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Solaris 10 Self Help

Welcome to the Solaris 10 Self Help page. On this page you will find guidance, instruction, and tips on downloading Solaris 10 onto your system, burning onto CD and/or DVD media, and installing Solaris 10 onto your x86 and SPARC machines.

Self Help Components

» Downloading Solaris 10
» Burning Media for Solaris 10
» Hardware Compatibility with Solaris 10
» Installation of Solaris 10

Downloading Solaris 10

- To download CD and DVD images go here: sun.com/software/solaris/get.jsp

- For download instructions go here: sun.com/software/solaris/download_ instruction.xml

- To improve your download performance and hence experience we strongly recommend use of the Sun DownLoad Manager: sun.com/download/sdm/ download.html
  This will ensure your download can complete successfully in the event of interruption.

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Free Downloads

- **Solaris 10**
- **Solaris Express Developer Edition**

- **Solaris Support**

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- **OpenSolaris Community**
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- **Move to Solaris 10**
- **Get Solaris on the Inside**
- **ISV Software Catalog**
- **Included Open Source Software**

1. **How much disk space do I need?**
   Depending on whether you are working with CD or DVD images you will need up to
   10Gigabytes of space to download and manipulate the ISO images.

2. **How long should the download take?**
   This depends on many factors such as the speed of your internet connection and
   the load on Sun's download servers. To improve your download performance we
   recommend use of Sun Download Manager.

3. **What if I can't download the CD or DVD images?**
   You can now purchase DVD/CD media kits or a single DVD set online.

4. **What did I download?**

   * DVD download:
     5 zip compressed segments of the Solaris 10 DVD image, e.g. for Solaris for
     x86

   * CD download:
     Individual zip compressed CD images (4 CDs), plus optional languages CD and
     Companion CD; For details of open source packages delivered on the
     Companion CD see: sun.com/software/solaris/freeware/
     Label files to ensure correct labeling of burned media are also provided. The
     files can be printed onto standard label forms.

     Note: Sun does not offer a download of the Documentation CD; please refer to
     docs.sun.com for online access to all Sun documentation. Documentation media
     is included in the orderable Solaris media kit.

   * Additional Downloads:
     Java Enterprise System - click on "get the software" at the URL below: sun.com/
     software/javaenterprisesystem/

   * Further downloads including developer tools can be found at: sun.com/
     download/

Checksums

Checksums are provided to ensure data integrity. The download sites include checksums
and instructions on how to validate checksums of downloaded files. These files are used
to create "iso" images. The image files can then be burned onto CD or DVD media.

Here are some additional checksum resources:

* Checksumming under Windows and Linux
* List of checksumming tools

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Burning Media for Solaris 10

1. **What is an "ISO image"?**
   Information on CD recording formats (ISO9660) can be found by searching the
   internet - for example: http://www.pctechguide.com/09cdr-rw.htm

2. **How to burn (Win/Lin/Sol/Mac/tools etc)?**
   Here is an article on burning media under Solaris and Linux: sun.com/bigadmin/
   features/articles/burn_iso_images.html

   For other systems, use the option of your software (Toast, uLead, Nero, etc) to
   create a CD/DVD from an ISO image.

3. **How can I verify media?**
   See information on checksums under "Download"—it is necessary to use a program

Solaris Hardware Compatibility List
What You Get with Solaris 10
How-To Guides
Learning Centers
Data Sheets
BigAdmin Resources
Solaris Ready Software Center
Sun's Software Portfolio
Solaris Life Cycle

to check the MD5 checksum of the CD or DVD you have created to ensure it is identical to the ISO image.

Potential problems

A number of potential problems have been observed when burning CDs:

- Poor quality media can result in "bad burns"
- Burn media at (or less than) its rated speed
- Incompatible media (ensure your burner can handle DVD+/-R)
- Incompatibilities between drives - there is anecdotal evidence that media burned on some drives cannot be read properly on others
- Drive hardware (either read or write device) may require cleaning or where there are known bugs, an upgrade to the firmware
- Damage caused by handling, improper labeling, pressure or solvent contamination from certain marker pens.

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Hardware Compatibility with Solaris 10

Solaris exists as two binary versions SPARC (for 64 bit SPARC systems) x86/x64, which will install on both 32 bit x86 systems and 64 bit "x64" systems (including Opteron, Athlon64, Nocona).

On these systems the 64 bit "x64" kernel will boot by default and 64 bit device drivers will be used. The 32 bit kernel can be used by specifying that kernel at boot time: b /kernel/ unix

SPARC—Installation information plus a complete list of Sun systems supported with Solaris 10 is provided at: http://docs.sun.com/source/817-6337/chapterHPG.html. Solaris is also supported on SPARC systems from Fujitsu, Tadpole, Naturetech.

What to consider when selecting x86 or x64 hardware. The best place to start is the Hardware Compatibility List. Many systems and peripheral devices are listed in the HCL, but this list does not cover every system that potentially can run Solaris.

If your system isn't listed in the HCL, try to determine what the major components are - here is a quick overview:

CPU
For x86/x64 systems >120MHz CPU is recommended, all currently shipping

- CPUs meet this requirement. Supported vendors include:
- AMD—Athlon, Sempron
- Athlon64 (64 bit)
- Opteron (64 bit)
- Geode
- Intel—Pentium
- Celeron
- Nocona (64bit)
- Via—e.g. Nehemiah

Memory Requirements

The recommended amount of memory is 256MB, however for a character based installation only 128MB is required, and while Solaris can be stripped down to run in less memory, in practice more memory is better. Large memory support to 576GB has been

tested on SPARC systems, however x64 systems supporting over 32GB are still quite rare.

Most PC BIOS (and SPARC Open Firmware) will count memory during boot.

The 32 bit x86 kernel implements PAE, allowing addressing of up to 64GB where hardware permits it. For more details see "man xmemfs". Note that on 32 bit systems at most 3.5GB of memory is available to any user process, when running the 64 bit kernel, even 32 bit applications have access to a full 4GB virtual address space.

Disk Space

A full installation of the OS itself needs about 5GB. At least 12Gb is recommended when installing additional software such as the Java Enterprise System which is included in the Solaris Media Kit (also available for download).

Most PCI BIOS will provide an option to detect a hard drive and report capacity; on SPARC systems use the "probe-scsi" command in the Openboot firmware.

Note: Advanced users setting up multiboot configurations or using live upgrade technologies will need to ensure the required disk capacity can be made available.

✧ More on storage:
Extensive documentation on creating and managing filesystems is provided at http://docs.sun.com/app/docs/doc/817-5093—System Administration Guide: Devices and File Systems
Many types of storage are supported—IDE, SATA, SCSI, RAID, FibreChannel and removable USB and IEEE1394 (Firewire) devices.

✧ Video support on x86 systems:
Two X servers are shipped—the original Xsun and the Xorg server.

The "kdmconfig" utility is used to configure Xsun; it also provides some instructions for Xorg.

When using Xsun,if you are not sure which graphics device you have, it is best to select the Xfree86 VESA compatible driver at install time to allow a GUI based installation; you can change the settings later when you can identify your graphics device, for example by inspecting the output from the command "prtconf -pv".

In the directory: share/etc/devdata/SUNWaccel/boards individual Xsun drivers are found in the vendor specific directories—these, and the Xfree86 set of drivers listed below are listed when running kdmconfig:

✧ ast	✧ orchid	✧ diamond
✧ compaq	✧ ti	✧ ibm
✧ everex	✧ wd	✧ number9
✧ matrox	✧ boca	✧ spea
✧ oak	✧ dell	✧ trident
✧ tdl	✧ hp	✧ cirrus
✧ vesa	✧ nec	✧ elsa
✧ ati	✧ s3	✧ intel
✧ dec	✧ toshiba	✧ nvidia
✧ hercules	✧ zenith	✧ stb
✧ miro	✧ chips	✧ tseng

Drivers based on Xfree86 are in /usr/openwin/share/etc/devdata/xf86/boards.

The "kdmconfig" utility presents a list of video devices and monitors and allows you to set screen resolution and color depth. Xsun on x86 systems does not support multiple monitors.

Xorg notes:
The Xorg environment will become the preferred Xserver, especially for 3D support on nVidia cards (available in a Solaris 10 Update).

To configure the Xorg Server:

* Create an xorg.conf file with one of these commands:

  /usr/X11/bin/Xorg -configure, or
  /usr/X11/bin/xorgconfig

* Edit the resultant xorg.conf file with any changes needed (see the man pages or search the web for an example for your graphics hardware and monitor) log file—useful for debugging—at /var/log/Xorg.0.log

* Move the xorg.conf file to /etc/X11/xorg.conf

* Start the Xserver; in case of errors, there is a log file—useful for debugging - in /var/log/Xorg.0.log

For more details about Xorg configuration, refer to the Xorg man pages in /usr/X11/man. This directory is not in the default man page path, so to view these pages either:

* Add this directory to the MANPATH environment variable setting.
  e.g. in the Bourne shell:
  #MANPATH=$MANPATH:/usr/X11/man; export MANPATH

* Use the "-M /usr/X11/man" option of the man command.

A broad selection of video cards and chipsets from this list of vendors is selected by Xorg: (see "man <drivername> for details)

* chips	* neomagic	* suncg6
* cirrus	* nsc	* sunffb
* cyrix	* nv	* sunleo
* fbdev	* r128	* suntcx
* glide	* rendition	* tdfx
* glint	* s3virge	* tga
* i128	* siliconmotion	* trident
* i740	* sis	* tseng
* i810	* sunbw2	* v4l
* imstt	* suncg14	* vesa
* mga	* suncg3	* vga
		* vmware

Web site: http://www.x.org.

Network Devices (x86)

Solaris provides drivers for leading network devices:

* Intel and Broadcom 10/100/1000 NICs (iprb, e1000g, bge)

* The Realtek 8139 (rtls)

USB Support:
sun.com/io_technologies/USB-Faq.html

Audio:
Solaris 10 3/05 introduces the "audio810" driver (AMD 8111/AC97 devices)

Guest OS under VMware:
www.vmware.com/support/guestnotes/doc/guestos_solaris10.html

Details of community developed drivers and third party drivers:
solaris-x86.org/software/drivers/

For additional information on hardware selection and configuration, please see the
"install" section of this guide.

Additional resources on Hardware Configuration:

- The Unofficial Installation Guide at sun.com/bigadmin/content/unoff_install/

- See forum.sun.com—install and Solaris for x86 forums

- Install sections of supportforum.sun.com

- docs.sun.com

- Groups.yahoo.com (solaris x86 list)

- Newsgroups e.g. alt.solaris.x86 plus other Sun/Solaris groups

- Feedback: Please send feedback to us

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Installation of Solaris 10

There is extensive documentation on installation at docs.sun.com/app/docs/coll/1236.1

Solaris 10 Installation Guide:
Basic Installations—First time users should start here to become familiar with booting
from CD/DVD and providing system configuration information. New users of Solaris for
x86 should also consult: sun.com/bigadmin/content/unoff_install/.

Solaris 10 Installation Guide:
Network-Based Installations (includes how to set up boot and install servers, and PXE
boot for x86 systems).

Solaris 10 Installation Guide:
Solaris Live Upgrade and Upgrade Planning (techniques for upgrading from earlier
Solaris releases).

Solaris 10 Installation Guide:
Custom JumpStart and Advanced Installations (how to carry out unattended installs, set
up RAID configurations).

Solaris 10 Installation Guide:
Solaris Flash Archives (how to provision multiple systems from a cloned system image).

Installation FAQs

1. **Are there tools to help me automate installation?**
   Yes. Download
   1. **How long should it take?**
      A typical system based on currently available components should install the
      complete OS from CD/DVD in about an hour; a complete flash archive can be
      installed over a fast network in around 30 minutes.

   2. **Can I install multiple Operating Systems on the same PC?**
      Yes—remember to back up valuable data first, and study this excellent guide:
      solaris-x86.org/documents/tutorials/ See "Multi-booting Solaris and other
      operating systems".

2. **What else do I need to know?**
   Solaris for x86 can run on many more systems than listed at sun.com/bigadmin/hcl,
   however a few systems may exhibit problems—some common issues and typical
   causes are listed below:

- Prom panic at boot time—usually BIOS or ACPI related, sometimes a BIOS update or disabling ACPI can resolve this.

- Not a ufs filesystem—most likely causes are an unrecognized disk controller or problems reading a burned CD/DVD, possibly because of incompatibility between the writing and reading drives.

- Cannot find boot.bin—often a media compatibility problem (see above).

- Panic—cannot mount root. Usually caused by an un recognized disk controller. For HP Proliant servers a driver must be downloaded from HP's web site. Certain SATA controllers may need to be set to legacy mode, and certain controllers (e.g. Promise, Highpoint, 3Ware) are not presently supported.

- System hangs at boot time—can be caused by certain USB chipsets or by having USB legacy mode emulation enabled. Try disabling the USB device and/or legacy emulation in the BIOS.

For more information see the "resources" section of sun.com/solaris

You can send feedback to us.

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