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# List of network protocols

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This is a list of network [protocols](#), categorized by their nearest [Open Systems Interconnection](#) (OSI) [model](#) layers. Many of these protocols, however, are originally based on the [Internet Protocol Suite](#) (TCP/IP) and other models and they often do not fit neatly into OSI layers.

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## OSI Model

- 7 Application Layer
- 6 Presentation Layer
- 5 Session Layer
- 4 Transport Layer
- 3 Network Layer
- 2 Data Link Layer
  - LLC sublayer
  - MAC sublayer
- 1 Physical Layer

## Layer 1 protocols (Physical Layer)

[\[edit\]](#)

- [ADSL](#) Asymmetric Digital Subscriber Line
- [ISDN](#) Integrated Services Digital Network
- [PDH](#) Plesiochronous Digital Hierarchy
  - [T-carrier](#) (T1, T3, etc.)
  - [E-carrier](#) (E1, E3, etc.)
- [RS-232](#), a serial line interface originally developed to connect modems and computer terminals
- [SDH](#) Synchronous Digital Hierarchy
- [SONET](#) Synchronous Optical NETworking
- [Modem standards/ITU V-Series](#) Protocols used to communicate between analog modems over voice telephone lines.
- [ITU-T G.hn Physical Layer](#)

## Layer 1+2 protocols

[\[edit\]](#)

- [Ethernet](#)
- [GFP](#) ITU-T G.7041 Generic Framing Procedure
- [OTN](#) ITU-T G.709 Optical Transport Network also called Optical Channel Wrapper or Digital Wrapper Technology

## Layer 2 protocols (Data Link Layer)

[\[edit\]](#)

- [ARCnet](#) Attached Resource Computer NETWORK
- [CDP](#) Cisco Discovery Protocol
- [DCAP](#) Data Link Switching Client Access Protocol
- [Dynamic Trunking Protocol](#)
- [Econet](#)
- [FDDI](#) Fiber Distributed Data Interface
- [Frame Relay](#)
- [ITU-T G.hn Data Link Layer](#)
- [HDLC](#) High-Level Data Link Control
- [IEEE 802.11](#) WiFi
- [IEEE 802.16](#) WiMAX
- [LocalTalk](#)
- [L2F](#) Layer 2 Forwarding Protocol
- [L2TP](#) Layer 2 Tunneling Protocol
- [LAPD](#) Link Access Procedures on the D channel
- [LLDP](#) Link Layer Discovery Protocol
- [LLDP-MED](#) Link Layer Discovery Protocol - Media Endpoint Discovery
- [PPP](#) Point-to-Point Protocol

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- [PPTP](#) Point-to-Point Tunneling Protocol
- [Q.710](#) Simplified [Message Transfer Part](#)
- [NDP](#) Neighbor Discovery Protocol
- [RPR](#) IEEE 802.17 Resilient Packet Ring
- [SLIP](#) Serial Line Internet Protocol (obsolete)
- [StarLAN](#)
- [STP](#) Spanning Tree Protocol
- [Token ring](#) is not a protocol but is a topology
- [VTP](#) VLAN Trunking Protocol

## Layer 2+3 protocols

[\[edit\]](#)

- [ATM](#) Asynchronous Transfer Mode
- [Frame relay](#), a simplified version of X.25 welcome
- [MPLS](#) Multi-protocol label switching
- [X.25](#)
- [ARP](#) Address Resolution Protocol
- [RARP](#) Reverse Address Resolution Protocol

## Layer 1+2+3 protocols

[\[edit\]](#)

- [MTP](#) Message Transfer Part
- [NSP](#) Network Service Part

## Layer 3 protocols (Network Layer)

[\[edit\]](#)

- [CLNP](#) Connectionless Networking Protocol
- [EGP](#) Exterior Gateway Protocol
- [EIGRP](#) Enhanced Interior Gateway Routing Protocol
- [ICMP](#) Internet Control Message Protocol
- [IGMP](#) Internet Group Management Protocol
- [IGRP](#) Interior Gateway Routing Protocol
- [IPv4](#) Internet Protocol version 4
- [IPv6](#) Internet Protocol version 6
- [IPSec](#) Internet Protocol Security
- [IPX](#) Internetwork Packet Exchange
- [SCCP](#) Signalling Connection Control Part
- [AppleTalk DDP](#)

## Layer 3 protocols (Network Layer management)

[\[edit\]](#)

- [IS-IS](#) Intermediate System-to-Intermediate System
- [OSPF](#) Open Shortest Path First
- [BGP](#) Border Gateway Protocol
- [RIP](#) Routing Information Protocol
- [ICMP Router Discovery Protocol](#): Implementation of [RFC 1256](#) [↗](#)
- [Gateway Discovery Protocol](#) (GDP) is a Cisco protocol similar to [IRDP](#)

## Layer 3.5 protocols

[\[edit\]](#)

- [HIP](#) Host Identity Protocol

## Layer 3+4 protocol suites

[\[edit\]](#)

- [AppleTalk](#)
- [DECnet](#)
- [IPX/SPX](#)
- [Internet Protocol Suite](#)
- [Xerox Network Systems](#)

## Layer 4 protocols (Transport Layer)

[\[edit\]](#)

- [AH](#) Authentication Header over IP or IPSec
- [ESP](#) Encapsulating Security Payload over IP or IPSec
- [GRE](#) Generic Routing Encapsulation for tunneling
- [IL](#) Originally developed as transport layer for [9P](#)
- [SCTP](#) Stream Control Transmission Protocol
- [Sinenc H1](#) for telecontrol
- [SPX](#) Sequenced Packet Exchange
- [TCP](#) Transmission Control Protocol
- [UDP](#) User Datagram Protocol

## Layer 5 protocols (Session Layer)

[[edit](#)]

- [9P](#) Distributed file system protocol developed originally as part of [Plan 9](#)
- [NCP](#) NetWare Core Protocol
- [NFS](#) Network File System
- [SMB](#) Server Message Block
- [SOCKS](#) "SOCKeTS"

## Other protocols

[[edit](#)]

- [Controller Area Network](#) (CAN)
- [Common Industrial Protocol](#) (CIP)
- [Digital Command Control](#) (DCC)
- [Financial Information eXchange](#) (FIX)
- [PC](#)
- [modbus](#)
- [DECnet](#) protocol family from [Digital Equipment Corporation](#) (now HP)
- [Service Location Protocol](#) SLP
- [Service Advertising Protocol](#) SAP

## Layer 7 protocols (Application Layer)

[[edit](#)]

- [ADC](#), A peer-to-peer file sharing protocol
- [AFP](#), Apple Filing Protocol
- [BACnet](#), Building Automation and Control Network protocol
- [BitTorrent](#), A peer-to-peer file sharing protocol
- [BOOTP](#), Bootstrap Protocol
- [CAMEL](#), an SS7 protocol tool for the home operator
- [Diameter](#), an authentication, authorization and accounting protocol
- [DICOM](#) includes a network protocol definition
- [DICT](#), Dictionary protocol
- [DNS](#), Domain Name System
- [DHCP](#), Dynamic Host Configuration Protocol
- [ED2K](#), A peer-to-peer file sharing protocol
- [FTP](#), File Transfer Protocol
- [Finger](#), which gives user profile information
- [Gnutella](#), a peer-to-peer file-swapping protocol
- [Gopher](#), a hierarchical hyperlinkable protocol
- [HTTP](#), Hypertext Transfer Protocol
- [IMAP](#), Internet Message Access Protocol
- [Internet Relay Chat](#) (IRC)
- [ISUP](#), ISDN User Part
- [XMPP](#), an instant-messaging protocol
- [LDAP](#) Lightweight Directory Access Protocol
- [MIME](#), Multipurpose Internet Mail Extensions
- [MSNP](#), Microsoft Notification Protocol (used by Windows Live Messenger)
- [MAP](#), Mobile Application Part
- [NetBIOS](#), File Sharing and Name Resolution protocol - the basis of file sharing with Windows.
- [NNTP](#), News Network Transfer Protocol
- [NTP](#), Network Time Protocol
- [NTCIP](#), National Transportation Communications for Intelligent Transportation System Protocol
- [POP3](#) Post Office Protocol Version 3
- [RADIUS](#), an authentication, authorization and accounting protocol
- [Rlogin](#), a UNIX remote login protocol
- [rsync](#), a file transfer protocol for backups, copying and mirroring
- [RTP](#), Real-time Transport Protocol
- [RTSP](#), Real-time Transport Streaming Protocol
- [SSH](#), Secure Shell
- [SISNAPI](#), Siebel Internet Session Network API
- [SIP](#), Session Initiation Protocol, a signaling protocol
- [SMTP](#), Simple Mail Transfer Protocol
- [SNMP](#), Simple Network Management Protocol
- [SOAP](#), Simple Object Access Protocol
- [STUN](#), Session Traversal Utilities for NAT
- [TUP](#), Telephone User Part
- [Telnet](#), a remote terminal access protocol
- [TCAP](#), Transaction Capabilities Application Part
- [TFTP](#), Trivial File Transfer Protocol, a simple file transfer protocol
- [WebDAV](#), Web Distributed Authoring and Versioning

- [DSM-CC Digital Storage Media Command and Control](#)

## Protocol description languages

[\[edit\]](#)

- [Abstract Syntax Notation One](#) (ASN.1)

## See also

[\[edit\]](#)

- [List of automation protocols](#)
- [Systems Network Architecture](#) (SNA) developed by IBM
- [Distributed Systems Architecture](#) (DSA) developed by Honeywell-Bull
- [Distributed System Security Architecture](#) (DSSA)



## Further reading

[\[edit\]](#)

- *[Network Protocols Handbook](#)* . Javlin Technologies. 2005. [ISBN 9780974094526](#).

## External links

[\[edit\]](#)

- [Protocol Encapsulation Chart](#)  - A PDF file illustrating the relationship between common protocols and the [OSI Reference Model](#).
- [Network Protocols Acronyms and Abbreviations](#)  - list of network protocols with abbreviations order by index.

Categories: [Network protocols](#) | [Computer lists](#)

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