

9.2.3 Kernel Module Management Facts

This lesson covers the following topics:

- Loading kernel modules
- Managing kernel modules

Loading Kernel Modules

When the system boots, it uses one of the following files to automatically load kernel modules. (The exact file used depends on the implementation.)

File	Description
/etc/modprobe.conf	Provides the modprobe utility with default commands for loading modules at boot time. Entries in the file include the following: <ul style="list-style-type: none">• install loads a module at boot time.• alias specifies a name as an alias for a module name. This alias can be used with module utilities.• options specifies options used while loading a module, including:<ul style="list-style-type: none">◦ irq for IRQ information◦ io for I/O port information.
/etc/modprobe.d	Contains multiple configuration files used by modprobe at boot time if the /etc/modprobe.conf file does not exist.
/usr/lib/modules/kernel-version	This directory stores your kernel modules which are available to all users.

Managing Kernel Modules

You can use the following commands to manage kernel modules manually:

Command	Function	Example
lsmod	Lists all loaded modules. The command pulls information from the /proc/modules file.	
cat /proc/modules	Views the /proc/modules file. This file contains a list of all loaded modules.	
modinfo	Views additional information about a module listed using the lsmod command.	modinfo mii shows

		information about the MII Hardware Support Library module.
depmod	<p>Creates a file that identifies module dependencies. The file is placed at /lib/modules/kernel_version_number/modules.dep. This command first reads the /etc/modules.conf file to identify modules. It then probes each module to build a list of dependencies. Be aware of the following options:</p> <ul style="list-style-type: none"> • -a shows information for all modules. • -n shows what would happen on the screen, but does not perform the action. • -v uses verbose mode. 	<p>depmod -an performs the probe and display the results on the screen.</p> <p>depmod -v displays all module information to the screen as it updates the modules.dep file.</p>
insmod	<p>Installs a module.</p> <ul style="list-style-type: none"> • This command does not look for dependencies. It will fail if a module being loaded has unresolved dependencies. • Include the full name of the module, including the .o or .ko extension. 	<p>insmod mousedev.ko loads the mousedev module.</p>
modprobe	<p>Loads a module along with any module dependencies. This utility also runs at startup to load modules. The /etc/modprobe.conf file provides modprobe with its configuration information. Be aware of the following options:</p> <ul style="list-style-type: none"> • -l lists all loaded modules. • -r removes a module. This option checks for dependencies before unloading the module. 	<p>modprobe reiserfs loads the reiserfs and all of its dependent modules.</p> <p>modprobe -r reiserfs removes the reiserfs module.</p>
rmmod	<p>Removes a module from the kernel. rmmod:</p> <ul style="list-style-type: none"> • Cannot unload the module if it is in use. • Does not look for dependencies and can cause errors if a module depends on a module that is unloaded. 	<p>rmmod mousedev removes the mousedev module.</p>