



Labeling Unlabeled Hard Drives

For Sun Systems Running the
Solaris Operating System

Sun Microsystems, Inc.
www.sun.com

Part No. 819-3805-10
November 2005, Revision 01

Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

Copyright 2005 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

This document and the product to which it pertains are distributed under licenses restricting their use, copying, distribution, and decompilation. No part of the product or of this document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any.

Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, Java, AnswerBook2, docs.sun.com, and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and in other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and in other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights—Commercial use. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2005 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, Californie 95054, Etats-Unis. Tous droits réservés.

Sun Microsystems, Inc. a les droits de propriété intellectuels relatants à la technologie qui est décrit dans ce document. En particulier, et sans la limitation, ces droits de propriété intellectuels peuvent inclure un ou plus des brevets américains énumérés à <http://www.sun.com/patents> et un ou les brevets plus supplémentaires ou les applications de brevet en attente dans les Etats-Unis et dans les autres pays.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a.

Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, Java, AnswerBook2, docs.sun.com, et Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciées de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ÉTAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



Please
Recycle



Adobe PostScript

Labeling a Hard Drive

This document describes how to use the Solaris format utility to label a hard drive. It is intended for system administrators.

The procedure described in this document might need to be performed when you replace or add hard drives to a Sun system running the Solaris Operating System (Solaris OS).

The following topics are covered:

- [“Introduction” on page 2](#)
- [“To Label A Disk with the Format Utility” on page 4](#)

Introduction

The Solaris OS uses an electronic disk label, sometimes called a volume table of contents (VTOC) or Extensible Firmware Interface GUID Partition Table (EFI GPT). The Solaris OS uses the label to communicate with a hard drive.

The disk label is data written to a predefined area on the drive that describes the drive type and drive geometry (number of read/write heads, number of cylinders, sectors, and so on). The disk label also stores the drive's partition structure (the number and size of the slices on the drive).

In the past, drives from Sun were labeled at the factory. Today, you might receive hard drives that are not labeled, and you must label these drives before you can use them.

You use the Solaris `format` utility to label hard drives and to perform a number of other hard drive administrative tasks such as partitioning and formatting.

Caution – Be aware that many of the format utility tasks are destructive to data that may be on a drive. It is very important that you use caution when using the format utility to prevent accidental data loss.

The procedure in this document is limited to describing how to label a drive, and does not describe all the other drive administrative tasks available in the format utility. Refer to the Solaris system administration documentation for comprehensive format utility information.

If you suspect that a drive does not have a drive label, perform the procedure in this document. For example, if you are installing the Solaris OS and you receive the following message:

```
Unusable Disk
```

```
    This disk (c5t8d0) cannot be used to install Solaris software.
```

```
    This disk drive does not have a valid label.  If you want to use
    this disk for the install, exit the Solaris Interactive
    Installation program, use the format(1M) command from the
    command line to label the disk, and type 'install-solaris' to
    restart the installation program.
```

You should label the drive.

If your system is bootable, you can use the Solaris `prtvtoc` command to display disk labels.

Example using the `prtvtoc` command to verify the presence of a label:

```
# prtvtoc /dev/rdisk/c5t8d0s2
* /dev/rdisk/c5t8d0 partition map
* Dimensions:
*     512 bytes/sector
*     63 sectors/track
*     15 tracks/cylinder
*     945 sectors/cylinder
*     8894 cylinders
*     8892 accessible cylinders
*
* Flags:
*  1: unmountable
* 10: read-only
*
*
*           First      Sector      Last
* Partition Tag  Flags  Sector    Count    Sector  Mount Directory
*   0         2    00   1048950  3381210  4430159  /
*   1         3    01         0    1048950  1048949
*   2         5    00         0    8402940  8402939  /
*   7         8    00   4430160  3972780  8402939  /export/home
```

▼ To Label A Disk with the Format Utility

This procedure describes how to use the Solaris `format` utility to label a hard drive for use on a system running the Solaris OS.

1. Boot the system from the boot disk, network, or from a CD.

The method you use to boot the system depends on the configuration of your system:

- Boot from the boot disk if:
 - The Solaris OS is already installed on your system.
 - You are adding a hard drive to your system, or you are replacing a drive that does not contain the OS (`/`, `/usr`, or swap slices).
- Boot from the network if:
 - You cannot boot from the boot drive.
 - You have a boot server configured in your network.
- Boot from a Solaris OS CD if:
 - You cannot boot from the boot drive.
 - You do not have a boot server configured on your network.
 - You have the Solaris OS CDs or DVDs from which to boot.

If you are adding this drive (rather than replacing an existing drive), you must inform the operating system that a new device has been installed. There are several ways to do this. One method involves using the `devfsadm(1M)` can be used to dynamically inform the OS. Alternatively, you can perform a reconfiguration boot. A reconfiguration boot is performed when you use a `-r` with the `boot` command.

Note – For more information about the `devfsadm` command and reconfiguration boot, refer to the Solaris administration documentation.

2. Log in as superuser.

3. Invoke the `format` utility:

```
# format
```

4. Evaluate the output to determine if any drives need to be labeled.

When you invoke the `format` utility, the `format` utility identifies the drives by reading their labels, displays information about each drive, and prompts you to select a drive from which to work.

The following examples show the different kinds of output you receive based on the presence of unlabeled and labeled drives:

- The format utility detects an unlabeled drive, but is unable to identify anything about the drive. You are notified that a drive is not labeled and you are prompted to label it now, as shown:

```
Searching for disks...done

c5t8d0: Disk not labeled. Label it now?
```

In this situation, go to [Step 6](#).

- The format utility detects an unlabeled drive and is able to determine and display information about the unlabeled drive, but you are not prompted to label the drive, as shown:

```
Searching for disks...done

c5t8d0: configured with capacity of 68.35GB <--indication of unlabeled
drive

AVAILABLE DISK SELECTIONS:
  0. c0t0d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>
    /pci@1d,700000/scsi@4/sd@0,0
  1. c5t4d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@4,0
  2. c5t5d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@5,0
  3. c5t6d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@6,0
  4. c5t8d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@8,0

Specify disk (enter its number):
```

In this situation, go to [Step 5](#).

- The format utility does not detect any unlabeled drives, as shown:

```
Searching for disks...done

AVAILABLE DISK SELECTIONS:
  0. c0t0d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>
    /pci@1d,700000/scsi@4/sd@0,0
  1. c5t4d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@4,0
  2. c5t5d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@5,0
  3. c5t6d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@6,0
  4. c5t8d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@8,0

Specify disk (enter its number):
```

In this situation, select any number from the available disk selections (to get the format utility main menu) and go to [Step 7](#).

5. Select the disk you plan to label.

Specify the number from the list of available disk selections (in this example, 4 is specified).

```
Searching for disks...done

c5t8d0: configured with capacity of 68.35GB

AVAILABLE DISK SELECTIONS:
  0. c0t0d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>
    /pci@1d,700000/scsi@4/sd@0,0
  1. c5t4d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@4,0
  2. c5t5d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1d,700000/LSILogic,sas@2/sd@5,0
  3. c5t6d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@6,0
  4. c5t8d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
    /pci@1d,700000/LSILogic,sas@2/sd@8,0

Specify disk (enter its number): 4
```


6. When prompted to label the drive, answer yes.

```
selecting c5t8d0
[disk formatted]
Disk not labeled. Label it now? Yes
```

If you are not prompted to label the drive, the drive is already labeled and you can quit the format utility as shown in [Step 7](#).

Once the drive is labeled, you can perform other drive configuration tasks with the format utility, if needed. For example, if you plan to change the disk partitioning, this is a good time to do so. Refer to the Solaris administration documentation for more information.

7. Type quit to exit the format utility.

```
FORMAT MENU:
  disk      - select a disk
  type      - select (define) a disk type
  partition - select (define) a partition table
  current   - describe the current disk
  format    - format and analyze the disk
  repair    - repair a defective sector
  label     - write label to the disk
  analyze   - surface analysis
  defect    - defect list management
  backup    - search for backup labels
  verify    - read and display labels
  save      - save new disk/partition definitions
  inquiry   - show vendor, product and revision
  volname   - set 8-character volume name
  !<cmd>    - execute <cmd>, then return
  quit
format> quit
#
```

The labeled drive is now ready for OS or file system installation.

