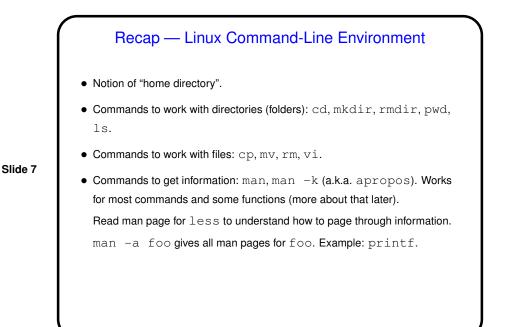


Where Do Programs Come From?, Continued

• Is object code a complete program ready to be executed? Maybe. But typically some common operations (I/O, e.g.) are provided via a *library* (of object code), and to get complete program you combine your object code with library via a *linker* to get an *executable*. For simple programs, compiling and linking often combined into one step.

Slide 6

This executable (file) can be loaded into memory by the operating system and executed. This is where most applications come from — ls, vi.
 (Compare results of file a.out (that we produced) to result of file /bin/ls.)



File Permissions in Unix/Linux Access to files specified in terms of three categories of users (owner, group, and other) and three kinds of access (read, write, and execute). To show permissions, 1s -1. First character says directory/not, then three groups of three letters each (rwx), one for each category of user. Example: rv ------- 1 bmassing bmassing 115 2007-08-30 10:07 hello.c To change permissions, chmod. Can specify via octal (base 8) numbers, but usually easier to use symbolic mode. Examples: chmod go= foo to say only owner can access foo. chmod go+r foo to say everyone can read foo (but not necessarily write it). Also see tutorials on files, file security linked from "Useful links" page here.

