IBM System Storage® TS7620 ProtecTIER® Deduplication Appliance Express
for the TS7620 Version 3.2

Installation and Setup Guide for VTL, OpenStorage, and FSI systems

GA32-0914-02

Note:

Before using this information and the product it supports, be sure to read the general information in the "Safety and environmental notices" and "Notices" sections of this publication.

This edition applies to ProtecTIER version 3.2 of the TS7620 Appliance Express and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GA32-0914-01.

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Safety and Environmental notices

This section contains information about safety notices that are used in this guide and environmental notices for this product.

Safety notices

Observe the safety notices when using this product. These safety notices contain danger and caution notices. These notices are sometimes accompanied by symbols that represent the severity of the safety condition.

Most danger or caution notices contain a reference number (Dxxx or Cxxx). Use the reference number to check the translation in the *IBM Systems Safety Notices*, G229-9054 manual.

The sections that follow define each type of safety notice and give examples.

Danger notice

A danger notice calls attention to a situation that is potentially lethal or extremely hazardous to people. A lightning bolt symbol always accompanies a danger notice to represent a dangerous electrical condition. A sample danger notice follows:

DANGER: An electrical outlet that is not correctly wired could place hazardous voltage on 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. *(D004)*

Caution notice

A caution notice calls attention to a situation that is potentially hazardous to people because of some existing condition, or to a potentially dangerous situation that might develop because of some unsafe practice. A caution notice can be accompanied by one of several symbols:

If the symbol is...	It means...
	A generally hazardous condition not represented by other safety symbols.
 Class II	This product contains a Class II laser. Do not stare into the beam. (*C029*) Laser symbols are always accompanied by the classification of the laser as defined by the U. S. Department of Health and Human Services (for example, Class I, Class II, and so forth).
	A hazardous condition due to mechanical movement in or around the product.

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If the symbol is...	It means...
	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*)

Sample caution notices follow:

Caution

The battery is a lithium ion battery. To avoid possible explosion, do not burn. 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. (*C007*)

Caution

The system contains circuit cards, assemblies, or both that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (*C014*)

Caution

When removing the Modular Refrigeration Unit (MRU), immediately remove any oil residue from the MRU support shelf, floor, and any other area to prevent injuries because of slips or falls. Do not use refrigerant lines or connectors to lift, move, or remove the MRU. Use handholds as instructed by service procedures. (*C016*)

Caution

Do not connect an IBM control unit directly to a public optical network. The customer must use an additional connectivity device between an IBM control unit optical adapter (that is, fibre, ESCON®, FICON®) and an external public network . Use a device such as a patch panel, a router, or a switch. You do not need an additional connectivity device for optical fibre connectivity that does not pass through a public network.

Power cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT,

three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country or region are usually available only in that country or region.

Environmental notices

The environmental notices that apply to this product are provided in the *Environmental Notices and User Guide*, Z125-5823-*xx* manual. A copy of this manual is located on the publications CD.

Homologation statement

Attention: This product is not intended to be connected directly or indirectly by any means whatsoever to interfaces of public telecommunications networks, neither to be used in a Public Services Network.

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About this document

This document provides hardware installation and basic system configuration instructions for the TS7620 Appliance Express® for VTL, OpenStorage, and FSI systems.

Most of the procedures in this document are the same for VTL, OpenStorage, and FSI systems. The primary exception is cabling, which is system-specific. When making cable connections in "Task 2: Connecting the cables and peripheral devices to the server" on page 27, be sure to follow the instructions for the type of system you purchased. Non-cabling related differences are noted in their respective sections.

Intended audience for this document

This publication is intended for customers who purchased the TS7620 Appliance Express for VTL, OpenStorage, or FSI.

New information in this edition

This edition of the *IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Installation and Setup Guide for VTL, and OpenStorage Systems*, GA32-0914, contains new or updated information about these topics:

- Making cable connections for File System Interface (FSI) systems (in addition to VTL and OpenStorage systems)
- Performing basic system configuration for FSI systems (in addition to VTL and OpenStorage systems)

Getting information, help, and service

If you need help, service, technical assistance, or want more information about IBM products, IBM has a wide variety of available resources. Services, telephone numbers, and web links are subject to change without notice.

Information

IBM web pages where you can get information about IBM products and services and find the latest technical information. For more information, refer to Table 1.

Table 1. IBM websites for help, services, and information

Description	Web address (URL)
IBM home page	http://www.ibm.com
Directory of worldwide contacts	http://www.ibm.com/planetwide

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Table 1. IBM websites for help, services, and information (continued)

Description	Web address (URL)
Support for IBM System Storage® and TotalStorage products	http://www.ibm.com/storage/support The **IBM Support Portal Quick Start** page displays. Do the following: 1. In the **1. Choose Your Products** frame: a. Select **Search for a product** b. Type **TS7620** in the search field, then click the magnifying glass. c. Select the **TS7620 Deduplication Appliance Express (3959 SM2) ProtecTIER Entry Edition** check box. 2. In the **2. Choose your page** frame: a. Select the appropriate radio button. b. Click **Continue**. The related support page opens. 3. Use the menus and links provided to navigate to the product and support information that you need.
IBM System Storage ProtecTIER® TS7610 Customer Information Center	Go to: http://publib.boulder.ibm.com/infocenter/ts7610/cust/index.jsp

Help and service

In the US or Canada, you can call 1 (800) IBM SERV for help and service. You must choose the software or hardware option when calling for assistance. Before calling for support, be sure to have your Software Customer Number available.

Choose the software option if you are uncertain whether the problem involves the TS7620 Appliance Express hardware. Choose the hardware option **only** if you are certain the problem solely involves the TS7620 Appliance Express hardware.

When calling IBM for service regarding the TS7620 Appliance Express follow these guidelines for the software and hardware options:

Software option

Identify the TS7620 Appliance Express as your product and supply your customer number as proof of purchase. The customer number is a seven-digit numeric (0000000 - 9999999) assigned by IBM when the PID is purchased, and located on your customer information worksheet or on the invoice from the software purchase.

Note: If asked for an operating system, say "Storage".

CAUTION:
If you supply an incorrect customer number you might be denied support for your software. Keep track this important information at the time of purchase.

Hardware option

Provide the four-digit machine type and the product serial number for the hardware component exhibiting a problem. For example: 3959 78 00001.

Getting help online

Be sure to visit the support page for the IBM System Storage TS7600 with ProtecTIER. This page contains FAQs, parts information, technical hints and tips, technical publications, and downloadable files (if applicable). This page is at:

http://www.ibm.com/servers/storage/support/tape.

For additional websites, see "Websites."

Before you call for service

Some problems can be solved by referring to the electronic or printed documentation that comes with the TS7620 Appliance Express, or visiting the support web page. Be sure to also read the information in any readme files and release notes that come with the product.

Getting help by telephone

With the original purchase of the TS7620 Appliance Express, ProtecTIER V3.2, you have access to extensive support coverage. During the product warranty period, you can call the IBM Support Center (1-800-426-7378 in the U.S.) for product assistance covered under the terms of the hardware IBM warranty or the software maintenance contract that comes with product purchase.

Important: The TS7620 Appliance Express hardware components have additional support requirements and restrictions. If you experience problems with the hardware after installation, refer to the support information in the chapter called "Servicing the components" in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.

When calling, have the following information available for the component:

- The machine type and serial number, or the software identifier. The software identifier can be either the product name (TS7620 Appliance Express) or the Product Identification (PID) number.
- The serial number or your proof of purchase.
- A description of the problem.
- The exact wording of any error messages.
- The hardware and software configuration information

If possible, have access to your computer when you call.

In the US and Canada, these services are available 24 hours a day, 7 days a week. In the UK, these services are available Monday through Friday, from 9:00 a.m. to 6:00 p.m. In all other countries, contact your IBM reseller or IBM marketing representative.

Websites

The most up-to-date information about your product, including documentation and the most recent downloads, can be found at the following websites:

- The translated publications for this product are included with the product. These documents and product specification sheets are also available from the following website:

  http://www-947.ibm.com/systems/support/supportsite.wss/brandmain?brandind=5345868

- http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss
- Access the IBM System Storage ProtecTIER TS7610 Customer Information Center at:

  http://publib.boulder.ibm.com/infocenter/ts7610/cust/index.jsp
- Access installation and technical support information via the Web at:

  www.ibm.com/support
- The IBM website for independent software vendor (ISV) support is:

  http://www-304.ibm.com/jct01005c/isv/index.html
- The IBM System Storage TS7600 with ProtecTIER Interoperability Matrix website can be found at:

  http://www-03.ibm.com/systems/support/storage/config/ssic/displayesssearchwithoutjs.wss?start_over=yes
- For the latest information about SAN switches and directors, go to the following website:

  www.ibm.com/servers/storage/san
- For the latest information about IBM xSeries products, services, and support, go to the following website:

  http://www-03.ibm.com/systems/x/?cm_re=masthead-_-products-_-sys-xseries
- For product firmware and software downloads, as well as associated driver code, go to the following website:

  http://www-947.ibm.com/systems/support/supportsite.wss/selectproduct?brandind=5000034&familyind=0&oldbrand=0&oldfamily=0&oldtype=0&taskind=1&psid=bm
- For accessibility information, go to the following website:

  http://www-03.ibm.com/able/product_accessibility/index.html
- For the latest information about product recycling programs, go to the following website:

  www.ibm.com/ibm/environment/products/prp.shtml

How to send your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

To submit any comments about this book or any other IBM System Storage TS7600 with ProtecTIER documentation:

- Send your comments by email to starpubs@us.ibm.com. Be sure to include the following information:
  - Exact publication title and version
  - Publication form number (for example, GC53-1196-03)
  - Page, table, or illustration numbers that you are commenting on with a detailed description of any information that should be changed

Chapter 1. Overview

This document provides installation and setup instructions for the TS7620 Appliance Express, ProtecTIER V3.2 hardware and software.

Complete the **Pre-installation Checklist** on page "Pre-installation checklist" on page 3, and then use the instructions in this guide to perform the following tasks:

- Install the TS7620 Appliance Express hardware in the rack. You will:
  - Install the slide rails and support tray in the rack
  - Place the external DVD drive on the integrated support tray shelf
  - Attach the optional cable management assembly to the rack

    Note: Attaching the cable management assembly is optional. The cable management assembly is not required.
  - Install the TS7620 Appliance Express server in the rack

    Because of weight considerations, server installation requires two people. Do not attempt to install the server by yourself. If you must do so, first remove the 12 hard disk drives (HDDs) and the two power supplies (PSUs) from the server chassis. After the server is in the rack, replace the components before going on to the next installation task.

    Instructions for removing and replacing the HDDs and PSUs are provided in the chapter called "Servicing the components" in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916, on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD.
  - Make Ethernet, Fibre Channel, and power cable, connections, as applicable
  - Attach the corresponding cable labels
  - Route the attached cables through the cable management assembly and secure with hook-and-loop or plastic straps
  - Connect the external DVD drive, keyboard (not provided) and graphics-capable monitor (not provided), to the server
  - Power-on the components
- Connect the ProtecTIER Manager workstation to your Ethernet local area network (LAN)
- Configure a new network time protocol (NTP) server (if one does not exist) to support FSI systems using Active Directory user authentication
- Use the **ProtecTIER Service menu** to perform system configuration
- Install the ProtecTIER Manager application on the ProtecTIER Manager workstation
- Use the **ProtecTIER Manager Configuration** menu to supply contact and system registration information, enable and configure SNMP traps and email alerts, and enable IBM Call Home

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Pre-installation checklist

To avoid searching for tools and information during hardware installation and system configuration, take a few minutes now to complete the pre-installation checklist. And because you (or someone else) might need to refer to it in the future, be sure to store the completed checklist in an accessible location.

PRE-INSTALLATION CHECKLIST	
Locate and have available the following tool:	
✓	**Screwdrivers**
☐	Phillips-head and flat-head screwdrivers

Unpack the shipping boxes from the outer carton, and confirm that you received the following items:	
✓	**Media and Information**
☐	IBM System Storage ProtecTIER DVD
☐	IBM System Storage ProtecTIER Manager DVD
☐	IBM System Storage ProtecTIER Maintenance and Recovery Disc
☐	IBM System Storage TS7620 ProtecTIER Publications CD
☐	IBM System Storage ProtecTIER Installation and Setup Guide
☐	IBM System Storage ProtecTIER Quick Install Guide
☐	Quality Hotline flyer
☐	Read Me First - Register for My Support flyer
☐	Warranty Information
☐	Environmental Notices CD
☐	Cable label sheets
☐	Safety Notices
✓	**Rack Mount Hardware**
☐	Slide Rail kit, consisting of: Left slide rail (1), right slide rail (1), M6 screws (4), 10-32 screws (2), Rail kit assembly instructions (*disregard*)
☐	Enclosure Support Tray (1)
☐	Cable Management Assembly kit, consisting of: Mounting bracket (1), stop bracket (1), support arm (1), cable management arm assembly (1), hook-and-loop fasteners (5), large cable tie or hook-and-loop strap (1) **Note:** Parts might be loose in the box.
☐	USB DVD drive (1) and USB cable (1)
☐	IBM TS7620 Appliance Express 3959 SM2 server (1)
☐	Power cords (2)
☐	Nut clips (2)
continued	

PRE-INSTALLATION CHECKLIST *(continued)*		
Gather the following system information and enter your specifics in the adjacent column. You enter these details when you perform basic system configuration using the **ProtecTIER Service Menu**.		
✓	**System information**	**Details**
☐	Primary Network Timeserver hostname and IP address ***Required for FSI systems with Active Directory.*** *Optional for all other configurations.*	
☐	Secondary Network Timeserver hostname and IP address *Optional for all configurations.*	
☐	System Name *(For example: stormchaser)* The system consists of the rack and the TS7620 Appliance Express server.	
☐	External (Customer Network) IP address	
☐	External (Customer Network) netmask	
☐	External (Customer Network) gateway	
☐	External (customer network) hostname *(For example: monsoon)*. Used to identify the server on your network.	
☐	Hostname for external *(For example: monsoon)* Used to identify the server in ProtecTIER Manager. Should be the same as the customer network hostname.	

Gather the following company and system administration information and enter your specifics in the adjacent column. You enter these details when you complete the **Registration** portion of the **ProtecTIER Manager Configuration menu**.		
✓	**Company and system administration information**	**Details**
☐	Company name	
☐	Company Street address	
☐	Company city, state, and postal code	
☐	Customer number *(For example: 1234567)*	
☐	Country code *(For example: US)*	
☐	System administrators name	
☐	System administrators phone	
☐	System administrators email address	

Gather the following SNMP trap and email alert information and enter your specifics in the adjacent column. You enter these details to enable and configure SNMP traps and email alerts, using the related portions of the **ProtecTIER Manager Configuration menu**.		
✓	**SNMP trap and email alert information**	**Details**
☐	SNMP trap destination server host IP addresses *Max. = 10*	
☐	SMTP email server host IP address	
☐	Email alert recipient email addresses *Max. = 5*	

Chapter 2. Understanding and installing the TS7620 Appliance Express hardware

The TS7620 Appliance Express hardware consists of left and right slide rails, a support tray, a cable management assembly, an external USB DVD drive, and a TS7620 Appliance Express server.

About this task

When used together, the slide rails and support tray allow you to safely and easily extend the server out of the rack for service and maintenance. The optional cable management assembly attaches to the support tray, and facilitates organization of the cables that are connected to the server. The optional cable management assembly also reduces the stress placed on the cable connectors when the server is moved.

About the server

About this task

The TS7620 Appliance Express server comes preinstalled with all required data processing, data storage, and networking hardware components; ProtecTIER for VTL, OpenStorage, or FSI (depending on the system you purchased) and ProtecTIER Replication Manager.

Detailed information about the TS7620 Appliance Express hardware and software is provided in this installation guide, as well as the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express Introduction and Planning Guide*, GA32-0913, and the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916, located on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD.

Task 1: Preparing to install the components

About this task

"Task 1a: Installing the slide rails" on page 8 through "Task 1e: Installing the server" on page 19 involve installation of the slide rails, support tray, DVD drive, cable management assembly, and the server, into the rack.

Important: Before you start the installation, it is recommended that you complete the following prerequisites:

- Make sure that the rack is in its permanent location. Moving the rack after the components are installed is not advisable.
- Determine the optimum location for the server within the rack. When used together, the server and the support tray require three units (3U) of vertical rack space. Each U (unit) consists of three holes, positioned in accordance with the standards set by the Electronic Industries Alliance (EIA). The holes along the rail within each unit are not evenly spaced. Each EIA unit begins at the point where the hole spacing is closest together. See Figure 1 on page 6 and Table 2 on page 6

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6.

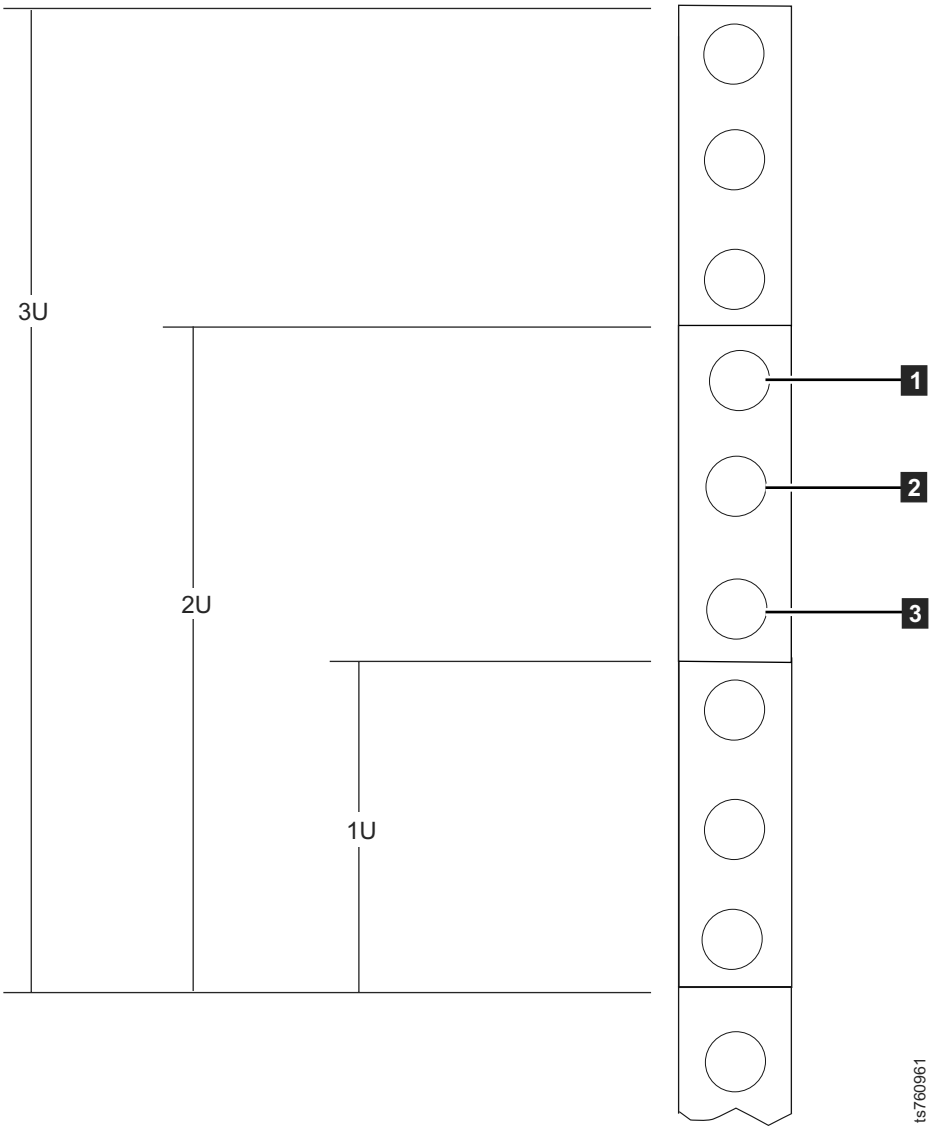

Figure 1. EIA unit hole spacing

Table 2. EIA positions

1 Top	2 Middle	3 Bottom

- Verify that you have at least 80" of forward clearance between the EIA frame on the rack and any immovable obstacles, such as another rack or a wall. This space allows you to maneuver in front of the rack when the rails are fully extended during installation or internal component maintenance operations.
- When deciding where to place the rails, tray, and server in the rack, consider the following factors:
  - **Safety:**

    If the rack you are using is not fully loaded, avoid installing the server higher than 52″ inches above the finished floor (AFF). Placing the server higher in a nearly empty rack can cause the rack to tip forward when the server is in the service position.

– **Accessibility:**

  Avoid placing the server higher than 52" AFF or very near the bottom of the rack. If positioned too high or too low; usability, serviceability, and operator comfort, might be compromised.

– **Shareability:**

  Evaluate the spatial requirements of any other components that are already (or that might be) installed in the rack.

In a standard 19" IBM rack, 52" AFF corresponds to EIA 28. If you are using a rack from another manufacturer or of a different size, your EIA position might differ.

Note: If you are using a non-IBM frame, you may require different mounting hardware than supplied.

Once the rack is in the proper location and you have identified the positioning of the components in the rack, go on to “Task 1a: Installing the slide rails” on page 8.

Task 1a: Installing the slide rails

About this task

The server, along with the slide rails and support tray, require 3U of space in the rack. The slide rails occupy the bottom 1U, and the server occupies the 2U above the rails. The slide rails and assembly screws are located in the **Rack Mount Hardware: Slide Rail Kit.** See Figure 2 and Table 3.

Disregard the instruction sheet included in the **Slide Rail Kit**. Follow the instructions provided in this task, instead.

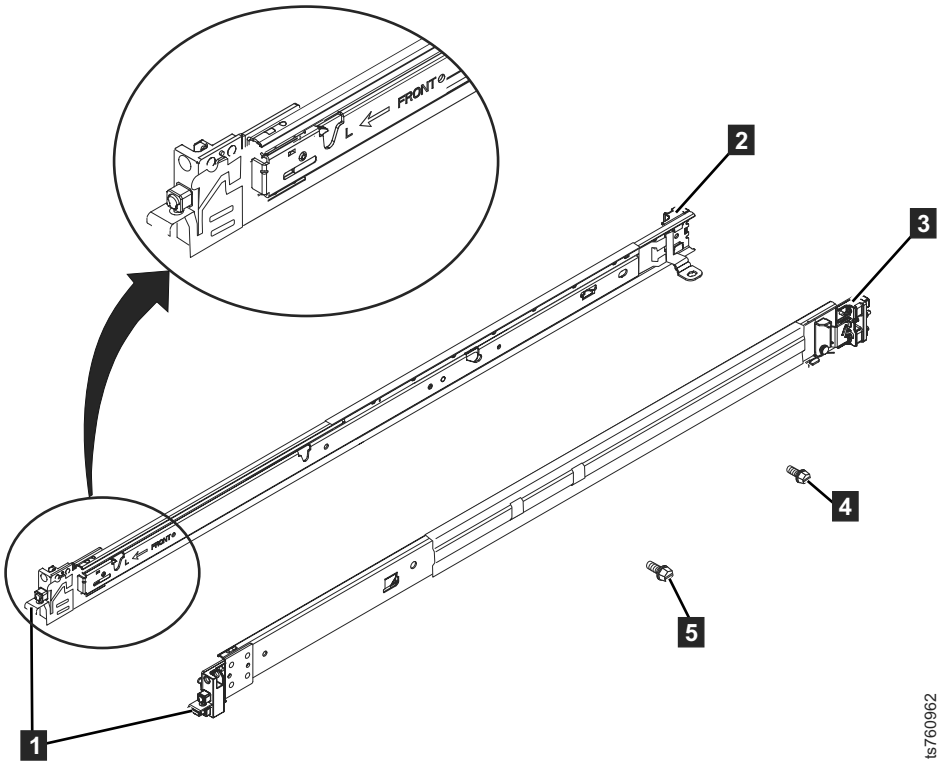

Figure 2. Rack Mount Hardware: Slide Rail Kit contents

Table 3. Slide Rail Kit

1 Front end of rails	4 M6 screw (1)
2 Left slide rail (1)	5 10-32 screws (2)
3 Right slide rail (1)	

The left and right orientation of the slide rails is referenced from the front of the rack. It is easiest to first install the pins of the slide rail into the back of the rack and then attach the front of the slide rail to the front of the rack.

Procedure

1. Get the left slide rail which is marked with an L (left).

2. See Figure 3. If a thumbscrew is installed in the slide rail **1**, remove it.

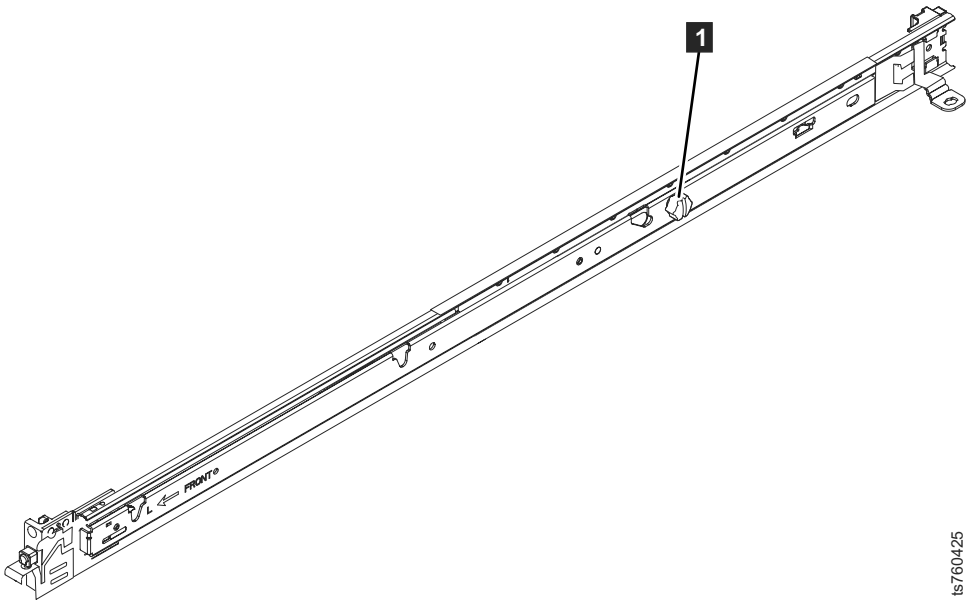

Figure 3. Remove the thumbscrew

3. Figure 4 shows that the slide rails can be installed in racks that have round or square holes.

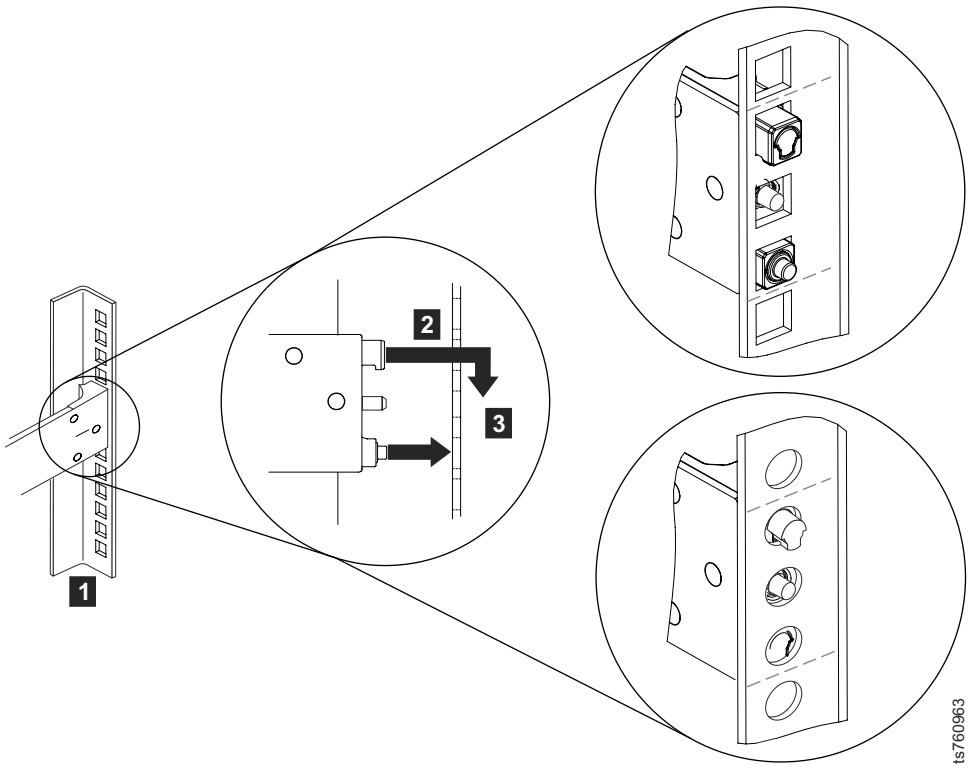

Figure 4. Installing the rails in the rear of the rack

Working from the front of the rack, install the slide rails at the bottom of the selected 3U position. To do so:

a. Align the left slide rail with the three holes at the rear of the rack **1** in the selected U.

b. It is easier to push the rail into the rear of the rack when you are standing in the front of the rack. Insert the pins into the holes in the back rail **2** and push firmly until the pins lock into place in the rack **3**.

4. See Figure 5. Before installing the front of the slide rail, familiarize yourself with the movable parts in the front of the slide rail:

   a. Push up on the front moveable tab **1**.

   b. Pull out the front latch **2** to slide out the front slide rail.

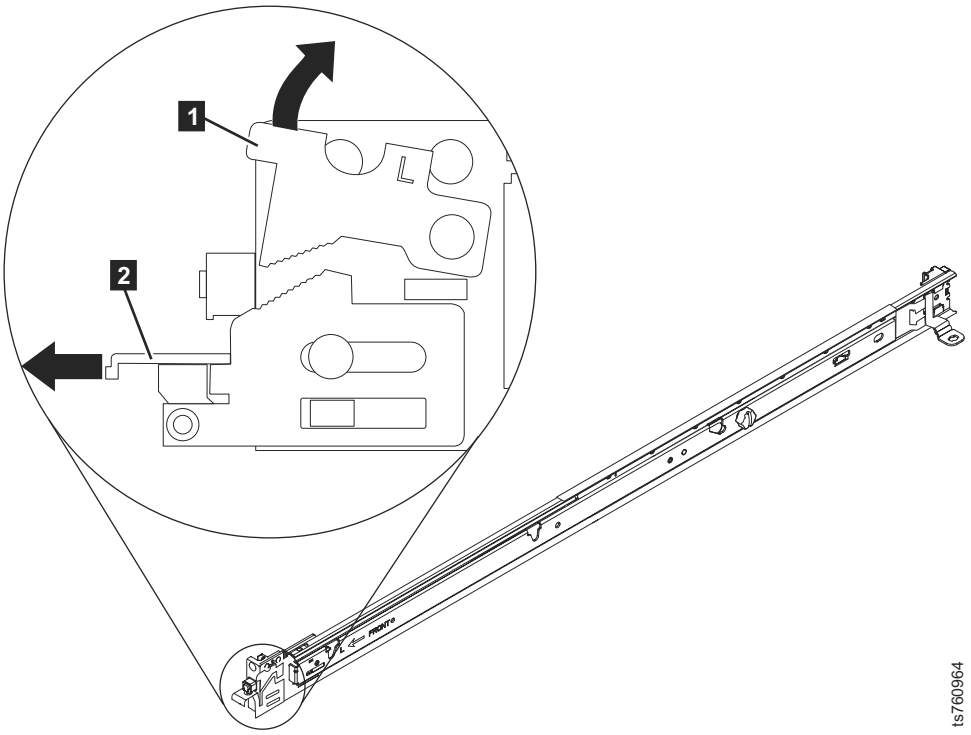

Figure 5. Moveable parts of the slide rail

5. Figure 6 on page 11 shows the rails being installed in a rack with square holes. (The holes might instead be round.) To install the front of the slide rail:

   a. Pull the rail forward and insert the two pins on the front of the rail into the two lower holes in the selected U at the front of the rack **1**.

   b. Push up on the front moveable tab **2**.

   c. Pull out the front latch **3** to slide out the front slide rail.

   d. Push in the front latch **3** completely.

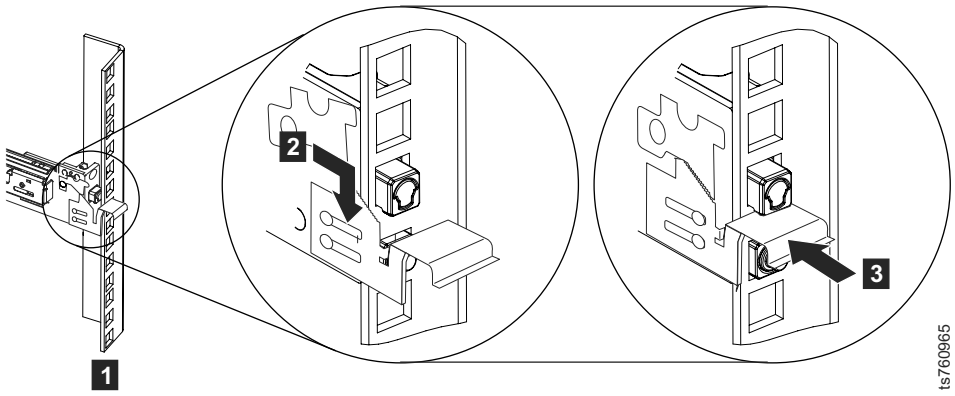

Figure 6. Installing the rails in the front of the rack

6. Repeat steps 3 on page 9 through 5 on page 10 for the right slide rail, making sure to match the horizontal position of the left rail.
7. Go to "Task 1b: Attaching the support tray to the slide rails."

Task 1b: Attaching the support tray to the slide rails

Procedure

1. See Figure 7 on page 12. Working from the front of the rack, pull the left and right slide rails forward **1** until they securely click twice, into place.
   a. Grasp the tray so that the concave side faces down and the open end is toward the rear.
   b. Position the support tray above the slide rails.
   c. Tilt the back of the tray downward so the rear nail heads **2** on the tray line up with the rear slots **3** on the side rails.
   d. Slowly lower the front of the support tray **4** until the center and front nail heads slip into the remaining slots on the rails.

      You can feel and hear the support tray settle into position on the rails.
   e. Ensure that the front latch **5** slides over the nail heads.

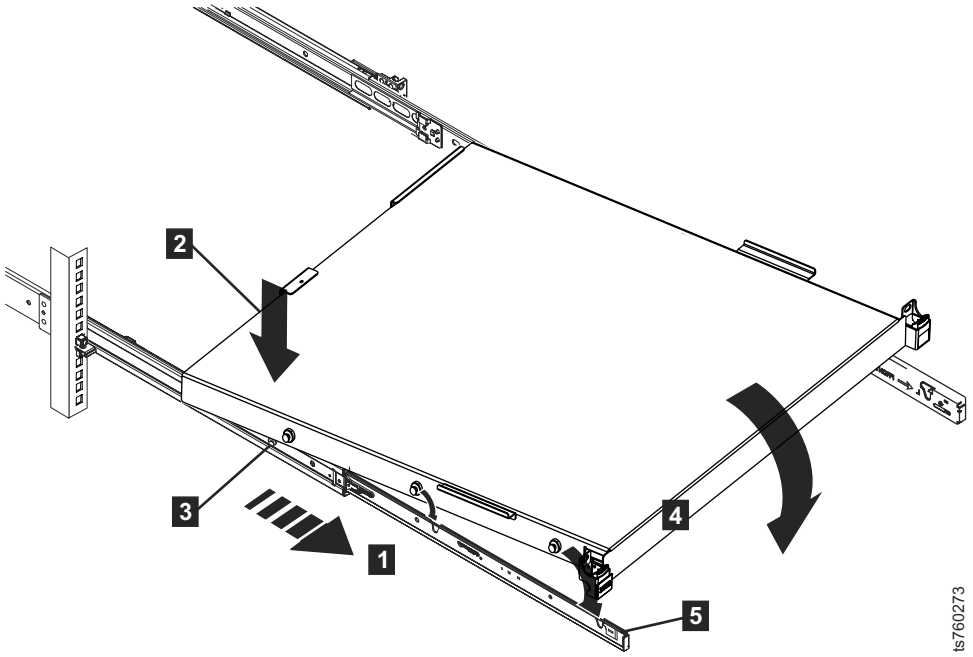

Figure 7. Attaching the support tray to the slide rails

2. See Figure 8. Simultaneously lift the locking levers **1** on the slide rails and push the tray back **2** into the rack. When fully inserted, the tray stops and clicks into place.

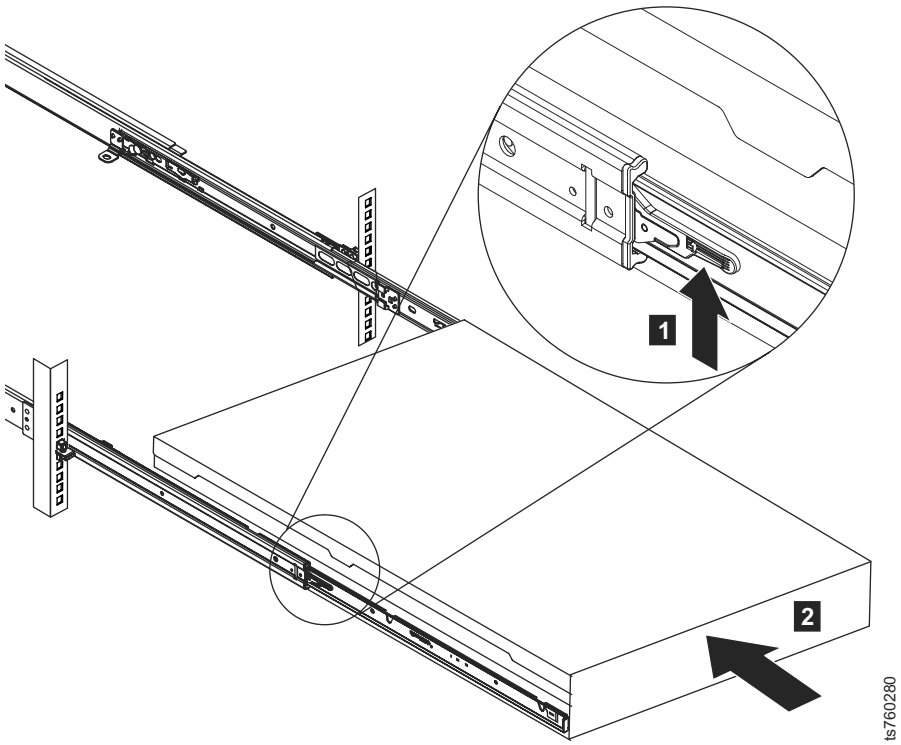

Figure 8. Inserting the support tray into the rack

3. Go to "Task 1c: Installing the DVD drive" on page 13.

Task 1c: Installing the DVD drive

About this task

Procedure

1. Get the DVD drive and connect the single end of the USB cable to the USB connector on the drive.
2. Move to the back of the rack and locate the built-in DVD shelf on the underside of the support tray (see Figure 9).

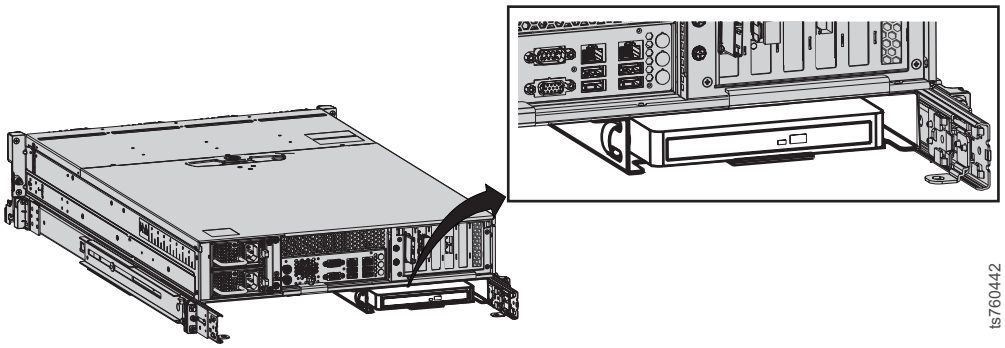

Figure 9. Built-in DVD shelf

3. Place the DVD drive on the shelf. Ensure that the DVD drawer can open outward and that the free ends of the USB cable are accessible from the back of the rack by routing the USB cable through the back of the DVD shelf.

   Note: Even when installed properly, the DVD drive might protrude slightly from the front of the shelf. Do not attempt to force the DVD drive farther backward.
4. Go to "Task 1d: Attaching the optional cable management assembly" on page 14.

Task 1d: Attaching the optional cable management assembly

About this task

Installing the cable management assembly is optional. It is not required. It is provided as an optional aid for cabling. If you do not want to install the cable management assembly, skip this step and go to “Task 1e: Installing the server” on page 19.

Before you start this task, verify that your rack is deep enough to accommodate the cable management assembly. The distance from the front edge of the support tray (with the IBM logo) to the rear-most part of the cable management assembly is approximately 35". If you do not have at least this much clearance inside your rack, you cannot use the cable management assembly. Skip this task and go on to “Task 1e: Installing the server” on page 19.

The cable management assembly, located in the **Rack Mount Hardware: Cable Management** box, contains four pieces, installed in this order:

1. Support arm (see Figure 10.)

   The support arm consists of two parts:

   - The end with the short tab is part of the shiny metal inner slide (**1**)
   - The other end with the longer tab is part of the matte (non-shiny) metal outer slide (**2**)

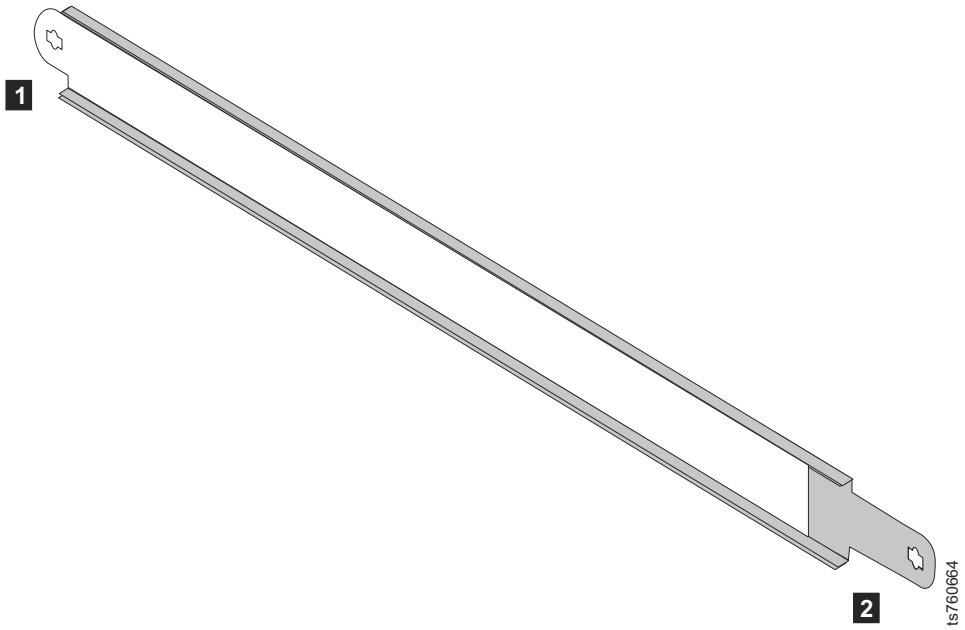

Figure 10. Cable management support arm

2. L-shaped arm stop bracket (see Figure 11 on page 15)
3. Arm mounting bracket (see Figure 11 on page 15)
4. Cable management arm assembly (see Figure 11 on page 15)

Included in the Cable Management box are cable ties or hook-and-loop fasteners, and a large cable tie or hook-and-loop strap. Use these items to neatly bind the cables in the cable management arm assembly. In the table, the numbers in

parenthesis indicate the quantity of each item, provided. See Figure 11 and Table 4.

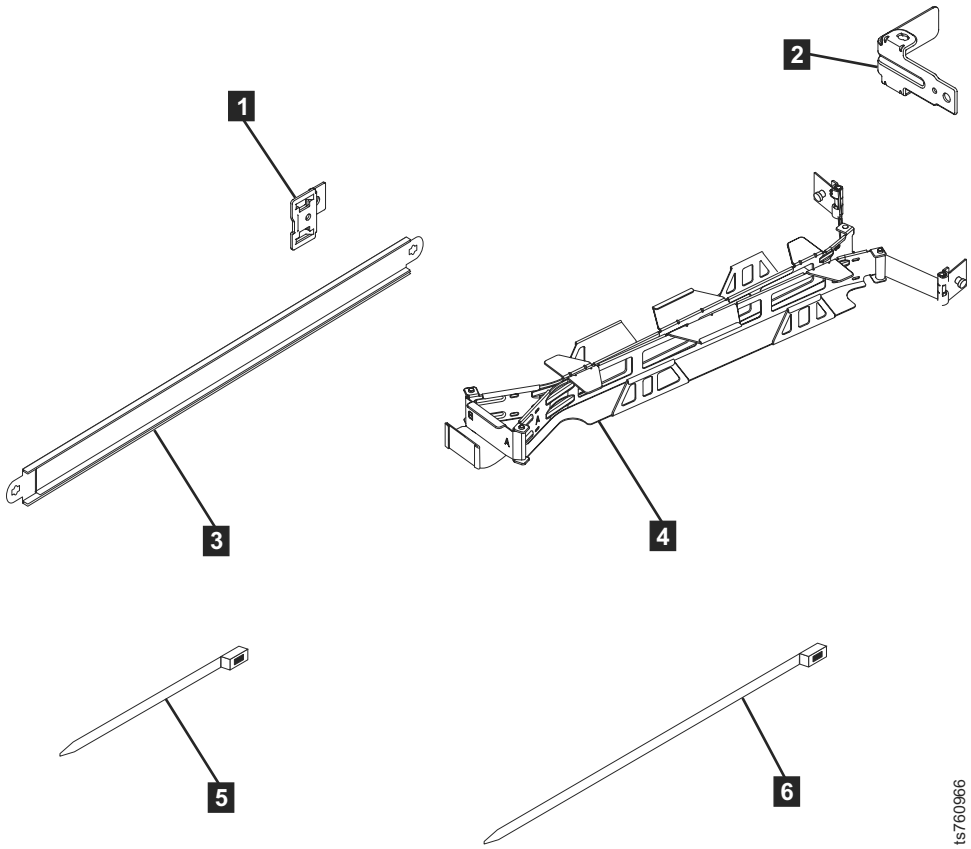

Figure 11. Cable Management box contents

Table 4. Cable Management box contents

1 Cable management arm mounting bracket (1)	4 Cable management arm assembly (1)
2 Cable management arm stop bracket (1)	5 Cable ties or hook-and-loop fasteners (5)
3 Cable management support arm (1)	6 Large cable tie or hook-and-loop strap (1)

The support arm is attached on the left side of the rack, so that the DVD drive shelf on the right side, remains accessible.

Procedure

1. See Figure 12 on page 16. To install the support arm:
   a. Push the slide rails and tray all the way into the rack until they click into place.
   b. At the rear of the rack, connect the short-tab end of the support arm, shiny slide up 1, to the left slide rail.
   c. Swing the other end of the support arm 2 toward the rack to lock.

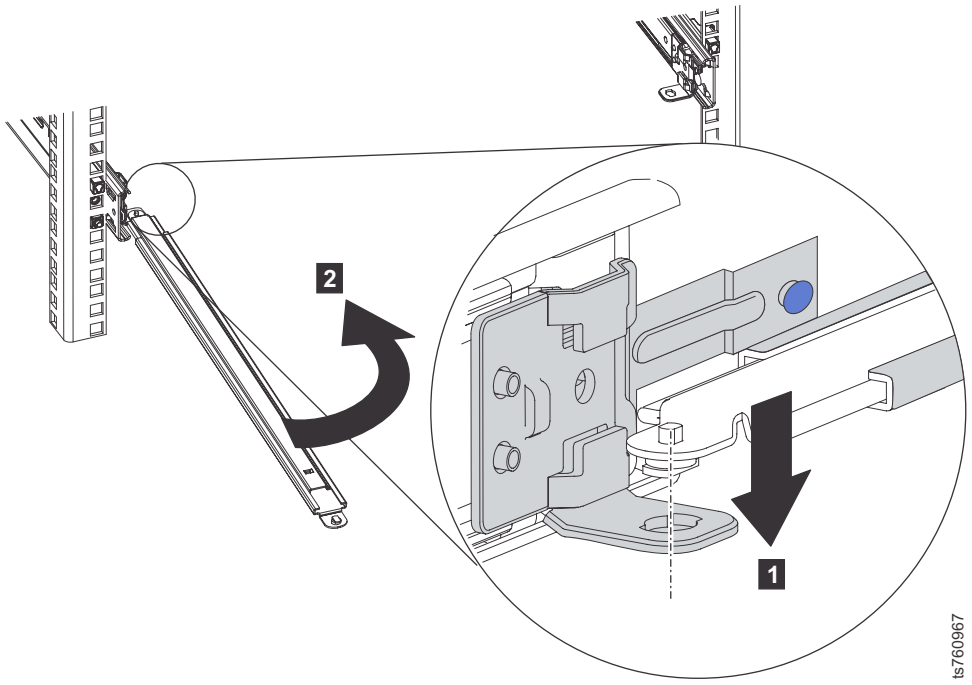

Figure 12. Connecting the support arm to the slide rail

2. See Figure 13. Install the cable management arm stop bracket **1** on the unattached end of the support arm. Turn the stop bracket **2** to secure it to the support arm.

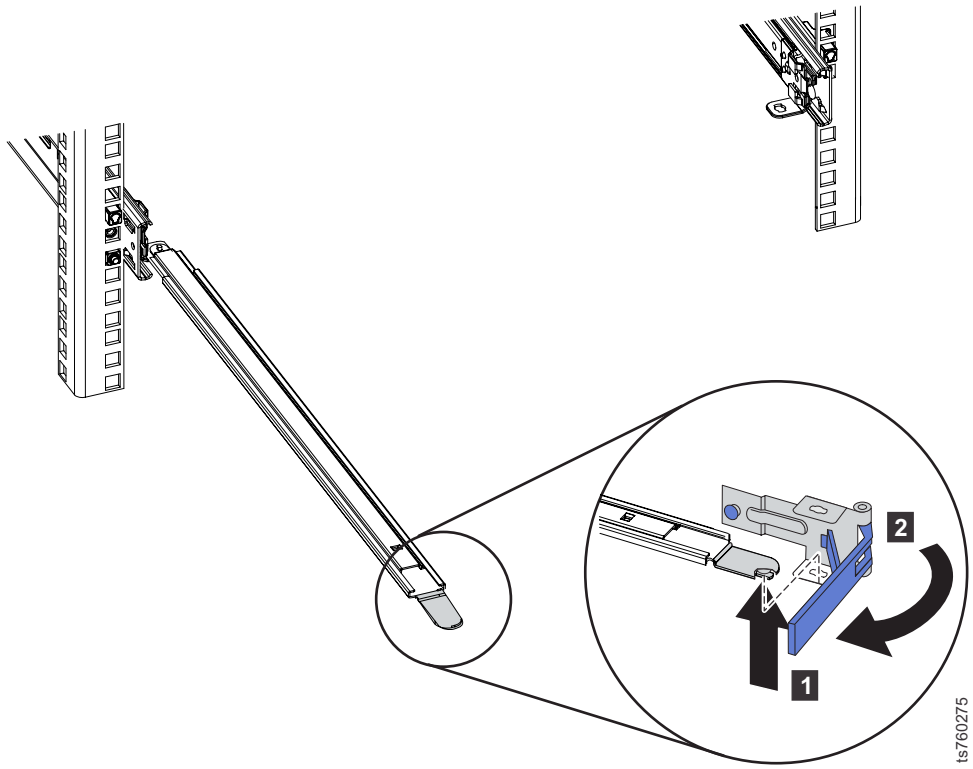

Figure 13. Installing the cable management arm stop bracket

3. See Figure 14. Connect the free end of the stop bracket to the rear of the left slide rail. To do so:
   a. Pull the spring loaded pin **1**.
   b. Slide the stop bracket end **2** into the end of the left slide rail **3**.

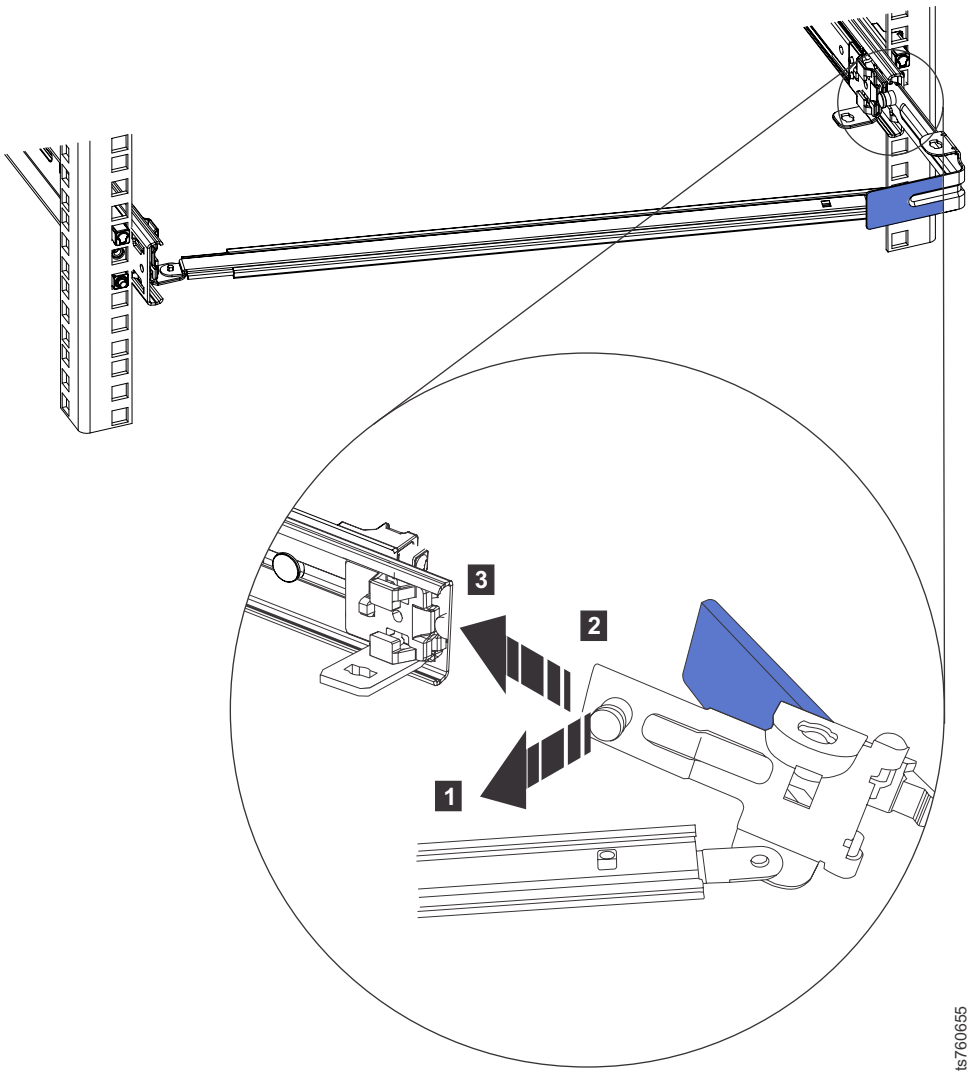

Figure 14. Connecting the support arm to the rear of the slide rail

4. See Figure 15 on page 18. To attach the arm mounting bracket:
   a. Get the mounting bracket **1**.
   b. Pull the spring loaded pin **2**.
   c. Slide the mounting bracket tab **3** into the rail onto which you are installing the cable management arm.

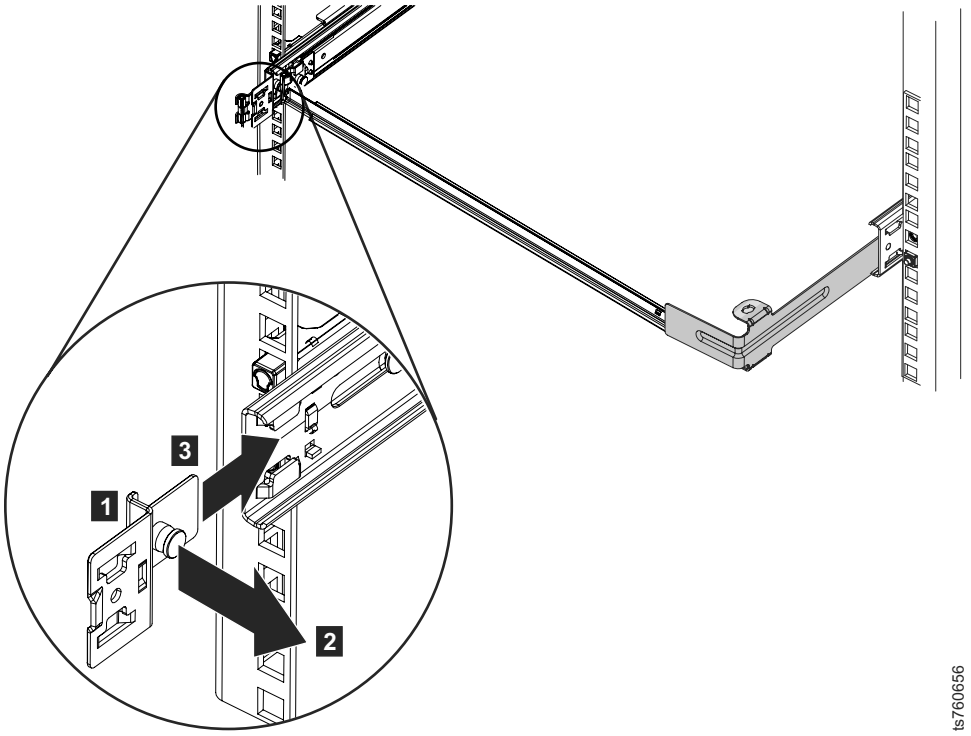

Figure 15. Attaching the mounting bracket to the slide rail

d. Push the mounting bracket into the slide rail end, until the spring-loaded pin snaps into place.

5. See Figure 16 on page 19. To install the cable management arm assembly:
   a. Place the arm assembly on the support arm.
   b. Pull the spring loaded arm assembly pin **1**.
   c. Slide the cable management arm tab **2** into the slot on the inside of the slide rail.
   d. Push in on the arm assembly tab until it snaps into place.
   e. Pull the other spring loaded arm assembly pin **3**.
   f. Slide the arm assembly tab into the slot **4** on the outside of the slide rail end.

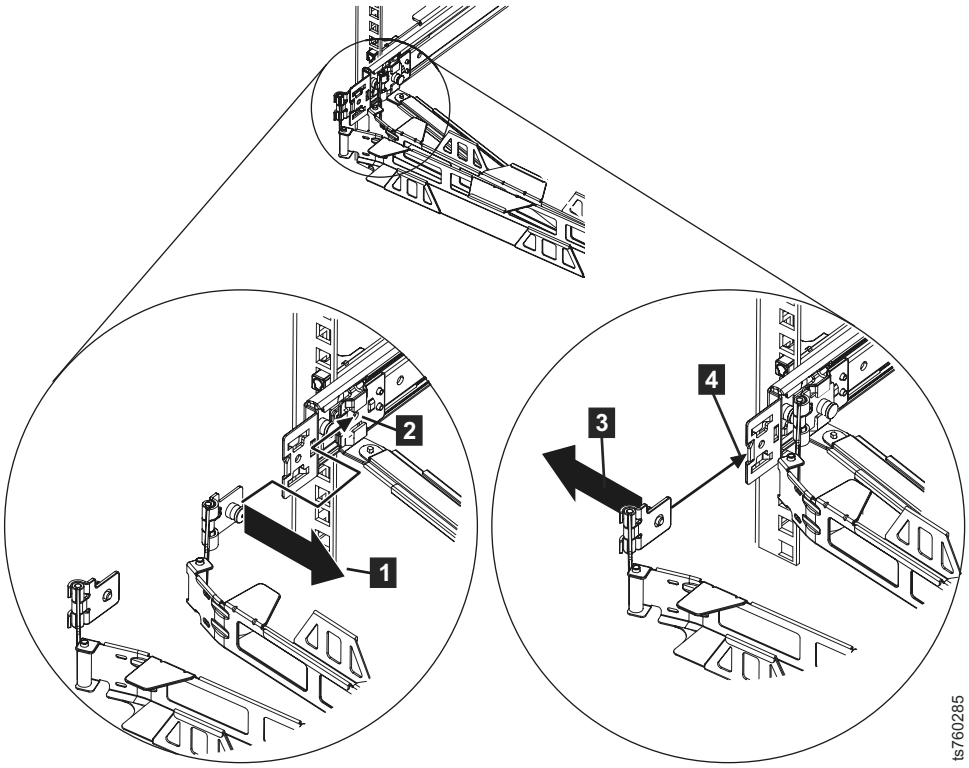

Figure 16. Completing the cable management arm attachment

g. Push in on the arm assembly tab until it snaps into place.

6. Go to "Task 1e: Installing the server."

Task 1e: Installing the server

About this task

Important: When all of the components are resident in the server chassis, physical installation of the server requires two people. Because of weight considerations, do not attempt to install the fully populated server in the rack without assistance.

Procedure

1. Remove the server from the shipping carton and place it on a flat surface, such as a workbench or sturdy table.
2. Use a screwdriver to remove the three small screws (**4**) securing the top cover.
3. Ensure that the cooling fans were not dislodged during shipping. To do so:
   a. Use a screwdriver to loosen the holding screw on the top cover (**1**) 1/4 turn. Press the silver button (**2**), and slide the cover back (**3**) to expose the fans. See Figure 17 on page 20.

      If you cannot remove the top cover, a dislodged fan might be blocking the release latch. Contact IBM support for assistance with this issue. Refer to "Getting help by telephone" on page xvii for contact information and instructions.

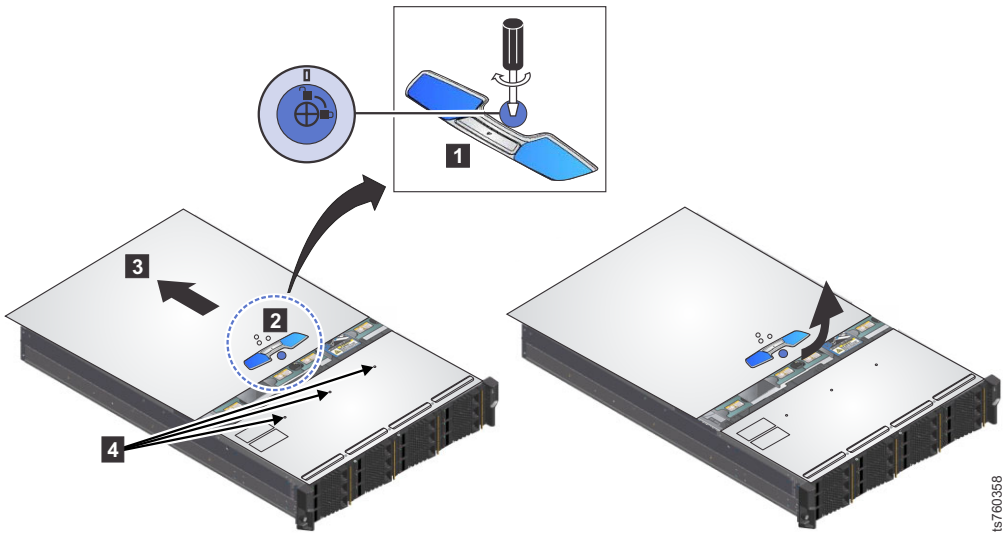

Figure 17. Removing the top cover

4. If a fan appears to be seated incorrectly, maneuver it back into the proper position. The top surfaces of all 10 fans must be flush and even. See Figure 18.

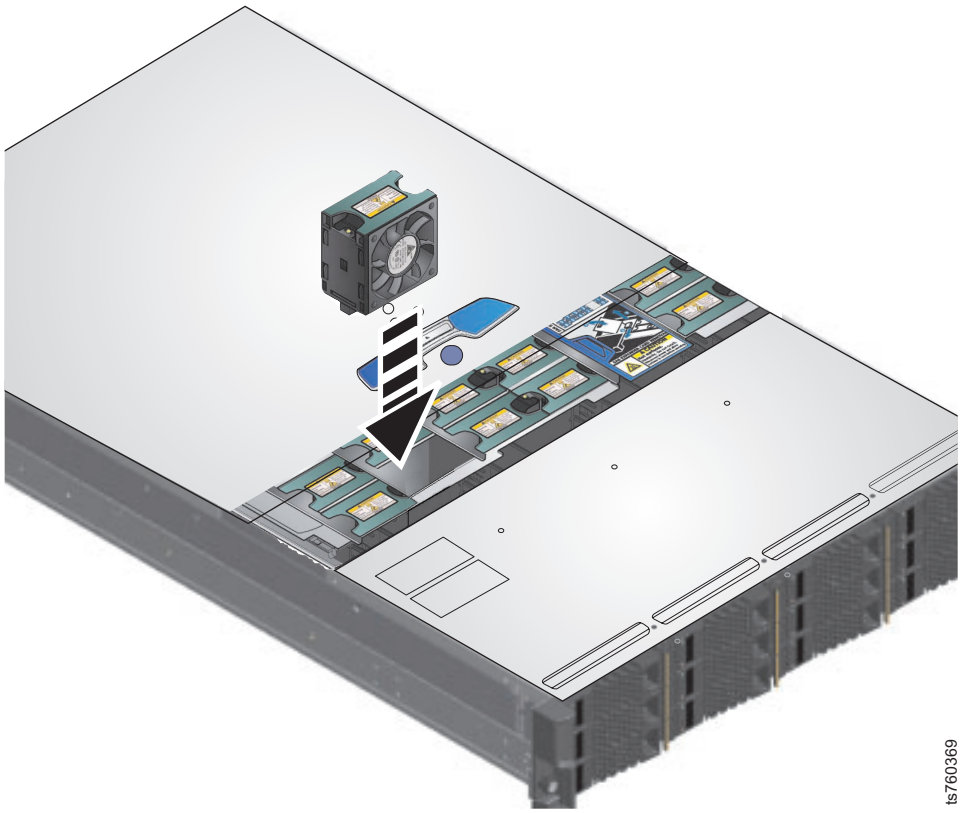

Figure 18. Seat dislodged cooling fan

5. When you have finished checking the fans, slide the top cover back into the closed position and tighten the holding screw
6. Replace and tighten the three small cover screws.

7. See Figure 19. The nut clips are in the ship group. Attach the nut clips (flat side of the nut to the front) to the middle hole of the 2U location to be occupied by the server. The nut clips support the weight of the server. (Refer to Figure 1 on page 6 for hole location information.)

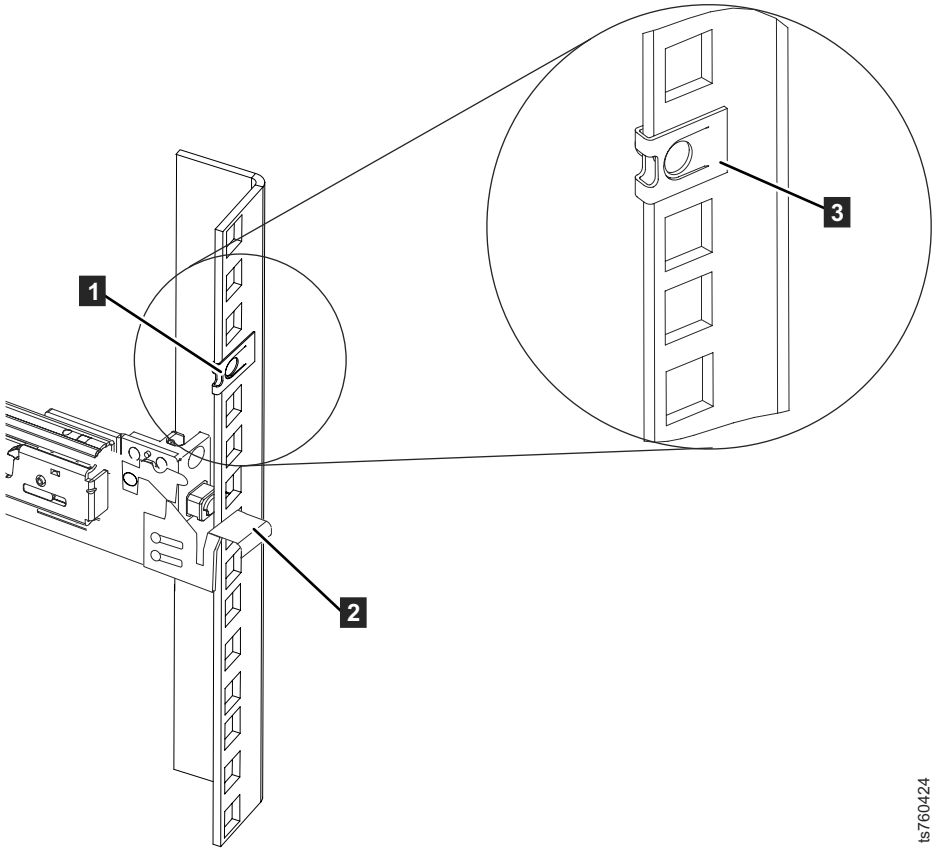

Figure 19. Attaching the nut clips to the rack

8. See Figure 20 on page 22. Working from the front of the rack, push the front tab **2** and pull the slide rails and support tray forward. When fully extended, the rails click into the locked position **1** . Remove the center thumb screw on the back of the rack.

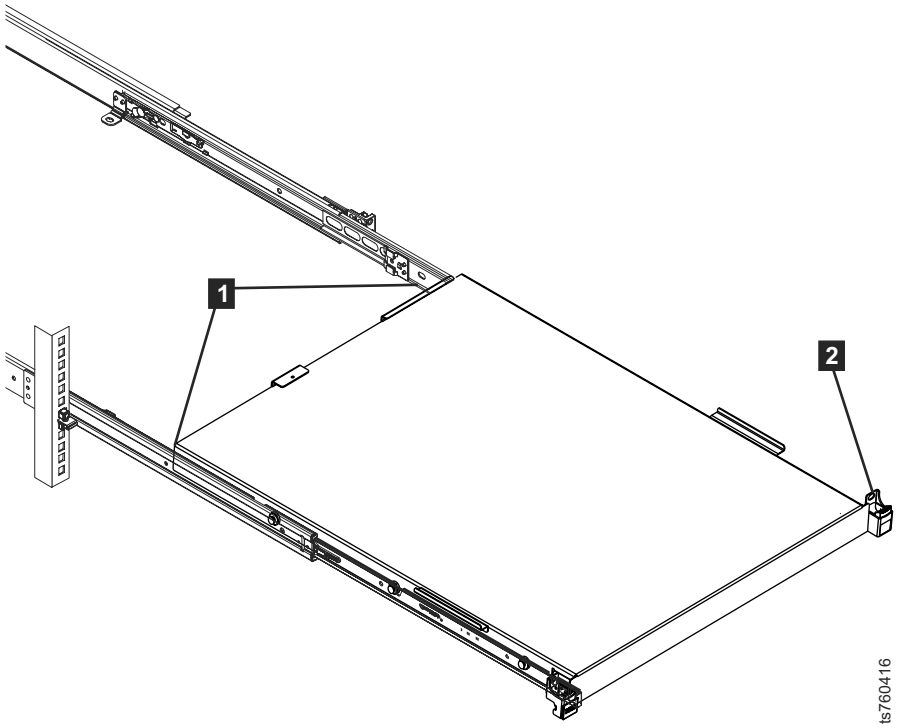

Figure 20. Extending the slide rails and support tray

9. See Figure 21 on page 23. Place the server on the support tray. To do so:
   a. Carefully lift the server and align the bottom, rear edge of the server; with the top, front edge of the support tray **1** .
   b. Tilt the front of the server down slightly and align the grooves on the sides of the server with the flanged guides **1** on the sides of the tray.

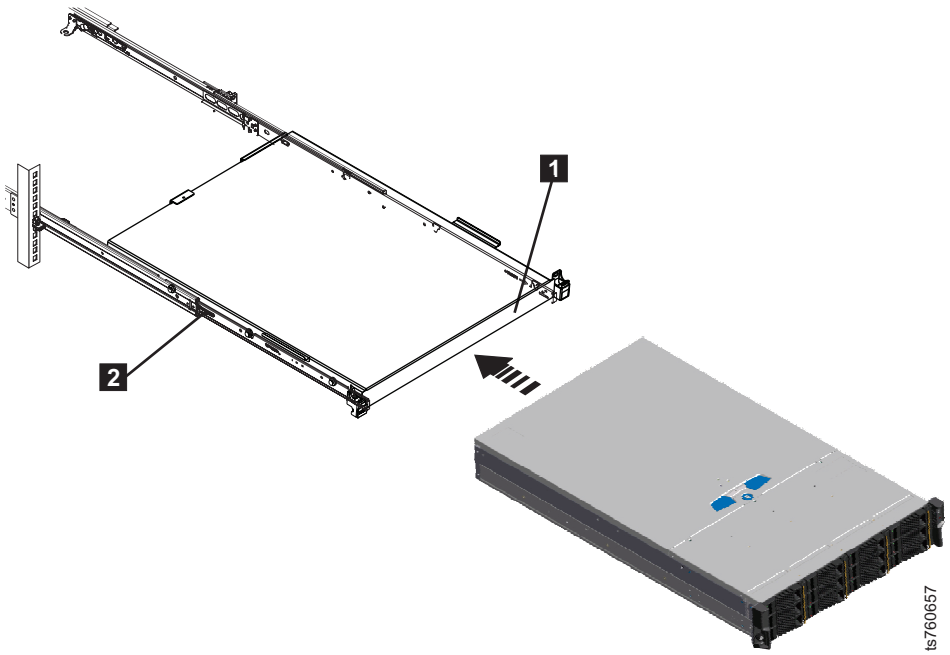

Figure 21. Aligning the server with the support tray

10. See Figure 22. Slowly slide the server backward along the guides until the server comes to a stop.

    When the server is properly seated, the back end of the server is flush with the back end of the support tray **1** .

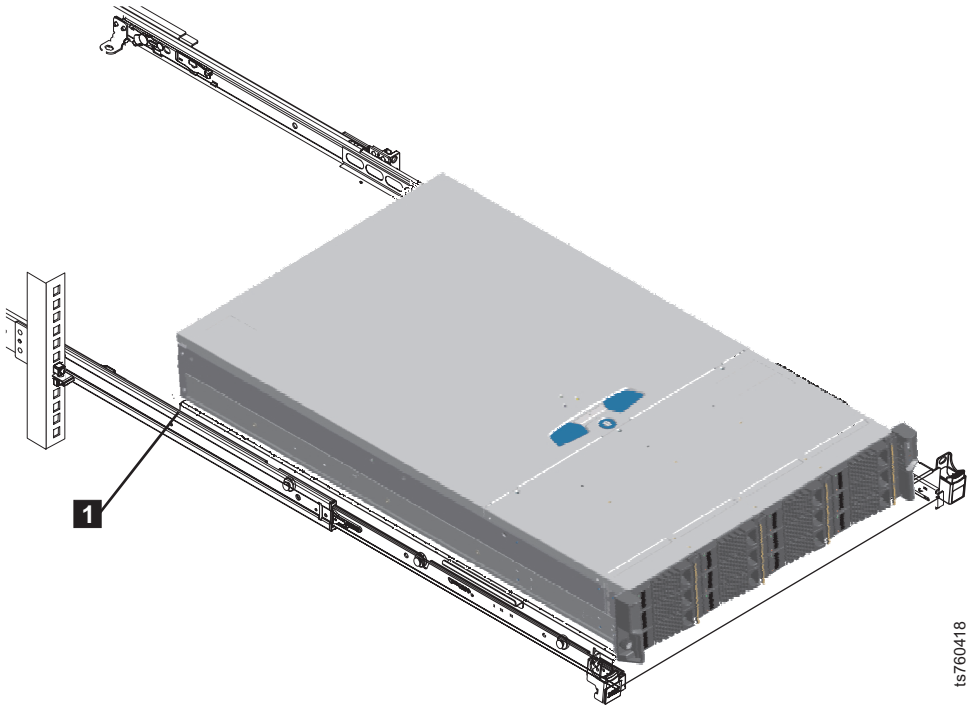

Figure 22. Seating the server on the support tray

11. See Figure 23. Replace and tighten the center thumbscrew on the rear of the tray.

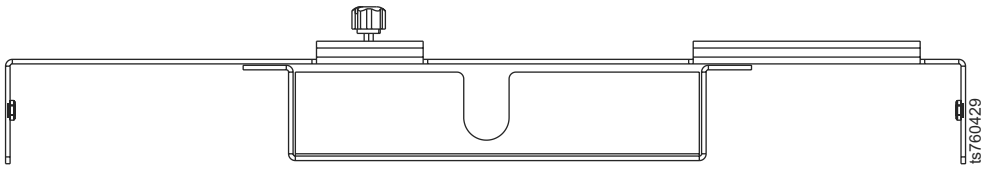

Figure 23. Center thumbscrew

12. Refer to Figure 24. Pull up on the clips **1** on each slide rail to release the safety catches.
13. Continue holding the catches as you push the server backward until it clicks into place inside the rack.
14. Using your fingers or a screwdriver, tighten the left- and right-side thumbscrews on the front of the server.
15. Refer to Figure 24. Install the M6 screws **2** in the front of the server. If the rack is in a vibration-prone area or is relocated while the server is installed, tightening the thumbscrews further secures the server.

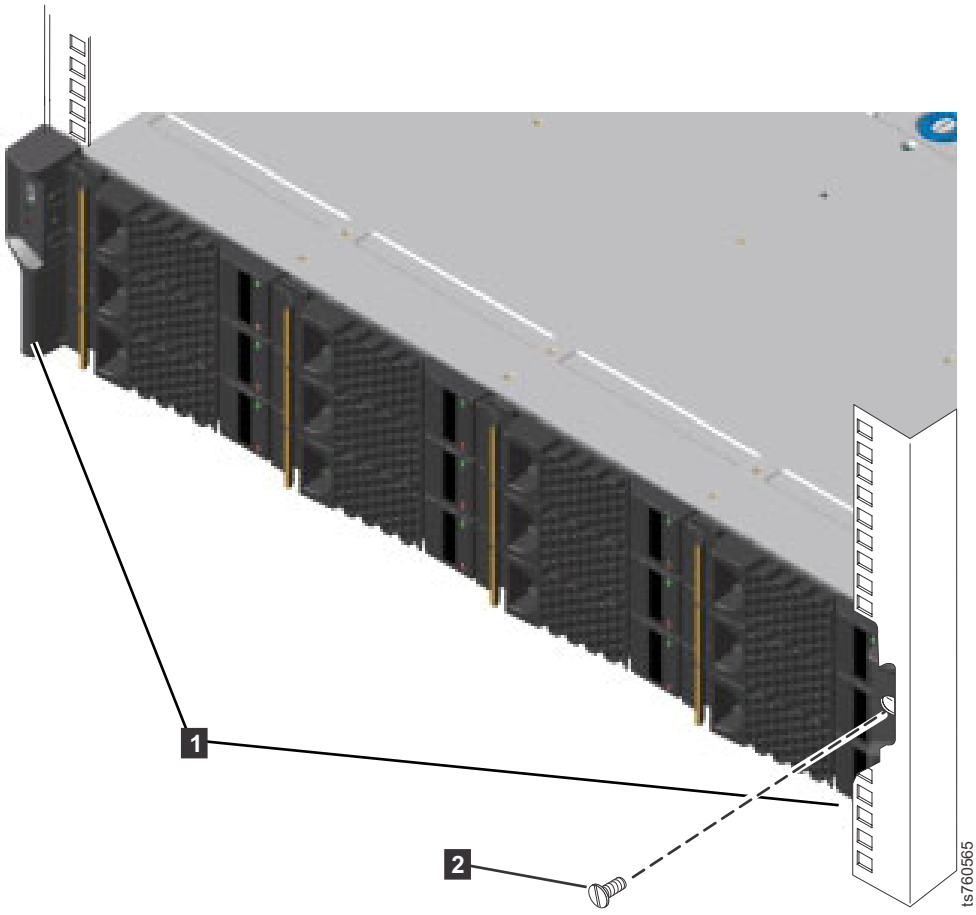

Figure 24. Install the front screws

16. Refer to Figure 25. To secure the server in the rack, use a screwdriver to remove the screws **1** from the rear of the slides. Replace the screws with the 10-32 **2** screws, provided. If the cable management arm was installed, use a cable tie to secure the free end of the cable management arm to the EIA frame on the rack.

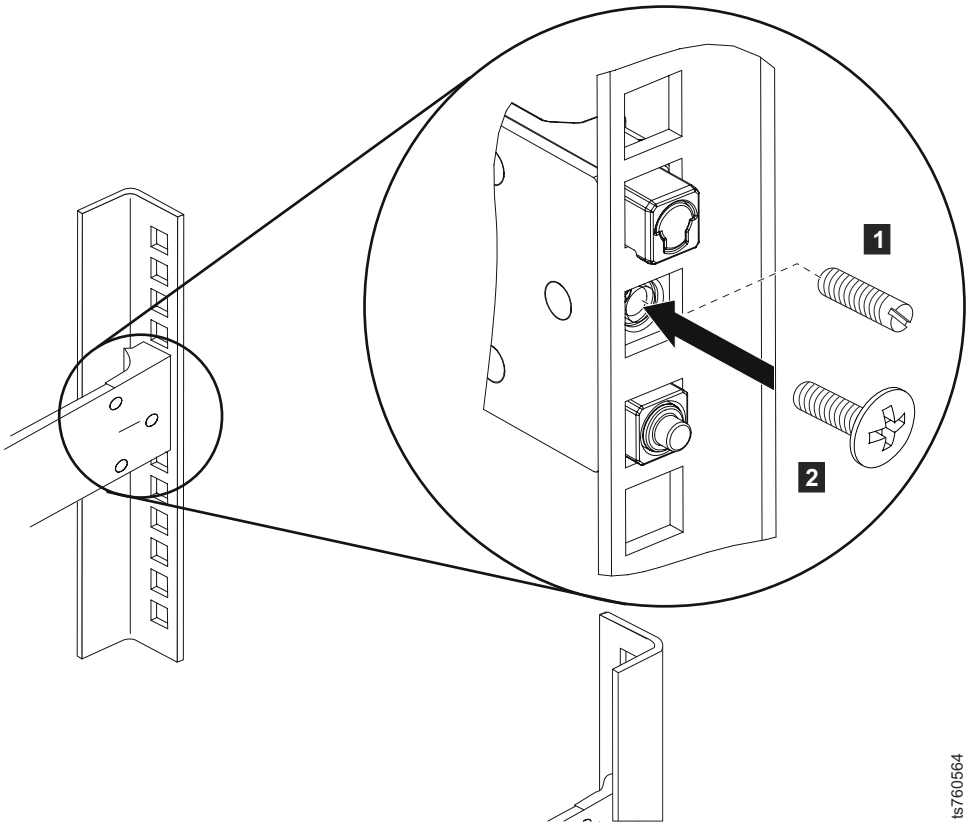

Figure 25. Secure the cable management arm and the server in the rack for vibration prone areas or shipping

You have now completed the TS7620 Appliance Express hardware installation.

17. Go to Chapter 3, "Making cable connections and powering-on the components," on page 27.

Chapter 3. Making cable connections and powering-on the components

Use these procedures to make required peripheral device and cable connections, and power-on the components.

About this task

"Task 2: Connecting the cables and peripheral devices to the server" through "Task 2d: Powering-on the hardware" on page 36 consist of:

- Attaching the provided labels to their corresponding cables
- Making Ethernet, Fibre Channel, and power cable connections

  Note: Ethernet and Fibre Channel cables are supplied by the customer.
- Connecting the peripheral devices (DVD drive, keyboard, and monitor) to the server
- Routing the cables through the cable management arm
- Powering-on the components

It is recommended that you connect all of the cables before routing them through the cable management arm. By doing so, you can confirm in advance that the cables are long enough to span the distances between devices.

Task 2: Connecting the cables and peripheral devices to the server

About this task

The cable connections for VTL systems are unique, while the cable connections for OpenStorage and FSI systems are the same. Be sure to use the information and instructions for the type of system that you purchased.

The following paragraphs deal with the external application interface IP addresses to be entered.

ProtecTIER exposes virtual interfaces to the host, such as a media server with the plug-in installed. In version 3.2, the physical Ethernet ports are assigned to one virtual application interface. Currently, the physical ports are assigned to virtual interface ost1 or fsi1, depending on the server configuration. This assignment option is used to group several physical interfaces into a single virtual interface, and create a bond configuration of several physical interfaces. Each virtual interface used must be configured with a corresponding IP address.

Attention: Each configured IP address on the same server needs to be on a different subnet, and each subnet needs to be on a different VLAN. If separate subnets and VLAN's are not used, in certain environments and networks, network packets can move to other subnets, which can harm network performance and potentially reduce the network's quality of service.

In addition, each virtual interface containing more than one physical interface (configured as a bond) needs to be configured with a load balancing method. For a

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server with 10 Gb interfaces, where bonding is implemented, the recommended load balancing method is LACP with L3L4.

For more information about bonding, the different load balancing methods, and whether to configure bonds at all, refer to the *Best Practices Guide for IBM System Storage TS7600 ProtecTIER Deduplication Solutions*, GA32-0924 or the *IBM ProtecTIER Implementation and Best Practices*, IBM Redbooks® publication SG24-8025.

Task 2a: Making cable connections on a VTL system

Procedure

1. Make the cable connections as described in Table 5.

   To see the slot, port, and connector locations on the server, refer to Figure 26 on page 30 and Table 6 on page 30.

Table 5. TS7620 Appliance Express server cable connections for VTL systems

Action	From	To	On Device	Cable Label	Additional Information
Connect a Fibre Channel cable (supplied by customer)	The Fibre Channel switch on your host network	**Port 0** of the adapter in **Slot** 5	TS7620 Appliance Express server	15	Fibre Channel cables are delicate. Exercise care when connecting to avoid damage. Fibre Channel cable connectors are also keyed, meaning they can be connected only in one direction. Align the protruding piece on the cable connector with the indentation on the side of the port.
Connect a Fibre Channel cable (supplied by customer)	The Fibre Channel switch on your host network	**Port 1** of the adapter in **Slot** 5	TS7620 Appliance Express server	16	Fibre Channel cables are delicate. Exercise care when connecting to avoid damage. Fibre Channel cable connectors are also keyed, meaning they can be connected only in one direction. Align the protruding piece on the cable connector with the indentation on the side of the port.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your local area network (LAN)	**Act/Link A** (ETH0) port of the adapter in **Slot** 6	TS7620 Appliance Express server	19	This cable provides the primary Ethernet connectivity to your LAN.

Table 5. TS7620 Appliance Express server cable connections for VTL systems (continued)

Action	From	To	On Device	Cable Label	Additional Information
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your local area network (LAN)	**ETH3** (A2) on-board (Port 0) Ethernet port	TS7620 Appliance Express server	**8**	This cable provides redundant connectivity to your LAN. If the Ethernet adapter (in slot 6) fails, this redundancy helps ensure that LAN connectivity is maintained.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your replication network	**Act/Link B** (**ETH1**) port of the adapter in **Slot 6**	TS7620 Appliance Express server	**20**	This connection is required only if you are enabling replication. Make sure the gateway IP address used for this port (ETH1) is not the same as the gateway IP address used for ETH2.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your replication network	**ETH2** (A1) on-board (Port 1) Ethernet port	TS7620 Appliance Express server	**7**	This connection is required only if you are enabling replication. Make sure the gateway IP address used for this port (ETH2) is not the same as the gateway IP address used for ETH1.
Connect a power cord (supplied) and secure the wire bale (if the cord you received accommodates it)	The **P2** outlet on the upper PSU.	A grounded power outlet	A redundant, voltage-compatible AC power source, such as a power distribution unit (PDU) or universal power supply (UPS)	**6**	When you connect the PSUs to AC power, the LEDs on the PSUs and on the server flash. The cooling fans might also start running, which indicates that the server is connected to AC power, but not yet powered-on. Do not press the power button at this time. Do so only when instructed in "Task 2d: Powering-on the hardware" on page 36.
Connect a power cord (supplied) and secure the wire bale (if the cord you received accommodates it)	The **P1** outlet on the lower PSU.	A grounded power outlet	A redundant, voltage-compatible AC power source, such as a power distribution unit (PDU) or universal power supply (UPS)	**5**	
Connect the USB cables	The DVD drive	USB (**U**) ports 3 and 4	TS7620 Appliance Express server	**11** and **12**	

Table 5. TS7620 Appliance Express server cable connections for VTL systems (continued)

Action	From	To	On Device	Cable Label	Additional Information
Connect the USB or PS/2 cable	The USB or PS/2 keyboard (supplied by customer)	USB (U) port 1 or the PS/2 (K) port	TS7620 Appliance Express server	9 or 4	
Connect a USB or PS/2 cable *(optional)*	A USB or PS/2 mouse (supplied by customer)	USB (U) port 2 or the PS/2 mouse (M) port	TS7620 Appliance Express server	10 or 3	A mouse is not required to perform the server-based tasks in this document. *(Optional)*
Connect the video cable	The graphics-capable monitor (supplied by customer)	The video (V) port	TS7620 Appliance Express server	2	
Connect the power cable	The graphics-capable monitor (supplied by customer)	A grounded power outlet	A voltage-compatible AC power source	No label provided	To avoid damage, check the voltage rating on the monitor and select the power source, accordingly.

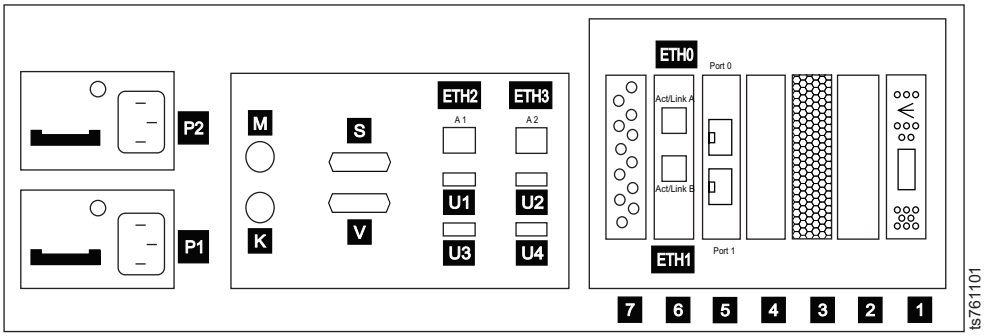

Figure 26. TS7620 Appliance Express server for VTL systems rear view

Table 6. TS7620 Appliance Express server for VTL systems slot assignments, ports, and connectors

P2 Power supply (Upper)	U USB ports: Upper left = 1, upper right = 2, lower left = 3, lower right = 4
P1 Power supply (Lower)	7 RAID Battery Backup Unit (BBU)
M PS/2 mouse port	6 ETH0 (Act/Link A) port: LAN ETH1 (Act/Link B) port: Replication
K PS/2 keyboard port	5 Fibre Channel Adapter
S RS-232 serial port	4 Unused (Empty)
V Video port	3 Boot Drive MegaRAID Controller
ETH2 (A1) on-board (Port 0) Ethernet port: Replication	2 Unused (Empty)
ETH3 (A2) on-board (Port 1) Ethernet port: LAN	1 Repository MegaRAID Controller

2. Go on to "Task 2b: Attaching the cable labels" on page 34.

Task 2a: Making cable connections on an OpenStorage or FSI system

About this task

The procedures in this section are the same for both OpenStorage and FSI systems.

Procedure

1. Make the cable connections as described in Table 7.

   To see the slot, port, and connector locations on the server, refer to Figure 27 on page 34 and Table 8 on page 34.

Table 7. TS7620 Appliance Express server cable connections for OpenStorage or FSI systems

Action	From	To	On Device	Cable Label	Additional Information
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your local area network (LAN)	**Act/Link A** (**ETH0**) port of the adapter in **Slot 6**	TS7620 Appliance Express server	**19**	This cable provides the primary Ethernet connectivity to your LAN.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your replication network	**Act/Link B** (**ETH1**) port of the adapter in **Slot 6**	TS7620 Appliance Express server	**20**	This connection is required only if you are enabling replication. Make sure the gateway IP address used for this port (ETH1) is not the same as the gateway IP address used for ETH4.
Connect an Ethernet cable (supplied by customer)	The Ethernet switch on your host network	**Act/Link A** (**ETH2**) port of the adapter in **Slot 5**	TS7620 Appliance Express server	**17**	This cable connects to your OpenStorage or FSI network. For OpenStorage, make sure the IP address used for this port is on the same subnet as your NetBackup media server.

Table 7. TS7620 Appliance Express server cable connections for OpenStorage or FSI systems (continued)

Action	From	To	On Device	Cable Label	Additional Information
Connect an Ethernet cable (supplied by customer)	The Ethernet switch on your host network	**Act/Link B** (**ETH3**) port of the adapter in **5**	TS7620 Appliance Express server	**18**	This cable connects to your OpenStorage or FSI network. For OpenStorage, make sure the IP address used for this port is on the same subnet as your NetBackup media server.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your replication network	**ETH4** (A1) on-board (Port 0) Ethernet port	TS7620 Appliance Express server	**7**	This connection is required only if you are enabling replication. Make sure the gateway IP address used for this port (ETH4) is not the same as the gateway IP address used for ETH1.
Connect an Ethernet cable (supplied by customer)	An Ethernet switch on your local area network (LAN)	**ETH5** (A2) on-board (Port 1) Ethernet port	TS7620 Appliance Express server	**8**	This cable provides redundant connectivity to your LAN. If the Ethernet adapter (in slot 6) fails, this redundancy helps ensure that LAN connectivity is maintained.

Table 7. TS7620 Appliance Express server cable connections for OpenStorage or FSI systems (continued)

Action	From	To	On Device	Cable Label	Additional Information
Connect a power cord (supplied) **Note:** Secure the wire bale (if the cord you received accommodates it)	The **P2** outlet on the upper PSU.	A grounded power outlet	A redundant, voltage-compatible AC power source, such as a power distribution unit (PDU) or universal power supply (UPS)	**6**	When you connect the PSUs to AC power, the LEDs on the PSUs and on the server flash. The cooling fans might also start running, which indicates that the server is connected to AC power, but not yet powered-on. Do not press the power button at this time. Do so only when instructed in "Task 2d: Powering-on the hardware" on page 36.
Connect a power cord (supplied) **Note:** Secure the wire bale (if the cord you received accommodates it)	The **P1** outlet on the lower PSU.	A grounded power outlet	A redundant, voltage-compatible AC power source, such as a power distribution unit (PDU) or universal power supply (UPS)	**5**	
Connect the USB cables	The DVD drive	USB (**U**) ports 3 and 4	TS7620 Appliance Express server	**11** and **12**	
Connect the USB or PS/2 cable	The USB or PS/2 keyboard (supplied by customer)	USB (**U**) port 1 or the PS/2 (**K**) port	TS7620 Appliance Express server	**9** or **4**	
Connect a USB or PS/2 cable *(optional)*	A USB or PS/2 mouse (supplied by customer)	USB (**U**) port 2 or the PS/2 mouse (**M**) port	TS7620 Appliance Express server	**10** or **3**	A mouse is not required to perform the server-based tasks in this document. *(Optional)*
Connect the video cable	The graphics-capable monitor (supplied by customer)	The video (**V**) port	TS7620 Appliance Express server	**2**	
Connect the power cable	The graphics-capable monitor (supplied by customer)	A grounded power outlet	A voltage-compatible AC power source	No label provided	To avoid damage, check the voltage rating on the monitor and select the power source, accordingly.

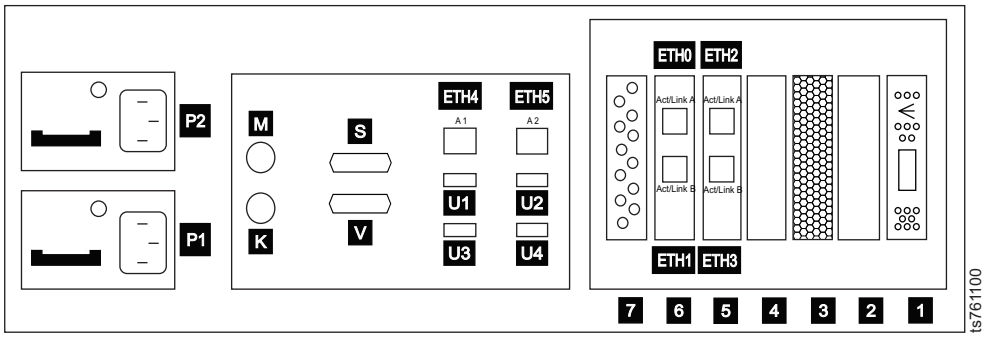

Figure 27. TS7620 Appliance Express server for OpenStorage or FSI systems rear view

Table 8. TS7620 Appliance Express server for OpenStorage or FSI systems slot assignments, ports, and connectors

P2 Power supply (Upper)	**U** USB ports: Upper left = 1, upper right = 2, lower left = 3, lower right = 4
P1 Power supply (Lower)	**7** RAID Battery Backup Unit (BBU)
M PS/2 mouse port	**6** **ETH0** (Act/Link A) port: LAN **ETH1** (Act/Link B) port: Replication
K PS/2 keyboard port	**5** **ETH2** (Act/Link A) port: OpenStorage or FSI **ETH3** (Act/Link B) port: OpenStorage or FSI
S RS-232 serial port	**4** Unused (Empty)
V Video port	**3** Boot Drive MegaRAID Controller
ETH4 (A1) On-board (Port 0) Ethernet port: Replication	**2** Unused (Empty)
ETH5 (A2) On-board (Port 1) Ethernet port: LAN	**1** Repository MegaRAID Controller

2. Go to "Task 2b: Attaching the cable labels."

Task 2b: Attaching the cable labels

Procedure

1. Match the cable label number with the corresponding cable as indicated in Table 6 on page 30 for OpenStorage and VTL or Table 8 for FSI, as applicable.
2. Remove the self-adhesive label from the backing liner. Handle the typed label carefully to prevent smudging.
3. Align the center reference lines **1** on the label with the axis of the cable, as shown in Figure 28 on page 35. For ease of handling, attach the cable label near the **From** and **To** ends of each cable.

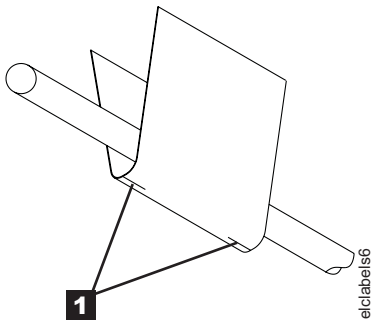

Figure 28. Attaching the label to the cable

4. Go on to "Task 2c: Routing the cables through the optional cable management arm."

Task 2c: Routing the cables through the optional cable management arm

Before you begin

Perform this step only if you installed the optional cable management arm assembly. If you did not install the optional cable management arm assembly, go to "Task 2d: Powering-on the hardware" on page 36.

Procedure

1. Route the Ethernet and Fibre Channel cables, and the power cords, through the channel on the cable management arm **1** . See Figure 29.

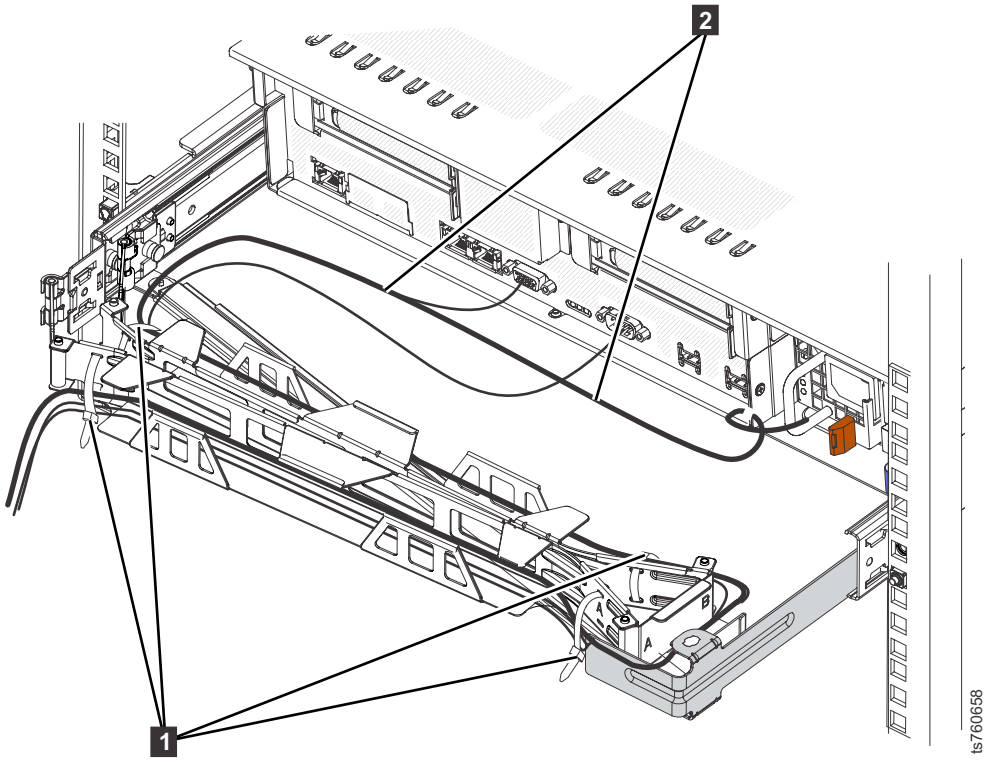

Figure 29. Routing the cables through the cable management arm

2. Secure the cables to the cable management arm with plastic ties or hook-and-loop fasteners.
3. Use additional hook-and-loop fasteners to reduce any cable sag near the server 2 .
4. Secure the routed cables to the chassis with the plastic tie that is pre-attached to the server.
5. Go on to "Task 2d: Powering-on the hardware."

Task 2d: Powering-on the hardware

About this task

After the cable connections are complete, you can power-on the system hardware.

While the system is powering-on, take care to avoid touching the cables or any of the components. Doing so might interfere with the process, resulting in startup errors or failure.

Procedure

1. Press the servers **On/Off** button (5) on the side of the operator panel on the front of the server. See Figure 30.

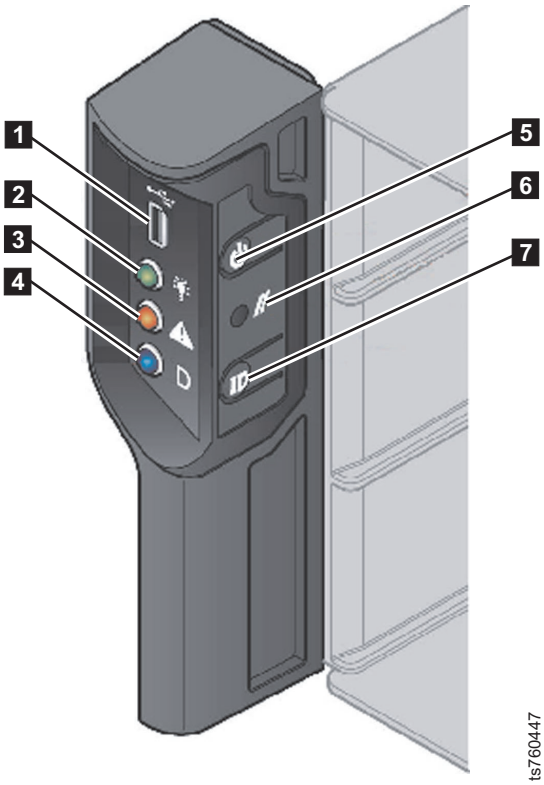

Figure 30. TS7620 Appliance Express server operator panel

Table 9. TS7620 Appliance Express server operator panel

1 Mini-USB port	5 Power button
2 Power-on LED	6 System reset button
3 Error detection LED	6 Identification LED switch

Table 9. TS7620 Appliance Express server operator panel (continued)

4 Identification LED	

2. While the server is booting up, press the **power** button on the monitor.

   The boot cycle might take up to 10 minutes to complete.

   While the server boots, the display might flash on and off. A number of status messages, which might include one or more failure notices, display on the screen. If the failures do not disrupt the boot cycle ignore the messages, and allow the process to continue.

   As the boot cycle nears completion, a series of messages similar to the following, displays:

   ```
   GFS: fsid=xuxoqugedahide:gfs_lv_vg0.0:fast statfs start time =
   1276105582
   GFS: fsid=xuxoqugedahide:gfs_lv_vg1.0:fast statfs start time =
   1276105582
   GFS: fsid=xuxoqugedahide:gfs_lv_vg2.0:fast statfs start time =
   1276105582
   GFS: fsid=xuxoqugedahide:gfs_lv_vg3.0:fast statfs start time =
   1276105583
   GFS: fsid=xuxoqugedahide:gfs_lv_vg4.0:fast statfs start time =
   1276105583
   ```

3. When message activity ceases, press **<enter>**.

   The server login: prompt displays.

   Following the reboot, certain conditions may cause the bottom LED on all 12 HDDs to illuminate as solid amber. If this occurs, stop what you are doing and contact IBM support for assistance. See "Getting help by telephone" on page xvii, for instructions.

4. Proceed as appropriate:
   - If all hardware LEDs are indicating normal status, and no audible warnings are occurring, you can begin system configuration. Go on to Chapter 4, "Configuring the system," on page 39.
   - If one or more LEDs is indicating fault status, or audible warnings are occurring, refer to the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916, for more information.
5. Go to Chapter 4, "Configuring the system," on page 39.

Chapter 4. Configuring the system

About this task

Now that the TS7620 Appliance Express hardware is installed, you are ready to prepare and customize the system for your working environment.

You will complete "Task 3: Accessing the ProtecTIER Service menu" on page 40 through "Task 3f: Configuring ProtecTIER's IP interfaces" on page 46, to do the following on each TS7620 Appliance Express server:

- Specify the IP address of a primary (and optional secondary) network time protocol (NTP) time server, if applicable
- Set the timezone to that of your location
- Check (and update, if necessary) the time and date settings
- Update the system, external (customer) network, and ProtecTIERapplication interface; settings

The following paragraphs deal with the external application interface IP addresses to be entered.

ProtecTIER exposes virtual interfaces to the host, such as a media server with the plug-in installed. In version 3.2, the physical Ethernet ports are assigned to one virtual application interface. Currently, the physical ports are assigned to virtual interface ost1 or fsi1, depending on the server configuration. This assignment option is used to group several physical interfaces into a single virtual interface, and create a bond configuration of several physical interfaces. Each virtual interface used must be configured with a corresponding IP address.

Attention: Each configured IP address on the same server needs to be on a different subnet, and each subnet needs to be on a different VLAN. If separate subnets and VLAN's are not used, in certain environments and networks, network packets can move to other subnets, which can harm network performance and potentially reduce the network's quality of service.

In addition, each virtual interface containing more than one physical interface (configured as a bond) needs to be configured with a load balancing method. For a server with 10 Gb interfaces, where bonding is implemented, the recommended load balancing method is LACP with L3L4.

For more information about bonding, the different load balancing methods, and whether to configure bonds at all, refer to the *Best Practices Guide for IBM System Storage TS7600 ProtecTIER Deduplication Solutions*, GA32-0924 or the *IBM ProtecTIER Implementation and Best Practices*, IBM Redbooks publication SG24-8025.

If you have an FSI system, and you plan to implement Active Directory user authentication, you must use an NTP time server. Failure to do so will prevent Active Directory from functioning properly. See "Task 3c: Specifying a time server" on page 44 for instructions.

If you experience problems during system configuration, refer to the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and*

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Maintenance Guide, GA32-0916, located on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD.

Warning! Read before you start the configuration

About this task

If you installed only one TS7620 Appliance Express server, skip the information in this section and go on to "Task 3: Accessing the ProtecTIER Service menu."

Otherwise, if you installed multiple TS7620 Appliance Express servers, be advised that you must take precautions to avoid problems during system configuration. If you do not follow the steps in this section, IP address conflicts among the servers will cause the configuration to fail.

Procedure

1. Select the server you want to configure first (SERVER 1).
2. Check to see if there are cables attached to the ports used for replication. Proceed as applicable:
   - On a VTL system:
     a. Check the back of each server for cables attached to the **ETH1** and **ETH2** ports. See Figure 26 on page 30) for port locations.
     b. If cables are attached to those ports, disconnect them and then go on to step 3.
   - On an OpenStorage or FSI system:
     a. Check the back of each server for cables attached to the **ETH1** and **ETH4** ports. See Figure 27 on page 34) for port locations.
     b. If cables are connected to those ports, disconnect them and then go on to step 3.
3. Starting with SERVER 1 (the server you selected in step 1), go on to "Task 3: Accessing the ProtecTIER Service menu."

Task 3: Accessing the ProtecTIER Service menu

Procedure

1. If necessary, power-on the server and the monitor, and wait for the login prompt to display.

   For power-on instructions, see "Task 2d: Powering-on the hardware" on page 36.
2. At the **login** prompt, type: **ptconfig** and press **<enter>**.
3. At the **Password** prompt, type: **ptconfig** and press **<enter>**

   The main **ProtecTIER Service menu** displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
--------------------------------------------------------------------------------
  1) ProtecTIER Configuration (...)
  2) Manage ProtecTIER services (...)
  3) Health Monitoring (...)
  4) Problem Alerting (...)
  5) Version Information (...)
  6) Generate a service report
  7) Generate a system view
  8) Update ProtecTIER code

  E) Exit
--------------------------------------------------------------------------------
>>> Your choice?
```

Figure 31. ProtecTIER Service menu

An ellipsis (...) indicates a related submenu, which contains additional options.

4. On the **ProtecTIER Service Menu**, select **ProtecTIER Configuration (...)**. Type the corresponding number and press **<enter>**.

   The **ProtecTIER Configuration (...)** menu displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
            ProtecTIER Configuration (...)
--------------------------------------------------------------------------------
  1) Configure ProtecTIER node
  2) Recover Configuration for a replaced server
  3) Configure machine serial number for a replaced server
  4) Update Time, Date, Timezone & Timeserver(s)
  5) Configure replication (...)
  6) IP Network configuration (...)
  7) Update Firmware
  8) Update the System's name
  9) Validate configuration

  B) Back
  E) Exit
--------------------------------------------------------------------------------
>>> Your choice?
```

Figure 32. ProtecTIER Configuration (...) menu

Use the options on the menu to complete "Task 3a: Setting the timezone" on page 42 through "Task 3f: Configuring ProtecTIER's IP interfaces" on page 46.

5. Go to "Task 3a: Setting the timezone" on page 42.

Task 3a: Setting the timezone

Use the procedures in this task to change the time zone setting to match that of your location. **You must set the timezone to ensure accurate system timekeeping**.

Before you begin

If either of the following conditions is true, skip this task and "Task 3b: Setting the date and time" on page 43, and go directly to "Task 3c: Specifying a time server" on page 44:

- You have an FSI system on which you plan to implement Active Directory user authentication. A time server is **required** for this configuration.
- You want to use a network time server to simultaneously synchronize the time, date, and timezone settings on all of your TS7620 Appliance Express servers, regardless of their configuration type.

Otherwise, proceed as directed in the steps that follow.

Procedure

1. On the **ProtecTIER Configuration (...)** menu (see Figure 32 on page 41), select the **Update Time, Date, Timezone & Timeserver(s)** option. Type the corresponding number and press **<enter>**.

   The **Date, Time, Timezone & Timeserver(s) configuration** menu, displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
           Date, Time, Timezone & Timeserver(s) configuration
--------------------------------------------------------------------------------
  1. Set date & time
  2. Set Timezone
  3. Set Timeserver(s)

  c. Commit changes and exit
  q. Exit without committing changes
--------------------------------------------------------------------------------
>>> Please Choose:
```

Figure 33. Date, Time, Timezone & Timeserver(s) configuration menu

   Note: To prevent selections from scrolling off the screen, consider setting the paging to show fewer lines of information.

2. Select the **Set Timezone** option. Type the corresponding number and press **<enter>**.
3. If you are in the United States, when prompted for a country code, type: **US** and press **<enter>**.

   For locations outside the United States, you must enter an international country code. Refer to Appendix A, "Worldwide time zone codes," on page 63 to locate your information, then return to this task and enter the appropriate country code in step 3.

   The time zones for the specified country display. A sample of the US time zones list is shown in Figure 34 on page 43:

```
Time Zones under US:
====================

1. America/New_York
2. America/Detroit
   .
   .

10. America/Indiana/Vevay
11. America/Chicago
   .
   .

26. America/Adak
27. America/Honolulu

Please choose a timezone:
```

Figure 34. Sample of US time zones

4. If the **Press enter to continue** prompt displays, the time zone list is too long to display on the screen at once. Press **<enter>** to advance the list.
5. At the bottom of the timezone list, the **Please choose a timezone** prompt displays. Type the number for the timezone you want to use and press **<enter>**.

   For example, the US timezone code for Chicago is 11.

   If your exact location is not on the list, select the timezone code for the location nearest you.

   You are returned to the **Date, Time, Timezone & Timeserver(s) configuration** menu.
6. Leave the menu open, and go on to "Task 3b: Setting the date and time."

Task 3b: Setting the date and time

About this task

Use the procedures in this task to check the time and date on the server. If necessary, change the settings to match the time and date at your location.

Procedure

1. On the **Date, Time, Timezone & Timeserver(s) configuration** menu (see Figure 33 on page 42), select the **Set date & time** option. Type the corresponding number and press **<enter>**.
2. When prompted for the date:
   - If the default date [displayed in brackets] is correct, press **<enter>**.
   - If the default date is incorrect, type the current date in DD/MM/YYYY format and press **<enter>.** *For example: 09/01/2012*.
3. When prompted for the time:
   - If the default time [displayed in brackets] is correct, press **<enter>**.
   - If the default time is incorrect, type the current time in HH:MM:SS format and press **<enter>.** *For example: 08:32:58*.
4. At the **Please choose** prompt, commit your timezone setting, as well as any changes made to the date and time, and exit the session. Type: **c** and press **<enter>**.

   The current time, date, and timezone settings display for review.

5. At the **Do you wish to apply those settings? (yes|no)** prompt, type: **yes** and press **<enter>**.

   You are notified as follows: `The cluster & VTFD services on all nodes must be stopped in order to continue. Do you wish to continue? (yes|no).` Type: **yes** and press **<enter>**.

   A series of status messages display as the services are stopped and restarted. This process might take up to 10 minutes. When the service restart is complete, the `Press the ENTER key to continue...` message displays.
6. Press **<enter>** to continue and return to the **ProtecTIER Service Menu.**
7. Skip "Task 3c: Specifying a time server." Leave the menu open and go on to "Task 3d: Updating the System Name" on page 45.

Task 3c: Specifying a time server

About this task

If you have an FSI system on which you plan to implement Active Directory user authentication, you must complete this task. Failure to do so will cause your FSI configuration to fail.

Conversely, if you already completed "Task 3a: Setting the timezone" on page 42 and "Task 3b: Setting the date and time" on page 43, skip this task and go directly to "Task 3d: Updating the System Name" on page 45.

Procedure

1. Before you start this task, proceed as appropriate:
   - If you already know the IP address of the primary (and optionally, secondary) time server you plan to use, go on to step 2.
   - Otherwise, do the following:
     a. Locate a primary (and optionally, secondary) time server. There are many websites (*for example, http://www.ntp.org/*) which provide lists of time servers available for public use.
     b. After selecting one or more time servers, make note of the IP addresses on your **Pre-Installation Checklist**.
     c. Go on to step 2.
2. On the **ProtecTIER Configuration (...)** menu (see Figure 32 on page 41), select the **Update Time, Date, Timezone & Timeserver(s)** option. Type the corresponding number and press **<enter>**.

   The **Date, Time, Timezone & Timeserver(s) configuration** menu, see Figure 33 on page 42, displays:
3. Select the **Set Timeserver(s)** option. Type the corresponding number and press **<enter>**.
4. When prompted, type the IP address of the primary network timeserver and press **<enter>**.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the IP address of the primary network timeserver.
5. At the **Would you like to set a secondary timeserver? (yes|no)** prompt, type: **yes** or **no**, as appropriate.
   - If you typed **yes,** type the IP address of the secondary network timeserver at the prompt, press **<enter>**, and go to step 6 on page 45.

Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the IP address of the secondary network timeserver.

- If you typed **no**, go to step 6.

6. At the **Do you wish to apply those settings? (yes|no)** prompt, type: **yes** and press **<enter>**.

   You are notified as follows: `The cluster & VTFD services on all nodes must be stopped in order to continue. Do you wish to continue? (yes|no).` Type: **yes** and press **<enter>**.

   A series of status messages displays as the services are stopped and restarted. This process can take up to 10 minutes. When the service restart is complete, the `Press the ENTER key to continue...` message displays.

7. Press **<enter>** to continue and return to the **ProtecTIER Configuration (...)** menu.
8. Leave the menu open and go on to "Task 3d: Updating the System Name."

Task 3d: Updating the System Name

About this task

Use the procedures in this task to specify the unique name by which the system, which consists of the rack and the TS7620 Appliance Express server, is identified in ProtecTIER Manager.

Procedure

1. On the **ProtecTIER Configuration (...)** menu (see Figure 32 on page 41), select the **Update the System's Name** option. Type the corresponding number and press **<enter>**.

   A series of status messages similar to the following, display:

   ```
   Starting Cluster, please wait...
   Starting cluster
   Cluster Started
   ```

2. At the **Please enter a new system name [pt_system]: prompt**, type the name you want to use to identify the TS7620 Appliance Express system (or leave the field blank to use the default name [within the brackets]) and press **<enter>**.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the system name. If you do not enter a unique name the default [pt_system] is applied.

   Additional status messages display as the system name is updated.

3. When the update is complete, and the `Press the ENTER key to continue...` message displays, press **<enter>**. You are returned to the **ProtecTIER Configuration (...)** menu.
4. Leave the menu open and go on to "Task 3e: Configuring the external (customer network) hostname."

Task 3e: Configuring the external (customer network) hostname

About this task

Use the procedures in this task to specify the name by which the server is identified on your local area network (LAN).

Procedure

1. On the **ProtecTIER Configuration (...)** menu (see Figure 32 on page 41), select the **IP Network Configuration (...)** option. Type the corresponding number and press **<enter>**.

   The **IP Network Configuration (...)** menu displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
            ProtecTIER Configuration (...)
            IP Network Configuration (...)
--------------------------------------------------------------------------------
   1) Configure hostname
   2) Configure ProtecTIER's IP interfaces
   3) Configure Static Routes

  B) Back
  E) Exit
--------------------------------------------------------------------------------
>>> Your choice?
```

Figure 35. IP Network Configuration (...)

2. Select the **Configure hostname** option. Type the corresponding number and press **<enter>**.

   The `Set external network hostname`

   `New hostname [node1]:` prompt, displays.

3. Enter the name used to identify the server on your network and press **<enter>**.

   To avoid confusion, make the system name and the external hostname, unique.

4. When the `Are you sure you want to submit this value? (yes|no|quit)` prompt displays, type: **yes** and press **<enter>**.

   The `End Processing Procedure Successfully` message displays.

5. When the `Press the ENTER key to continue...` message displays, press **<enter>**.

   You are returned to the **IP Network Configuration (...)** menu.

6. Leave the menu open and go on to "Task 3f: Configuring ProtecTIER's IP interfaces."

Task 3f: Configuring ProtecTIER's IP interfaces

About this task

Use the procedures in this task to specify the IP, netmask, and gateway addresses used by the ProtecTIER application interface.

Procedure

1. On the **IP Network Configuration (...)** menu (see Figure 35), select the **Configure ProtecTIER's IP interfaces** option. Type the corresponding number and press **<enter>**.

   A screen similar to this, displays:

```
--------------------------------------------------------------------------------
#  Interface      L/B Method   IP Address          Netmask            Device
--------------------------------------------------------------------------------
1  external       HA           123.456.78.900      255,255,255,0      eth0,eth5
2  replic1        HA           123.456.88.1        255,255,255,0      eth1
3  replic2        HA           123.456.89.1        255,255,255,0      eth4
4  ost1           HA           123.456.788.900     255,255,255,0      eth2,eth3
5  ost2           HA           123.456.789.900     255,255,255,0
6  unassigned     HA

Available options:
==================
(e)edit a virtual interface
(r)reassign a physical interface
(c)commit changes
(q)quit

Please Choose (e,r,c,q):
```

Figure 36. Configure ProtecTIER's IP interfaces

2. Select the **(e)edit a virtual interface** option. Type the corresponding letter and press **<enter>**.
3. At the `Please choose the ID of the virtual interface you wish to edit` prompt, choose **external**. Type the corresponding number and press **<enter>**.

   The available load balancing methods display:

   ```
   Available Load Balancing methods are:
   RR, L3L4, L2L3, L2, HA
   ```

   Note: Once **external** is configured, you can optionally continue with this procedure using the GUI.
4. At the `Choose a Load Balancing method [HA]:` prompt, press **<enter>** to accept the default [in brackets].
5. At the `IP address for external [1.23.456.789]:` prompt, type the correct external (customer network) IP address and press **<enter>**.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the external (customer network) IP address .
6. At the `Netmask for external [255.255.255.0]:` prompt, type the correct netmask address and press **<enter>.**

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the external netmask.
7. At the `Gateway for external [234.567.89.01]:` prompt, type the correct external gateway address and press **<enter>**.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the external gateway.
8. At the `Hostname for external [hostname]:` prompt, do one of the following:
   - If the default name [displayed in brackets] is correct, press **<enter>** to accept the default. The default should match the name you entered in 2 on page 46.
   - If the default [displayed in brackets] is incorrect, or you want to change it for any other reason, type the correct external hostname and press **<enter>.**

   The external hostname is the name by which the server is identified in ProtecTIER Manager.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the external hostname.

You are returned to the **Configure ProtecTIER's IP interfaces** screen. See Figure 36 on page 47.

9. Type: **c** to commit your changes and press **<enter>** to start the configuration process. A message saying "Configuring Application Interfaces" is displayed.
10. At the `Successfully committed changes!`

    `Press the ENTER key to continue...` prompt, press **<enter>**.

    You are returned to the **Configure ProtecTIER's application IP interfaces** screen. See Figure 36 on page 47
11. Type **q** to quit and leave the screen.
12. At the `Press the ENTER key to continue...` prompt, press **<enter>**.

    You are returned to the **IP network configuration (...)** menu. See Figure 35 on page 46.
13. Exit the menu. Type: **e** and press **<enter>**. You are returned to the [external hostname] login prompt.
14. Proceed as appropriate:
    - If this server is the only one you need to configure, go on to Chapter 5, "Setting up the ProtecTIER Manager workstation," on page 49.
    - If you have additional servers to configure, do the following on each server one at a time:
      a. Reattach any cables that you disconnected in "Warning! Read before you start the configuration" on page 40.
      b. Complete "Task 3: Accessing the ProtecTIER Service menu" on page 40 through "Task 3f: Configuring ProtecTIER's IP interfaces" on page 46.
      c. When you finish configuring the last server, go on to Chapter 5, "Setting up the ProtecTIER Manager workstation," on page 49.

Chapter 5. Setting up the ProtecTIER Manager workstation

Use these procedures to connect the ProtecTIER Manager workstation to your Ethernet LAN and install the ProtecTIER Manager software.

About this task

The ProtecTIER Manager workstation is a designated Windows- or Linux-based PC on your Ethernet network that runs the ProtecTIER Manager application. In ProtecTIER Manager, you can view, configure, manage, and remotely troubleshoot, your TS7620 Appliance Express servers. The ProtecTIER Manager workstation can be located anywhere that Ethernet connectivity to your local area network (LAN) is maintained.

Task 4: Connecting the ProtecTIER Manager workstation to your LAN

Use the procedures in this task to connect the designated ProtecTIER Manager workstation to your Ethernet LAN. You can do so with an Ethernet cable (Cat 5e or higher, not provided) or wireless signal.

About this task

You cannot use your TS7620 Appliance Express server as the ProtecTIER Manager workstation. You must use a PC or notebook that is running Windows or Linux. Additionally, if you use a Linux-based PC, it must have a Linux graphical user interface (GUI) installed.

Procedure

1. Connect the ProtecTIER Manager workstation to your Ethernet network by using an Ethernet cable or wireless signal, as applicable.
2. Power-on the ProtecTIER Manager workstation and wait for the boot cycle to complete.
3. Set the resolution on the workstation to 1280 x 1024; the optimal resolution for viewing the ProtecTIER Manager display.
4. Go to "Task 5: Installing ProtecTIER Manager on the ProtecTIER Manager workstation" or if you already have a ProtecTIER Manager workstation installed and configured with V3.2 code on your system go to "Task 5a: Logging into ProtecTIER Manager" on page 51.

Task 5: Installing ProtecTIER Manager on the ProtecTIER Manager workstation

Use the procedures in this task to install the ProtecTIER Manager software. Follow the instructions in the section that reflects your workstation configuration.

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You have a Windows-based workstation

About this task

If you need to use screen-reader software, you must prepare your ProtecTIER Manager workstation for accessibility. You must also follow special installation procedure to ensure accessibility support. Skip the installation procedures that follow and, instead, use the instructions in "Accessibility for publications and ProtecTIER Manager" on page 81.

Procedure

1. Insert the *IBM System Storage ProtecTIER Manager V3.2 DVD* into the disc drive on the workstation:
   - If the DVD automatically opens:
     a. Double-click **PT_Manager_V3.2.x**, and then double-click **Windows**.
     b. Double-click **Install.exe** to start the installation wizard, then go to step 2.
   - If the DVD does not automatically open:
     a. On the Windows task bar, click: **Start** > **Run...**. The Run dialog box opens.
     b. In the **Open** field, type: **D:** (where D: is the CD-ROM drive) then click **OK**.
     c. Double-click **PT_Manager_V3.2.x**, and then double-click **Windows**.
     d. Double-click **Install.exe** to start the installation wizard, then go to step 2.
2. Read the **Introduction** screen, and then click **Next**.
3. Follow the on-screen instructions to accept the software license agreements and install ProtecTIER Manager. You can accept the default installation options, or make other choices based on your preferences and working environment.
4. When the **Install Complete** window opens, click **Done** to close the wizard.
5. Eject the DVD, and then go on to "Task 5a: Logging into ProtecTIER Manager" on page 51.

You have a Linux-based workstation

Procedure

1. Insert the *IBM System Storage ProtecTIER Manager V3.2 DVD* into the disc drive on the workstation
2. From the Linux desktop, double-click the DVD icon, and then open the installation folder for the version of Linux you are using. Double-click **Linux** for version 64 or **Linux32** for version 32.
3. From the installation folder, select the **InstallLinuxXX.bin** file (where XX is 64 or 32, depending on the folder you are in). Drag the file onto the desktop.
4. Close any open windows, then right-click on an open area of the desktop.
5. From the menu that displays, click **Open Terminal**. The Terminal window opens.
6. At the terminal command prompt, change to the Desktop directory. Type: **cd Desktop** and press **<enter>**.

   The `cd Desktop` command is case-sensitive. Type it using an uppercase D.
7. Run the ProtecTIER Manager installer, replacing the XX in the command line with 64 or 32 (*for example: ./InstallLinux32.bin*), as applicable. To do so:

Type: **./InstallLinuxXX.bin** and press **<enter>**.

If the Permission Denied message displays, type both of the following commands:

chmod +x InstallLinuxXX.bin and press **<enter>**

./InstallLinuxXX.bin and press **<enter>**.

8. Read the **Introduction** screen, and then click **Next**.
9. Follow the on-screen instructions to accept the software license agreements and install ProtecTIER Manager.
10. When the **Install Complete** window opens, click **Done** to close the wizard.
11. Eject the DVD, and then go on to "Task 5a: Logging into ProtecTIER Manager."

Task 5a: Logging into ProtecTIER Manager

About this task

Use the procedures in this task to launch ProtecTIER Manager, add a system (TS7620 Appliance Express server), and log in to the added system.

Procedure

1. On the ProtecTIER Manager workstation, launch ProtecTIER Manager by using one of the following methods, as applicable:
   - **On a Windows-based PC**, click: **Start** > **All Programs** > **IBM** > **ProtecTIER Manager** > **IBM ProtecTIER Manager**.
   - **On a Linux-based PC**, double-click the **ProtecTIER Manager** icon on the Linux Desktop.

     If you do not have the **ProtecTIER Manager** icon on your Linux Desktop, navigate to the directory where you installed ProtecTIER Manager (the default location is: **/opt/IBM/PTManager**) and double-click the **ProtecTIER Manager** icon.

   The ProtecTIER Manager window opens. See Figure 37

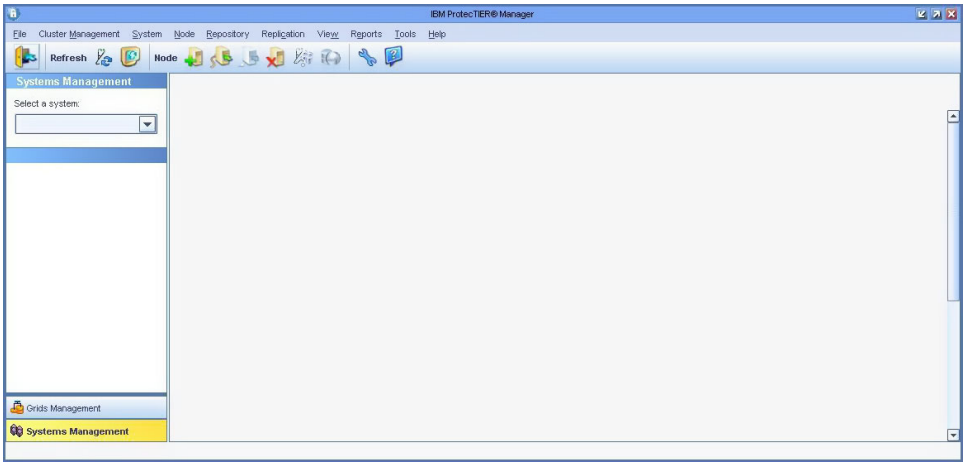

Figure 37. ProtecTIER Manager window

2. Consider these scenarios before you start to use ProtecTIER Manager:

- If you **do not** want to change the contrast setting or color palette, go on to step 3.
- If you **do** want to use a high contrast scheme for better visibility, or you want to customize the color palette used in the display:
  a. Go to "Enabling the Windows High Contrast option" on page 85 or "Customizing the color palette" on page 90, as applicable.
  b. After you finish your changes, return to this page and go to step 3.

3. Register the TS7620 Appliance Express server. Click **Node** > **Add Node** (or use the Node+ GUI icon).

   The **Add Node** dialog box opens.

4. Enter the IP address of the TS7620 Appliance Express server you want to add.

   As you type, the numbers appear in red. After you enter an IP address in a valid format, the numbers turn black.

5. Leave the **Port** and **Ping port** settings at the defaults, and then click **Ok**.
6. In the **Login to system** dialog box, click **Login**.
7. In the **Username** field, type: **ptadmin**
8. In the **Password** field, type: **ptadmin**
9. Select the **Save password** check box, click **Ok**, and then wait while ProtecTIER Manager saves your information and logs you in to the system.

   The Configuration reminder, shown in Figure 38, displays:

Figure 38. Configuration reminder

10. Click **Ignore** to dismiss the message.

    You can launch the Configuration menu whenever you are logged in to ProtecTIER Manager. Instructions for doing so are provided in "Task 6a: Accessing the Configuration menu" on page 53.

11. Go to Chapter 6, "Using the ProtecTIER Manager Configuration menu," on page 53.

Chapter 6. Using the ProtecTIER Manager Configuration menu

About this task

Use the procedures in "Task 6a: Accessing the Configuration menu" through "Task 6f: Starting the configuration process" on page 59 to:

- Enter system registration information
- Enable and define the parameters for SNMP traps and email alerts for hardware fault notification,
- Enable IBM Call Home

Typically, hardware faults are reported in ProtecTIER Manager. However, certain conditions can keep ProtecTIER Manager from communicating with the server, and prevent the reporting of fault information for the failed component. By enabling SNMP traps and email alerts, you have greater assurance that hardware faults do not go undetected.

Attention: If you do not complete all of the tasks in this chapter, you can expect to see some software error messages. When performing the registration task ensure that all of the fields are completed.

- For customers in North America, the customer number field and the telephone number field must be completed as registered with the Customer Response On-line Service System (CROSS).
- For customers outside North America, the customer number field and telephone number field must be completed as registered with IBM.

Task 6a: Accessing the Configuration menu

Procedure

1. If it is not already running, launch ProtecTIER Manager and log in to your TS7620 Appliance Express system. Refer to "Task 5a: Logging into ProtecTIER Manager" on page 51 for instructions, and then return to this page and go on to step 2.
2. In the **ProtecTIER Manager** window, verify that the **Systems Management** heading (as opposed to **Grids Management**) displays at the top of the left-side navigation pane. See Figure 39 on page 54:

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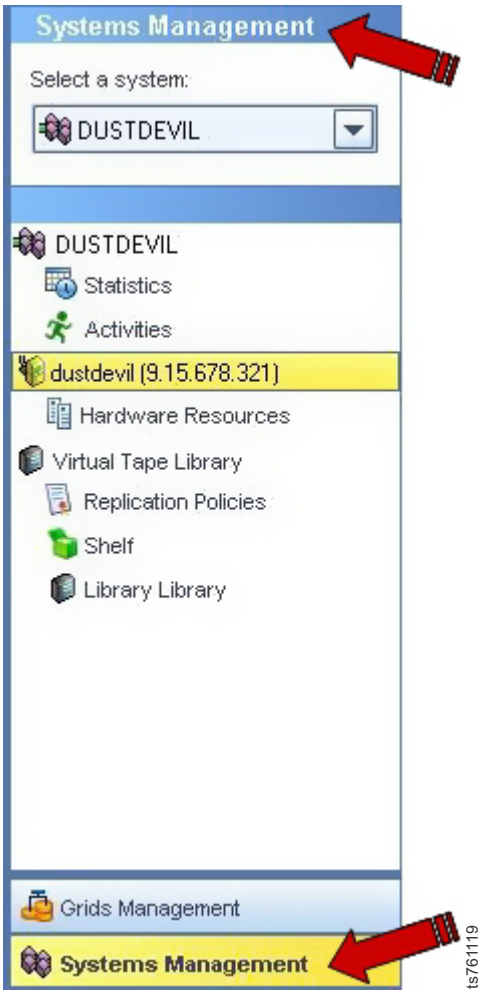

Figure 39. Navigation pane

If the **Grids Management** heading is displayed, go to the bottom of the navigation pane and select **Systems Management** to switch management modes.

3. Open the **ProtecTIER Manager Configuration menu**. From the menu bar at the top of the **ProtecTIER Manager** window, click: **System** > **Configuration**.

   The **Configuration menu** displays with the **Registration** option selected in the navigation pane, and the **Registration** window open. (See Figure 40 on page 55).

   You can complete the menu options in any order. However, for best results and proper operation of all functions, complete the options in the order in which they appear.

   After you satisfy the requirements for a particular menu option, the **Submit** button at the bottom of the active window becomes enabled. Clicking **Submit** saves all of the information you provided and the selections you made, up to that point. Clicking **Submit** also initiates the system configuration process, which can take several minutes to complete. To avoid unnecessary delays, complete all menu options before submitting your changes.

4. Go on to "Task 6b: Entering registration details" on page 55.

Task 6b: Entering registration details

Procedure

1. In the **Registration** window (shown in Figure 40), enter the requested **Company** and **System Administration** information:

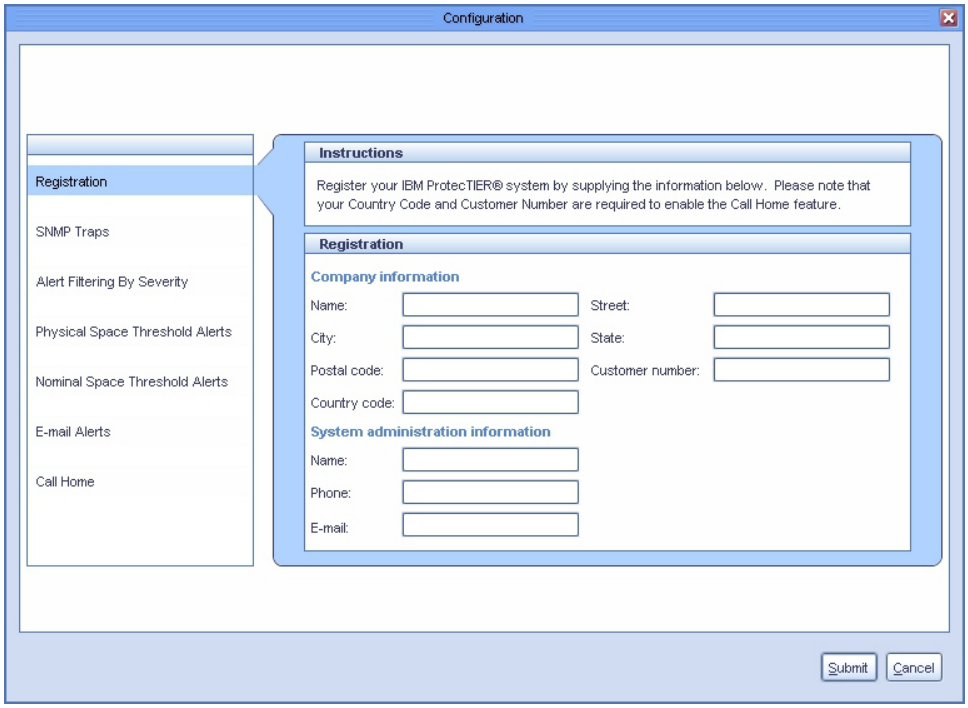

Figure 40. Registration

Until you complete all of the fields in the **Registration** window, the pop-up reminder, shown in Figure 38 on page 52, displays each time you log in to ProtecTIER Manager. To dismiss the reminder, click **Ignore**. In addition, if you plan to use Call Home, you **must** enter your Customer Number and Country Code in the **Registration** window. Call Home cannot function properly without this information.

Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for registration details. The list of country codes is also available in Appendix C, "Country codes," on page 79. Your customer number is on the product packing list.

2. When you finish entering registration information, go on to "Task 6c: Configuring SNMP Traps."

Task 6c: Configuring SNMP Traps

Procedure

1. From the navigation pane, select the **SNMP Traps** option.

   The **SNMP Traps** window opens with the **Communities** pane, displayed.

   To receive SNMP traps, you must install third-party SNMP trap receiver software on an SNMP host destination server, that is connected to your Ethernet LAN. The trap receiver software uses the IBM management

information base (MIB) file to interpret and display the contents of the trap. During trap receiver configuration, you must make the IBM MIB file available to the trap receiver application. The MIB file is provided on the TS7620 Appliance Express server in this location: **/usr/share/snmp/mibs/IBM-TS7600-SNMP-MIBV2.mib**. Refer to the documentation that came with your trap receiver software for full product installation, configuration, and usage instructions.

2. In the **Communities** pane, click **Add**.

   The **Add SNMP Trap Destination** dialog box opens.

3. In the **Host address** field, enter the SNMP IP address of the host server designated to collect the SNMP traps.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the host IP address.

4. In the **Community** field, select one of the default community names (**public** or **private**) from the drop-down list, or type in a custom community name.

   The community name defines a device (or group of devices) that sends traps to the SNMP trap receiver. The receiver accepts traps from the default communities, and any custom communities manually added to the communities list in the trap receiver application. Traps from unrecognized community names are ignored.

5. If the default **Port** value does not match the port value used by the SNMP trap receiver for the corresponding community, enter the correct value.

6. Click **Add**.

   You are returned to the **SNMP Traps** window. The new SNMP trap destination displays in the **Communities** list, and a test SNMP trap is automatically sent to the destination.

7. Repeat steps 2 through 6 to add additional SNMP trap destinations, if needed.

   You can define a maximum of 10 SNMP trap destinations, per server.

8. Proceed as appropriate:
   - If you selected **public** or **private** in step 4, go on to step 9.
   - If you entered a custom community name in step 4:
     a. Add any custom community names to the communities list on the trap receiver. Refer to the documentation that came with the product for instructions.
     b. Enter the port values that correspond to the ones specified in step 5.
     c. Go on to step 9.

9. *(Optional, but recommended, especially for communities that were added with a custom name.)* To manually send an SNMP trap, select an SNMP host server from the **Communities** list, and then click **Test**. The system sends a test SNMP trap to the selected SNMP server. Repeat this step to manually send test SNMP traps to other host servers.

   To remove an SNMP trap destination from the **Communities** list, select the destination and click **Remove**.

10. When you are finished adding and testing SNMP trap destinations, from the navigation pane, select the **Alert Filtering by Severity** option.

    The **Alert Filtering by Severity** window opens with the **Alert filtering by severity configuration** options, disabled. You use the options in this window

to select one or more severity levels which trigger the generation of an SNMP trap. The filter levels (Error, Warning, and Information) appear in descending order of severity

11. Select the check box for each severity level you want to apply.

    To generate and send SNMP traps, you must select at least one severity level check box. Also note that the levels of severity selected apply to all SNMP destinations in the **Communities** list.

12. When you finish setting the severity levels, from the navigation pane, select the **Physical Space Threshold Alerts** option.

    The **Physical Space Threshold Alerts** window opens, with the **Physical space threshold alerts** options, disabled.

13. Read the information provided in the **Physical Space Threshold Alerts** pane to determine whether you want to set physical space threshold limits.
    - If you **do not** want to set physical space threshold limits, leave the check box clear and go on to step 14.
    - If you **do** want to set physical space threshold limits:
      a. In the **Physical space threshold alerts configuration** pane, select the check box.

         The **Physical space threshold alerts configuration** options are now enabled.

      b. Select the threshold unit type (GB or Percent) and enter the values for the **Warning** and **Information** free space threshold limits.

         The physical threshold limits specified apply to all SNMP destinations in the **Communities** list.

14. When you finish setting the physical space threshold alerts, from the navigation pane, select the **Nominal Space Threshold Alerts** option.

    The **Nominal Space Threshold Alerts** window opens, with the **Nominal space threshold configuration** options, disabled.

15. Read the information provided in the **Nominal Space Threshold Alerts** pane to determine whether you want to set nominal space threshold limits.
    - If you **do not** want to set nominal space threshold limits, leave the check box clear and go on to "Task 6d: Configuring email alerts" on page 58.
    - If you **do** want to set nominal space threshold limits:
      a. In the **Nominal space threshold alerts configuration** pane, select the check box.

         The **Nominal space threshold alerts configuration** options are now enabled.

      b. Select the threshold unit type (GB or Percent) and enter the values for the **Warning** and **Information** free space threshold limits.

         The nominal threshold limits specified apply to all SNMP destinations in the **Communities** list.

16. When you finish setting the **Nominal Space Threshold Alerts**, go on to "Task 6d: Configuring email alerts" on page 58.

Task 6d: Configuring email alerts

About this task

Procedure

1. From the navigation pane, select the **Email alerts** option.

   The **Email alerts** window opens.
2. In the **Configure outgoing email server** pane, specify whether you want to send hardware fault notifications to one or more email addresses:
   - If you **do not** want to send email notifications, leave the **Enable email Alerts** check box clear, and go on to "Task 6e: Enabling Call Home."
   - If you **do** want to send email notifications, select the **Enable email Alerts** check box and go on to step 3.
3. In the **Configure outgoing E-mail server** pane, enter the **Host address** for the **Outgoing email Server**.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the IP address of the host server.
4. Leave the **Port** set to the default value.
5. In the **Recipients** pane, click **Add**.

   The **Add New Email Recipient** dialog box opens.
6. Enter the full email address of the recipient in the **New mail recipient** field.

   Refer to your completed **Pre-installation Checklist** (see "Pre-installation checklist" on page 3) for the email address.

   Be sure to use only lowercase characters when entering email addresses. Uppercase characters are invalid.
7. Click **Add**.

   The email address is added to the **Recipients** list, and a test message is automatically sent to the recipient.
8. Repeat steps 5 through 7 to add additional email alert recipients, if needed.

   You can define a maximum of email alert recipients, per server.
9. *(Optional)* To manually send a test email alert to a recipient, select the recipient from the list and click **Test**. The system sends a test message to the recipient. Repeat this step to manually send test messages to other email alert recipients.
10. When you finish adding and testing email alert recipients, go on to "Task 6e: Enabling Call Home."

Task 6e: Enabling Call Home

Before you begin

Before you enable Call Home, make sure that ports 80 and 443 in your firewall (if one is in use) are configured to allow outgoing traffic. If ports 80 and 443 are blocked, Call Home cannot transmit hardware-specific problem reports to IBM. The inability to transmit reports causes the test in step 3 on page 59 to return an error, and Call Home enablement to fail.

Procedure

1. From the navigation pane, select the **Call Home** option.

   The **Call Home** window opens, with the **Enable Call Home** check box cleared.

   If you did not enter a Country Code and Customer Number in the **Registration** window, warning notifications display at the top of the **Call Home** window. To remedy this situation, return to the **Registration** window and enter the missing information, and then continue to step 2.
2. Read the information provided in the **Call Home** pane to determine whether you want to use Call Home.

   IBM strongly recommends that you always enable Call Home on your servers. For detailed information about the features and benefits of Call Home, see Appendix B, "Call Home," on page 75.

   - If you **do not** want to use Call Home, leave the **Enable Call Home** check box clear, and go on to "Task 6f: Starting the configuration process."
   - If you **do** want to use Call Home, select the **Enable Call Home** check box, and then go on to step 3.
3. Click **Test** to verify that Call Home is configured correctly.

   Note: The Call Home test can take up to 10 minutes to complete. While the test is in progress, the **Testing Call Home** dialog box displays.
4. Proceed accordingly, based on the outcome of the test:
   - If the **Call Home Test** dialog box opens, the Call Home configuration is correct. Do the following:
     a. Click **Ok** to close the **Call Home Test** dialog box and return to the **ProtecTIER Manager Configuration menu** window.
     b. Go on to "Task 6f: Starting the configuration process."
   - If an error message displays, the Call Home configuration is incorrect. Do the following:
     a. Resolve the problem that caused the error.
     b. Repeat steps 3 and 4:
        – If the **Call Home Test Succeeded** dialog box displays, you resolved the problem.
          1) Click **Ok** to dismiss the dialog box.
          2) Go on to "Task 6f: Starting the configuration process."
        – If you receive the same (or a different) error message, contact IBM for assistance. Refer to "Getting information, help, and service" on page xv, for guidelines and instructions.

Task 6f: Starting the configuration process

About this task

When you finish using the menu, you can initiate the configuration process.

Procedure

1. At the bottom of the active window, click **Submit**.

   The system configuration process begins. Configuration can take a few minutes to complete.

During processing, you are unable to use ProtecTIER Manager to access the system being configured. However, by selecting **Run in Background**, you can access other systems while configuration is in progress.

The processing window closes when configuration is complete.

2. Go on to “Next Steps” on page 61.

Next Steps

About this task

You are finished with the hardware installation and basic system configuration tasks documented in this guide. Proceed as appropriate for the type of system you purchased and how you intend to use it.

If you have a VTL system...

About this task

- And **you are** planning to use data replication:
  1. Review the replication planning information and complete (or have someone else complete) the replication planning worksheets in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  2. Follow the instructions for replication configuration, grid and policy creation, and grid management in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  3. Refer to the guidelines and instructions for day-to-day operation and ongoing maintenance of your TS7620 Appliance Express in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
- And you **are not** planning to use data replication:
  - Refer to the information and instructions for day-to-day operation and ongoing maintenance of your TS7620 Appliance Express in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.

For additional information and instructions, refer to the publications on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD and in the IBM System Storage ProtecTIER TS7610 Customer Information Center.

If you have an OpenStorage system...

About this task

- And **you are** planning to use OpenStorage duplication:
  1. Follow the instructions for installing and configuring the OpenStorage plug-in on your NetBackup media servers in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  2. Review the replication planning information and complete (or have someone else complete) the replication planning worksheets in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  3. Follow the instructions for duplication configuration, grid and replication group creation, and grid management in the*IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916 .

4. Refer to the information and instructions for day-to-day operation and ongoing maintenance of your*IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916 .

- And you **are not** planning to use OpenStorage duplication:
  1. Follow the instructions for installing and configuring the OpenStorage plug-in on your NetBackup media servers in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  2. Refer to the information and instructions for day-to-day operation and ongoing maintenance of your TS7620 Appliance Express in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.

For additional information and instructions, refer to the publications on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD and in the IBM System Storage ProtecTIER TS7610 Customer Information Center.

If you have an FSI system...

About this task

Before you begin using FSI, you must configure your system for Workgroup or Active Directory, and create one or more file systems. For information and instructions, refer to the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916, on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD.

- In addition, if **you are** planning to use data replication:
  1. Review the replication planning information and complete (or have someone else complete) the replication planning worksheets in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  2. Follow the instructions for replication configuration, grid and policy creation, and grid management in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
  3. Refer to the guidelines and instructions for day-to-day operation and ongoing maintenance of your TS7620 Appliance Express in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.
- Or, if you **are not** planning to use data replication:
  - Refer to the information and instructions for day-to-day operation and ongoing maintenance of your TS7620 Appliance Express in the *IBM System Storage TS7610 and TS7620 ProtecTIER Deduplication Appliance Express User's and Maintenance Guide*, GA32-0916.

For additional information and instructions, refer to the publications on the *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express and IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Publications* CD and in the IBM System Storage ProtecTIER TS7610 Customer Information Center.

Appendix A. Worldwide time zone codes

Use the information in the following table to help you set the system's time zone.

Time zone codes

The following table lists all of the worldwide time zone codes and the associated time zone descriptions. Additional information about the time zone is located in the Comments column.

Code	Time zone	Comments
AD	Europe/Andorra	
AE	Asia/Dubai	
AF	Asia/Kabul	
AG	America/Antigua	
AI	America/Anguilla	
AL	Europe/Tirane	
AM	Asia/Yerevan	
AN	America/Curacao	
AO	Africa/Luanda	
AQ	Antarctica/McMurdo	McMurdo Station, Ross Island
AQ	Antarctica/South_Pole	Amundsen-Scott Station, South Pole
AQ	Antarctica/Rothera	Rothera Station, Adelaide Island
AQ	Antarctica/Palmer	Palmer Station, Anvers Island
AQ	Antarctica/Mawson	Mawson Station, Holme Bay
AQ	Antarctica/Davis	Davis Station, Vestfold Hills
AQ	Antarctica/Casey	Casey Station, Bailey Peninsula
AQ	Antarctica/Vostok	Vostok Station, S Magnetic Pole
AQ	Antarctica/DumontDUrville	Dumont-d'Urville Station, Terre Adelie
AQ	Antarctica/Syowa	Syowa Station, E Ongul I
AR	America/Argentina/Buenos_Aires	Buenos Aires (BA, CF)
AR	America/Argentina/Cordoba	most locations (CB, CC, CN, ER, FM, LP, MN, NQ, RN, SA, SE, SF, SL)
AR	America/Argentina/Jujuy	Jujuy (JY)
AR	America/Argentina/Tucuman	Tucuman (TM)
AR	America/Argentina/Catamarca	Catamarca (CT), Chubut (CH)
AR	America/Argentina/La_Rioja	La Rioja (LR)
AR	America/Argentina/San_Juan	San Juan (SJ)
AR	America/Argentina/Mendoza	Mendoza (MZ)
AR	America/Argentina/Rio_Gallegos	Santa Cruz (SC)
AR	America/Argentina/Ushuaia	Tierra del Fuego (TF)
AS	Pacific/Pago_Pago	

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Code	Time zone	Comments
AT	Europe/Vienna	
AU	Australia/Lord_Howe	Lord Howe Island
AU	Australia/Hobart	Tasmania - most locations
AU	Australia/Currie	Tasmania - King Island
AU	Australia/Melbourne	Victoria
AU	Australia/Sydney	New South Wales - most locations
AU	Australia/Broken_Hill	New South Wales - Yancowinna
AU	Australia/Brisbane	Queensland - most locations
AU	Australia/Lindeman	Queensland - Holiday Islands
AU	Australia/Adelaide	South Australia
AU	Australia/Darwin	Northern Territory
AU	Australia/Perth	Western Australia - most locations
AU	Australia/Eucla	Western Australia - Eucla area
AW	America/Aruba	
AX	Europe/Mariehamn	
AZ	Asia/Baku	
BA	Europe/Sarajevo	
BB	America/Barbados	
BD	Asia/Dhaka	
BE	Europe/Brussels	
BF	Africa/Ouagadougou	
BG	Europe/Sofia	
BH	Asia/Bahrain	
BI	Africa/Bujumbura	
BJ	Africa/Porto-Novo	
BL	America/St_Barthelemy	
BM	Atlantic/Bermuda	
BN	Asia/Brunei	
BO	America/La_Paz	
BR	America/Noronha	Atlantic islands
BR	America/Belem	Amapa, E Para
BR	America/Fortaleza	NE Brazil (MA, PI, CE, RN, PB)
BR	America/Recife	Pernambuco
BR	America/Araguaina	Tocantins
BR	America/Maceio	Alagoas, Sergipe
BR	America/Bahia	Bahia
BR	America/Sao_Paulo	S & SE Brazil (GO, DF, MG, ES, RJ, SP, PR, SC, RS)
BR	America/Campo_Grande	Mato Grosso do Sul
BR	America/Cuiaba	Mato Grosso
BR	America/Porto_Velho	W Para, Rondonia
BR	America/Boa_Vista	Roraima

Code	Time zone	Comments
BR	America/Manaus	E Amazonas
BR	America/Eirunepe	W Amazonas
BR	America/Rio_Branco	Acre
BS	America/Nassau	
BT	Asia/Thimphu	
BW	Africa/Gaborone	
BY	Europe/Minsk	
BZ	America/Belize	
CA	America/St_Johns	Newfoundland Time, including SE Labrador
CA	America/Halifax	Atlantic Time - Nova Scotia (most places), PEI
CA	America/Glace_Bay	Atlantic Time - Nova Scotia - places that did not observe DST 1966-1971
CA	America/Moncton	Atlantic Time - New Brunswick
CA	America/Goose_Bay	Atlantic Time - Labrador - most locations
CA	America/Blanc-Sablon	Atlantic Standard Time - Quebec - Lower North Shore
CA	America/Montreal	Eastern Time - Quebec - most locations
CA	America/Toronto	Eastern Time - Ontario - most locations
CA	America/Nipigon	Eastern Time - Ontario & Quebec - places that did not observe DST 1967-1973
CA	America/Thunder_Bay	Eastern Time - Thunder Bay, Ontario
CA	America/Iqaluit	Eastern Time - east Nunavut - most locations
CA	America/Pangnirtung	Eastern Time - Pangnirtung, Nunavut
CA	America/Resolute	Eastern Time - Resolute, Nunavut
CA	America/Atikokan	Eastern Standard Time - Atikokan, Ontario and Southampton I, Nunavut
CA	America/Rankin_Inlet	Central Time - central Nunavut
CA	America/Winnipeg	Central Time - Manitoba & west Ontario
CA	America/Rainy_River	Central Time - Rainy River & Fort Frances, Ontario
CA	America/Regina	Central Standard Time - Saskatchewan - most locations
CA	America/Swift_Current	Central Standard Time - Saskatchewan - midwest
CA	America/Edmonton	Mountain Time - Alberta, east British Columbia & west Saskatchewan
CA	America/Cambridge_Bay	Mountain Time - west Nunavut
CA	America/Yellowknife	Mountain Time - central Northwest Territories
CA	America/Inuvik	Mountain Time - west Northwest Territories
CA	America/Dawson_Creek	Mountain Standard Time - Dawson Creek & Fort Saint John, British Columbia
CA	America/Vancouver	Pacific Time - west British Columbia
CA	America/Whitehorse	Pacific Time - south Yukon
CA	America/Dawson	Pacific Time - north Yukon
CC	Indian/Cocos	

Code	Time zone	Comments
CD	Africa/Kinshasa	west Dem. Rep. of Congo
CD	Africa/Lubumbashi	east Dem. Rep. of Congo
CF	Africa/Bangui	
CG	Africa/Brazzaville	
CH	Europe/Zurich	
CI	Africa/Abidjan	
CK	Pacific/Rarotonga	
CL	America/Santiago	most locations
CL	Pacific/Easter	Easter Island & Sala y Gomez
CM	Africa/Douala	
CN	Asia/Shanghai	east China - Beijing, Guangdong, Shanghai, etc.
CN	Asia/Harbin	Heilongjiang (except Mohe), Jilin
CN	Asia/Chongqing	central China - Sichuan, Yunnan, Guangxi, Shaanxi, Guizhou, etc.
CN	Asia/Urumqi	most of Tibet & Xinjiang
CN	Asia/Kashgar	west Tibet & Xinjiang
CO	America/Bogota	
CR	America/Costa_Rica	
CU	America/Havana	
CV	Atlantic/Cape_Verde	
CX	Indian/Christmas	
CY	Asia/Nicosia	
CZ	Europe/Prague	
DE	Europe/Berlin	
DJ	Africa/Djibouti	
DK	Europe/Copenhagen	
DM	America/Dominica	
DO	America/Santo_Domingo	
DZ	Africa/Algiers	
EC	America/Guayaquil	mainland
EC	Pacific/Galapagos	Galapagos Islands
EE	Europe/Tallinn	
EG	Africa/Cairo	
EH	Africa/El_Aaiun	
ER	Africa/Asmara	
ES	Europe/Madrid	mainland
ES	Africa/Ceuta	Ceuta & Melilla
ES	Atlantic/Canary	Canary Islands
ET	Africa/Addis_Ababa	
FI	Europe/Helsinki	
FJ	Pacific/Fiji	

Code	Time zone	Comments
FK	Atlantic/Stanley	
FM	Pacific/Truk	Truk (Chuuk) and Yap
FM	Pacific/Ponape	Ponape (Pohnpei)
FM	Pacific/Kosrae	Kosrae
FO	Atlantic/Faroe	
FR	Europe/Paris	
GA	Africa/Libreville	
GB	Europe/London	
GD	America/Grenada	
GE	Asia/Tbilisi	
GF	America/Cayenne	
GG	Europe/Guernsey	
GH	Africa/Accra	
GI	Europe/Gibraltar	
GL	America/Godthab	most locations
GL	America/Danmarkshavn	east coast, north of Scoresbysund
GL	America/Scoresbysund	Scoresbysund / Ittoqqortoormiit
GL	America/Thule	Thule / Pituffik
GM	Africa/Banjul	
GN	Africa/Conakry	
GP	America/Guadeloupe	
GQ	Africa/Malabo	
GR	Europe/Athens	
GS	Atlantic/South_Georgia	
GT	America/Guatemala	
GU	Pacific/Guam	
GW	Africa/Bissau	
GY	America/Guyana	
HK	Asia/Hong_Kong	
HN	America/Tegucigalpa	
HR	Europe/Zagreb	
HT	America/Port-au-Prince	
HU	Europe/Budapest	
ID	Asia/Jakarta	Java & Sumatra
ID	Asia/Pontianak	west & central Borneo
ID	Asia/Makassar	east & south Borneo, Celebes, Bali, Nusa Tengarra, west Timor
ID	Asia/Jayapura	Irian Jaya & the Moluccas
IE	Europe/Dublin	
IL	Asia/Jerusalem	
IM	Europe/Isle_of_Man	

Code	Time zone	Comments
IN	Asia/Calcutta	
IO	Indian/Chagos	
IQ	Asia/Baghdad	
IR	Asia/Tehran	
IS	Atlantic/Reykjavik	
IT	Europe/Rome	
JE	Europe/Jersey	
JM	America/Jamaica	
JO	Asia/Amman	
JP	Asia/Tokyo	
KE	Africa/Nairobi	
KG	Asia/Bishkek	
KH	Asia/Phnom_Penh	
KI	Pacific/Tarawa	Gilbert Islands
KI	Pacific/Enderbury	Phoenix Islands
KI	Pacific/Kiritimati	Line Islands
KM	Indian/Comoro	
KN	America/St_Kitts	
KP	Asia/Pyongyang	
KR	Asia/Seoul	
KW	Asia/Kuwait	
KY	America/Cayman	
KZ	Asia/Almaty	most locations
KZ	Asia/Qyzylorda	Qyzylorda (Kyzylorda, Kzyl-Orda)
KZ	Asia/Aqtobe	Aqtobe (Aktobe)
KZ	Asia/Aqtau	Atyrau (Atirau, Gur'yev), Mangghystau (Mankistau)
KZ	Asia/Oral	West Kazakhstan
LA	Asia/Vientiane	
LB	Asia/Beirut	
LC	America/St_Lucia	
LI	Europe/Vaduz	
LK	Asia/Colombo	
LR	Africa/Monrovia	
LS	Africa/Maseru	
LT	Europe/Vilnius	
LU	Europe/Luxembourg	
LV	Europe/Riga	
LY	Africa/Tripoli	
MA	Africa/Casablanca	
MC	Europe/Monaco	
MD	Europe/Chisinau	

Code	Time zone	Comments
ME	Europe/Podgorica	
MF	America/Marigot	
MG	Indian/Antananarivo	
MH	Pacific/Majuro	most locations
MH	Pacific/Kwajalein	Kwajalein
MK	Europe/Skopje	
ML	Africa/Bamako	
MM	Asia/Rangoon	
MN	Asia/Ulaanbaatar	most locations
MN	Asia/Hovd	Bayan-Olgiy, Govi-Altai, Hovd, Uvs, Zavkhan
MN	Asia/Choibalsan	Dornod, Sukhbaatar
MO	Asia/Macau	
MP	Pacific/Saipan	
MQ	America/Martinique	
MR	Africa/Nouakchott	
MS	America/Montserrat	
MT	Europe/Malta	
MU	Indian/Mauritius	
MV	Indian/Maldives	
MW	Africa/Blantyre	
MX	America/Mexico_City	Central Time - most locations
MX	America/Cancun	Central Time - Quintana Roo
MX	America/Merida	Central Time - Campeche, Yucatan
MX	America/Monterrey	Central Time - Coahuila, Durango, Nuevo Leon, Tamaulipas
MX	America/Mazatlan	Mountain Time - S Baja, Nayarit, Sinaloa
MX	America/Chihuahua	Mountain Time - Chihuahua
MX	America/Hermosillo	Mountain Standard Time - Sonora
MX	America/Tijuana	Pacific Time
MY	Asia/Kuala_Lumpur	peninsular Malaysia
MY	Asia/Kuching	Sabah & Sarawak
MZ	Africa/Maputo	
NA	Africa/Windhoek	
NC	Pacific/Noumea	
NE	Africa/Niamey	
NF	Pacific/Norfolk	
NG	Africa/Lagos	
NI	America/Managua	
NL	Europe/Amsterdam	
NO	Europe/Oslo	
NP	Asia/Katmandu	

Code	Time zone	Comments
NR	Pacific/Nauru	
NU	Pacific/Niue	
NZ	Pacific/Auckland	most locations
NZ	Pacific/Chatham	Chatham Islands
OM	Asia/Muscat	
PA	America/Panama	
PE	America/Lima	
PF	Pacific/Tahiti	Society Islands
PF	Pacific/Marquesas	Marquesas Islands
PF	Pacific/Gambier	Gambier Islands
PG	Pacific/Port_Moresby	
PH	Asia/Manila	
PK	Asia/Karachi	
PL	Europe/Warsaw	
PM	America/Miquelon	
PN	Pacific/Pitcairn	
PR	America/Puerto_Rico	
PS	Asia/Gaza	
PT	Europe/Lisbon	mainland
PT	Atlantic/Madeira	Madeira Islands
PT	Atlantic/Azores	Azores
PW	Pacific/Palau	
PY	America/Asuncion	
QA	Asia/Qatar	
RE	Indian/Reunion	
RO	Europe/Bucharest	
RS	Europe/Belgrade	
RU	Europe/Kaliningrad	Moscow-01 - Kaliningrad
RU	Europe/Moscow	Moscow+00 - west Russia
RU	Europe/Volgograd	Moscow+00 - Caspian Sea
RU	Europe/Samara	Moscow+01 - Samara, Udmurtia
RU	Asia/Yekaterinburg	Moscow+02 - Urals
RU	Asia/Omsk	Moscow+03 - west Siberia
RU	Asia/Novosibirsk	Moscow+03 - Novosibirsk
RU	Asia/Krasnoyarsk	Moscow+04 - Yenisei River
RU	Asia/Irkutsk	Moscow+05 - Lake Baikal
RU	Asia/Yakutsk	Moscow+06 - Lena River
RU	Asia/Vladivostok	Moscow+07 - Amur River
RU	Asia/Sakhalin	Moscow+07 - Sakhalin Island
RU	Asia/Magadan	Moscow+08 - Magadan
RU	Asia/Kamchatka	Moscow+09 - Kamchatka

Code	Time zone	Comments
RU	Asia/Anadyr	Moscow+10 - Bering Sea
RW	Africa/Kigali	
SA	Asia/Riyadh	
SB	Pacific/Guadalcanal	
SC	Indian/Mahe	
SD	Africa/Khartoum	
SE	Europe/Stockholm	
SG	Asia/Singapore	
SH	Atlantic/St_Helena	
SI	Europe/Ljubljana	
SJ	Arctic/Longyearbyen	
SK	Europe/Bratislava	
SL	Africa/Freetown	
SM	Europe/San_Marino	
SN	Africa/Dakar	
SO	Africa/Mogadishu	
SR	America/Paramaribo	
ST	Africa/Sao_Tome	
SV	America/El_Salvador	
SY	Asia/Damascus	
SZ	Africa/Mbabane	
TC	America/Grand_Turk	
TD	Africa/Ndjamena	
TF	Indian/Kerguelen	
TG	Africa/Lome	
TH	Asia/Bangkok	
TJ	Asia/Dushanbe	
TK	Pacific/Fakaofo	
TL	Asia/Dili	
TM	Asia/Ashgabat	
TN	Africa/Tunis	
TO	Pacific/Tongatapu	
TR	Europe/Istanbul	
TT	America/Port_of_Spain	
TV	Pacific/Funafuti	
TW	Asia/Taipei	
TZ	Africa/Dar_es_Salaam	
UA	Europe/Kiev	most locations
UA	Europe/Uzhgorod	Ruthenia
UA	Europe/Zaporozhye	Zaporozh'ye, E Lugansk / Zaporizhia, E Luhansk
UA	Europe/Simferopol	central Crimea

Code	Time zone	Comments
UG	Africa/Kampala	
UM	Pacific/Johnston	Johnston Atoll
UM	Pacific/Midway	Midway Islands
UM	Pacific/Wake	Wake Island
US	America/New_York	Eastern Time
US	America/Detroit	Eastern Time - Michigan - most locations
US	America/Kentucky/Louisville	Eastern Time - Kentucky - Louisville area
US	America/Kentucky/Monticello	Eastern Time - Kentucky - Wayne County
US	America/Indiana/Indianapolis	Eastern Time - Indiana - most locations
US	America/Indiana/Vincennes	Eastern Time - Indiana - Daviess, Dubois, Knox & Martin Counties
US	America/Indiana/Knox	Eastern Time - Indiana - Starke County
US	America/Indiana/Winamac	Eastern Time - Indiana - Pulaski County
US	America/Indiana/Marengo	Eastern Time - Indiana - Crawford County
US	America/Indiana/Vevay	Eastern Time - Indiana - Switzerland County
US	America/Chicago	Central Time
US	America/Indiana/Tell_City	Central Time - Indiana - Perry County
US	America/Indiana/Petersburg	Central Time - Indiana - Pike County
US	America/Menominee	Central Time - Michigan - Dickinson, Gogebic, Iron & Menominee Counties
US	America/North_Dakota/Center	Central Time - North Dakota - Oliver County
US	America/North_Dakota/New_Salem	Central Time - North Dakota - Morton County (except Mandan area)
US	America/Denver	Mountain Time
US	America/Boise	Mountain Time - south Idaho & east Oregon
US	America/Shiprock	Mountain Time - Navajo
US	America/Phoenix	Mountain Standard Time - Arizona
US	America/Los_Angeles	Pacific Time
US	America/Anchorage	Alaska Time
US	America/Juneau	Alaska Time - Alaska panhandle
US	America/Yakutat	Alaska Time - Alaska panhandle neck
US	America/Nome	Alaska Time - west Alaska
US	America/Adak	Aleutian Islands
US	Pacific/Honolulu	Hawaii
UY	America/Montevideo	
UZ	Asia/Samarkand	west Uzbekistan
UZ	Asia/Tashkent	east Uzbekistan
VA	Europe/Vatican	
VC	America/St_Vincent	
VE	America/Caracas	
VG	America/Tortola	
VI	America/St_Thomas	

Code	Time zone	Comments
VN	Asia/Saigon	
VU	Pacific/Efate	
WF	Pacific/Wallis	
WS	Pacific/Apia	
YE	Asia/Aden	
YT	Indian/Mayotte	
ZA	Africa/Johannesburg	
ZM	Africa/Lusaka	
ZW	Africa/Harare	

Appendix B. Call Home

IBM recommends that you enable the Call Home feature on each of your ProtecTIER servers. Doing so speeds-up problem determination and fault resolution of hardware-related issues. When enabled on the TS7610 and TS7620 Appliance Express, Call Home uses a connection on your Ethernet network to transmit hardware-specific problem reports to IBM. For detailed instructions on enabling Call Home on your TS7610 and TS7620 Appliance Express servers, see *IBM System Storage TS7610 ProtecTIER Deduplication Appliance Express Installation and Setup Guide for VTL, OpenStorage, and FSI Systems*, GA32-0914 or *IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express Installation and Setup Guide for VTL, and OpenStorage Systems*, GA32-0914.

When the Reliability, Availability, and Serviceability (RAS) software on the TS7610 or TS7620 servers detect an error condition on a hardware component, Call Home sends detailed error information to IBM (home). If the error indicates a problem with a field replaceable unit (FRU), and IBM Remote Service Representative and an IBM Service Representative can then prepare an action plan to handle the problem before traveling to your site.

The TS7610 and TS7620 Appliance Express provide three Call Home capabilities: Problem Call Home, Heartbeat Call Home, and Test Call Home; described below. RAS sends data files that may be helpful to IBM Support Center personnel for all three types of Call Home. These data files include error logs and configuration information, such as the Machine Reported Product Data (MRPD) log.

Test Call Home

After enabling the Call Home feature, you can send a Test Call Home to ensure that the setup is correct and that the TS7610 and TS7620 can successfully open a Problem Management Record (PMR) in the IBM Remote Technical Assistance Information Network (RETAIN).

Note: The Call Home test can take up to 10 minutes to complete. While the test is in progress, the **Testing Call Home** dialog box displays. When the test completes successfully, the **Call Home test succeeded** dialog box displays.

Problem Call Home

When RAS detects a problem, RAS initiates a Call Home operation to create a PMR in RETAIN. The PMR is a single page of text data that enables the Support Center or the Service Representative to access an action plan and a list of applicable FRU components.

Heartbeat Call Home

To ensure proper ongoing Call Home functionality, the system sends a Heartbeat Call Home on a regularly-scheduled basis. The heartbeat interval is user-defined.

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Enabling or disabling Call Home using the ProtecTIER Service menu

Use this procedure to enable or disable Call Home from the **ProtecTIER Service menu**.

About this task

If Call Home is being enabled for the first time, **you must** do so from the **ProtecTIER Manager Configuration menu**. Doing so ensures that you provide the registration information necessary for Call Home to function properly. Refer to Chapter 6, "Using the ProtecTIER Manager Configuration menu," on page 53 for detailed instructions. To disable or re-enable Call Home in the future, you can use the **ProtecTIER Service menu** or the **ProtecTIER Manager Configuration** menu.

IBM strongly recommends that you always enable Call Home on your servers. For detailed information about the features and benefits of Call Home, see Appendix B, "Call Home," on page 75.

Accessing the ProtecTIER Service menu

Procedure

1. If necessary, power-on the server and the monitor, and wait for the login prompt to display.

   For power-on instructions, see "Task 2d: Powering-on the hardware" on page 36.
2. At the **login** prompt, type: **ptconfig** and press **<enter>**.
3. At the **Password** prompt, type: **ptconfig** and press **<enter>**

   The **ProtecTIER Service menu** displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
--------------------------------------------------------------------------------
  1) ProtecTIER Configuration (...)
  2) Manage ProtecTIER services (...)
  3) Health Monitoring (...)
  4) Problem Alerting (...)
  5) Version Information (...)
  6) Generate a service report
  7) Generate a system view
  8) Update ProtecTIER code

  E) Exit
--------------------------------------------------------------------------------
>>> Your choice?
```

Figure 41. ProtecTIER Service menu

4. Go to "Enabling or Disabling Call Home."

Enabling or Disabling Call Home

About this task

Procedure

1. On the **ProtecTIER Service menu** (see Figure 41), select the **Problem Alerting (...)** option. Type the corresponding number and press **<enter>**.

The **Problem Alerting (...)** menu displays:

```
--------------------------------------------------------------------------------
 ProtecTIER Service Menu running on rassmx
           Problem Alerting (...)
--------------------------------------------------------------------------------
  1) Enable/Disable Call Home
  2) Send a Test Call Home
  3) Configure Call Home Heartbeat frequency
  4) Send a Heartbeat Call Home
  5) Enable/Disable Notification by email
  6) Test Email Notification
  7) Activate Call Home Polling Function

  B) Back
  E) Exit
--------------------------------------------------------------------------------
>>> Your choice?
```

Figure 42. Problem Alerting (...) menu

2. Select the **Enable/Disable Call Home** option. Type the corresponding number and press **<enter>**.

   The following messages, display:

   ```
   Getting Call Home state            [ Done ]
   Call Home successfully set.
   ```

3. Proceed as appropriate:
   - To **Enable** call home, do the following:
     a. When the `Call Home is currently Disabled, do you wish to enable it? (yes|no)` prompt displays, type: **y <enter>**.

        `The Configuring Call Home          [ Done ]` message displays.

     b. When the `Press the ENTER key to continue...` message displays, press **<enter>**.

        You are returned to the **Problem Alerting (...)** menu.

        Call Home is now enabled on the server.

     c. Go on to step 4.
   - To **Disable** call home, do the following:
     a. When the `Call Home is currently Enabled, do you wish to disable it? (yes|no)` prompt displays, type: **y <enter>**.

        `The Configuring Call Home          [ Done ]` message displays.

     b. When the `Press the ENTER key to continue...` message displays, press **<enter>**.

        You are returned to the **Problem Alerting (...)** menu.

        Call Home is now disabled on the server.

     c. Go on to step 4.
4. Exit the **Problem Alerting (...)** menu. Type: **E** and press **<enter>**.

   You are returned to the **ProtecTIER Service Menu**.
5. Exit the **ProtecTIER Service Menu**. Type: **E** and press **<enter>**.

Appendix C. Country codes

Use the information in the Country codes table to convert a country to a two-character code. For example, the country code for Spain is "es".

To enable the Call Home feature, you must enter your country code (see Table 10) on the **Registration** page of the **ProtecTIER Manager Configuration menu**. See “Task 6a: Accessing the Configuration menu” on page 53.

Table 10. Country codes

Country	Code	Country	Code	Country	Code	Country	Code	Country	Code
Afghanistan	af	Cook Islands	ck	Iceland	is	Nauru	nr	Solomon Islands	sb
Albania	al	Costa Rica	cr	India	in	Nepal	np	Somalia	so
Algeria	dz	Croatia	hr	Indonesia	id	Netherlands	nl	South Africa	za
American Samoa	as	Cuba	cu	Iran	ir	Netherlands Antilles	an	South Korea	kr
Andorra	ad	Cyprus	cy	Iraq	iq	Neutral Zone	nt	Spain	es
Angola	ao	Czech Republic	cz	Ireland	ie	New Caledonia (French)	nc	Sri Lanka	lk
Anguilla	ai	Denmark	dk	Israel	il	New Zealand	nz	Sudan	sd
Antarctica	aq	Djibouti	dj	Italy	it	Nicaragua	ni	Suriname	sr
Antigua and Barbuda	ag	Dominica	dm	Ivory Coast (Cote D'Ivoire)	ci	Niger	ne	Svalbard and Jan Mayen Islands	sj
Argentina	ar	Dominican Republic	do	Jamaica	jm	Nigeria	ng	Swaziland	sz
Armenia	am	East Timor	tp	Japan	jp	Niue	nu	Sweden	se
Aruba	aw	Ecuador	ec	Jordan	jo	Norfolk Island	nf	Switzerland	ch
Australia	au	Egypt	eg	Kazakhstan	kz	North Korea	kp	Syria	sy
Austria	at	El Salvador	sv	Kenya	ke	Northern Mariana Islands	mp	Tajikistan	tj
Azerbaijan	az	Equatorial Guinea	gq	Kiribati	ki	Norway	no	Taiwan	tw
Bahamas	bs	Eritrea	er	Kuwait	kw	Oman	om	Tanzania	tz
Bahrain	bh	Estonia	ee	Kyrgyzstan	kg	Pakistan	pk	Thailand	th
Bangladesh	bd	Ethiopia	et	Laos	la	Palau	pw	Togo	tg
Barbados	bb	Falkland Islands	fk	Latvia	lv	Panama	pa	Tokelau	tk
Belarus	by	Faroe Islands	fo	Lebanon	lb	Papua New Guinea	pg	Tonga	to
Belgium	be	Fiji	fj	Lesotho	ls	Paraguay	py	Trinidad and Tobago	tt
Belize	bz	Finland	fi	Liberia	lr	Peru	pe	Tunisia	tn
Benin	bj	Former Czechoslovakia	cs	Libya	ly	Philippines	ph	Turkey	tr
Bermuda	bm	Former USSR	su	Liechtenstein	li	Pitcairn Island	pn	Turkmenistan	tm
Bhutan	bt	France	fr	Lithuania	lt	Poland	pl	Turks and Caicos Islands	tc

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Table 10. Country codes (continued)

Country	Code	Country	Code	Country	Code	Country	Code	Country	Code
Bolivia	bo	France (European Territory)	fx	Luxembourg	lu	Polynesia (French)	pf	Tuvalu	tv
Bosnia-Herzegovina	ba	French Guyana	gf	Macau	mo	Portugal	pt	Uganda	ug
Botswana	bw	French Southern Territories	tf	Macedonia	mk	Puerto Rico	pr	Ukraine	ua
Bouvet Island	bv	Gabon	ga	Madagascar	mg	Qatar	qa	United Arab Emirates	ae
Brazil	br	Gambia	gm	Malawi	mw	Reunion (French)	re	United Kingdom	uk
British Indian Ocean Territory	io	Georgia	ge	Malaysia	my	Romania	ro	United States of America	us
Brunei Darussalam	bn	Germany	de	Maldives	mv	Russian Federation	ru	Uruguay	uy
Bulgaria	bg	Ghana	gh	Mali	ml	Rwanda	rw	USA Minor Outlying Islands	um
Burkina Faso	bf	Gibraltar	gi	Malta	mt	S. Georgia & S. Sandwich Isles	gs	Uzbekistan	uz
Burundi	bi	Great Britain	gb	Marshall Islands	mh	Saint Helena	sh	Vanuatu	vu
Cambodia	kh	Greece	gr	Martinique (French)	mq	Saint Kitts & Nevis Anguilla	kn	Vatican City State	va
Cameroon	cm	Greenland	gl	Mauritania	mr	Saint Lucia	lc	Venezuela	ve
Canada	ca	Grenada	gd	Mauritius	mu	Saint Pierre and Miquelon	pm	Vietnam	vn
Cape Verde	cv	Guadeloupe (French)	gp	Mayotte	yt	Saint Tome (Sao Tome) and Principe	st	Virgin Islands (British)	vg
Cayman Islands	ky	Guam (USA)	gu	Mexico	mx	Saint Vincent & Grenadines	vc	Virgin Islands (USA)	vi
Central African Republic	cf	Guatemala	gt	Micronesia	fm	Samoa	ws	Wallis and Futuna Islands	wf
Chad	td	Guinea	gn	Moldavia	md	San Marino	sm	Western Sahara	eh
Chile	cl	Guinea Bissau	gw	Monaco	mc	Saudi Arabia	sa	Yemen	ye
China	cn	Guyana	gy	Mongoliar	mn	Senegal	sn	Yugoslavia	yu
Christmas Island	cx	Haiti	ht	Montserrat	ms	Seychelles	sc	Zaire	zr
Cocos (Keeling) Islands	cc	Heard and McDonald Islands	hm	Morocco	ma	Sierra Leon	sl	Zambia	zm
Colombia	co	Honduras	hn	Mozambique	mz	Singapore	sg	Zimbabwe	zw
Comoros	km	Hong Kong	hk	Myanmar	mm	Slovak Republic	sk		
Congo	cg	Hungary	hy	Namibia	na	Slovenia	si		

Accessibility for publications and ProtecTIER Manager

The publications for this product are in Adobe Portable Document Format (PDF) and should be compliant with accessibility standards. Use these procedures to enable screen-reader compatibility, change the Windows contrast setting, and customize the color palette used in ProtecTIER Manager.

About this task

If you experience difficulties when you use the PDF files and want to request a Web-based format for a publication, send your request to the following address:

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Information Development
Department GZW
9000 South Rita Road
Tucson, Arizona 85744-001 U.S.A

In the request, be sure to include the publication number and title. When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

About the Windows-based accessibility features

About this task

The accessibility features in ProtecTIER Manager help persons with limited vision use the ProtecTIER Manager installation wizard and software. After preparing the ProtecTIER Manager workstation for accessibility, you can use Windows-based screen-reader software and a digital voice synthesizer to hear what is displayed on the screen.

The installation, configuration, and instructional screens in the Windows versions of the ProtecTIER Manager installation wizard and the ProtecTIER Manager software have been tested with JAWS. However, the associated diagrams and graphs in ProtecTIER Manager and ProtecTIER Replication Manager, do not currently support keyboard navigation or screen-reader use. You can obtain full system statistics (typically provided in the diagrams and graphs) by going to the ProtecTIER Manager toolbar and clicking: **Reports** > **Create long term statistics report**, and downloading the results.

To enable screen-reader compatibility, you must prepare the ProtecTIER Manager workstation by completing these tasks. Instructions are provided in the topics that follow:

Before you install ProtecTIER Manager:

- Download and install the Java Runtime Environment (JRE).
- Download and install the Java Access Bridge (JAB).

After you install ProtecTIER Manager:

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- Change the ProtecTIER Manager preferences to enable support of the Windows system settings *(required)*
- Select a high-contrast color scheme in Windows *(optional)*
- Customize the color palette used in the ProtecTIER Manager display *(optional)*

About the Java-based tools

About this task

Complete the following the procedures to download and install the Java-based tools that are required to enable full screen-reader compatibility on the ProtecTIER Manager workstation.

Install the Java Runtime Environment (JRE) first, and then install the Java Access Bridge (JAB). Both of these tools must be installed before you install the ProtecTIER Manager software.

For simplicity, download the Java-based tools by using the ProtecTIER Manager workstation on which you are installing the JRE and JAB. If this is not possible, try to use another computer that is running Windows.

Installing the Java Runtime Environment

About this task

The JRE includes the Java Virtual Machine (JVM). These tools are necessary for your computer to run Java-based applications.

Procedure

1. Go to http://www.java.com. The Java website opens.

   The java.com website auto-detects the operating system and Internet browser of the computer you use when you access the site.
2. Click **Free Java Download**, and proceed as appropriate:
   - If the **Download Java for Windows** page opens, go on to step 3
   - If the **Download Java for...** page title contains the name of an operating system other than Windows, do the following:
     a. Click the **See all downloads here** link.

        The list of available downloads, categorized by operating system, displays.
     b. In the Windows section, click **Windows 7/XP/Vista/2000/2003/2008 Online**.
3. Review the information provided, and then click **Agree and Start Free Download**.

   The download dialog box opens.
4. Follow the on-screen instructions to save the executable (.exe) installer file to the hard disk drive.
5. After the download is complete, find the installer file on the hard disk drive and write down the full path to the location of the file. For example: *C:\Program Files\Java\jre6\bin\java.exe*. This path is needed during ProtecTIER Manager installation.
6. Proceed as appropriate:

- If you downloaded the installer on the ProtecTIER Manager workstation on which you are installing the JRE, go on to step 7.
- If you downloaded the installer on a PC other than the applicable ProtecTIER Manager workstation, do the following:
  a. Copy the installer file onto a CD, flash memory drive, or other form of removable media.
  b. Copy the installer file from the removable media to the hard disk drive of the ProtecTIER Manager workstation.
  c. Go on to step 7.

7. Double-click the installer file to start the **Java installation wizard**.

   The **Java Setup – Welcome** window opens.
8. Click **Install** and follow the on-screen instructions to complete the installation process.
9. When you have successfully installed the JRE, go on to "Installing the Java Access Bridge."

Installing the Java Access Bridge

About this task

The Java Access Bridge (JAB) makes it possible for you to use Java-based screen readers with the ProtecTIER Manager installation wizard and software.

Procedure

1. Go to: http://java.sun.com/products/jfc/accessibility.html.

   The **Java SE Desktop Accessibility** page of the Oracle website opens.
2. Read the information provided, then click **Access Bridge**.
3. Scroll down to the **Java Access Bridge for Microsoft Windows Operating System x.x.x** (where *x.x.x* is the most recent version listed) section. Click the **Download Java Access Bridge x.x.x** link.

   The **Software License Agreement** page opens.
4. Read the license agreement, and then select the **I agree to the Software License Agreement** check box.

   The **Download Java Access Bridge for Windows Operating System x.x.x** page opens.
5. In the **Required Files** list, click the link to download the **Access Bridge x.x.x, accessbridge-x.x.x.exe** file.

   The download dialog box opens.
6. Follow the on-screen instructions to save the executable (.exe) installer file to the hard disk drive.
7. When the download is complete, locate the installer file on the hard disk drive and proceed as appropriate:
   - If you downloaded the installer by using the ProtecTIER Manager workstation on which you are installing the JAB, go on to step 8 on page 84.
   - If you downloaded the installer by using a PC other than the applicable ProtecTIER Manager workstation, do the following:
     a. Copy the installer file onto a CD, flash memory drive, or other removable media device.
     b. Copy the installer file from the removable media device to the hard disk drive of the ProtecTIER Manager workstation.

c. Go on to step 8.

8. On the ProtecTIER Manager workstation, double-click the **accessbridge-x.x.x.exe** installer file.

   A security warning dialog box displays.

9. Click **Run**.

   The **Java Access Bridge – InstallShield Wizard** opens.

10. Read the welcome information, then click **Next** and follow the on-screen instructions to complete the installation.

11. When the installation is complete, restart the workstation as directed.

    You now have the necessary Java tools for compatibility between the ProtecTIER Manager installation wizard and screen reader software.

12. Follow the instructions in "Using a screen reader to install ProtecTIER Manager" to start the ProtecTIER Manager installation wizard by using a screen reader.

Using a screen reader to install ProtecTIER Manager

About this task

Install ProtecTIER Manager according to the following command line-based instructions.

When entering the commands, type them exactly as shown, including any spaces or quotation marks. Any deviation in the procedure can cause the installation to start in the non-accessible mode, or fail completely.

Procedure

1. If your workstation is configured to automatically open DVDs, temporarily disable the Windows **AutoPlay** feature for the CD/DVD device. Use the Windows Help or other Windows documentation for instructions, and then go on to step 2.
2. Insert the *IBM System Storage ProtecTIER Manager V3.2 DVD* into the CD/DVD drive of the ProtecTIER Manager workstation.
3. Access the command prompt on the ProtecTIER Manager workstation:
   a. Click **Start** > **Run...**.

      The **Run** dialog box opens.
4. In the **Open** field, type: **cmd** and click **Ok**.

   The command window opens.
5. Browse to the ProtecTIER Manager installation directory on the DVD. To do so:
   a. At the command prompt, type: **D:** (where D: is the letter assigned to the CD/DVD drive of the workstation) and press **<enter>**.
   b. At the command prompt, list the contents of the DVD. Type: **dir** and press **<enter>**.
   c. Locate the name of the ProtecTIER Manager directory on the DVD. For example: *PT_Manager_V3.2*.
   d. At the command prompt, change to the **ProtecTIER Manager** directory. Type: **cd <directory name>** and press **<enter>**. For example: `cd PT_Manager_V3.2` **<enter>.**
   e. At the command prompt, change to the **Windows** directory. Type: **cd windows** and press **<enter>**.

f. At the command prompt, type: **Install.exe LAX_VM "C:\Program Files\Java60\jre\bin\java.exe"** and press **<enter>**, where the path contained within the quotation marks is the same as the path that you noted in step 5 on page 82.

   The screen-reader-enabled ProtecTIER Manager installation wizard starts.

g. Follow the spoken prompts to compete the installation.

6. When the installation completes, proceed as appropriate:
   - If you **do not** want to enable the Windows High Contrast option or customize the color palette, resume your regular use of ProtecTIER Manager.
   - To change the contrast mode for ProtecTIER Manager, go to "Enabling the Windows High Contrast option." To customize the color palette, go to "Customizing the color palette" on page 90.

Enabling the Windows High Contrast option

About this task

To make it possible for ProtecTIER Manager display in high contrast, you must first enable the **Use High Contrast** option in Windows.

Procedure

1. On the ProtecTIER Manager workstation, go to **Windows** > **Control Panel** > **Accessibility Options**.

   The **Accessibility Options** dialog box opens.

2. Select the **Display** tab.
3. In the **High Contrast** area of the **Display** tab, select the **Use High Contrast** check box, as shown in Figure 43 on page 86:

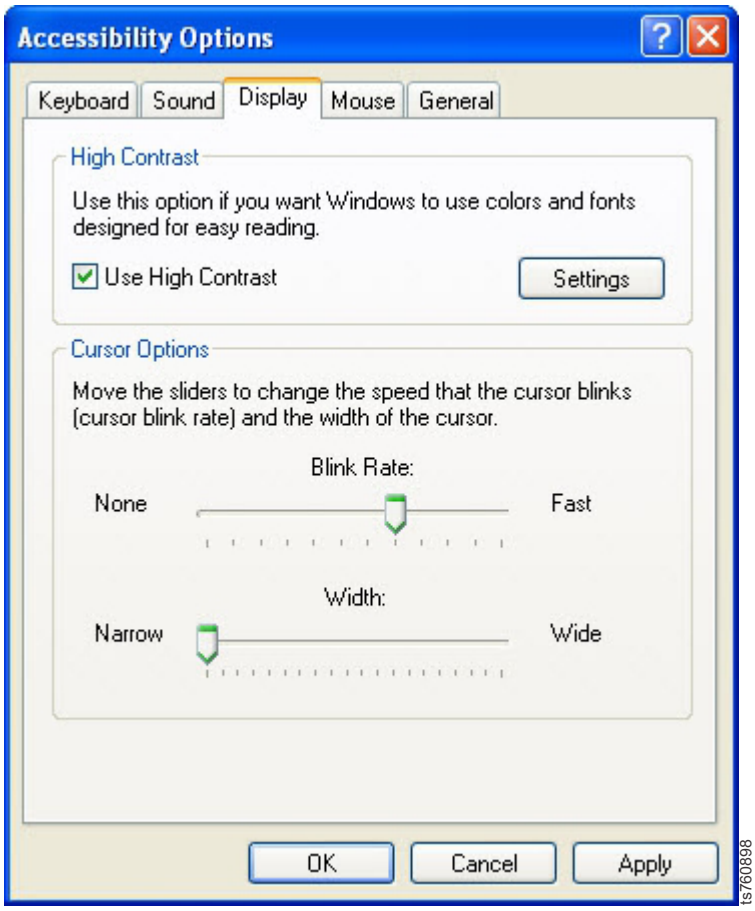

Figure 43. Display tab

4. Click **Settings**.

   The **Settings for High Contrast** dialog box displays, as shown in Figure 44 on page 87:

Figure 44. Settings for High Contrast

By default, the **High Contrast Black (large)** scheme is selected.

5. Do one of the following:
   - To use the default, **High Contrast Black (large)**, scheme:
     a. Click **Ok** to close the **Settings for High Contrast** dialog box.
     b. Click **Ok** to close the **Accessibility Options** dialog box.
        After a few moments, the display changes to the new color scheme.
     c. Go on to "Using the Windows high contrast scheme with ProtecTIER Manager."
   - To use a different high contrast scheme:
     a. Click the arrow to show the list of available color schemes.
     b. Select the high contrast scheme that you want to use.
     c. Click **Ok** to close the **Settings for High Contrast** dialog box.
     d. Click **Ok** to close the **Accessibility Options** dialog box.
        After a few moments, the display changes to the new color scheme.
     e. Go on to "Using the Windows high contrast scheme with ProtecTIER Manager."

Using the Windows high contrast scheme with ProtecTIER Manager

About this task

Now that you have changed the contrast scheme in Windows, you must enable the **Support system settings** option in ProtecTIER Manager.

Procedure

1. Launch **ProtecTIER Manager**:

a. Click: **Start** > **All Programs** > **IBM** > **ProtecTIER Manager** > **IBM ProtecTIER Manager**.

The ProtecTIER Manager window opens, as shown in: Figure 45.

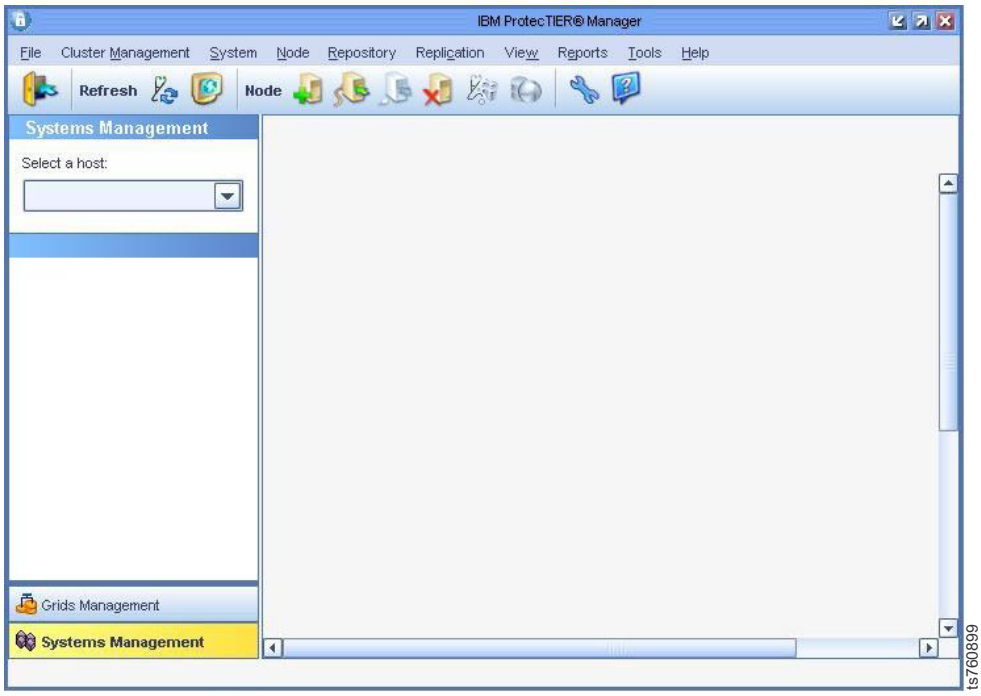

Figure 45. ProtecTIER Manager window

2. On the toolbar, click: **Tools** > **Preferences**.

   The **Preferences** dialog box opens with the **Appearance** tab selected, as shown in Figure 46 on page 89:

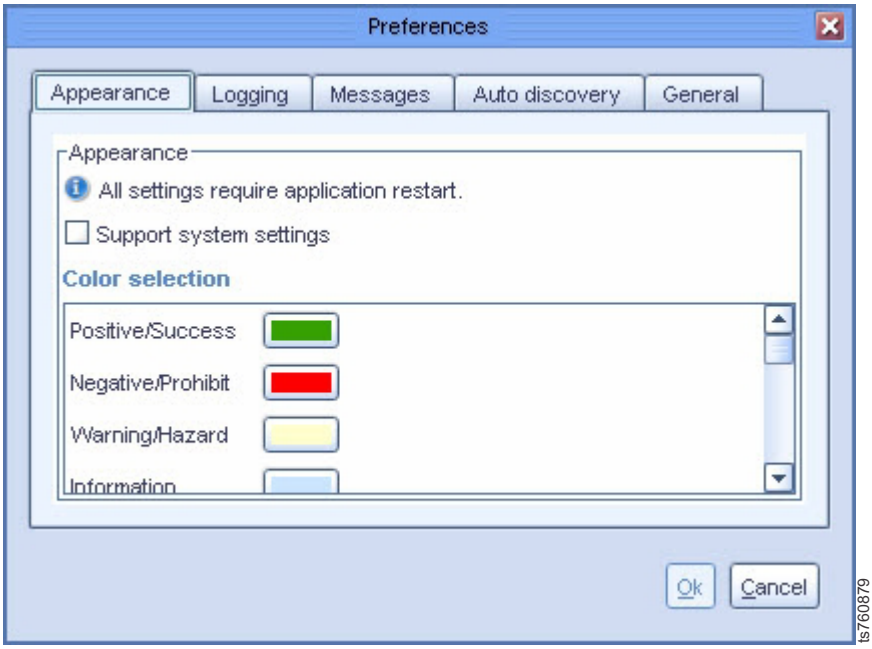

Figure 46. Preferences dialog box

3. On the **Appearance** tab, select the **Support system settings** check box.
   You are returned to the **ProtecTIER Manager** window.
4. Exit and restart ProtecTIER Manager so the contrast settings take effect:
   a. On the **ProtecTIER Manager** toolbar, click: **File** > **Exit**.
      The **ProtecTIER Manager** window closes.
   b. Click: **Start** > **All Programs** > **IBM** > **ProtecTIER Manager** > **IBM ProtecTIER Manager**.
      When the ProtecTIER Manager window opens, the display reflects the contrast change, as shown in: Figure 47.

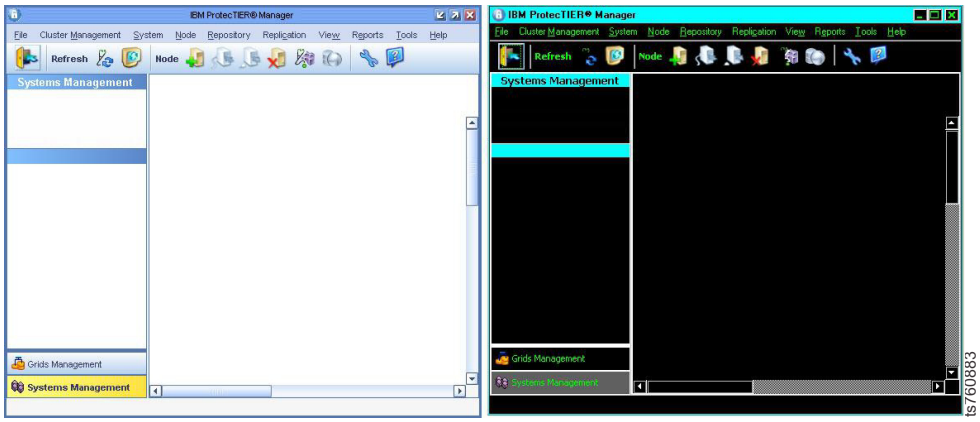

Figure 47. Normal contrast versus high contrast

5. Proceed as appropriate:
   - If you want to change one or more of the colors used in the ProtecTIER Manager display, continue to "Customizing the color palette" on page 90.
   - If you **do not** want to customize the color palette, resume your regular use of ProtecTIER Manager.

Customizing the color palette

About this task

Use this procedure to customize the color palette for ProtecTIER Manager to improve visibility in the display, or to suit your personal preferences.

Procedure

1. If necessary, start ProtecTIER Manager as described in step 1 on page 87.
2. Open the **Preferences** dialog box, as described in 2 on page 88.
3. Scroll down (if necessary) to see the entire **Color selection** list, and then select the color you want to change.

   The **Color selection** dialog box opens, with the **Swatches** tab selected, as shown in Figure 48:

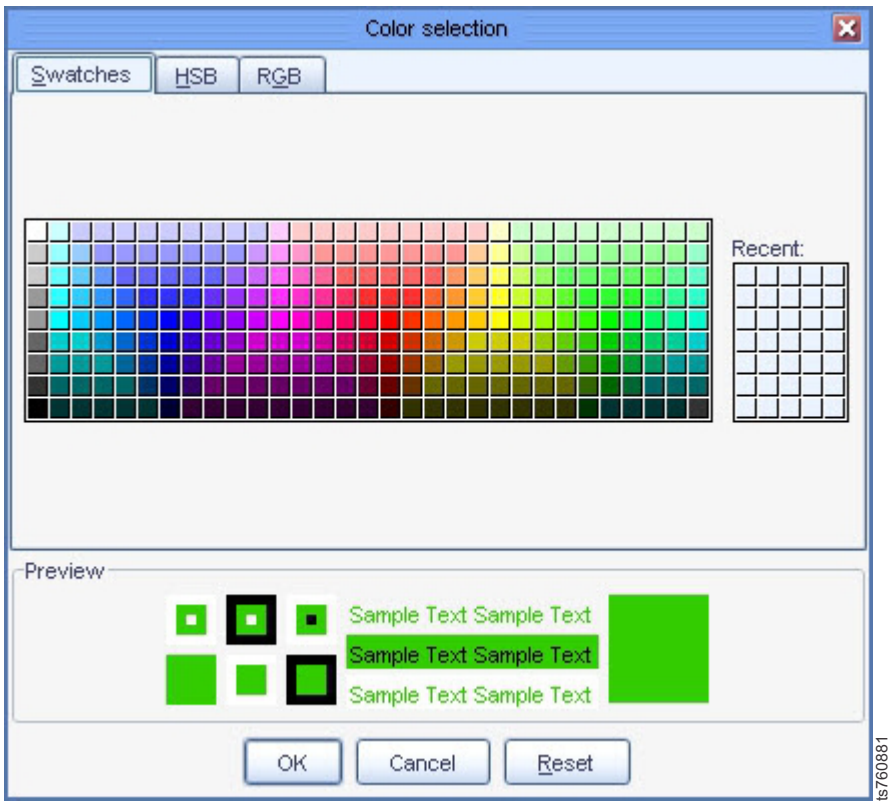

Figure 48. Color selection, Swatches tab

   The color that is currently defined for your selection is shown in the **Preview** pane.
4. Select a new color from the color palette.

   You can also specify a new color by using the Hue/Saturation/Brightness (HSB) or Red/Green/Blue (RGB) color models. To do so, click the tab for the model you want to use and enter the required values.
5. When you have finished selecting or specifying the new color, click **Ok**.

   You are returned to the **Appearance** tab.
6. To change another color, repeat steps 3 through 5.

7. When you are finished making changes in the **Appearance** tab, click **Ok**.

   You are returned to the ProtecTIER Manager window.

8. Exit and restart ProtecTIER Manager (as described in step 4 on page 89) so the color palette changes take effect.

   After you log in to ProtecTIER Manager and add a node, the display reflects your custom color selections.

   An example of the default color versus a custom color for **Allocable** resources, is shown in: Figure 49

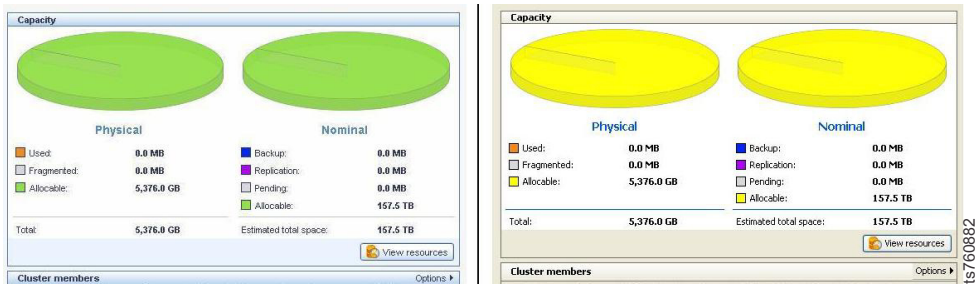

Figure 49. Default color versus custom color

9. Proceed as appropriate. Return to the task from which you were sent to these instructions or resume your regular use of ProtecTIER Manager.

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Industry Canada compliance statement

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

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

European Union Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of European Union (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.

Attention: This is an EN 55022 Class A product. In a domestic environment this product might cause radio interference in which case the user might be required to take adequate measures.

Responsible Manufacturer:

International Business Machines Corp.
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914-499-1900

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Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany
Tele: 0049 (0) 7032 15-2941
e-mail: lugi@de.ibm.com

Australia and New Zealand Class A Statement

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

Germany Electromagnetic compatibility directive

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM

empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Mabnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)." Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:

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Der verantwortliche Ansprechpartner des Herstellers in der EU ist:

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IBM-Allee 1, 71139 Ehningen, Germany
Tele: 0049 (0) 7032 15-2941
e-mail: lugi@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

People's Republic of China Class A Electronic Emission statement

中华人民共和国“A类”警告声明

声 明

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Taiwan Class A compliance statement

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Taiwan contact information

This topic contains the product service contact information for Taiwan.

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Tel: 0800-016-888

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Japan Voluntary Control Council for Interference (VCCI) Class A Statement

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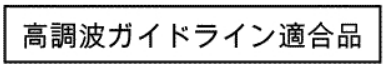
Japan Electronics and Information Technology Industries Association (JEITA) Statement (less than or equal to 20 A per phase)



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Korean Communications Commission (KCC) Class A Statement

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Russia Electromagnetic Interference (EMI) Class A Statement

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В жилых помещениях оно может создавать
радиопомехи, для снижения которых необходимы
дополнительные меры

rusemi

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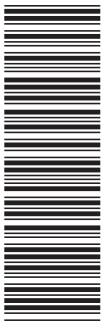

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