

# TCP/IP

## Protocols, Addressing, Routing

In the IT world, the TCP/IP protocol stack plays a predominant role. Even applications such as telephony, which formerly had nothing to do with IP, are now an integral part of TCP/IP. Knowledge of the associated protocols is an absolute must for any system or network administrator. The know-how imparted with many practical examples enables the participants to actively participate in the planning, setup, operation and administration of IP-based networks. The focus of this course is on communication between clients and servers, the protocols and services required for this, and the most common TCP/IP-based applications.

### Course Contents

- Overview of the TCP/IP protocol family
- Uses and applications for TCP/IP
- End devices and switches - components in the TCP/IP network
- Addressing with IPv4 and IPv6
- Public and private IP addresses
- IP networks, subnet masks and default gateways
- Network and Port Address Translation (NAT and PAT)
- TCP/IP in local networks - cooperation with Ethernet and WLAN
- Address resolution (ARP)
- IP routing in companies and on the Internet, routing protocols
- The ICMP protocol for testing and troubleshooting
- Dynamic Host Configuration Protocol (DHCP)
- Name resolution via Domain Name Service (DNS)
- The TCP transport protocol - ports, flow control and retransmissions
- The transport protocol UDP and its special features
- Classic TCP/IP applications such as HTTP and FTP, Telnet, SSH and Voice over IP
- Threats and security in IP networks
- Exercises and demonstrations on the test network

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### Target Group

This course teaches the basics of networking to anyone involved in the planning, implementation, and operation of client-server systems and networks. It is suitable for anyone who wants to learn about the world of TCP/IP from a technical perspective.

### Prerequisites

Basic network know-how as imparted e.g. in the course Networking Technologies is the prerequisite for a successful participation in this course.

### This Course in the Web



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