![Sun Microsystems logo]

Sun StorEdge™ 6320 System 1.0
Installation Guide

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Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun StorEdge 6320 system.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:

Caution – There is a risk of personal injury and equipment damage. Follow the instructions.

Caution – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.

Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.

Depending on the type of power switch your device has, one of the following symbols may be used:

On – Applies AC power to the system.

Off – Removes AC power from the system.

Standby – The On/Standby switch is in the standby position.

Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun StorEdge 6320 system.

Placement of a Sun Product

Caution – Do not block or cover the openings of your Sun StorEdge 6320 system. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.

Caution – The workplace-dependent noise level defined in DIN 45 635 Part 1000 must be 70Db(A) or less.

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

Power Cord Connection

Caution – Sun products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

Caution – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.

Caution – Your Sun product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

The following caution applies only to devices with a Standby power switch:

Caution – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

Lithium Battery

Caution – On Sun CPU boards, there is a lithium battery molded into the real-time clock, SGS No. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, or MK48T08. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

Battery Pack

Caution – There is a sealed lead acid battery in Sun StorEdge 6320 Storage System units. Portable Energy Products No. TLC02V50. There is danger of explosion if the battery pack is mishandled or incorrectly replaced. Replace only with the same type of Sun Microsystems battery pack. Do not disassemble it or attempt to recharge it outside the system. Do not dispose of the battery in fire. Dispose of the battery properly in accordance with local regulations.

System Unit Cover

You must remove the cover of your Sun computer system unit to add cards, memory, or internal storage devices. Be sure to replace the top cover before powering on your computer system.

Caution – Do not operate the Sun StorEdge 6320 system without the top cover in place. Failure to take this precaution may result in personal injury and system damage.

Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

```
Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1
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CD-ROM

⚠ **Caution –** Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

GOST-R Certification Mark
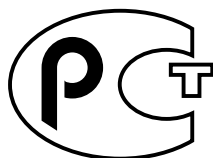
Conformité aux normes de sécurité

Lisez attentivement la section suivante avant de commencer la procédure. Le document ci-dessous présente les consignes de sécurité à respecter au cours de l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre protection, observez les mesures de sécurité suivantes lors de l'installation de l'équipement:

- Observez tous les avertissements et consignes indiqués sur l'équipement.
- Assurez-vous que la tension et la fréquence de votre source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de la tension électrique nominale du matériel.

- N'insérez en aucun cas un objet quelconque dans les orifices de l'équipement. Des tensions potentiellement dangereuses risquent d'être présentes dans l'équipement. Tout objet étranger conducteur risque de produire un court-circuit pouvant présenter un risque d'incendie ou de décharge électrique, ou susceptible d'endommager le matériel.

Symboles

Les symboles suivants peuvent figurer dans cet ouvrage :

⚠ **Attention –** Vous risquez d'endommager le matériel ou de vous blesser. Observez les consignes indiquées.

⚠ **Attention –** Surface brûlante. Evitez tout contact. Ces surfaces sont brûlantes. Vous risquez de vous blesser si vous les touchez.

⚠ **Attention –** Tensions dangereuses. Pour réduire les risques de décharge électrique et de danger physique, observez les consignes indiquées.

Selon le type d'interrupteur marche/arrêt dont votre appareil est équipé, l'un des symboles suivants sera utilisé :

| **MARCHE –** Met le système sous tension alternative.

◯ **ARRET –** Met le système hors tension alternative.

⏻ **VEILLEUSE –** L'interrupteur Marche/Veille est sur la position de veille.

Modifications de l'équipement

N'apportez aucune modification mécanique ou électrique à l'équipement. Sun Microsystems décline toute responsabilité quant à la non-conformité éventuelle d'un produit Sun modifié.

Positionnement d'un produit Sun

⚠ **Attention –** N'obstruez ni ne recouvrez les orifices de votre produit Sun. N'installez jamais un produit Sun près d'un radiateur ou d'une source de chaleur. Si vous ne respectez pas ces consignes, votre produit Sun risque de surchauffer et son fonctionnement en sera altéré.

⚠ **Attention –** Le niveau de bruit inhérent à l'environnement de travail, tel qu'il est défini par la norme DIN 45 635 - section 1000, doit être inférieur ou égal à 70Db(A).

Conformité aux normes SELV

Le niveau de sécurité des connexions E/S est conforme aux normes SELV.

Raccordement à la source d'alimentation électrique

⚠ **Attention –** Les produits Sun sont conçus pour fonctionner avec des systèmes d'alimentation électrique monophasés avec prise de terre. Pour réduire les risques de décharge électrique, ne branchez jamais les produits Sun sur une source d'alimentation d'un autre type. Contactez le gérant de votre bâtiment ou un électricien agréé si vous avez le moindre doute quant au type d'alimentation fourni dans votre bâtiment.

⚠ **Attention –** Tous les cordons d'alimentation n'ont pas la même intensité nominale. Les cordons d'alimentation à usage domestique ne sont pas protégés contre les surtensions et ne sont pas conçus pour être utilisés avec des ordinateurs. N'utilisez jamais de cordon d'alimentation à usage domestique avec les produits Sun.

⚠ **Attention –** Votre produit Sun est livré avec un cordon d'alimentation avec raccord à la terre (triphasé). Pour réduire les risques de décharge électrique, branchez toujours ce cordon sur une source d'alimentation mise à la terre.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur Veille :

⚠ **Attention –** .L'interrupteur d'alimentation de ce produit fonctionne uniquement comme un dispositif de mise en veille. Le cordon d'alimentation constitue le moyen principal de déconnexion de l'alimentation pour le système. Assurez-vous de le brancher dans une prise d'alimentation mise à la terre près du système et facile d'accès. Ne le branchez pas lorsque l'alimentation électrique ne se trouve pas dans le châssis du système.

Pile au lithium

⚠ **Attention –** Sur les cartes UC Sun, une batterie au lithium a été moulée dans l'horloge temps réel, de type SGS nº MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ ou MK48T08. Cette batterie ne doit pas être remplacée par le client. Elle risque d'exploser en cas de mauvaise manipulation. Ne la jetez pas au feu. Ne la démontez pas et ne tentez pas de la recharger.

Bloc-batterie

⚠️ **Attention –** Les unités Sun StorEdge 6320 Storage System contiennent une batterie étanche au plomb. Produits énergétiques portatifs nº TLC02V50. Il existe un risque d'explosion si ce bloc batterie est manipulé ou installé de façon incorrecte. Ne le remplacez que par un bloc batterie Sun Microsystems du même type. Ne le démontez pas et n'essayez pas de le recharger hors du système. Ne le jetez pas au feu. Mettez-le au rebut conformément aux réglementations locales en vigueur.

Couvercle du système

Pour ajouter des cartes, de la mémoire ou des unités de stockage internes, vous devez démonter le couvercle de votre système Sun. N'oubliez pas de le remettre en place avant de mettre le système sous tension.

⚠️ **Attention –** Ne travaillez jamais avec un produit Sun dont le couvercle n'est pas installé. Si vous ne respectez pas cette consigne, vous risquez de vous blesser ou d'endommager le système.

Avis de conformité des appareils laser

Les produits Sun faisant appel à la technologie laser sont conformes aux normes de sécurité des appareils laser de classe 1.

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⚠️ **Attention –** .L'utilisation de contrôles et de réglages ou l'application de procédures autres que ceux spécifiés dans le présent document peuvent entraîner une exposition à des radiations dangereuses.

Notice de qualité GOST-R
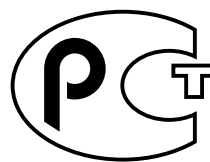
Einhaltung sicherheitsbehördlicher Vorschriften

Lesen Sie diesen Abschnitt sorgfältig durch, bevor Sie mit dem Arbeitsablauf beginnen. Der folgende Text beschreibt Sicherheitsmaßnahmen, die bei der Installation von Sun-Produkten zu beachten sind.

Sicherheitsmaßnahmen

Zu Ihrem eigenen Schutz sollten Sie die folgenden Sicherheitsmaßnahmen bei der Installation befolgen :

- Befolgen Sie alle auf die Geräte aufgedruckten Anweisungen und Warnhinweise.
- Beachten Sie die Geräteaufschrift, um sicherzustellen, daß Netzspannung und -frequenz mit der Gerätespannung und -frequenz übereinstimmen.
- Führen Sie niemals Gegenstände in die Geräteöffnungen ein. Es könnten elektrische Spannungsfelder vorhanden sein. Leitende Fremdkörper können Kurzschlüsse, Feuer und elektrische Schläge verursachen oder Ihr Gerät beschädigen.

Symbole

Die folgenden Symbole werden in diesem Handbuch verwendet:

Achtung – Es besteht die Gefahr der Verletzung und der Beschädigung des Geräts. Befolgen Sie die Anweisungen.

Achtung – Heiße Oberfläche. Vermeiden Sie jede Berührung. Diese Oberflächen sind sehr heiß und können Verbrennungen verursachen.

Achtung – Elektrisches Spannungsfeld vorhanden. Befolgen Sie die Anweisungen, um elektrische Schläge und Verletzungen zu vermeiden.

Abhängig von der Art des Stromschalters Ihres Gerätes wird eventuell eines der folgenden Symbole verwendet:

Ein – Das System wird mit Wechselstrom versorgt.

Aus– Das System wird nicht mehr mit Wechselstrom versorgt.

Wartezustand – (Der Ein-/Standby-Schalter befindet sich in der Standby-Position.

Modifikationen des Geräts

Nehmen Sie keine elektrischen oder mechanischen Gerätemodifikationen vor. Sun Microsystems ist für die Einhaltung der Sicherheitsvorschriften von modifizierten Sun-Produkten nicht haftbar.

Aufstellung von Sun-Geräten

Achtung – Geräteöffnungen Ihres Sun-Produkts dürfen nicht blockiert oder abgedeckt werden. Sun-Geräte sollten niemals in der Nähe von Heizkörpern oder Heißluftklappen aufgestellt werden. Nichtbeachtung dieser Richtlinien können Überhitzung verursachen und die Zuverlässigkeit Ihres Sun-Geräts beeinträchtigen.

Achtung – Der Geräuschpegel, definiert nach DIN 45 635 Part 1000, darf am Arbeitsplatz 70dB(A) nicht überschreiten.

SELV-Richtlinien

Alle Ein-/Ausgänge erfüllen die SELV-Anforderungen.

Netzanschlußkabel

Achtung – Sun-Geräte benötigen ein einphasiges Stromversorgungssystem mit eingebautem Erdleiter. Schließen Sie Sun-Geräte nie an ein anderes Stromversorgungssystem an, um elektrische Schläge zu vermeiden. Falls Sie die Spezifikationen der Gebäudestromversorgung nicht kennen, sollten Sie den Gebäudeverwalter oder einen qualifizierten Elektriker konsultieren.

Achtung – Nicht alle Netzanschlußkabel besitzen die gleiche Stromleitung. Normale Verlängerungskabel besitzen keinen Überspannungsschutz und sind nicht für den Gebrauch mit Computersystemen geeignet. Benutzen Sie keine Haushaltverlängerungskabel für Sun-Geräte.

Achtung – Ihr Sun-Gerät wurde mit einem geerdeten (dreiadrigen) Netzanschlußkabel geliefert. Stecken Sie dieses Kabel immer nur in eine geerdete Netzsteckdose, um Kurzschlüsse zu vermeiden.

Der folgende Hinweis bezieht sich nur auf Geräte mit Standby-Stromschalter:

Achtung – Der Stromschalter dieses Produkts funktioniert nur als Standby-Gerät. Das Netzanschlußkabel dient als Hauptabschaltgerät für das System. Stellen Sie sicher, daß Sie das Netzanschlußkabel in den geerdeten Stromausgang in der Nähe des Systems einstecken. Schließen Sie das Netzanschlußkabel nicht an, wenn die Stromzufuhr vom Systemgehäuse entfernt wurde.

Lithium-Batterie

Achtung – CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie, Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ oder MK48T08. Batterien sollten nicht vom Kunden ausgetauscht werden. Sie können bei falscher Handhabung explodieren. Entsorgen Sie die Batterien nicht im Feuer. Entfernen Sie sie nicht und versuchen Sie auch nicht, sie wiederaufzuladen.

Batterien

Achtung – Die Geräte Sun StorEdge 6320 Storage System enthalten auslaufsichere Bleiakkumulatoren, Produkt-Nr. TLC02V50 für portable Stromversorgung. Wenn die Batterien nicht richtig gehandhabt oder ausgetauscht werden, besteht Explosionsgefahr. Tauschen Sie Batterien nur gegen Batterien gleichen Typs von Sun Microsystems aus. Versuchen Sie nicht, die Batterien zu entfernen oder außerhalb des Geräts wiederaufzuladen. Entsorgen Sie die Batterien nicht im Feuer. Entsorgen Sie die Batterien ordnungsgemäß entsprechend den vor Ort geltenden Vorschriften.

Abdeckung des Systems

Sie müssen die Abdeckung des Sun-Computersystems entfernen, um Karten, Speicher oder interne Speichergeräte hinzuzufügen. Stellen Sie sicher, daß Sie die Abdeckung wieder einsetzen, bevor Sie den Computer einschalten.

Achtung – Sun-Geräte dürfen nicht ohne Abdeckung in Gebrauch genommen werden. Nichtbeachtung dieses Warnhinweises kann Verletzungen oder Systembeschädigungen zur Folge haben.

Laserrichtlinien

Alle Sun-Produkte, die Lasertechnologie nutzen, erfüllen die Laserrichtlinien der Klasse 1.

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⚠ **Achtung –** Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchführung von Arbeitsabläufen, die von den hier beschriebenen abweichen, können gefährliche Strahlungen zur Folge haben.

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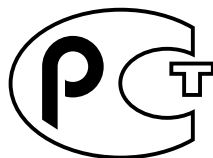
Normativas de seguridad

Lea esta sección antes de llevar a cabo cualquier procedimiento. El texto que aparece a continuación explica las medidas de seguridad que deben tomarse durante la instalación de un producto Sun Microsystems.

Medidas de seguridad

Por su propia seguridad, tome las medidas de seguridad siguientes al instalar el equipo:

- Siga todas los avisos y las instrucciones que aparecen impresas en el equipo.
- Cerciórese de que el voltaje y la frecuencia de la fuente de alimentación coinciden con el voltaje y frecuencia indicados en la etiqueta de clasificación eléctrica del equipo.
- No introduzca objetos de ningún tipo a través de las aberturas del equipo. Dentro pueden darse voltajes peligrosos. Los objetos conductores extraños podrían producir un cortocircuito y, en consecuencia, fuego, descargas eléctricas o daños en el equipo.

Símbolos

Los símbolos siguientes pueden aparecer en este manual:

⚠ **Precaución –** Existe el riesgo de que se produzcan lesiones personales y daños en el equipo. Siga las instrucciones.

⚠ **Precaución –** Superficie caliente. Evite todo contacto. Las superficies están calientes y pueden causar lesiones personales si se tocan.

⚠ **Precaución –** Riesgo de voltajes peligrosos. Para reducir el riesgo de descargas eléctricas y de daños en la salud de las personas, siga las instrucciones.

Según el tipo de interruptor de alimentación del que disponga el dispositivo, se utilizará uno de los símbolos siguientes:

| **Encendido –** Proporciona alimentación de CA al sistema.

◯ **Apagado –** Corta la alimentación de CA del sistema.

⏻ **Espera –** El interruptor de encendido/espera está en la posición de espera.

Modificaciones en el equipo

No realice modificaciones mecánicas ni eléctricas en el equipo. Sun Microsystems no se hará responsable del cumplimiento de las normas en el caso de un producto Sun que ha sido modificado.

Lugar y colocación de un producto Sun

⚠ **Precaución –** No obstruya ni tape las rejillas del producto Sun. Nunca coloque un producto Sun cerca de radiadores o fuentes de calor. El incumplimiento de estas directrices puede causar un recalentamiento y repercutir en la fiabilidad del producto Sun.

⚠ **Precaución –** El nivel de ruido en el lugar de trabajo, definido en el apartado 1000 de DIN 45 635, debe ser 70 Db (A) o inferior.

Cumplimiento de las normas SELV

Las condiciones de seguridad de las conexiones de E/S cumplen las normas SELV.

Conexión del cable de alimentación

Precaución – Los productos Sun han sido diseñados para funcionar con sistemas de alimentación monofásicos que tengan un conductor neutral a tierra. Para reducir el riesgo de descargas eléctricas, no enchufe ningún producto Sun a otro tipo de sistema de alimentación. Si no está seguro del tipo de alimentación del que se dispone en el edificio, póngase en contacto con el encargado de las instalaciones o con un electricista cualificado.

Precaución – No todos los cables de alimentación tienen la misma clasificación de corriente. Los cables de prolongación domésticos no ofrecen protección frente a sobrecargas y no están diseñados para ser utilizados con sistemas informáticos. No utilice cables de prolongación domésticos con el producto Sun.

Precaución – El producto Sun se suministra con un cable de alimentación (de tres hilos) con conexión a tierra. Para reducir el riesgo de descargas eléctricas, enchufe siempre el cable a una toma de corriente con conexión a tierra.

La precaución siguiente sólo se aplica a aquellos dispositivos que posean un interruptor de alimentación de espera:

Precaución – El interruptor de alimentación del producto funciona como dispositivo de espera solamente. El cable de alimentación actúa como el dispositivo de desconexión primario del sistema. Cerciórese de enchufar el cable de alimentación a una toma de corriente con conexión a tierra situada cerca del sistema y a la que se pueda acceder con facilidad. No conecte el cable de alimentación cuando se haya quitado la fuente de alimentación del bastidor del sistema.

Batería de litio

Precaución – En la placa CPU de los productos Sun, hay una batería de litio incorporada en el reloj en tiempo real, SGS núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ o MK48T08. Los usuarios no deben cambiar las baterías. Podrían estallar si no se utilizan adecuadamente. No arroje la batería al fuego. No la desmonte ni intente recargarla.

Paquete de baterías

Precaución – Las unidades Sun StorEdge 6320 Storage System contienen una batería de plomo sellada, Productos eléctricos portátiles núm. TLC02V50. Existe el riesgo de explosión si el paquete de baterías no se utiliza correctamente o se sustituye de forma incorrecta. Sustitúyalo sólo por el mismo tipo de paquete de baterías de Sun Microsystems. No lo desmote o intente recargarlo fuera del sistema. No arroje la batería al fuego. Deshágase de las baterías correctamente siguiendo las normas locales vigentes.

Cubierta de la unidad del sistema

Debe retirar la cubierta de la unidad del sistema informático Sun para añadir tarjetas, memoria o dispositivos de almacenamiento internos. Asegúrese de volver a colocar la cubierta superior antes de encender el equipo.

⚠ **Precaución –** No ponga en funcionamiento los productos Sun sin que la cubierta superior se encuentre instalada. De lo contrario, podrían producirse lesiones personales o daños en el sistema.

Aviso de cumplimiento de las normas para láser

Los productos Sun que utilizan tecnología láser cumplen los requisitos para láser de Clase 1.

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⚠ **Precaución –** La utilización de controles, ajustes o la realización de los procedimientos distintos a los especificados en el presente documento podrían provocar la exposición a radiaciones peligrosas.

Certificación GOST-R
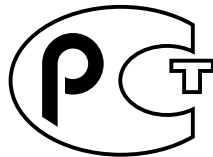
Nordic Lithium Battery Cautions

Norge

⚠ **ADVARSEL –** Litiumbatteri — Eksplosjonsfare.Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige

⚠ **VARNING –** Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark

⚠ **ADVARSEL! –** Litiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi

⚠ **VAROITUS –** Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Contents

Figures

Tables

Preface

The *Sun StorEdge™ 6320 System 1.0 Installation Guide* provides procedures for installing the Sun StorEdge™ 6320 systems. Because the Sun StorEdge 6320 systems are shipped as complete configurations, this guide describes the initial setup of the system, including the power on and off procedures, and the procedures to connect the system to the host. Only a qualified service provider should perform the tasks in this guide.

> **Caution –** You must read and understand the *Sun StorEdge 6320 Regulatory and Safety Compliance Manual* or the Chapter "Safety Agency Compliance Statements on page iii" before beginning any procedure in this guide.

How This Guide Is Organized

Chapter 1 contains an introduction and an overview of the guide.

Chapter 2 contains a checklist of the steps to install the Sun StorEdge 6320 system and connect it to the host.

Chapter 3 describes the steps to install the Sun StorEdge 6320 systems.

Chapter 4 describes how to locally power the systems on and off.

Chapter 5 describes the steps for the initial connectivity to the Sun StorEdge 6320 system.

Chapter 6 describes connecting the systems to the host server.

Chapter 7 describes how to initialize the Sun StorEdge Remote Response service.

Chapter 8 contains the name of the document that describes connecting the system to a server running Microsoft Windows NT operating environment.

Chapter 9 contains the name of the document that describes connecting the system to a server running Microsoft Windows 2000 operating environment.

Chapter 10 describes connecting the system to a server running the Red Hat Linux operating environment.

Chapter 11 contains the name of the document that describes connecting the system to a server running the IBM AIX operating environment.

Chapter 12 contains the name of the document that describes connecting the system to a server running the Hewlett Packard HP-UX operating environment.

Appendix A describes how to add a second cabinet to the Sun StorEdge 6320 systems.

Appendix B describes how to remotely power the systems on and off.

Appendix C contains the physical specifications of the systems.

Using UNIX Commands

This document does not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris™ software environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`%` **`su`** `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename*.

Shell Prompts

Shell	Prompt
C shell	*machine_name*`%`
C shell superuser	*machine_name*`#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell superuser	`#`

Related Documentation

The following is a list of documents related to the Sun StorEdge 6320 system. For any document number with *nn* as a suffix, use the most current document.

Product	Title	Part Number
Late-breaking news	• *Sun StorEdge 6320 System 1.0 Release Notes*	816-7880-10
Sun StorEdge 6320 system hardware information	• *Sun StorEdge 6320 System 1.0 Site Preparation Guide* • *Sun StorEdge 6320 System Regulatory and Safety Compliance Manual* • *Sun StorEdge 6320 System 1.0 Reference and Service Manual*	816-7877-10 816-7876-10 816-7879-10
Host Connection	• *Sun StorEdge Configuration Service 1.2 Administrator's Guide* • *Sun StorEdge 6000 Family Host Installation Software Guide*	817-0997-10 817-1739-10
Sun StorEdge 6020 and 6120 arrays	• *Sun StorEdge 6120 Array Start Here* • *Sun StorEdge 6120 Array Installation Guide* • *Sun StorEdge 6120 Array System Manual* • *Sun StorEdge 6120 Array Release Notes*	817-0198-*nn* 817-0199-*nn* 817-0200-*nn* 817-0201-*nn*
Diagnostics	• *Storage Automated Diagnostics Environment 2.2 User's Guide, System Edition*	817-0192-10
Sun StorEdge network Fibre Channel switch-8 and switch-16	• *Sun StorEdge Network FC Switch-8 and Switch-16 Release Notes* • *Sun StorEdge Network FC Switch-8 and Switch-16 Installation and Configuration Guide* • *Sun StorEdge Network FC Switch-8 and Switch-16 Best Practices Manual* • *Sun StorEdge Network FC Switch-8 and Switch-16 Operations Guide* • *Sun StorEdge Network FC Switch-8 and Switch-16 Field Troubleshooting Guide*	816-0842-10 816-0830-12 816-2688-10 816-1986-10 816-0252-10
SANbox™ switch management using SANsurfer®	• *SANbox-8/16 Segmented Loop Switch Management User's Manual* • *SANbox-8 Segmented Loop Fibre Channel Switch Installer's/ User's Manual* • *SANbox-16 Segmented Loop Fibre Channel Switch Installer's/ User's Manual*	875-3060-10 875-1881-11 875-3059-10
Expansion cabinet	• *Sun StorEdge Expansion Cabinet Installation and Service Manual*	805-3067-12

Product	Title	Part Number
Storage Service Processor	• *Sun V100 Server User's guide* • *Netra X1 Server User's Guide* • *Netra X1 Server Hard Disk Drive Installation Guide* • *Sun StorEdge Traffic Manager Software Installation and Configuration Guide*	806-5980-10 806-5980-10 806-7670-10 816-1420-10
Solaris Operating Environment	• *Solaris Handbook for Sun Peripherals*	816-4468-10
Microsoft Windows	• *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for Microsoft Windows 2000 and Windows NT Operating Systems*	817-0830-10
IBM AIX	• *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for IBM AIX Operating System*	817-0832-10
Hewlett Packard HP-UX	• *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for Hewlett Packard HP-UX Operating System*	817-0834-10

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If you have technical questions about this product that are not answered in this guide, go to:

`http://www.sun.com/service/contacting`

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```
http://www.sun.com/hwdocs/feedback
```

Please include the title and part number of this document with your feedback:

Book Title, part number 816-7878-10.

Introduction

The Sun StorEdge 6320 1.0 systems are complete storage solutions that are preconfigured to RAID 5.

The Sun StorEdge 6320 system is available in two different configurations:

■ The Sun StorEdge 6320 system contains the interface and internal Fibre Channel (FC) switches supplied by Sun before the system is shipped to the customer.
■ The Sun StorEdge 6320 system has the interface switches supplied by the customer.

The *Sun StorEdge 6320 System 1.0 Reference and Service Manual* describes the software associated with the Sun StorEdge 6320 1.0 system

This chapter contains the following section:

■ "Overview of the Sun StorEdge 6320 System" on page 1

1.1 Overview of the Sun StorEdge 6320 System

The Sun StorEdge 6320 system uses two 16 port Fibre Channel (FC) switches as the host interface. The Fibre Channel switches can be installed in the system before the system is shipped to the customer or the switches can be supplied by the customer after the system is delivered. However, these customer-supplied switches cannot connect to the Sun StorEdge 6320 system internal local area network (LAN).

The Sun StorEdge 6320 system base cabinet can support up to ten Sun StorEdge 6020 arrays in the one controller per array configuration (2x2). Other configurations can contain Sun StorEdge 6020 arrays in configurations that include one controller per two arrays (2x4) and one controller per three arrays (2x6).

The base cabinet of the Sun StorEdge 6320 system also contains a Storage Service Processor for security and management and a Sun StorEdge Remote Response Unit that can optionally monitor and report on the status of the system.

By adding a second Sun StorEdge Expansion Cabinet, the Sun StorEdge 6320 system supports up to 22 Sun StorEdge 6020 arrays in any combination of the available array configurations (2x2, 2x4, and 2x6).

Installation Checklist

This chapter contains a worksheet and a checklist. The information in the worksheet is used when connecting the Sun StorEdge 6320 system to the host.

The checklist shows the sequence of events that must be followed to install the Sun StorEdge 6320 system, configure the system, and make the connection from the host to the system. The title of the book that contains the information to complete a step is shown.

This chapter contains the following sections:

- Section 2.1, "Worksheet" on page 2-1
- Section 2.2, "Checklist" on page 2-3

2.1   Worksheet

Copy to this worksheet the information that was gathered in the *Sun StorEdge 6320 System 1.0 Site Preparation Guide* Preinstallation Worksheet. You will need the information in this worksheet when you connect the Sun StorEdge 6320 system to the host.

Caution – The Sun StorEdge 6320 system uses the IP addresses 174.30.0.x and 174.40.0.x for its internal operation. These IP addresses should not be used for customer IP addresses for the Sun StorEdge 6320 system. If one of these addresses (174.30.0.x and 174.40.0.x) must be used to connect to the system, a separate network address translation function must be put between the customer LAN and the Sun StorEdge 6320 system. The translation function hides the IP addresses of the Sun StorEdge 6320 system from the customer LAN.

> **Note –** The number of IP addresses necessary for your installation depends on the configurations you select. See the *Sun StorEdge 6320 System Reference and Service Manual* for the number of IP addresses necessary for each of the supported configurations.

Item	Management Host	Application Host
Host ID		
Host name		
Host IP address		
Domain Name		
HBA WWN		
HBA WWN		
Gateway IP address		
OS/patch revision level		
Primary application		

Legend:

Required field	
Optional field	
Not applicable	

TABLE 2-1   Pre-Installation Information

2.2 Checklist

TABLE 2-2   Installation Checklist

	Procedure	Information Location
	1.) Unpack the system.	Sun StorEdge 6320 System Installation Guide
	2.) Move and place the system.	
	3.) Secure the system-leveling pads, stabilizer legs, or mount to the floor.	
	4.) Connect an expansion cabinet (if necessary).	
	5.) Power on the system for local power-on operation or power on the system for remote power-on operation.	
	6.) Establish initial network connectivity.	

	7.) Establish contact from a Solaris host to the system.
	 a) Login to the Configuration Service software.
	 b) Select Administration.
	 c) Describe the Sun StorEdge 6320 system.
	 d) Set the system time.
	 e) Select Reports to see the default configuration of the Sun StorEdge 6320 system.
	 f) Change the Sun StorEdge 6320 system configuration if necessary.
	   a) Create a volume group.
	   b) Create a volume and add to the volume group.
	   c) Create an initiator group.
	   d) Create an initiator and add it to the initiator group.
	   e) Display the associated between the volume group and the initiator group.
	   c) Verify the volume and initiator.
		Use the Configuration Services software for the following procedures.

	8.) Initialize remote response service (if necessary)	Sun StorEdge 6320 System Installation Guide
	9.) Connect the system to a Microsoft Windows NT host (if necessary).	

TABLE 2-2   Installation Checklist

Procedure	Information Location
10.)) Connect the system to a Microsoft Windows 2000 host (if necessary).	
11.) Connect the system to a Red Hat Linux host (if necessary).	
12.)) Connect the system to a IBM AIX host (if necessary).	
13.) Connect the system to a HP-UX host (if necessary).	

Installing the System

This chapter describes how to unpack and install the Sun StorEdge 6320 systems.

The system is shipped completely configured and includes the following items described in this chapter:

- Two power sequencer assemblies
- Four floor-mounting brackets
- Two stabilizer legs

The floor-mounting brackets enable you to bolt the system to the floor. If you are not installing the floor-mounting brackets, install the stabilizer legs. The stabilizer legs are extended to prevent the system from tipping over when field-replaceable units (FRUs) are installed, removed, or serviced.

Note – If you are installing a Sun StorEdge 6320 system with a second cabinet, perform the procedures in this chapter for both cabinets.

The following tools are required to perform the tasks in this chapter:

- Leveling wrench (shipped with the system)
- 7/16-inch wrench
- Bolts to secure the floor-mounting brackets to the floor

This chapter contains the following sections:

3.1 Unpacking the System

If the system is already unpacked, proceed to Section 3.2 "Moving and Placing the System" on page 3-3.

1. **Inspect all shipping containers for evidence of physical damage.**

   If a shipping carton is damaged, request that the carrier's agent be present when the carton is opened. Keep all of the contents and packing material for the agent's inspection.

   Caution – Use three or more people to unpack and set up the system. The shipping weight of the unit varies, depending on the number of FRUs that are shipped with the unit. A typical Sun StorEdge 6320 system can weigh up to 1465 pounds (547 kilograms). A typical Sun StorEdge 6320 system with two cabinets can weigh up to 2895 pounds (1660 kilograms).
   ---

2. **Unpack the system.**

   Refer to the unpacking instructions printed on the shipping carton.

   Note – The stabilizer legs, floor-mounting brackets, and associated hardware are packed in the side pockets of the packing material that encase the system. Do not dispose of the unused hardware—you might need it later.
   ---

3. **Verify that the items you received match the shipping list.**

4. **Reassemble the packing materials and save them for future use.**

   To prepare the system for shipment or storage, follow (in reverse order) the unpacking instructions attached to or printed on the panels of each shipping container.

   If you cannot store the shipping materials, recycle or dispose of the materials properly. Your local recycling authority can supply specific information.

3.2 Moving and Placing the System

The grounding strap for the system is 6.5 feet (2 meters) long. Consider this distance when you are placing the system. (The procedure for connecting the grounding strap is described in detail in Section 4.1.1 "Connecting the Grounding Strap" on page 4-3.)

Refer to the product specifications in Appendix C when you are determining where to place the system.

Caution – Never move systems when system power is on. Excessive movement can cause catastrophic disk drive failure. Always power the system off and, if necessary, disconnect it from the power source and the host before moving it.

Caution – Never lift the system by the cosmetic panel surfaces or pull by the back door. Use three or more people to move the system safely: two people in front of the system to control the movement and one person behind the system. To prevent the system from tipping as you move it, push or pull only on the middle section of the system.

Note – To stabilize the system, you *must* follow the steps in either Section 3.3 "Adjusting the Leveling Pads" on page 3-4 and Section 3.4 "Installing the Stabilizer Legs" on page 3-5 or in Section 3.5 "Installing the Floor-Mounting Brackets" on page 3-7.

3.3 Adjusting the Leveling Pads

To attach the system to the floor, skip to Section 3.5 "Installing the Floor-Mounting Brackets" on page 3-7.

⚠ **Caution –** If you are not using the four floor mounting brackets, the four leveling pads mounted on the bottom plate of the rack must be lowered to the floor for the system to meet Underwriters Laboratories' physical stability requirements.

Leveling pads (screws) are located at each corner of the base of the system (FIGURE 3-1).

1. **Open the back door of the system cabinet.**

2. **Remove the leveling wrench by unlocking the plastic strap that holds it to the inside of the frame, near the top of the system.**

   Do not cut the strap. Press the plastic tab to unlock the strap around the wrench, and then slide part of the strap through the lock to loosen the wrench.

3. **Adjust the four leveling pads on the system frame using the leveling wrench.**

   Ensure that the four pads press against the floor so that the system does not move or rock in any direction.
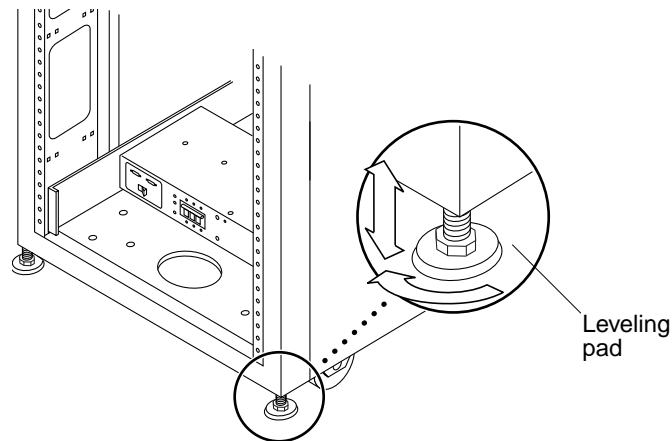
Leveling pad

FIGURE 3-1 Leveling Pads

4. **Replace the leveling wrench in its plastic strap and tighten the strap.**

5. **Continue with Section 3.4 "Installing the Stabilizer Legs" on page 3-5 to help prevent the system from tipping over when FRUs are serviced in the system.**

3.4 Installing the Stabilizer Legs

To attach the system to the floor, skip to Section 3.5 "Installing the Floor-Mounting Brackets" on page 3-7.

The stabilizer legs help prevent the system from tipping over when FRUs are serviced in the system. The stabilizer legs must be properly installed and set to be effective.

⚠️ **Caution –** Always extend the stabilizer legs before attempting to install new FRUs or service FRUs in the system.

1. **Loosen the securing screw on the right stabilizer leg (**FIGURE 3-2**).**

Left stabilizer leg

Securing
screw

Right stabilizer leg
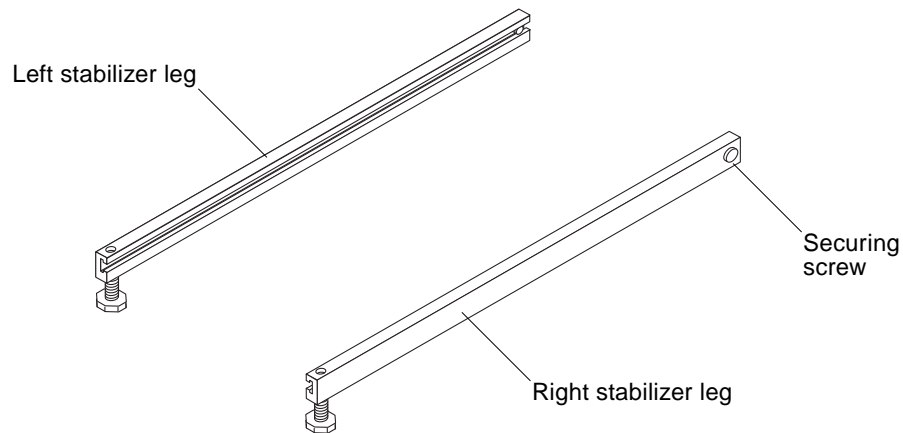
FIGURE 3-2   Stabilizer Legs

2. **Slide the right stabilizer leg over the three mounting screws at the bottom of the system (**FIGURE 3-3**).**
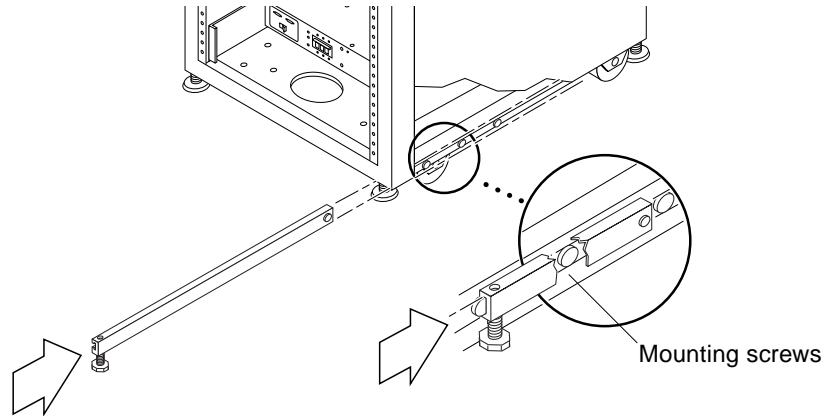
Mounting screws

FIGURE 3-3   Installing the Right Stabilizer Leg

3. **Fully extend the right stabilizer leg.**

4. **Tighten the securing screw.**

   This prevents the stabilizer leg from falling off the mounting screws when it is extended.

5. **Repeat Step 1 through Step 4 for the left stabilizer leg.**

6. **Use the leveling wrench to adjust the feet on both stabilizer legs so that they touch the floor (**FIGURE 3-4**).**
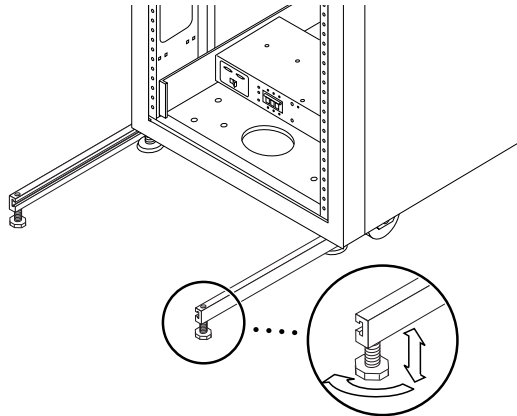
FIGURE 3-4   Adjusting the Leveling Pads on the Stabilizer Leg

7. **Slide both stabilizer legs under the system.**

8. **Secure the leveling wrench inside the system.**

9. **Close the door.**

   If you are installing a Sun StorEdge 6320 system with the second cabinet to be installed, proceed to Appendix A. Otherwise, proceed to Chapter 4.

3.5   Installing the Floor-Mounting Brackets

Skip this section if you have installed the stabilizer legs and adjusted the leveling pads in Section 3.3 "Adjusting the Leveling Pads" on page 3-4 and Section 3.4 "Installing the Stabilizer Legs" on page 3-5.

Use the four floor-mounting brackets instead of the stabilizer legs if you want to attach the system to the floor.

The bolts to secure the floor-mounting brackets to the floor are not included.

Caution – Do not bolt the floor-mounting brackets to the deck plating of a raised (computer-room) floor, because this would result in an unstable mount.

Note – If you are installing the floor-mounting brackets over previously installed threaded rods, loosely install the floor-mounting brackets to the rods and then to the system.

1. **Remove the three mounting screws on the bottom right side at the front and the three mounting screws on the bottom right side of the back of the system (**FIGURE 3-5**).**
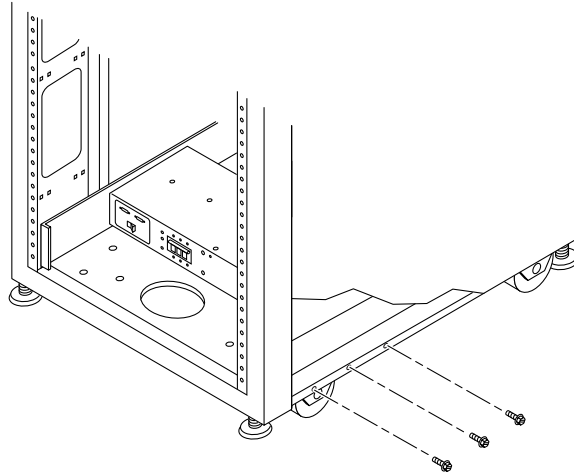
FIGURE 3-5   Removing the Bottom Right Front Mounting Screws

2. **Using a 7/16-inch wrench, attach the right floor-mounting brackets to the front and back of the system (**FIGURE 3-6**) with the six mounting screws just removed.**

Floor-mounting brackets
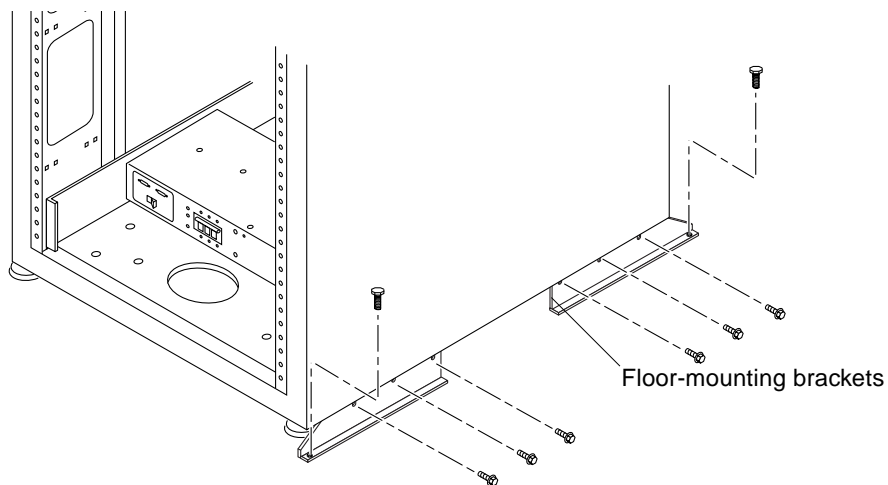
FIGURE 3-6   Attaching the Floor-mounting Brackets

3. **Bolt the right floor-mounting brackets to the floor.**

   The bolts to secure the floor-mounting brackets to the floor are not included.

4. **Repeat Step 1 through Step 3 for the left floor-mounting brackets.**

If you are installing a Sun StorEdge 6320 system with the second cabinet to be installed, proceed to Appendix A for product specifications. Otherwise, proceed to Chapter 4.

Powering On the System Locally

The systems are shipped to the customer with the hardware and software necessary to support two methods of powering on:

- Local power on—powering on the system at the system.
- Remote power on—powering on the system either locally or remotely.

This chapter describes powering on and powering off the system locally. To power on or power off the system remotely, see Appendix B.

Note – If you are installing a Sun StorEdge 6320 system with an expansion cabinet, perform the procedures in this chapter for both cabinets.

The FRUs in TABLE 4-1 are required to perform the tasks in this chapter:

TABLE 4-1   Power Cable—FRU List

FRU Description	Part Number	Quantity
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (US), L6-30P	595-4881	2
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (International), IEC 309	595-4882	2
78.74 in. (2-meter) grounding strap (in the kit shipped with the system)	530-1619-01	1

The following tools are required to perform the tasks in this chapter:

- Keys for key switch (in the kit shipped with the system)
- Phillips screwdriver

This chapter contains the following sections:

4.1 Preparing the System for Local Power

Note – The position of the key switch does not matter for local power-on and power-off operations.
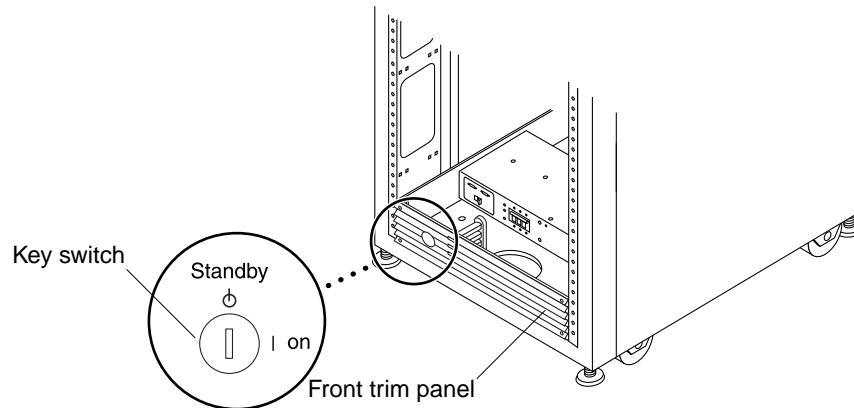
FIGURE 4-1 Location of Key Switch on Bottom Front Panel

1. **Open the front door and back door of the system.**

2. **Loosen the four screws on the front trim panel and remove the panel.**

   Set the panel aside.

3. **Proceed to Section 4.1.1 "Connecting the Grounding Strap" on page 4-3.**

4.1.1   Connecting the Grounding Strap

The grounding conductor must be connected to either of the following:

- Earth at service equipment
- Supply transformer or motor-generator set (if supplied by a separately-derived system)

The outlets in the vicinity of the unit must be of the grounding type, and the grounding conductors for these outlets must be connected to earth ground.

1. **Locate the 78.74-inch (2-meter) grounding strap from the kit that was shipped with your system.**

2. **Attach one end of the grounding strap to the power sequencer on the server cabinet or on a cabinet that is grounded nearest to the system.**

3. **Attach the other end of the grounding strap to the front power sequencer in the system (**FIGURE 4-2**).**

Grounding strap

FIGURE 4-2   Attaching the Grounding Strap to the Front Power Sequencer

Note – If you are installing a system with an expansion cabinet, do not attach the grounding strap from the expansion cabinet to the base cabinet—use a different grounding point for the expansion cabinet.

4.1.2 Connecting the Power Cables

Caution – The system is designed to work with single-phase power systems that have a grounded neutral conductor. To reduce the risk of electric shock, do not connect the system to any other type of power system.

1. **Verify that each AC power sequencer circuit breaker is in the Off position and that the Local/Off/Remote switch is in the Local position on each power sequencer (**FIGURE 4-3**).**
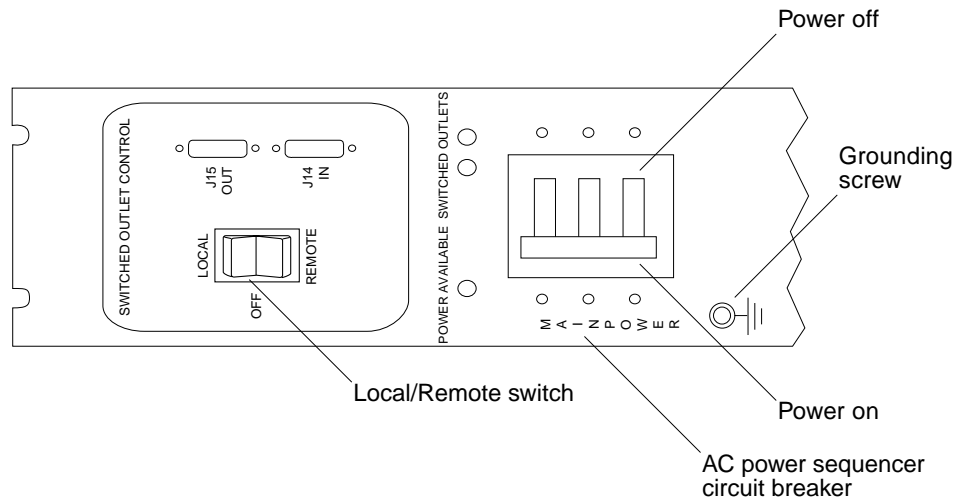
FIGURE 4-3 Power Sequencer Control Panel

2. **Verify that the stated rating matches the AC input voltage to the system (**TABLE 4-2 **and** TABLE 4-3**).**

Check the electrical ratings label on the serial number label attached to the power sequencer.

TABLE 4-2   Voltage Requirements for Maximum Operating Voltage and Frequency Ranges

Voltage and Frequency Range	Requirement
AC voltage rating	200 to 240 VAC
AC voltage range	180 to 264 VAC
Frequency range	47 to 63 Hz

TABLE 4-3   Current Requirements at Nominal Line Voltage for a Storage System in Maximum Configuration

Nominal and Maximum Voltage and Current	Requirement
Nominal AC input voltage rating single phase	200 to 240 VAC
Maximum current requirement	24A at 240 VAC
Maximum current per power sequencer outlet	32A

3. **Connect the square female end of one power cable to the rear power sequencer connector. Connect the square female end of the other power cable to the front power sequencer connector (**FIGURE 4-4**).**

   a. **Flip open the cover latch to access the connectors.**

   b. **Route the power cable directly through the opening in the system base.**

4. **Pull the latch cover over the power cables to secure them to the power sockets.**
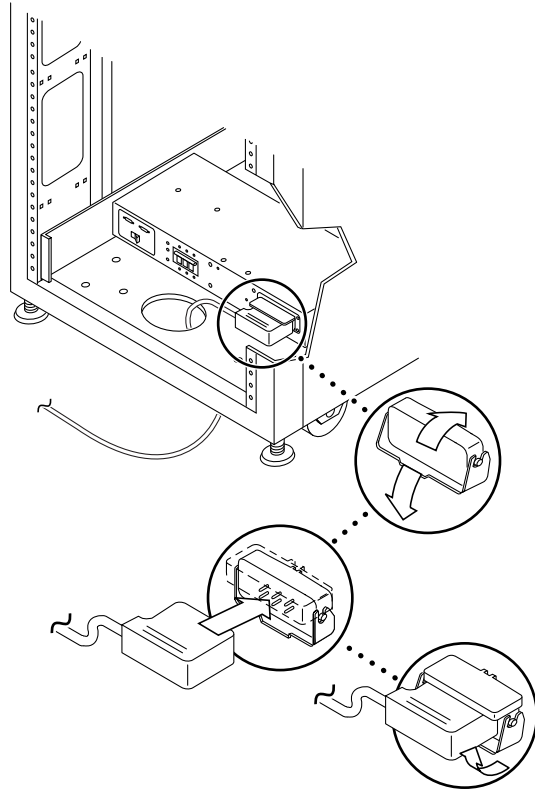
FIGURE 4-4   Connecting the Power Cables

5. **Connect the other end of the power cables to a grounded outlet.**

   The following connector types are provided on the power cable:

   - NEMA L6-30P for 200–240 V North American operation
   - 32A, single-phase, IEC 309 connector for 220–240 V international operation

Caution – To reduce the risk of electric shock, strictly observe all Caution and Note statements.

Note – If the appropriate mating receptacle is not available, the connector can be removed from the cable and the cable can then be permanently connected to a dedicated branch circuit by a qualified electrician. Check local electrical codes for proper installation requirements.

4.2 Powering On the System for Local Power-On

Note – If you are powering on a Sun StorEdge 6320 system with the expansion cabinet attached, perform the power-on sequence for both cabinets.

Caution – To avoid damage to internal circuits, do not connect or disconnect any cable while the FRU associated with the cable is powered on.

1. **Open the front door and back door if they are closed.**

2. **Remove the front trim panel of the system and set it aside if you have not already done so.**

3. **At the bottom front and bottom back of the system, press the AC power sequencer circuit breakers to Off (**FIGURE 4-5**).**
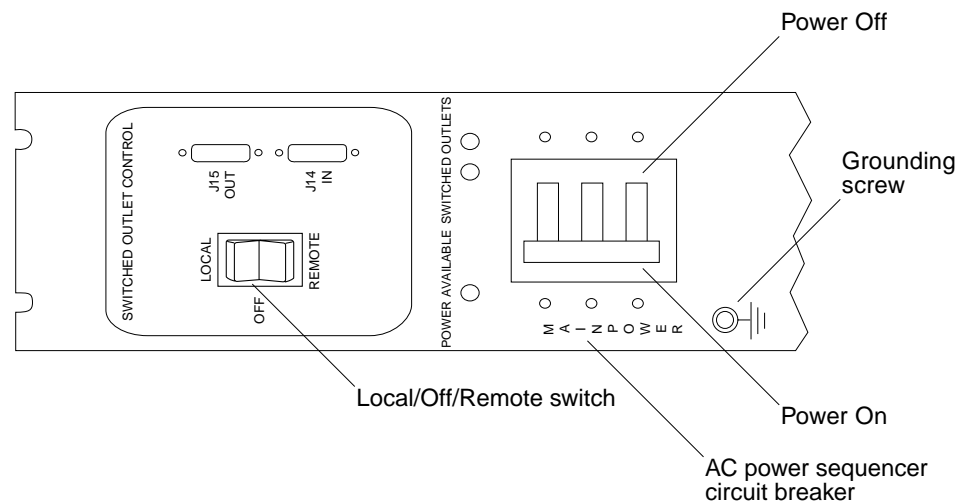
FIGURE 4-5   AC Power Sequencer Control Panel

4. **Verify that the AC power cable of the system is connected to the correct AC outlet.**

Caution – Do not disconnect the AC power cable from the outlet when working on or in the system. This connection provides a grounding path that prevents damage from electrostatic discharge.

Caution – Never move a system when system power is on. Excessive movement can cause catastrophic disk drive failure. Always power the system off before moving it.

5. **At the bottom front and bottom back of the system**, **press the Local/Off/Remote switch to Local (**FIGURE 4-5**).**

6. **At the bottom front and bottom back of the system, press the AC power sequencer circuit breakers to On (**FIGURE 4-5**).**

Note – On the base system cabinet, the Storage Service Processor and Storage Service Processor Accessory Tray are already powered on because they are connected to the unswitched power outlets.
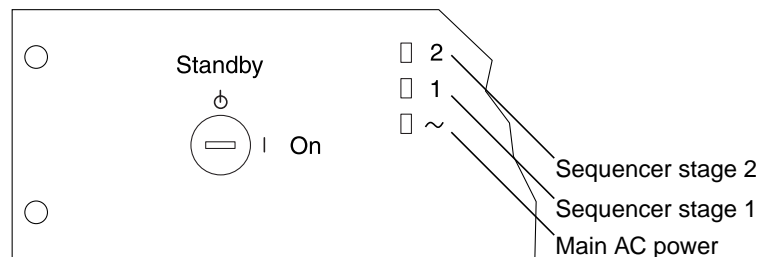
FIGURE 4-6   Front Sequencer Status Lights

The three power status indicators on the front panel show the status of the front power sequencer (FIGURE 4-6). The main AC power light emitting diode (LED) illuminates when power is applied to the system. The LED for sequencer stage 1 illuminates next, followed by the LED for sequencer stage 2.

All components of the Sun StorEdge system power on in an optimal state.

Note – To check the status of the back power sequencer, open the back door of the system and look for the three green LEDs.

7. **Verify that all the components have only green LEDs illuminated.**

   If not, see Section 4.3 "Troubleshooting the Installation" on page 4-9 to locate and fix the trouble.

8. **Bring the host system back online if necessary.**

   If the host system is not online, you might have to enter a software command to bring the host system online so that the host system will recognize the system.

   For more information, see the software documentation for your host system.

   If you are not going to power off the system at this time, see Section 4.5 "Reassembling the System" on page 4-11.

4.3 Troubleshooting the Installation

Use this list as a guide for isolating common installation problems.

- Verify that all power and data cables are properly installed and in the correct locations.
- Verify that all Fibre Channel connections, cable adapters, and Gigabit Interface Converters (GBICs) are installed and secure.
- Verify that the power to the system is turned on.
- Check the AC Power Sequencer Control Panel:
    - If one Switched Outlet LED is lit but the other is not, check the status of the power sequencer for the not illuminated LED
    - If some FRUs have power and others do not, check the power-on switch on the FRUs that do not have power

See the *Sun StorEdge 6320 Reference and Service Manual* and *Storage Automated Diagnostic Environment User's Guide, System Edition* for a description of the procedures to perform fault detection and isolation.

4.4 Powering Off the System Locally

Before you power off the system, you must halt any I/O between the host system(s) and the system.

Depending upon the type of host system(s) and the software running on the host system, you might need to:

- Exit the operating environment
- Take the host system offline to the Sun StorEdge 6320 system

Refer to the following documents for specific instructions:

- *Solaris Handbook for Sun Peripherals*
- System administration guides that correspond to your operating system
- Documentation that came with your host system(s)

Caution – Failure to stop I/O between host system(s) and the system can result in the loss of data.

Note – If you are powering off a Sun StorEdge 6320 system with an expansion cabinet attached, perform the power-off sequence for both cabinets.

Follow these steps to power off the Sun StorEdge 6320 system:

1. **Open the front door if it is not already open.**

2. **Loosen the four screws on the front trim panel and remove the panel.**

   Set the panel aside.

3. **At the bottom front and bottom back of the system, press the AC power sequencer circuit breakers to Off** (FIGURE 4-5)**.**

4. **If you are servicing FRUs other than Sun StorEdge 6020 arrays (for example, the power sequencer), disconnect the system power cables from the grounded outlets.**

Caution – To stop all AC power input to the system, you must disconnect the power cables to *both* power sequencers.

4.5 Reassembling the System

1. **Replace and tighten the four screws to secure the front trim panel to the system.**

   Note – If you are routing cables under the floor, route the cables between the bottom panel and the kick panel.

2. **Close all open doors to the system.**

CHAPTER **5**

Establishing Initial Network Connectivity

When the Sun StorEdge 6320 system is initially installed, the network must first be configured. This configuration can be performed through a TTYA connection through the use of the Command Line Interface (CLI). When the network is available, the remainder of the installation can be performed from a web browser.

The system is managed through either the Netscape Navigator 4.7.x (and higher) or the Microsoft Internet Explorer 4.x (and higher) web browsers. (See the *Sun StorEdge 6320 1.0 Release Notes* for the latest version.) Through the web browser, use the Sun StorEdge Configuration software to perform the initial network connectivity to the Sun StorEdge 6320 system.

Note – Up to eight Sun StorEdge 6320 systems can be connected together in a chain to share a single phone line for communication with the Sun Service Center and support teams. With this configuration, each Sun StorEdge 6320 system must be disconnected from the chain and configured as separate units. When the configuration completes successfully, the systems can be connected together in a chain. If a Sun StorEdge 6320 system in a chain must be un-configured for upgrading, it also must be disconnected from the chain before it is un-configured and upgraded. For a description of connecting systems in a chain, see Chapter 7.

This procedure assumes the Sun StorEdge 6320 system is powered up and that all LEDs on the system are green.

Note – You will need the information from the Worksheet in Chapter 2 to complete the steps in this chapter.

The FRUs in TABLE 5-1 are required to perform the tasks in this chapter:

TABLE 5-1   Service Processor Setup—FRU List

FRU Description	Part Number
Service cable	530-2093-01
Network cable	530-1871-04

The following tools are required to perform the tasks in this chapter:

■ Laptop computer or server terminal

This chapter contains the following sections:

■ Section 5.1, "Establishing the Initial Network Connectivity" on page 5-3

5.1 Establishing the Initial Network Connectivity

1. **Connect one end of the serial cable into the Service Console port of the Storage Service Processor panel of the service panel on the back of the base system.**

Note – Use the DB9 and DB25 adapters to make this connection.
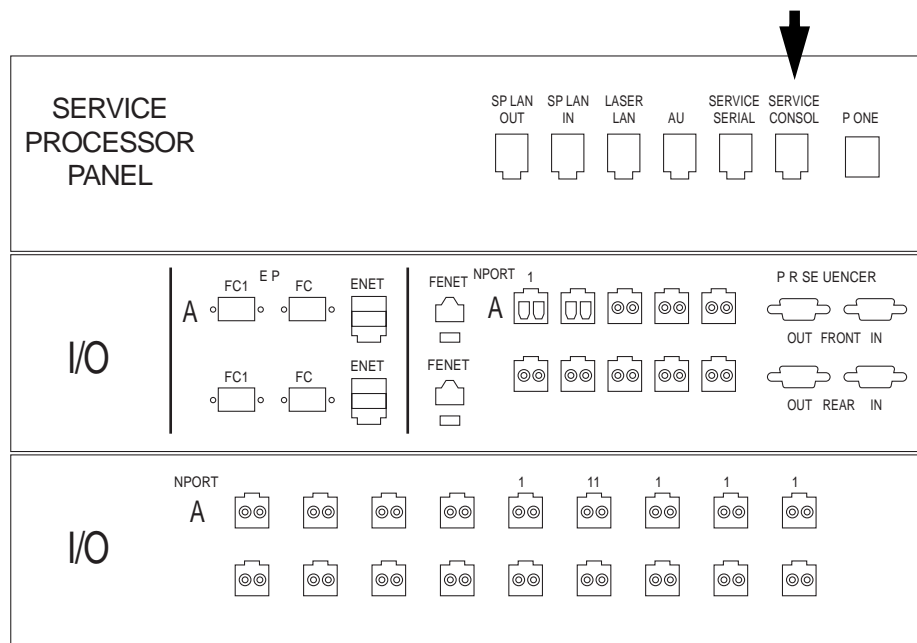
FIGURE 5-1   Connecting the Service Cable to a Server

2. **Connect the other end of the serial cable to a host computer or laptop system.**

Note – Use the DB9 and DB25 adapters to make this connection.

3. **Log in to the Sun StorEdge 6320 system internal Network Terminal Concentrator (NTC).**

You must log in as `rss` with a password of `sun1rss`. For Example:

```
# login: rss
Password:

Lantronix SCS400 Version B2.0/202(021016)

Type HELP at the 'ntc0:' prompt for assistance

ntc0:
```

If a mistake is entered during this procedure, type `resume` at the `ntco` prompt.

4. **At the `ntc0:` prompt, connect to the service storage processor console port. For Example:**

```
ntc0:connect local port_2
Local protocol emulation 1.0 - Local Switch:< >.

 Sun StorEdge 6320 Service Processor

 WARNING: This is a restricted access server: If you do not have
 explicit permission to access this server, please disconnect
 immediately. Unauthorized access to this system is an actionable
 offense and will be prosecuted to the fullest extent of the law.

new_sp console login:
```

5. **Log in to the Storage Service Processor console. Log in as** `setup` **with a password of** `!setup`**.**

   This account automatically runs a configuration script that will prompt you for information to properly set up the Sun StorEdge 6320 system.

   For example:

```
new_sp console login: setup
Password:
Last login: Fri May16 15:35:32 on console
May 16 15:47:11 new_sp login:ROOT LOGIN /dev/console

Fri May 16 15:47:12 PST 2003

****************************************************
* StorEdge 6320 Initial Configuration Utility *
****************************************************

Select the operation you wish to perform:

1. Initial configuration
2. Restore previously defined configuration
3. Unconfigure
4. Enable SW Support for Lights Out Operation
   Your Choice:
```

6. **From the Initial Configuration Utility Menu, select the `Initial`
   `configuration` option. For Example:**

```
*****************************************************
* StorEdge 6320 Initial Configuration Utility *
*****************************************************

Select the operation you wish to perform:

1. Initial configuration
2. Restore previously defined configuration
3. Unconfigure
4. Enable SW Support for Lights Out Operation
   Your Choice: 1


*****************************************************
* Initializing StorEdge 6320 Configuration *
*****************************************************

Initial configuration is setting up the id
and network parameters for your StorEdge 6320.
Searching for other existing StorEdge 6320 systems on your
network..
Searching for a StorEdge 6320 with hostname sp0...not found
...
```

7. **Enter the Sun StorEdge 6320 system ID Number.**

   If you have more than one Sun StorEdge 6320 system and they are connected
   together for combined Sun StorEdge Remote Response Unit management through a
   common telephone line as described in Chapter 7, assignment of a unique service
   storage processor ID is required. See Chapter 7 for additional details.

```
Please enter the StorEdge 6320 Id.
A valid value is a digit between 0 and 7.
Your Choice: 0
```

8. **Enter the Sun StorEdge 6320 system networks settings as prompted by the
   configuration script.**

   Use the system network settings, including the IP addresses and the Nameserver
   Domain Name from the Worksheet in Chapter 2.

⚠

Caution – The Sun StorEdge 6320 system uses the IP addresses 174.30.0.x and 174.40.0.x for its internal operation. These IP addresses should not be used for customer IP addresses for the Sun StorEdge 6320 system. If one of these addresses (174.30.0.x and 174.40.0.x) must be used to connect to the system, a separate network address translation function must be put between the customer LAN and the Sun StorEdge 6320 system. The translation function hides the IP addresses of the Sun StorEdge 6320 system from the customer LAN.

```
Network Settings:
─────────────────
Do you wish to use DHCP or Fixed Network Addresses?
1. DHCP
2. Fixed
Your Choice: 2
Please enter the IP Address for the StorEdge 6320: 172.20.20.28
Please enter the Gateway Address for the StorEdge 6320: 172.20.20.248
Please enter the Network Mask for the StorEdge 6320: 255.255.255.0
Please enter the Nameserver IP Address for the StorEdge 6320: 129.147.62.1
Please enter the Nameserver Domain for the StorEdge 6320: domain.name

****************************************************************************
System Settings
───────────────
StorEdge 6320 Id              : 0

Network Settings
────────────────
Network Type                  : Fixed
StorEdge IP Address           : 172.20.20.28
StorEdge Gateway Address      : 172.20.20.248
StorEdge Network Mask         : 255.255.255.0
StorEdge Nameserver Address   : 129.147.62.1
StorEdge Domain Name          : domain.name
```

9. **Verify that the settings are correct.**

10. **If the settings are correct, the Configuration Utility proceeds with the configuration of the Sun StorEdge 6320 system.**

Note – At the end of the configuration procedure, a series of errors are displayed indicating duplicate IP addresses are not being added. These are messages from the Network Terminal Concentrator. These messages are expected as part of the system configuration and should be considered part of a successful installation.

```
Are all of the above settings correct? (Y/N) Y

*********************************************************
* Performing StorEdge 6320 Configuration *
*********************************************************

Running step 1 of 8...
Updating SP network settings...
Successfully Completed.

Running step 2 of 8...
Setting hostname and host files...
Successfully Completed.

Running step 3 of 8...
Updating firewall configuration...
NOTE: Successful execution of this operation takes several
minutes!
Please be patient...
...........................................................
Return Code (0):Successful completion

Running step 4 of 8:
Updating default route...
Successfully Completed.

Running step 5 of 8...
Updating file resolv.conf...
Successfully Completed.

Running step 6 of 8...
Restarting sendmail...
Successfully Completed.
```

Continued.

```
Running step 7 of 8...
Restarting se6000...
Requesting WBEM and Tomcat Services to be Restarted
Please Wait...
...................................................
WBEM And Tomcat Services Have Been Restarted
Successfully Completed.

Running step 8 of 8...
Updating NTC configuration...
NOTE: Successful execution of this operation takes several
minutes!
Please be patient...
.......................................................
Return Code (0):Successful Completion

NOTE: The NTC Configuration was successful. The NTC will be
      reinitialized in less than two minutes. Please press
      "Enter" when prompted in order to proceed with
      configuration, then log off. Disconnect from the NTC
      and wait approximately two minutes before reconnecting. If
      the following network verification is successful, you may
      begin other configuration tasks.

Successfully Completed.

Press enter to continue...

login:
```

11. Connect to the newly configured Sun StorEdge 6320 system using a web browser.

See Chapter 6 for a description of connecting to the host and establishing contact
with the Sun StorEdge 6320 system.

CHAPTER **6**

Connecting the Sun StorEdge 6320 System to the Host

After the Sun StorEdge 6320 system is configured and operational, the next step is to connect the system to the host. This chapter describes connecting the Sun StorEdge 6320 system to the host and establishing contact to the Sun StorEdge 6320 system from the host.

This chapter only describes connecting the Sun StorEdge 6320 system to a Solaris host.

If you are connecting to a host operating Microsoft Windows NT, Microsoft Windows 2000, or Red Hat Linux, after Section 6.2, "Cabling the Sun StorEdge 6320 Systems to the Host With Customer Supplied Switches" on page 6-5, go to the chapters in this book that describe operations on those hosts.

If you are connecting the Sun StorEdge 6320 system to a host operating Hewlett Packard HP-UX or IBM AIX, after Section 6.3, "Installing the Sun StorEdge SAN Foundation Kit Software" on page 6-7, go to the chapters in this book that describe operations on those hosts.

The following tool is required to perform the tasks in this chapter:

■ Server terminal

This chapter contains the following sections:

■ Section 6.1, "Cabling the Sun StorEdge 6320 Systems to the Host" on page 6-3
■ Section 6.2, "Cabling the Sun StorEdge 6320 Systems to the Host With Customer Supplied Switches" on page 6-5
■ Section 6.3, "Installing the Sun StorEdge SAN Foundation Kit Software" on page 6-7
■ Section 6.4, "Connecting the Host to the Sun StorEdge 6320 System" on page 6-7
■ Section 6.5, "Logging In and Out" on page 6-8
■ Section 6.6, "Setting Up or Verifying the Non-Secure HTTP Server Connection" on page 6-12
■ Section 6.7, "Describing the Sun StorEdge 6320 System to the Host" on page 6-16

- Section 6.8, "Setting System Time" on page 6-17
- Section 6.9, "Getting a Report of the Sun StorEdge 6320 System Defaults" on page 6-21
- Section 6.10, "Changing System Configuration" on page 6-24

6.1 Cabling the Sun StorEdge 6320 Systems to the Host

In the Sun StorEdge 6320 systems, the Fibre Channel switches connect to the service panel on the base cabinet. The service panel connects to the host through the service panel I/O ports. The Sun StorEdge 6320 system can provide from one to four host bus adapter (HBA) connections per switch (a minimum of two connections per host). See FIGURE 6-1 and FIGURE 6-2 for the diagram of this cabling.
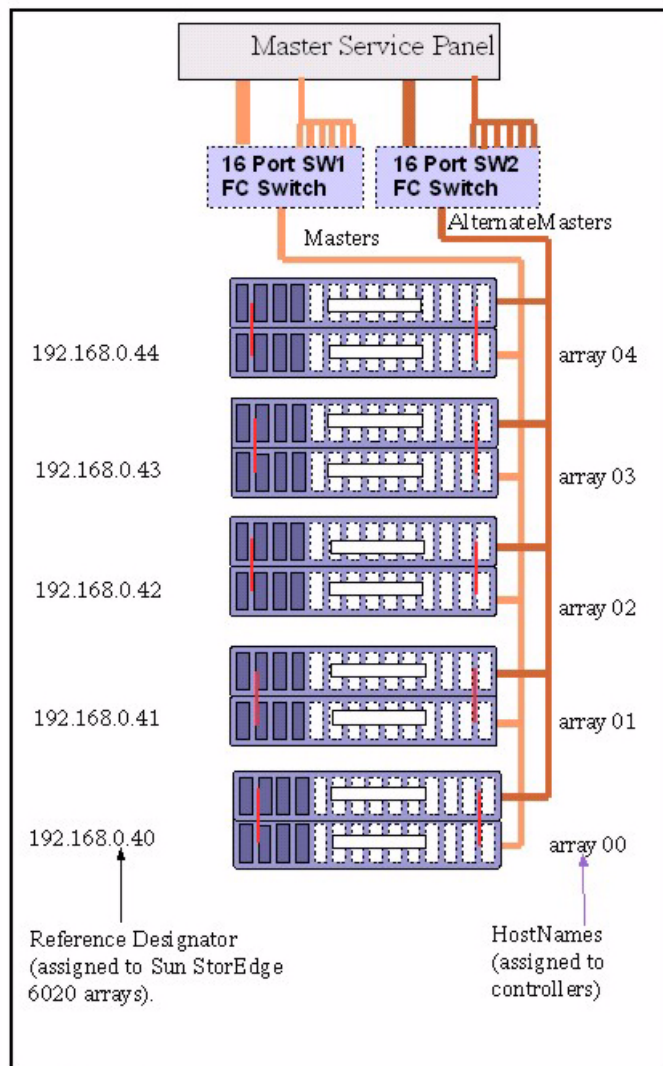
FIGURE 6-1 Sun StorEdge 6320 System Cabling With Sun Installed Switches
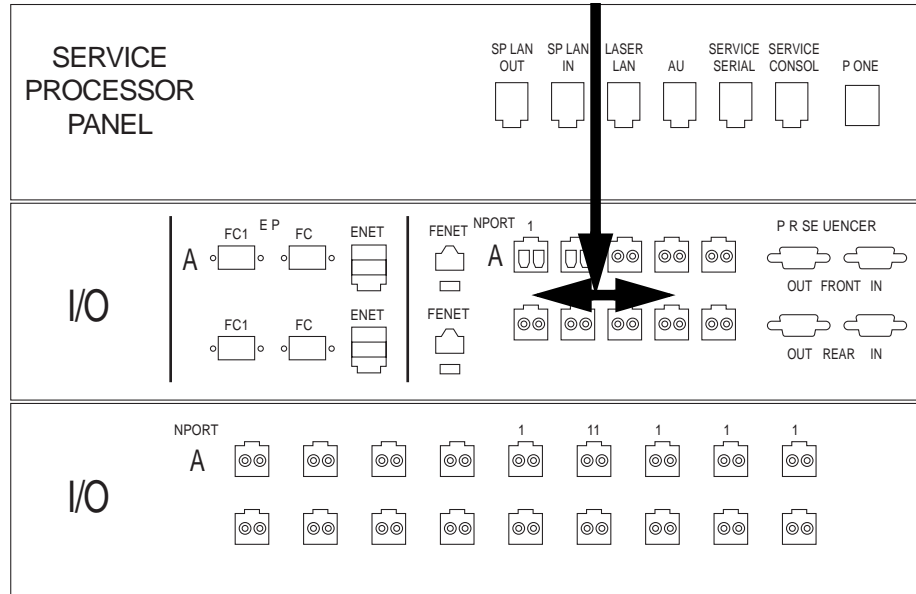
FIGURE 6-2   Service Panel Host Fibre Channel Connections

In FIGURE 6-2, connections the host will use NPORT A and B ports 1 through 5.

6.2   Cabling the Sun StorEdge 6320 Systems to the Host With Customer Supplied Switches

The Sun StorEdge 6320 system can also be delivered to the customer without the Fibre Channel switches supplied by Sun for host connectivity. In this case, the system must be connected to the host through external Fibre Channel switches provided by the customer.

The cables from the Sun StorEdge 6020 arrays are cabled into the back of the I/O connections on the base cabinet service panel. The connections from the host connect into the front of the base cabinet service panel using the same connections as the Sun StorEdge 6020 arrays in the back.

The systems are configured as if the switches were contained in the system cabinet. However, the utilities that are used on the Sun StorEdge 6320 systems with Sun supplied switches do not maintain the switches outside the system cabinet. Those switches must be configured and maintained by the utilities provided by the switch manufacturer.
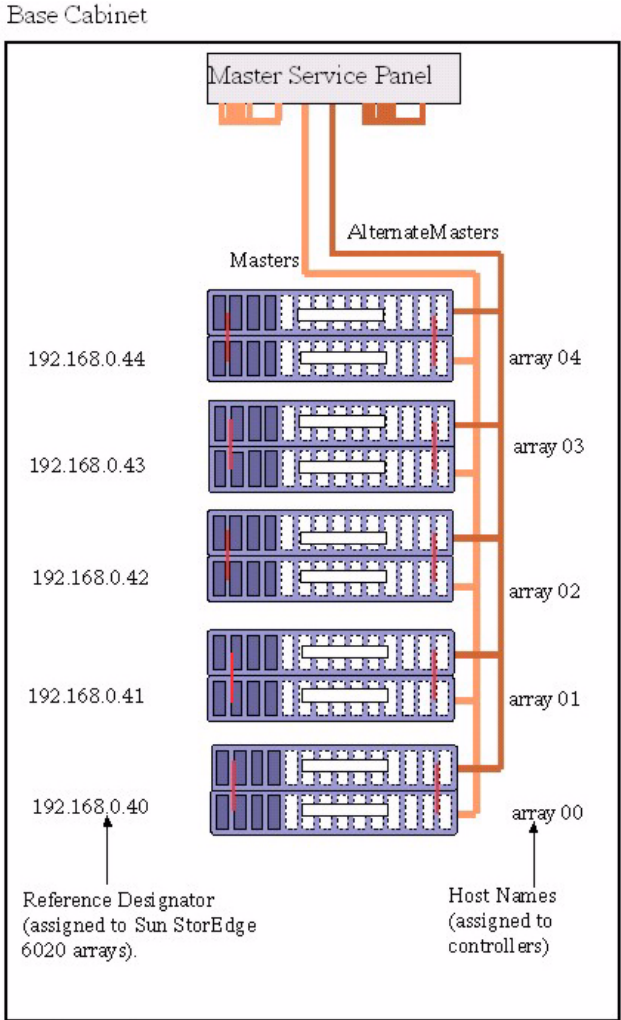
FIGURE 6-3 Sun StorEdge 6320 System Cabling With Customer Supplied Switches

6.3 Installing the Sun StorEdge SAN Foundation Kit Software

The Sun StorEdge SAN Foundation 4.2 software must be installed on the Solaris host. The software is installed from the Sun StorEdge 6000 Family Host Installation software package CD. Also on the CD is the *Sun StorEdge SAN Foundation Software Installation Guide* that describes post-installation procedures that ensure the product operates correctly. You can also obtain the *Sun StorEdge SAN Foundation Software Installation Guide* from `http://www.sun.com/storage/san`.

If patches are available for the Sun StorEdge 6000 Family Host Installation software, they are available from:

`http://sunsolve.sun.com`

For information about connecting the Sun StorEdge 6320 system to other operating systems, see the chapters in this guide that describe how to get information about those operating systems.

6.4 Connecting the Host to the Sun StorEdge 6320 System

1. **Connect to the newly configured Sun StorEdge 6320 system using a web browser.**

   When the Sun StorEdge 6320 system configuration script (described in Chapter 5) completes its run, you can connect to the Sun StorEdge 6320 system using an Ethernet cable connection from the customer LAN to the UserLAN IN port on the Storage Service Processor panel of the service panel. From the host on the customer LAN, connect to the Sun StorEdge 6320 system using the following URL:

   ```
   https://<6320_Customer_LAN_IP_Address>:9443/se6000ui/login.do
   ```

   Where `6320_Customer_LAN_IP_Address` can be the Host IP address or the Host name from the Preinstallation Worksheet in the *Sun StorEdge 6320 System 1.0 Site Preparation Guide* or from the worksheet in Chapter 2.

Caution – The Sun StorEdge 6320 system uses the IP addresses 174.30.0.x and 174.40.0.x for its internal operation. These IP addresses should not be used for customer IP addresses for the Sun StorEdge 6320 system. If one of these addresses (174.30.0.x and 174.40.0.x) must be used to connect to the system, a separate network address translation function must be put between the customer LAN and the Sun StorEdge 6320 system. The translation function hides the IP addresses of the Sun StorEdge 6320 system from the customer LAN.

6.5 Logging In and Out

The following procedures describe how to log in and out of the web user interface. Only users with passwords on the Storage Service Processor can log in.

6.5.1 Logging In

Note – This chapter describes the web browser user interface basic features. The online help available from the web user interface describes specific features in more detail.

You can log in to the web user interface through a web browser. The software supports the following browsers:

■ Netscape Navigator, minimum revision level 4.79 and higher

■ Microsoft Internet Explorer, minimum revision level 5.0 and higher

You can manage the Storage Service Processor, power sequencers, storage arrays, and related system network features. The web user interface also enables you to launch the Sun Automated Diagnostic Environment 2.2 software application. This application provides fault management and health reports for Sun storage devices.

The software supports secure and non-secure server connections through the following default ports:

■ 9080 - Use this HTTP port for non-secure access (see Section 6.6, "Setting Up or Verifying the Non-Secure HTTP Server Connection" on page 6-12)

■ 9443 - Use this HTTPS port for secure access, especially if you are concerned about password security

1. Open a web browser such as Netscape Navigator.

2. Type the following URL in the URL Location text field:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is new_sp.

The log-in page is displayed.

The Sun StorEdge 6320 Systems are configured with three user accounts and passwords as shown in TABLE 6-1. The web user interface enables you to set passwords for the accounts. As the admin user, you authorize users to access the software and system. The user accounts are shown in TABLE 6-1:

TABLE 6-1   User Accounts

User Account	Description	Passwords
admin	An admin user has all administration privileges. The admin user can add, modify, and delete users and modify system attributes on the Administration page.	!admin
storage	A storage user can use most of the software features related to storage device configuration. The Administration page is not available to this user. This user can use the features available from the Array Management and Storage Access pages.	!storage
guest	A guest has read-only privileges and can view the information in the web user interface pages. This user cannot modify any settings or features.	!guest

The Passwords link on the Administration page enables you to set passwords for the three user accounts that are allowed to access the web user interface. Once added, a user can log into the software using the admin, storage, or guest user name and password.

3. Log in as admin **with a password of** `!admin`**:**

Configuration Service

If you are not a registered user, please contact the <u>system administrator</u>.

User Name:

Password:

Log In

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FIGURE 6-4   Configuration Service Log In Page

4. Click Log In.

The Array Administration General page is displayed as shown in FIGURE 6-5.
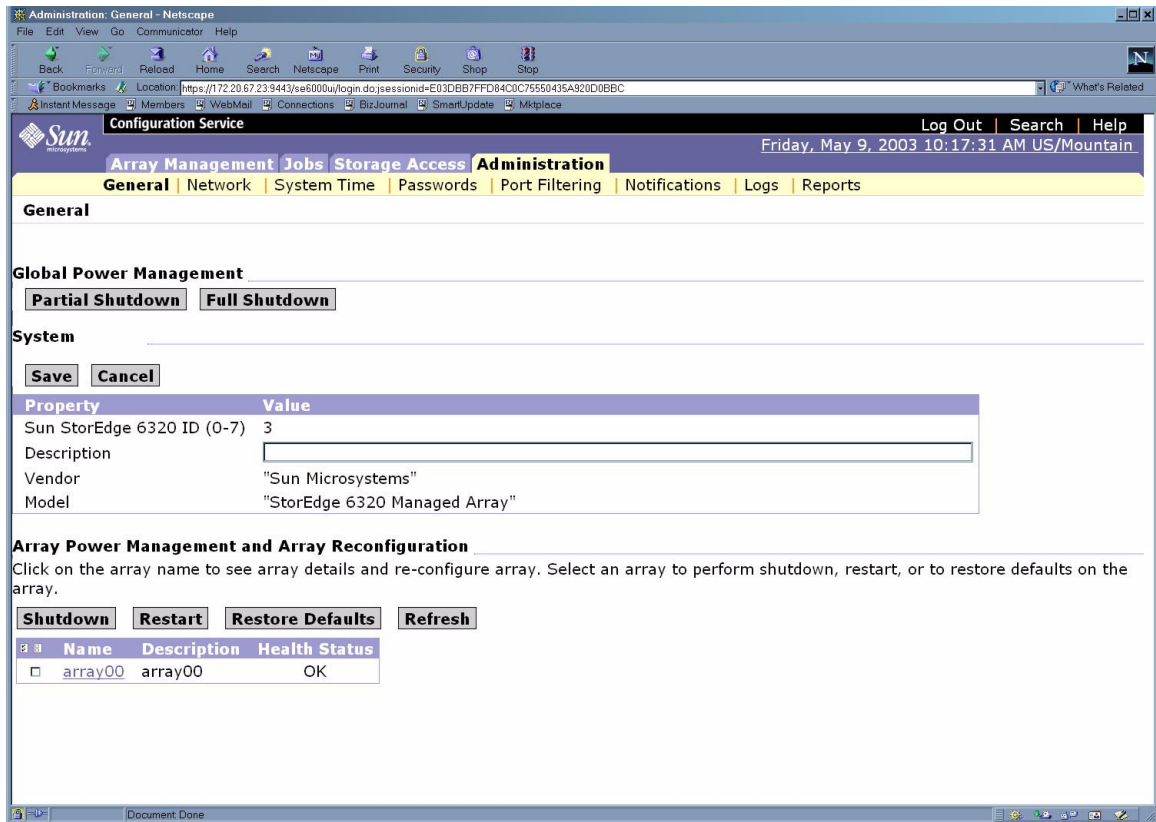
FIGURE 6-5 Administration General Page

6.5.2   Logging Out

● **To Log out of the configuration service software, Click Log Out from any page of the Configuration Service Web browser user interface.**

6.6 Setting Up or Verifying the Non-Secure HTTP Server Connection

There is a secure HTTP server connection and a non-secure HTTP server connection from a web browser into the Sun StorEdge 6320 system Storage Service Processor. If you will only use the secure HTTP server connection, skip this section and go to Section 6.7, "Describing the Sun StorEdge 6320 System to the Host" on page 6-16. Otherwise, complete the procedure in this section to either open or verify that the non-secure HTTP server connection is open.

1. **Open a web browser such as Netscape Navigator.**

2. **Type the following URL in the URL Location text field:**

   https://*hostname***:9443/**

   where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is `new_sp`.

   The Log-in page is displayed.

Configuration Service

If you are not a registered user, please contact the system administrator.

User Name: [   ]

Password: [   ]

[Log In]

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3. Log in as admin **with a password of** !admin**:**

4. Click Log In.

The Administration General page is displayed.
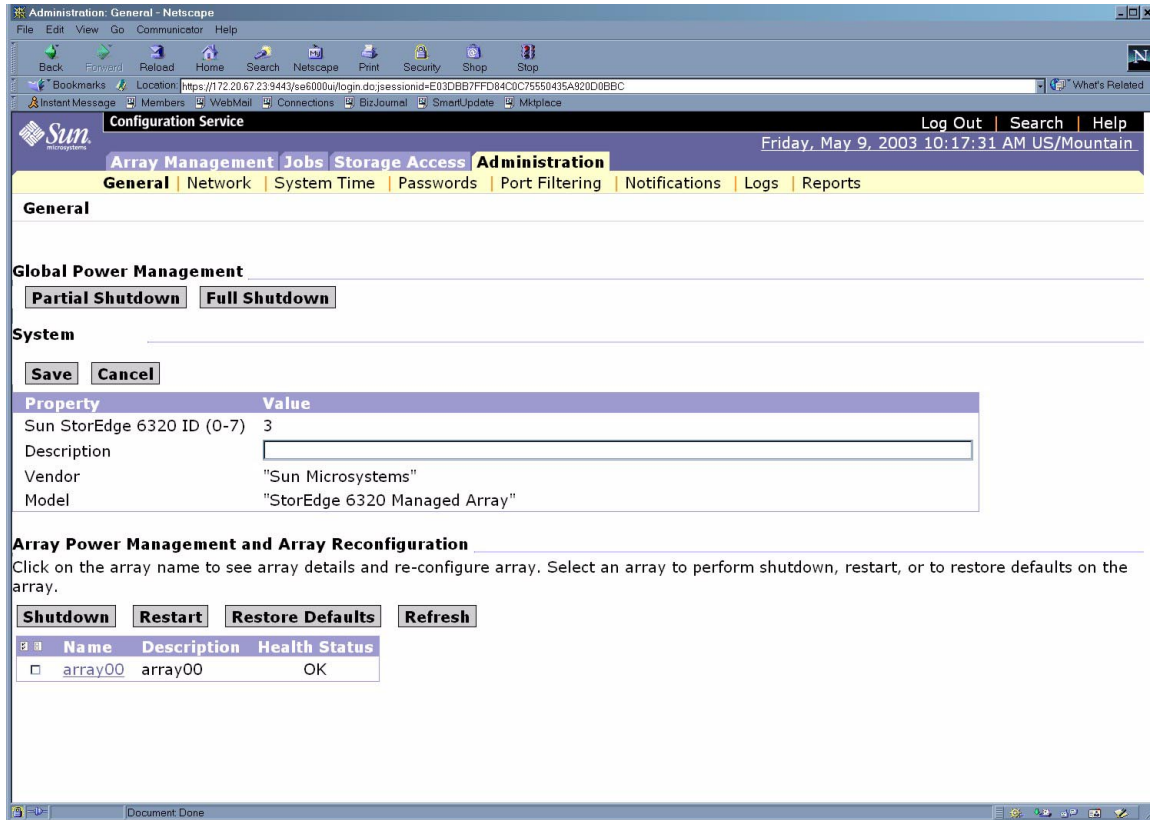
FIGURE 6-6   The Administration General—Port Filtering Page

5. Click on the Port Filtering sub-tab and the Port Filtering page is displayed.
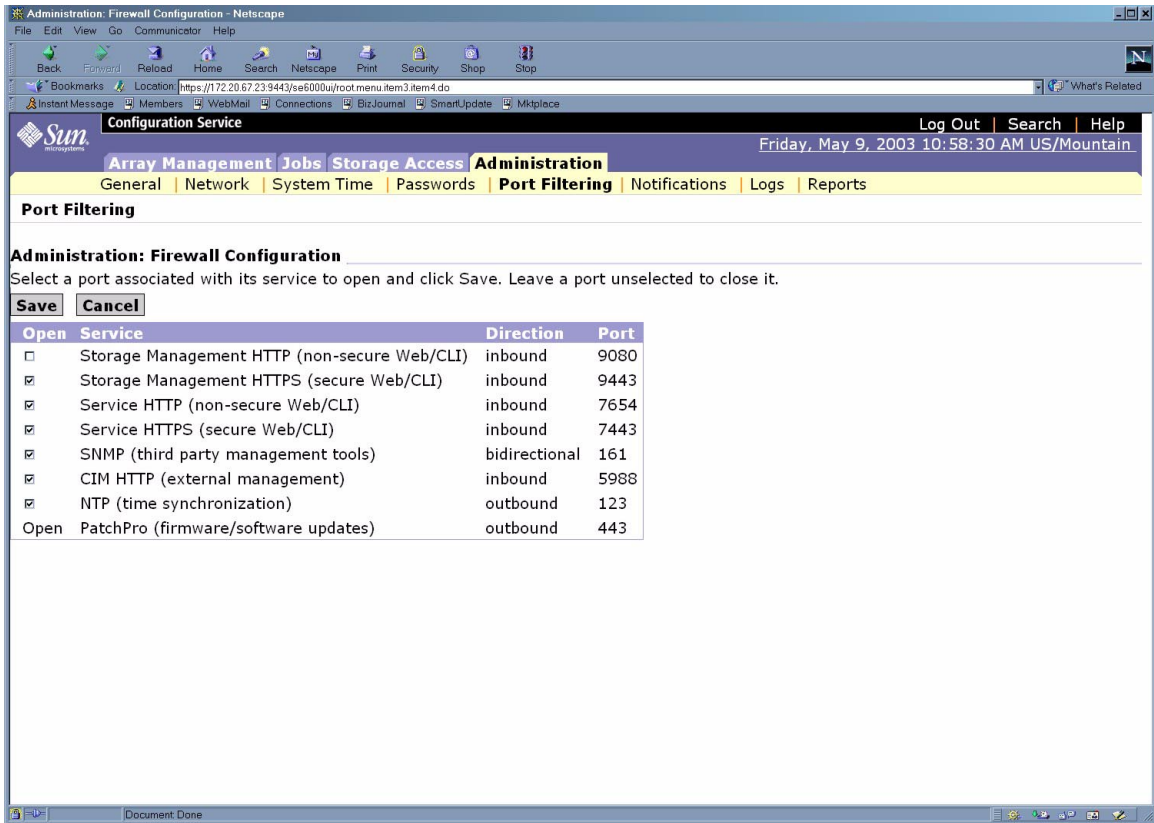
FIGURE 6-7   The Port Filtering Page—Enabling the Non-Secure HTTP Server Connection

6. Click on the Storage Management HTTP (Non-secure Web/CLI) Open Box if there is not a check in the Open box.

7. Click Save.

Both the secure and non-secure HTTP server connections are available.

8. Log out.

6.7 Describing the Sun StorEdge 6320 System to the Host

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

   ■ For a non-secure HTTP server connection:

   ```
   http://hostname:9080/
   ```

   ■ For a secure HTTPS server connection:

   ```
   https://hostname:9443/
   ```

   where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is `new_sp`.

   The Log-in page is displayed.

3. **Log in as** `admin` **with a password of** `!admin`.

4. **Click Log In.**

   The Administration General page is displayed as shown in FIGURE 6-8.
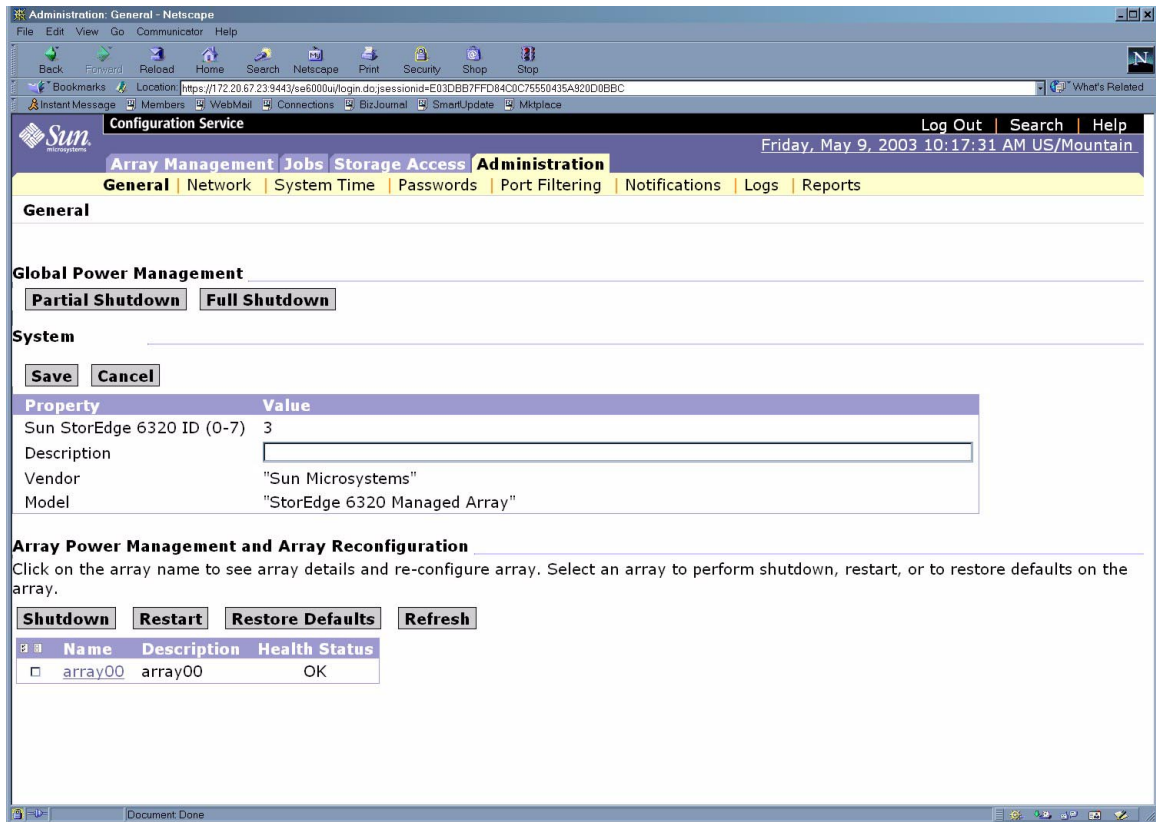
FIGURE 6-8   The Administration General—System Description Page

5. **Enter the description of the Sun StorEdge 6320 system in the Description text field.**

6. **Click Save.**

6.8   Setting System Time

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

■ For a non-secure HTTP server connection:

```
http://hostname:9080/
```

■ For a secure HTTPS server connection:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is `new_sp`.

The Log-in page is displayed.

3. **Log in as** `admin` **with a password of** `!admin`**.**

4. **Click Log In.**

The Administration General page is displayed as shown in FIGURE 6-9.

FIGURE 6-9   The Administration—System Time Page

5. Click on System Time and the System Time page is displayed as shown in
FIGURE 6-10**.**
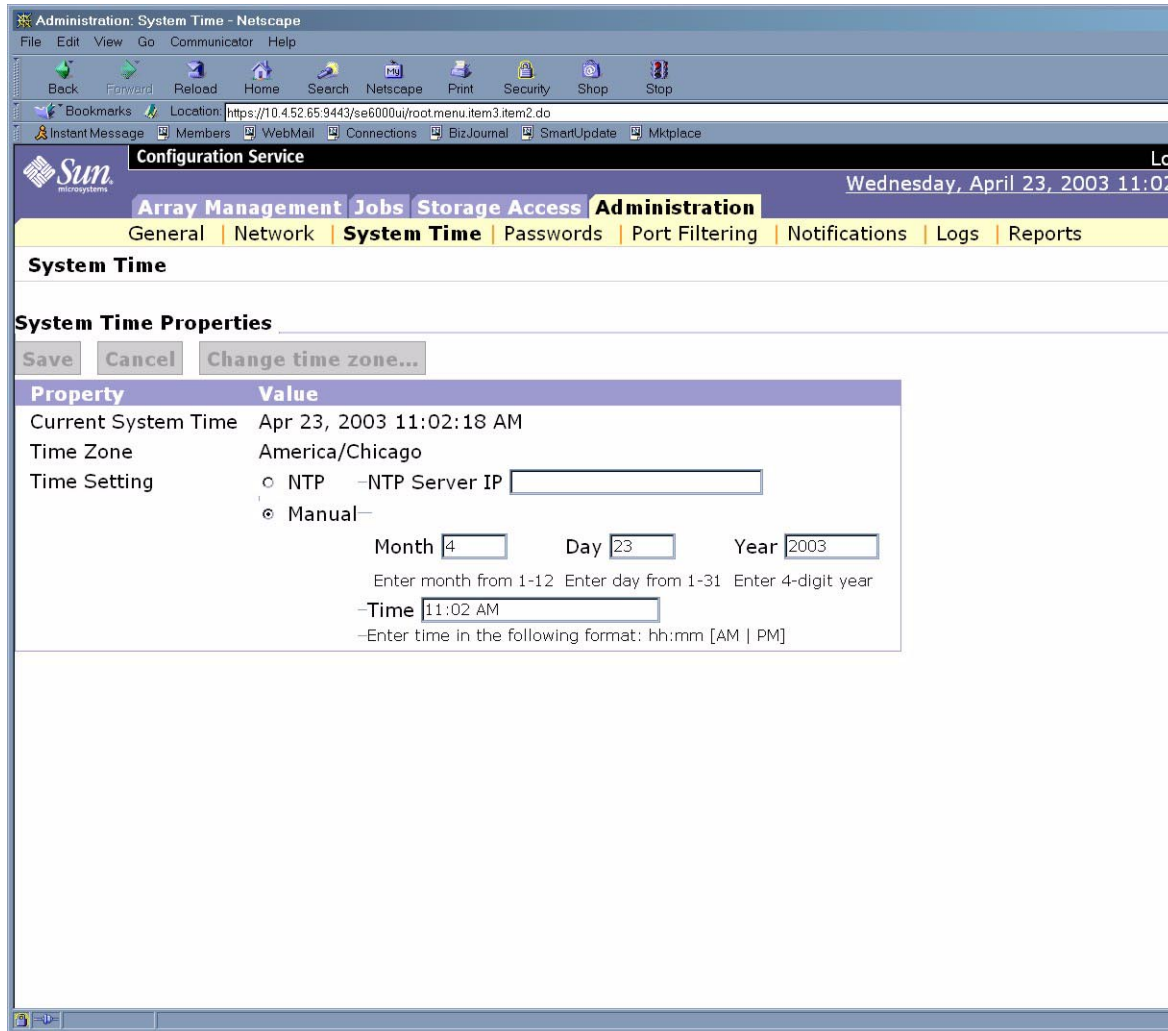
FIGURE 6-10 System Time Page

The System Time page enables you to automatically get the system time from a
Network Time Protocol (NTP) server on your network or to manually set the time.

6.8.1 Changing the Current Time Zone

a. Click Change Time Zone.

b. Select the Greenwich Mean Time Offset from the Filter list.

For example, select GMT-08 if your location is 8 hours or time zones behind the Greenwich Mean Time Zone.

c. Select your location's time zone from the Selection list.

d. Click Save.

6.8.2 Setting the Time Automatically

a. Select NTP and type the NTP IP address in the NTP Server Address Field.

b. Click Save

6.8.3 Setting the Time Manually

a. Select Manual.

b. Type the month, day, and year in the text fields.

c. Type the time in the Time field.

d. Click Save.

6.9 Getting a Report of the Sun StorEdge 6320 System Defaults

1. Open a web browser such as Netscape Navigator.

2. Type one of the following URLs in the URL Location text field:

■ For a non-secure HTTP server connection:

```
http://hostname:9080/
```

■ For a secure HTTPS server connection:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is `new_sp`.

The Log-in page is displayed.

3. **Log in as `admin` with a password of `!admin`.**

4. **Click Log In.**

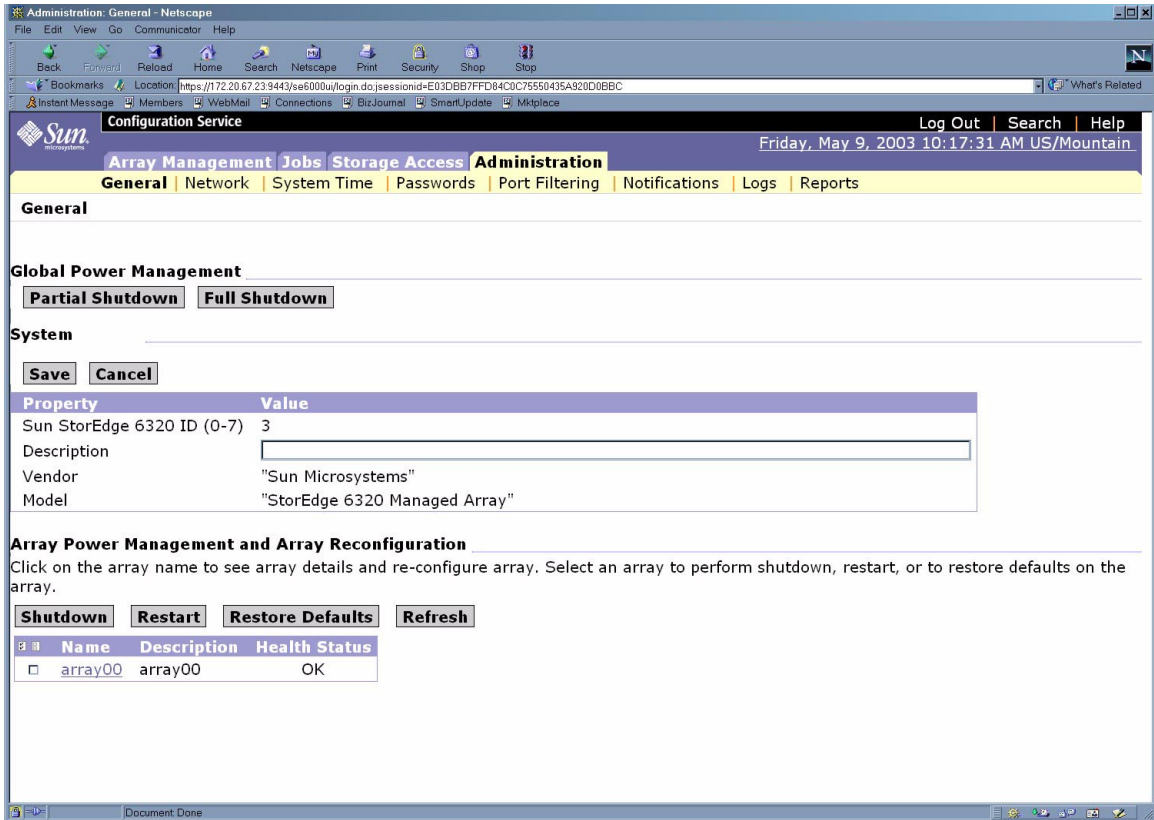The Administration General page is displayed as shown in FIGURE 6-11.
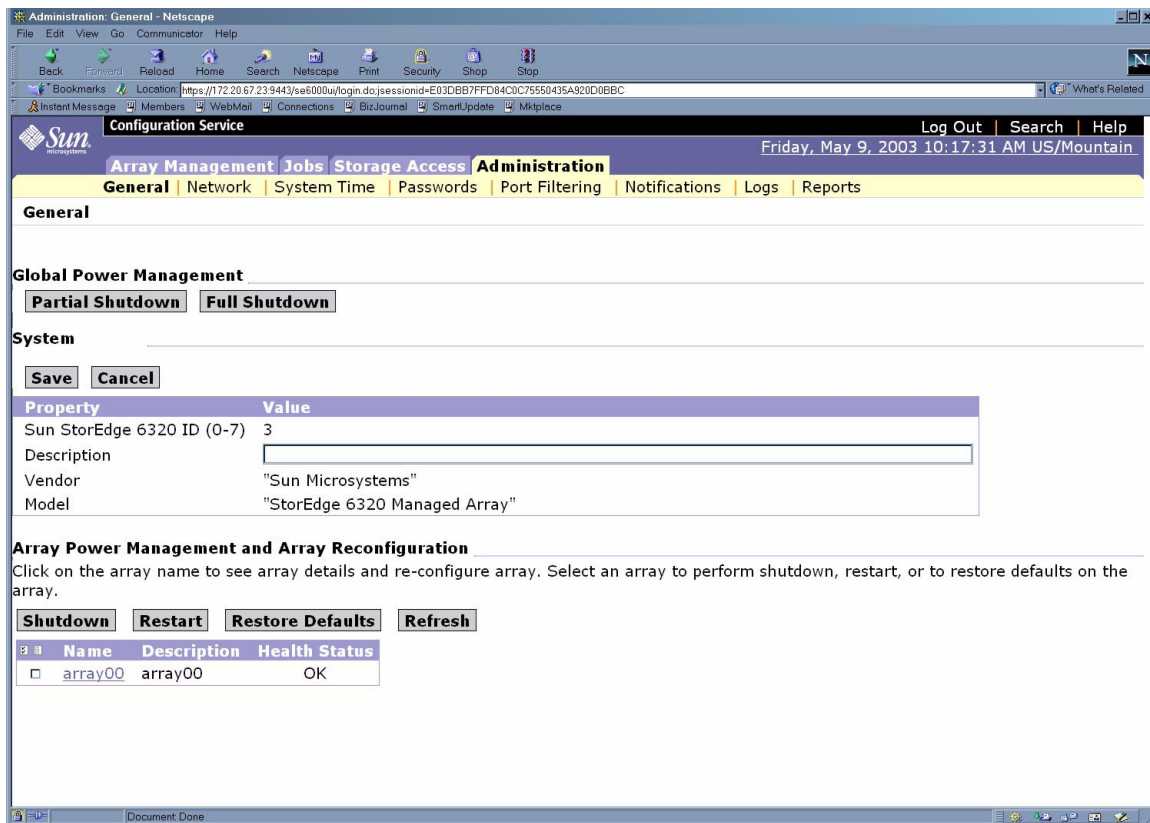
FIGURE 6-11 The Administration General—Reports Page

5. **Click on Reports and the Reports Page is displayed as shown in** FIGURE 6-12.

The Reports page shows the default configuration of the Sun StorEdge 6320 system. You will have to scroll down to see all the settings of the system.
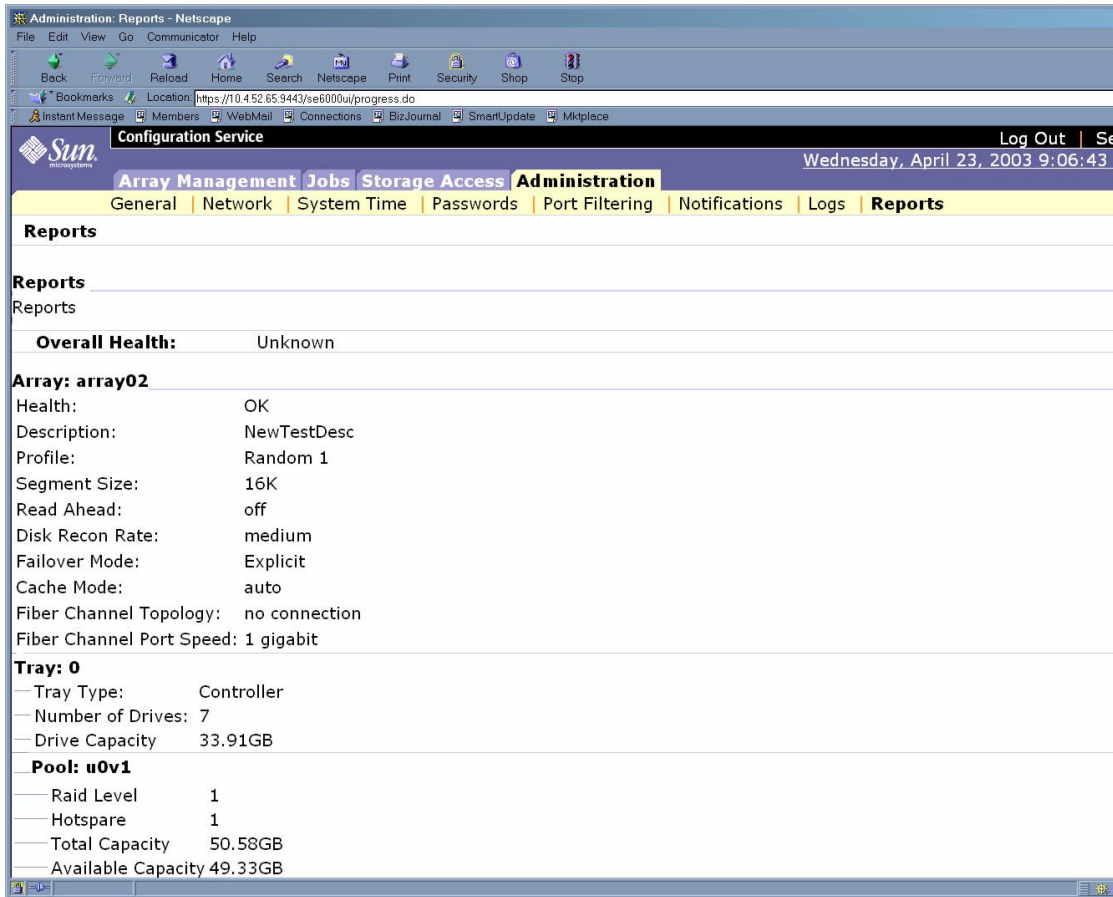
FIGURE 6-12 The Report Page

At the end of this step, the Sun StorEdge 6320 system is operational and the host can communicate with the Sun StorEdge 6320 system.

6.10 Changing System Configuration

The procedures described in the following sections are used to change the system default configuration of the Sun StorEdge 6320 system and to verify the ability to create a volume group, create a volume and add it to the volume group, create an initiator, create an initiator group, and add a volume group to an initiator group.

6.10.1 Creating a Volume Group

The following steps create a volume group in the Sun StorEdge 6320 system.

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**
   - For a non-secure HTTP server connection:

     ```
     http://hostname:9080/
     ```

   - For a secure HTTPS server connection:

     ```
     https://hostname:9443/
     ```

   where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is new_sp.

   The Log-in page is displayed.

3. **Log in as** storage **with a password of** !storage.

4. **Click Log In.**

   The Array Management Main Menu page is displayed as shown in FIGURE 6-18.

FIGURE 6-13 Array Management Main Menu Page

5. **Click on the Storage Access tab and the Individual Array Access management page is displayed as shown in** FIGURE 6-14.
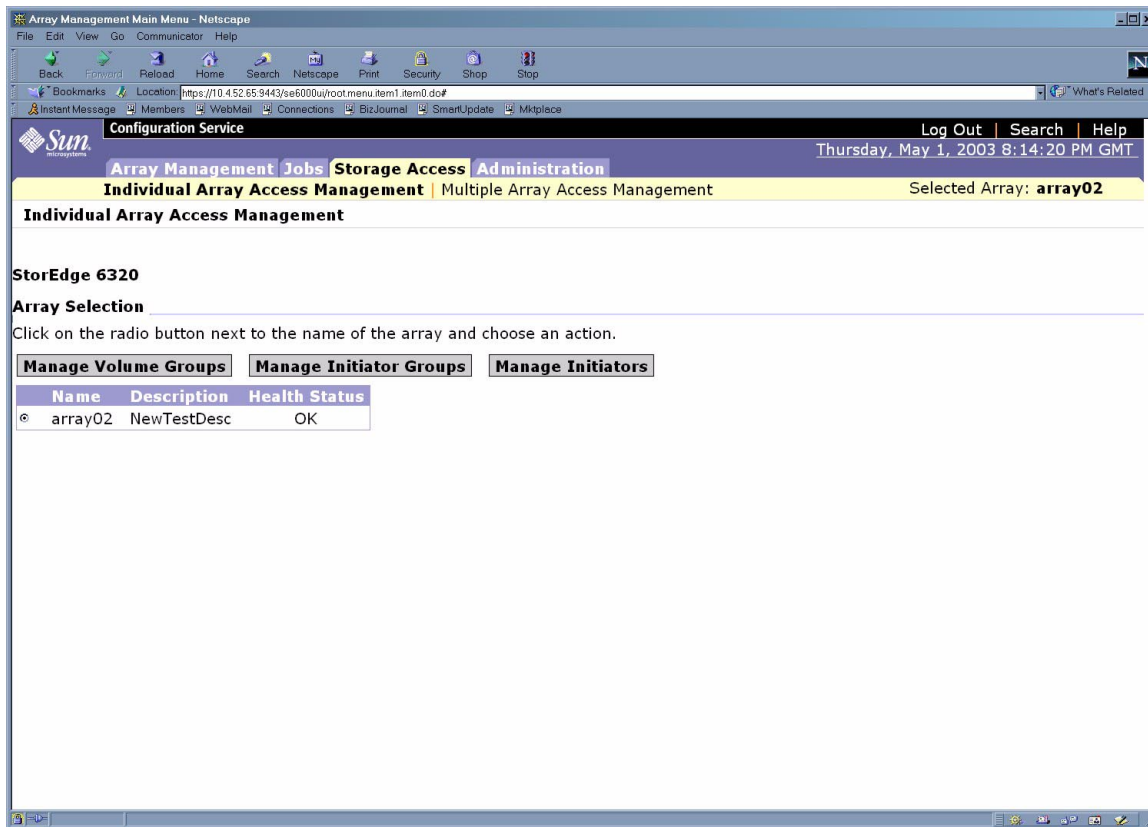
FIGURE 6-14 Individual Array Access Management Page

6. **Click on a radio button next to an array and click on Manage Volume Groups.**

The Manage Volume Groups page is displayed as shown in FIGURE 6-15.
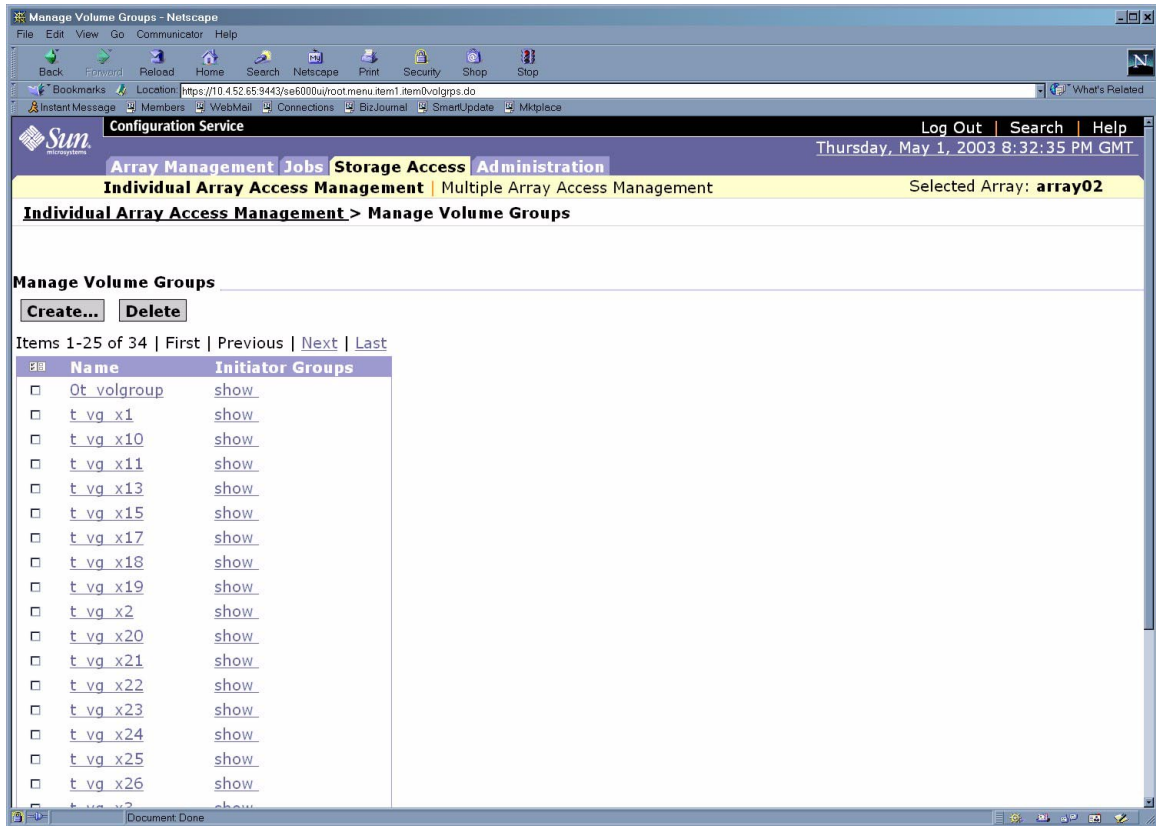
FIGURE 6-15 Manage Volume Groups Page—Creating a Volume Group

This page displays a table showing links to details about currently-configured
volume groups and associated initiator groups.

7. **Click on Create and the Create New Volume Group Wizard is displayed in a new window as shown in** FIGURE 6-16**.**
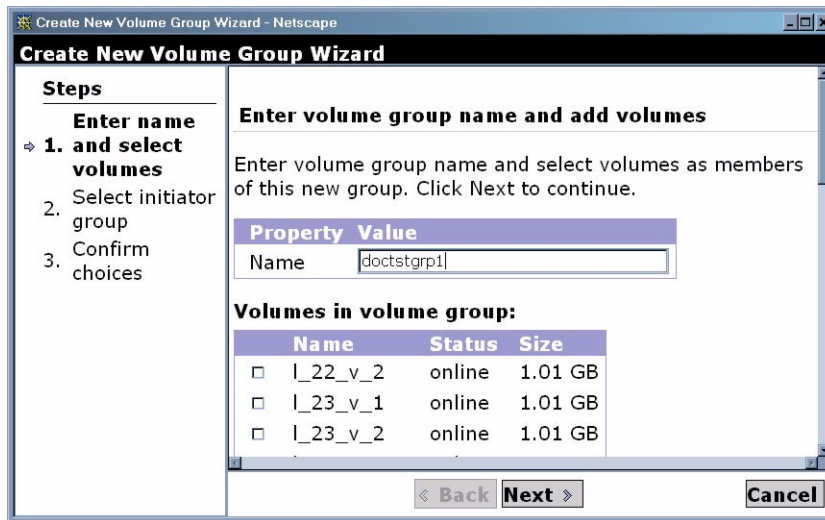
FIGURE 6-16 Create New Volume Group Wizard Page

8. **In the Name text field, enter the name of the volume group you want to create.**

If you do not want to have the volumes shown as volumes in the new volume group, you do not have to select volumes.

If you do select a volume to add to the new volume group, the volume must meet the following constraints:

■ Do not assign a volume to more than one volume group
■ To add a volume from an existing volume group to another volume group, first remove the volume from its existing volume group.

9. **Click Next and the Select Initiator Group page is displayed as shown in** FIGURE 6-17
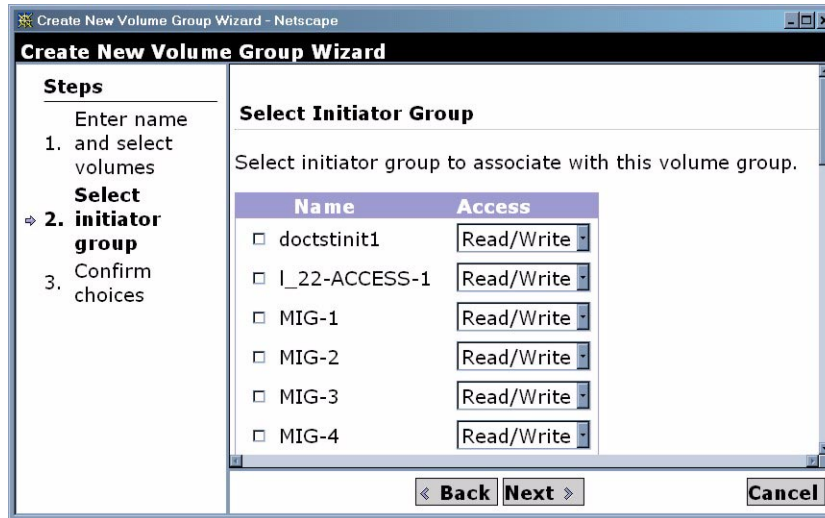
FIGURE 6-17 New Volume Group Wizard—Select Initiator Group Page

10. **You can select an initiator group to associate with the volume group or click Next and the confirmation page is displayed.**

11. **If the information on the confirmation page is correct, click on Confirm and the volume group is created on the Sun StorEdge 6320 system.**

In this example, the volume group name is doctstgrp1 and it will be used to add the volume created in the next section.

6.10.2   Creating a Volume in the Sun StorEdge 6320 System

The following steps create a volume in the Sun StorEdge 6320 system.

Note – You cannot change the name of a volume after it is created.

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

■ For a non-secure HTTP server connection:

```
http://hostname:9080/
```

■ For a secure HTTPS server connection:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is new_sp.

The Log-in page is displayed.

3. **Log in as** storage **with a password of** !storage.

4. **Click Log In.**

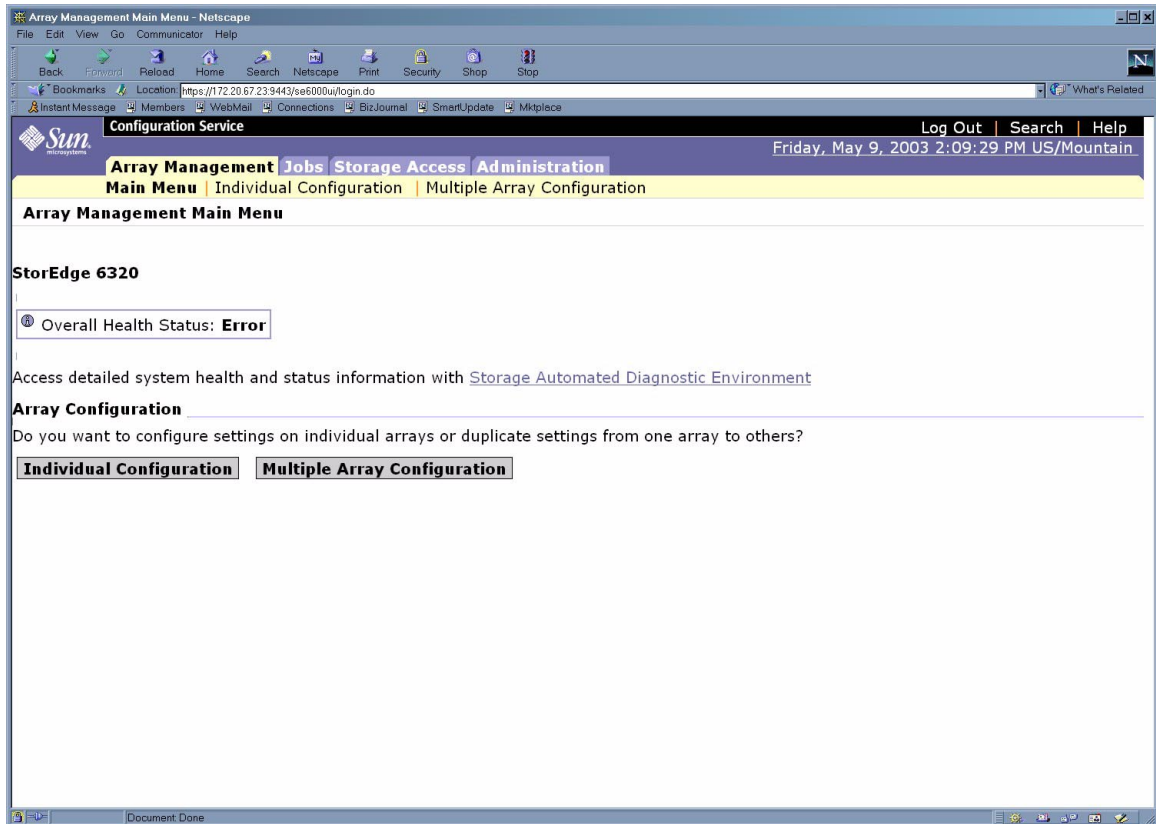The Array Management Main Menu page is displayed as shown in FIGURE 6-18.

FIGURE 6-18 Array Management Main Menu Page

5. Click on Individual Configuration and the Single Array Configuration Page is displayed as shown in FIGURE 6-19.
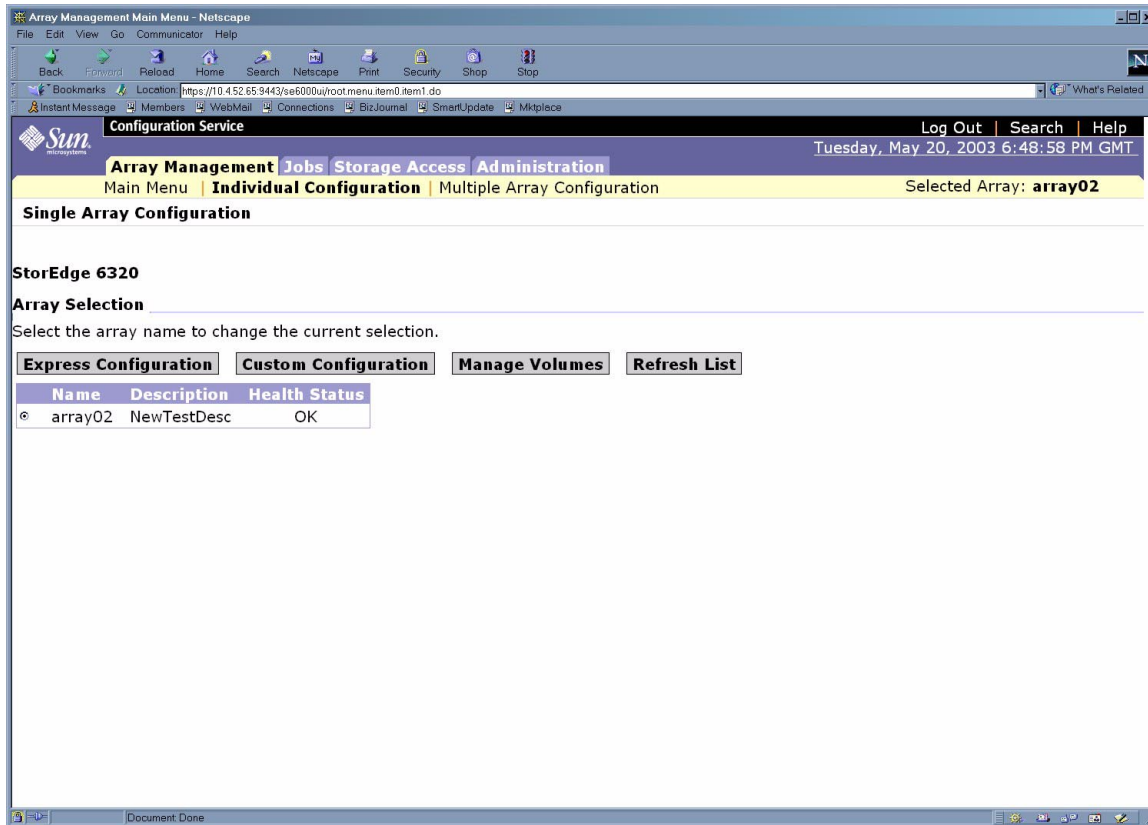
FIGURE 6-19 Single Array Configuration Page

6. Click on an array in the list of arrays on which to create the volume.

7. **Click on Manage Volumes and the Single Array Configuration Manage Volumes page is displayed as show in** FIGURE 6-20.
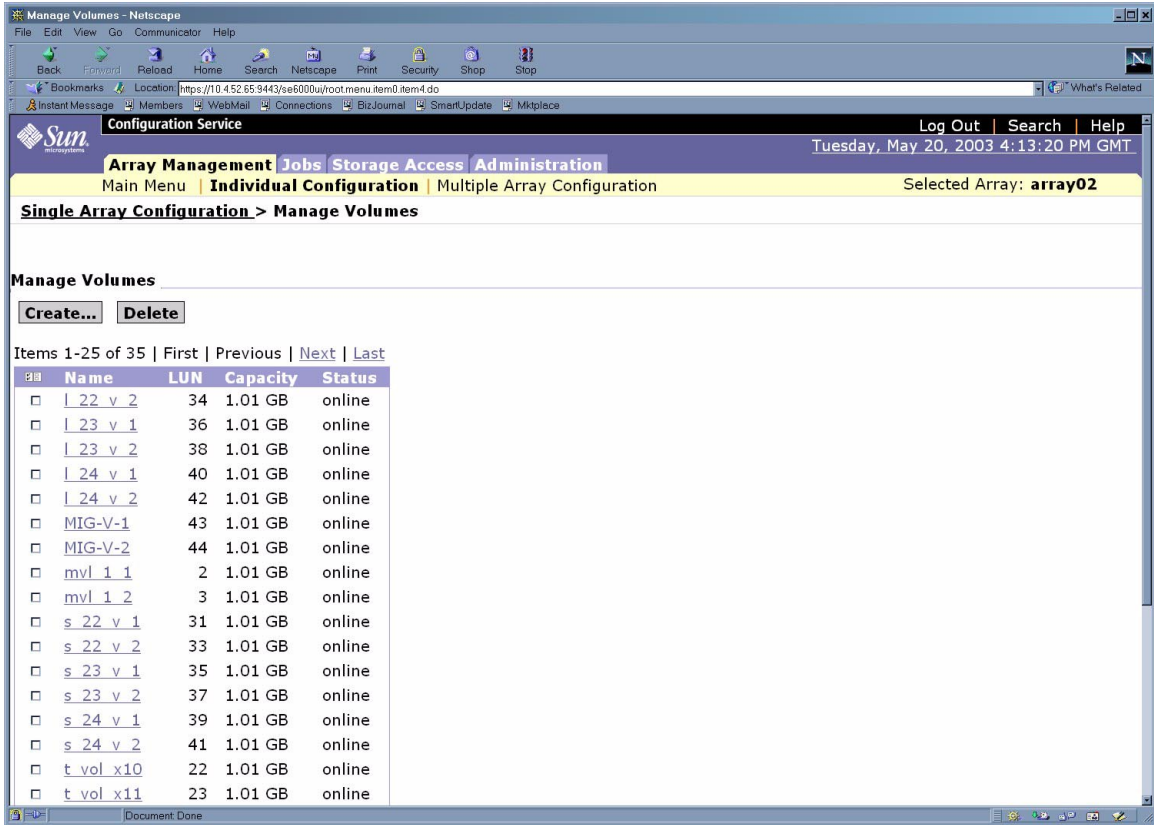
FIGURE 6-20 Single Array Configuration—Manage Volumes Page

8. **Click Create and the Create a New Volume Wizard is displayed on the Single Array Configuration Manage Volume page.**

   The new volume create wizard is shown in FIGURE 6-21.

   test
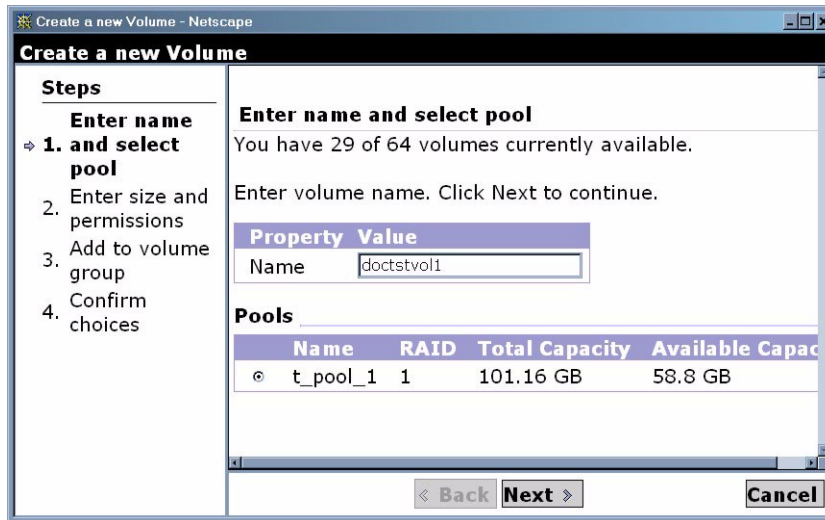
FIGURE 6-21 New Volume Wizard

9. **In the Name text field, enter the name of the volume to be created.**

   The name can be up to 12 characters.

10. **Select a pool from which to create the volume or click Next and the Enter Size and Permissions page is displayed as shown in** FIGURE 6-22**.**

11. **Enter the requested size of the new volume in the Requested Size text field, any volume permissions in the Default Volume Permissions text field, and the logical unit number of the volume in the Default Logical Unit Number text field.**

When entering a value in the Requested Size text field, do not exceed the value specified for the Maximum Available Size

FIGURE 6-22 New Volume Wizard—Size, Permissions, and Logical Unit Number Page

12. **Click Next and select the Volume Group to which to add the volume as shown in** FIGURE 6-23.

In this example, select the `doctstgrp1` volume group that was created in Section 6.10.1, "Creating a Volume Group" on page 6-24.

Select a volume group from the Volume Groups list with the following constraints:

■ Do not assign a volume to more than one volume group

■ To add a volume from an existing volume group to another volume group, first remove the volume from its existing volume group.
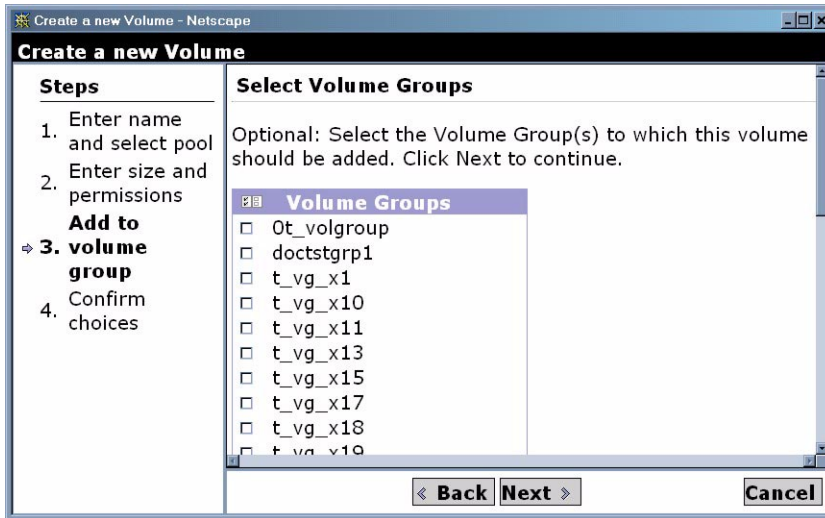
FIGURE 6-23 New Volume Wizard—Select Volume Group Page

13. **Click Next and the Confirmation page is displayed as shown in** FIGURE 6-24.
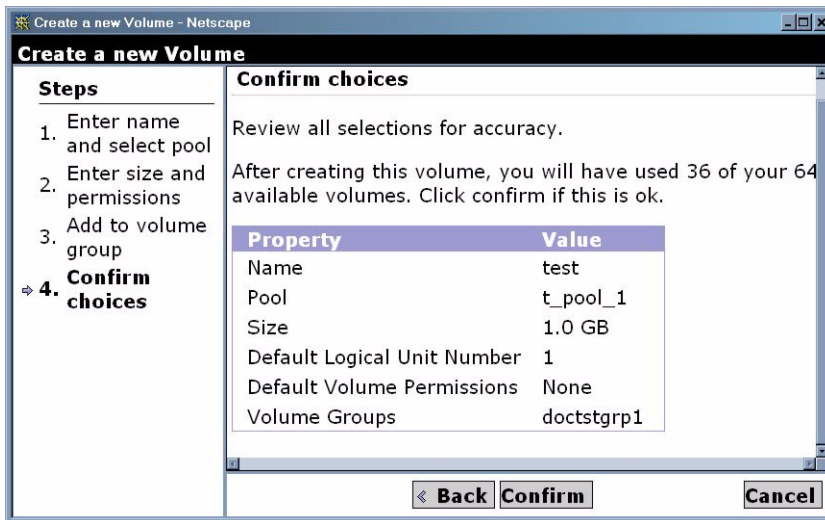
FIGURE 6-24 Confirmation Page for New Volume

14. **Click Confirm if the information shown on the confirmation page is correct.**

    In this example, the volume test is added to the doctstgrp1 volume group.

6.10.3 Creating an Initiator Group in the Sun StorEdge 6320 System

The following steps create an initiator group on the Sun StorEdge 6320 system.

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

   ■ For a non-secure HTTP server connection:

   ```
   http://hostname:9080/
   ```

   ■ For a secure HTTPS server connection:

   ```
   https://hostname:9443/
   ```

   where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is new_sp.

   The Log-in page is displayed.

3. **Log in as** storage **with a password of** !storage.

4. **Click Log In.**

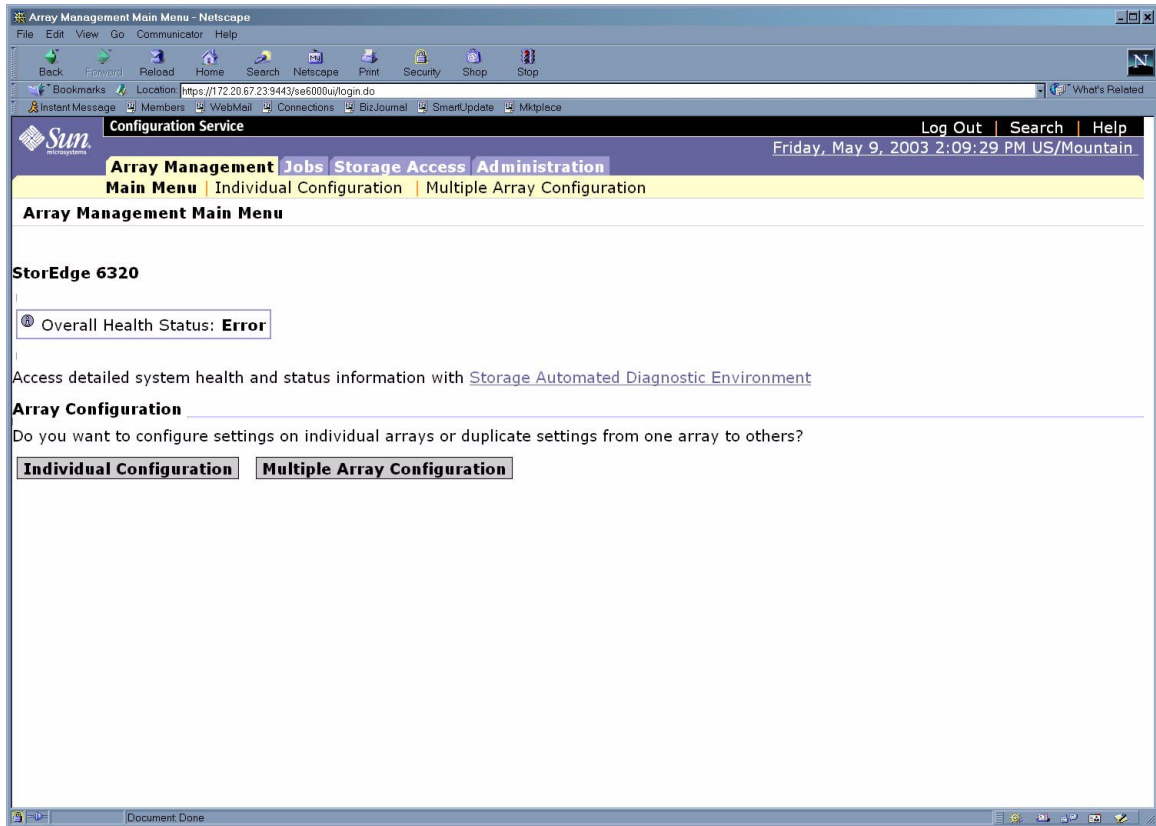   The Array Management Main Menu page is displayed as shown in FIGURE 6-25.
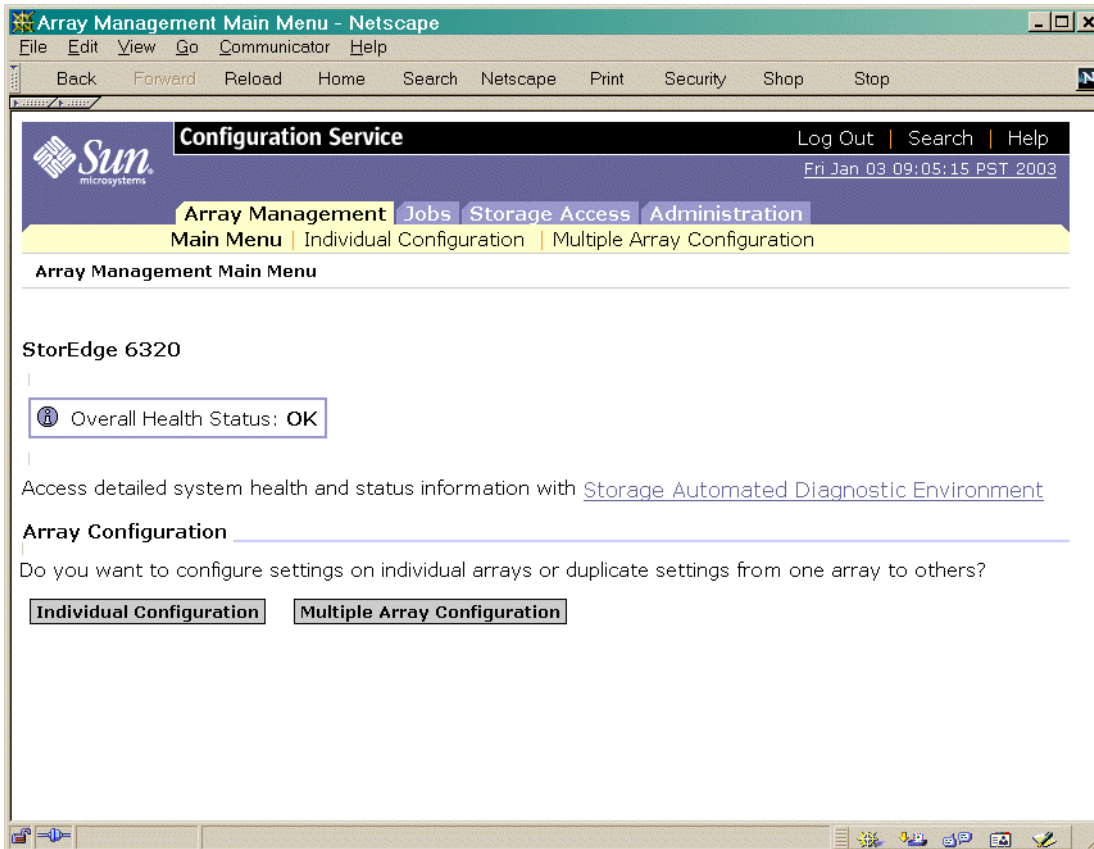
FIGURE 6-25 Array Management Main Menu Page

5. **Click Storage Access Tab and the Storage Access Page is displayed as shown in**
   FIGURE 6-26.
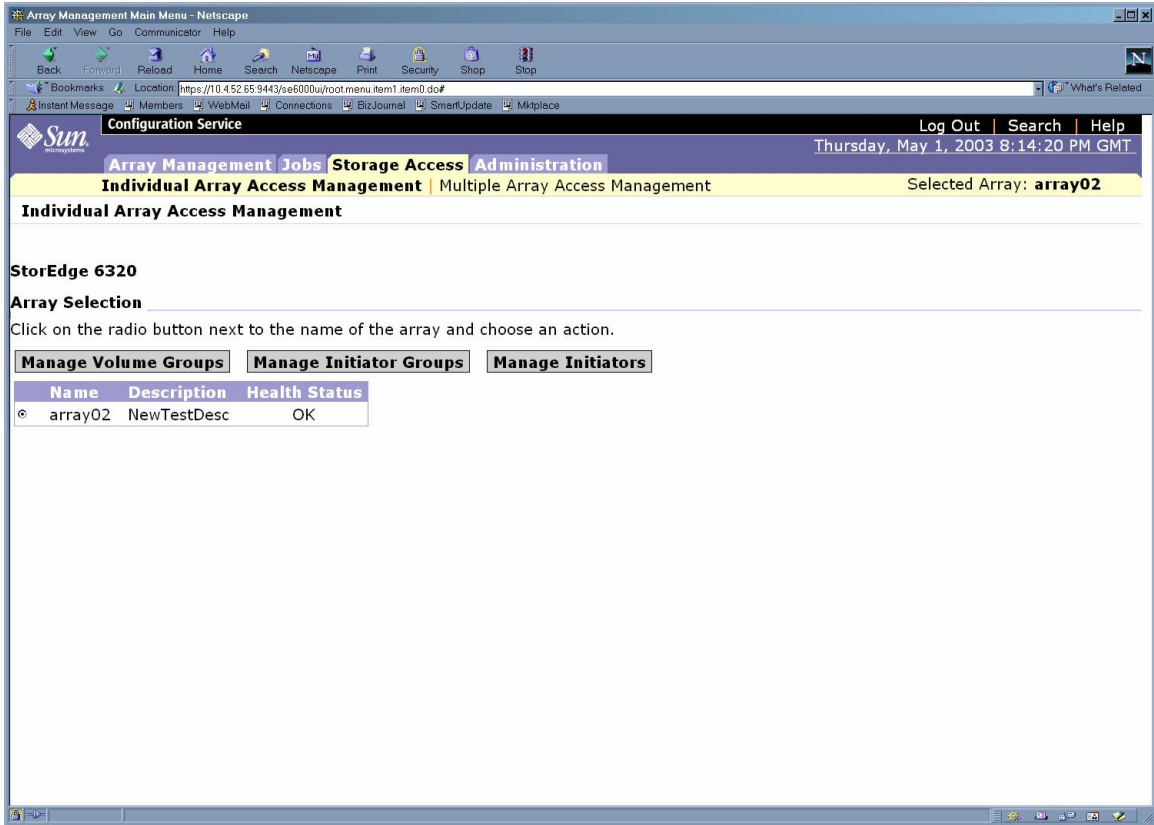
FIGURE 6-26 Storage Access—Manage Initiators Groups Page

6. Select an array in which to create an initiator group and select Manage Initiator Groups. The Individual Array Access Management page is displayed as shown in FIGURE 6-27**.**
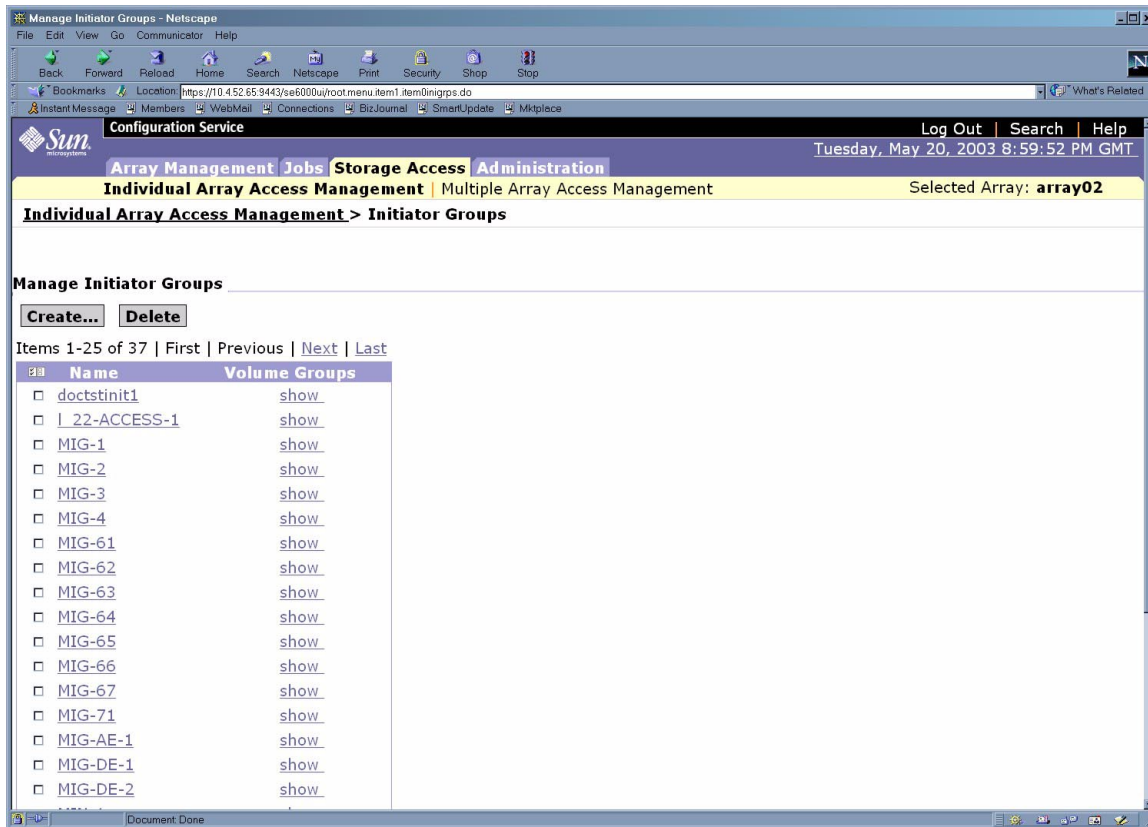
FIGURE 6-27 Individual Array Access Management—Manage Initiator Groups Page

7. Click Create and the Create Initiator Groups screen is displayed as shown in FIGURE 6-28**.**

This page displays a list of existing initiators to add to the new initiator group.
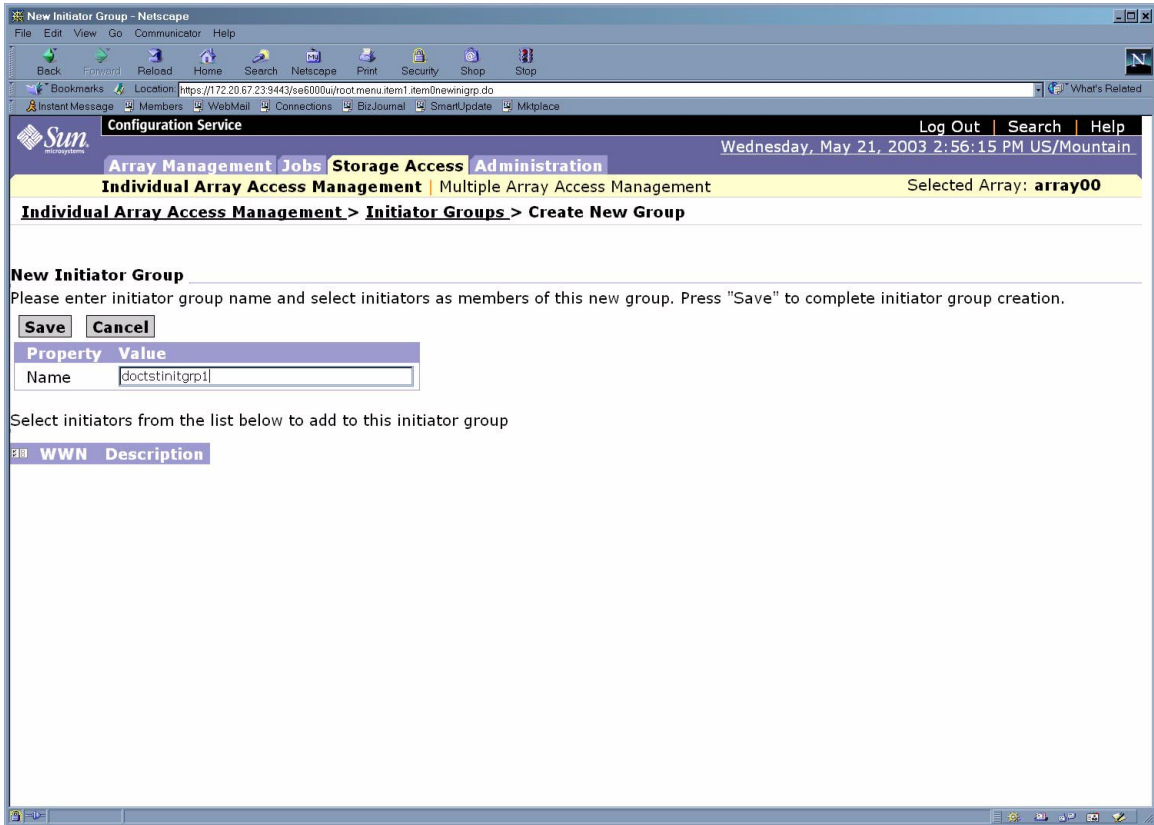
FIGURE 6-28 Create New Initiator Group Page

8. **Type the initiator group name in the name field.**

   The name can be up to 16 characters. Do not include the colon character (:) in the name. In this example, the initiator group name is `doctstinitgrp1`.

9. **Select initiators to add to the new initiator group if necessary.**

10. **Click Save.**

    When the save process is complete, a list of all initiator groups is displayed as shown in FIGURE 6-29. Verify that the initiator group you created is on this list.
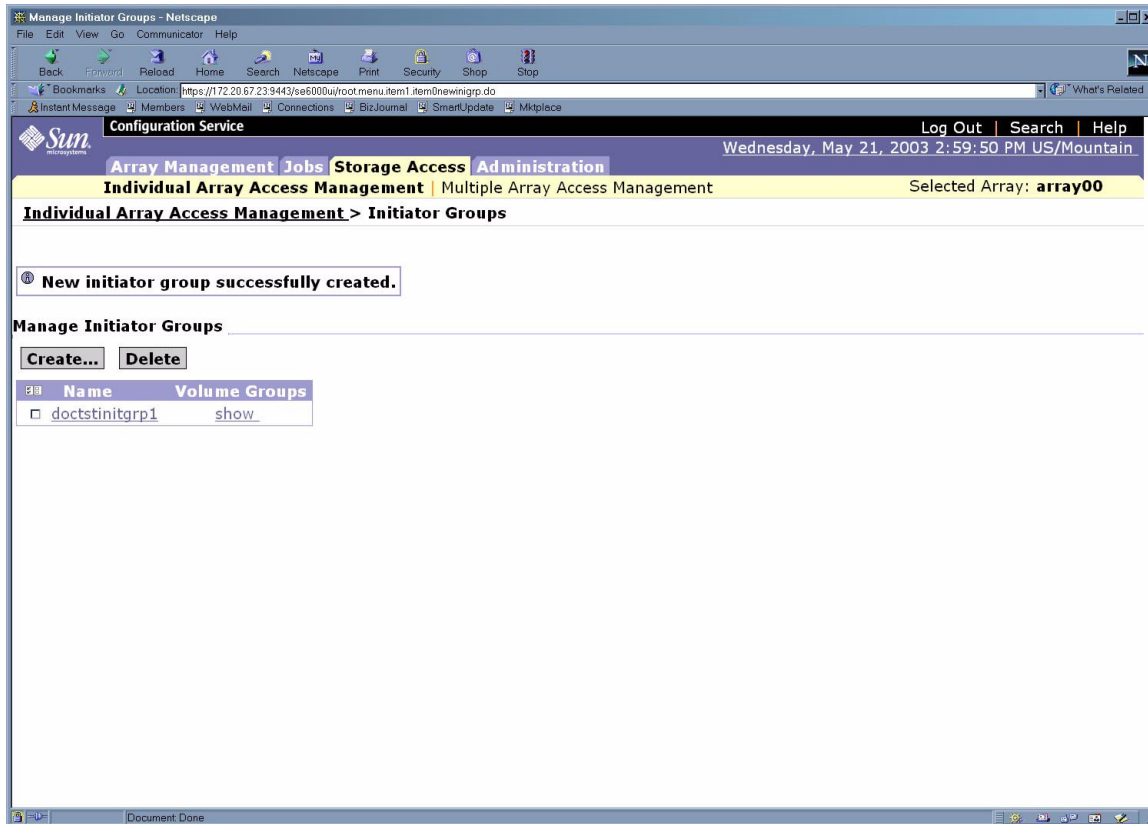
FIGURE 6-29 New Initiator Created Successfully Page

The initiator group created for this example is `doctstinitgrp1` and it appears on the list.

11. **Click Log out.**

6.10.4   Creating an Initiator In the Sun StorEdge 6320 System and Putting It In An Initiator Group

The following steps create an initiator on the Sun StorEdge 6320 system and puts the initiator in an initiator group.

1. **Open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

   ■ For a non-secure HTTP server connection:

   ```
   http://hostname:9080/
   ```

   ■ For a secure HTTPS server connection:

   ```
   https://hostname:9443/
   ```

   where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is `new_sp`.

   The Log-in page is displayed.

3. **Log in as** `storage` **with a password of** `!storage`.

4. **Click Log In.**

   The Array Management Main Menu page is displayed as shown in FIGURE 6-25.
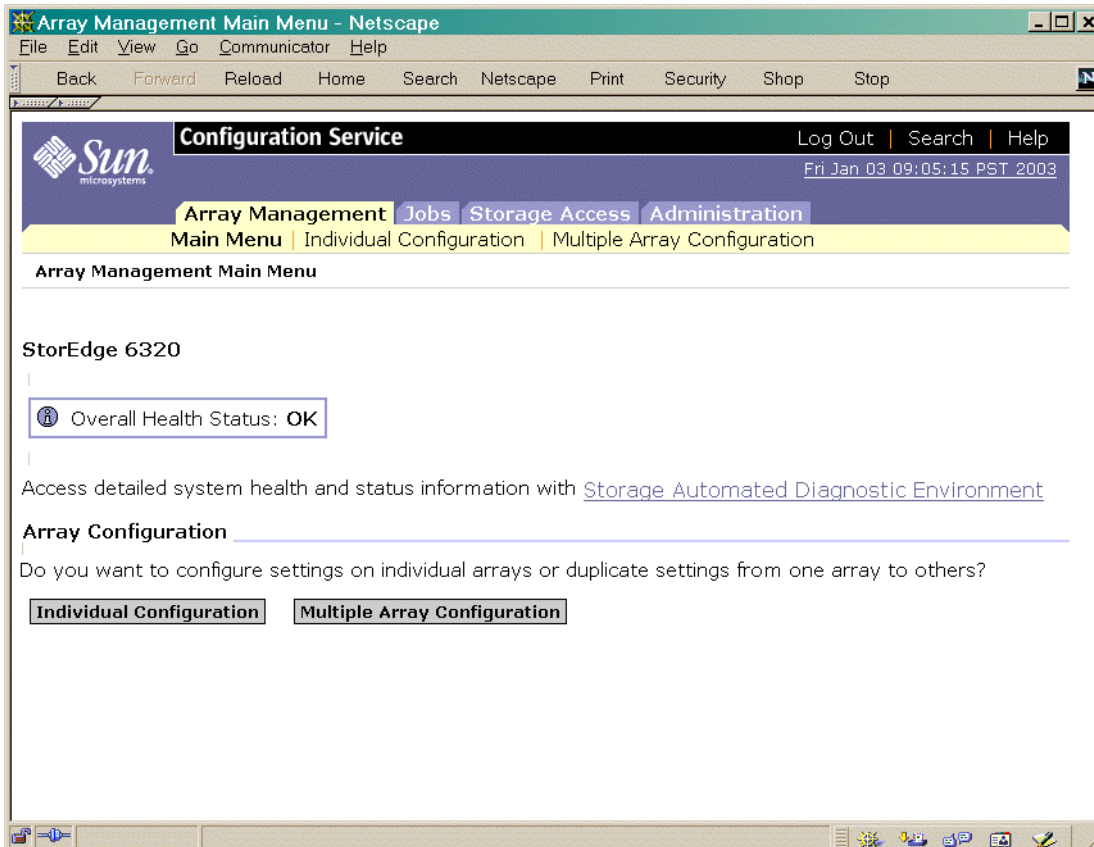
FIGURE 6-30 Array Management Main Menu—Create Initiator Page

5. **Click Storage Access Tab and the Storage Access Page is displayed as shown in** FIGURE 6-26.
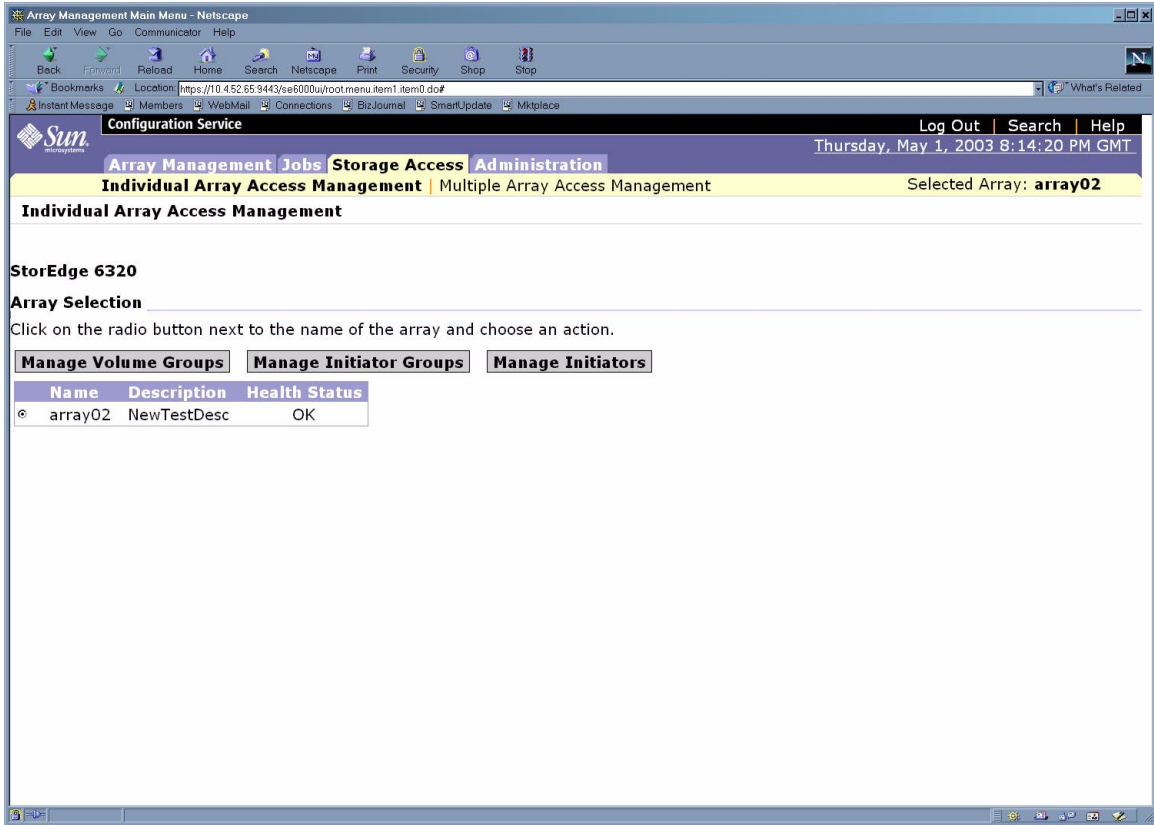
FIGURE 6-31 Storage Access—Manage Initiators Groups Page

6. **Click on an array in which to create the initiator.**

7. **Click on Manage Initiators and the Manage Initiators page is displayed as in shown in** FIGURE 6-32.
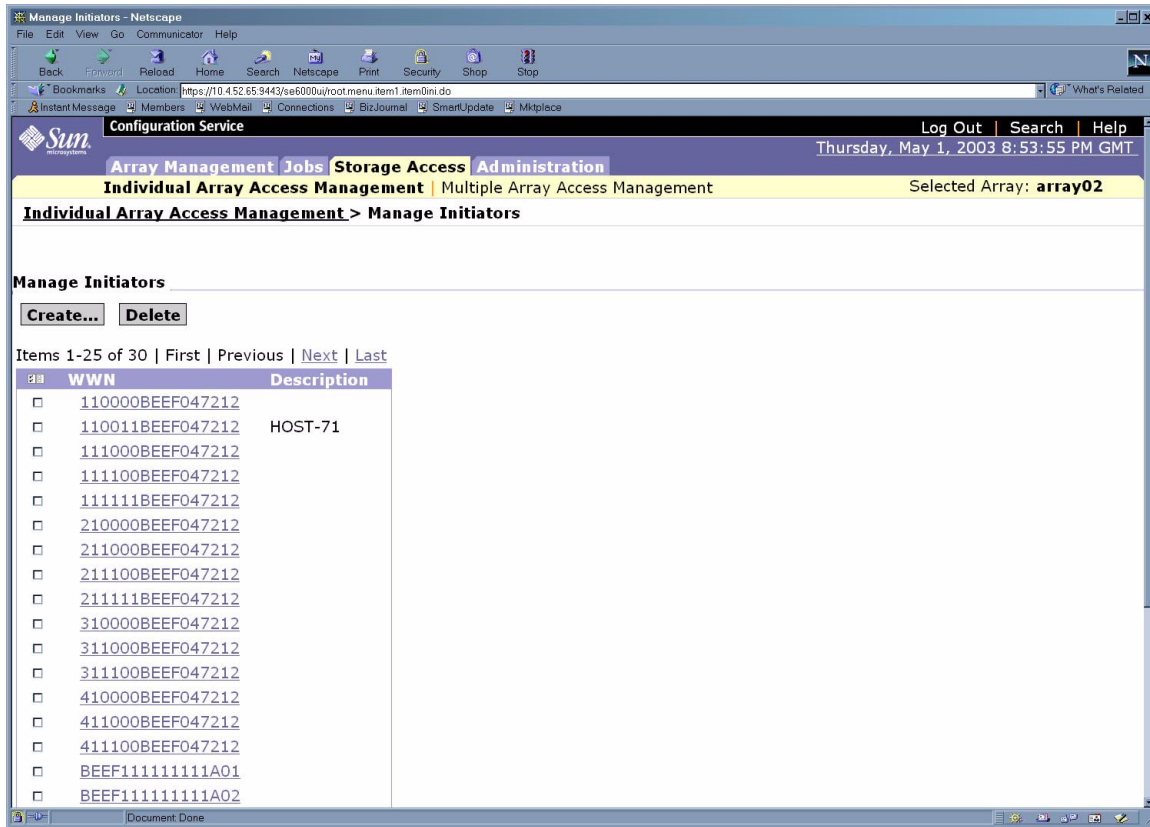
FIGURE 6-32 Individual Array Access Management—Manage Initiators

8. Click on Create and the Create New Initiator page is displayed as shown in
FIGURE 6-33.
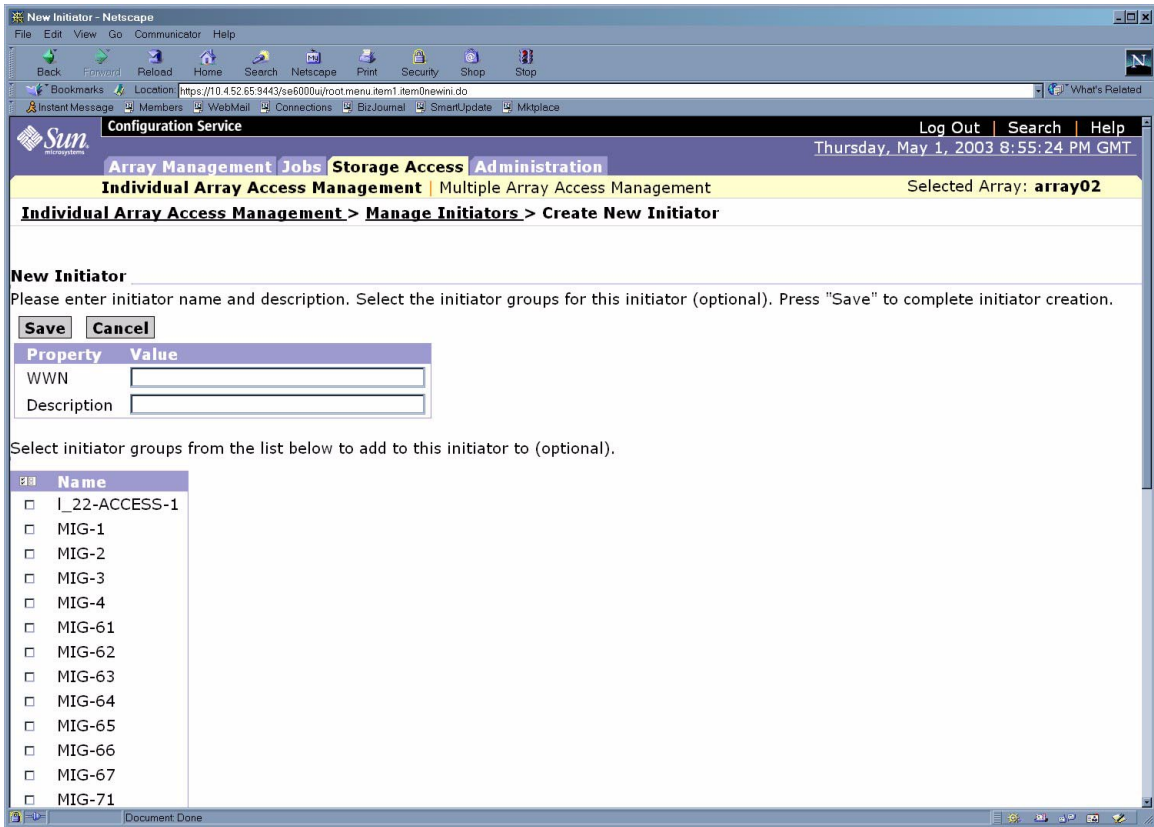
FIGURE 6-33 Manage Initiators—Create New Initiator

In the WWN text field, type the World Wide Name (WWN) of up to 16 hexadecimal characters. Do not include the colon character (:) in the name. In the Description text field, type a text description of up to 16 characters. In this example, the WWN for initiator is `BEEF111111111A21` and the name is `doctstinit1`.

From the table on the page, select an initiator group in which to add the initiator. In this example, the initiator group (`doctstinitgrp1`) created in Section 6.10.3, "Creating an Initiator Group in the Sun StorEdge 6320 System" on page 6-37 is used for the initiator group. Locate the name of the initiator group in the list and click in the check box.

9. **Click Save and the successful creation of the initiator is verified as shown in**
   FIGURE 6-34**.**
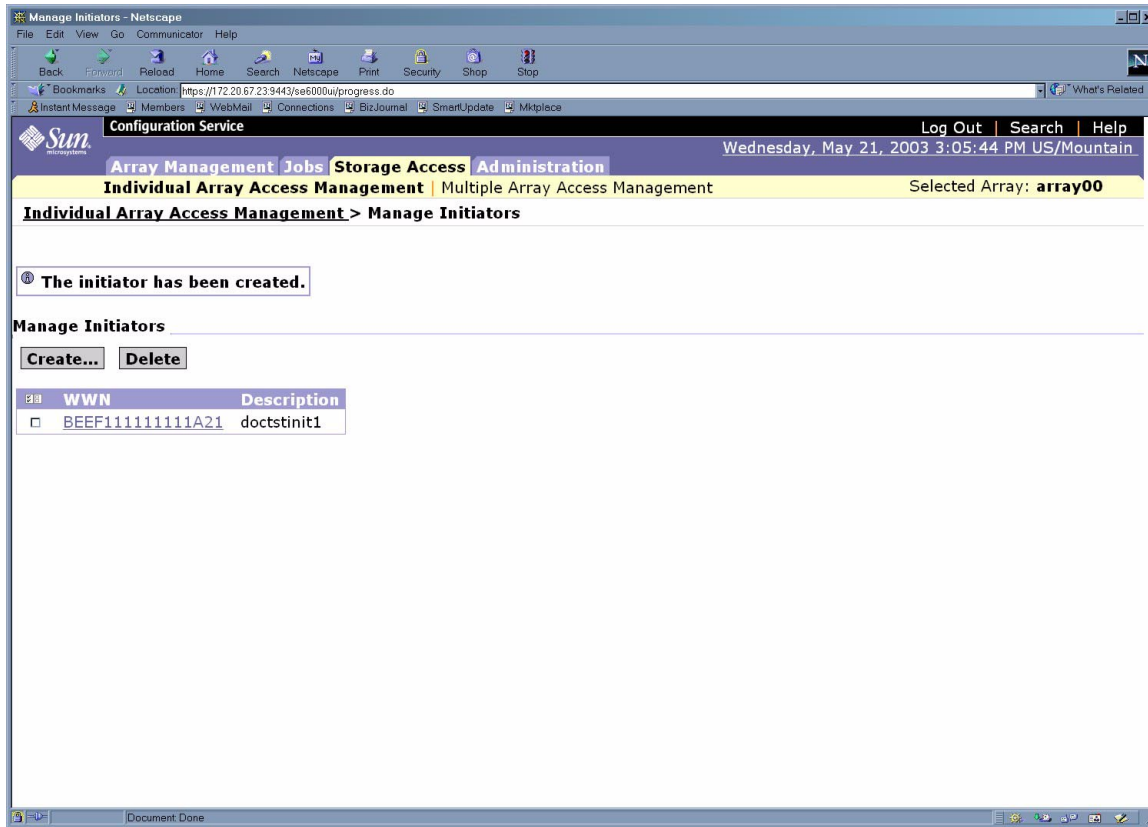
FIGURE 6-34 Manage Initiators—Initiator Created Page

If you click on the name of the initiator, the detail information is displayed as shown
in FIGURE 6-35.
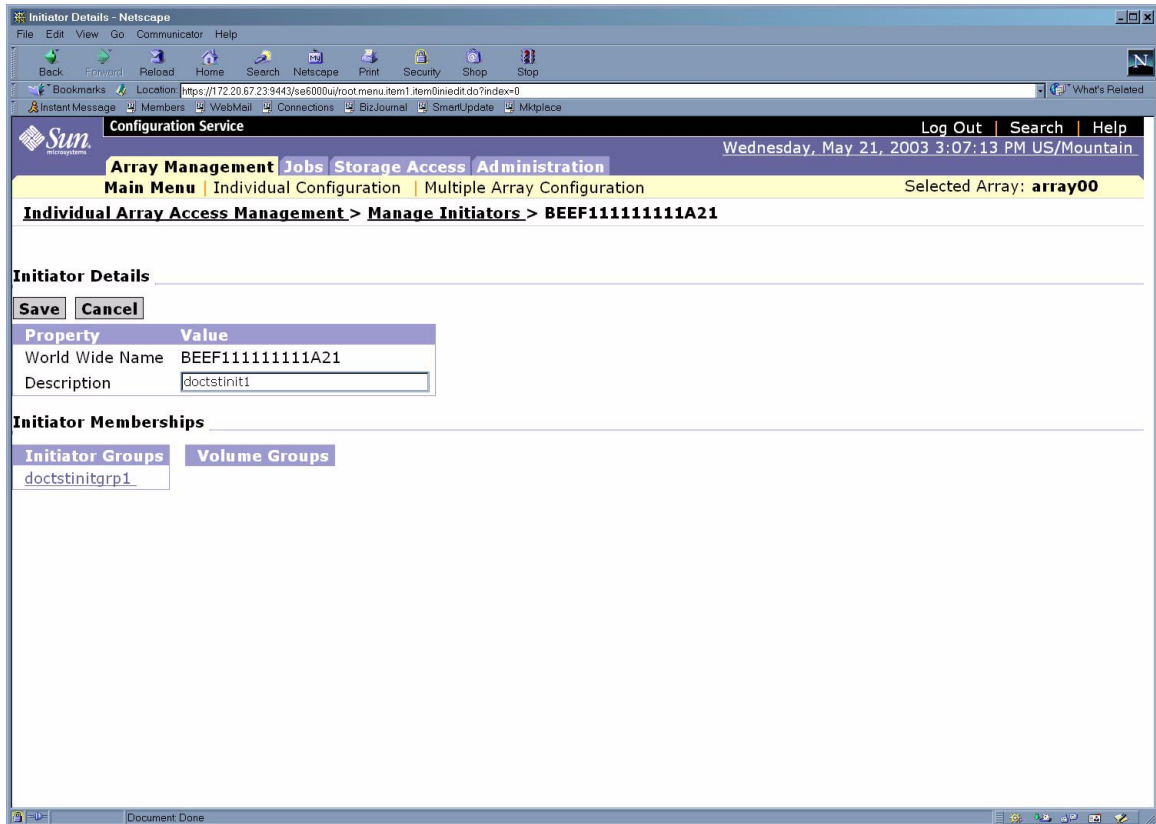
FIGURE 6-35 Manage Initiators—Initiator Details Page

The Array Management Initiators page shows the initiator, `doctstinit1,` its WWN, and its membership in the `doctstinitgrp1` initiator group.

6.10.5 Showing the Association of a Volume Group to an Initiator Group

The following steps create a volume group in the Sun StorEdge 6320 system.

1. Open a web browser such as Netscape Navigator.

2. Type one of the following URLs in the URL Location text field:

- For a non-secure HTTP server connection:

```
http://hostname:9080/
```

- For a secure HTTPS server connection:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed. For Sun StorEdge 6000 Family configurations that include a Storage Service Processor, the default name is new_sp.

The Log-in page is displayed.

3. **Log in as** storage **with a password of** !storage.

4. **Click Log In.**

The Array Management Main Menu page is displayed as shown in FIGURE 6-18.

FIGURE 6-36 Array Management Main Menu Page

5. Click on the Storage Access tab and the Individual Array Access management page is displayed as shown in FIGURE 6-14.
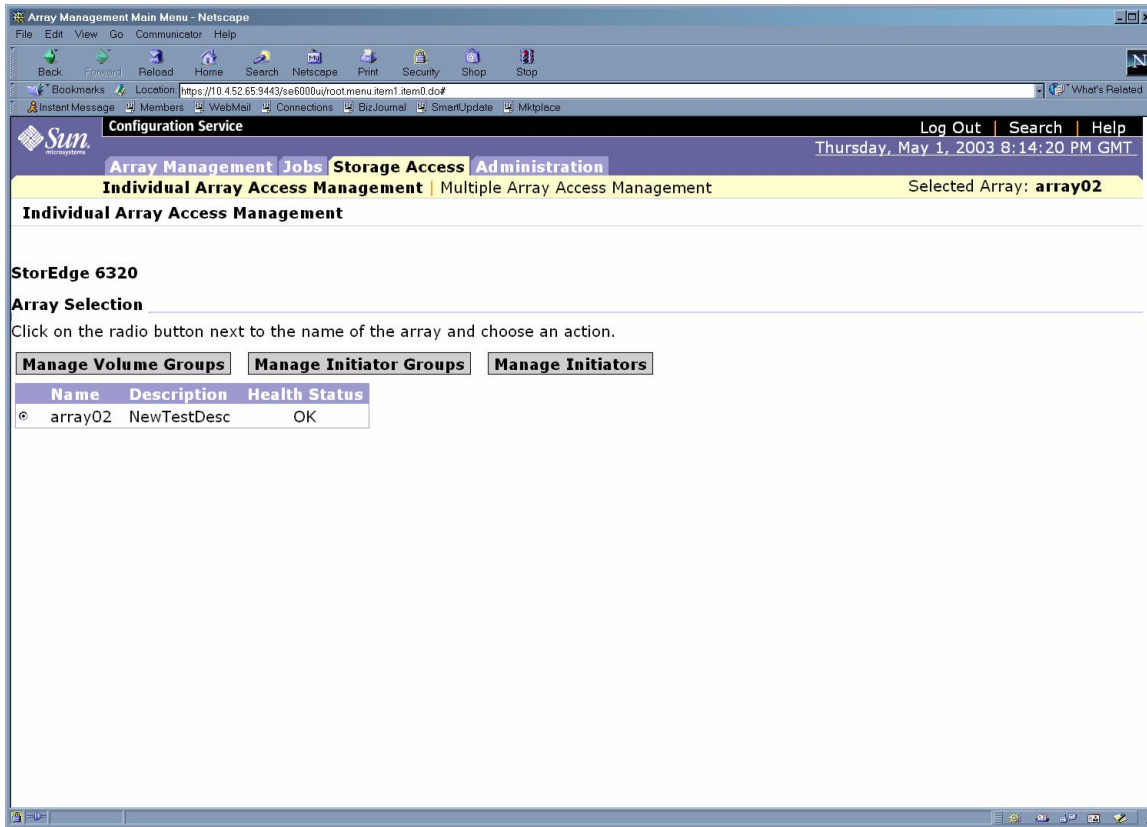
FIGURE 6-37 Individual Array Access Management Page

6. Click on a radio button next to an array and click on Manage Volume Groups and the Manage Volume Groups page is displayed as shown in FIGURE 6-38.
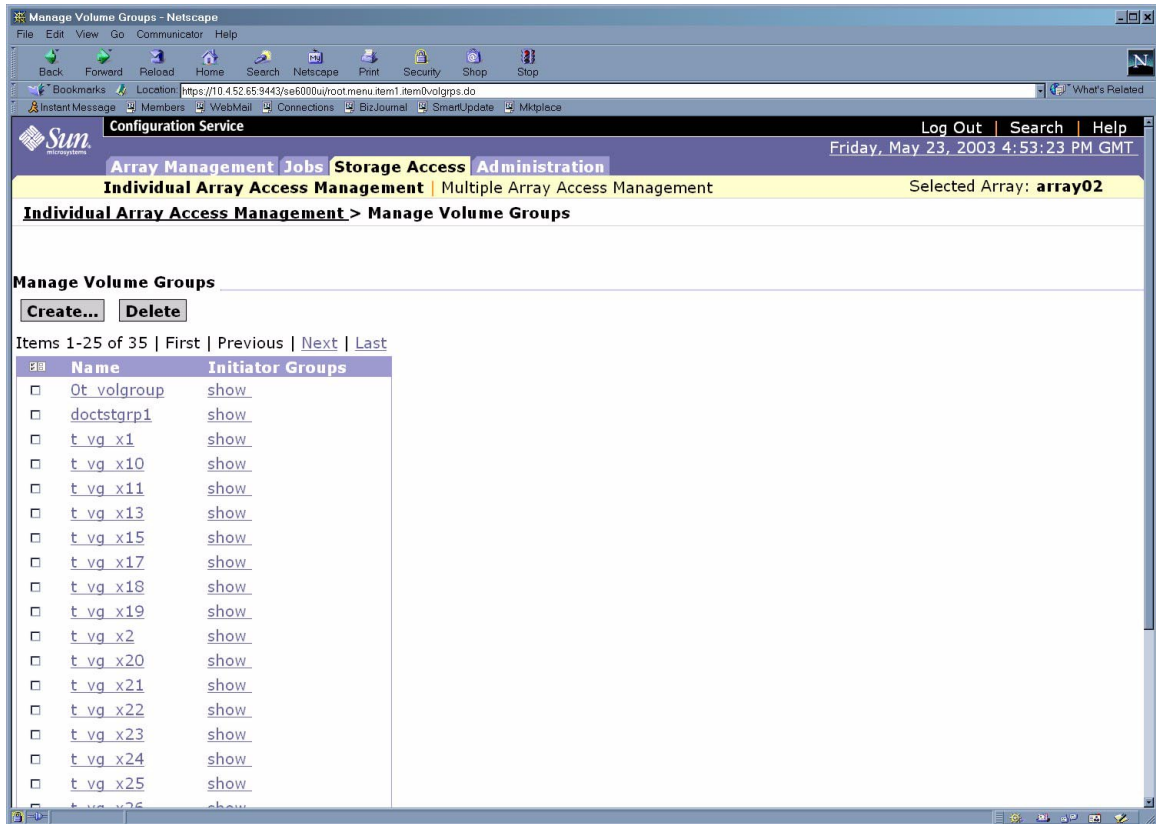
FIGURE 6-38 Storage Access—Manage Volume Group Page

The doctstgrp1 volume group is shown in the Manage volume Groups table.

7. **Click on show associated with the `doctstgrp1` volume group and the initiator group associated with the volume group is displayed as shown in** FIGURE 6-39.
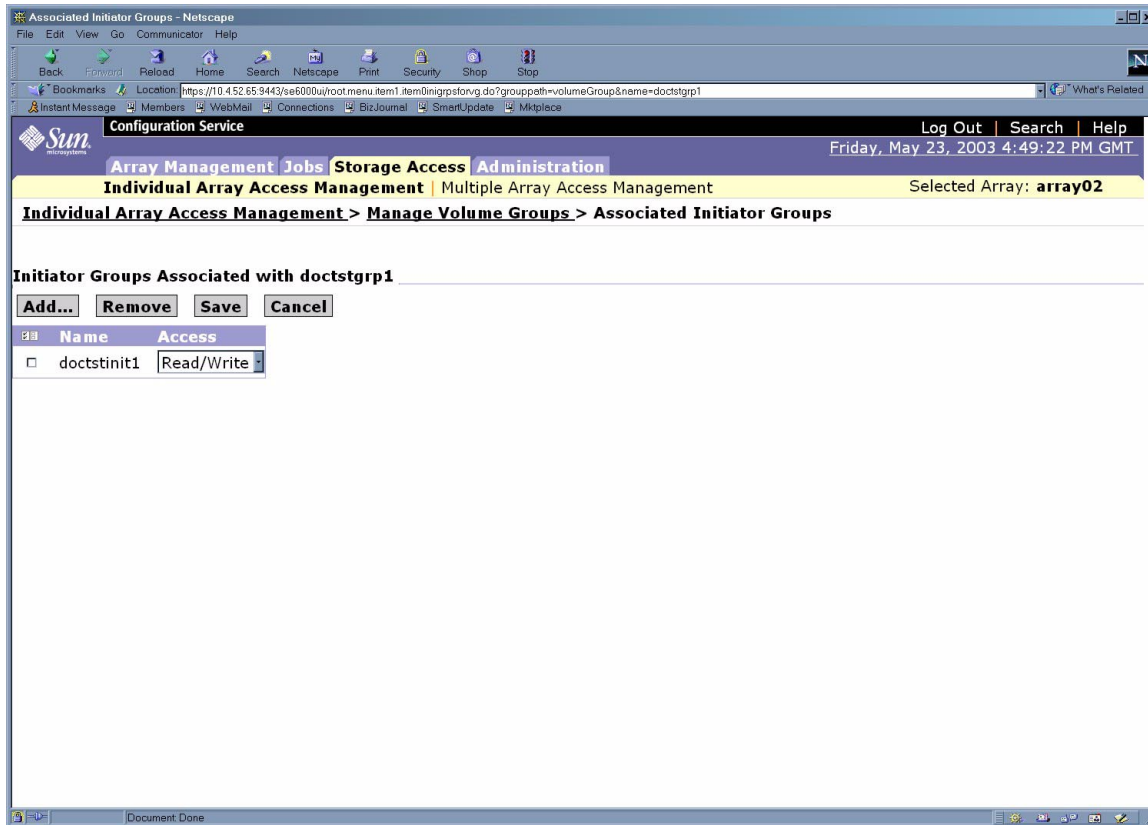
FIGURE 6-39 Initiator Group Associated with Doctstgrp1

The initiator group `doctstinit1` is associated with `doctstgrp1` in this example.

6.10.6   Verifying the Changes and Additions

Perform the procedure in Section 6.9, "Getting a Report of the Sun StorEdge 6320 System Defaults" on page 6-21 to verify the volume, volume group, initiator group and initiator have been created and appear on the report.

See Chapter 7 if the Sun StorEdge Remote Response is to be initialized.

Initializing the Sun StorEdge Remote Response Service

The Network Terminal Concentrator and Modem are powered on when unswitched power is applied to the system. If the use of the Sun StorEdge Remote Response program is necessary, the initialization procedure for the Sun StorEdge Remote Response service is performed after system is powered on.

The Storage Service Processor continually monitors the messages sent to the system log by the software and firmware in the system subsystems. If a message is determined to contain an event that requires an alert, the modem on the Network Terminal Concentrator is invoked and the message is sent as a comment to the Sun Service Center.

The phone call to the Sun Service Center to initiate the service is not required if the customer does not want to use the Sun StorEdge Remote Response service.

Note – Up to eight Sun StorEdge 6320 systems can be connected together in a chain to share a single phone line for communication with the Sun Service Center and support teams. See Section 7.0.2, "Shared Remote Response Telephone Line" on page 7-2 for a description of how to chain Sun StorEdge 6320 systems together.

No tools are required to perform the tasks in this chapter.

This chapter contains the following sections:

- Section 7.0.1, "Remote Response Service Initialization" on page 7-2
- Section 7.0.2, "Shared Remote Response Telephone Line" on page 7-2

7.0.1　Remote Response Service Initialization

For the initialization process to begin, an analog telephone line that is dedicated to the Sun StorEdge Remote Response service is required. The telephone line must have both dial-out and dial-in capability. If the dedicated phone line is not present, the initialization procedure cannot be completed.

The dedicated telephone line is plugged into the PHONE jack on the Service Processor Panel of the base cabinet service panel.

Gather the following information for the initialization telephone call:

- Company name
- Site address
- Site state or province
- Site country
- Site name of the person to contact at the site
- Telephone number of the person to contact at the site
- Telephone number of the dedicated analog telephone line
- Information about the configuration of the system at the site. For example:
    - Is there a console installed with a firewall between the console and the system?
    - Are there additional Sun StorEdge 6320 systems sharing the dedicated phone line?
    - How is the storage configured?
    - How many and what type of hosts will be connected to the Sun StorEdge 6320 system?
- Serial numbers of all Sun StorEdge 6320 systems at the site.

Contact the Sun Service Center and ask for Sun StorEdge Remote Response Installation Service to initiate a turn-on for the remote response service, assist the Sun Service Center with the turn-on, and verify that the service is initiated.

7.0.2　Shared Remote Response Telephone Line

The Sun StorEdge Remote Response allows up to eight Sun StorEdge 6320 systems to be connected together to share a single telephone line to communicate with the Sun Service Center and support teams.

To connect more than one Sun StorEdge 6320 system together for remote response management through a single telephone line, a chain of Sun StorEdge 6320 systems is built by connecting the SP LAN OUT port of each Sun StorEdge 6320 system of each Sun StorEdge 6320 system's service panel to the SP LAN IN port on the adjacent Sun StorEdge 6320 system service panel. The first Sun StorEdge 6320 system in the chain has nothing connected to the SP LAN OUT port on its service panel and the last Sun StorEdge 6320 system in the chain has nothing connected to the SP LAN IN port on its service panel.

In addition, during the initial configuration of each Sun StorEdge 6320 system, a unique Sun StorEdge 6320 system ID must be assigned to each system. One of the systems (preferably the system with the phone line connected) must be assigned a Sun StorEdge 6320 system ID of 0. The Sun StorEdge 6320 system ID is assigned during the initialization procedure of the system. The initial initialization procedure is described in Chapter 5.

Connecting to Servers Running the Microsoft Windows NT Operating Environment

Note – See `www.sunsolve.sun.com` and the *Sun StorEdge 6320 System 1.0 Release Notes* for the software requirements for the host.

See the *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for Microsoft Windows 2000 and Windows NT* for detailed instructions about setting up the device driver on the server to connect to the Sun StorEdge 6320 system.

8.0.1   Thin-Scripting Client

A thin-scripting client is available that provides a command line interface (CLI) that enables access to Sun StorEdge 6020 array storage configuration and management facilities. The thin-scripting client is available for download through the following two procedures.

8.0.1.1   To Retrieve the Client from the Sun Download Center

For each page that is displayed, follow these steps:

1. **Log on to** `http://www.sun.com`

2. **From the home page, click on Downloads**

3. **Under the Download Center—Browse downloading by Category, click on System Administration**

4. **Under Storage Management, click on Sun StorEdge 6320 System Storage Products.**

5. **Log in with customer user name and password.**

6. **Download the following files:**
   - win_disk1.zip
   - win_README.txt

   The README file contains the installation instructions for the client.

8.0.1.2 To Retrieve the Client from the Sun Storage Site

For each page that is displayed, follow these steps:

1. **Log onto** `http://www.sun.com`

2. **From the home page, under On this Site, click on Product & Services**

3. **Under Product & Services, click on Storage**

4. **Under Hardware Storage, click on Midrange Storage**

5. **Under Midrange Storage, click on Sun StorEdge 6000 Family**

6. **Under Sun StorEdge 6000 Family, click on Sun StorEdge 6300 Series**

7. **Under Sun StorEdge 6300 Series. click on Sun StorEdge 6320 Series**

8. **Under Software Download, click on Sun Storage 6000 Family Storage Products**

9. **Log in with customer user name and password.**

10. **Download the following files:**
    - win_disk1.zip
    - win_README.txt

   The README file contains the installation instructions for the client.

Connecting to Servers Running the Microsoft Windows 2000 Operating Environment

---

> **Note –** See `www.sunsolve.sun.com` and the *Sun StorEdge 6320 System 1.0 Release Notes* for the software requirements for the host.

See the *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for Microsoft Windows 2000 and Windows NT* for detailed instructions about setting up the device driver on the server to connect to the Sun StorEdge 6320 system.

9.0.1   Thin-Scripting Client

A thin-scripting client is available that provides a command line interface (CLI) that enables access to Sun StorEdge 6020 array storage configuration and management facilities. The thin-scripting client is available for download through the following two procedures.

9.0.1.1   To Retrieve the Client from the Sun Download Center

For each page that is displayed, follow these steps:

1. **Log on to** `http://www.sun.com`

2. **From the home page, click on Downloads**

3. **Under the Download Center—Browse downloading by Category, click on System Administration**

4. **Under Storage Management, click on Sun StorEdge 6320 System Storage Products.**

5. **Log in with customer user name and password.**

6. **Download the following files:**
   - win_disk1.zip
   - win_README.txt

   The README file contains the installation instructions for the client.

9.0.1.2　To Retrieve the Client from the Sun Storage Site

For each page that is displayed, follow these steps:

1. **Log onto** `http://www.sun.com`

2. **From the home page, under On this Site, click on Product & Services**

3. **Under Product & Services, click on Storage**

4. **Under Hardware Storage, click on Midrange Storage**

5. **Under Midrange Storage, click on Sun StorEdge 6000 Family**

6. **Under Sun StorEdge 6000 Family, click on Sun StorEdge 6300 Series**

7. **Under Sun StorEdge 6300 Series. click on Sun StorEdge 6320 Series**

8. **Under Software Download, click on Sun Storage 6000 Family Storage Products**

9. **Log in with customer user name and password.**

10. **Download the following files:**
    - win_disk1.zip
    - win_README.txt

    The README file contains the installation instructions for the client.

Connecting to Servers Running the Red Hat Linux 7.2 Operating Environment

---

Note – See `www.sunsolve.sun.com` for the software requirements for the host.

This chapter contains instructions for connecting servers running Red Hat Linux 7.2, Kernel 2.4.7-10 to the Sun StorEdge 6320 systems.

Note – Kernel 2.4.7-10SMP is unstable for use with Sun StorEdge 6320 systems.

10.0.1   Thin-Scripting Client

A thin-scripting client is available that provides a command line interface (CLI) that enables access to Sun StorEdge 6020 array storage configuration and management facilities. The thin-scripting client is available for download through the following two procedures.

10.0.1.1   To Retrieve the Client from the Sun Download Center

For each page that is displayed, follow these steps:

1. **Log on to** `http://www.sun.com`

2. **From the home page, click on Downloads**

3. **Under the Download Center—Browse downloading by Category, click on System Administration**

4. **Under Storage Management, click on Sun StorEdge 6320 System Storage Products.**

5. **Log in with customer user name and password.**

6. **Download the following files:**
   - linux_se6x20.tar
   - linux_README.txt

   The README file contains the installation instructions for the client.

10.0.1.2 To Retrieve the Client from the Sun Storage Site

For each page that is displayed, follow these steps:

1. **Log onto** `http://www.sun.com`

2. **From the home page, under On this Site, click on Product & Services**

3. **Under Product & Services, click on Storage**

4. **Under Hardware Storage, click on Midrange Storage**

5. **Under Midrange Storage, click on Sun StorEdge 6000 Family**

6. **Under Sun StorEdge 6000 Family, click on Sun StorEdge 6300 Series**

7. **Under Sun StorEdge 6300 Series. click on Sun StorEdge 6320 Series**

8. **Under Software Download, click on Sun Storage 6000 Family Storage Products**

9. **Log in with customer user name and password.**

10. **Download the following files:**
    - linux_se6x20.tar
    - linux_README.txt

   The README file contains the installation instructions for the client.

   See Chapter 6 for a description of how to connect the server and Sun StorEdge 6320 systems.

   The following tools are required to perform the tasks in this chapter:

   - Laptop or server terminal

   This chapter contains the following sections:

   - Section 10.1, "Connecting a Sun StorEdge 6320 System to a Red Hat Linux Server" on page 10-3
   - Section 10.2, "Setting Up Red Hat Linux 7.2 Servers for MultiLUN Support" on page 10-4

10.1 Connecting a Sun StorEdge 6320 System to a Red Hat Linux Server

The Sun StorEdge 6320 system supports Red Hat Linux 7.2, Kernel 2.4.7-10 with multiLUN in a single-path configuration.

10.1.1 Red Hat Linux Server Requirements

The following are requirements when setting up Red Hat Linux servers for a dedicated hard zone with the Sun StorEdge 6320 system:

- Each Red Hat Linux 7.2 server must be set to a switch F port
- Each Sun StorEdge 6320 system must be set to a switch F port.
- Two hard zones must be created containing the associated Red Hat Linux 7.2 servers and Sun StorEdge 6320 system ports, One hard zone is for connections to each Sun StorEdge 6020 array master controller and one hard zone is for connections to the Sun StorEdge 6020 array alternate master controller.
- Multiple Red Hat Linux 7.2 servers with one initiator per server are allowed.
- Multiple Sun StorEdge 6020 arrays per server are allowed.
- Qlogic 1Gb 2200F host bus adapters (HBAs) and Qlogic 2Gb 2310 and 2342 host bus adapters are allowed.

The steps to connect Red Hat Linux servers to the Sun StorEdge 6320 system are as follows:

1. **Setup Red Hat Linux 7.2 servers for multiLUN support.**

2. **Attach the Sun StorEdge 6020 arrays to the Red Hat Linux servers.**

3. **Setup the Sun StorEdge 6020 array HWWN permissions.**

4. **Detect the Sun StorEdge 6020 array volume slices.**

10.2 Setting Up Red Hat Linux 7.2 Servers for MultiLUN Support

Sun StorEdge 6020 arrays support up to 64 LUNs. The following steps configure the server to be able to locate all the LUNs.

1. **Install Red Hat Linux 7.2 with Kernel 2.4.7-10.**

   Note – Kernel 2.4.7-10SMP is unstable for use with Sun StorEdge 6320 system.

   ---

2. **After the installation is complete, reboot the system and select** `CTRL Q` **to enter the Qlogic firmware setup menu.**

3. **For each HBA, configure advanced settings Maximum LUNs setting to be** `0-63 LUNs`**.**

4. **Save the settings and select the option to reboot the system.**

5. **Edit** `/etc/modules.conf` **to remove any entries of** `alias scsi_hostadapter qla2x00` **and add an entry of** `options scsi_mod max_scsi_luns=64`**.**

6. **Use the following command to create a new** `initrd`**:**

   ```
   # cd /boot;/sbin/mkinitrd initrd-2.4.7-10ml.img 2.4.7-10
   ```

7. **Update** `lilo` **or** `grub` **boot loader to use this** `initrd` **as the default during booting.**

a. **For** `lilo`**, you must modify the** `/etc/lilo.conf` **file. The following is an example of the** `lilo.conf` **file with the changes added:**

```
prompt
timeout=50
default=linux
boot=/dev/sda3
map=/boot/map
install=/boot/boot.b
message=/boot/message
linear

image=/boot/vmlinuz-2.4.7-10enterprise
      label=linux
      initrd=/boot/initrd-2.4.7-10enterprise.img
      read-only
      root=/dev/sda3
image=/boot/vmlinuz-2.4.7-10enterprise
      label=T4linux
      initrd=/boot/initrd-2.4.7-10ML.img
      read-only
      root=/dev/sda3

You must run lilo after you change this file. This sets the new
parameters and will allow you to boot into the alternate image. As
before, you will either select the new image or need to change the
default to boot the correct image.
```

b. **For** `grub`**,** `cd` **to** `/boot/grub/` **and** `edit` `grub.conf` `file`**. Add a line in the** `grub.conf` **file that points the ramdisk loader to the new image file. For example:**

```
initrd /boot/initrd-2.4.7-10ML.img
```

Chapter 10   Connecting to Servers Running the Red Hat Linux 7.2 Operating Environment   **10-5**

The following example shows the `grub.conf` file with the modification included:

```
# grub.conf generated by anaconda
#
# Note that you do not have to rerun grub after making changes to
this file
# NOTICE: You do not have a /boot partition. This means that
#        all kernel and initrd paths are relative to /, eg.
#        root (hd0,2)
#        kernel/boot/vmlinuz-version ro root=/dev/sda3
#        initrd/boot/initrd-version.img
# boot=/dev/sda3
default=0
timeout=10
# splashimage=(hd0,2)/boot/grub/splash.xpm.gz
splashimage=(hd0,2)/boot/grub/dellsplash.xpm.gz #by paw-splash
title Red Hat Linux (2.4.7-10enterprise)
        root(hd0,2)
        kernel /boot/vmlinuz-2.4.7-10enterprise ro root=/dev/sda3
        initrd /boot/initrd-2.4.7-10enterprise.img

# Added T4 support.
title Red Hat Linux (T4Support 2.4.7-10enterprise)
        root(hd0,2)
        kernel /boot/vmlinuz-2.4.7-10enterprise ro root=/dev/sda3
        initrd /boot/initrd-2.4.7-10ML.img
```

8. **Reboot the server to enable the new** `initrd`.

9. **Check to see if the** `qla2x00` **driver is loaded. The following command should not find any** `qla2x00` **entries when unloaded:**

```
# lsmod | grep qla2x00
```

10. **If the** `qla2x00` **driver is not loaded, load the driver by issuing the following command:**

```
# modprobe qla2x00
```

11. **Verify that the** `qla2x00` **driver is now loaded. For Example:**

```
# lsmod | grep qla2x00
qla2x00              298624    0    (unused)
scsi_mod              95664    4    (qla2x00 iscsi sym53c8xx sd_mod)
```

12. **Obtain the HBA port World Wide Name (WWN) or Host Port World Wide Name (HWWN) for each Qlogic HBA by using the following example:**

```
# cat `ls /proc/scsi/qla2x00/[0-9]*` | grep port
scsi-qla0-adapter-port=2100001234567890f;
scsi-qla1-adapter-port=210000abcdef01234;
```

The HWWNs returned are used in the next section to configure the Sun StorEdge 6020 arrays.

At this point, the server is able to attach to the Sun StorEdge 6020 arrays.

10.3   Attaching Sun StorEdge 6020 Arrays to Red Hat Linux 7.2 Servers

Because Red Hat Linux 7.2 only supports single path access, You might have to select the proper Sun StorEdge 6320 system port to see the LUNs. During a cold boot, the Sun StorEdge 6320 system assigns the volume groups based on the array location. For example, in a 2x6 array configuration (two controllers and six arrays), the top 1 to 3 array's volume groups are assigned to the top controller and the bottom 1 to 3 array's volume groups are assigned to the bottom controller. Because volume slices failover based as an entire volume group, the Red Hat Linux 7.2 server should be assigned based on the default path.

10.3.1   Sun StorEdge 6020 Array Failback Procedure

By default, the Sun StorEdge 6020 arrays have the multipathing support (`sys mp_support`) setting set to `mpxio`, which allows the use of the Sun StorEdge Multipathing Software for operating systems other than for Red Hat Linux 7.2.

In the case of volume group failover, the root cause of the failover will need to be corrected, the volume group will need to be failed back, and the Red Hat Linux 7.2 servers will need to recover from the I/O interruption.

The Sun StorEdge 6020 array volume groups can be failed back using one of the following three methods:

- Use Sun StorEdge Multipathing Software to restore the default path to another volume slice in the volume group.
- Disable and enable the alternate master controller in the Sun StorEdge 6020 array. This controller failure causes all volume groups to failover to the remaining controller.
- Reboot the Sun StorEdge 6020 array to reset the volume group ownership back to the default settings.

After the volume slices are back to the default active path, the following steps show an example of how to restore I/O activity:

1. **Stop applications using volume slices.**

2. **Unmount volume slice partitions.**

3. **File system check volume slice partitions.**

4. **Mount volume slice partitions.**

5. **Start applications using volume slices.**

10.4 Setting Up Sun StorEdge 6020 Array HWWN Permissions

Sun StorEdge 6020 arrays support LUN Masking through HWWN Permissions.

The following steps are an overview of setting up LUN masking through HWWN permissions:

1. **Create a HWWN group to manage the HWWNs for the Red Hat Linux 7.2 server. For example:**

```
# array00:/: hwwn add linuxhost wwn
2100001234567890;hwwn add linuxhost wwn 210000abcdef01234
```

2. **Assign HWWN Group, WWN, or default permissions to the volume slices to be assigned to the Red Hat Linux 7.2 servers.**

Sun StorEdge 6020 arrays support sparse LUN configurations. With sparse LUN support, only the LUNs to be initialized by a server need to have permission to the server. Red Hat Linux 7.2, as shipped, does not recognize Sun StorEdge 6020 arrays as having Sparse LUN support. There are four ways around this scenario:

■ Dedicate a given Sun StorEdge 6020 array to a single server. Thus, all volume slices can have exclusive permission to a single server's HWWN group.
■ Dedicate lower volume slices $0-n$ to a single Red Hat Linux 7.2 server. Dedicate the remaining slices to other servers running operating systems, such as Solaris, that are able to detect the Sparse LUN arrays.
■ Add overlapping permissions to multiple Red Hat Linux 7.2 hosts to volume slices 0-n.
■ Recompile the Linux Kernel 2.4.7-10 SCSI module with Sparse LUN support for Sun StorEdge 6020 arrays.

Note – In this environment, Sparse LUN support is the server operating system side of LUN masking. It uses the `SCSI-3 REPORT_LUN` command to detect the LUNs available for read-only and/or read-write permissions without requiring successful, sequential detection of all lower number LUNs.

10.5 Detecting Sun StorEdge 6020 Array Volume Slices

The Sun StorEdge 6020 array volumes are now ready to be detected by the Red Hat Linux 7.2 servers. The following steps are examples of how the servers detect the arrays:

1. **Reboot the Red Hat Linux server.**

   The reboot is required to make the recently configured LUNs detectable by the server.

2. **Load and rescan the Qlogic HBAs. For example:**

```
# modprobe qla2x00
```

3. **View the discovered devices: Sun StorEdge 6320 volume slices 0, 1, and 2. For example:**

```
# cat /proc/scsi/scsi
Attached devices:
...
Host: scsi4 Channel: 00 Id: 00 Lun: 00
   Vendor: SUN     Model: T4              Rev: 0300
   Type:   Direct-Access                 ANSI SCSI   revision: 03
Host: scsi4 Channel: 00 Id: 00 Lun: 01
   Vendor: SUN     Model: T4              Rev: 0300
   Type:   Direct-Access                 ANSI SCSI   revision: 03
Host: scsi4 Channel: 00 Id: 00 Lun: 02
   Vendor: SUN     Model: T4              Rev: 0300
   Type:   Direct-Access                 ANSI SCSI   revision: 03
```

4. **List the drive(s) by** /dev/sd* **naming. For example:**

```
# sfdisk -s
```

5. **Format the drive(s), assuming 1 internal disk. For example:**

```
# sfdisk /dev/sdb
...
```

6. **Use the drives with the naming assigned in Step 5.**

Subsequent reboots will require the modprobe qla2x00 command prior to using the drives.

Connecting to Servers Running the IBM AIX Operating Environment

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> **Note –** See `www.sunsolve.sun.com` and *Sun StorEdge 6320 System 1.0 Release Notes* for the software requirements for the host.

See the *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for the IBM AIX Operating System* for detailed instructions about setting up the device driver on the server to connect to the Sun StorEdge 6320 system.

11.0.1 Thin-Scripting Client

A thin-scripting client is available that provides a command line interface (CLI) that enables access to Sun StorEdge 6020 array storage configuration and management facilities. The thin-scripting client is available for download through the following two procedures.

11.0.1.1 To Retrieve the Client from the Sun Download Center

For each page that is displayed, follow these steps:

1. **Log on to** `http://www.sun.com`

2. **From the home page, click on Downloads**

3. **Under the Download Center—Browse downloading by Category, click on System Administration**

4. **Under Storage Management, click on Sun StorEdge 6320 System Storage Products.**

5. **Log in with customer user name and password.**

6. **Download the following files:**
   - aix_se6x20.tar
   - aix_README.txt

   The README file contains the installation instructions for the client.

11.0.1.2   To Retrieve the Client from the Sun Storage Site

For each page that is displayed, follow these steps:

1. **Log onto** `http://www.sun.com`

2. **From the home page, under On this Site, click on Product & Services**

3. **Under Product & Services, click on Storage**

4. **Under Hardware Storage, click on Midrange Storage**

5. **Under Midrange Storage, click on Sun StorEdge 6000 Family**

6. **Under Sun StorEdge 6000 Family, click on Sun StorEdge 6300 Series**

7. **Under Sun StorEdge 6300 Series. click on Sun StorEdge 6320 Series**

8. **Under Software Download, click on Sun Storage 6000 Family Storage Products**

9. **Log in with customer user name and password.**

10. **Download the following files:**
    - aix_se6x20.tar
    - aix_README.txt

    The README file contains the installation instructions for the client.

Connecting to Servers Running the Hewlett Packard HP-UX Operating Environment

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Note – See `www.sunsolve.sun.com` and *Sun StorEdge 6320 System 1.0 Release Notes* for the software requirements for the host.

See the *Sun StorEdge Traffic Manager 3.0 Installation and User's Guide for the Hewlett Packard HP-UX Operating System* for detailed instructions about setting up the device driver to connect to the Sun StorEdge 6320 system.

12.0.1 Thin-Scripting Client

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1. **Log on to** `http://www.sun.com`

2. **From the home page, click on Downloads**

3. **Under the Download Center—Browse downloading by Category, click on System Administration**

4. **Under Storage Management, click on Sun StorEdge 6320 System Storage Products.**

5. **Log in with customer user name and password.**

6. **Download the following files:**
   - hpux_se6x20.tar
   - hpux_README.txt

   The README file contains the installation instructions for the client.

12.0.1.2   To Retrieve the Client from the Sun Storage Site

For each page that is displayed, follow these steps:

1. **Log onto** `http://www.sun.com`

2. **From the home page, under On this Site, click on Product & Services**

3. **Under Product & Services, click on Storage**

4. **Under Hardware Storage, click on Midrange Storage**

5. **Under Midrange Storage, click on Sun StorEdge 6000 Family**

6. **Under Sun StorEdge 6000 Family, click on Sun StorEdge 6300 Series**

7. **Under Sun StorEdge 6300 Series. click on Sun StorEdge 6320 Series**

8. **Under Software Download, click on Sun Storage 6000 Family Storage Products**

9. **Log in with customer user name and password.**

10. **Download the following files:**
    - hpux_se6x20.tar
    - hpux_README.txt

    The README file contains the installation instructions for the client.

Connecting a Second System Cabinet

To connect a second cabinet to a Sun StorEdge 6320 system, perform the steps in this Appendix.

The FRUs in TABLE A-1 are required to perform the tasks in this Appendix:

TABLE A-1 Connecting Cables to the Second Cabinet—FRU List

FRU Description	Part Number	Quantity
ASSY, CABL, FIBOP, LC-SC, 15 meter Fibre Channel cable	537-1034-01	1
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (US), L6-30P	595-4881	2
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (International), IEC 309	595-4882	2
78.74 in. (2-meter) grounding strap (in the kit shipped with the system)	530-1619-01	1
393.7 in. (10-meter) base cabinet service panel to expansion cabinet service panel	537-1060-01	2
393.7 in. (10-meter) expansion cabinet DB-9 to DB-9 power cable	530-3210-01	2
36 in. (92.5-cm) service processor USB connection to USB Relay (See Note)	530-3208-01	1

Note – If remote power on and power off will be used, the Storage Service Processor USB connection to the USB Relay cable must be connected. See Chapter B for the procedure to connect the power cable.

This Appendix contains the following sections:

- Section A.1 "Connecting an Expansion Cabinet to a Base Cabinet That Has Switches Installed" on page A-2
- Section A.2 "Connecting an Expansion Cabinet to a Base Cabinet that Has Customer Supplied Switches" on page A-5

A.1 Connecting an Expansion Cabinet to a Base Cabinet That Has Switches Installed

If you purchased a Sun StorEdge 6320 system with switches installed by Sun when the cabinet was shipped and an expansion cabinet, the following instructions describe how to connect the expansion cabinet.

A.1.1 Connecting the Fibre Channel Cables

In the Sun StorEdge 6320 system, the 16 Port Fibre Channel switch connects the controller of each Sun StorEdge 6020 array to I/O connections on the service panel in the base cabinet. This cabling is completed before the system is shipped to the customer.

In a Sun StorEdge 6320 system that has the expansion cabinet installed, the expansion cabinet has the controller of each of the Sun StorEdge 6020 arrays cabled to the I/O connections on the expansion cabinet service panel. Before the expansion cabinet is shipped to the customer, this cable is attached to all Sun StorEdge 6020 arrays that are installed in the expansion cabinet.

The service panel is shown in FIGURE A-1.

The service panels are bolted to the back of the system base and expansion cabinet.
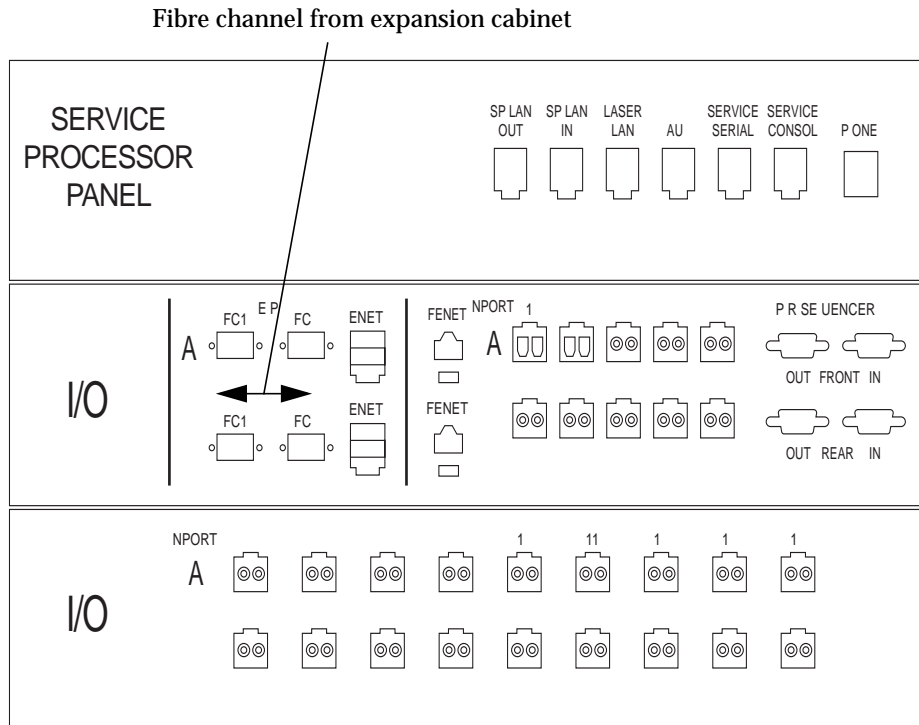
Fibre channel from expansion cabinet

FIGURE A-1 Sun StorEdge 6320 System Service Panel

FIGURE A-2 shows the Fibre Channel cable connections from the I/O Exp FC1 and FC2 ports on the service panel on the base cabinet to the I/O Exp FC1 and FC2 ports on the expansion cabinet.

FIGURE A-2 shows the connections for the configuration of two controllers for two Sun StorEdge 6020 arrays (2x2 configuration). Other supported configurations are:

■ Two controllers for four Sun StorEdge 6020 arrays (2x4 configuration)
■ Two controllers for six Sun StorEdge 6020 arrays (2x6 configuration)
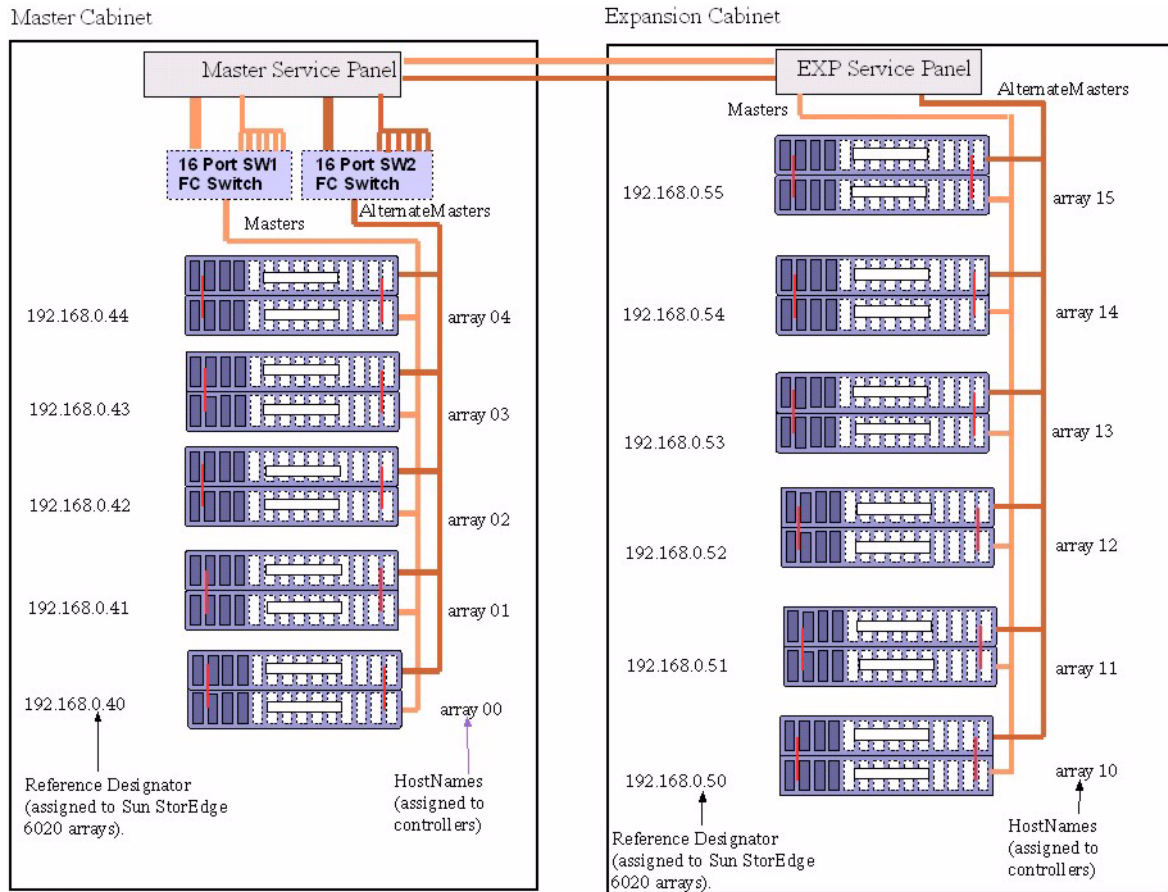
FIGURE A-2   Sun StorEdge 6320 System Expansion Cabinet Cabling

A.1.2   Connecting the Ethernet Cable

In a two-cabinet configuration, the Ethernet hubs in both cabinets must be interconnected. The 10-meter, shielded, Ethernet crossover cable connects into either port 12 or port 24 of the hub in the base cabinet. The other end of the 10-meter, shielded, Ethernet crossover cable connects into either port 12 or port 24 of the Ethernet hub in the expansion cabinet.

A.2 Connecting an Expansion Cabinet to a Base Cabinet that Has Customer Supplied Switches

If you purchased a Sun StorEdge 6320 system with customer supplied switches and expansion cabinet, the procedure for connecting the expansion cabinet is the same as with the Sun StorEdge 6320 system with Sun installed switches. The difference is that the connections from the I/O ports on the service panel connect to the customer's switch rather than to the host.
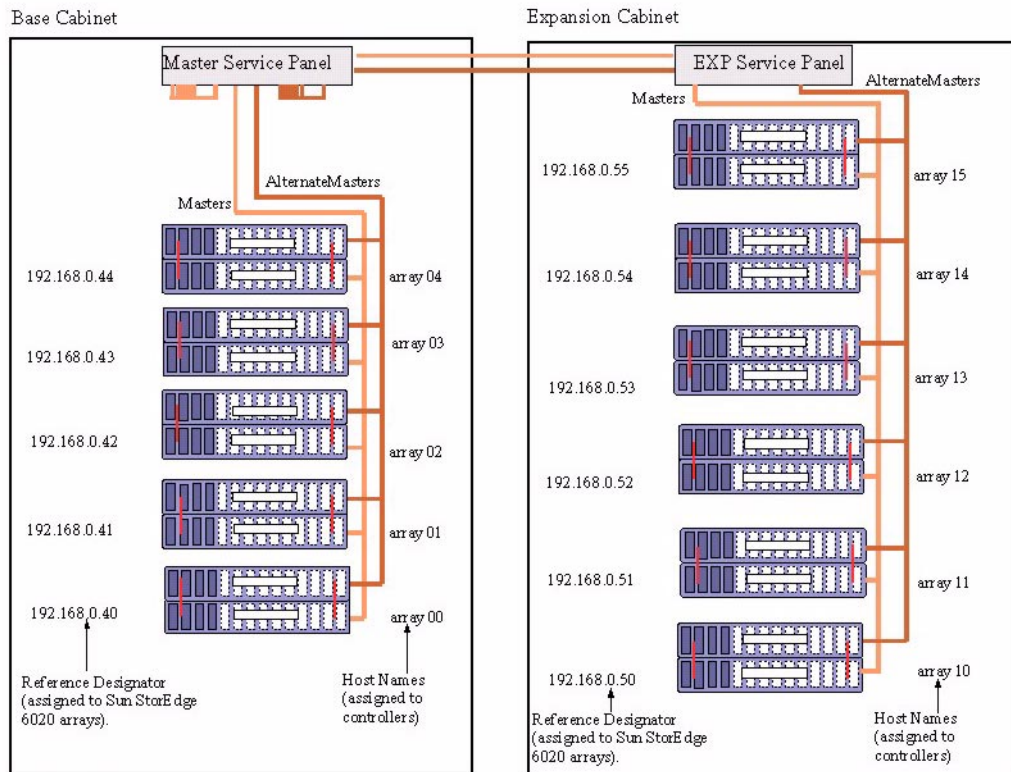

FIGURE A-3 Sun StorEdge 6320 System Expansion Cabinet Cabling With Customer Supplied Switches

FIGURE A-3 shows the Fibre Channel cable connections from the I/O Exp FC1 and FC2 ports on the service panel on the base cabinet to the I/O Exp FC1 and FC2 ports on the expansion cabinet.

FIGURE A-3 shows the connections for the configuration of Sun StorEdge 6020 arrays that use one controller for each Sun StorEdge 6020 array (2x2 configuration). Other supported configurations are:

- Two controllers for four Sun StorEdge 6020 arrays (2x4 configuration)
- Two controllers for six Sun StorEdge 6020 arrays (2x6 configuration)

Powering On and Powering Off the System Remotely

The systems are shipped to the customer with the hardware and software necessary to support two methods of powering on:

■ Local power on—powering on the system at the system.
■ Remote power on—powering on the system either locally or remotely.

This appendix describes powering on and powering off the system remotely.

When connected for remote power-on and power-off operation, the Storage Service Processor detects the presence of the remote power relay and enables two additional functions in the Sun StorEdge 6000 Family Configuration software to enable remote power on and remote power off. When these functions are enabled, the Storage Service Processor and the Storage Service Processor Accessory Tray can remain powered on and active to provide control over the remote power relay.

Caution – Do not use the partial remote power-off sequence when moving the system. You must completely power off the system before moving it.

Note – If you are installing a Sun StorEdge 6320 system with an expansion cabinet, perform the procedures in this Appendix for both cabinets.

The FRUs in TABLE B-1 are required to perform the tasks in this Appendix:

TABLE B-1   Power Cable—FRU List

FRU Description	Part Number	Quantity
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (US), L6-30P	595-4881	2
Power cable for 72 in. (185 cm) Sun StorEdge Expansion Cabinet (International), IEC 309	595-4882	2
78.74 in. (2-meter) grounding strap (in the kit shipped with the system)	530-1619-01	1
393.7 in (10-meter) expansion cabinet DB-9 to base cabinet DB-9 cable (if needed)	530-3210-01	2

The following tools are required to perform the tasks in this Appendix:

- Keys for key switch (in the kit shipped with the system)
- Phillips screwdriver

This Appendix contains the following sections:

- Section B.1, "Preparing the System for Remote Power" on page B-2
    - Section B.1.1, "Connecting the Grounding Strap" on page B-5
    - Section B.1.2, "Connecting the Power Cables" on page B-6
- Section B.2, "Powering On the System Remotely" on page B-10
- Section B.3, "Troubleshooting the Installation" on page B-12
- Section B.4, "Powering Off the System Using the Remote Power-Off Procedure" on page B-13
- Section B.5, "Restoring the System After the Partial Remote Power-Off Procedure" on page B-20
- Section B.6, "Restoring the System After the Full Remote Power-Off Procedure" on page B-22
- Section B.7, "Reassembling the System" on page B-23

B.1   Preparing the System for Remote Power

1. **Verify that the key switches located at the bottom front of the base system and any expansion cabinet are in the Standby position (**FIGURE B-1**).**

   Keys for this switch are packed in the kit that was shipped with your system and any expansion cabinet. If the key switch is not in the Standby position, insert the key and turn the key switch to Standby.
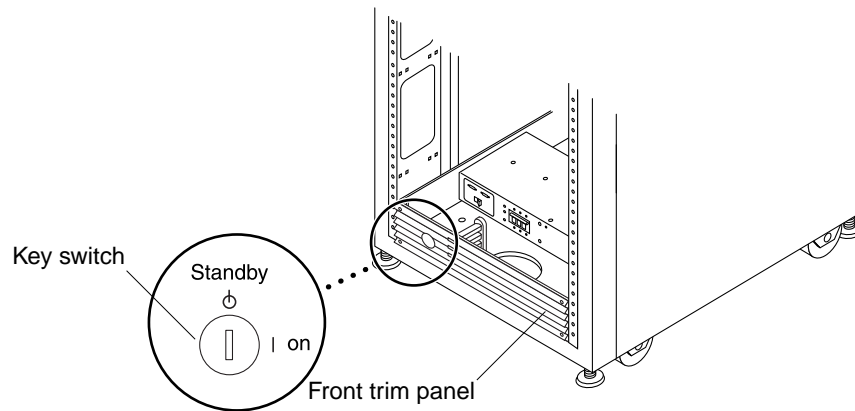
FIGURE B-1   Location of Key Switch on Bottom Front Panel (Standby Position)

2. **Open the front door and the back door of the system.**

3. **Loosen the four screws on the front trim panel and remove the panel.**

   Set the panel aside.

4. **Loosen the four screws holding right side of the master service panel and swing the service panel open.**

5. **Locate the two DB-9 to DB-9 cables that are loosely tied off close to the relay panel on the back of the master service panel. Connect the cable labeled Front Seq J14 In to the FRONT SEQ J14 connection and the cable labeled Rear Seq J14 In to the REAR SEQ J14 connection on the back of the master service panel (**FIGURE B-2**).**

   The other ends of these cables are already connected to the front and rear power sequencers.

   These cables enable the Storage Service Processor to recognize that the system is capable of a remote power-on and power-off sequence. FIGURE B-2 shows the back of the Base Cabinet master service panel and the location of the FRONT SEQ J14 and REAR SEQ J14 connections.
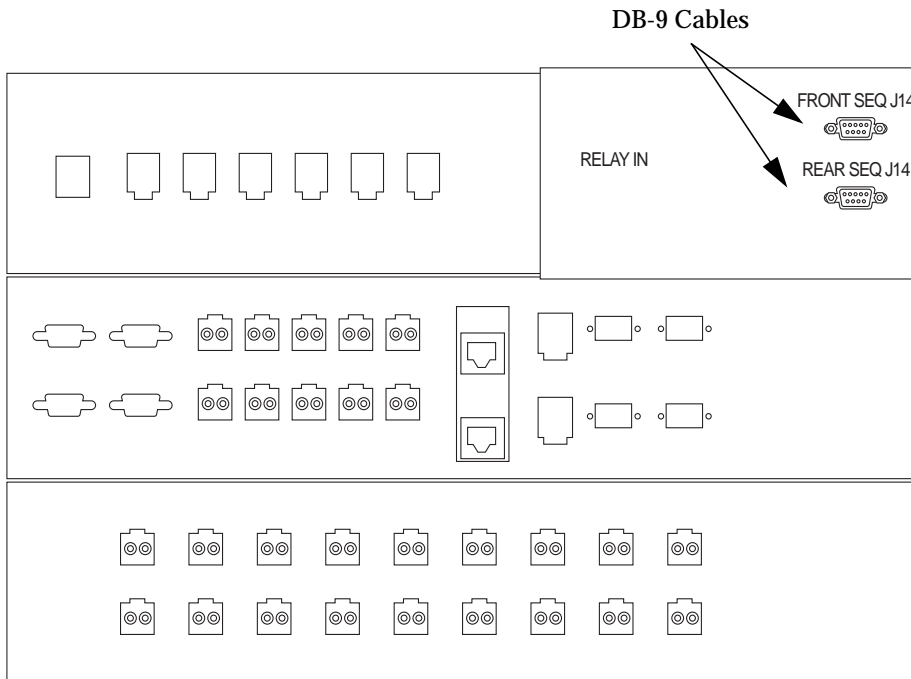
DB-9 Cables

FRONT SEQ J14

RELAY IN

REAR SEQ J14

FIGURE B-2   Connecting the Front and Rear Power Sequencers to the Base Cabinet Master Service Panel

6. Close the service panel and tighten the four screws.

7. If an expansion cabinet is included in the system, use the two 393.7-inch (10-meter) DB-9 to DB-9 expansion cabinet cables to connect the power sequencer control cables between the power sequencer out-jacks on the front of the base storage service panel to the power sequencer in-jacks on the front of the expansion cabinet service panel for both the front and rear power sequencers

The cables are in the kit that was shipped with the system.

This connection allows the expansion cabinet to power on or power off when the base cabinet is powered on or powered off.

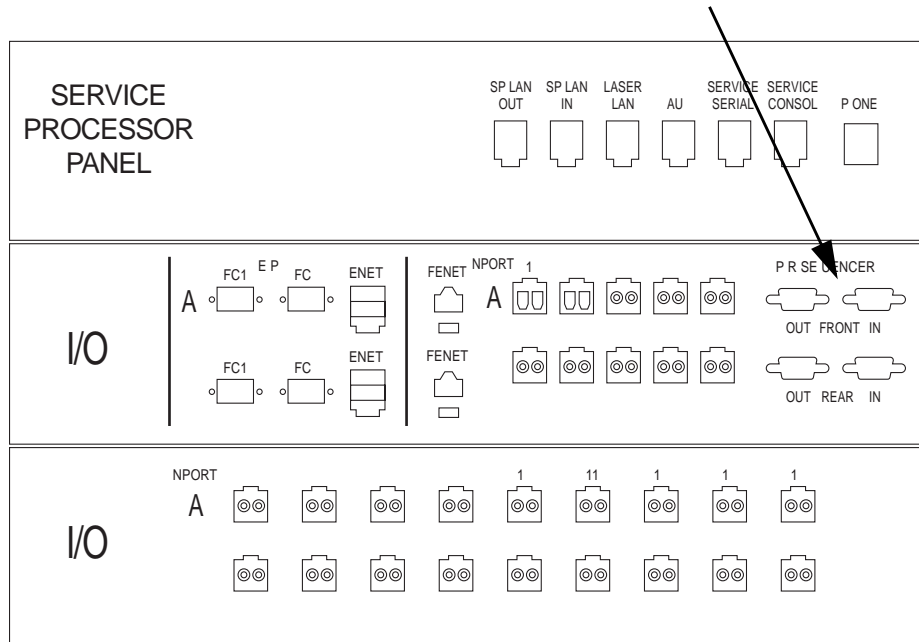The power input and output jacks on the service panel are shown in FIGURE B-3.

FIGURE B-3 Service Panel Power Sequencer Jacks

B.1.1   Connecting the Grounding Strap

The grounding conductor must be connected to either of the following:

- Earth at service equipment
- Supply transformer or motor-generator set (if supplied by a separately derived system)

The outlets in the vicinity of the unit must be of the grounding type, and the grounding conductors for these outlets must be connected to earth ground.

1. **Locate the 78.74-inch (2-meter) grounding strap from the kit that was shipped with your system.**

2. **Attach one end of the grounding strap to the power sequencer on the server cabinet or on a cabinet that is grounded nearest to the system.**

3. Attach the other end of the grounding strap to the front power sequencer in the system (FIGURE B-4**).**

Grounding strap

FIGURE B-4   Attaching the Grounding Strap to the Front Power Sequencer

---

Note – If you are installing a system with an expansion cabinet, do not attach the grounding strap from the expansion cabinet to the base cabinet—use a different grounding point for the expansion cabinet.

B.1.2   Connecting the Power Cables

Caution – The system is designed to work with single-phase power systems that have a grounded neutral conductor. To reduce the risk of electric shock, do not connect the system to any other type of power system.

---

1. Verify that each AC power sequencer circuit breaker is in the Off position and that the Local/Off/Remote switch is in the Remote position on each power sequencer (FIGURE B-5**).**
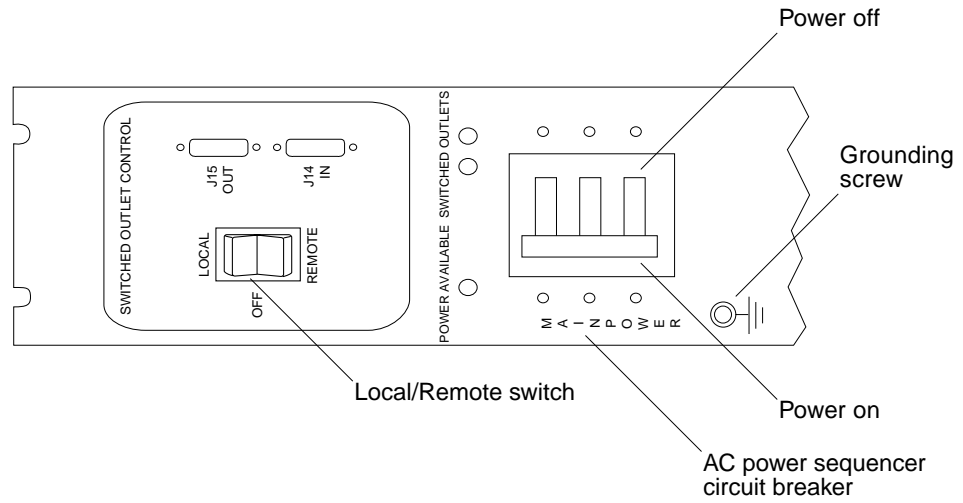
FIGURE B-5 AC Power Sequencer Control Panel

2. **Verify that the stated rating matches the AC input voltage to the system (**TABLE B-2 **and** TABLE B-3**).**

Check the electrical ratings label on the serial number label attached to the power sequencer.

TABLE B-2   Voltage Requirements for Maximum Operating Voltage and Frequency Ranges

Voltage and Frequency Range	Requirement
AC voltage rating	200 to 240 VAC
AC voltage range	180 to 264 VAC
Frequency range	47 to 63 Hz

TABLE B-3   Current Requirements at Nominal Line Voltage for a System in Maximum Configuration

Nominal and Maximum Voltage and Current	Requirement
Nominal AC input voltage rating single phase	200 to 240 VAC
Maximum current requirement	24A at 240 VAC
Maximum current per power sequencer outlet	32A

3. **Connect the square female end of one power cable to the front power sequencer and the square female end of the other power cable to the rear power sequencer connector (**FIGURE B-6**).**

   a. **Flip open the cover latch to access the connectors.**

   b. **Route the power cables directly through the opening in the system base.**

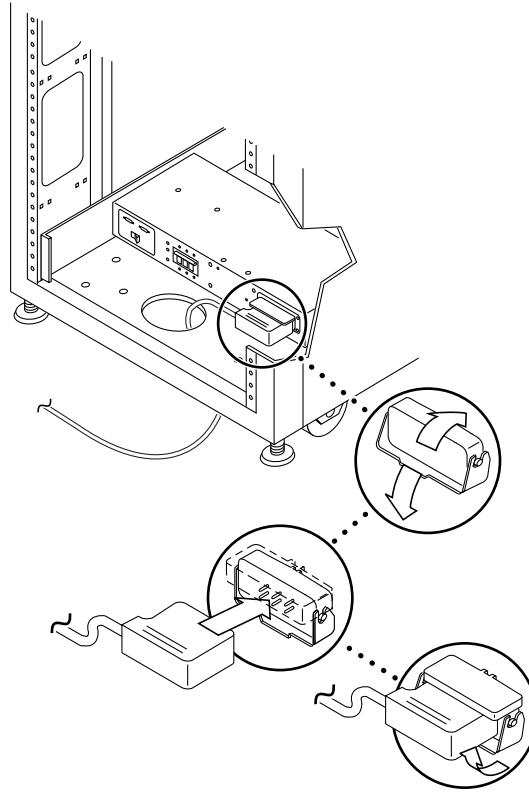4. **Pull the latch cover over the power cables to secure them to the power sockets.**

FIGURE B-6 Connecting the Power Cables

5. Connect the other end of the power cables to a grounded outlet.

The following connector types are provided on the power cable:

- NEMA L6-30P for 200–240 V North American operation
- 32A, single-phase, IEC 309 connector for 220–240 V international operation

Caution – To reduce the risk of electric shock, strictly observe all Caution and Note statements.

Note – If the appropriate mating receptacle is not available, the connector can be removed from the cable and the cable can then be permanently connected to a dedicated branch circuit by a qualified electrician. Check local electrical codes for proper installation requirements.

B.2   Powering On the System Remotely

Note – If you are powering on a Sun StorEdge 6320 system with the expansion cabinet attached, perform the power-on sequence for both cabinets.

Caution – To avoid damage to internal circuits, do not connect or disconnect any cable while the FRU associated with the cable is powered on.

The following steps allow the system to be powered on remotely:

1. **Open the front door if it is not already open.**

2. **Remove the front trim panel from the system and set it aside if you have not already done so.**

3. **Verify that the key switches located at the bottom front of the base system and any expansion cabinet are in the Standby position (**FIGURE B-7**).**

   Keys for this switch are packed in the kit that was shipped with your system and any expansion cabinet. If the key switch is not in the Standby position, insert the key and turn the key switch to Standby.

Key switch   Standby   on
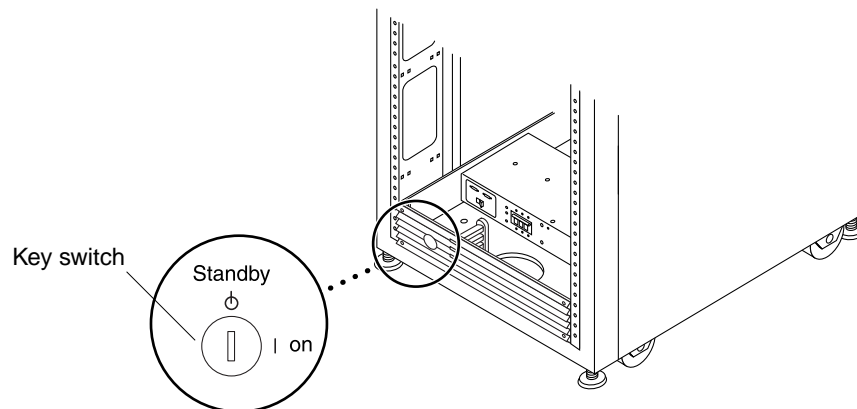
FIGURE B-7   Location of Key Switch on Bottom Front Panel

4. **At the bottom front and bottom back of the base system and any expansion cabinet, press the AC power sequencer circuit breakers to Off.**
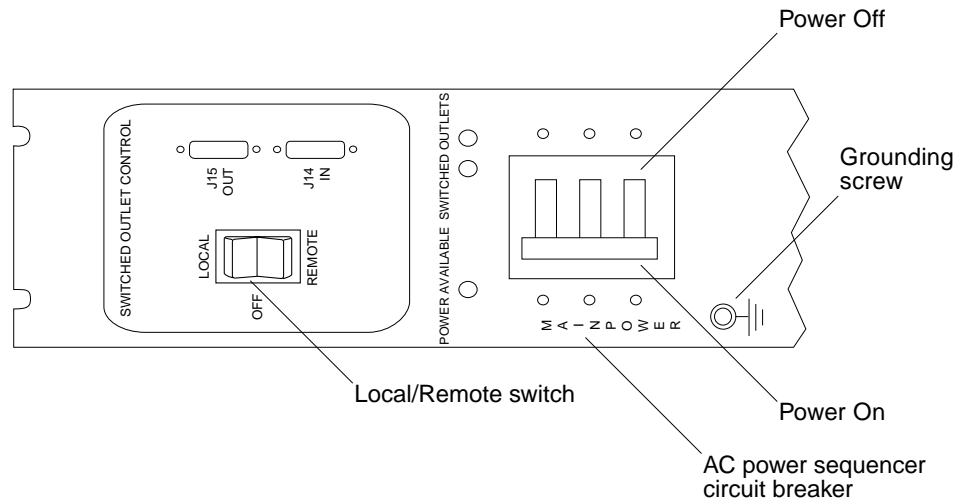
FIGURE B-8   AC Power Sequencer Control Panel

5. **Verify that the AC power cables of the system and any expansion cabinet are connected to the correct AC outlets.**

Caution – Do not disconnect the AC power cable from the outlet while working on or in the system. This connection provides a grounding path that prevents damage from electrostatic discharge.

Caution – Never move a system when system power is on or when the remote power-off procedure is used. Excessive movement can cause catastrophic disk drive failure. Always power the system off completely before you move it.

6. **At the bottom front and bottom back of the system on the base cabinet and any expansion cabinet, press the Local/Off/Remote switch to Remote (**FIGURE B-8**).**

7. **At the bottom front and bottom back of the base system cabinet, press the AC power sequencer circuit breakers to On (**FIGURE B-8**).**

   On the base system cabinet, the Storage Service Processor, Storage Service Processor accessory tray, Network Terminal Concentrator (NTC), Firewall∕Router, and the Ethernet Hub will be powered up because they are connected to the unswitched power outlets.

8. **Verify that the key switches in the base cabinet and any expansion cabinet are still in the Standby position as in Step 3.**

The three power status indicators on the front panel show the status of the front power sequencer. The main AC power light emitting-diode (LED) illuminates when power is applied to the system. The LED for sequencer stage 1 illuminates next, followed by the LED for sequencer stage 2.

Note – The front panel power sequencer bottom LED illuminates only when the AC power sequencer circuit breakers for the front power supply are on.

Note – To check the status of the back power sequencer, open the back door of the system and look for the three green LEDs.

All components of the system power on in an optimal state.

9. **Verify that all the components have only green LEDs illuminated.**

   If LEDs are illuminated other than the green ones or if LEDs are not illuminated, see Section B.3, "Troubleshooting the Installation" on page B-12 to troubleshoot any component that is not powered on.

   The system is now operating and supports the remote power-on procedure.

10. **Bring the host system back online if necessary.**

   If the host system is not online, you might have to enter a software command to bring the host system online so that the host system will recognize the system.

   For more information, see the software documentation for your host system.

   If you are not going to power off the system at this time, see Section B.7, "Reassembling the System" on page B-23.

B.3   Troubleshooting the Installation

Use this list as a guide for isolating common installation problems.

- Verify that all power and data cables are properly installed and in the right locations.
- Verify that all Fibre Channel connections, cable adapters, and Gigabit Interface Converters (GBICs) are installed and secure.
- Verify that the power to the system is turned on.
- Check the AC Power Sequencer Control Panel:
  - If the Switched Outlets LEDs are not illuminated, check the position of the key switch

- If one Switched Outlet LED is illuminated but the other is not, check the status of the power sequencer for the LED not illuminated
- If some FRUs have power and others do not, check the power-on switch on the FRUs that do not have power

See the *Sun StorEdge 6320 Reference and Service Manual* and *Storage Automated Diagnostic Environment User's Guide* for a description of the procedures to perform fault detection and isolation.

B.4   Powering Off the System Using the Remote Power-Off Procedure

Before you power off the system, you must halt any I/O between the host system(s) and the system.

Depending upon the type of host system(s) and the software running on the host system(s), you might need to:

- Exit the operating environment
- Take the host system off line

Refer to the following documents for specific instructions:

- *Solaris Handbook for Sun Peripherals*
- System administration guides that correspond to your operating system
- Documentation that came with your host system(s)

Caution – Failure to stop I/O between host system(s) and the system can result in the loss of data.

B.4.1   Powering off the System Remotely

Follow these steps to remotely power off the Sun StorEdge 6320 systems:

1. **Connect to the host and open a web browser such as Netscape Navigator.**

2. **Verify that the non-secure HTTP server connection is open.**

   See Section 6.6, "Setting Up or Verifying the Non-Secure HTTP Server Connection" on page 6-12 to verify or open the non-secure HTTP server connection.

3. **Type one of the following URLs in the URL Location text field:**

■ For a non-secure HTTP server connection:

```
http://hostname:9080/
```

■ For a secure HTTPS server connection:

```
https://hostname:9443/
```

where *hostname* is the host name where the software is installed.

4. **The Sun StorEdge 6000 Family Host Installation Configuration software Login page is displayed.**

5. **log in as** `admin` **and enter the password (if any) to access the Sun StorEdge 6000 Family Configuration software.**

See Chapter 6 for the procedures to access the Sun StorEdge 6000 Family Configuration software.

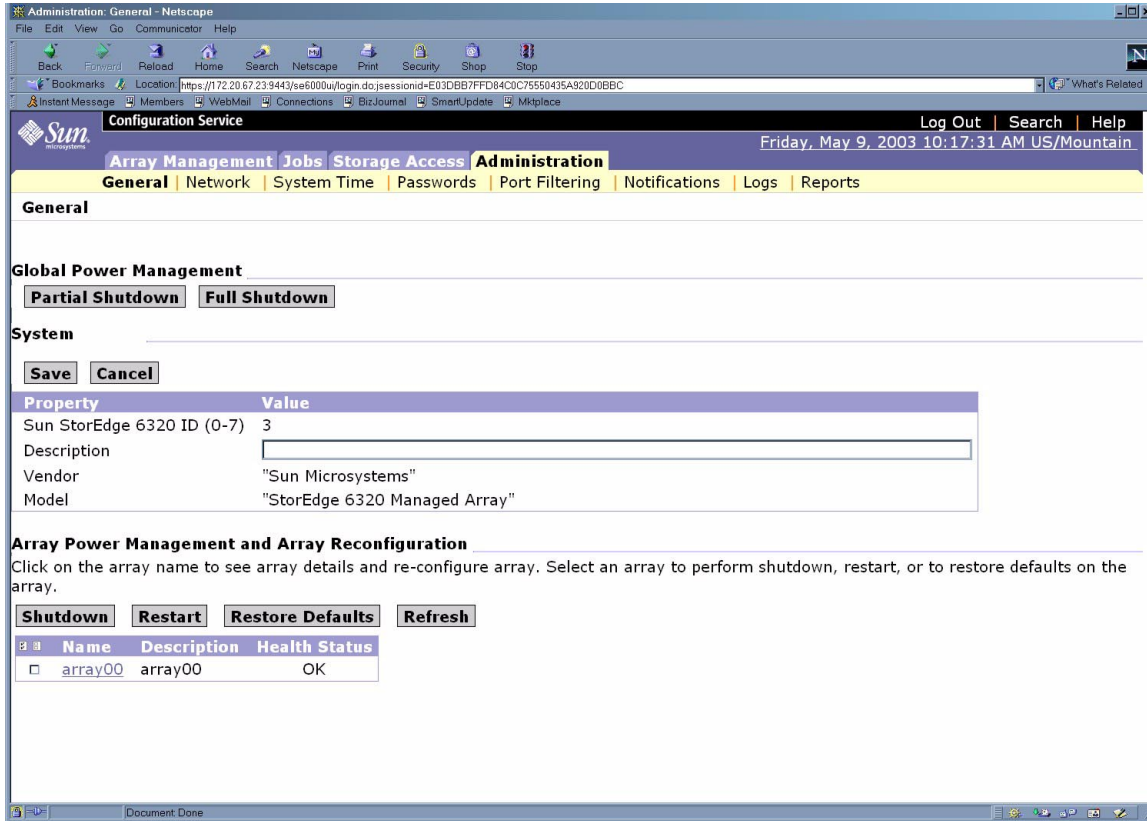**6. The Administration General page is displayed. Click on Partial Shutdown as shown in** FIGURE B-9.
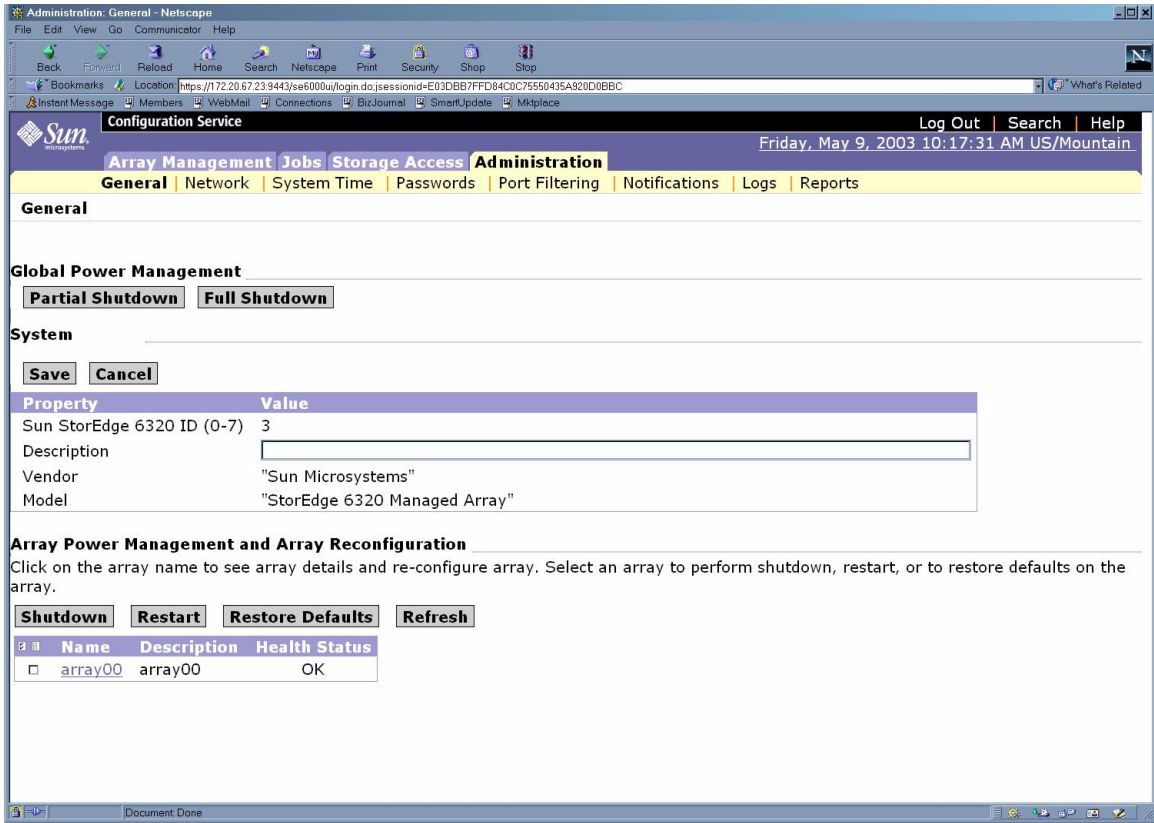
FIGURE B-9   Administration General Partial Shutdown Page

7. **The Partial Shutdown Confirmation page is displayed as shown in** FIGURE B-10. **Confirm the partial shutdown.**
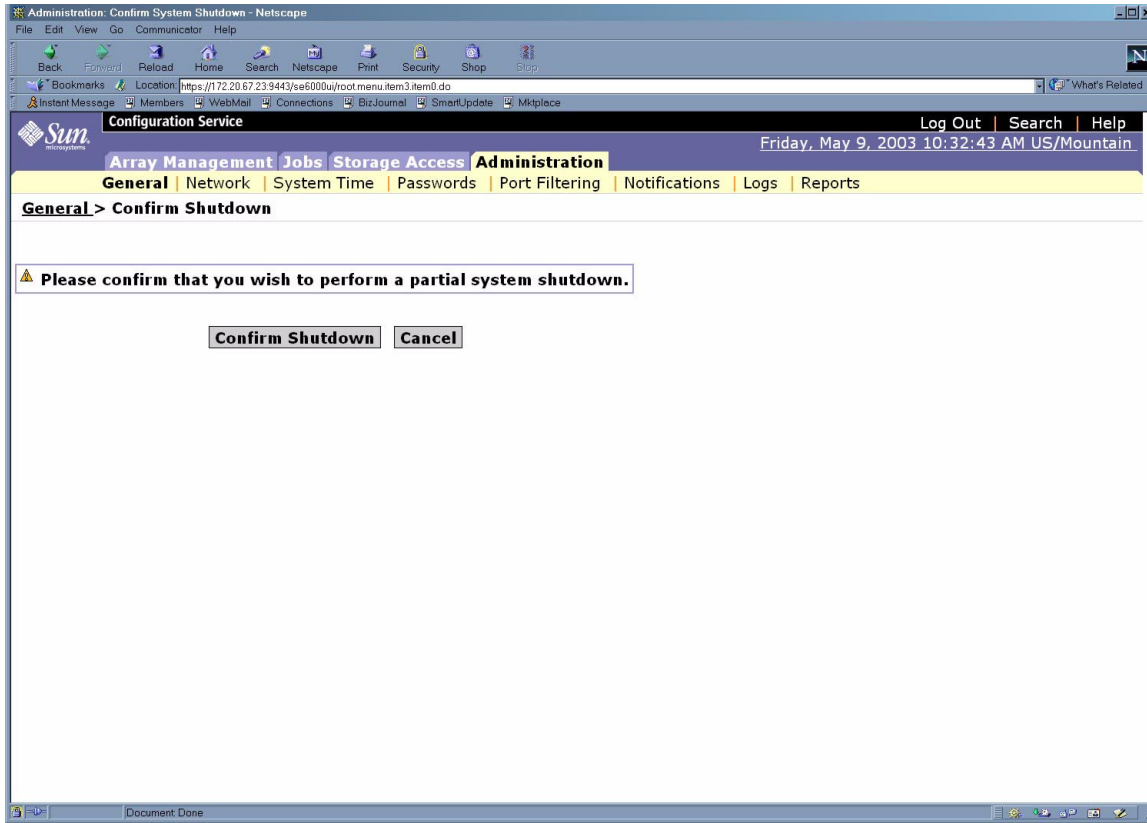
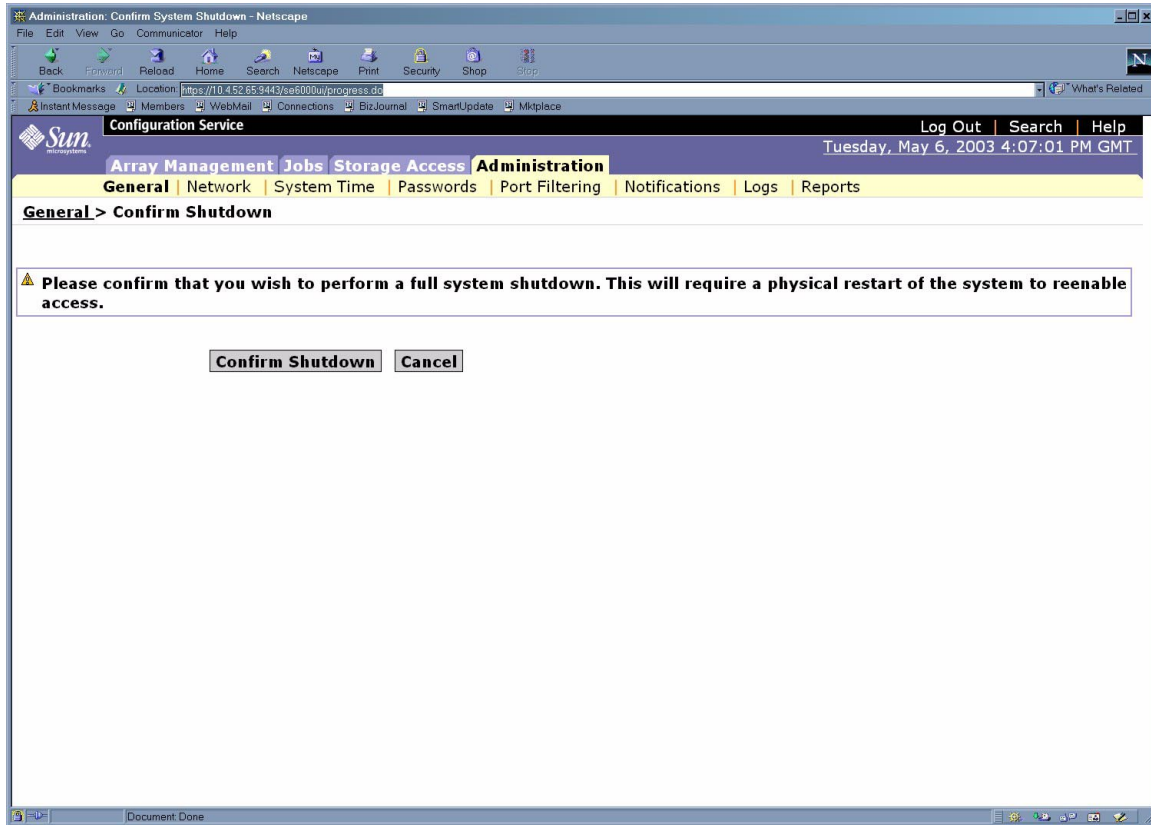**FIGURE B-10** Partial Shutdown Confirm Shutdown Page

This selection produces the following results in the base cabinet and any expansion cabinets:

■ The Storage Service Processor is still powered up (base cabinet only).
■ The Storage Service Processor Accessory tray is still powered up (base cabinet only).
■ All Sun StorEdge 6320 arrays are powered off completely.
■ All Power Sequencers have only the Power Available LED illuminated.

8. **To stop all AC power input to the system, see the procedures in Section B.4.2, "Powering Off the System Completely" on page B-17.**

B.4.2 Powering Off the System Completely

To completely power off the system, use the following steps:

1. **Connect to the host and open a web browser such as Netscape Navigator.**

2. **Verify that the non-secure HTTP server connection is open.**

   See Section 6.6, "Setting Up or Verifying the Non-Secure HTTP Server Connection" on page 6-12 to verify or open the non-secure HTTP server connection.

3. **Type one of the following URLs in the URL Location text field:**

   - For a non-secure HTTP server connection:

   ```
   http://hostname:9080/
   ```

   - For a secure HTTPS server connection:

   ```
   https://hostname:9443/
   ```

   where *hostname* is the host name where the software is installed.

4. **The Login page is displayed.**

5. **Log in as** `admin` **and enter the password (if any) to access the Sun StorEdge 6000 Family Configuration software.**

   The Administration General page is displayed as in FIGURE B-11.

6. Click Full Shutdown.

FIGURE B-11 Administration General Full Shutdown Page

The Full Shutdown Confirmation page is displayed as shown in FIGURE B-12.

7. **Confirm the full system shutdown.**

FIGURE B-12 Full Shutdown Confirmation Page

This selection produces the following results in the base cabinet and any expansion cabinet:

■ The Storage Service Processor is powered down and off.
■ The Storage Service Processor Accessory Tray is still powered up.
■ The Sun StorEdge 6020 array drives have spun down.
■ The Sun StorEdge 6020 array controller cards are powered down and off.
■ The Sun StorEdge 6020 array trays have the green LED illuminated indicating the tray has power.
■ The loop cards have the green LED illuminated indicating the loop cards have power.
■ The PCU fans are on.
■ The PCUs have the blue LEDs illuminated meaning it is safe to remove them.

■ All Power Sequencers have all three green LEDs illuminated meaning power is present.

8. **Remove the front trim panel and set it aside if you have not already done so.**

9. **At the bottom front and bottom back of any expansion cabinet, press the AC power sequencer circuit breakers to Off.**

   This turns off all power to the expansion cabinet.

10. **At the bottom front and bottom back of the base cabinet, press the AC power sequencer circuit breakers to Off.**

    This turns off all power to the base cabinet.

11. **If you are servicing FRUs that are not power sequencers or are not moving the system, leave the power cables connected to ensure a proper grounding path for electrostatic discharge.**

12. **If you are servicing FRUs other than Sun StorEdge 6020 arrays (for example, the power sequencer) or are moving the system, disconnect the system power cables of both power sequencers from the grounded outlets.**

B.5 Restoring the System After the Partial Remote Power-Off Procedure

If the system has been powered off using the partial remote power-off procedure, you must use the following procedure to restore power to the system.

1. **Connect to the host and open a web browser such as Netscape Navigator.**

2. **Type one of the following URLs in the URL Location text field:**

   ■ For a non-secure HTTP server connection:

   ```
   http://hostname:9080/
   ```

   ■ For a secure HTTPS server connection:

   ```
   https://hostname:9443/
   ```

   where *hostname* is the host name where the software is installed.

3. **The Login page is displayed.**

4. **Log in as `admin` and enter the password (if any) to access the Sun StorEdge 6000 Family Configuration software.**

   See Chapter 6 for the procedures to access the Sun StorEdge 6000 Family Configuration software.

5. **The Administration General Page is displayed as shown in FIGURE B-13.**
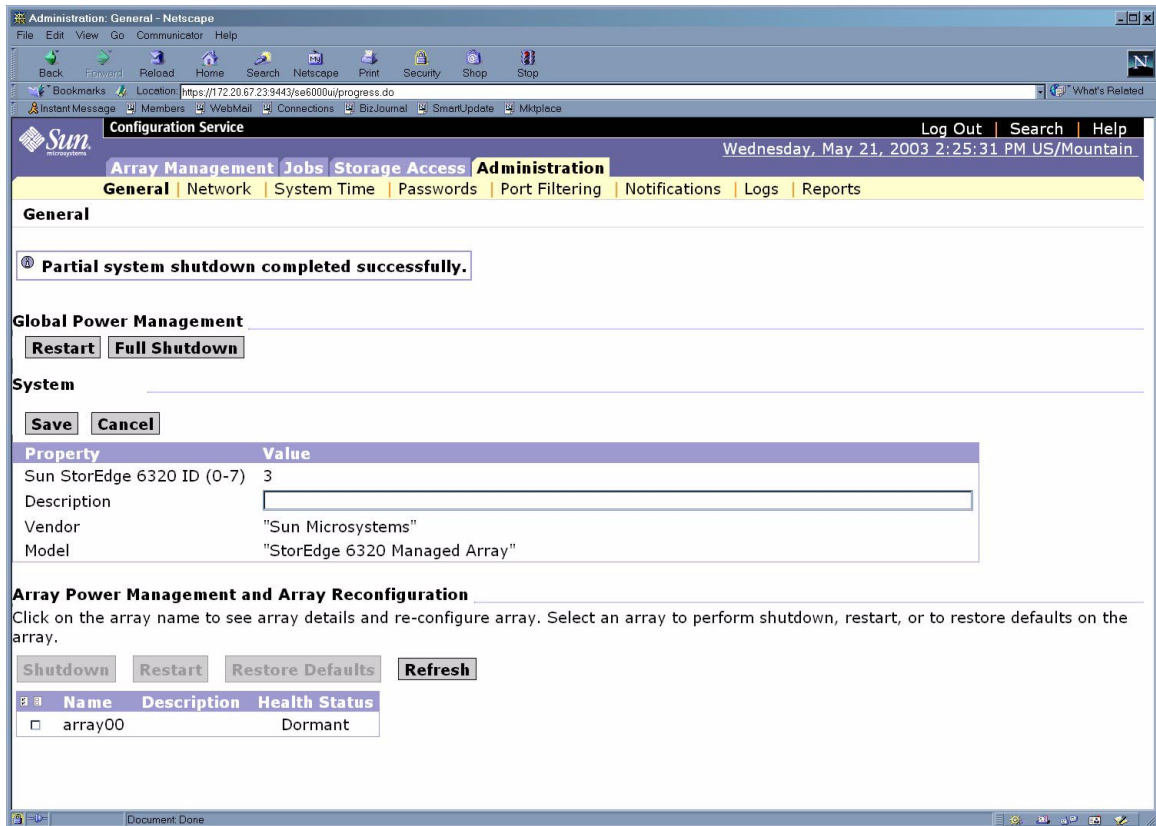

FIGURE B-13 Administration General—Power Restart Page

6. **Click Restart to power up the Sun StorEdge 6320 system.**

   This selection activates the power sequencers in the base cabinet and any expansion cabinets and causes the storage components to power up. The Switched Outlets LEDs are illuminated. This restart may take some time.

   The system is now ready for operation.

B.6 Restoring the System After the Full Remote Power-Off Procedure

If the system has been powered off using the full remote power-off procedure, you must go the system and perform the following steps:

1. **Open the front door and back door if they are not already open.**

2. **Remove the front trim panel from the system and set it aside if you have not already done so.**

3. **Verify that the key switches located at the bottom front of the base system and any expansion cabinet are in the Standby position.**

4. **At the bottom front and bottom back of the base system and any expansion cabinet, press the AC power sequencer circuit breakers to Off.**

5. **Verify that the AC power cables of the system and any expansion cabinet are connected to the correct AC outlets.**

6. **At the bottom front and bottom back of the system on the base cabinet and any expansion cabinet, press the Local/Off/Remote switch to Remote.**

7. **At the bottom front and bottom back of the base system cabinet, press the AC power sequencer circuit breakers to On.**

   The three power status indicators on the front panel show the status of the front power sequencer. The main AC power light emitting-diode (LED) illuminates when power is applied to the system. The LED for sequencer stage 1 illuminates next, followed by the LED for sequencer stage 2.

   Note – The front panel power sequencer bottom LED illuminates only when the AC power sequencer circuit breakers for the front power supply are on.

   Note – To check the status of the back power sequencer, open the back door of the system and look for the three green LEDs.

   ---

8. **Wait approximately one minute after the AC power sequencer circuit breakers are pressed on and at the back of the system, locate the power on and off switch for the Storage Service Processor and press the switch off, then on.**

   All components of the system power on in an optimal state.

9. **Verify that all the components have only green LEDs illuminated.**

   If and LEDs except green are illuminated or if no LEDs are illuminated, see Section B.3, "Troubleshooting the Installation" on page B-12 to troubleshoot any component that is not powered on.

   The system is now operating and supports the remote power-on procedure.

B.7   Reassembling the System

1. **Replace and tighten the screws to secure the front trim panel to the system.**

   Note – If you are routing cables under the floor, route the cables between the bottom panel and the kick panel.

   ---

2. **Close all open doors to the system.**

Product Specifications

This appendix contains the following sections:

C.1　Physical Characteristics

The physical characteristics of the Sun StorEdge 6320 systems are as follows:

■ Internal dimensions conform to EIA RS-310C standard (RETMA) for 19-inch (482 millimeter) cabinets. Universal mounting holes are used with 10-32UNF tapped holes in all locations. The nominal rack opening is 17.875 inches (454 millimeter).

■ A vertical panel opening of 36 rack units (RUs) minimum is provided to accommodate various rack-mountable FRUs. One RU is equal to 1.75 inches (44.45 millimeter).

■ Overall system height with cosmetic panels is 75 inches (191 cm) maximum.

Caution – Make no mechanical or electrical modifications to this system. Sun Microsystems is not responsible for the regulatory compliance if the system is modified.

C.2 Physical Specifications

TABLE C-1   Storage System Physical Specifications

Subsystem	Height	Width	Depth	Weight
Sun StorEdge 6320 system single cabinet	75 in. 109.5 cm	23.9 in. 60.7 cm	37 in. 94 cm	1465 lb. 665 kg
Sun StorEdge 6320 system with expansion cabinet	75 in. 109.5 cm	47.8 in. 122 cm	37 in. 94 cm	2895 lb. 1660 kg
Note: The values given in this table are for the maximum hardware configuration available including the Sun StorEdge expansion cabinet in the Sun StorEdge 6320 systems.				

The power cords are 15 feet (4.6 meters) long.

C.3 Power Sequencer Electrical Specifications

TABLE C-2   Power Sequencer Electrical Specifications

Parameter	Value(s)
AC voltage rating	200 to 240 VAC
AC voltage range	180 to 264 VAC
Frequency range	47 to 63 Hz
Current at 240 VAC	32A
Power consumption, maximum Sun StorEdge 6320 system Sun StorEdge 6320 system with expansion cabinet	 4.2kW 8.4kW

C.4 Environmental Requirements

The operating environment requirements in TABLE C-3 are the limits to which the systems are tested to ensure that they meet all functional requirements. The recommended operating environment is the optimum condition in TABLE C-4.

TABLE C-3   Operating Environment Requirements

Parameter	Operating	Non operating
Temperature	41°F to 95°F (5°C to 35°C) non-condensing	-41°F to 149°F (-40°C to 65°C) non-condensing

TABLE C-3   Operating Environment Requirements *(Continued)*

Parameter	Operating	Non operating
Relative Humidity (RH)	10% to 90% RH, non-condensing 27°C maximum wet bulb	93% RH, no-condensing 38°C maximum wet bulb
Altitude	10,000 feet (approximately 3Km)	40,000 feet (approximately 12Km)
Environment	Avoid temperature extremes and keep the work area clean. Maintain the operating conditions described. The system should be in a computer room environment, which should provide secure access to computers and stored information, and provide control over environmental factors such as temperature, humidity, and airborne dust. A computer room installation can also help protect equipment from fire, flood, or other danger originating in the building.	

TABLE C-4   Optimum Ambient Environmental Operating Conditions

Environmental Factor	Ambient Temperature Range	Ambient Relative Humidity
Operating	70°F to 73.5°F (21°C to 23°C)	45% to 50%

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