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:
	- **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:
	  - **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	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: - **-a** shows information for all modules. - **-n** shows what would happen on the screen, but does not perform the action. - **-v** uses verbose mode.	**depmod -an** performs the probe and display the results on the screen. **depmod -v** displays all module information to the screen as it updates the modules.dep file.
insmod	Installs a module. - 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.	**insmod mousedev.ko** loads the mousedev module.
modprobe	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: - **-l** lists all loaded modules. - **-r** removes a module. This option checks for dependencies before unloading the module.	**modprobe reiserfs** loads the reiserfs and all of its dependent modules. **modprobe -r reiserfs** removes the reiserfs module.
rmmod	Removes a module from the kernel. **rmmod**:	**rmmod mousedev**

	▪ 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.	removes the mousedev module.