parts:

- Two (2) shipping brackets (left and right)
- Four (4) cage nuts
- Four (4) clip nuts
- Four (4) screws (M6)

Installing rails in the rack frame

Use the procedure to install your appliance in the rack cabinet.

About this task

Note: If the slide rails in your rack installation kit came with shipping thumbscrews, remove them before you start installing the appliance.

Procedure

1. Open the front slide rail latches, as shown in Figure 9 on page 20.
 - a. Notice that each slide rail is marked with either an R (right) or an L (left).
 - b. Select one of the slide rails and push up on the front moveable tab **1**; then, pull out the front latch **2**.
 - c. If a thumbscrew is installed in the slide rail **3**, remove the thumbscrew.

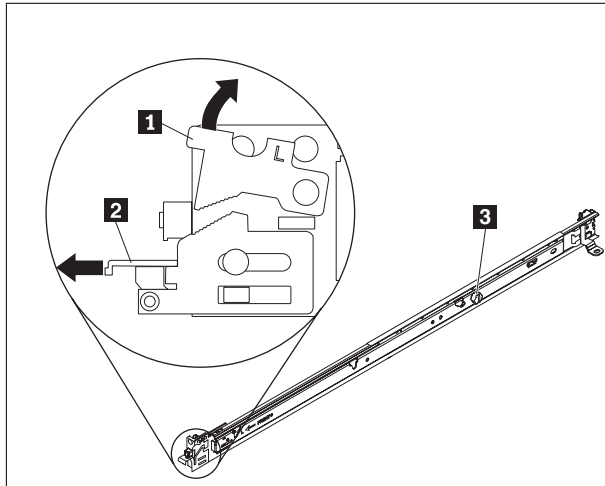


Figure 9. View of the slide rails

2. Install the rear end of the slide rails, as shown in Figure 10:
 - a. From the front of the rack, line up the three pins on the rear of the slide rail with the three holes in the selected U on the rear of the rack.
 - b. Push the rails so that the pins go into the holes **1**, and latch down into place **2** until it latches into place.

Note: If you are installing the slide rails into a 1U space with devices already installed directly above and below this 1U space, you will need to extend the slide rails to slide the rear of the slide rails into the rear of the rack. When you install a 2U appliance, be sure to install the slide rails in the bottom of the 2U area in the rack.

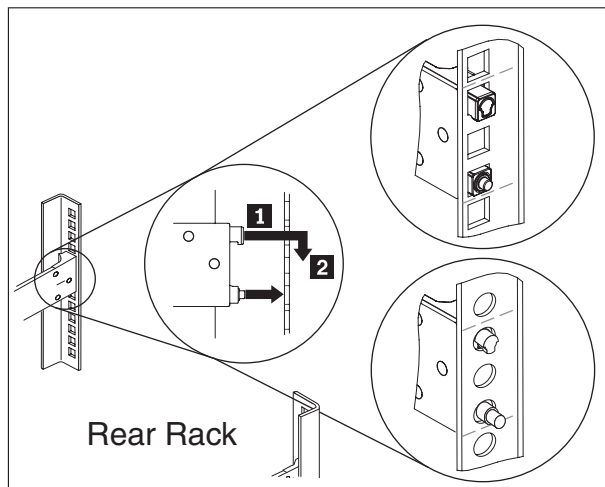


Figure 10. Install the rear end of the slide rails

3. Install the front end of the slide rails, as shown in Figure 11 on page 21.
 - a. Pull the slide rail forward and insert the two pins **1** on the front of the rail into the two lower holes in the U on the front of the rack.
 - b. Drop the rail into place until it clicks. Push the front latch **2** in all the way.

- c. Repeat steps 1 through 3 to install the other rail into the rack. Make sure that each front latch is fully engaged.

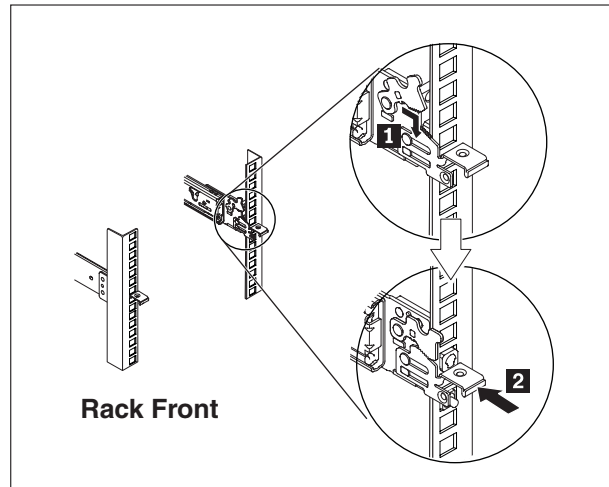


Figure 11. Install the front end of the slide rails

4. Secure the appliance slide rails in the rack, as shown in Figure 12:
 - a. Install a 10-32 screw in the rear of right slide.
 - b. Install a 10-32 screw in the rear of left.

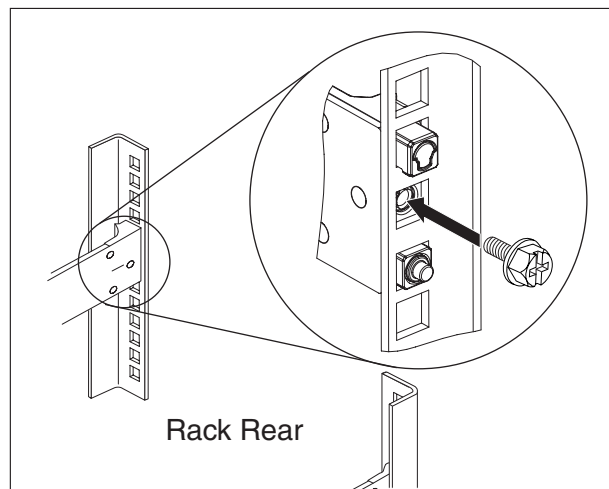


Figure 12. Securing the appliance on slide rails in the rack

Installing the appliance on the slide rails

Use the procedure to install the appliance on the slide rails.

About this task

CAUTION:

Type 7198: This part or unit is heavy but has a weight smaller than 18 kg (39.7 lb). Use care when lifting, removing, or installing this part or unit. (C008)

CAUTION:

Type 7199: The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb). It takes two persons to safely lift this part or unit. (C009)



Procedure

1. Pull the slide rail forward **1**.
2. Use two people to carefully lift the appliance **2** and tilt it into position over the slide rails so that the rear nail heads **3** on the appliance line up with the rear slots **4** on the slide rails.
3. Slide the appliance down until the rear nail heads slip into the two rear slots, and then slowly lower the front of the appliance **5** until the other nail heads slip into the other slots on the slide rails.
4. Make sure that the front latch **6** slides over the nail heads.

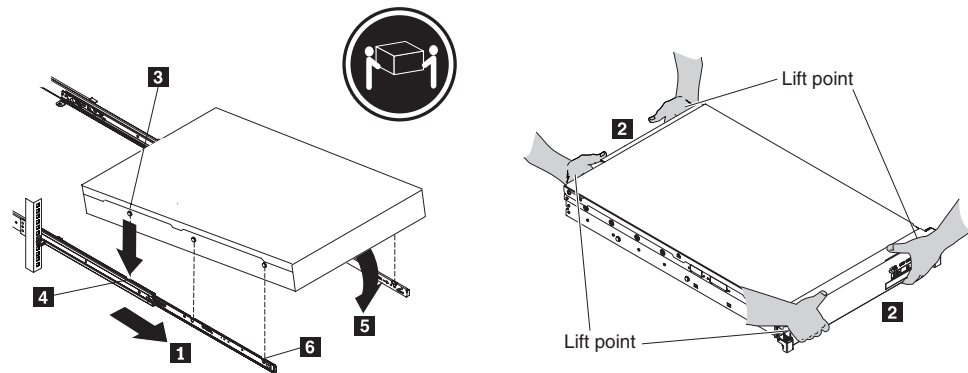


Figure 13. Secure the appliance in the rack

5. If the appliance is locked into place, slide the appliance toward you so that you can attach the brackets with the captive screws.
6. Slide the appliance into the rack, as shown in Figure 14 on page 23.

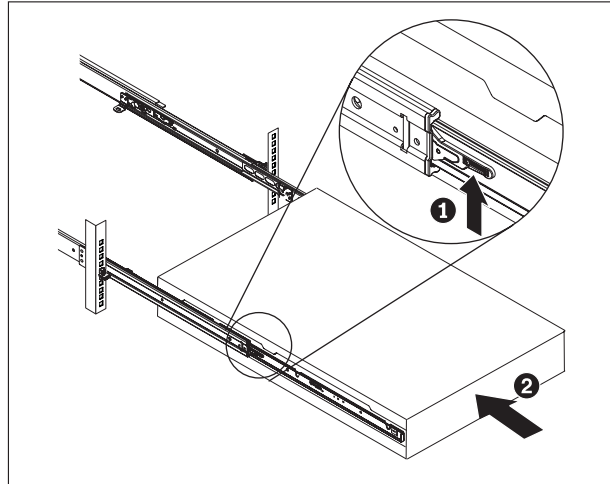


Figure 14. Slide the appliance into the rack

Connecting the appliance to an AC power source

Use the provided power cords to connect both power supply modules to an AC power source.

You must connect each power supply module. Otherwise, the unconnected module is considered to be in a failed state. Both power supplies must be connected to the same power source to prevent a difference in ground voltage between the two power supplies.

Connecting the appliance to the network

Use Ethernet cables or transceivers (not provided) to connect the DataPower appliance to its neighboring network devices (link partners), such as switches or load balancers.

Attention: Do not connect to telephone or other telecommunication circuits.

Do not use a fiber optic cable that is longer than 100 meters. The cables for small-form factor pluggable (SFP+) modules can be longer than 100 meters. See the product documentation for detailed information on SFP+ modules.

The DataPower appliance Ethernet port must be connected to a compatible link partner, preferably set to auto-negotiate connection speed and mode (half duplex or full duplex). Depending on the negotiated or static connection speed and mode, ensure that the cable complies with the following requirements:

10BASE-T (10 Mbps) connection

Two pairs of Category 3 wiring or better.

100BASE-TX (100 Mbps) connection

Two pairs of Category 5 wiring or better.

1000BASE-T (1 Gbps) connection

Four pairs of Category 5 wiring or better.

10GBASE (10 Gbps) connection:

- **Short-reach (300 meters) SFP+ modules with LC connector (multi-mode orange fiber)**
 - Optical interface specifications per IEEE 802.3ae 10GBASE-SR
 - Mechanical specifications per SFF Committee SFF 8432 Improved Pluggable Formfactor IPF
 - Class 1 Eye safe per requirements of IEC 60825-1 / CDRH
- **Long-reach (10 km) SFP+ modules with LC connector (single-mode yellow fiber)**
 - Optical interface specifications per IEEE 802.3ae 10GBASE-LR
 - LC Duplex optical connector interface confirming to ANSI TIA/EA 604-10 (FOCIS 10A)
 - Class 1 Eye safe per requirements of IEC 60825-1 /CDRH
- **SFP+ Copper Direct Attach twinaxial cables**

Chapter 4. Setting up the initial firmware configuration

Use this procedure to perform the initial, base firmware configuration.

About this task

This configuration is the minimal configuration to add a DataPower appliance to your environment. Defining the full configuration for your appliance is beyond the scope of this document.

Procedure

1. Read the hardware and information requirements, and read the operation modes and password for the admin account considerations. See “Configuration requirements” and “Firmware considerations” on page 26.
2. Connect the serial cable to the appliance. “Procedure 1 of 4: Connecting the serial cable to the appliance” on page 27.
3. Initialize the appliance by changing the password for the admin account and interactively defining the base configuration. See “Procedure 2 of 4: Initializing the appliance” on page 29.
4. Create additional administrators who can reset passwords. See “Procedure 3 of 4: Creating users who can reset passwords” on page 31.
5. Accept the license agreement and verify the base configuration. See “Procedure 4 of 4: Accepting the license agreement” on page 31.

Configuration requirements

You must meet both hardware and information requirements to perform the initial firmware configuration.

Before beginning the initial firmware configuration, make sure that you meet the following requirements:

- You review and comply with the hardware requirements.
- You have the documented information requirements.

Hardware requirement

You must use a serial connection to perform the initial configuration.

The serial connection must be between an ASCII terminal or a PC running terminal emulation software to the serial port on the DataPower appliance. To make the serial connection, use the provided RJ45 to DB-9 serial null-modem cable.

Note: If the terminal or PC is not equipped with a serial port, use a USB-to-serial converter cable (not provided).

Information requirements

You must meet the information requirements before defining the base configuration.

You need the following information:

- The IP addresses for the Ethernet interfaces for appliance management access.

- The IP addresses for Ethernet interfaces for service access.
- The IP address of the default gateways (routers) that supports the subnets for the Ethernet interfaces.
- The IP addresses and ports for the Web Management and SSH services. The Web Management service is required to accept the license agreement.
- Optional: The IP address and port for Telnet service.

Best Practice: Use MGT0 or MGT1 Ethernet interface for system-wide management functions to handle network traffic for incoming SNMP, SSH, and Web Management (WebGUI) functions on your intranet. If you have a serial over LAN connection, it must be configured on MGT0.

The remaining Ethernet interfaces can handle data traffic and logging functions to and from the various DataPower services.

Firmware considerations

During the initial firmware configuration, the script prompts you for supported operational modes and the password for the admin account.

Considerations for operational modes

Depending on the model type of the DataPower appliance, the script prompts you to enable or disable operational modes.

Attention: Use care when making your selections for operational modes. If you select an incorrect mode for your environment, the only way to change an operational mode is to reinitialize the appliance.

Disaster recovery mode

Disaster recovery mode allows you to create a secure backup that you can use to restore all settings for an appliance. A secure backup creates a set of files that you can use to recover the configuration of a lost appliance. A secure backup contains private data on the appliance (certificates, keys, and user data). An administrator cannot see this data in the backup. The appliance encrypts this data with the DataPower key .

The backup-restore process must be used among appliances that are at the same firmware level and have the same compatible configuration (auxiliary storage, iSCSI, and so forth). You can use the disaster recovery process during the end-of-life migration to move configuration details from one appliance to another.

Common criteria mode

Common Criteria mode (CC mode) puts the appliance in a mode that enforces a set of policies defined by the CC certification. If you are unsure about whether to use this mode, then you most likely should not. In general, this mode is only used when required by a specific authority. If this is not a specific requirement for your use of the appliance, use normal mode. CC mode is not more secure than normal mode.

CC mode forces several settings to specific values. The appliance enforces these values at reboot if changed. These values affects audit log policies and includes a group of default rules and actions.

Considerations for the password for the admin account

The first time that you boot the DataPower appliance from a serial connection is different from any subsequent boot.

- On the first boot, you must initialize the appliance. The initialization routine prompts you to accept the license agreement and change the password for the admin account (see “Procedure 2 of 4: Initializing the appliance” on page 29). After initialization, create a user with a *group-defined* account type with the appropriate access policy or the *privileged* account type as a back up for the admin account. A privileged user or a group-defined user with the appropriate access policy can log in and reset the password for the admin account. See “Procedure 3 of 4: Creating users who can reset passwords” on page 31 for information about creating a users who can reset the password for the admin account.
- On subsequent boots, you will be prompted for the credentials of the admin account or another local account. If that account has an expired password, you will be prompted to change the password.

Attention: Do not forget or misplace the password for the admin account. If you forget or misplace this password, security best practice recommends that you return the appliance to IBM Support to reset this password. However, if another user account can log in and has the appropriate access permission, that user can reset the password for the admin account. For items to check to see whether you can recover the password, search the information center for “Password for admin account”.

When you receive the appliance after a password-reset, you must perform an initial firmware setup. Therefore, none of your configuration data will be on the appliance.

Considerations for the license agreement

When initializing the appliance, you must configure the Web Management service to prepare for accepting the license agreement through the WebGUI.

When the admin account logs in to the WebGUI for the first time to verify the appliance configuration, the WebGUI displays the license agreement screen.

Considerations for the intrusion switch

There is an intrusion switch inside the Type 7198 and 7199 appliances. The intrusion switch is enabled by default. However, an administrator can configure the appliance to ignore the intrusion detection.

If intrusion detection is enabled and the appliance detects an intrusion during normal operation, the appliance will:

- Go into **Fail-Safe** mode if the intrusion is during startup. An administrator can reset the intrusion detection with the **clear intrusion-detected** from the command line on the console.
- Display a warning message on the WebGUI and on a newly connected session to the appliance. If the intrusion is during normal operation, administrator can clear the setting with **clear intrusion-detected**.

Procedure 1 of 4: Connecting the serial cable to the appliance

Use this procedure to make the serial connection to the appliance.

Before you begin

Read the hardware and information requirements, and read the operation modes and password for the admin account considerations. See “Configuration requirements” on page 25 and “Firmware considerations” on page 26.

About this task

For initial configuration, use the supplied cable to connect from an ASCII terminal² to the appliance or to connect from a PC that is running terminal emulation software to the appliance.

The package might contain a USB serial console cables and a DE-9 serial console cable, or the package might contain only a DE-9 serial console cable.

The DE-9 serial console cable has a 8-position modular plug at one end and a 9-pin socket at the other end. This cable includes *null modem* functionality. The 9-pin socket connects directly to the 9-pin plug on a PC that is running terminal emulation software. The DE-9, often called DB-9, 9-pin socket is wired as data circuit-terminating equipment (DCE) per the EIA/TIA-574 standard.

If your PC does not include a 9-pin serial port but has a USB port:

- You can use a USB-to-serial converter cable, if supplied
- You can use a USB-to DB-9 cable to connect to the supplied cable
- You can create a cable based on the cable pinout specifications in Table 4

If you use the USB serial console cable and your PC does not recognize the cable, you might need to install the device driver. The drivers are on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD in an archive file.

- The driver for Windows systems is in the driver/win/ directory.
- The drivers for Mac OS systems are in the driver/mac/ directory.

For driver installation instructions, see the readme file or Installation Guide in the archive file.

Notes:

- Do not use an Ethernet cable to plug the serial console port into an Ethernet network.
- Do not use a telephone cable to plug the serial console port into a Telephone network (digital or analog).

Table 4 describes the serial port pinouts for the console connector.

Table 4. Serial port pinouts

RJ45		DB9	
Pin number	Signal	Pin number	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	GND	5	GND

2. A simple device that transmits (inputs) and receives (outputs) ASCII data.

Table 4. Serial port pinouts (continued)

RJ45		DB9	
5	GND	5	GND
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

Procedure

1. Use the appropriate cable to connect from an ASCII terminal or PC to the appliance.
2. Ensure that the terminal or PC is configured for standard 9600 8N1 and no flow control operation. 8N1 is a notation for a serial configuration in asynchronous mode, where there are eight (8) data bits, no (N) parity bit, and one (1) stop bit.

What to do next

Initialize the appliance by accepting the license, changing the password for the admin account, and interactively defining the base configuration. See “Procedure 2 of 4: Initializing the appliance.”

Procedure 2 of 4: Initializing the appliance

Use this procedure to initialize the appliance.

Before you begin

Connect the serial cable to the appliance. “Procedure 1 of 4: Connecting the serial cable to the appliance” on page 27.

Procedure

1. Press the power button on the front of the appliance. The green power LED illuminates.
 - You should hear the fans start up.
 - You should hear the fans change speed as the screen displays DPOS boot - press <ESC> within 7 seconds for boot options...Wait for the appliance to boot.
2. At the Login: prompt, enter admin³.
3. At the Password: prompt, enter admin⁴. The script prompts you later to change this password.
4. Follow the prompts to enable the appropriate operational modes.

During this process, you will:

 - Read the general cautions that apply to operational modes.
 - Read the information about each supported operational mode.
 - Enable or disable the operational mode.
 - Confirm the operational mode.

3. admin is the name of a local user account. The owner of this account can perform all tasks on the appliance.

4. admin is the default password for the admin account.

Disaster Recovery mode

Enable this mode when you want to create a secure backup for the virtual appliance.

Common Criteria Compatibility mode

Enable this mode when a specific authority requires your appliance to be EAL4 certified.

Attention: Use care when you select the operational modes. If you select an incorrect mode, the only way to change an operational mode is to reinitialize the appliance.

5. At the Please enter new password: prompt, enter a new password.
 - Ensure that your keyboard does not have Caps Lock or Num Lock engaged.
 - Type the password from the keyboard. Do not copy and paste the password. If you copy and paste, you might copy extra spaces or characters.
6. At the Please re-enter new password to confirm: prompt, enter the new password again.
7. At the Do you want to run the Installation Wizard? prompt, enter y to start the installation wizard.

Note: If you inadvertently enter n at the prompt, you can start the installation wizard by entering the following commands:

```
configure terminal
startup
```

8. Follow the prompts to complete the base firmware configuration.

Note: Initializing the RAID for the virtual appliance can take a while.

Note: To prepare for accepting the license agreement, you must configure the Web Management Interface with the **web-mgmt** command.

After defining the base firmware configuration, the screen displays information that is similar to the following information. The screen shows information specific to your appliance.

```
Welcome to DataPower XI52 console configuration.
Copyright IBM Corporation 1999-2011

Version: XI52.4.0.2.0 build 123456 on 2011/06/13 12:32:13
Serial number: 68A00000

You must read and agree to the terms of the license agreement using the WebGUI.
If you did not configure the Web Management Interface, you must do it now
with the web-mgmt command.

xi52#
```

The previous sample shows the following information:

- The appliance is a DataPower XI52 appliance.
- The firmware version running on the appliance is 4.0.2.0 at the 123456 build level.
- The current time on the appliance is 12:32:13 on June 13, 2011.
- The serial number for the appliance is of 68A00000.
- You must configure the Web Management Interface with the **web-mgmt** command.

What to do next

Create additional administrators who can reset passwords. See “Procedure 3 of 4: Creating users who can reset passwords.”

Procedure 3 of 4: Creating users who can reset passwords

To reset the password for the admin account if the password is lost, you need a user with privileged access or a user in a group with the `*/*/?*Access=rwadx` access policy.

Before you begin

Initialize the appliance by changing the password for the admin account and interactively defining the base configuration. See “Procedure 2 of 4: Initializing the appliance” on page 29.

Procedure

The following command sequence illustrates the creation of the adminTwo privileged.

```
# configure terminal
(config)# user adminTwo
New User configuration
(config user adminTwo)# password
Enter new password: *****
Re-enter new password: *****
(config user adminTwo)# access-level privileged
(config user adminTwo)# summary ID for privileged backup user
(config user adminTwo)# exit
(config)# write memory
Overwrite previously saved configuration? [y/n]: y
(config)# exit
#
```

For complete information about creating privileged users or creating user groups with the `*/*/?*Access=rwadx` access policy, see the administrative topics in the information center about creating users and creating user groups.

What to do next

Accept the license agreement and verify the base configuration. See “Procedure 4 of 4: Accepting the license agreement.”

Procedure 4 of 4: Accepting the license agreement

You need to access the WebGUI and accept the license agreement. If you can access the WebGUI, the initial base configuration has network connectivity.

Before you begin

Create additional administrators who can reset passwords. See “Procedure 3 of 4: Creating users who can reset passwords.”

About this task

This procedure makes the following assumptions:

- The IP address for the Ethernet interface is 10.10.13.35
- The specialized HTTP server to support WebGUI access listens on port 9090

Procedure

1. Open the web browser.
2. In the **Address** field, enter `https://10.10.13.35:9090`. If the web page displays successfully, the base firmware configuration is successful.
3. Log in to the appliance with the local administrator account and password.
4. Click **Login**. The WebGUI displays the license agreement.
 - Click **I agree** to accept the terms of the license agreement and non IBM-terms. The appliance reloads the firmware. In a few minutes, you can log in again after the appliance restarts.
 - If you do not agree, click **I do not agree**. The initialization of the appliance stops. You need to either power off the appliance or review and accept the license agreement.
5. Log in again to verify that the admin account and additional administrators can access the appliance with their credentials.

What to do next

Complete the configuration on the appliance by creating application domains and user groups for service development. See “Completing the configuration.”

Completing the configuration

Configuration beyond the base configuration is outside of the scope of this information.

- Use the administration documents to complete the configuration of your DataPower appliance.
- Use the development documents to create the services in the application domains of your DataPower appliance.

To access the information about configuration beyond the base configuration, see access the version- and product-specific information center from the DataPower documentation portal.

IBM WebSphere DataPower SOA Appliances WebSphere software Product documentation

Chapter 5. Diagnosing your appliance

This section describes how to diagnose your DataPower appliance.

Before you perform maintenance on this product, read the safety information in “Safety” on page v.

Understanding LEDs

LEDs help you diagnose possible problems with the hardware components of an appliance.

There are LEDs on the front and rear of the appliances.

LEDs on the front panel

This section introduces the LEDs on the front panel of the appliance.

Figure 15 shows the LEDs on the front of the Type 7198 appliance.

Figure 16 shows the LEDs on the front of the Type 7199 appliance:

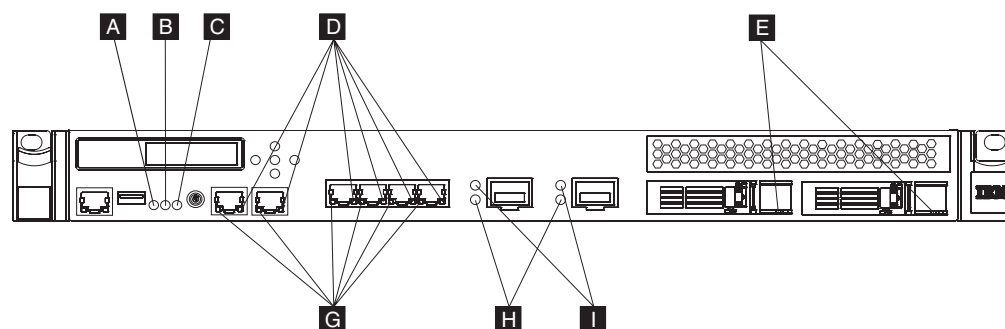


Figure 15. LEDs on the front on the Type 7198 appliance

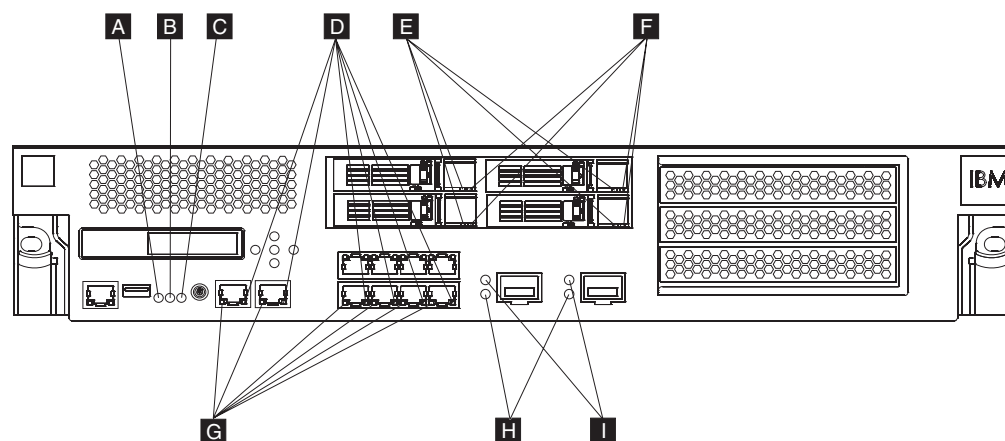


Figure 16. LEDs on the front on the appliance

The front of the appliance has the following LEDs:

- A** The amber fault LED is illuminated when the appliance detects a problem condition with hardware components.
- B** The blue locate LED is illuminated when an administrator is trying locate and identify a certain appliance in the rack. The locate LED is activated by the DataPower firmware, and the locate LED is turned off when deactivated by the DataPower firmware. For information about controlling this LED, see “LEDs” on page 5.
- C** The green power LED indicates the status of the power source for the appliance.
- If illuminated, the appliance is turned on and fully functioning.
 - If not illuminated, the appliance is turned off.
- D** The activity LEDs for Ethernet connections that indicate that traffic is passing through the interface.
- If illuminated, the Ethernet port is linking to the interface.
 - If illuminated and blinking, the Ethernet port is active.
- E** The activity LED for the hard drive.
- If the green LED is illuminated, it indicates that the hard drive is active.
 - If the green LED blinks, it indicates that the hard drive is being accessed.
- F** The fault LED for the hard drive. If the amber LED is illuminated, it indicates that the hard drive has failed.
- Note:** On Type 7198 appliances, the fault LED is nonfunctional.
- G** The speed LEDs for Ethernet interfaces that indicate the connection speed.
- If these LEDs are illuminated in green, the connection speed is 1 Gbps.
 - If these LEDs are illuminated in amber, the connection speed is 10 or 100 Mbps.
- H** If the green LED on the 10 Gb SFP+ module is illuminated, the Ethernet port is active and linking to the interface.
- I** The LEDs on the 10 Gb SFP+ module indicate the speed of the port.
- If these LEDs are illuminated in green, the connection speed is 10 Gbps.
 - If these LEDs are illuminated in amber, the connection speed is 1 Gbps.

LEDs on the rear panel

The LEDs on the rear panel of the appliance provide diagnostic information about power supply and fan modules.

Figure 17 on page 35 shows the LEDs on the rear of Type 7198 appliances.

Figure 18 on page 35 shows the LEDs on the rear of Type 7199 appliances.

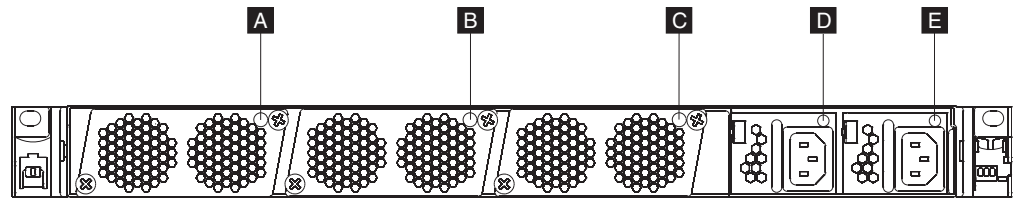


Figure 17. LEDs on the rear on the Type 7198 appliance

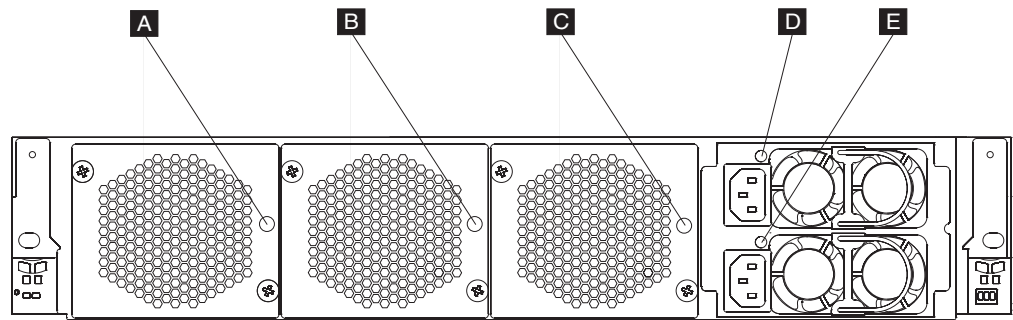


Figure 18. LEDs on the rear on the Type 7199 appliance

The rear of the appliance has the following LEDs:

A, B, and C

The LEDs for a fan module indicate the following status:

- If the LED is illuminated, there is a problem with the module.
- If the LED is not illuminated, the module is operating normally.

D and E

The LEDs for a power supply module indicate the following status:

- If the LED is illuminated in green, the appliance is connected to a power source and fully functioning.
- If the LED is green and blinking one time per second, the appliance is in standby mode. Standby mode is when the module is connected to a power source but the appliance is not turned on.
- If the LED is red and blinking three times per second, the module has an error.
- If the LED is not illuminated, there is no power to the module.

Testing the hardware from the command line

You can use the Global **test hardware** command to test the hardware from the command line.

To use this command:

- You need to be able to establish a connection to the appliance.
- You are in Global configuration mode (the **configure terminal** command).

To test the hardware from the configuration, enter the following commands:

```
# configure terminal
(config)# test hardware
```

Depending on the state of the hardware, the command produces output that shows the status of each component:

- success
- warning
- failure

The components are broken down into the following categories:

- Backtrace availability
- Interface diagnostics
- Fan diagnostics
- Cryptographic card diagnostics
- RAID volume diagnostics
- Sensors diagnostics
- CPU/memory diagnostics

Samples of success statements are as follows:

- [success] Backtrace file does not exist
- [success] Reuwininterface expected - 4 interfaces found
- [success] MAC address of interface 'eth10' is 00:11:25:27:bf:e7
- [success] Statistics for interface 'eth10' show no errors
- [success] 6 fans expected - 6 fans found
- [success] fan 1 operating within expected range
- [success] Status of the crypto 'standard' is fully operational

Samples of warning statements are as follows:

- [warning] Backtrace file exists.
- [warning] Physical link on interface 'eth10' is down.
- [warning] eth10 has invalid MAC (ff:ff:ff:ff:ff)

Samples of failure statements are as follows:

- [failure] Expected number of interfaces: 4 - Found: 1
- [failure] fan 2 operating outside expected range (rpm too low)
- [failure] Status of crypto 'not detected' is unknown.

The output of the **test hardware** command is part of any generated error report.

Using the diagnostic self-test

The Type 7198 and 7199 appliance provides a boot-time diagnostic self-test to help you test hardware components.

About this task

Notes:

- Only use the diagnostic self-test when directed by IBM Support to help confirm a potential hardware problem with the appliance.
- The diagnostics user interface can differ depending on your firmware release.

Procedure

1. Connect the serial cable.
2. If the appliance is not turned on, press the power button to turn on the appliance. The green power LED will illuminate. You should hear the fans start up.
3. When you see DPOS boot - press <ESC> within 7 seconds for boot options, press ESC. You should see the DPOS prompt followed by the boot options menu.

```
DPOS boot - press <ESC> within 7 seconds for boot options.. <ESC>
DPOS> ?
Available DataPower boot options:

Boot Option   Description
-----
system        Normal System Startup
diagnostics   Run Standalone Hardware Diagnostics

DPOS>
```

4. At the DPOS prompt, enter diagnostics to start the appliance and display the diagnostics main menu.

```
DataPower Hardware Diagnostics Tool Version 1.0
(C) Copyright 2011 - IBM Corporation

Main Menu:
  1. Inventory                n/a
  2. BMC/Sensors              n/a
  3. Network                  n/a
  4. Memory                   n/a
  5. Disks                    n/a
  0. Exit Diagnostics

Select action>
```

5. To select a test to run, enter its number at the Select action prompt.

Results

After completing a test, the diagnostic self-test produces one of the following results:

- PASS
- FAIL
- SKIP
- RUNNING
- SKIP
- n/a

Viewing status providers for sensors

This section introduces the status providers for sensors.

The DataPower appliance provides the following sensors status providers:

Fan speed sensors

Provides the measured speed in revolutions per minute (RPM) for each of the fans in each fan module.

From the WebGUI, click **STATUS** → **System** → **Fan Sensors**.

From the command line, enter **show sensors-fans**.

Temperature sensors

Provides the measured temperature in degrees Celsius for internal components:

- Temperature of each of the two internal CPU components
- Temperature of each of the two internal inlet air temperatures
- Temperature of each of the two internal system components

From the WebGUI, click **STATUS** → **System** → **Temperature Sensors**.

From the command line, enter **show sensors-temperature**.

Voltage sensors

Provides the measured voltage for the internal components.

From the WebGUI, click **STATUS** → **System** → **Voltage Sensors**. The voltage is measured in volts.

From the command line, enter **show sensors-voltage**. The voltage is measured in millivolts.

RAID battery backup status

Monitors the battery backup unit on the RAID controller.

From the WebGUI, click **STATUS** → **System** → **RAID Battery Backup Status**.

From the command line, enter **show raid-battery-backup**.

Other sensors

Provides truth values for the intrusion switch, power supply modules, batteries, and the hard disks.

- A value of true indicates that the condition exists.
- A value of false indicates that the conditions does not exist.

For the intrusion switch, the value indicates whether it has been tripped.

- For each power supply, the value indicates the condition:
 - Output Failure
 - Present
- For each hard disk in the array and the battery, the values indicates the state:
 - Fault
 - Present

Note: The hard disk drive modules are not hot-swappable. Hot swapping the modules will cause your system to crash, and could possibly damage your appliance.

- From the WebGUI, click **STATUS** → **System** → **Other Sensors**.
- From the command line, enter **show sensors-other**.

Chapter 6. Troubleshooting your appliance

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and to explain how to resolve the problem.

To begin troubleshooting hardware problems with the appliance, use the procedure in “Troubleshooting workflow.” This procedure guides you to the appropriate troubleshooting task.

Troubleshooting workflow

Use this workflow to troubleshoot the problem and determine whether you need to contact IBM Support for assistance or to order a replacement part.

Procedure

1. Did you receive a critical event through SNMP or SMTP notification?

The following messages are examples of critical messages:

- [system][critic] sensors: tid(*id*): System power supply *number* has failed.
- [system][critic] sensors-fans: tid(*id*): Chassis cooling fan *number* operating too slowly.

For information about creating log targets for notification, see the managing logs topic in the information center.

Yes Continue to step 3.

No Continue to step 2.

2. Does the log file contain a critical message?

For information about viewing logs, see the viewing logs topic in the information center.

Yes Continue to step 3.

No Continue to step 4.

3. Does the critical event or critical log message identify the part that is failing or has failed?

Yes Continue troubleshooting to determine whether you need a replacement part:

- If a fan module, see “Troubleshooting the fan modules” on page 40.
- If the power supply module, see “Troubleshooting the power supply module” on page 41.
- If the hard disk drive module, see “Troubleshooting the hard disk drive module” on page 41.
- If one of the FRUs, contact your IBM Support.

No Continue to step 4.

4. Is the Fault LED illuminated on the front of the appliance?

Yes Continue with step 5 on page 40.

No See “Troubleshooting the appliance” on page 41.

5. Are the LEDs lit for any modules?

Yes

If a fan module, see “Troubleshooting the fan modules.”

If the power supply module, see “Troubleshooting the power supply module” on page 41.

If the hard disk drive module, see “Troubleshooting the hard disk drive module” on page 41.

No See “Troubleshooting the appliance” on page 41.

Troubleshooting CRU parts

Use the procedures to troubleshoot a CRU part.

Procedure

- If a fan module, see “Troubleshooting the fan modules.”
- If the power supply module, see “Troubleshooting the power supply module” on page 41.
- If the hard disk drive module, see “Troubleshooting the hard disk drive module” on page 41.
- If there is a problem with a FRU, contact IBM Support.

Troubleshooting the fan modules

Use this procedure to troubleshoot the fan modules.

Procedure

1. View sensor status.
 - From the command line, run the **show sensors-fans** command.
 - From the WebGUI, click **STATUS** → **System** → **Fan Sensors**.
 - If the output shows that all fans are running at 0 RPM, the fan module is not seated correctly in the appliance.
 - If the output shows that at least one fan is running at less than 2000 RPM, contact IBM Support.

Attention: Turn off the appliance as soon as possible to avoid overheating. The remaining fans might not be able to maintain the appropriate environmental temperature.
2. View the fan module LED.
 - If the LED is illuminated, there is a problem with the module.
 - If the LED is not illuminated, the module is operating normally.

Results

If the module is not seated correctly, generally it is not locked in place. To ensure that the module is seated, use the appropriate steps in “Replacing a fan module” on page 51 to remove and reinsert the module.

If you believe that the module must be replaced, contact IBM Support. For information about contacting IBM Support and what information you must gather before you contact IBM Support, see “Using the diagnostic self-test” on page 36 or “Getting help and technical assistance” on page 65.

Troubleshooting the power supply module

Use this procedure to troubleshoot the power supply module.

Procedure

1. View sensor status.
 - From the command line, run the **show other-sensors** command.
 - From the WebGUI, click **STATUS** → **System** → **Other Sensors**.
2. View the power supply model LED.
 - If the LED is illuminated in green, the appliance is connected to a power source and fully functioning.
 - If the LED is green and blinking one time per second, the appliance is in standby mode. Standby mode is when the module is connected to a power source but the appliance is not turned on.
 - If the LED is red and blinking three times per second, the module has an error.
 - If the LED is not illuminated, there is no power to the module.
3. Remove the power cord from the power supply module. The appliance can operate with a single power supply module.

Results

If the module is not seated correctly, generally it is not locked in place. To ensure that the module is seated, use the appropriate steps in “Replacing a power supply module” on page 54 to remove and reinsert the module.

If the module has no AC power, ensure that the power cords are connected to the power supply and to a working AC power outlet.

If you believe that the module must be replaced, contact IBM Support. For information about contacting IBM Support and what information you must gather before you contact IBM Support, see “Getting help and technical assistance” on page 65.

Troubleshooting the hard disk drive module

Use the procedures to troubleshoot the hard disk drive module.

Procedure

1. View RAID status.
 - From the command line, run the **show raid-physical-drive** command.
 - From the WebGUI, click **STATUS** → **System** → **RAID-physical-drive**.

If the state shows Unconfigured Bad, the hard disk drive is damaged and must be replaced.

2. Contact IBM Support to replace the hard disk drive module. For information about contacting IBM Support and what information you must gather before you contact IBM Support, see “Getting help and technical assistance” on page 65.

Troubleshooting the appliance

How to troubleshoot the appliance when you can or cannot connect to the appliance from the command line.

About this task

When you can connect to the appliance from the command line, use this procedure to troubleshoot the appliance.

Procedure

1. Connect to the appliance from the command line.
2. Run the **test hardware** command.
For information about the **test hardware** command, see “Testing the hardware from the command line” on page 35.
3. Check the output for warning and failure messages.
4. Contact IBM Support. For information about contacting IBM Support and what information you need to gather before contacting IBM Support, see “Using the diagnostic self-test” on page 36 or “Getting help and technical assistance” on page 65.

Troubleshooting the appliance when not connecting to the command line

About this task

When you cannot connect to the appliance from the command line, use this procedure to troubleshoot the appliance.

Procedure

1. Turn off the appliance by pressing the power button. Before proceeding, verify that the power LED is not illuminated.
2. Use the RJ45 to DB-9 null-modem cable to connect a terminal or PC to the console connector on the appliance.
3. Ensure that the terminal or PC is configured for standard 9600 8N1 and to no flow control operation. 8N1 is a notation for a serial configuration in asynchronous mode, where there are eight (8) data bits, no (N) parity bit, and one (1) stop bit.
4. Turn on the appliance by pressing the power button located on the front of the appliance.
You should hear the fans change speed as the screen displays DP0S boot - press <ESC> within 7 seconds for boot options...
5. Wait for a few minutes for the appliance to boot.
6. If the appliance demonstrates any of the following symptoms, contact IBM Support:
 - The screen does not display DP0S boot - press <ESC> within 7 seconds for boot options...
 - The appliance boots in “Fail Safe” mode
 - The appliance does not boot

For information about contacting IBM Support and what information you need to gather before contacting IBM Support, see “Getting help and technical assistance” on page 65.

Chapter 7. Removing or replacing the appliance or parts

This section introduces under what circumstance and how you can remove or replace the appliance or parts.

The appliance includes two of three types of replacement parts: Tier 1 customer replaceable unit (CRU) and field replaceable unit (FRU). However, replacement parts for other IBM machine types can be any of the following types:

Tier 1 CRU

Replacement of a Tier 1 CRU is your responsibility. If an IBM representative installs a Tier 1 CRU at your request, you will be charged for the installation.

Tier 2 CRU

Replacement of a Tier 2 CRU can be installed by you or can be installed at your request by an IBM representative for no charge if still under warranty. If installed by an IBM representative after your warranty has expired, you **will** be charged for the installation.

FRU Replacement of a FRU **must** be performed by trained service technicians only.

For information about the terms of warranty, see the *IBM Statement of Limited Warranty* document on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD.

For information about obtaining service or assistance, see “Getting help and technical assistance” on page 65.

Installation guidelines

Read the information in this section before you remove or replace a component.

- Read “Handling static-sensitive devices” on page 44 and “Safety” on page v. This information will help you work safely.
- Observe good housekeeping in the area where you are working. Place removed parts in a safe place.
- You do not have to disconnect the appliance from the power supply to install or replace any hot-swap module.
- Ensure that you have an adequate number of properly grounded electrical outlets for the appliance.
- Have a medium Phillips screwdriver available.
- Orange on a component indicates that the component can be hot-swapped. You can remove or install the component while the appliance is running. Orange can also indicate touch points on hot-swap components. See the instructions for removing or installing a specific hot-swap component for additional procedures that you might have to perform before you remove or install the component.
- Blue on a component indicates touch points, where you can grip the component to remove it from or install it in the appliance, open or close a latch, and so forth.

Handling static-sensitive devices

Read the guidelines in this section before you handle static-sensitive devices.

Attention: Static electricity can damage the chassis and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- The use of a grounding system is recommended. For example, wear an electrostatic-discharge wrist strap, if one is available.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the chassis or rack for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it immediately without setting down the device. If it is necessary to set down the device, put it back into its static-protective package.
- Take additional care when you handle devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Returning an appliance or part

If you are instructed to return an appliance or component, follow all packaging instructions and use any of the packaging materials that is provided for shipping.

Note: You might be charged for the replacement appliance or part if IBM does not receive the defective appliance or part within a reasonable timeframe.

Model type parts listing

This section introduces the model type part listing.

Table 5 lists the part numbers for replacement appliances by model and description.

Table 5. Part numbers

Model type	Description	Part number
32X	XG45: 1U	97Y0432
42X	XI52: 2U	97Y0429
62X	XB62: 2U	97Y0426

7198 parts listing

The Type 7198 appliance includes Tier 1 CRU parts and FRU parts.

For information about the terms of warranty, see the *IBM Statement of Limited Warranty* document on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD.

For information about obtaining service or assistance, see “Getting help and technical assistance” on page 65.

CRU parts listing

The Ethernet modules, hard disk drive modules, fan modules, and power supply modules are CRU parts.

Figure 19 shows the CRU parts on the front and rear of the Type 7198 appliance.

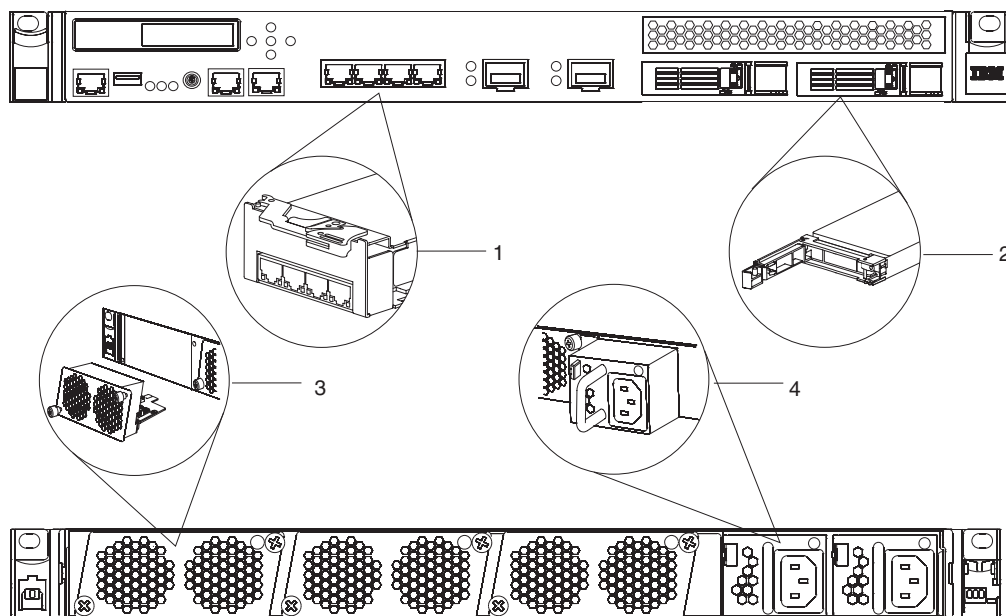


Figure 19. 7198 CRU parts

Table 6 lists the part numbers and their corresponding descriptions.

Table 6. Part numbers for the Type 7198 appliance

Index	Description	Tier 1 CRU part number
1	Ethernet module four port 1 gigabit connector	46N5530
1	Ethernet module two port 10 gigabit connector	46N5534
2	Hard disk drive module	96Y0485
3	Fan module	46N5529
4	Power supply module, 650 watts	46N5528
	DE-9 serial console cable	46N5656
	USB serial console cable	97Y0519
	SFP+ SR transceiver	46N5592
	SFP+ LR transceiver	46N5593
	Rack-mounting kit	60Y0328

FRU parts listing

FRU parts must be replaced by a trained service technician.

Table 7 lists the FRU parts that are in Type 7198 appliances.

Table 7. FRU part numbers for the Type 7198 appliance

Description	Part number
RAID backup battery	81Y4451
CMOS coin cell battery	33F8354
Cryptographic accelerator card	97Y0488
Hardware Security Module (HSM) card	97Y0487
RAID controller	97Y0447

7199 parts listing

The Type 7199 appliance includes Tier 1 CRU parts and FRU parts.

For information about the terms of warranty, see the *IBM Statement of Limited Warranty* document on the *IBM WebSphere DataPower SOA Appliances: Resource Kit* CD.

For information about obtaining service or assistance, see “Getting help and technical assistance” on page 65.

CRU parts listing

The Ethernet modules, hard disk drive modules, fan modules and power supply modules are CRU parts.

Figure 20 on page 47 shows the CRU parts on the front and rear of the Type 7199 appliance.

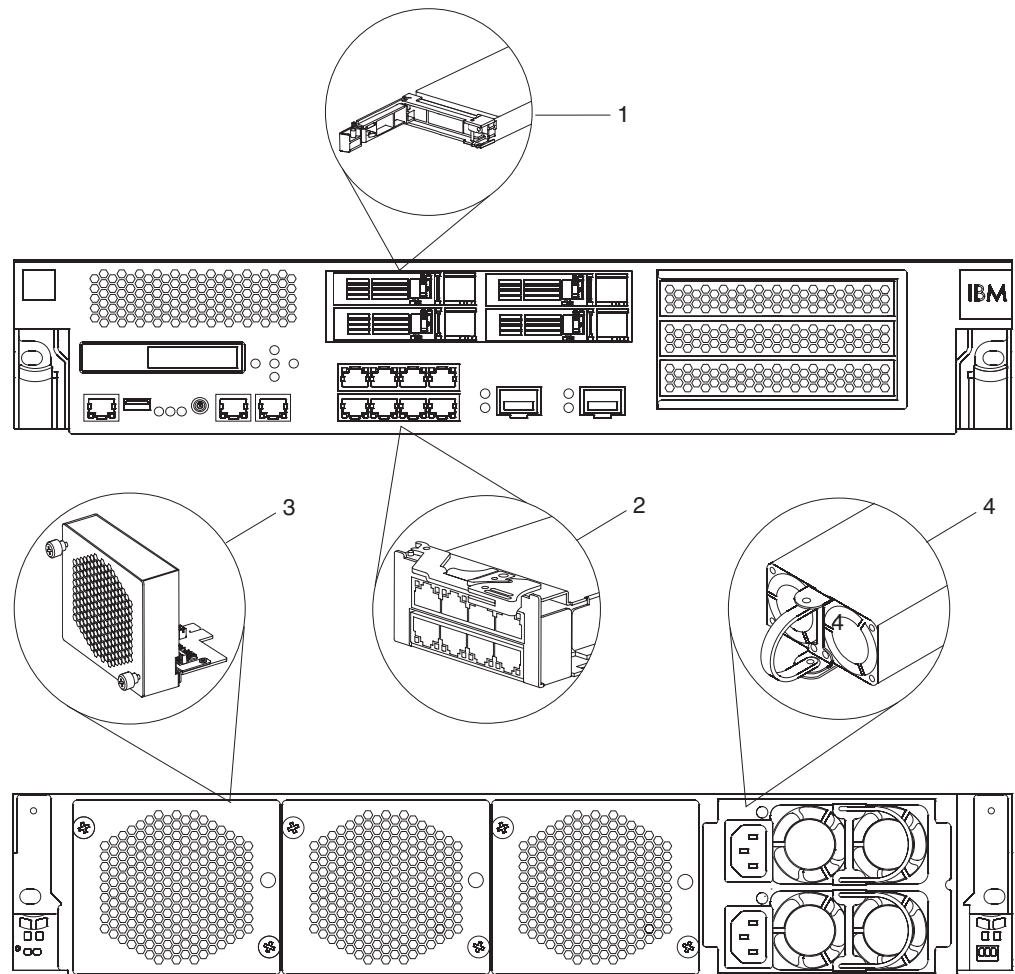


Figure 20. 7199 CRU parts numbers

Table 8 lists the part numbers and their corresponding descriptions.

Table 8. Part numbers for the Type 7199 appliance

Index	Description	Tier 1 CRU part number
1	Hard disk drive modules	46N5587
2	Ethernet module eight port 1 gigabit connector	97Y0446
2	Ethernet module two port 10 gigabit connector	97Y0444
3	Fan module	46N5599
4	Power supply module, 720 watts	97Y0440
	DE-9 serial console cable	46N5656
	USB serial console cable	97Y0519
	SFP+ SR transceiver	46N5592
	SFP+ LR transceiver	46N5593
	Rack-mounting kit	60Y0328

FRU parts listing

FRU parts must be replaced by a trained service technician.

Table 9 lists the FRU parts that are in Type 7199 appliances.

Table 9. FRU part numbers for the Type 7199 appliance

Description	Part number
RAID backup battery	81Y4451
CMOS coin cell battery	33F8354
Cryptographic accelerator card	97Y0443
Hardware Security Module (HSM) card	97Y0442
RAID controller	97Y0447

Power cables

When you receive your appliance, the shipping carton contains power cords specific to the country. In the United States, you might need to purchase optional rack power cables for rack mounting needs.

To maintain warranty or service contracts, you must use IBM parts for power cords and rack cables.

Table 10. Power cords and cables

Country	Tier 1 CRU part number	Description
Argentina	39M5068	2.8m, 10A/250V, C13 to IRAM 2073
Australia / New Zealand	39M5102	2.8m, 10A/250V, C13 to AS/NZ 3112
Brazil	39M5233	2.8m, 10A/125V, C13 to IEC 320
Chile	39M5165	2.8m, 220 - 240V
China	39M5206	2.8m, 10A/250V, C13 to gigabit 2099.1
Denmark	39M5130	2.8m, 10A/250V, C13 to DK2-5a
Europe	39M5123	2.8m, 10A/250V, C13 to IEC 309 Type 2P+Gnd
	39M5179	2.8m, 10A/250V, C13 to IEC 320 Inline
India	39M5226	2.8m, 10A/250V, C13 (2P +Gnd)
Israel	39M5172	2.8m, 10A/250V, C13 to SI 32
Italy	39M5165	2.8m, 220 - 240V
Japan	39M5199	2.8m, 12A/100V, C13 to JIS C-8303
Korea	39M5219	2.8m, 12A/250V, C13 to KETI
South Africa	39M5144	2.8m, 10A/250V, C13 to SABS 164
Switzerland	39M5158	2.8m, 10A/250V, C13 to SEV 1011-S24507
Taiwan	39M5247	2.8m, 10A/125V, C13 to CNS 10917-3
United Kingdom	39M5151	2.8m, 10A/250V, C13 to BS 1363/A
United States	39M5081	2.8m, 10A/250V, C13 to NEMA 6-15P
	39M5377	2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable

Turning off the appliance

If a replacement procedure requires that the appliance be turned off, use this procedure to turn off power to the appliance.

About this task

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

Procedure

1. If required, save the changes from the running configuration to the startup configuration.

From the WebGUI

Click **Save Config**.

From the command line

Use the **write memory** command

2. Perform a graceful shutdown by pressing the power button on the front of the chassis. Because the appliance does not provide feedback of a graceful shutdown, wait until the power LED is no longer illuminated.

What to do next

Verify that the power LED is not illuminated.

Removing and replacing CRU parts

Use the this hardware maintenance procedure to remove and replace a CRU part when directed by IBM Support.

About this task

Replacement of Tier 1 CRU parts is your responsibility. If an IBM representative installs a Tier 1 CRU part at your request, you will be charged for the installation.

Procedure

- “Replacing a fan module”
- “Replacing a power supply module” on page 54
- “Replacing a hard disk drive module” on page 55
- “Replacing an Ethernet module” on page 58
- “Removing an SFP transceiver” on page 61

Replacing a fan module

Use this procedure to replace a failed fan module.

About this task

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

You might need to turn off the appliance and replace a fan module when directed by IBM Support if the following situation occurs:

- After the appliance generates a critical message that indicates a fan failure. The message identifies which fan module to replace.
- When the LED on one of the fan modules and the fault LED are illuminated.

Best Practice: Turn off the appliance as soon as possible to avoid overheating. The remaining fans might not be able to maintain the appropriate environmental temperature.

Procedure

1. If the appliance is not turned off, perform a graceful shutdown by pressing the power button on the front of the chassis. Because the appliance does not provide feedback of a graceful shutdown, wait until the power LED is no longer illuminated.
2. Unplug all power cords.
3. Unscrew the thumbscrews on the fan module.
4. Remove the fan module, as illustrated in Figure 21 or Figure 22.

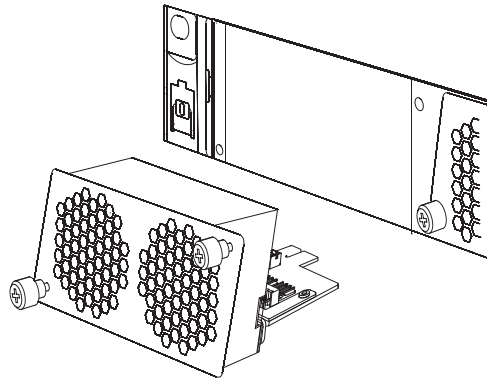


Figure 21. Removing a fan module on a Type 7198 appliance

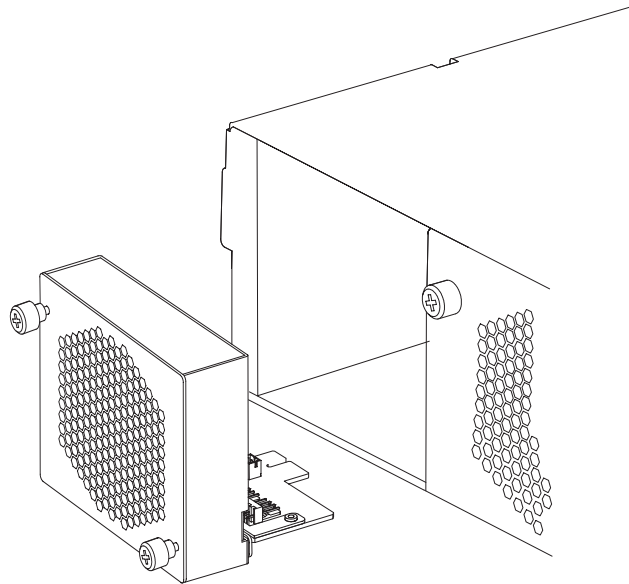


Figure 22. Removing a fan module on a Type 7199 appliance

Attention: Ensure that the gold connectors at the rear of the module do not come into contact with your hands or with the packing material as you unpack the replacement module. Avoid damaging the gold connectors against the chassis as you insert the replacement module.

5. Unpack the replacement module.
6. Carefully align the replacement module, and insert until flush with the chassis.
7. Secure the thumbscrews on the fan module.
8. Plug in all power cords.

9. Turn on the appliance by pressing the power button.

What to do next

After replacing the fan module, confirm that the new module is working by verifying that neither of the following LEDs are illuminated:

- The LED for the fan module is not illuminated.
- The fault LED is not illuminated.

After verifying that the replacement module is working, return the failed part to IBM. For details, see “Returning an appliance or part” on page 44.

Replacing a power supply module

Use this procedure to replace a power supply module.

About this task

There are two hot-swap power supplies in the rear of the appliance. You need to replace a power supply module when directed by IBM Support if the following situation occurs:

- After the appliance generates a critical or warning message that indicates a power supply failure. The message identifies which power supply module to replace.
- When the LED on one of the power supply modules is red and blinking three times per second and the fault LED is illuminated.

Best Practice: Replace a failed power supply module as soon as possible.

Procedure

1. Unplug the power cord of the failed module.
2. Remove the power supply module.
 - a. Firmly grip the handle **A** of the failed module while pressing the orange release latch **B** toward the handle, and hold the release latch in this position, as shown in Figure 23 or Figure 24 on page 55.

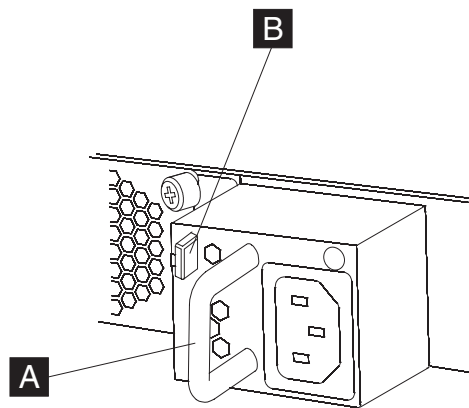


Figure 23. Removing a power supply module on a Type 7198 appliance

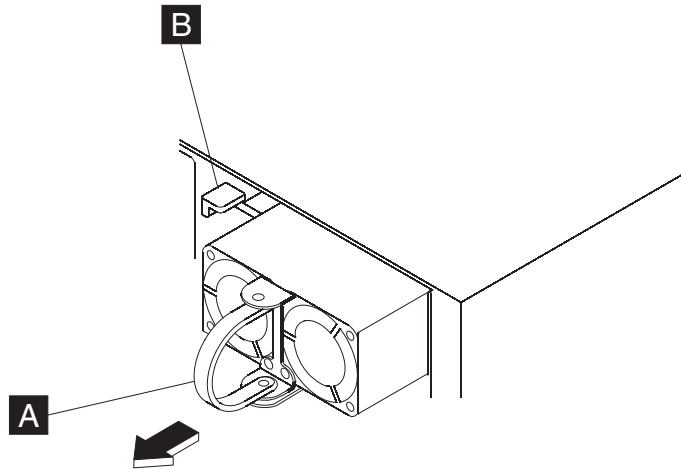


Figure 24. Removing a power supply module on a Type 7199 appliance

- b. Pull the failed module from the back of the appliance.
3. When fully removed from the back of the appliance, set aside the failed module.

Attention: Ensure that the gold connectors at the rear of the module do not come into contact with your hands or with the packing material as you unpack the replacement module. Avoid damaging the gold connectors against the chassis as you insert the replacement module.

4. Unpack the replacement module.
5. Replace the module.
 - a. Carefully align the replacement module with the space in the chassis.
 - b. Insert the module until flush with the chassis.
 - c. Pull the handle to ensure that the module is secure.
6. Plug in the power cord to the replaced module.

What to do next

After replacing the module, verify that the new module is working:

- The power supply LED is illuminated in green.
- The fault LED is not illuminated.

After verifying that the replacement module is working, return the failed part to IBM. For details, see “Returning an appliance or part” on page 44.

Replacing a hard disk drive module

Use this procedure to replace the hard disk drive module.

About this task

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

You need to replace a hard disk drive module when the hard disk state is Unconfigured Bad or if directed by IBM Support. You must turn off the appliance before replacing the hard disk drive module.

Figure 25 on page 57 illustrates the LEDs and controls on the hard disk drive module.

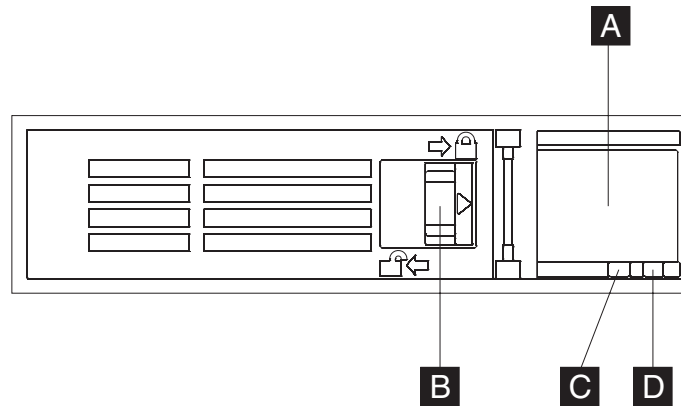


Figure 25. Controls and LEDs on the hard disk drive module

- A Release button. Press to open the lever to remove the module.
- B Locking control. To unlock, move left. To lock, move right.
- C Activity LED
- D Fault LED. Nonfunctional on Type 7198 appliances.

Procedure

1. If the appliance is not turned off, perform a graceful shutdown by pressing the power button on the front of the chassis. Because the appliance does not provide feedback of a graceful shutdown, wait until the power LED is no longer illuminated.
2. Move the locking control to the left to unlock.
3. Press the blue button and the lever pops open. Figure 26 illustrates the following steps.

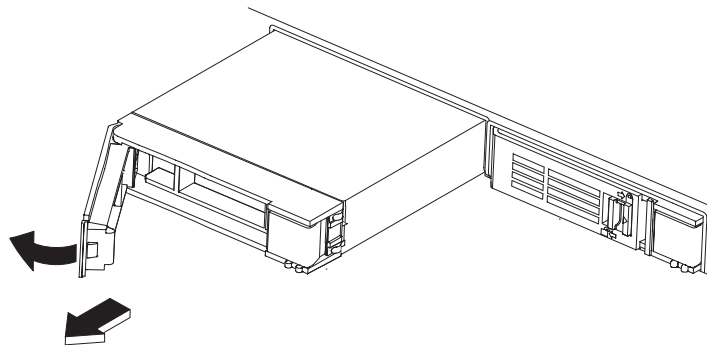


Figure 26. Removing a hard disk drive module

- a. Pull the lever toward you to pull out the hard disk drive module.
- b. Pull the failed module out of the chassis.
4. Set aside the failed module.

Attention: Ensure that the gold connectors at the rear of the module do not come into contact with your hands or with the packing material as you unpack the replacement module. Avoid damaging the gold connectors against the chassis as you insert the replacement module.

5. Unpack the replacement module.
6. Carefully align the module, and insert into the chassis.

7. Push the lever forward until you hear the release latch click in place.
8. Move the locking control to the right to lock.
9. Turn on the appliance by pressing the power button located on the front of the chassis.
10. Verify that the power LED is illuminated.

What to do next

After replacing the module, you can verify that the new module is working if:

- For the Type 7199, the amber LED on the hard disk drive module is not illuminated.
- The fault LED light on the front of the chassis is not illuminated.

After verifying that the replacement module is working, return the failed part to IBM. For details, see “Returning an appliance or part” on page 44.

Replacing an Ethernet module

Use this procedure to replace an Ethernet module.

Before you begin

You must turn off the appliance before replacing the Ethernet module.

About this task

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

You can replace an Ethernet module if you have a problem with your module or if directed by IBM Support if the following situation occurs:

- You are unable to connect to the network even though the cable is plugged in.
- If the output from the **test hardware** command includes Expected number of interfaces: x - found y.
- When you use listing, all the Ethernet ports in the module are not included in the list:
 - From the **show interface** command.

- From the WebGUI: click **STATUS** → **IP Network** → **Ethernet Interfaces**.

Procedure

1. If the appliance is not turned off, perform a graceful shutdown by pressing the power button on the front of the chassis. Because the appliance does not provide feedback of a graceful shutdown, wait until the power LED is no longer illuminated.
2. Unplug all power cords.
3. Grasp the blue latch and pull outward.
4. Pull the lever toward you to pull out the Ethernet modules, as shown in Figure 27.

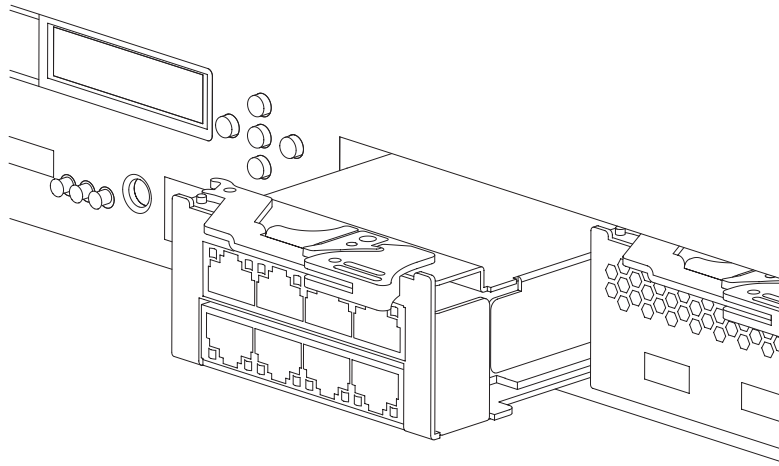


Figure 27. Removing an Ethernet module

5. Set aside the Ethernet module.
Attention: Ensure that the gold connectors at the rear of the module do not come into contact with your hands or with the packing material as you unpack the replacement module. Avoid damaging the gold connectors against the chassis as you insert the replacement module.
6. Unpack the replacement module.
7. Carefully align the module, and insert into the appliance.
8. Push the Ethernet module forward until the module is in place.
9. Push the blue latch back in place.
10. Plug in all power cords.
11. Turn on the appliance by pressing the power button located on the front of the appliance.
12. Verify that the power LED is illuminated.

What to do next

After replacing the module, you can verify that the new module is working if:

- You are able to connect to the network after you plug in the cable and the link status LED is illuminated.
- The fault LED light is not illuminated.

If you are replacing a failed Ethernet module, verify that the replacement module is working and return the failed part to IBM. See “Returning an appliance or part” on page 44

on page 44 for details on returning parts to IBM.

Removing an SFP transceiver

Use this procedure to remove the 10 Gb SFP transceiver.

About this task

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the cables from the connectors.
4. Remove all cables from the devices.

To connect:

1. Turn off everything (unless instructed otherwise).
 2. Attach all cables to the devices.
 3. Attach the cables to the connectors.
 4. Attach the power cords to the outlets.
 5. Turn on the devices.
- Sharp edges, corners, and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes, and pinching.

(D005)

Procedure

1. If the appliance is not turned off, perform a graceful shutdown by pressing the power button on the front of the chassis. Because the appliance does not provide feedback of a graceful shutdown, wait until the power LED is no longer illuminated.
2. Unplug all power cords.
3. Pull downward on the blue latch on the front of the transceiver, as shown in Figure 28 on page 63.

4. Pull the transceiver out by pulling forward the blue latch.

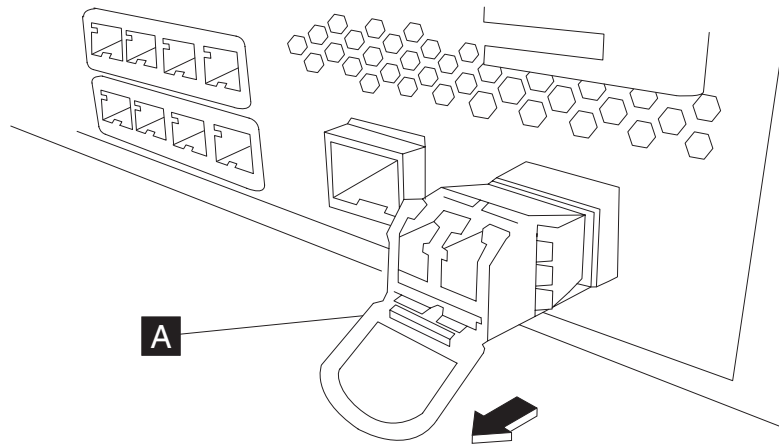


Figure 28. Removing the SFP transceiver

Removing the appliance from the rack

Generally, after installing the appliance in the rack, you need to remove it only to move it to another position in the rack.

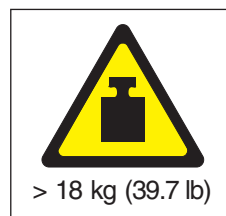
About this task

CAUTION:

Type 7198: This part or unit is heavy but has a weight smaller than 18 kg (39.7 lb). Use care when lifting, removing, or installing this part or unit. (C008)

CAUTION:

Type 7199: The weight of this part or unit is between 18 and 32 kg (39.7 and 70.5 lb). It takes two persons to safely lift this part or unit. (C009)



To remove the appliance from the rack:

Note: Make sure two people lift the appliance, with hands positioned as illustrated by **2** in Figure 29 on page 64.

Procedure

1. Unlatch and rotate the front of the appliance, as shown in Figure 29 on page 64.
 - a. If the appliance is not turned off, press the power button on the front of the chassis. The power LED should not be illuminated.
 - b. Unplug all power cords.
 - c. Pull the locking levers **1** forward. With two people supporting the front and the rear of the appliance **2**, lift the front of the appliance up slightly

3 to clear the nailhead from the slot.

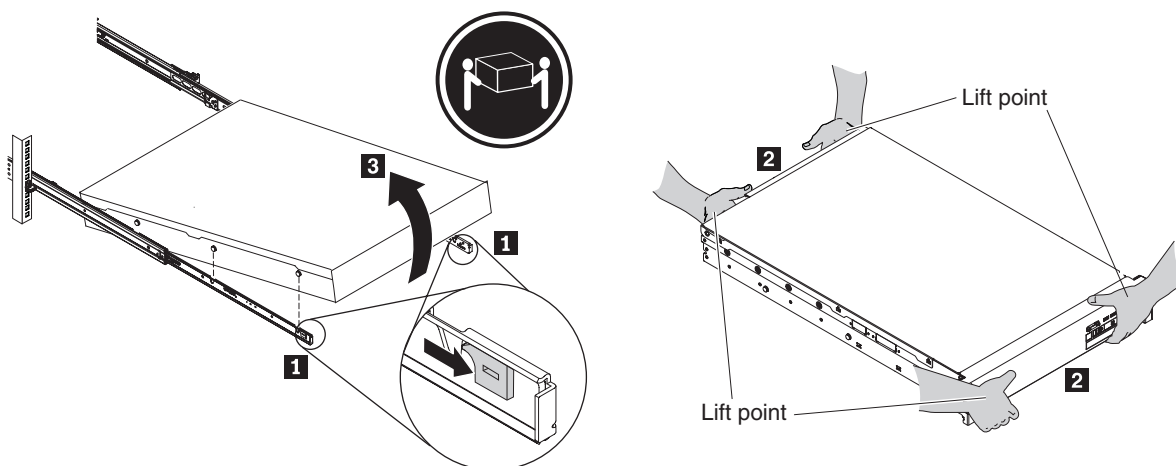


Figure 29. Unlatching and rotating the front of the appliance

2. Lift the appliance off of the slide rails, as shown in Figure 30.
 - a. After the front nailheads clear the latches, lift up on the rear **1** of the appliance to level the appliance.
 - b. Lift the server out of the rack **2** and place it on a sturdy surface.
 - c. Slide the rail back in the rack.

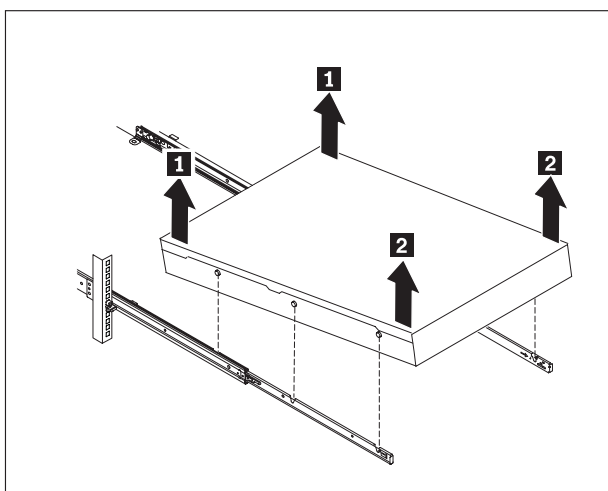


Figure 30. Lifting the appliance off the slide rails

Getting help and technical assistance

You can find help and technical assistance information in this section.

This section describes the following options for obtaining support for IBM products:

- “Searching knowledge bases”
- “Contacting IBM Support”

Searching knowledge bases

If you encounter a problem, you want it resolved quickly. You can search the available knowledge bases to determine whether the resolution to your problem was already encountered and is already documented.

Documentation

The IBM WebSphere DataPower documentation library provides extensive product documentation. Go to the IBM WebSphere DataPower information center (<http://www.ibm.com/software/integration/datapower/library/documentation>). Use the search function to query information in the information center.

IBM Support

If you are unable to find a resolution in the documentation, use the *Search Support* feature from the product-specific support page.

From the **Search Support (this product)** area of the product-specific support page, search the following IBM resources:

- IBM technote database
- IBM downloads
- IBM Redbooks®
- IBM developerWorks®

Contacting IBM Support

This section provides information about how to contact IBM Support.

IBM Software Support provides support for this appliance, as noted in the IBM Software Support Handbook (<http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html>). IBM Software Support can help debug problems with the appliance, including hardware problems.

Before contacting IBM Support, verify that you have met the following criteria:

- Your company has an active maintenance contract.
- You are authorized to submit problems.
- You have the appliance serial number.
- You have the customer number that was used to purchase the appliance.

You can submit a software problem report to IBM for a DataPower appliance in the following ways:

- Use the service request (SR) problem submission web page. You will need to sign in with your IBM user ID and password.
- Contact IBM via the telephone. See the directory of worldwide contacts in the IBM Software Support Handbook (<http://www14.software.ibm.com/webapp/set2/sas/f/handbook/contacts.html>) for the appropriate support telephone number.

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Important notes

This product is not intended to be connected directly or indirectly by any means whatsoever to interfaces of public telecommunications networks nor is it intended to be used in a public services network.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: 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 not installed and used in

accordance with the instruction manual, 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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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.

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

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

United Kingdom telecommunications safety requirement

Notice to Customers: This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: 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.

European Community contact:

IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Telephone: 0049 (0)711 785 1176
Fax: 0049 (0)711 785 1283
Email: tjahn@de.ibm.com

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス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。

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Taiwanese Class A warning statement

警告使用諸：
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。

Chinese Class A warning statement

声 明
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。
在这种情况下，可能需要用户对其
干扰采取切实可行的措施。

Korean Class A warning statement

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자
또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 판매 또는
구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Russian Class A warning statement

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать
радиопомехи, для снижения которых необходимы
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