

## APPENDIX F

# Installation Guide

Normally, installing the JDS is easy using the CDs included with your original JDS installation media. We assume that you have the media and plan to use this method. Essentially, you can use the same steps to upgrade JDS to a later version from CD-ROM images that you can download or purchase from Sun.

If you plan on installing JDS from a server set up by your organization, the material in this appendix probably does not pertain to you.

The Java Desktop System comes with documentation that can help you install the system. This information is on the Documentation CD that accompanies your JDS Media. At the time of this writing, you can find the installation guide under the path *cdrom/en/Java-Desktop-System-R2/java-desktop-system-r2-documentation.html*. This appendix contains information similar to what you can find in Sun's Documentation. In the event you do not have the ability to access the documentation, you can use the information contained here to install your system—but it is subject to change.

We also provide some explanations of the installation process not found on the Sun Documentation CD and some suggestions about what to do if you run into problems. Let's begin by looking at the requirements for using JDS.

## System Requirements

To successfully install JDS, you are required to have a personal computer (PC) that meets certain modest hardware resources. Sun Microsystems provides both a minimum supported configuration and a recommended one. The minimum supported configuration requires an Intel Pentium II 266 MHz compatible processor, a 4 GB hard disk, 128 MB of RAM, and a color monitor with at least an 800×600 screen resolution.

Ideally, Sun recommends a Pentium III compatible processor, 600 MHz or faster, at least 4 GB of hard disk space, at least 256 MB of RAM, and 1024×768 screen resolution or better. However, we have found the system runs best with a Pentium IV

processor and 512 MB of memory. The system can also achieve excellent performance with a DRI monitor and Video card if the manufacturer provides a configuration utility for the DRI driver.

Your PC should boot from an installation CD. Intel systems have different ways of booting from the CD- or DVD-ROM. For example, some Laptops allow you to boot from the CD-ROM only if you press a specific button. Sometimes it is not enough to reboot a system with the CD-ROM installed; you may have to insert the CD-ROM, power down the system, and power it up again.

If you try inserting the CD-ROM and powering up the system, but it insists on booting from the hard disk as usual, you may need to enter the BIOS utility and select the order in which your CD-ROM boots. The exact procedure varies from system to system; one example of a BIOS display is shown in Figure F-1.

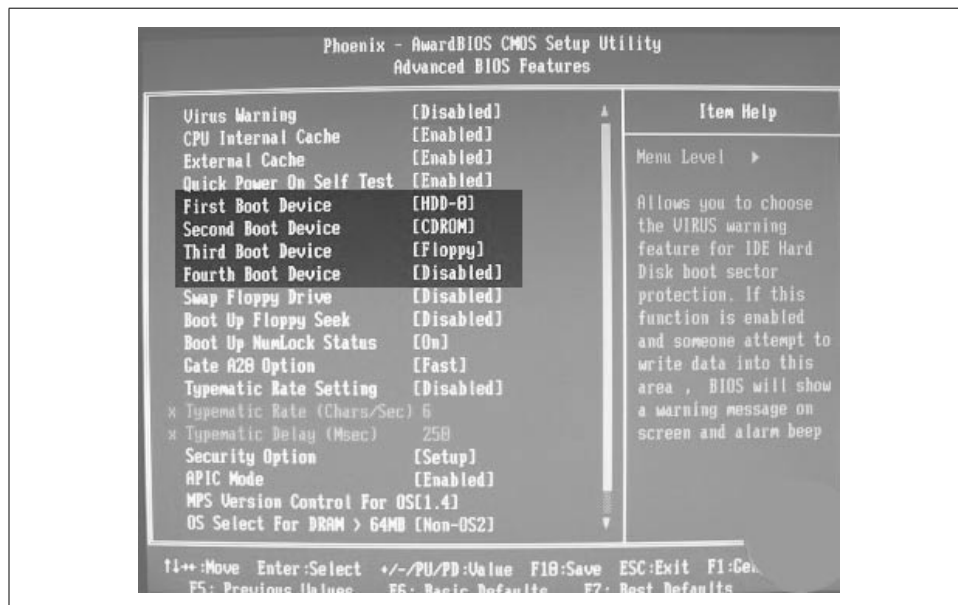


Figure F-1. BIOS utility

The screen in the BIOS utility shows the order of booting. In this situation, the first boot device listed is the hard drive (HDD-0).

You need to change this order so that the CD-ROM becomes the first boot device. In the example screen, you select the First Boot Device by using the arrow keys on your keyboard. You then press the Enter key and another screen appears offering you different device options, such as the hard drive, CD-ROM or Floppy. If you choose the CD-ROM, you may or may not have to reset the remaining devices, depending on the type of computer you have.

Figure F-2 shows an example of a different computer manufacturer’s BIOS. Although Phoenix made both systems, notice the difference in the type of page displayed. In this figure, we selected the Boot Menu, which contains only four entries, each devoted to selecting the boot sequence.

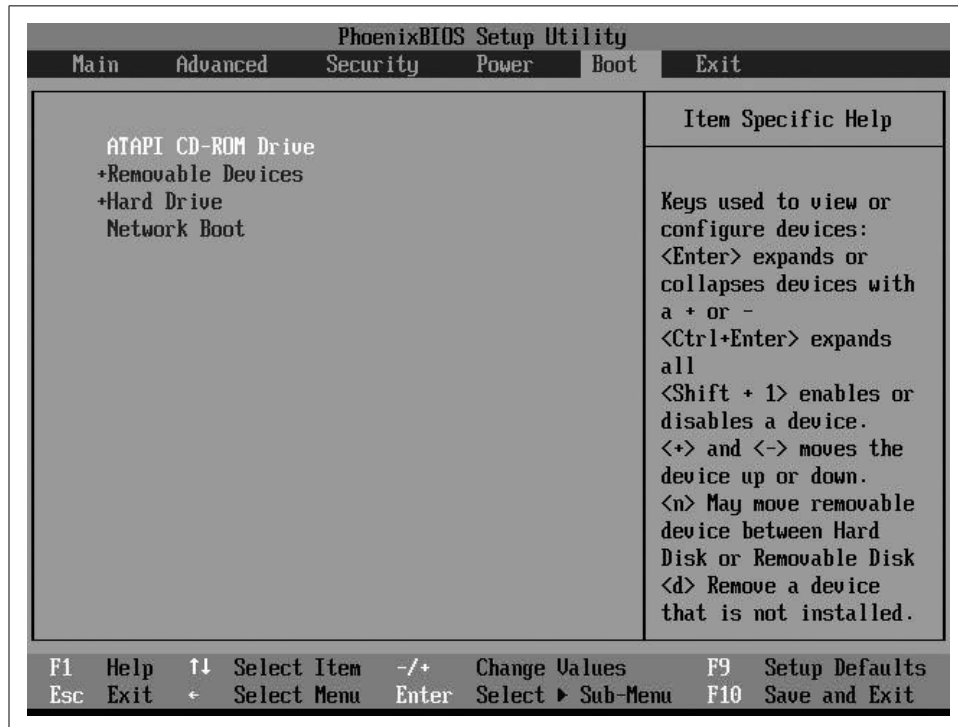


Figure F-2. BIOS utility on a different computer

On the righthand side of the screen, you can see the instructions for selecting the device you want to begin the boot process. If the system doesn’t find a CD-ROM in the drive tray, it will seek a system disk in the next device, and so on.

We recommend that you look at your computer’s documentation to determine how to boot from the CD-ROM. Unfortunately, so many different systems exist that methods vary not only from manufacturer to manufacturer but from model to model. If you like, of course, you can go back in the BIOS and restore the previous order of booting once you have successfully installed JDS and don’t anticipate the need to reinstall it.

You need to have certain information ready before you begin your installation. For example, you will need to know:

- The username and password you wish to use
- The root password you wish to use

- Network configuration information, such as how your system will determine its IP address (DHCP or Static), the gateway address, and netmask (See Chapter 4)
- The status of any existing operating systems if you plan to dual boot (as described in the following section)
- How you will partition your disk (partitions are explained in the sidebar below)
- ISP configuration information (See Chapter 4)

## Dual Booting

Many people like to have two operating systems to boot from. This is not like the simultaneous use of multiple operating systems described in Chapter 9. Dual booting allows you to choose your operating system when you boot, but you can't switch back and forth between them during system operation; you have to reboot to change operating systems. Despite the rigidity of this practice, it is very convenient for people with ample disk space who need to run Windows, for example, for some activities and JDS for others.

To install Linux on a machine with another operating system in place, you need a dual-boot environment and approximately 5 GB of free disk space.

Typically, Windows installations use an entire hard disk, leaving no space for other operating systems. Sun's JDS Installation Program can create a partition allowing you to install the Linux operating system, even if the disk is already taken up by a Windows formatted partition.

### What Are Partitions?

A partition is a physical section of a drive that can be treated as a separate disk. Each partition contains its own file system. Some partitions can be subdivided further into partitions, a bit of complexity that is needed to overcome restrictions in the Intel x86 chip architecture.

Three types of partitions exist: *primary*, *extended*, and *logical*. Four primary partitions can exist on a single drive. Generally, one primary partition is used for the files that boot the system and another for the files that the operating system and its users access when it is running, but there is great flexibility in the choice of what to partition.

An extended partition takes up the slot of a primary partition but can be broken down into logical partitions, which allows a drive to have more than four logical divisions. You can format each logical partition to support Linux or another operating system.

## The Boot Process

When a computer powers up, the CPU runs startup code from a system's read-only BIOS (Basic Input Output System). This procedure is called a POST (Power-on Self Test). During POST, the system sets up the hardware for use. Prior to starting the operating system, the system loads and runs a program stored on the first sector of the first drive called the master boot record (MBR). JDS uses a program called GRUB to look for the primary partitions and to see which one is tagged as the active partition. The active partition has its own boot record, which starts the operating system located on that partition.

If you have less than 5 GB available, consider installing an additional drive or carve the space out of your existing drive using a free utility such as FIPS or a commercial product such as PartitionMagic. (The JDS utility does not work with NTFS-formatted drives.)

Repartitioning a drive involves some risk, so be sure to back up your data before repartitioning.

Because Windows cannot resize existing partitions, the JDS Installation Program checks your hard disk to find out how it's laid out and proposes an appropriate partition setup to permit JDS to run.



If your existing Windows takes up the entire disk with an NTFS file system, the JDS installation program does not enable you to resize your partition, but proposes instead replacing your existing partition. In order to keep your Windows partition and permit dual booting, use third-party partition applications such as PartitionMagic to resize your partitions and create special partitions for JDS.

## Installing JDS

As described earlier, installing JDS involves inserting the first CD-ROM from the JDS distribution into your CD-ROM drive and powering up the computer again so it boots from this CD-ROM. At that point, the installation procedure displays a list of options:

- Boot from hard disk
- Installation
- Installation—ACPI Disabled
- Installation—Safe Settings
- Manual Installation
- Rescue System
- Memory Test

The first option is provided in case you left your installation CD in your CD-ROM drive by mistake but don't want to start an installation. If so, choose the first option. Otherwise, choose the installation option that pertains to you, and press the Enter key.

The installation program then displays Sun's Binary Code License Agreement. If you accept the agreement, click on Accept and the installation will continue. If you do not accept the agreement, the installation will not continue and you will have to abort the installation. For Linux users who have installed free distributions, accepting the Binary Code License Agreement may be a new twist for you. JDS contains proprietary components that require the agreement. Installation is not an irreversible decision, however. If you decide later that you do not want to continue using JDS because of the license or for any other reason, you can wipe the drive clean and change to a free Linux distribution.

Now, you should be in the installation program. You will notice several sections of dialog boxes. Follow the procedure as they appear.

1. In the Language Selection, choose the language you want to use and then click on Accept. (See Figure F-3.)
2. The JDS installation program browses your hardware and displays its findings.

If the JDS installation program finds an existing Linux system on your hard drive, a variety of options will be displayed. Because this appendix is primarily written for first-time installers, we assume that you choose the first option and offer instruction for this option throughout the rest of the appendix.

- New installation. Choose this if no Linux system exists on your machine or if you want to replace an existing Linux system completely.
- Update an existing system. Select this option if you want to upgrade a JDS already installed on your machine. This option preserves configuration settings from your existing system. Use this option only if you have an earlier release of JDS on your system.
- Boot installed system. Use this option to fix the problem manually if you have a Linux system on your hard disk that you cannot boot.
- Abort installation.



If you have another Linux distribution on your system, such as RedHat, SuSE or Debian, you can replace the existing distribution. If you want to keep your home directory, back it up and choose this option, *otherwise, you will lose your data and the distribution*. Letting both systems remain on your hard drive goes beyond the scope of this appendix; consult other documentation to explain how to use your bootloader to allow for multiple Linux systems.

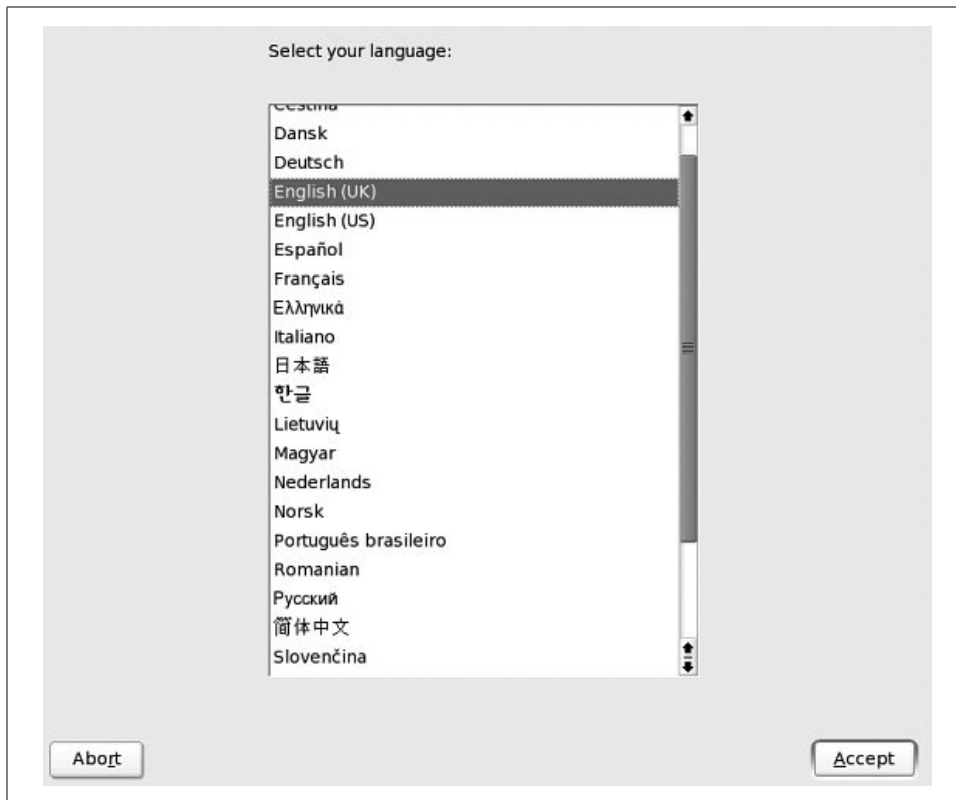


Figure F-3. Installation program language selection

3. Next, you are presented with the Installation settings for your system. These are shown in Figure F-4. They include the partitions that will be created and a brief listing of the main software to be installed.

Many of the items shown on the Installation Setting screen are actually links or bookmarks that you can click, just like links on a web page, to alter the default settings. You can visit the links to make last-minute changes to your partitions or other choices. For example, if you place your mouse on an underlined section such as Mode or Keyboard layout and click, a new page will open dedicated to that section.

To illustrate, if you click Partitioning to modify the default settings, the JDS Installation Program checks your hard disk and displays the following options:

- Accept proposal as is.
- Base the partition setup on this proposal.
- Create a custom partition setup.

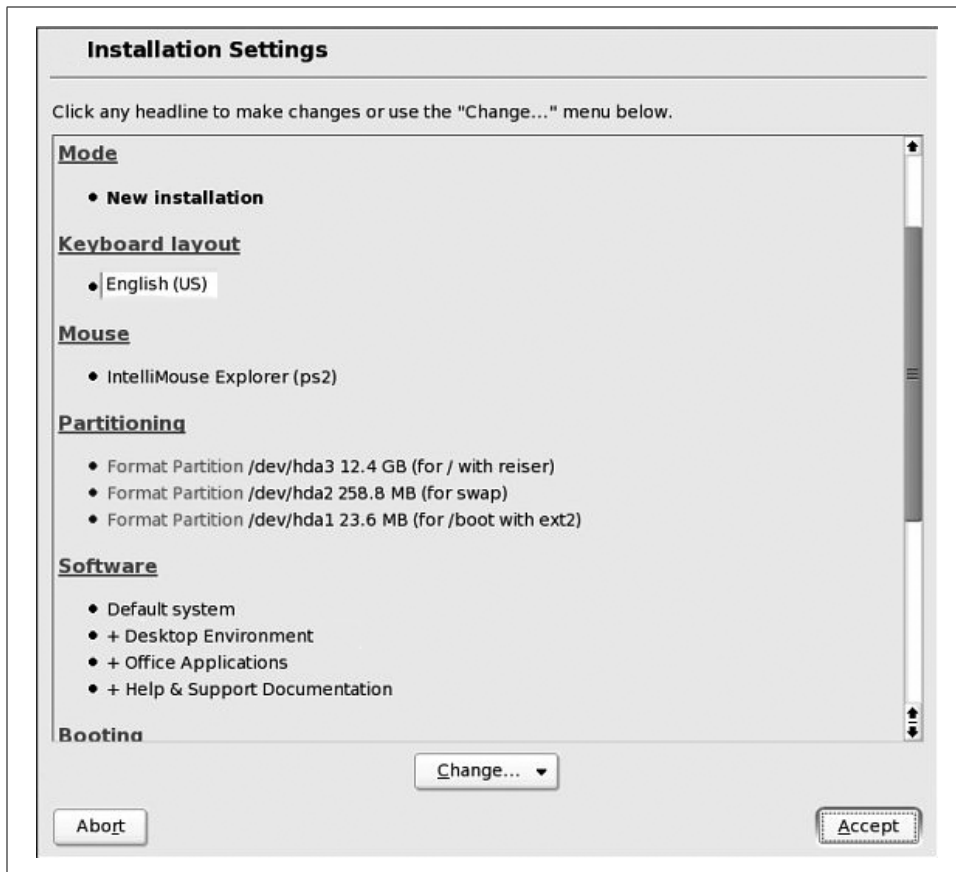


Figure F-4. Installation settings

If you have special reason to change the defaults, read the sections “Resizing Your Partition” and “Creating a Custom Partitions Table” for instructions you can follow at this point.

As another example, if you click on Software, you’ll get a new screen and have the opportunity to change the default setup. First you’ll see a screen offering you two options:

- Default system with StarSuite—for Japan, China, Korea and Taiwan only
- Default system with StarOffice—for all other countries

You will also have the option to change the defaults by using the selections available in Figure F-5. In this situation, we suggest you select Development Tools.

You can also select special configuration options for a modem and for a Laptop computer. After you select the appropriate options, click Accept.

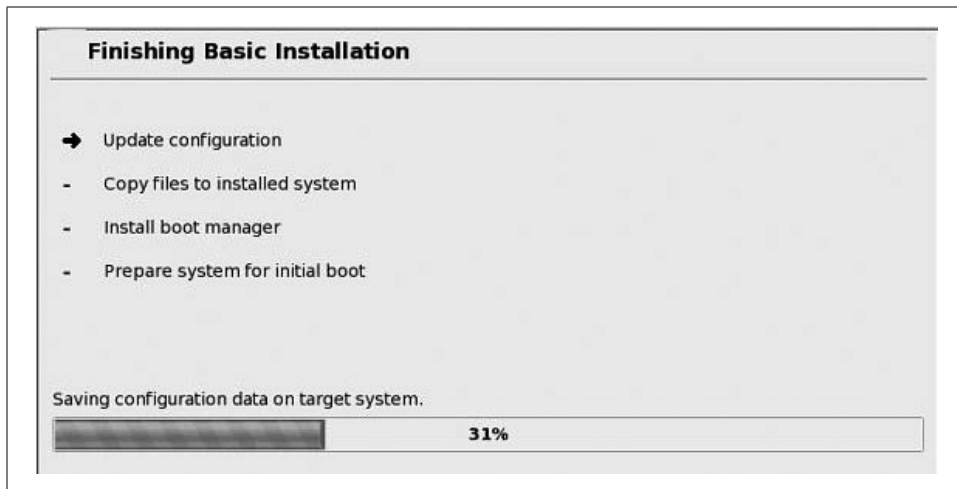


Figure F-5. Changing the software options

Once you have configured the system the way you want, you'll once again see a screen similar to Figure F-4. Make sure the changes took effect. You can now continue with the installation by clicking Accept.

4. The JDS Installation Program displays a message informing you that the installation will be performed according to the settings made in the previous dialogs. Click Yes to commit the installation and all the choices made so far.
5. A message is displayed informing you that the JDS Installation Program is preparing your hard disk. When the installation begins, a screen is displayed containing the following window panes:

*Current Package*

Displays the name, description, and size of the installation package and a status bar showing how much of the installation of that package is complete.

*Installation*

Displays the status of the percentage of installation completed from that CD, as well as the estimated time remaining to complete the download.

*Installation Log (extract)*

Displays a log of activity for all the packages currently being installed on your system.

When the download of the packages from CD 1 is complete, the JDS Installation Program displays a screen informing you that the basic installation is finished and the system automatically reboots.

6. After the system reboots, a dialog requests you to insert CD 2. Insert CD 2 and click OK.

7. When the packages you need from CD 2 are installed, a dialog requests you to insert CD 3. Insert CD 3 and click OK.
8. When all the packages you need from CD 3 are successfully installed, the JDS Installation Program prompts you to enter a password for *root*, the system administrator. Choose a hard-to-guess password for the root user and enter it twice in the boxes, shown in Figure F-6. Click Next.

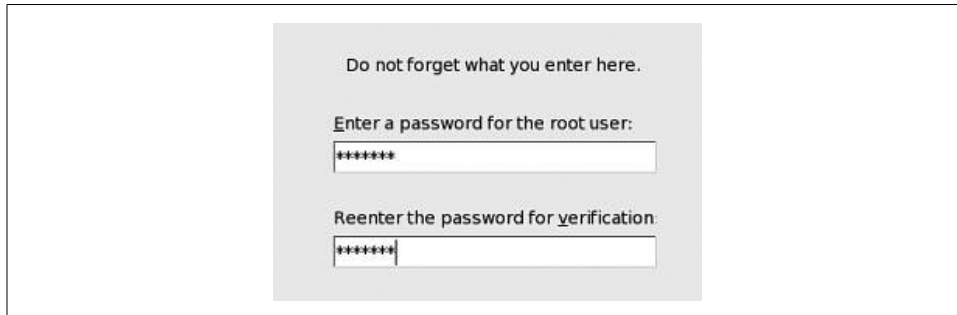


Figure F-6. Root password screen



Make a note of the root password in case you forget it. You will need it in the future.

9. The JDS Installation Program prompts you to add a new user. Enter the first name, last name, user login, and password for the user you want to add and click Next. A new user account is created with the details you enter. This will be the user you normally use to access the system; the *root* account should be used only for critical system administration tasks.
10. The JDS Installation Program starts to initialize the Desktop settings as follows:
  - Text mode only—no graphical desktop
  - Graphical desktop environmentSelect Graphical desktop environment and click Accept.
11. For a standalone, non-networked installation, the JDS Installation Program tries to detect local printers only. Click Yes if you have a local printer attached to your system. Otherwise, click “Skip detection.”
12. The JDS Installation Program writes the system configuration and displays the Installation Settings for the following hardware devices:
  - Network interfaces
  - Printers
  - Modems

- ISDN adapters
- Sound

To change any of the Installation Settings, click Change. Click Next to accept the settings as displayed on the Installation Page. JDS displays a message that the configuration is saved successfully, and the system automatically reboots.

13. Eject CD 3.
14. At the login screen, log in with the username and password that you set up for the new user.

You are now ready to use the JDS.

## Resizing Your Partition

The JDS installation program chooses a layout for your partitions that it believes makes sense for your disk. If you have reasons to change the partitions, you can do so before installation. (Once installation is complete, you can't change the partitions safely without wiping out your data.)

The following procedure outlines how to resize the partitions:

1. From the Installation Settings dialog, select Partitioning, select "Base partition setup on this proposal" option, and click Next.
2. Highlight the partition that you want to resize and click Resize.
3. Use the slider to set how much space you want to allocate to your Windows partition and your Linux partition and click OK.

Click Next to save the partition table and return to the Installation Settings screen.

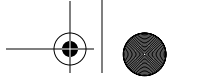


The minimum allocation of space for Linux is 3024 MB.

## Creating a Custom Partitions Table

If the partition table recommended by the JDS Installation Program is unsuitable for the JDS installation requirements, you may need to create a custom partition table. This should include at least one partition for your data and one swap partition, which the operating system needs to support multiprocessing. In this section, as an example, we create:

- A 5 GB partition mounted at the root (the / directory) for system files
- A 512 MB swap file
- A partition containing the rest of the available disk space, mounted at /usr, for user directories



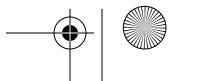
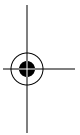
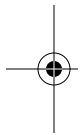
The following procedure outlines how to create a custom partition table. This procedure overwrites your existing Windows partition. Before proceeding, back up any files you want to keep.

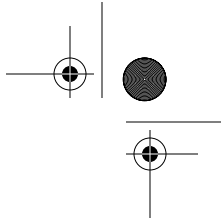
1. From the Installation Settings dialog, select Partitioning, select “Create custom partition option,” and click Next.
2. Select “Custom partitioning, for experts option,” then click Next to launch the Expert Partitioner dialog.
3. Select the device that refers to the disk where you want to install the application, for example */dev/hda*, then click Delete to erase all partitions on that disk.
4. Click Create to create a new partition and select the Primary option.
5. In the pop-up window, set the size and location for the partition. For instance, to create a single 5 GB partition that holds all the files for JDS, set the Start Cylinder to 0, set the End Cylinder to + 5 GB, and set the Mount Point to */*.
6. Click Create to create a new partition and select the Extended option.

Make sure all the choices you make in the pop-up window are consistent and valid. For example, the Start Cylinder value must be one more than the End Cylinder of the previous partition *hda1*, and the End Cylinder can be the same as the End Cylinder for the entire disk */dev/hda*.

If you want multiple partitions for various directories, you are likely to exceed the limit of four partitions that the x86 imposes using only primary partitions. Luckily, you can bypass the restriction by using one or more extended partitions. Typically, you create one extended partition that covers the remainder of the disk, and then create all the logical partitions you need inside that extended partition.

7. Click Create to create a new partition.
8. Select Swap from the pull-down menu beneath the Format option.
9. Specify the size of the swap partition using the + syntax in the End field. For example, if your system has 256 MB RAM, you probably need 512 MB of swap memory, which is expressed as + 512 MB.
10. Click Create to create a new partition. A new partition to occupy the remainder of the disk is configured. Set the Mount Point to */usr*.
11. Click Next to save the partition table and return to the Installation Settings screen.





## Checking for and Installing System Updates

The Java System Update Service enables you to:

- Install software updates for JDS.
- Choose which updates to install from a list of available updates.
- Specify which server to check for available updates.

To launch the Java System Update Service application, choose Launch → Applications → System Tools → Online Update.

## Some Common Troubleshooting

In this section we list a few common problems and how you can handle them. Sun's customer service is available to JDS users to get them started.

### Monitor Out of Range

Monitor Video Out of Range problems occur primarily with LCD Monitors. A monitor able to handle a 1280×1024 at 75 Hz will fail because it will be preset to an 85 Hz refresh rate/vertical frequency that that the monitor cannot manage. Similarly, a 15-inch monitor able to handle 1024×768 at 70 Hz will fail because the preset resolution is 1280×1024 at 75 Hz.

To prevent these problems, during installation, select 1024×768 or 800×600 temporarily, depending on the capacity of your monitor, by pressing F2. You will then see a menu of different resolutions to use. Use your arrow keys on your keyboard to select the resolution you want.

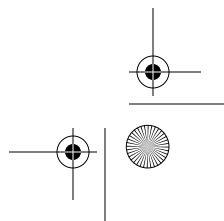
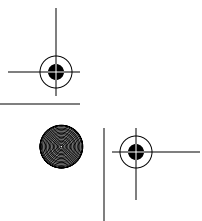
After the software packages are installed, the automatic (SaX2) hardware configuration will set your monitor to VESA 1280×1024 at 75 or 85 Hz, depending on whether the monitor is 19, 17, or 15 inches. You will want to change resolution at this stage, or the monitor will run out of range when rebooting to the graphical login screen.

On reboot, if the monitor encounters the out-of-range problem, it shows a black screen. But you can solve this without a cumbersome re-installation.

After rebooting Linux, at the point when the display goes black and gray just before the graphical login screen is supposed to start up, select Alt-F1 from the keyboard, followed by the Enter key. This breaks the startup of the graphical login screen, and presents a text-based command line login instead. Log in as root with root password.

Next, enter the following command

```
init 3
```



followed by the Enter key. At the # prompt that again appears, enter:

```
sax2 -l
```

to start the SaX2 graphical configuration tool in a low resolution mode.

Now it is possible in SaX2 to change the monitor and resolution settings. Test it and customize the size and position before saving the configuration.

Reboot the system. The graphical login screen should now be displayed properly.

## Sony VAIO Laptop with a ATI Radeon IGP 345M Video Card Does Not Work

The ATI Radeon IGP 345M requires Xfree86 Version 4.3.

Run X-version from the command line. You will see the following information:

```
XFree86 Version 4.3.0
Release Date: 27 February 2003
X Protocol Version 11, Revision 0, Release 6.6
Build Date: 25 March 2004
Module Loader present
To resolve the problem, add these sections to your /etc/X11/XF86Config-4 file:
Section "Device"
Identifier "ATI"
Driver "radeon"
VendorName "ATI"
BoardName "Mobility U1"
EndSection
Section "Screen"
Identifier "Screen0"
Device "ATI"
Monitor "Monitor0"
DefaultDepth 24
SubSection "Display"
Depth 24
Modes "1024x768" "800x600" "640x480"
EndSubSection
EndSection
```

## Install Fails on Disk 2

Run the following command as root:

```
dd if=/dev/cdrom of=/dev/null
```

If the media is fine, you should get a result such as the following:

```
linux:~ # dd if=/dev/cdrom of=/dev/null
1316996+0 records in
1316996+0 records out
```

If a physical defect on the media prevents the data from being successfully read, you will get an error message.

If you do not receive an error, your system may be slowed down by the capacity of the CPU. Wait a little longer—on some machines the decompress and timeouts are excessively long on this package install.

## Having Trouble with Wireless LAN Card

Wireless LAN cards may or may not work in JDS. Unfortunately, this is a general Linux problem, not isolated to JDS. Several projects exist to help resolve the problems depending on the type of LAN card you own.

A commercial solution comes from Linuxant which you can find at <http://www.linuxant.com/driverloader/>.

Linuxant supports chipsets from the following manufacturers:

- Atheros
- Broadcom (AirForce)
- Cisco (Aironet)
- INPROCOMM
- Intel (PRO/Wireless 2100, 2100A, 2200BG - Centrino)
- Intersil (Prism GT/Duette/Indigo)
- Marvell (Libertas)
- Realtek (RTL8180L)
- Texas Instruments (ACX100, ACX111/TNETW1130)

Free solutions may be found at:

- <http://www.linux-wlan.org/>
- [http://tuxmobil.org/pcmcia\\_ci10028.html/](http://tuxmobil.org/pcmcia_ci10028.html/)

