DHCP function and configure its settings. In the section "Managing a Windows Server 2019 DHCP Server," later in this chapter, I show you how to configure a DHCP server for Windows 2019.

A server computer running DHCP doesn't have to be devoted entirely to DHCP unless the network is very large. For most networks, a file server can share duty as a DHCP server, especially if you provide long leases for your IP addresses. (I explain the idea of leases later in this chapter.)

Most multifunction routers also have built-in DHCP servers. So if you don't want to burden one of your network servers with the DHCP function, you can enable the router's built-in DHCP server. An advantage of allowing the router to be your network's DHCP server is that you rarely need to power down a router. By contrast, you occasionally need to restart or power down a file server to perform system maintenance, to apply upgrades, or to do some needed troubleshooting.


TIP

Most networks require only one DHCP server. Setting up two or more servers on the same network requires that you carefully coordinate the IP address ranges (known as *scopes*) for which each server is responsible. If you accidentally set up two DHCP servers for the same scope, you may end up with duplicate address assignments if the servers attempt to assign the same IP address to two different hosts. To prevent this situation from happening, set up just one DHCP server unless your network is so large that one server can't handle the workload.

Understanding scopes

A *scope* is simply a range of IP addresses that a DHCP server is configured to distribute. In the simplest case, in which a single DHCP server oversees IP configuration for an entire subnet, the scope corresponds to the subnet. However, if you set up two DHCP servers for a subnet, you can configure each one with a scope that allocates only one part of the complete subnet range. In addition, a single DHCP server can serve more than one scope.

You must create a scope before you can enable a DHCP server. When you create a scope, you can provide it these properties:

- A **scope name,** which helps you identify the scope and its purpose.
- A **scope description,** which lets you provide additional details about the scope and its purpose.
- A **starting IP address** for the scope.
- An **ending IP address** for the scope.