# Sun Fire™ Link Software Installation Guide

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# Sun Fire Link Software Installation Guide

This manual provides instructions for installing the software that supports the Sun Fire™ Link high-performance cluster interconnect for the Sun Fire 6800 and Sun Fire 15K/12K servers from Sun Microsystems, Inc.

This software includes the following components:

- Node firmware
- Switch firmware
- Sun Fire Link Manager software
- Sun™ Management Center (Sun MC) add-ons
- SunVTS™ add-ons

## Preparing for the Installation

Before installing the Sun Fire Link software, you need to perform the following procedures:

- To Read the Sun Fire Link Release Notes
- To Install the Sun Fire Link Network Hardware
- To Identify Your Target Systems
- To Verify Required Software
- To Load the Sun Fire Link CD-ROM
- To Configure a Server for Upgrading Firmware

## ▼ To Read the Sun Fire Link Release Notes

The *Sun Fire Link Software Release Notes* list the supported hardware configurations and the required versions of the Solaris™ operating environment and other related software. The release notes also describe open bugs and any workarounds there are for the bugs.

## ▼ To Install the Sun Fire Link Network Hardware

Install the Sun Fire Link hardware: Sun Fire Link I/O assemblies, optical cables, and Sun Fire Link switches (if used). For Sun Fire Link hardware installation instructions, see the documents listed in TABLE 1. These documents are available in PDF format.

**TABLE 1** Location of Sun Fire Link Hardware Installation Instructions

| Sun Fire Link Hardware Installation Guide |
|---|
| `/cdrom/sun-fire-link_1.0/Docs/Solaris_8/PDF/hw_install.pdf` |
| `/cdrom/sun-fire-link_1.0/Docs/Solaris_9/PDF/hw_install.pdf` |
| |
| Sun Fire Link Switch Installation and Service Manual |
| `/cdrom/sun-fire-link_1.0/Docs/Solaris_8/PDF/switch.pdf` |
| `/cdrom/sun-fire-link_1.0/Docs/Solaris_9/PDF/switch.pdf` |

---

**Note –** A single set of Sun Fire Link documents is provided. These manuals apply to both Solaris 8 and Solaris 9 installations. The manuals are provided in this mirrored-tree arrangement to make it easier for you to access the documents, regardless of which operating environment is running on the target systems.

---

## ▼ To Identify Your Target Systems

TABLE 2 identifies the various servers and other host systems that play some role in the Sun Fire Link software installation process. Note that some roles can be performed by a single system. Ensure that the host systems shown in TABLE 2 are available.

**TABLE 2** Systems Involved in Sun Fire Link Software Installation

| Role | Description | Requirements |
|---|---|---|
| Installation host | The system on which you will load the Sun Fire Link software CD-ROM. | • Connected by TCP/IP network to all Sun Fire systems on which Sun Fire Link software will be installed.<br>• This system can, but need not, be a target for Sun Fire Link installation. |
| FTP or web server | The system to be used for updating the flash memory on boards in the Sun Fire systems and Sun Fire Link switches. | • Connected by TCP/IP network to all Sun Fire systems that are also connected to the Sun Fire Link network.<br>• This system can, but need not, be an installation target for Sun Fire Link software. |
| Sun Fire Link Manager server | The system where the Sun Fire Link Manager (FM) software will reside. When this system is also host to the Sun MC console, it is also referred to as the Sun Fire Link Management Station. | • Connected by TCP/IP network to all Sun Fire systems that are also connected to the Sun Fire Link network.<br>• This system *must be external* to the Sun Fire Link network.<br>• It may be the same system as the Sun MC server. |
| Sun MC server (optional) | The system where the Sun MC core software will reside. | • Connected by TCP/IP network to all Sun Fire systems that are also connected to the Sun Fire Link network.<br>• This *may* be the same system as the FM server or it may be a different system. |

**TABLE 2** Systems Involved in Sun Fire Link Software Installation *(Continued)*

| Role | Description | Requirements |
|---|---|---|
| Sun MC console (optional) | The system running the Sun MC console. | • Connected by TCP/IP network to all Sun Fire systems that are also connected to the Sun Fire Link network.<br>• This *may* be the same system as the FM server and Sun MC server or it may be a different system. |
| Sun Fire system cluster compute nodes | Sun Fire systems that will operate as Sun Cluster or Sun HPC ClusterTools™ platforms in a Sun Fire Link network. | • Connected to both Sun Fire Link and TCP/IP networks. |
| Sun Fire Link Switch System Controllers | System Controller (SC) for the Sun Fire Link switch; its role is similar to System Controllers in Sun Fire systems. | • A terminal or server must be connected to the switch SC's serial port for configuring the SC and flash updating the switch firmware. |

## ▼ To Verify Required Software

TABLE 3 identifies various dependencies that the Sun Fire Link software has on other software. Verify that these dependencies are satisfied.

---

**Note –** Some software and firmware version numbers are represented by the variable indication *xx*. Refer to the *Sun Fire Link Software Release Notes* for the correct patch version numbers.

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**TABLE 3** List of Software Requirements

| | |
|---|---|
| Operating environment | Solaris 8 2/02 or Solaris 9 12/02 |
| RSM in Solaris 8 | (see the *Sun Fire Link Software Release Notes* for patch information) |
| RSM in Solaris 9 | (see the *Sun Fire Link Software Release Notes* for patch information) |
| Sun Fire 6800 firmware | 5.14.0 build *xx* |
| Switch firmware | 1.12.*xx* |
| Sun MC | 3.0 platform update 4 plus patches 110938-*xx*, 112493-*xx*, 112499-*xx* |
| SunVTS for Solaris 8 | 4.6 plus patch 112336-*xx* |
| SunVTS for Solaris 9 | 5.1 PS1 |

**TABLE 3** List of Software Requirements *(Continued)*

| | |
|---|---|
| Java JDK | Use a version of Java 1.2.2 that is later than Java 1.2.1_06 |
| HPC ClusterTools 4 for Solaris 8 | Patches 111862-*xx*, 111833-*xx* |
| HPC ClusterTools 4 for Solaris 9 | Patches 111833-*xx*, 112015-*xx*, 112014-*xx* |

## ▼ To Load the Sun Fire Link CD-ROM

Load the Sun Fire Link CD-ROM on the server chosen to be the installation host. The server is used as an NFS server for the software installation. In the following example, `install_host` is the host name of this system.

1. **Log in to the server and become superuser.**
2. **If the CD-ROM is not already inserted into this system, insert it now.**
3. **Check that the CD-ROM contents are visible.**

```
install_host# cd /cdrom/sun-fire-link_1.0/
install_host# ls
Docs     Patches     Product
```

4. **Add the following line to** `/etc/dfs/dfstab` **to support remote sharing of files.**

   If this file does not already exist, create it and add the following line to it.

```
share –o ro /cdrom/sun-fire-link_1.0/
```

5. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**

```
install_host# /etc/init.d/nfs.server stop
install_host# /etc/init.d/nfs.server start
```

6. **Verify that the CD-ROM is available for mounting by remote systems.**

```
install_host# share
-               /cdrom/sun-fire-link_1.0/  ro    ""
```

**Note –** Later in the installation process you will need to install the Solaris CD-ROM in place of the Sun Fire Link CD-ROM. Before using the new CD-ROM, you must edit the `dfstab` file again, removing the line you added in Step 4. Then you must stop and start the NFS daemons (as in Step 5) to unshare the previous CD-ROM.

## ▼ To Configure a Server for Upgrading Firmware

The Sun Fire Link firmware is copied from the CD-ROM onto an FTP server or web server, from which it is flashed onto the boards and switches of the Sun Fire cluster.

The server can be any preconfigured FTP or web server, or you can configure the administration server to serve this purpose. Use your preferred method to configure an FTP server or web server. One simple method is to run the script documented in the Solaris man page for `ftpd` that creates an anonymous FTP server.

1. **Find the `ftp-script` description on the `ftpd` man page and copy it to your chosen FTP server.**

```
% man ftpd
...
```

2. **Add the anonymous ftp user name and password entry to the `/etc/passwd` file. For example:**

```
ftp:x:30000:30000:Anonymous FTP:/export/anonymous-ftp:/nosuchshell
```

3. **Add the following line to the `/etc/shadow` file:**

```
ftp:NP:6445::::::
```

4. **As superuser, run `ftp-script` on the FTP server (named `ftp_host` in this example).**

```
ftp_host# ftp-script /export/anonymous-ftp
```

5. **Create a directory on the FTP server to hold the Sun Fire Link firmware.**

```
ftp_host# mkdir /export/anonymous-ftp/firmware
```

6. **Copy the Sun Fire Link node firmware from the CD-ROM into the firmware directory.**

   In the following example, the Sun Fire Link CD-ROM is inserted into the FTP server.

```
ftp_host# cp /cdrom/sun-fire-link_1.0/Patches/Solaris_8/112883-xx \
/export/anonymous-ftp/firmware
```

   If the administration server and FTP server are different systems and the CD-ROM is inserted into the administration server (named `admin_host` in this example) enter the following.

```
admin_host# cp /net/admin_host/cdrom/sun-fire-link_1.0/Patches/ \
Solaris_8/112883-xx /export/anonymous-ftp/firmware
```

7. **On the FTP server, install the package that loads the switch firmware.**

   Assuming that the Sun Fire Link CD-ROM is inserted in the administration server and the FTP server is a different system, change directory to either the `Solaris_8` or `Solaris_9` directory and add the `SUNWwcsfi` package, as shown below.

   For the Solaris 8 operating environment, enter:

```
ftp_host# cd /net/admin_host/cdrom/sun-fire-link_1.0/Product/Solaris_8
ftp_host# pkgadd -d . SUNWwcsfi
```

   For the Solaris 9 operating environment, enter:

```
ftp_host# cd /net/admin_host/cdrom/sun-fire-link_1.0/Product/Solaris_9
ftp_host# pkgadd -d . SUNWwcsfi
```

8. **Copy the Sun Fire Link switch firmware from its destination on the FTP server into the server's firmware directory.**

   Step 7 loaded the switch firmware into the `/opt` directory on the FTP server. This step makes it available for anonymous FTP access.

```
ftp_host# cp /opt/SUNWwcsfi/flash/SscApp.jflash /export/anonymous-ftp/firmware
```

# Updating the Firmware, Operating Environment, and Sun Fire Link Software

FIGURE 1 illustrates the sequence of procedures you perform to install the software components provided on the Sun Fire Link software distribution CD-ROM. Detailed instructions for these procedures follow.

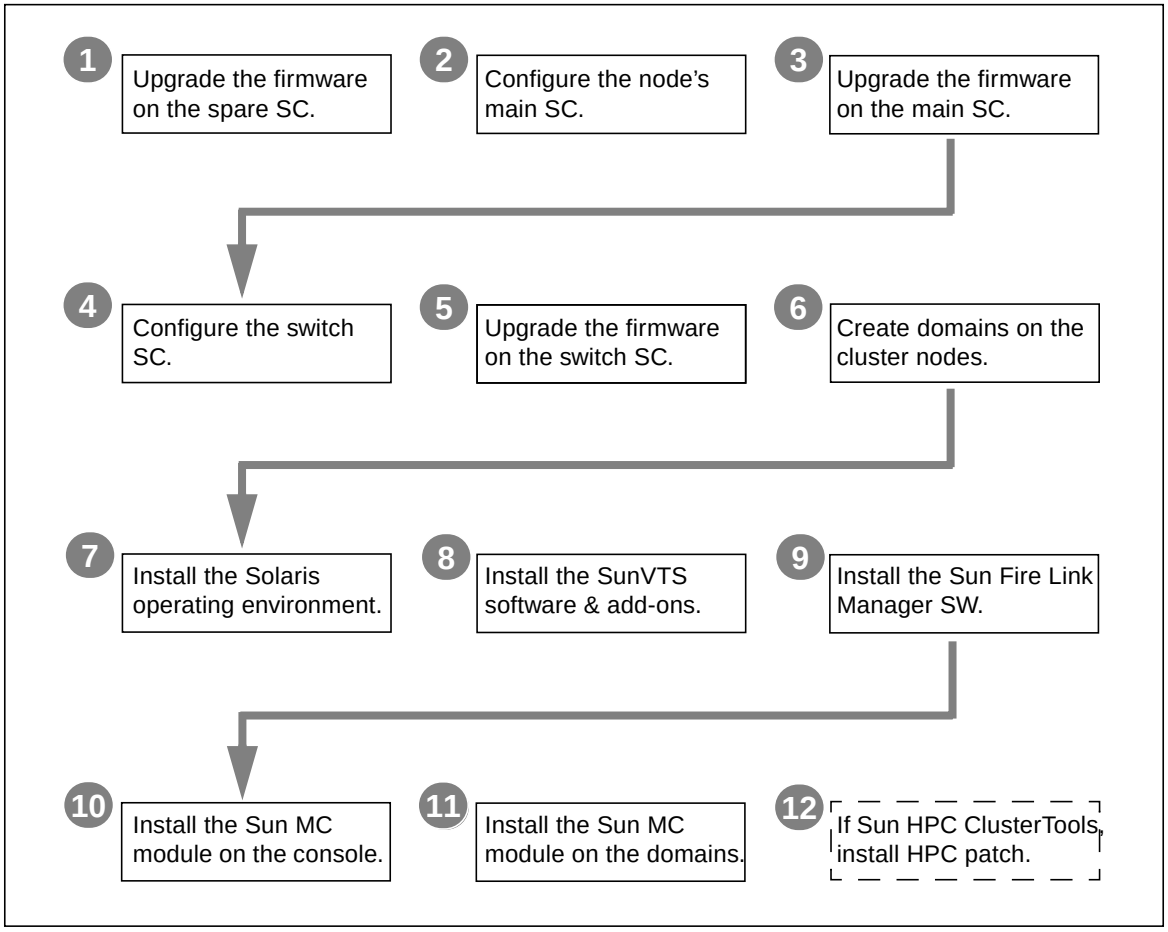


**FIGURE 1** Sun Fire Link Software Installation Sequence

# Update the Firmware on the SCs and SSCs

The Sun Fire Link firmware (for nodes and switches) consists of the following images, which you copied to an FTP or web server in the preparation phase.

| Installation Location | Flash Image | Image Description |
|---|---|---|
| Sun Fire 6800 System Controller | `sgsc.flash` | ScApp |
| Sun Fire 6800 System Controller | `sgrtos.flash` | RTOS |
| Sun Fire 6800 System Boards | `sgcpu.flash` | SB |
| Sun Fire 6800 I/O Assemblies | `sgpci.flash` | IO |
| Sun Fire Link assemblies (WIBs) | `sgiowci.flash` | WIB |

## ▼ To Update the Firmware on the Spare SC

Update the ScApp and RTOS on the spare SC as follows.

1. **Connect to the console of the spare SC on one of the cluster nodes (`node1-sc1` in this example) and enter the platform shell.**

   Use your site-specific method to connect to the SC through the serial port, not through a telnet session.

```
# site-specific-command node1-sc1
System Controller 'node1-sc1':

     Type  0  for Platform Shell

     Input: 0

Platform Shell
node1-sc1:SC>
```

2. **From the platform shell, update the spare SC:**

```
node1-sc1:SC> flashupdate –f ftp://ftp-server-ip/firmware ScApp RTOS
```

   where *ftp-server-ip* is the IP address of the FTP server.

3. **Verify that the spare SC firmware has been updated correctly.**

   Execute the command `showsc` from the platform shell.

## ▼ To Configure the Main SC

1. **Connect to the console of the main SC on one of the cluster nodes and enter the platform shell.**
2. **Execute the** `poweron all` **command to ensure that all system boards have power.**
3. **Use** `setupplatform` **to configure the main SC.**

## ▼ To Update the Firmware on the Main SC

1. **Update the scapp and RTOS on the main SC, system boards, and I/O assemblies.**

   All steps are performed from the SC's platform shell.

   ```
   node1-sc1:SC> flashupdate –f ftp://ftp-server-ip/firmware all
   ```

2. **Use the commands** `showsc` **and** `showboards -v -p prom` **to verify that the main SC firmware has been updated correctly.**

## ▼ To Repeat the SC Configuration and Firmware Update Procedures for the Other Cluster Nodes

- **Perform the procedures described in "To Update the Firmware on the Spare SC" on page 9, "To Configure the Main SC" on page 10, and "To Update the Firmware on the Main SC" on page 10 on each of the remaining nodes in the Sun Fire Link cluster.**

## ▼ To Configure the Switch System Controller

If your cluster configuration includes Sun Fire Link switches, you need to configure each switch system controller (SSC). If you did not perform this procedure at the time of installing the switch hardware, do so now.

1. **Connect to the SSC (**`switch1` **in this example) via the serial port.**

   For the requested password, enter the password that was specified as part of the switch installation procedure.

2. **Use** `setupplatform` **to configure the SSC.**

3. **Assign the SSC's RMI password.**

```
switch1:SSC> rmi_password
Enter new password:
Enter new password again:
```

## ▼ To Update the Firmware on the Switch System Controller

1. **Update the firmware on the SSC.**

```
switch1:SSC> flashupdate –f ftp://ftp-server-ip/firmware/SscApp.jflash
```

2. **Reboot the SSC.**

```
switch1:SSC> reboot
```

## ▼ To Repeat the SSC Configuration and Firmware Update Procedures for Other Switches

- **Perform the procedures described in "To Configure the Switch System Controller" on page 10 and "To Update the Firmware on the Switch System Controller" on page 11 on each of the remaining switches in the Sun Fire Link cluster.**

# Set Up Domains and Install the Solaris Operating Environment

## ▼ To Set Up Domains for Use in the Sun Fire Link Network

1. **Connect to the node SC.**

2. **Enter the domain that you want to make available for use in a Sun Fire Link cluster.**

3. **Run `setupdomain` to configure the domain. Include I/O slots IB8 and IB9 in the domain.**

   If the Sun Fire 6800 chassis contains the necessary hardware, Sun Fire Link I/O assemblies will be installed in slots IB8 and IB9.

4. **Return to the platform shell and verify that the domain set up in Step 2 has the correct board assignments.**

   The following example verifies that domain A was set up to include the Sun Fire Link assemblies IB8 and IB9r

```
node1-sc1:A> disconnect
node1-sc1:SC> showboards -d A
Slot      Pwr  Component Type              State       Status        Domain
----      ---  --------------              -----       ------        ------
/N0/SB0   On   CPU Board                   Assigned    Not tested    A
/N0/IB7   On   PCI I/O Board               Assigned    Not tested    A
/N0/IB8   On   Fire Link/CPCI I/O Board    Assigned    Not tested    A
/N0/IB9   On   Fire Link/CPCI I/O Board    Assigned    Not tested    A
```

5. **Repeat this procedure for each node to be included in the Sun Fire Link cluster.**

## ▼ To Install the Solaris Operating Environment

Perform an "Entire Distribution" installation of the Solaris operating environment into the domains you have created. The procedure is described in the Solaris documentation.

---

**Note –** If the `/etc/dfs/dfstab` change you made in “To Load the Sun Fire Link CD-ROM” on page 5 is still in effect, perform the following steps to unshare that CD-ROM.

---

1. **Edit `/etc/dfs/dfstab`, this time removing the following line:**

```
share –o ro /cdrom/sun-fire-link_1.0
```

2. **Stop and restart the NFS daemons to unshare the Sun Fire Link CD-ROM.**

3. **Install the Solaris operating environment software as described in the applicable Solaris documentation.**

## ▼ To Install RSM Patches for the Applicable Solaris Operating Environments

The RSM software that is supplied with the Solaris 8 and Solaris 9 operating environment software must be updated with separate patches. See the *Sun Fire Link Release Notes* for information on the required RSM patches.

Perform the following update procedure on every domain in the Sun Fire Link cluster.

1. **Connect to the domain and become superuser.**
2. **Insert the Sun Fire Link CD-ROM.**
3. **Add the following line to** `/etc/dfs/dfstab`**.**

```
share –o ro /cdrom/sun-fire-link_1.0
```

4. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
5. **Change directory to either the** `Solaris_8` **or** `Solaris_9` **location in the software distribution path and install the required patch, as shown below.**

   Install the patch identified in the *Sun Fire Link Release Notes* for the Solaris 8 operating environment:

```
admin_host# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_8
admin_host# patchadd patch-number
```

   Install the patch identified in the *Sun Fire Link Release Notes* for the Solaris 9 operating environment

```
admin_host# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_9
admin_host# patchadd patch-number
```

6. **Verify that the patch has been installed.**

   Use `showrev –p | grep` *patch-number* to search for the patch.

7. **Perform a reconfigure reboot.**
8. **Repeat the RSM patch installation on each domain in the cluster.**

## ▼ To Install SunVTS Software

Different versions of the SunVTS software are required for the Solaris 8 and Solaris 9 operating environments. In addition, the SunVTS software for the Solaris 8 operating environment also requires a patch.

- Solaris 8 operating environment – SunVTS 4.6 FCS, plus patch 112336-*xx*
- Solaris 9 operating environment – SunVTS 5.1 FCS

The SunVTS packages are listed below. Install all packages on each domain of the Sun Fire Link cluster.

| Operating Environment | SunVTS Package Name | SunVTS Package Description | Dependencies |
|---|---|---|---|
| Solaris 8 | SUNWvts | Core SunVTS | ... |
| | SUNWvtsx | Core SunVTS (64-bit) | SUNvts |
| Solaris 9 | SUNWvts | Core SunVTS | ... |
| | SUNWvtsx | Core SunVTS (64-bit) | SUNvts |
| | SUNWvtsm | Switch, loopback test support | SUNvts |

1. **Edit** `/etc/dfs/dfstab` **to share the contents of the supplement CD for the Solaris 8 or Solaris 9 software.**
2. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
3. **Insert the software supplement CD-ROM supplied with the Solaris 8 or Solaris 9 operating environment CD-ROM. The supplement CD-ROM contains the SunVTS core software packages.**
4. **Install the SunVTS core software:**

   For the Solaris 8 operating environment:

```
admin_host# cd /cdrom/solaris8_202_suppcd/SUNWvts_4.6
admin_host# pkgadd -d . SUNWvts
admin_host# pkgadd -d . SUNWvtsx
```

   For the Solaris 9 operating environment:

```
admin_host# cd /cdrom/solaris9_1202_suppcd/SUNWvts_5.1
admin_host# pkgadd -d . SUNWvts
admin_host# pkgadd -d . SUNWvtsx
admin_host# pkgadd -d . SUNWvtsm
```

**Note –** When asked about using kerberos for authentication, enter n.

5. **Verify that the packages are installed.**

   For the Solaris 8 operating environment enter:

```
# pkginfo | grep SUNWvts
system      SUNWvts        ...
system      SUNWvtsx       ...
```

   For the Solaris 9 operating environment enter:

```
# pkginfo | grep SUNWvts
system      SUNWvts        ...
system      SUNWvtsx       ...
system      SUNWvtsm       ...
```

6. **For systems with SunVTS 4.6 only, add patch 112336-*xx*.**

   a. **Insert the Sun Fire Link CD-ROM and edit** `/etc/dfs/dfstab` **so it contains the following line:**

```
share –o ro /cdrom/sun-fire-link_1.0
```

   b. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**

   c. **Install the following SunVTS patch.**

```
# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_8
# patchadd 112336-xx
```

7. **Repeat the SunVTS installation procedure on each domain in the Sun Fire Link cluster.**

# Install the FM and FM Proxy Agent Software

The Sun Fire Link Manager consists of six packages, which are identified below. On each cluster domain, install the shared file package, the common jar file package, and the two proxy packages. On the system you use as the Sun Fire Link Manager server, install the shared file package, the common jar file package, and the Sun Fire Link Root and User packages.

| Installation Location | Sun Fire Link Manager Package Name | Sun Fire Link Manager Package Description | Dependencies |
|---|---|---|---|
| Cluster domains | SUNWwcfms | Sun Fire Link Manager Shared Files | ... |
| | SUNWrsmpr | RSM Proxy Root Package | SUNWwcfms |
| | SUNWrsmpu | RSM Proxy User Package | SUNWrsmpr |
| Sun Fire Link Manager server | SUNWwcfms | Sun Fire Link Manager Shared Files | ... |
| | SUNWwccmn | Common jar file | ... |
| | SUNWwcfmr | Sun Fire Link Manager Root Package | SUNWwcfms, SUNWwccmn |
| | SUNWwcfmu | Sun Fire Link Manager User Package | SUNWwcfmr |

**Note –** If you think one or more of these packages might have been previously installed, check the FM server and cluster domains to see if they are present. If so, remove them before performing the installation procedure described below. If you need to remove the RSM proxy packages from the cluster domains, first run `/opt/SUNWwcfm/bin/killfabrics` to clear any existing Sun Fire Link fabrics from the RMI registry. See the *Sun Fire Link Fabric Administrator's Guide* for information on the `killfabrics` command.

The Sun Fire Link Manager server may be the administration server or, if you are planning to install Sun MC, it may be the Sun MC server. See "Installing Sun MC 3.0 Software and Sun Fire Link Add-Ons" on page 19 for further information on configuring the Sun Fire Link Manager together with Sun MC.

## ▼ To Install the FM Proxy Packages and Shared Files on the Cluster Nodes

1. **On each RSM domain, become superuser and change directory to either the** `Solaris_8` **or** `Solaris_9` **location in the software distribution path.**

   For the Solaris 8 operating environment, enter:

```
# cd /cdrom/sun-fire-link_1.0/Product/Solaris_8
```

   For the Solaris 9 operating environment, enter:

```
# cd /cdrom/sun-fire-link_1.0/Product/Solaris_9
```

2. **Install the RSM proxy packages and the Sun Fire Link Manager shared files.**

```
# pkgadd -d . SUNWwcfms
# pkgadd -d . SUNWrsmpr
# pkgadd -d . SUNWrsmpu
# pkginfo | egrep "SUNWrsmp|SUNWwcfm"
system      SUNWrsmpr    ...
system      SUNWrsmpu    ...
system      SUNWwcfms    ...
```

3. **On each RSM domain, set up and start the RSM proxies.**

   As superuser, run the scripts provided to set up and start the RSM proxies. Note the differences in the paths and command syntax of the `wrsm_proxy_setup` and `wrsm_proxy start` scripts.

```
# /opt/SUNWwrsmp/bin/wrsm_proxy_setup
# /etc/init.d/wrsm_proxy start
```

4. **On each RSM domain, establish security settings for Sun Fire Link user access.**

   a. **Edit** `/etc/group`**.**

      Add a group named `sfladmin` and add the appropriate users to this group.

   b. **Edit** `/etc/passwd`**.**

      Add the users you listed in `/etc/group` to `/etc/passwd`.

   c. **Execute** `pwconv` **to update** `/etc/shadow`**.**

**d. Execute** `passwd` **to assign passwords to the new users.**

## ▼ To Install the FM Packages on the FM Server

1. **On the Sun Fire Link Manager server, become superuser and install the Sun Fire Link Manager packages. As before, perform the installation from either the** `Solaris_8` **or** `Solaris_9` **distribution directory.**

   In this example, the FM server is named `fm_host` and the installation is being done from the Solaris 8 software distribution directory.

```
fm_host# cd /cdrom/sun-fire-link_1.0/Product/Solaris_8
fm_host# pkgadd -d . SUNWwcfms
fm_host# pkgadd -d . SUNWwccmn
fm_host# pkgadd -d . SUNWwcfmr
fm_host# pkgadd -d . SUNWwcfmu
fm_host# pkginfo | egrep "SUNWwcfm|SUNWwcc"
...
```

2. **On the Sun Fire Link Manager server, set up the Sun Fire Link Manager.**

   As superuser, run the script provided to set up the Sun Fire Link Manager. Be prepared to supply a location for dynamically created files. For example:

```
fm_host# /opt/SUNWwcfm/bin/wcfm_setup

Please enter base directory ABSOLUTE path name of a NEW directory for the FM
DATA files.  The subdirectory SUNWwcfm will be added there and will store log
and cfg files for each fabric.  Suggested location is a new subdirectory of
/var/opt [?] /var/opt/FM
....
```

3. **On the Sun Fire Link Manager server, establish security settings for Sun Fire Link users.**

   **a. Edit** `/etc/group`**.**

   Add a group named `sfladmin` and add `sfluser` to this group.

   **b. Edit** `/etc/passwd`**.**

   Add `sfluser` to `/etc/passwd`.

   **c. Execute** `pwconv` **to update** `/etc/shadow`**.**

   **d. Execute** `passwd` **to assign passwords to the new users.**

# Installing Sun MC 3.0 Software and Sun Fire Link Add-Ons

Sun Management Center software (Sun MC) runs on top of the Sun Fire Link Manager and provides a convenient GUI interface for monitoring and managing the RSM network on a Sun Fire cluster.

The Sun Fire Link release provides Sun MC add-on packages for Sun Fire 6800 systems. For reference, the Sun MC packages provided in the Sun Fire Link release are described in TABLE 4.

**TABLE 4** Sun MC Add-On Packages for Sun Fire Link

| Package Name | Package Description | Installation Location |
|---|---|---|
| SUNWeswci | Sun MC - Sun Fire Link Manager Console | Sun MC console |
| SUNWswsrv | Sun MC - Sun Fire Link Server | Sun MC server |
| SUNWwhelp | Sun MC - Sun Fire Link Help | Sun MC server |
| SUNWeswcx | Sun MC - Sun Fire Link Switch Agent | Sun Fire Link Manager server |
| SUNWeswfm | Sun MC - Sun Fire Link Manager Agent | Sun Fire Link Manager server |
| SUNWswrsm | Sun MC - Sun Fire Link WRSM Agent | RSM domains (nodes) |

Most commonly, the administration server doubles as the Sun MC console, and a separate (usually larger) system acts as both Sun MC server and Sun Fire Link Manager server. See FIGURE 2 for a graphic representation of the system location requirements of the various packages.

To perform the Sun MC installation, log in to each target system as superuser, and run the Sun MC script `es-inst`, which walks you through the installation.

**Note –** The `es-inst` script changes various `/etc/system` entries to provide sufficient resources for database activities that Sun MC performs. These changes are shown in TABLE 5.

**TABLE 5** Changes Made by `es-inst` to `/etc/system`

```
set shmsys:shminfo_shmmax=536870912
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10
set semsys:seminfo_semmni=100
set semsys:seminfo_semmsl=115
set semsys:seminfo_semmns=200
set semsys:seminfo_semopn=100
set semsys:seminfo_semvmx=32767
```

The examples shown in this section assume the following:

- Sun MC 3.0 is being newly installed from CD-ROM.
- The administration server is acting as the Sun MC console and server and as the Sun Fire Link manager server.

If your configuration differs from this, adjust your use of the installation script accordingly.

**Note –** If you want to use software packages localized in Japanese, simplified Chinese, or French, you can install them after you install the Sun MC software and Sun Fire Link add-ons. The localized Sun MC packages are provided on disk 2 of the Sun Management Center 3.0, Platform Update 4 CD-ROM. Localized Sun Fire Link add-on packages are provided on the Sun Fire Link CD-ROM. Installation instructions are provided in the section “Installing Localized Sun MC Software and Sun Fire Link Add-On Packages” on page 25.

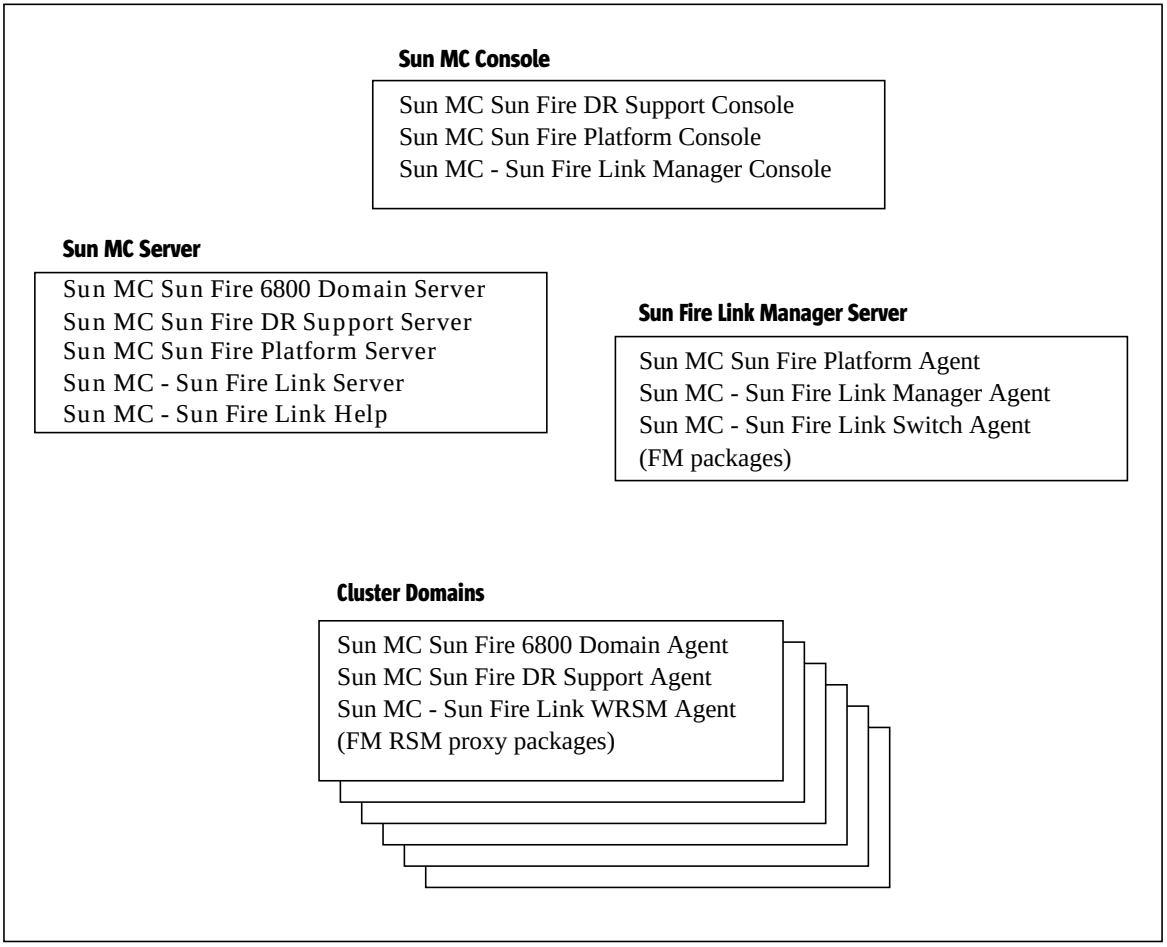


**FIGURE 2** Install Location of Sun MC, Sun Fire Link Add-On, and Sun Fire Link Manager Packages

---

**Note –** The Sun MC installation procedures described in this section include only the general instructions. Refer to the *Sun Management Center 3.0 Software Installation Guide* for detailed instructions. This manual is provided on the Sun MC distribution CD-ROM.

---

## ▼ To Install Sun MC Modules on the Console / Server

1. **Add the following line to the** `/etc/dfs/dfstab` **file:**

```
share –o ro /cdrom/sun_management_center_3_0
```

2. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
3. **Insert disk 3 of the Sun Management Center 3.0, Platform Update 4 CD-ROM.**
   This contains the Sun MC documentation files.
4. **Open and read the Sun MC release notes and installation guide documents.**
   The documents can be found at:
   - `/cdrom/sun_management_center_3_0/Docs/rel_note/relnotes.pdf`
   - `/cdrom/sun_management_center_3_0/Docs/install_guide/instlRR.pdf`
5. **Replace disk 3 with disk 1.**
6. **Run the** `es-inst` **interactive script to install the Sun MC 3.0 server, agent, and console modules on the administration server.**
   Specify the full path to the packages to be installed—that is, enter:

```
# ./es-inst –S /cdrom/sun-fire-link_1.0/Product/
```

---

**Note –** Do not install add-on modules or run setup at this time.

---

## ▼ To Add the Required Sun MC Patches to the Console/Server

If you are installing Sun MC on a system running Solaris 8 operating environment software, you must add patches: 110938-*xx*, 112493-*xx*, and 112499-*xx*. If the system is running Solaris 9 operating environment software, you must add patches 110938-*xx* and 112493-*xx*.

---

**Note –** If you are updating previously installed Sun MC software, patch 110938-05 may be present on the system. If so, you must remove it before installing patch 110938-*xx*.

---

1. **If patch 110938-05 is present on the Sun MC server, remove it before adding the new patches.**

```
# cd installed_patch_location
# patchrm 110938–05
```

2. **Add the Sun MC patches that apply to the version of the Solaris operating environment running on the Sun MC sever.**

   For the Solaris 8 operating environment, enter:

```
# cd /sun-fire-link_1.0/Patches/Solaris_8
# patchadd 110938-xx
# patchadd 112493-xx
# patchadd 112499-xx
```

   For the Solaris 9 operating environment, enter:

```
# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_9
# patchadd 110938-xx
# patchadd 112493-xx
```

## ▼ To Install Sun MC Add-On Packages on the Console / Server

1. **Stop the Solaris daemon** `snmpdx` **and prevent it from starting on reboot.**

   The Solstice Enterprise Agents™ master daemon, `snmpdx`, must be stopped on the console server before installing any Sun MC add-on packages. This action frees up port 161, which the Sun Fire Link software needs. Prevent the daemon from starting on reboot by renaming its startup script.

   ```
   admin_host# /etc/init.d/init.snmpdx stop
   admin_host# mv /etc/rc3.d/S76snmpdx /etc/rc3.d/save.S76snmpdx
   ```

2. **Insert the Sun Fire Link CD-ROM.**

3. **Edit** `/etc/dfs/dfstab` **so it contains the following line:**

   ```
   share –o ro /cdrom/sun-fire-link_1.0
   ```

4. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**

5. **Run** `es-inst` **to install the Sun MC add-on packages provided on the Sun Fire Link CD-ROM.**

   Install all the add-on packages except the WRSM agent module and run setup.

   ---

   **Note –** At one point in the setup phase, you will be asked to supply a seed for generating security keys. The same seed value *must* be used on all nodes. For this reason, it is a good idea to write down the seed number use enter so you will be certain to enter the same number on other nodes.

   ---

# Installing Localized Sun MC Software and Sun Fire Link Add-On Packages

If you want to install localized Sun MC and Sun Fire Link add-on packages, you can do so now. The localized package names are listed below.

| Localized Package Name | Package Description |
|---|---|
| SUNWjeswc | Japanese support for Sun MC/Sun Fire Link console |
| SUNWjswsr | Japanese support for Sun MC/Sun Fire Link server |
| SUNWjwhlp | Japanese support for Sun MC/Sun Fire Link online help |
| SUNWceswc | Simplified Chinese support for Sun MC/Sun Fire Link console |
| SUNWcswsr | Simplified Chinese support for Sun MC/Sun Fire Link server |
| SUNWcwhlp | Simplified Chinese support for Sun MC/Sun Fire Link online help |
| SUNWfeswc | French support for Sun MC/Sun Fire Link console |
| SUNWfswsr | French support for Sun MC/Sun Fire Link server |
| SUNWfwhlp | French support for Sun MC/Sun Fire Link online help |

## ▼ To Install Localized Sun MC 3.0 Base Packages

1. **Insert disk 2 of the Sun Management Center 3.0, Platform Update 4 CD-ROM.**
2. **Add the following line to the** `/etc/dfs/dfstab` **file:**

```
share –o ro /cdrom/sun_management_center_3_0
```

3. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
4. **Change directory to** `/cdrom/sun_management_center_3_0/localization` **and run the** `es-inst-l10n` **script.**

   This installs the localized Sun MC base software packages.

```
# cd /cdrom/sun_management_center_3_0/localization
# ./es-inst-l10n
```

## ▼ To Install the Localized Sun Fire Link Add-On Packages

1. **Insert the Sun Fire Link CD-ROM.**
2. **Edit** `/etc/dfs/dfstab` **so it contains the following line:**

```
share –o ro /cdrom/sun-fire-link_1.0
```

3. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
4. **Run the** `es-inst-l10n` **script from the localization directory.**

   This installs the localized Sun Fire Link add-on packages.

```
# cd /cdrom/sun-fire-link_1.0/Product/Addons/localization
# ./es-inst-l10n
```

# Installing Sun MC Agent Modules and Add-On Packages on Cluster Domains

## ▼ To Install Sun MC Agent Modules on the Cluster Domains

1. **Connect to a cluster domain and become superuser.**
2. **Insert the Sun MC CD-ROM on the administration server and edit** `/etc/dfs/dfstab` **so it contains the following line:**

```
share –o ro /cdrom/sun_management_center_3_0
```

3. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**
4. **Run** `es-inst` **on a cluster domain to install the Sun MC 3.0 agent module.**

   Do not install add-on modules or run setup at this time.
5. **Repeat Step 4 on each domain in the Sun Fire Link cluster.**

## ▼ To Install Add-On Packages on the Cluster Domains

1. **Stop the Solaris daemon** `snmpdx` **and prevent it from starting on reboot.**

   The Sun Solstice Enterprise Agents master daemon, `snmpdx`, must be stopped on the domains before installing any Sun MC add-on packages. This frees up port 161, which the Sun Fire Link software needs. Rename the daemon to prevent it from starting on reboot.

   ```
   # /etc/init.d/init.snmpdx stop
   # mv /etc/rc3.d/S76snmpdx /etc/rc3.d/save.S76snmpdx
   ```

2. **Run** `es-inst` **on a cluster domain to install the Sun MC add-on packages.**

# If Using Sun HPC ClusterTools, Add the Required HPC Patches

If you are using Sun HPC ClusterTools, you need to add the following HPC ClusterTools patches. These allow applications containing Sun MPI library calls to execute effectively on a Sun Fire Link cluster.

- Nodes with Solaris 8 operating environment – patches 111862-*xx* and 111833-*xx*.
- Nodes with Solaris 9 operating environment – patches 111833-*xx*, 112015-*xx*, and 112014-*xx*.

For convenience, these patches are included on the Sun Fire Link software distribution CD-ROM. Install the patches on every domain in the Sun Fire Link cluster.

---

**Note –** The following procedure requires that Sun HCP ClusterTools 4 has already been installed and that it is *not* activated.

---

## ▼ To Add the Sun HPC ClusterTools 4 Patches

1. **Connect to a Sun Fire Link cluster domain and become superuser.**
2. **If the Sun Fire Link CD-ROM is not already loaded, reinsert it in the administration server.**

3. **Add the following line to** `/etc/dfs/dfstab`**.**

```
share –o ro /cdrom/sun-fire-link_1.0
```

4. **Stop and restart the NFS daemons so the new** `share` **command takes effect.**

```
admin_host# /etc/init.d/nfs.server stop
admin_host# /etc/init.d/nfs.server start
```

5. **Install the Sun HPC ClusterTools patches.**

   On nodes with the Solaris 8 operating environment, enter:

```
# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_8
# patchadd 111862-xx
# patchadd 111833-xx
```

   On nodes with the Solaris 9 operating environment, enter:

```
# cd /cdrom/sun-fire-link_1.0/Patches/Solaris_9
# patchadd 111833-xx
# patchadd 112015-xx
# patchadd 112014-xx
```

6. **Perform a reconfigure reboot.**

7. **Repeat the HPC patch installation on each domain in the cluster.**

# Next Steps

## ▼ To Configure the RSM Network

After installing the Sun Fire Link software, the next step is to configure the RSM controllers. This step can be done in two ways:

- By using Sun MC. This is the recommended method.
- By using the Sun Fire Link Manager from the command line.

Both methods are described in the *Sun Fire Link Fabric Administrator's Guide*, which is provided on the Sun Fire Link CD-ROM.

## ▼ To Configure the DLPI Interface

After configuring the RSM controllers, you may wish to configure the DLPI interface to permit communication via the TCP/IP protocol. Use your preferred method, as on any other cluster interconnect.