Sun StorageTek™ 5800 System Site Preparation Guide

Sun Microsystems, Inc.
www.sun.com

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Preface

This guide describes facilities and system requirements for installing the Sun StorageTek™ 5800 System. Follow the guidelines as outlined in this document when planning your installation.

Note – This guide describes what you must do to prepare your site for the installation of the 5800 system. The actual installation must be performed by qualified Sun Service personnel.

Before You Read This Book

Before you begin to install the 5800 system, read the regulatory and safety requirements described in this book:

- *Sun StorageTek 5800 System Regulatory and Safety Compliance Manual*

How This Book Is Organized

Chapter 1 describes the requirements for preparing your site for installation of the 5800 system.

Chapter 2 describes the physical, environmental, and electrical requirements for the cabinet in which the 5800 system is installed.

Appendix A provides worksheets to help you gather the information you need to complete the installation.

Using UNIX Commands

This document might not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at

  `http://docs.sun.com`

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

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. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Related Documentation

The following table lists the documents for this product. The online documentation is available at:

`http://docs.sun.com/app/docs/prod/stortek.5800#hic`

Title	Part Number	Format	Location
Sun StorageTe™ 5800 System Regulatory and Safety Compliance Manual	819-3809-*xx*	HTML PDF	Online
Sun StorageTek 5800 System Administration Guide	820-4118-*xx*	HTML PDF	Online
Sun StorageTek 5800 System Overview	820-4119-*xx*	HTML PDF	Online
Sun StorageTek 5800 System Release Notes	820-4120-*xx*	HTML PDF	Online
Sun StorageTek 5800 System Client API Reference Guide	820-4796-*xx*	PDF	Online
Sun StorageTek 5800 System SDK Developer's Guide	820-4797-*xx*	PDF	Online

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
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CHAPTER 1

Planning for the Installation

This chapter describes the requirements for preparing the customer site for installation of the 5800 system. This chapter contains the following sections:

- "Customer Obligations" on page 1
- "Safety Information" on page 1
- "Site Wiring and Power Requirements" on page 3

Customer Obligations

The customer is obliged to inform Sun Microsystems, Inc. of any and all ordinances and regulations that might affect the installation. The customer is responsible for meeting all government codes and regulations concerning facilities. The customer is also required to do the following:

- Comply with all local, national, and international codes covered in this specification. The subjects covered include fire and safety, building, and electrical codes.
- Document and inform Sun Microsystems, Inc. of any deviations from this specification.

Safety Information

Install the 5800 system in accordance with the local safety codes and regulations at the facility site. Make sure that you read the safety precautions in the *Sun StorageTek 5800 System Regulatory and Safety Compliance Manual*.

The following sections contain additional safety information for the local facility:

- "Handling Precautions" on page 2
- "Secure Installation Requirements" on page 2
- "Placement of a Sun Product" on page 3

Note – Do not make mechanical or electrical modifications to the equipment. Sun Microsystems, Inc. is not responsible for regulatory compliance of a modified Sun product.

Handling Precautions

Caution – A fully populated cabinet can weigh in excess of 1280 pounds (580.6 kilograms). Ensure that all surfaces this system will move over can withstand this load.

The cabinet is equipped with wheels so you can move it. Use enough personnel when moving the cabinet, especially on sloped loading docks and ramps, to gain access to a raised computer room floor. Move the cabinet slowly and deliberately, and make sure that the floor is free from foreign objects and cables that the cabinet could roll over.

Caution – To avoid injury, wear protective footwear when moving a system.

Secure Installation Requirements

To minimize personnel injury in the event of a seismic occurrence, you must securely fasten the cabinet to a rigid structure extending from the floor to the ceiling, or from the walls, of the room in which the cabinet is located.

Install the cabinet on a level surface. At each corner, on the base of the cabinet, are adjustable nonskid pads. Extend these pads when the cabinet is installed to prevent the cabinet from rolling. Do not use these pads to level the cabinet.

Placement of a Sun Product

Allow enough room surrounding the cabinet for access to the cabinet and arrays for maintenance.

Caution – Do not block or cover the openings of your Sun product. 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.

Air cools the system cabinets from front to back. Air enters at the front, circulates, and is expelled at the back of the cabinet. The front and back door clearances provide sufficient space for cooling. See Chapter 2 for specific clearance specifications.

Site Wiring and Power Requirements

The AC power distribution boxes in the cabinet use common industrial wiring. Consider the following information when preparing the cabinet installation site:

- **AC power source** – The AC power source must provide the correct voltage, current, and frequency specified on the module model and serial number label.
- **Earth ground** – Site wiring must include an earth ground connection to the AC power source.
- **Circuit overloading** – Power circuits and associated circuit breakers must provide sufficient power and overload protection. To prevent possible damage to the AC power distribution boxes and other components in the cabinet, use an external, independent power source that is isolated from large switching loads (such as air conditioning motors, elevator motors, and factory loads).
- **Module power distribution** – All units attached to the two power strips inside that cabinet must be autoranging between 180 and 264 VAC, 47-63 Hz.
- **Power interruptions** – The cabinet and modules will withstand the following applied voltage interruptions (with or without an integrated uninterruptible power supply [UPS]):
  - **Input transient** – 0V for 1 cycle with no interruption
  - **Duration** – 70 percent of nominal for 0.5 seconds and 0V for 5 seconds, recoverable with user intervention
- **Power failures** – If a total power failure occurs, when power is restored, the nodes within the cabinet automatically perform a power on recovery.

CHAPTER 2

Cabinet Specifications and Site Requirements

This chapter describes the physical, environmental, and electrical requirements for the Sun Rack 1000-38 (STK5800) cabinet, which is the cabinet used for the Sun StorageTek 5800 System.

The floor area at the installation site must provide enough stability to support the weight of the cabinet and installed trays, sufficient space for installation and servicing of the cabinet and components, and sufficient ventilation to provide a free flow of air to the cabinet.

To ensure safe and proper operation of the system, and ease of maintenance, make sure that all of these requirements are met before using the cabinet. It contains the following sections:

- "Dimension and Weight" on page 5
- "Environmental Requirements" on page 6
- "Power Requirements" on page 8
- "Network Requirements" on page 8

Dimension and Weight

TABLE 2-1 provides the physical dimensions of the Sun Rack STK5800 cabinet.

TABLE 2-1 Sun Rack STK5800 Cabinet Dimensions

Dimensions	Height	Width	Depth
American	74 in.	23.5 in.	35.4 in.
Metric	188 cm	59.7 cm	89.9 cm

A fully loaded Sun Rack 1000-38 (STK5800) cabinet has a maximum weight capacity of 1500 pounds (680.4 kilograms). The total weight of your Sun Rack STK5800 cabinet depends on the number and type of components installed in the cabinet. TABLE 2-2 displays the weights of each different configuration. Use these weights to estimate the total weight of your system, based on the number of components installed in the cabinet. Record the total weight in an easy-to-find place to reference when checking flooring load or elevator weight restrictions.

TABLE 2-2 Sun Rack STK5800 Cabinet and Component Weights

Component	Total Weight
8-node cell (nodes, switches and cables)	705 lbs (319.8 kgs)
16-node cell (nodes, switches and cables)	990 lbs (449.1 kgs)
Dual cell (nodes, switches and cables)	1265 lbs (573.8 kgs)

Environmental Requirements

This section describes the environmental conditions that are prerequisite to installing Sun Rack cabinets.

Temperature, Humidity, and Altitude

TABLE 2-3 lists operating and nonoperating temperature, relative humidity, and altitude ranges for the STK5800 rack.

TABLE 2-3 Cabinet Temperature, Humidity, and Altitude

Specification	Operating	Nonoperating
Temperature	41˚F to 95˚F (5˚C to 35˚C)	-45.4˚F to 154.4˚F (-43˚C to 68˚C)
Relative humidity (RH)	7% to 93% noncondensing	93% noncondensing at 104˚F (40˚C) for 5 days
Altitude	0 to 10498.7 feet (0 to 3.2 km) at 104˚F (40˚C)	0 to 40,026.2 feet (0 to 12.2 km) at 32˚F (0˚C) for 4 hours

If you plan to operate a system at an altitude between 3280 ft. to 10,000 ft. (1000 m to 3048 m) above sea level, lower the environmental temperature 3.3˚F (1.7˚C) for every 3280 ft. (1000 m) above sea level. TABLE 2-4 lists the acceptable humidity ranges in which the 5800 system is designed to operate.

TABLE 2-4 5800 System Relative Humidity (RH), Noncondensing

Specification	Maximum Rate of Change per Hour
Operating range	20% to 80%
Storage range	10% to 93%
Transit range	5% to 95%
Maximum dew point	79˚F (26˚C)
Maximum gradient	10% per hour

Airflow and Heat Dissipation

Rack airflow is from front to back. Allow at least 30 inches (76.2 cm) in front of the rack, and at least 24 (60.96 cm) inches behind the rack, for service clearance, proper ventilation, and heat dissipation.

Maximum Heat Output

The maximum heat output for the 5800 system is as follows:

- Half cell: 2420 watts (8257 BTU/hr)
- Full cell: 4420 watts (15082 BTU/hr)
- Dual cell: 8840 watts (30163 BTU/hr)

TABLE 2-5 lists the remaining power available for additional equipment in a rack when a 5800 system is installed in the rack.

TABLE 2-5 Remaining Power Available in Rack After 5800 System is Installed

Installed 5800 System	Power Available for Additional Equipment in Rack
Half cell	11660 watts
Full cell	9660 watts

Power Requirements

The AC power sources must provide the correct voltage, current, and frequency specified on the component model and serial number label. The cabinet can run within the limits shown in TABLE 2-6.

TABLE 2-6 Rack AC Power Requirements

Parameter	Requirements
Nominal voltages	200 to 240 VAC
Operating voltage	180 to 264 VAC
Frequency range	50 to 60 Hz Single Phase
Current	32A (2 x 16A) maximum
AC power plug	NEMA L6-20P (North American) IEC 309 16A 3-Position (International)
AC power receptacle	NEMA L6-20R (North American) IEC 309 16A 3-Position (International)
Power cords required	2 for half-cell and full-cell configurations 4 for dual-cell configurations

TABLE 2-7 Power Cords Required for the 5800 System

Power Cord Type	Part Number
Domestic	Sun MFG PN 595-6715-02 20A 250V
International	Sun MFG PN 595-6716-02 16A 200-250V

Network Requirements

Your network must include the following features to allow for successful installation and administration of the 5800 system.

- If you want to administer the 5800 system using the command-line interface (CLI), the system from which you want to access the CLI must be running a secure shell (SSH) client.
- If you want to administer the 5800 system using the graphical user interface (GUI), you must have a Java™-enabled web browser on your network. Refer to the *Sun StorageTek 5800 System Release Notes* for versions of Java that are supported.
- You must reserve three IP addresses on your network per half-cell or full-cell for data, administration, and service access.
- There must be at least one Network Time Protocol (NTP) server available on the network.
- If you want to have system alerts emailed to an administrator, you must have an email address available for this purpose and a Simple Mail Transfer Protocol (SMTP) server available on the network.
- None of the hosts located on the same subnet as the 5800 system can use the following addresses, which are reserved for use by the 5800 system:
  - 10.123.0.1
  - 10.123.0.2
  - 10.123.45.1
  - 10.123.45.100 through 10.123.45.116
  - 10.123.45.200 through 10.123.45.220

APPENDIX **A**

Configuration Worksheet

DO NOT ATTEMPT TO INSTALL THIS PRODUCT.

The 5800 system must be installed, upgraded, and expanded only by qualified Sun service personnel or a qualified Sun service partner.

To contact Sun service personnel, go to:
http://www.sun.com/service/contacting

Use the worksheets in this appendix to help you collect the information you need to provide to the authorized Sun service personnel. TABLE A-1 lists the information you need to collect.

TABLE A-1 5800 System Configuration Worksheet

	Factory Default	Your configuration
Administrative IP address	10.7.227.101	
Data IP address	10.7.227.102	
Service node IP address	10.7.227.100	
Subnet mask	255.255.252.0	
Gateway IP address	10.7.227.254	
NTP servers IP addresses*	129.145.155.32 129.146.17.39	
SMTP server IP address*	129.146.11.86	
Authorized clients IP addresses*	All	
External Logger IP address*	10.7.224.10	
DNS (enable or disable?)	disable	
Domain name	sfbay.sun.com	
DNS search path	sfbay.sun.com sun.com	
Primary DNS server IP address	129.146.11.51	
Secondary DNS server IP address	129.146.11.103	
Alert email recipient address	None	To: Cc:
Cell ID	0 Note: If this is a multi-cell configuration, you must supply the cell ID at installation.	

* You can use host names instead of IP addresses for these values if DNS is enabled.