

**Definition:** A **network protocol** defines rules and conventions for communication between network devices. Protocols for computer networking all generally use [packet switching](#) techniques to send and receive messages in the form of *packets*.

Network protocols include mechanisms for devices to identify and make connections with each other, as well as formatting rules that specify how data is packaged into messages sent and received. Some protocols also support message acknowledgement and data compression designed for reliable and/or high-performance network communication. Hundreds of different computer network protocols have been developed each designed for specific purposes and environments.

## **Internet Protocols**

The Internet Protocol family contains a set of related (and among the most widely used network protocols. Besides [Internet Protocol \(IP\)](#) itself, higher-level protocols like [TCP](#), [UDP](#), [HTTP](#), and [FTP](#) all integrate with IP to provide additional capabilities. Similarly, lower-level Internet Protocols like [ARP](#) and [ICMP](#) also co-exist with IP. These higher level protocols interact more closely with applications like Web browsers while lower-level protocols interact with network adapters and other computer hardware.

## **Routing Protocols**

Routing protocols are special-purpose protocols designed specifically for use by [network routers](#) on the Internet. Common routing protocols include EIGRP, OSPF and BGP.

## **How Network Protocols Are Implemented**

Modern operating systems like Microsoft Windows contain built-in services or daemons that implement support for some network protocols. Applications like Web browsers contain software libraries that support the high level protocols necessary for that application to function. For some lower level TCP/IP and routing protocols, support is implemented in directly hardware (silicon chipsets) for improved performance.