

System Controller Software 1.8 Update Guide

System Controller Software 1.8 provides a system control platform for field service and system maintenance applications. It includes the following features:

- Advanced diagnostic support
- Maintenance of the SGI® Altix® and SGI® Origin® 3000 system serial number
- Maintenance of the SGI Altix and SGI Origin 3000 router port enable
- Console for the L1 and L2 system controllers

You can download the System Controller Software 1.8 package from <http://support.sgi.com/apps/> or order it on CD-ROM (P/N 812-1138-009). Contact your SGI account representative if you need assistance obtaining the software package.

This guide contains the following sections:

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Components of Release Packages

This section lists the components of each of the following release packages:

- System Controller Software 1.8 (for an L3 controller)
- System Controller Software 1.8 (for the IRIX operating system)
- System Controller Software 1.8 (for SGIconsole™)
- System Controller Software 1.8 (for the SGI ProPack™ for Linux operating system)

System Controller Software 1.8 (for an L3 controller) has the following components:

- Kernel software for the Red Hat 6.2 kernel
- L1 USB module for the Red Hat 7.1 kernel
- L1 USB module for the Red Hat 7.2 kernel
- L1 USB module for the Red Hat 7.3 kernel
- L1 USB module for the Red Hat 8.0 kernel

- L1 USB module for the Red Hat 9.0 kernel
- L1 USB module for the SGI ProPack 1.5 for the Linux kernel
- L1 USB module for the SGI XFS 1.0 kernel
- L1 USB module for the SGI XFS 1.1 kernel (supports Red Hat 7.1 and 7.2 [2.4.9-31] kernel versions)
- L1 USB module for the SGI XFS 1.1 kernel (supports Red Hat 2.4.18 vanilla kernel versions)
- L1 USB module for the SGI XFS 1.0.1 kernel
- L1 USB module for the SGI XFS 1.0.2 kernel
- L3 driver
- L1/L2 firmware utilities
- Installation tool
- Silicon Graphics 230 Red Hat 6.2 reinstallation script
- L1 USB build script
- L1 USB source files (supports Linux 2.4.x kernels)

System Controller Software 1.8 (for the IRIX operating system) has the following component:

- L1/L2 firmware utilities

System Controller Software 1.8 (for SGIconsole) has the following components:

- L3 driver
- L1/L2 firmware utilities
- Installation tool

System Controller Software 1.8 (for the SGI ProPack for Linux operating system) has the following components:

- L1/L2 firmware utilities
- Installation tool

Related Information

For more information about the SGI L1, L2, and L3 controllers, see the following guides:

- *SGI Origin 3000 L3 Controller Installation Guide* (007-4363-00x)
- *SGI Origin 3000 Series Owner's Guide* (007-4240-00x)
- *SGI L1 and L2 Controller Software User's Guide* (007-3938-00x)

Installing from a Downloaded Package

This section explains how to install the System Controller Software 1.8 software from a downloaded package onto the following platforms: an L3 controller, the IRIX operating system, an SGIconsole system, and the SGI ProPack for Linux operating system.

To install the System Controller Software 1.8 components on an L3 controller, follow these steps:

1. Log on to the L3 controller as root.
2. Enter the following commands:
cd /dir
 where *dir* is the directory in which you downloaded the software
chmod 755 install
chmod 755 sgi230_13_reinstall
./install
3. To reboot the system, enter the following command:
reboot
4. After the system reboots, remove the files that you downloaded.

To install the System Controller Software 1.8 components for the IRIX operating system, follow these steps:

1. Log on to the IRIX system as root.
2. Enter the following commands:
cd /dir
 where *dir* is the directory in which you downloaded the software
tar -xf 6.5.12-26_field_diags_sysco.tar
inst -f field_diags_sysco
3. After the installation is complete, remove the files that you downloaded.

To install the System Controller Software 1.8 components on an SGIconsole system, follow these steps:

1. Log on to the SGIconsole system as root.
2. Enter the following commands:
cd /dir
 where *dir* is the directory in which you downloaded the software
chmod 755 install
./install
3. After the installation is complete, remove the files that you downloaded.

To install the System Controller Software 1.8 components for the SGI ProPack for Linux operating system, follow these steps:

1. Log on to the SGI ProPack system as root.
2. Enter the following commands:
cd /dir
 where *dir* is the directory in which you downloaded the software
chmod 755 install
./install
3. After the installation is complete, remove the files that you downloaded.

Installing from the CD-ROM

This section explains how to install the System Controller Software 1.8 software from the CD-ROM onto the following platforms: an L3 controller, the IRIX operating system, an SGIconsole system, and the SGI ProPack for Linux operating system.

To install the System Controller Software 1.8 components on an L3 controller, follow these steps:

1. Log on to the L3 controller as root.
2. Insert the System Controller Software 1.8 CD-ROM into the CD-ROM drive.
3. Enter the following commands:

```
# cd /mnt/cdrom/RPMS/i386  
# ./install
```
4. Remove the CD-ROM from the CD-ROM drive.
5. To reboot the system, enter the following command:

```
# reboot
```


To install the System Controller Software 1.8 components for the IRIX operating system, follow these steps:

1. Log on to the IRIX system as root.
2. Insert the System Controller Software 1.8 CD-ROM into the CD-ROM drive.
3. Enter the following commands:

```
# cd /mnt/cdrom/dist  
# inst -f field_diags_sysco
```
4. Remove the CD-ROM from the CD-ROM drive.

To install the System Controller Software 1.8 components on an SGIconsole system, follow these steps:

1. Log on to the SGIconsole system as root.
2. Insert the System Controller Software 1.8 CD-ROM into the CD-ROM drive.
3. Enter the following commands:

```
# cd /mnt/cdrom/RPMS/i386  
# ./install
```
4. Remove the CD-ROM from the CD-ROM drive.

To install the System Controller Software 1.8 components for the SGI ProPack for Linux operating system, follow these steps:

1. Log on to the SGI ProPack system as root.
2. Insert the System Controller Software 1.8 CD-ROM into the CD-ROM drive.
3. Enter the following commands:
cd /mnt/cdrom/RPMS/ia64
./install
4. Remove the CD-ROM from the CD-ROM drive.

Reinstalling on a Silicon Graphics 230 Visual Workstation

If you install System Controller Software 1.8 for an L3 controller on a Silicon Graphics 230 visual workstation and later need to restore the workstation to the original factory configuration and reload the system controller software, you must complete the following steps:

1. Complete the steps in the “Installing the Auxiliary Linux Software” section of the *SGI Origin 3000 L3 Controller Installation Guide*. (The section starts on page 18 of that document.)
2. To run the `sgi230_13_reinstall` script, enter the following command:

```
# ./sgi230_13_reinstall
```

The `sgi230_13_reinstall` script automatically installs additional Red Hat Linux components that are normally installed at the factory. The script takes several minutes to run; it lists each package it installs and displays a progress bar as it installs each package.

3. Perform one of the following actions:
 - To install System Controller Software 1.8 from a downloaded package, complete steps 2 through 4 of the procedure for installing the software for an L3 controller in the “Installing from a Downloaded Package” section on page 5 of this document.
 - To install System Controller Software 1.8 from the CD-ROM, complete steps 2 through 5 of the procedure for installing the software for an L3 controller in the “Installing from the CD-ROM” section on page 8 of this document.

Installing on a Silicon Graphics 230 Visual Workstation Preinstalled with Red Hat Linux

To install System Controller Software 1.8 for an L3 controller on a Silicon Graphics 230 visual workstation preinstalled with the Red Hat Linux 6.2 operating system, you must load additional software packages before you can load the L3 controller software. Follow these steps:

1. Complete the steps in the “Installing the Auxiliary Linux Software” section of the *SGI Origin 3000 L3 Controller Installation Guide*. (This section ends on page 18 of that document.)
2. Perform one of the following actions:
 - To install System Controller Software 1.8 from a downloaded package, complete steps 2 through 4 of the procedure for installing the software for an L3 controller in the “Installing from a Downloaded Package” section on page 5 of this document.
 - To install System Controller Software 1.8 from the CD-ROM, complete steps 2 through 5 of the procedure for installing the software for an L3 controller in the “Installing from the CD-ROM” section on page 8 of this document.

Note: To use the Network Configurator GUI to configure the network after the workstation has booted the operating system, see the “Configuring Network Settings” section on page 12 of the *SGI Origin 3000 L3 Controller Installation*

Guide. To use the User Configurator GUI to configure user accounts, see the “Configuring the Account” section on page 15. To connect the Silicon Graphics 230 visual workstation to an SGI Origin 3000 series server, see pages 21-27 of the *SGI Origin 3000 L3 Controller Installation Guide* for the sections that are appropriate for your system configuration.

New Features and Changes

This section lists the new features and changes included in this release for firmware and software in the following sections:

- “L1 Firmware” (page 15)
- “L2 Firmware” (page 19)
- “L3 Software” (page 20)

Caution: Before you install the L1 or L2 firmware, follow the instructions in service bulletin GIB 200215. If you currently have L1 firmware version 1.4.1 or older installed, upgrade to the L1 firmware in System Controller Software 1.8 release. This release enables router port security and system serial number security features. If the system is not configured properly, these features can prevent R-bricks from powering on or booting.

L1 Firmware

This section lists the changes in the L1 firmware.

Added Commands

| | |
|----------------------|---|
| <code>promver</code> | Command displays the PROM version reported to the L1 by each node. Only the PROM running on SGI® Altix® 3000 systems will report its version to the L1. |
|----------------------|---|

Changed Commands

| | |
|---------------------------|--|
| <code>env messages</code> | Fixed an L1 memory leak that would cause the L1 to reboot after an extended runtime with <code>faultonly</code> enabled. The temperature warning messages were suppressed. |
| <code>faultonly</code> | |
| <code>fru capture</code> | Cleaned up error state properly in SHUB chip. |
| <code>fru examine</code> | Command reports the correct node number for DIMM errors. |
| <code>fru deadlock</code> | Fixed L1 PANIC condition. |

| | |
|----------------------|--|
| <code>ioprt</code> | Command no longer causes an L1 PANIC on G-bricks. |
| <code>promice</code> | Command no longer displays "I2C: not present" on SGI® Altix® 350 bricks without an I/O riser card installed. |

Added Features

- Added initial support for the SGI® Altix® 3000 Bx2 brick.
- Added initial support for the SGI® NUMAlink4 router brick.
- Added initial support for the IP59 node.

Other Changes

- Fixed power-up errors in SGI® Origin 350 expansion and server bricks.
- Fixed problems with temperature warnings and faults causing an L1 PANIC intermittently on some bricks.
- Eliminated intermittent "Cooling system stabilized" messages that occurred unexpectedly on G-bricks.
- Fixed intermittent PROM boot problems (i.e. missing CPUs and memory) caused by `malloc()` failures in the L1.

- Fixed intermittent PROM boot problems (i.e. missing CPUs and memory) caused by PPP errors when PROM requests memory information from the L1.
- Updated IP57 memory configuration rules. Mixing of custom DataRam (133MHz) DIMMs and commodity 166MHz DIMMs to operate correctly at 133MHz is now allowed.
- Fixed C <-> I/O brick L1 communication issue that caused II ports to be set to the wrong speed when the I/O brick L1 powers up or reboots after the C-brick.

Bugs Addressed

- 915594 losing cpus on boot to prom
- 915958 SN2 - FRU Analyzer reporting wrong node location on module.
- 917315 g-bricks is causing ATTN: Cooling system stabilized
- 917218 chimera 2U margining of index 0 and 2 swapped
- 917151 G-bricks PANIC when ioport command is used
- 917152 Overtemp may cause L1 PANIC and reboot
- 917154 I1 firmware 1.30.7 is causing major problems with e-bricks.
- 917163 Power-up error on Chimera server
- 917739 L1 Panics when FRU commands are issued

- 918452 system fails to successfully boot to prom after reset
- 918614 Voyager bricks power down with fan fault limits exceeded with L1 1.30.12
- 918842 fru capture causes error state to be left in the Shub.
- 918176 001c31 ERROR: I2C: not present

L2 Firmware

This section lists the changes in the L2 firmware.

Changed Commands

| | |
|-----------------------------------|--|
| <code>p <part> pwr u</code> | Command now powers up and reset the router bricks correctly. |
| <code>fru examine</code> | Command reports the correct node number for DIMM errors. |

Added Features

- Added initial support for the SGI Altix 3000 Bx2 topology.

Bugs Addressed

| | |
|--------|---|
| 915958 | SN2 - FRU Analyzer reporting wrong node location on module. |
| 919164 | L2 v1.30.1 does not reset routers at power-up in a partiitoned system |

L3 Software

This section lists the changes in the L3 software.

Changes from Previous Release

- IO9 IOC4 PROM Image io9.svf (version 0.83) and IO10 IOC4 PROM Image io10.svf (version 0.83) changes:
 - Serial DMA pause fix for a bug in bitstreams rev 79 and earlier.
Symptom: A serial link received by IOC4 hangs when DMA mode is paused.
Problem: While in DMA mode, PIO mode data is not received, after the DMA pause bit has been set. Specifically the serial receive DMA logic is not disabled while DMA pause is enabled.
At present the only known application that utilizes DMA pause is for a system whose console is attached via an IOC4-based serial port. After SYMMON is invoked, software temporarily switches the serial port from DMA to PIO mode by enabling DMA pause, which hangs the console.

- Added functionality to support Windows

Problem: The Windows kernel assumes the standard programming model for the serial UART, while IOC4 does not conform to that model. In particular the oscillator frequency is much higher and the UART registers assume big endian addressing.

A field for a Windows compatibility mode was added to the MISC_CR register. When bit 4 is set, the logic uses the value in the Divisor Latch multiplied by 36 if the PCI bus runs at 66 MHz or by 18 if at 33 MHz.

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