

Installation of Intel® RAID with Red Hat* Linux 7.3

The installation of Red Hat* Linux version 7.3 on a system booting from a drive controlled by an Intel® RAID controller requires the use of a Red Hat Linux Patch version 18-5. This patch resolves an issue where the normal shutdown process may exhibit a segmentation fault error. Installation of Red Hat 7.3 can be performed in the normal manner, and the patch applied following installation. It is not necessary to recompile the kernel.

It is assumed that the technician performing this update has a working knowledge of Linux, detailed Linux configuration steps will not be provided here.

Install Red Hat Linux version 7.3

Perform the Red Hat Linux 7.3 installation following the normal process. Steps for this process are included in the Intel RAID Controller Software Guide. This guide is available at <http://support.intel.com/support/motherboards/server>, for the RAID controller of choice.

This document is based on the following assumptions about the 7.3 installation options:

1. The Lilo boot loader option was chosen, instructions in this document include information on configuring the Lilo boot loader.
2. This guide was verified using the default installation options available when performing the installation on an Intel Server Board. Choosing custom options may produce unpredictable results.
3. The gdth SCSI driver integrated in this version of Linux will automatically detect the Intel RAID controller; it is assumed that this driver is being used to support the Intel RAID controller.

Download the Patch 18-5

Download the “kernel-smp-2.4.18-5.i686.rpm” file from <http://www.redhat.it/download/update/7.3/en/os/i686/list.php3>. This file is also available from a variety of other Internet sites. This file is 12.7MB and will not fit on a floppy diskette; therefore it is necessary copy the file to the target server using one of the following options:

1. Download the file directly to the target server via an Internet connection.
2. Download the file to another computer connected to the internet and transfer the file to the target server via a network connection
3. Download the file to another computer, copy it to a CD, and then transfer it to the target server.

Apply the Patch

The patch file is available as an RPM file (Red Hat Package Manager) and is applied using the Red Hat Package Manager application. It is possible to apply the file directly from a CD or from a directory on the server to which the patch has been copied. To apply the patch, complete the following steps:

1. Change to the directory that contains the file.
2. Enter the following command “rpm -ivh kernel-smp-2.4.18-5.i686.rpm” and press enter.
3. The patch will expand and apply.

Configure the Lilo Loader to load the kernel patch as default

You must update the Lilo loader configuration so that Linux knows which kernel to load. So that you don't have to choose the kernel patch option each time you reboot, you can follow the steps below to configure the 2.4.18-5smp kernel as default.

1. With the system booted, change to the <etc> directory.
2. Make a copy of the lilo.conf file (copy it to a file name such as lilo.bak)
3. Use an editor (such as vi) to edit the lilo.conf file. Before editing, the file should be similar to the following:

```
prompt
timeout=50
default=linux
boot=/dev/sda
map=/boot/map
install=/boot/boot.b
message=/boot/message
linear

image=/boot/vmlinuz-2.4.18-3smp
label=linux
initrd=/boot/initrd-2.4.18-3smp.img
read-only
root=/dev/sda5

image=/boot/vmlinuz-2.4.18-3
label=linux-up
initrd=/boot/initrd-2.4.18-3.img
read-only
root=/dev/sda5
```

4. Add the following section at the end of the document:

```
image=/boot/vmlinuz-2.4.18-5smp
label=Linux-5smp
initrd=/boot/initrd-2.4.18-5smp.img
read-only
root=/dev/sda5
```

5. Edit the default line to point to the label for the 18-5smp kernel

```
Change default=linux
To    default=linux-5smp
```

6. The file should now look like the following:

```
prompt
timeout=50
default=linux-5smp
boot=/dev/sda
map=/boot/map
install=/boot/boot.b
message=/boot/message
linear

image=/boot/vmlinuz-2.4.18-3smp
label=linux
initrd=/boot/initrd-2.4.18-3smp.img
read-only
root=/dev/sda5

image=/boot/vmlinuz-2.4.18-3
label=linux-up
initrd=/boot/initrd-2.4.18-3.img
read-only
root=/dev/sda5
```

*Other names and brands may be claimed as the property of others.

```
image=/boot/vmlinuz-2.4.18-5smp
label=Linux-5smp
initrd=/boot/initrd-2.4.18-5smp.img
read-only
root=/dev/sda5
```

7. Save the file as lilo.conf, overwriting the existing lilo.conf file.
8. Type “lilo”, or type “/sbin/lilo” to confirm that the new option is loaded in the master boot record and ready for use. You should get output similar to the following (the * signifies default):

```
Added linux
Added linux-custom
Added linux-5smp*
```

9. You can now reboot to verify that the upgrade is the default boot option for Lilo.
 - a. You should see the kernel version number at the login prompt:

```
Red Hat Linux Release 7.3
Kernel 2.4.18-5smp on an i686
```

- b. Perform a normal shutdown to verify that the segmentation fault does not occur.