**Block devices**

A *block device* is an abstraction layer for any storage device that can be formatted in fixed-size blocks; individual blocks may be accessed independently of access to other blocks. Such access is often called *random access*.

The abstraction layer of randomly accessible fixed-size blocks allows programs to use these block devices without worrying about whether the underlying device is a hard drive, floppy, CD, solid-state drive, network drive, or some type of virtual device such as an in-memory file system.

Examples of block devices include the first IDE or SATA hard drive on your system (/dev/sda or /dev/hda) or the second SCSI, IDE, or USB drive (/dev/sdb). Use the ls -l command to display /dev entries. The first character on each output line is **b** for a **block** device, such as floppy, CD drive, IDE hard drive, or SCSI hard drive; and **c** for a **character** device, such as a or terminal (tty) or the null device. See the examples in Listing 1.

**Listing 1. Linux block and character devices**

[ian@attic-f21 resent]$ **ls -l /dev/null /dev/sd[ab] /dev/sr0 /dev/tty0 #Fedora 21**

crw-rw-rw-. 1 root root 1, 3 Jul 27 20:38 /dev/null

brw-rw----. 1 root disk 8, 0 Jul 30 07:46 /dev/sda

brw-rw----. 1 root disk 8, 16 Jul 30 07:46 /dev/sdb

brw-rw----+ 1 root cdrom 11, 0 Jul 27 20:38 /dev/sr0

crw--w----. 1 root tty 4, 0 Jul 27 20:38 /dev/tty0