

Chapter 1

L3 Controller Solution Installation/Reinstallation (Internal)

An SGI Origin 3000 series L3 controller solution consists of a Silicon Graphics 230 visual workstation or a Customer Service laptop loaded with the Red Hat Linux operating system (OS) and L3 controller software. Two types of L3 controller software are available: an internal type that is installed and used only by SGI personnel, and an external type that is installed and used by non-SGI personnel.

Complete the procedures in this chapter to install or reinstall an L3 controller that uses internal L3 controller software.

Note: Because internal L3 controller software may not be installed or used by non-SGI personnel, non-SGI personnel are not authorized to complete the procedures in this chapter. External L3 controller solution installation procedures for non-SGI personnel are located in the *SGI Origin 3000 L3 Controller Installation Guide* (Silicon Graphics P/N 007-4363-00x).

1.1 Software Installation Requirements

Ensure that you can access/download the software listed in Table 1-1 from the workstation or laptop before you install any software. If you cannot access an online version of the required software, order a CD-ROM version.

Note: Your Silicon Graphics 230 visual workstation or Customer Service laptop must have Internet and network access if you will RCP the internal L3 controller software directly to the workstation during the installation.

Table 1-1 Required Installation Software (Internal Version)

Software Required	Minimum Version Required	Online Software Download Location	CD-ROM Software Order Location
Red Hat Linux OS	Version 6.2 (or newer)	FTP via the following location: ¹ <i>ftp://dist.engr/linux/redhat/-X.X/</i> Note: The FTP option is not supported by this documentation.	Order <i>Red Hat Linux OS</i> from your account representative. ¹ (SGI part number SC5-REDHAT-X.X)
Origin 300 Series L3 Controller Software ²	Internal version 1.5 (or newer)	RCP via the following directory: ³ <i>/usr/release/www/Tools/Tools_Distribution/CD_images/current/linux/rpms</i>	Order <i>Internal Support Tools CD</i> via the following URL: ¹ <i>http://www.csd.sgi.com/prod/software/swd/tool/Order/intl_bof.cgi</i> (SGI part number 812-0640-XXX)

¹ An italicized X indicates a variable numeric value. Replace each X.X in *Red Hat Linux OS* download and order locations with the OS version number you require (for example, *ftp://dist.engr/linux/redhat/-6.2/*). Replace the XXX in the *L3 Controller Software* order location with the CD-ROM release number you wish to order (for example, SGI part number 812-0640-008).

² This software is part of CD-ROM and/or online versions of the *Internal Support Tools CD* (version 2.3 or newer).

³ This software is also available for download at the following URL if the RCP feature is unavailable:

http://ist.csd.sgi.com/Tools/Tools_Distribution/CD_html/current/linux.html

1.2 Installation Process Overview

The following subsections provide overviews of how to install the required software on Silicon Graphics 230 visual workstations and Customer Service laptops.

Note: The procedures in this chapter have been tested with Red Hat Linux OS versions 6.2, 7.0, and 7.1. (SGI recommends that you use Red Hat Linux OS version 6.2 on Silicon Graphics 230 visual workstation-based L3 controllers; SGI recommends that you use Red Hat Linux OS version 7.0 on Customer Service laptop-based L3 controllers.)

1.2.1 Installation Process for Silicon Graphics 230 Visual Workstations

The following subsections describe the L3 controller solution installation process for the following configurations:

- Silicon Graphics 230 visual workstations with the Red Hat Linux OS installed
- Silicon Graphics 230 visual workstations without the Red Hat Linux OS installed

1.2.1.1 Systems with the Red Hat Linux OS Installed

The factory installs the Red Hat Linux OS on workstations that ship to customers located in North America. To install an SGI Origin 3000 series L3 controller solution on a Silicon Graphics 230 visual workstation that shipped with the Red Hat Linux OS already installed, you must:

1. Install the internal L3 controller software (via CD-ROM or download) on the workstation as described in Section 1.5, "Internal L3 Controller Software Installation."
2. Connect the workstation to an SGI Origin 3000 series server that runs IRIX version 6.5.9 OS (or newer) as described in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection."

1.2.1.2 Systems without the Red Hat Linux OS Installed

The factory does not install the Red Hat Linux OS on workstations that ship to customers located outside of North America. To install an SGI Origin 3000 series L3 controller solution on a Silicon Graphics 230 visual workstation that shipped without the Red Hat Linux OS already installed, you must:

1. Configure and install the Red Hat Linux OS and install the auxiliary Linux software components (via CD-ROM) on the workstation as described in Section 1.4, "Red Hat Linux OS Configuration and Installation."
2. Install the internal L3 controller software (via CD-ROM or download) on the workstation as described in Section 1.5, "Internal L3 Controller Software Installation."
3. Connect the workstation to an SGI Origin 3000 series server that runs IRIX version 6.5.9 OS (or newer) as described in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection."

1.2.2 Installation Process for Customer Service Laptops

Field Information Services (IS) installs the Red Hat Linux OS on your Customer Service laptop before you receive it, so you do not need to install the Red Hat Linux OS on the laptop. You must install the auxiliary Linux software components and the internal L3 controller software.

To install an SGI Origin 3000 series L3 controller solution on a Customer Service laptop, you must:

1. Install the auxiliary Linux software components (via CD-ROM) on the laptop as described in Section 1.4.3, "Auxiliary Linux Software Component Installation."
2. Install the internal L3 controller software (via CD-ROM or download) on the laptop as described in Section 1.5, "Internal L3 Controller Software Installation."
3. Connect the laptop to an SGI Origin 3000 series server that runs IRIX version 6.5.9 OS (or newer) as described in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection."

1.3 Reinstallation Process Overview

Occasionally, you may need to reinstall all of the software required for a L3 controller solution (for example, if the hard drive crashes). To reinstall the Red Hat Linux OS and the L3 controller software on a Silicon Graphics 230 visual workstation or a Customer Service laptop, you must:

1. Configure and install the Red Hat Linux OS and install the auxiliary Linux software components (via CD-ROM) on the workstation as described in Section 1.4, "Red Hat Linux OS Configuration and Installation."
2. Install the internal L3 controller software (via CD-ROM or download) on the workstation as described in Section 1.5, "Internal L3 Controller Software Installation."
3. Connect the workstation to an SGI Origin 3000 series server that runs IRIX version 6.5.9 OS (or newer) as described in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection."

1.4 Red Hat Linux OS Configuration and Installation

Note: Refer to the *Red Hat Linux Installation Guide* for detailed information related to any Red Hat Linux OS installation process.

Before you begin the Red Hat Linux OS configuration and installation, ensure that you have the following information:

- Monitor type, video card type, and video memory size
- IP address, netmask, network and broadcast addresses

Important: IP address, netmask, network and broadcast address information are not required if your network uses only DHCP addressing.

Note: Obtain a blank DOS-formatted floppy disk if you want to create an optional boot disk when the Red Hat Linux OS installation concludes.

When you have obtained the required information (and optional items), continue to Section 1.4.1, “Red Hat Linux OS Configuration”.

1.4.1 Red Hat Linux OS Configuration

Complete the procedures in this subsection to configure the Red Hat Linux OS for installation:

1. Power on the Silicon Graphics 230 visual workstation or Customer Service laptop.
2. When the SGI title screen appears, press the *F12* key; the `Boot Menu` appears.
3. Insert the *Red Hat Linux* CD-ROM.
4. Use the arrow keys to select `CD-ROM` from the `Boot Menu`; then press the *Enter* key. The Red Hat menu appears.
5. At the boot prompt, press the *Enter* key; the workstation boots from the *Red Hat Linux* CD-ROM.
6. Press the *Enter* key when the `Welcome to Red Hat Linux` screen displays.

1.4.1.1 Keyboard and Mouse Configuration

7. Use the keyboard directional arrow keys to select a language for your system; click *Next* to continue.
8. Configure the keyboard options for your system:
 - a. Use the keyboard directional arrow keys to select the keyboard configuration for your system.

Note: Standard Silicon Graphics 230 visual workstation and Customer Service laptop users should select the `Generic 101-Key PC` keyboard configuration.
 - b. Click the keyboard layout option button that best matches your system.
 - c. Click the `Enable Dead Keys` option button to enable non-English keyboard characters (umlauts, for example).
 - d. Click *Next* to continue.
9. Use the keyboard directional arrow keys to select the mouse type for your system; click *Next* to continue.

Note: Standard Silicon Graphics 230 visual workstation users should select the `(3 Button Mouse (PS/2))` mouse configuration. Customer Service laptop users should select the `(Generic (PS/2))` mouse configuration.
10. Click *Next* in the Red Hat Linux System Installer window to continue.

1.4.1.2 Installation Type Selection

11. Click the `Install and GNOME Workstation` option buttons (if not already selected by default) in the `Install Type` window; click *Next* to continue (refer to Figure 1-1).

Note: Click *Initialize* to format the workstation drive if the following message displays:

```
The partition table on device hda is corrupted. To create new
partitions it must be initialized, causing the loss of ALL DATA
on this drive.
```

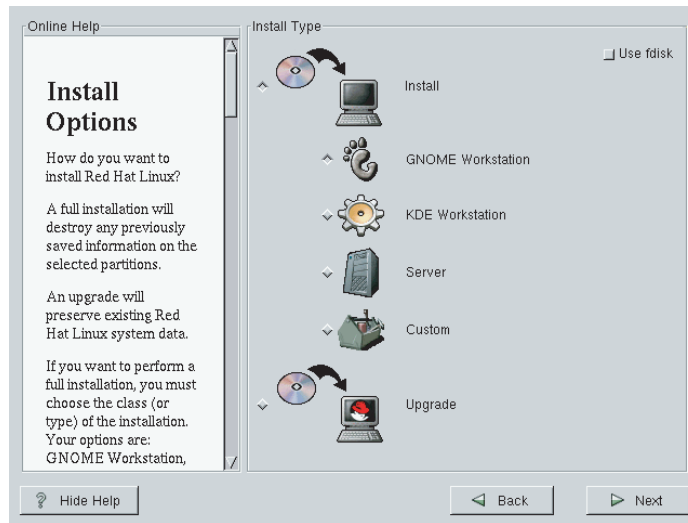


Figure 1-1 Install Type Options

1.4.1.3 Workstation Partition Creation and Configuration

12. Click the `Manually partition` option button in the `Install Window`; click `Next` to continue (refer to Figure 1-2).

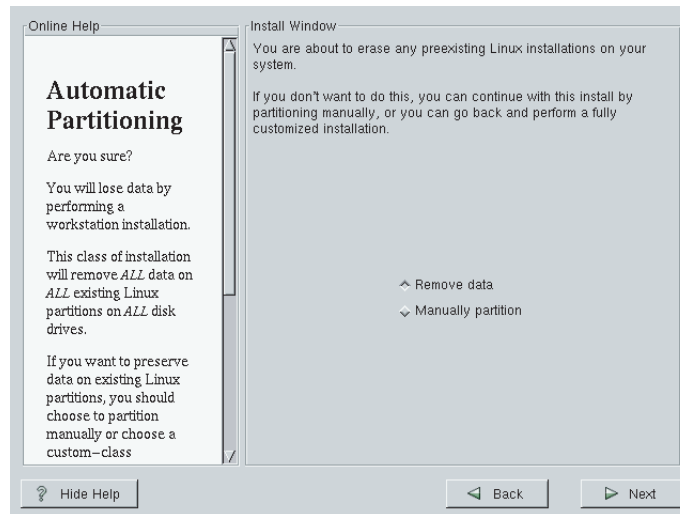


Figure 1-2 Install Window Options

13. Configure the three required workstation drive partitions:
 - a. Click `Add` in the `Disk Druid Partitions` window; a popup window displays (refer to Figure 1-3).

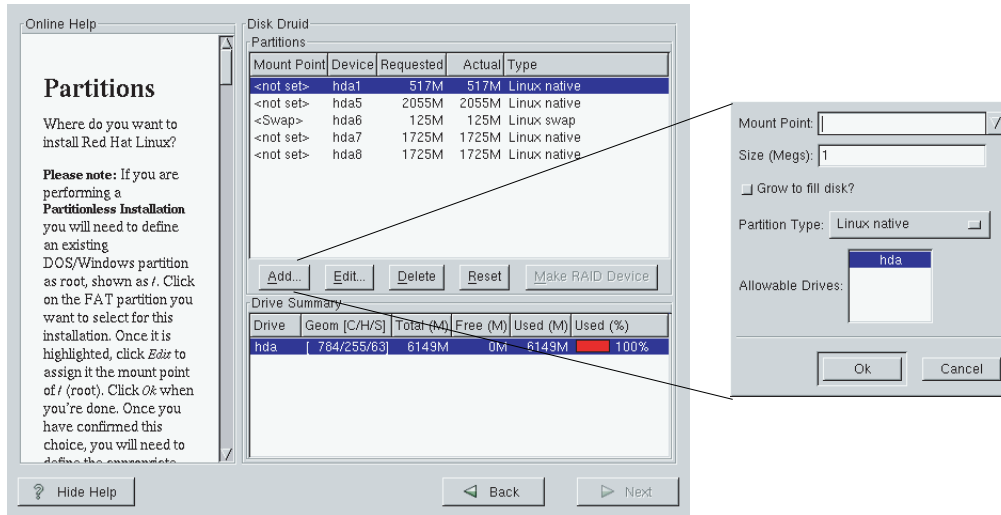


Figure 1-3 Disk Druid Partitions Window and Popup Window

- b. Select a partition type listed in Table 1-2 from the pull-down menu.
 - c. Type the mount point information from Table 1-2 for the partition into the Mount Point field.
- Note:** If you selected a Linux swap partition type, the mount point value is automatically entered into the Mount Point field.
- d. Type the partition size from Table 1-2 for the partition into the Size (Megs) field in the popup window.
- Important:** Be sure to click the Grow to fill disk? option button in the popup window when you create the root (/) partition.
- e. Click OK.

Table 1-2 Disk Partition Configuration Settings

Mount Point	Size (MB)	Partition Type
/boot	50 MB	Linux native
<Swap Partition>	512 MB	Linux swap
/	1 MB (Grow to fill)	Linux native

Note: The Linux <Swap Partition> size should be set to a value that is at least equal to the amount of available workstation memory. If you choose to increase the Linux <Swap Partition> partition size, increase it by multiples of the available workstation memory; for example, a workstation with 512 MB of available memory should have a Linux <Swap Partition> size of 512 MB, 1024 MB, 1536 MB, and so forth.

14. Repeat Step 13 to configure the remaining 2 disk partitions that are listed in Table 1-2.
15. Click Next to continue; the Choose partitions to Format window displays.
16. Click the option button that precedes each partition that you configured in Step 12 (refer to Figure 1-4).

Note: <Swap Partition> is automatically prepared for use; therefore, you are not able to select this partition.

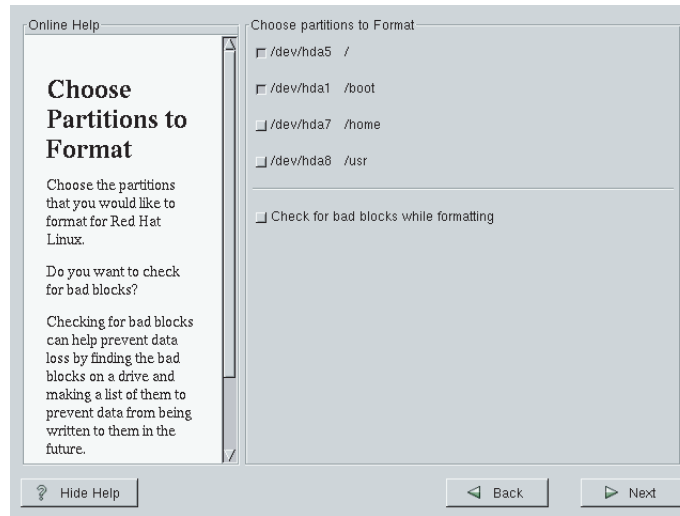


Figure 1-4 Choose partitions to Format Window

17. Click *Next* to format the selected partitions.

Note: Click the *Check for bad blocks while formatting* option button if you wish to scan the workstation drive for bad memory blocks during the Linux Red Hat Linux OS installation. Checking for bad blocks while you format the partitions increases the amount of time required to install the OS.

1.4.1.4 Network Settings Configuration

Note: Standard Silicon Graphics 230 visual workstations have a single-port Ethernet interface card; this single-port card connects to the system L2 controllers via DHCP protocol. An optional 4-port Ethernet interface card is also available from SGI; you must configure these additional ports via DHCP protocol. If your workstation contains multiple Ethernet cards or ports that do not use DHCP protocol, you must manually configure these additional network interfaces. Ensure that you have IP, netmask, network, and broadcast addresses for these interfaces.

Note: Customer Service laptop users should configure the primary Ethernet port to connect to the L2 controllers via DHCP protocol.

18. Configure the Ethernet card or port that connects to the L2 controllers via DHCP protocol (refer to Figure 1-5):

a. Click the tab that corresponds to the Ethernet card or port in the *Network Configurations* window.

Note: This tab is typically labeled *eth0* in systems that have a single-port Ethernet interface card.

b. Click the *Configure using DHCP* option.

c. Click the *Activate on boot* option.

d. If you have no additional Ethernet cards or ports of this type to configure, skip to Step 21.

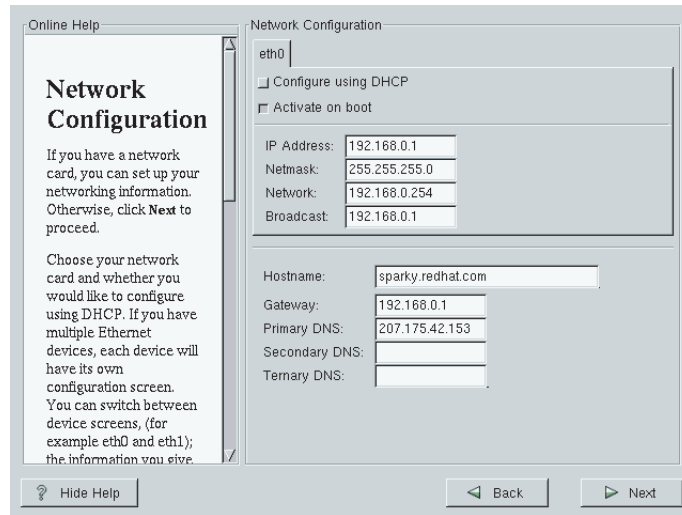


Figure 1-5 Network Configuration Window

19. Configure an optional Ethernet card or port that connects to the L2 controllers via DHCP protocol:
 - a. Click the tab that corresponds to the Ethernet card or port in the `Network Configurations` window.
 - b. Click the `Activate on boot` option.
 - c. Click the `Configure using DHCP` option.
 - d. Repeat Step 19 if you wish to configure additional Ethernet cards or ports of this type.
 - e. If you have no additional Ethernet cards or ports of this type to configure, skip to Step 21.
20. Configure an optional Ethernet card or port that connects to the L2 controllers via non-DHCP protocol.
 - a. Click the tab that corresponds to the Ethernet card or port in the `Network Configurations` window.
 - b. Click the `Activate on boot` option.
 - c. Type your site-specific information (for example, IP address, Netmask) into the appropriate fields in the `Network Configuration` window.
 - d. Repeat Step 20 if you wish to configure additional Ethernet cards or ports of this type.
21. Click `Next` to continue.

1.4.1.5 Account Configuration

22. Use the scroll bar to locate your time zone in the available list; then, click `Next` to continue.

Note: You may also use your mouse to double-click an area on the map that corresponds to your time zone.
23. Type the root password and configure your account; click `Add`.

24. Create and configure each additional user account; click *Add* when you complete each account.
25. Click *Next* to continue; the first `X Configuration` windows displays.

1.4.1.6 X Configuration Settings Selection

Note: The settings suggested in this subsection are typically used to configure the Linux OS to operate with a standard Silicon Graphics 230 visual workstation and SGI monitor; your workstation and monitor configuration may require other settings. You may manually input these settings if the option you require is not displayed.

26. Select the monitor configuration; click *Next* to install the Red Hat Linux OS.
Note: Most monitors use the `DDC Probed Monitor-->(YOUR MONITOR TYPE)` option.
27. Select the video card that is installed in your workstation; click *Next* to continue.
Note: Standard Silicon Graphics 230 visual workstation users should select the `NVIDIA GeForce DDR Generic` video card.
Note: The video card used in Customer Service laptops varies from system to system; however, the configuration application probes the hardware and selects the correct setting. Use the setting that the configuration application selects.
28. Select the memory requirement; click *Next* to continue.
Note: Standard Silicon Graphics 230 visual workstation users should select `16384k` as the memory requirement.
Note: The memory requirement varies for Customer Service laptops; however, the configuration application determines the correct setting. Use the setting that the configuration application selects.
29. Select the preferred user interface.
Note: Most users prefer to use the `Graphical Login` interface option.
30. Click the *Test this Configuration* button to verify that your X configuration settings are correct. If no image displays on the monitor, repeat the steps in this section until the X configuration test displays an image on the monitor.
31. Click *Next* to continue.

1.4.2 Red Hat Linux OS Installation

32. Click *Next* in the `About to install` window to begin the Red Hat Linux OS installation.
Note: Allow 15 to 60 minutes for the Red Hat Linux OS installation to complete.
33. If you do not wish to create an optional Red Hat Linux boot disk, click the `Skip boot disk creation option` and proceed to Step 35. If you wish to create a boot disk, complete the procedure in Step 34.
Note: The boot disk is optional because you can boot the workstation from the *Red Hat Linux* CD-ROM.

34. Create the optional Red Hat Linux boot disk:
 - a. Click the option button to deselect the `Skip boot disk creation` option.
 - b. Insert a blank, DOS-formatted floppy disk into the workstation floppy disk drive.
 - c. Click *Next* to create the boot disk.
35. Click *Exit* to reboot the workstation.
36. Remove the *Red Hat Linux* CD-ROM and the optional boot disk when the workstation automatically ejects them from their respective drives.
37. Install the auxiliary Linux software components as directed in Section 1.4.3, “Auxiliary Linux Software Component Installation”.

1.4.3 Auxiliary Linux Software Component Installation

You must install 5 auxiliary Linux software components to enable the L3 controller solution to function: `pdksh`, `uucp`, `inetd`, `dhcp`, and `telnet-server`.

Complete the following procedure to install these components:

1. Boot the Silicon Graphics 230 visual workstation or Customer Service laptop from the hard disk.
2. Log in to the workstation as root.
3. Insert the *Red Hat Linux* CD-ROM into the CD-ROM drive.

Note: Click *No* if a *Question* dialog box appears that asks, “Do you wish to run `/mnt/cdrom/autorun ?`”
4. Double-click the `Red Hat Linux CD-ROM` desktop icon to access the CD-ROM software.
5. Double-click the `Red Hat` folder icon to open the `Red Hat` directory.
6. Double-click the `RPMS` folder icon to open the `RPMS` directory.
7. Install the `pdksh`, `uucp`, `inetd`, `dhcp`, and `telnet-server` software components:
 - a. Locate and double-click one of the component files listed above in the `RPMS` directory.
 - b. Repeat substep a until you have installed the required components.
8. Remove the CD-ROM from the CD-ROM drive.
9. Install the L3 controller software as directed in Section 1.5, “Internal L3 Controller Software Installation”.

1.5 Internal L3 Controller Software Installation

Table 1-3 lists the components that the internal L3 controller software includes.

Table 1-3 Internal L3 Controller Software Components

Components	Description
l3_install	L3 software installation tool
kernel_sgisn1-2.2.16 ^a	Kernel software
kernel_sgisn1_usb-2.4.2-2-1.3 ^b	L1 USB module for the Red Hat 7.1 kernel
kernel_sgisn1_usb-2.4.7-10-1.3 ^b	L1 USB module for the Red Hat 7.2 kernel
kernel_sgisn1_usb-2.4.2-5SGI_137-1.3 ^b	L1 USB module for the SGI ProPack for Linux 1.5 kernel
kernel_sgisn1_usb-2.4.2-SGI_XFS_1.0-1.3 ^b	L1 USB module for the SGI XFS 1.0 kernel
kernel_sgisn1_usb-2.4.3-SGI_XFS_1.0.1-1.3 ^b	L1 USB module for the SGI XFS 1.0.1 kernel
sgidiag	sgidiag user account Note: The <code>sgidiag</code> component is not part of the external L3 controller software.
sn1sc_firmware	L1 and L2 firmware
sn1sc_l3	L3 utilities
sn1scan	Boundary scan tools Refer to the <i>Scan Tools</i> document, publication number 108-0263-00x, for more information about the boundary scan tools. Note: The <code>sn1scan</code> component is not part of the external L3 controller software.

a. This package contains the full kernel package for systems running the supported configuration (Red Hat Linux 6.2 on Silicon Graphics 230 visual workstation-based L3 controllers and Red Hat Linux 7.0 on laptop-based L3 controllers.)

b. If you are not running the supported configuration (Red Hat Linux 6.2 or 7.0), this package contains a runtime-loadable module that provides L1 USB support for the specified kernel. Load the module to add USB support to the existing kernel. Enter the `/bin/uname -r` command to determine which kernel your system is running. If you are running a kernel that is not supported by the runtime-loadable modules available in the L3 controller software, the `l3_install` script automatically prompts you to run the `sgill1_make_driver` script. The `sgill1_make_driver` script guides you through the procedure to build a runtime-loadable module for the kernel that is installed.

Complete the procedures in Section 1.5.1, “Internal L3 Controller Software Installation (Download)” if you plan to download the internal L3 controller software.

Complete the procedures in Section 1.5.2, “Internal L3 Controller Software Installation (CD-ROM)” if you plan to install the internal L3 controller software from CD-ROM.

1.5.1 Internal L3 Controller Software Installation (Download)

The internal L3 controller software is available for download via the following directory:

```
ist.csd.sgi.com:/usr/release/www/Tools/Tools_Distribution/  
CD_images/current/linux/rpms/
```

To download and install the internal L3 controller software, complete the following procedure:

1. Log on to the workstation with root privileges.
2. Type the following commands at the superuser prompt to both create a new directory for the L3 controller software files and move to that directory:

```
# mkdir l3  
# cd l3
```

3. Type the following command to download the L3 controller software to the directory you created in Step 2:

```
# rcp guest@ist.csd.sgi.com:/usr/release/www/Tools/Tools_Distribution/  
CD_images/current/linux/rpms/L3.tar .
```

4. Type the following command to expand the `L3.tar` file:

```
# tar -xf L3.tar
```

5. Insert the *Red Hat Linux* CD-ROM into the CD-ROM drive.

6. If you are installing the L3 controller software on a Silicon Graphics 230 visual workstation after installing or reinstalling Red Hat Linux OS version 6.2, type the following command:

```
# ./sgi230_l3_reinstall
```

The `sgi230_l3_reinstall` script automatically installs additional Red Hat Linux components that are normally installed in the factory. This script installs additional required packages that are not part of the default Red Hat Linux installation.

The script takes several minutes to run; it lists each package that it installs and displays a progress bar as it installs each package.

Note: The `sgi230_l3_reinstall` script is available starting with the *Internal Support Tools 2.5.1* Web release.

7. Remove the *Red Hat Linux* CD-ROM from the workstation CD-ROM drive.

8. Type the following command to install the L3 controller software:

```
# ./l3_install
```

Note: The `l3_install` script determines which version of the Linux operating system is installed on the system (Red Hat Linux OS version 6.2, 7.0, or 7.1) and installs the correct packages for that operating system.

9. Type the following commands to both move out of and delete the L3 directory:

```
# cd ../  
# rm -r l3
```

10. Restart the workstation; then, connect the workstation to the SGI Origin 3000 series server as directed in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection".

1.5.2 Internal L3 Controller Software Installation (CD-ROM)

The internal L3 controller software is available on the *Internal Support Tools* CD-ROM (Silicon Graphics P/N 812-0640-XXX). You can order this CD-ROM via the following URL: http://www.csd.sgi.com/prod/software/swd/tool/Order/intl_bof.cgi

To install internal L3 controller software from CD-ROM, complete the following procedure:

1. Log on to the workstation with root privileges.
2. Insert the *Internal Support Tools* CD-ROM into the workstation CD-ROM drive.
3. Type the following command at the superuser prompt to change to the `/mnt/cdrom/linux/rpms` directory:

```
# cd /mnt/cdrom/linux/rpms
```

Note: The `sgi230_l3_reinstall` script described in Step 4 is currently available only in the *Internal Support Tools 2.5.1* Web release. It will not be available on CD-ROM until the *Internal Support Tools 2.6* CD release. If you need to perform Step 4 before the *Internal Support Tools 2.6* CD release is available, download the `L3.tar` file and install the L3 controller software from that file as directed in Section 1.5.1, "Internal L3 Controller Software Installation (Download)".

4. If you are installing the L3 controller software on a Silicon Graphics 230 visual workstation after installing or reinstalling Red Hat Linux OS version 6.2, perform the following procedure:

- a. Type the following command to copy the script to the workstation:

```
# cp sgi230_l3_install /tmp
```

- b. Remove the *Internal Support Tools* CD-ROM from the workstation CD-ROM drive.
- c. Insert the *Red Hat Linux* CD-ROM into the workstation CD-ROM drive.
- d. Type the following command to change to the `/tmp` directory:

```
# cd /tmp
```

- e. Type the following command to make the `sgi230_l3_reinstall` script executable:

```
# chmod 755 sgi230_l3_reinstall
```

- f. Type the following command to run the script:

```
# ./sgi230_l3_reinstall
```

The `sgi230_l3_reinstall` script automatically installs additional Red Hat Linux components that are normally installed in the factory. This script installs additional required packages that are not part of the default Red Hat Linux installation.

The script takes several minutes to run; it lists each package that it installs and displays a progress bar as it installs each package.

- g. Remove the *Red Hat Linux* CD-ROM from the workstation CD-ROM drive.

- h. Type the following command to delete the `sgi230_13_install` script:

```
# rm sgi230_13_reinstall
```

- i. Insert the *Internal Support Tools* CD-ROM into the workstation CD-ROM drive.
- j. Type the following command to change to the `/mnt/cdrom/linux/rpms` directory:

```
# cd /mnt/cdrom/linux/rpms
```

5. Type the following command to install the software from the CD-ROM:

```
# ./l3_install
```

Note: The `l3_install` script determines which version of the Linux operating system is installed on the system (Red Hat Linux OS version 6.2, 7.0, or 7.1) and installs the correct package for that operating system.

6. Remove the *Internal Support Tools* CD-ROM from the workstation.
7. Restart the workstation; then, connect the workstation to the SGI Origin 3000 series server as directed in Section 1.6, "SGI Origin 3000 Series Server-to-L3 Connection".

1.6 SGI Origin 3000 Series Server-to-L3 Connection

The following subsections provide procedures for establishing connections between the L3 controller solution and L1 and L2 controllers.

Note: The figures in the following subsections show connections to a Silicon Graphics 230 visual workstation-based L3 controller solution. The connections are identical for Customer Service laptop-based L3 controller solutions; use the same cables to connect to the appropriate ports on the laptop (serial port, USB port, or Ethernet port).

1.6.1 SGI Origin 3200-to-L3 Connection

Complete the procedure in Section 1.6.1.1 to connect the L3 controller solution to the L1 controller via a serial connection. Complete the procedure in Section 1.6.1.2 to connect the L3 controller solution to the L2 emulator via a USB connection.

1.6.1.1 L3-to-L1 Controller Serial Connection

1. Ensure network settings are set to the following values:
 - vt100
 - Baud 38400
 - No parity
 - 8 data bits
 - 1 stop bit
 - Hardware flow control on (rts/cts)
2. Power down the workstation.
3. Connect a null modem serial cable from the L3 serial connector to the console port at the rear of the C brick (refer to Figure 1-6).
4. Power up the workstation.

Important: Ensure that you have write access to the ttyS0 device before you complete Step 5.

5. Type `cu -l ttyS0 -s 38400` at the Linux prompt. The L1 responds with "Connected."

```
$ cu -l ttyS0 -s 38400
Connected.
```

6. Press the *Enter* key to display the L1 prompt.

```
001c04>
```

1.6.1.2 L3-to-L2 Emulator USB Connection

1. Connect a USB cable from the workstation to the L1 port (USB port) on the rear of the C brick (refer to Figure 1-6).
2. Ensure that you are in the `/stand/sysco/bin` directory.
3. Type `./12` at the Linux prompt to establish a connection.

```
$ ./12
```

Note: Ensure that the L1 network auto-detect is enabled or ensure that the C-brick network interface ports are set to 422 protocol.

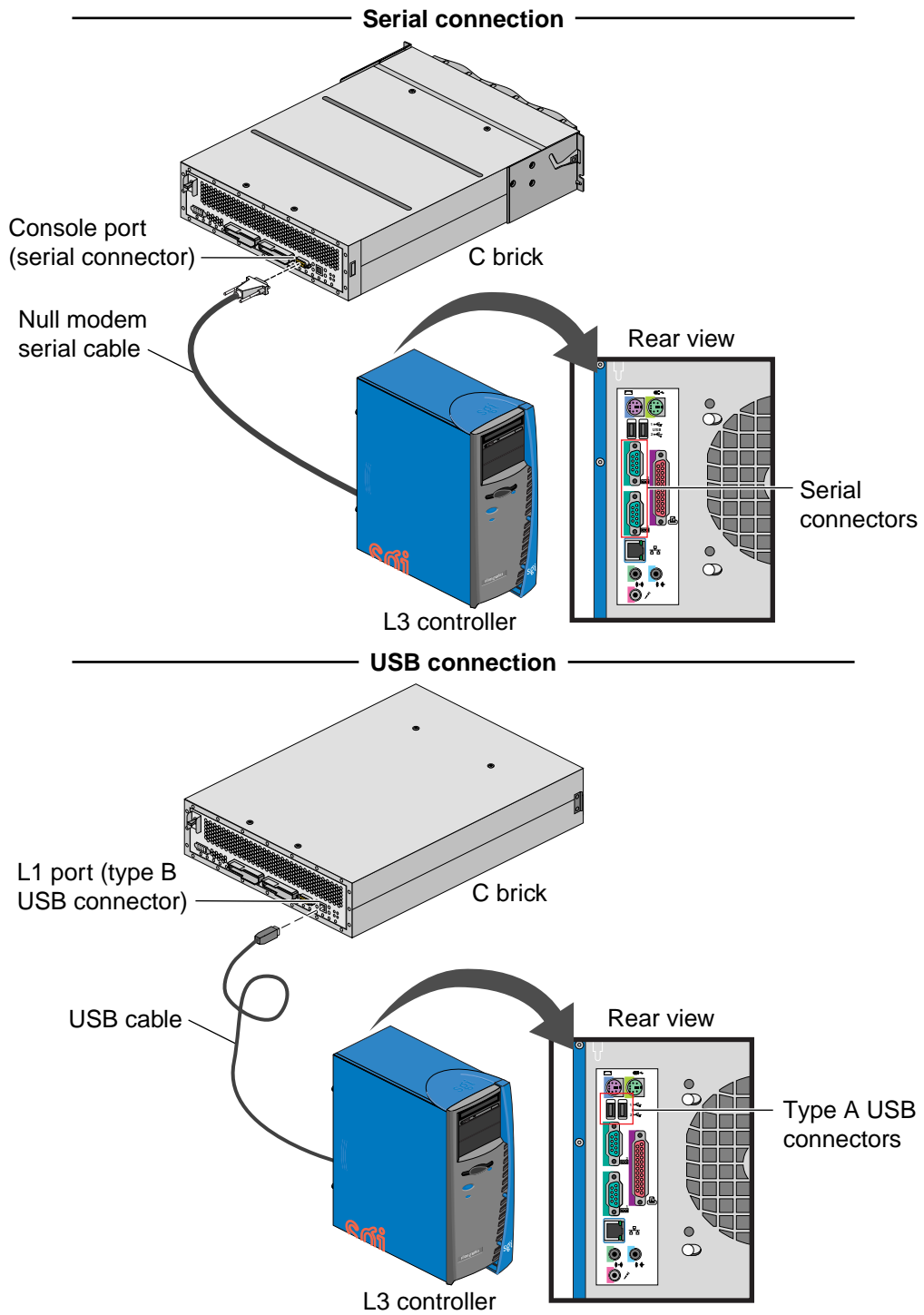


Figure 1-6 SGI Origin 3200-to-L3 Physical Connections (Serial and USB)

Note: Figure 1-6 shows serial and USB connections to a Silicon Graphics 230 visual workstation-based L3 controller solution. The connections are identical for Customer Service laptop-based L3 controller solutions; use the same cables to connect to the serial or USB port on the laptop.

1.6.2 L3-to-SGI Origin 3400/3800 Systems

Complete the procedure in Section 1.6.2.1 to connect the L3 controller solution to the L2 controller via a serial connection. Complete the procedure in Section 1.6.2.2 to connect the L3 controller solution to the L2 controller via an Ethernet connection.

1.6.2.1 L3-to-L2 Controller Serial Connection

1. Ensure network settings are set to the following values:
 - vt100
 - Baud 38400
 - No parity
 - 8 data bits
 - 1 stop bit
 - Hardware flow control on (rts/cts)
2. Power down the workstation.
3. Connect a null modem serial cable from the L3 serial connector to the console port at the rear of the C brick. Refer to Figure 1-7.
4. Power up the workstation.

Important: Ensure that you have write access to the ttyS0 device before you complete Step 5.

5. Type `cu -l ttyS0 -s 38400` at the Linux prompt. The L1 responds with “Connected.”

```
$ cu -l ttyS0 -s 38400
Connected.
```

6. Press the *Enter* key to display the L2 prompt.

```
001-L2>
```

7. Type `cfg` at the L2 prompt and press the *Enter* key to display a list of all attached bricks.

```
001-L2> cfg
L2 01.1.1.77: - 001
L1 10.1.1.77:0:0 - 001r19
L1 10.1.1.77:1:0 - 001c07
L1 10.1.1.77:1:1 - 001i21
L1 10.1.1.77:2:0 - 001c10
```

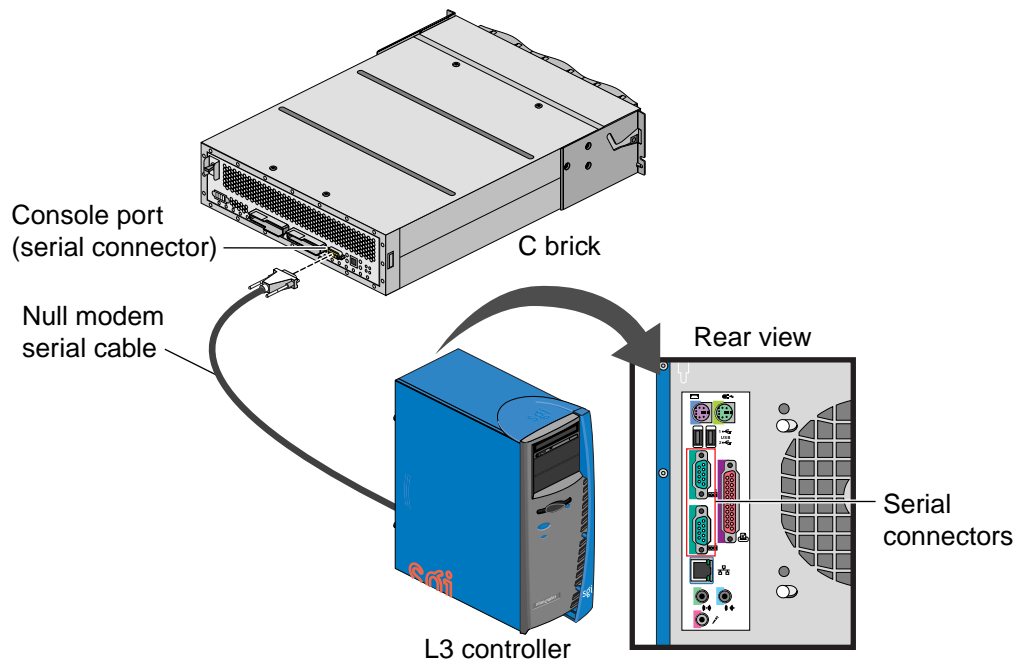


Figure 1-7 SGI Origin 3400/3800-to-L3 Physical Connections (Serial)

Note: Figure 1-7 shows a serial connection to a Silicon Graphics 230 visual workstation-based L3 controller solution. The connection is identical for Customer Service laptop-based L3 controller solutions; use the same cable to connect to the serial port on the laptop.

1.6.2.2 L3-to-L2 Controller Ethernet Connection

1. Connect the L3 controller solution to the L2 controller:
 - **If your system does not use an Ethernet hub** (refer to Figure 1-8): Connect the workstation Ethernet port to the ENET connector at the rear of the L2 controller via a cross-over Ethernet cable.
 - **If your system uses an Ethernet hub** (refer to Figure 1-8): Connect the workstation Ethernet port to an Ethernet connector at the rear of the Ethernet hub via a standard Ethernet cable.
2. Reboot or restart the L3 network.
 - a. Type `/etc/rc.d/init.d/network stop` at the Linux prompt.
 - b. Type `/etc/rc.d/init.d/network start` at the Linux prompt.
3. Ensure that you are in the `/stand/sysco/bin` directory.
4. Type `./l2term` at the Linux prompt to establish a connection.

```
$ ./l2term
```

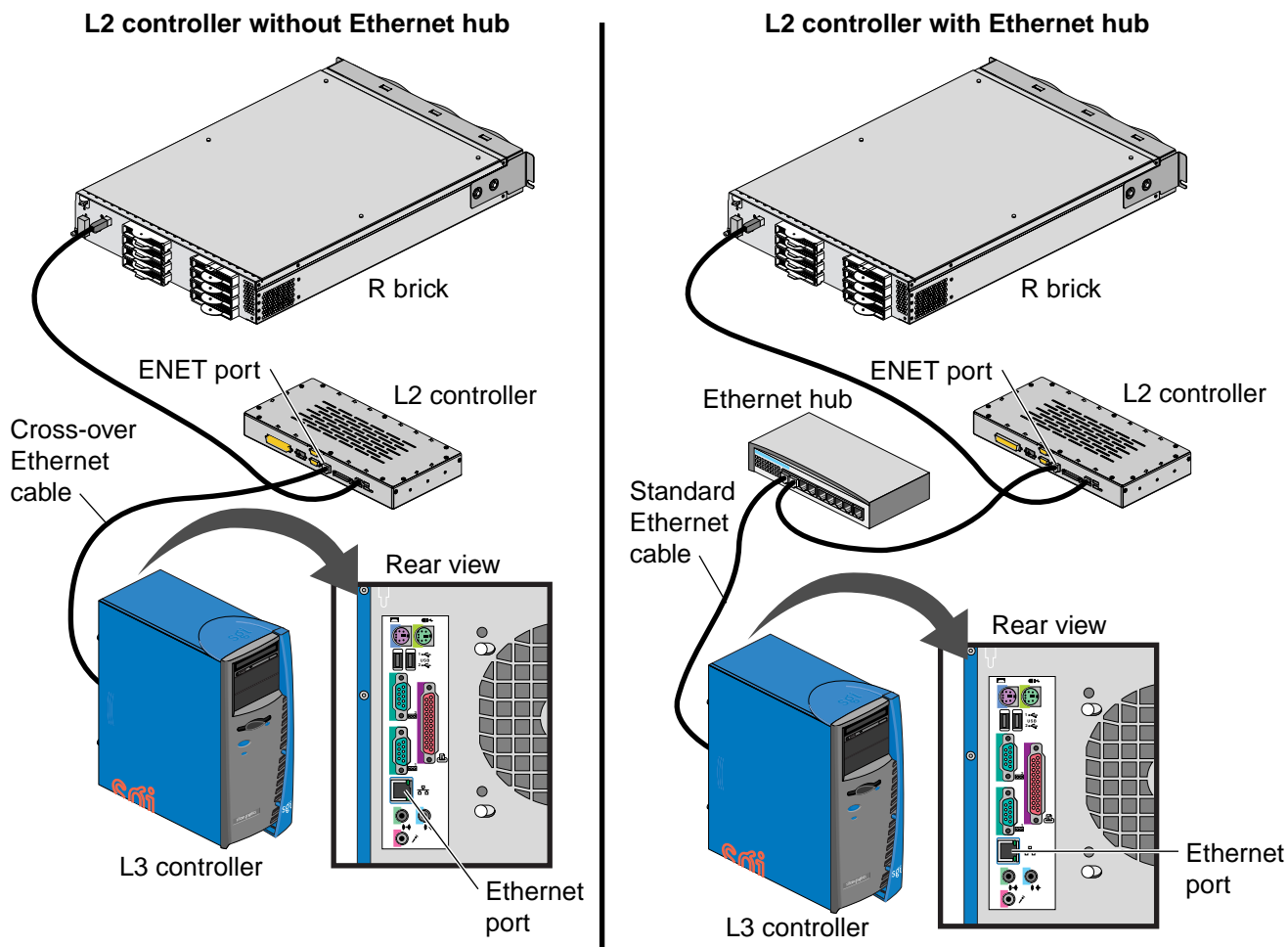


Figure 1-8 SGI Origin 3400/3800-to-L3 Physical Connections (Ethernet)

Note: Figure 1-8 shows Ethernet connections to a Silicon Graphics 230 visual workstation-based L3 controller solution. The connections are identical for Customer Service laptop-based L3 controller solutions; use the same cables to connect to the Ethernet port on the laptop.