

# RedHawk™ Global File System (GFS) Version 4.2 Installation Guide

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## 1.0. Overview

This document provides release information and discusses how to install, configure and uninstall the RedHawk™ Global File System (GFS), model number WA9018-L, Version 4.2 distribution on a system running the RedHawk Linux® operating system.

### 1.1 Product Description

GFS is a common storage file system that allows all computers on a network to locally maintain an identical, shared block device. GFS reads and writes to the block device like a local filesystem. Changes made to the filesystem on one computer are immediately written to all other computers in the cluster. GFS uses a lock module to allow the computers to maintain I/O consistency. GFS provides for fast local reads at the expense of write performance.

RedHawk GFS is based on Red Hat® GFS 6.1.

### 1.2 Documentation

#### 1.2.1 RedHawk GFS Documentation

- This Installation Guide describes installing and configuring RedHawk GFS on a RedHawk system.
- The *Red Hat GFS 6.1 Administrator's Guide* provides tuning and general maintenance information. This guide in PDF format is included with RedHawk GFS.
- After installation of RedHawk GFS, the following man pages are located in `/usr/share/man/man#`:

<code>clu_connect(3)</code>	<code>clushutdown(8)</code>	<code>fence_vixel(8)</code>
<code>clu_disconnect(3)</code>	<code>clustat(8)</code>	<code>fence_wti(8)</code>
<code>clu_get_event(3)</code>	<code>clusvcadm(8)</code>	<code>fenced(8)</code>
	<code>cman_tool(8)</code>	<code>gfs(8)</code>
<code>Net::Telnet(3pm)</code>	<code>fence(8)</code>	<code>gfs_fsck(8)</code>
	<code>fence_ack_manual(8)</code>	<code>gfs_grow(8)</code>
<code>cluster.conf(5)</code>	<code>fence_apc(8)</code>	<code>gfs_jadd(8)</code>
<code>cman(5)</code>	<code>fence_rsa(8)</code>	<code>gfs_mkfs(8)</code>
<code>lock_gulmd(5)</code>	<code>fence_bladecenter(8)</code>	<code>gfs_mount(8)</code>
<code>qdisk(5)</code>	<code>fence_brocade(8)</code>	<code>gfs_quota(8)</code>
	<code>fence_bullpap(8)</code>	<code>gfs_tool(8)</code>
<code>ccs(7)</code>	<code>fence_drac(8)</code>	<code>gnbd(8)</code>
	<code>fence_egera(8)</code>	<code>gnbd_export(8)</code>
<code>ccs_test(8)</code>	<code>fence_gnbd(8)</code>	<code>gnbd_import(8)</code>
<code>ccs_tool(8)</code>	<code>fence_ilo(8)</code>	<code>gnbd_serv(8)</code>
<code>ccsd(8)</code>	<code>fence_ipmilan(8)</code>	<code>gulm_tool(8)</code>
<code>clubufflush(8)</code>	<code>fence_manual(8)</code>	<code>lock_gulmd(8)</code>
<code>clufindhostname(8)</code>	<code>fence_mcdmdata(8)</code>	<code>magma_tool(8)</code>
<code>clulog(8)</code>	<code>fence_node(8)</code>	<code>mkqdisk(8)</code>
<code>clunfsops(8)</code>	<code>fence_rib(8)</code>	<code>qdiskd(8)</code>
<code>clurgmgrd(8)</code>	<code>fence_sanbox2(8)</code>	
<code>clurmtabd(8)</code>	<code>fence_tool(8)</code>	

### 1.2.2 Additional Resources

Additional information pertaining to resources for cluster operation and management can be found at:

<http://sourceware.org/cluster>

Excluding installation and configuration issues (where this Installation Guide should be consulted), documentation from this web site can be used for RedHawk GFS.

### 1.2.3 RedHawk Linux Documentation

The following table lists related documentation provided by Concurrent. Click on the red entry to display the document PDF. RedHawk documents are also available by clicking on the “Documents” icon on the desktop and from Concurrent’s web site at [www.ccur.com](http://www.ccur.com).

RedHawk Operating System Documentation	Document Number
<i>RedHawk Linux Release Notes</i>	0898003
<i>RedHawk Linux User’s Guide</i>	0898004
<i>Real-Time Clock &amp; Interrupt Module (RCIM) PCI Form Factor User’s Guide</i>	0898007
<i>RedHawk Linux Frequency-Based Scheduler (FBS) User’s Guide</i>	0898005
<i>iHawk Optimization Guide</i>	0898011
<i>RedHawk Linux FAQ</i>	N/A
<b>Partner Documentation</b>	
<i>Red Hat GFS 6.1 Administrator’s Guide</i>	N/A

## 1.3 Product Updates

As RedHawk GFS updates are issued, they will be made available for downloading from Concurrent’s RedHawk Updates website, <http://redhawk.ccur.com>.

## 1.4 Syntax Notation

The following notation is used throughout this document:

- italic* Books, reference cards, and items that the user must specify appear in *italic* type. Special terms may also appear in *italic*.
- list bold** User input appears in **list bold** type and must be entered exactly as shown. Names of directories, files, commands, options and man page references also appear in **list bold** type.
- list Operating system and program output such as prompts, messages and listings of files and programs appears in list type.

- [ ] Brackets enclose command options and arguments that are optional. You do not type the brackets if you choose to specify these options or arguments.
- hypertext links When viewing this document online, clicking on chapter, section, figure, table and page number references will display the corresponding text. Clicking on Internet URLs provided in *blue* type will launch your web browser and display the web site. Clicking on publication names and numbers in *red* type will display the corresponding manual PDF, if accessible.

## 2.0. Prerequisites

### 2.1 Software

- RedHawk Linux Version 4.2 or later operating system

Note that RedHawk GFS is not supported on an upgrade from RedHawk Linux Version 2.X to Version 4.2.

### 2.2 Hardware

- Two or more Concurrent iHawk or ImaGen systems linked by an Ethernet LAN



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## 3.0. Installation

Follow the steps below to install RedHawk GFS on both the primary and secondary systems.

1. With RedHawk Linux Version 4.2 running, log in as root and take the system down to single-user mode:
  - a. Right click on the desktop and select **Open Terminal**.
  - b. At the system prompt, type **init 1**.

2. Insert the disc labeled “RedHawk Global File System (GFS)” appropriate to your system’s architecture into the CD-ROM drive.

3. To mount the cdrom device, execute the following command:

```
mount /media/cdrom
```

4. To install, execute the following commands:

```
cd /media/cdrom  
./install-gfs
```

Follow the on-screen instructions.

5. When the installation completes, execute the following commands:

```
cd /  
umount /media/cdrom  
eject
```

6. Remove the disc from the CD-ROM drive and store. Exit single-user mode (Ctrl-D).

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## 4.0. Configuration

After installing the product, perform the following configuration steps.

1. Edit `/etc/cluster/cluster.conf` appropriately. For guidance, refer to the `cluster.conf(5)` man page.

2. Start the gfs service:

For an immediate start:

```
$ service gfs start
```

To enable startup at every boot:

```
$ chkconfig gfs on
```

3. Make sure the FC/iSCSI targets are visible from all cluster nodes. Cluster nodes are also known as initiators for the FC/iSCSI appliance.

```
gfs_mkfs -p lock_dlm -t ClusterName::FSName -j NumberJournals BlockDevice
```

*NumberJournals* reflects the number of nodes in the cluster. *ClusterName* is the name from `/etc/cluster/cluster.conf`. *FSName* is a unique filesystem name.

For example:

```
gfs_mkfs -p lock_dlm -t pretty::test -j 2 /dev/sdX1
```

4. Mount the GFS filesystem:

```
mount -t gfs BlockDevice MountPoint
```

For example:

```
mount -t gfs /dev/sdX1 /mnt/dirX1
```

**Note:** RedHawk 4.2 does not currently support Cluster Logical Volume Manager.

Refer to the *Red Hat GFS 6.1 Administrator's Guide* for tuning and general maintenance information (see "Documentation" on page 1).

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## 5.0. Uninstall

Perform the following steps if you wish to uninstall the entire RedHawk GFS distribution from your system:

1. Log in as root and take the system down to single-user mode:

```
init 1
```

2. Insert the disc labeled “RedHawk Global File System (GFS)” appropriate to your system’s architecture into the CD-ROM drive.
3. To mount the cdrom device, execute the following command:

```
mount /media/cdrom
```

4. To uninstall, execute the following commands:

```
cd /media/cdrom  
./uninstall-gfs
```

5. When complete, execute the following commands:

```
cd /  
umount /media/cdrom  
eject
```

6. Remove the disc from the CD-ROM drive and store. Exit single-user mode (Ctrl-D).

*Uninstall*



