

Introduction to TCP IP

Learn via: **Classroom / Virtual Classroom / Online**

Duration: **1 Day**

<https://bilginc.com/en/training/introduction-to-tcp-ip-2892-training/>

Overview

This is an overview of the TCPIP Suite of protocols. It is designed for audiences new to the world of TCPIP. It is an instructor led presentation course with some computer based practical exercises.

Prerequisites

- Delegates should be familiar with MS Windows desktop and command line operation.

What You Will Learn

During this course you will:

- Be introduced to the various protocols that are covered by TCP/IP
- Learn about the development and limitations of Internet Protocol Addressing
- Learn how to plan and configure a TCP/IP based network
- Learn some of the tools used to troubleshoot TCPIP networks

Outline

Chapter 1 - Introduction

- History of TCP/IP
- Standards Bodies - The Internet
- TCP/IP Architecture
- The TCP/IP Suite
- Standards Bodies - ISO
- Open System Interconnection
- ISO OSI 7-layer model
- Layered Protocols

Chapter 2 - The Internet Protocol

- Internet Protocol
- Internet Protocol Version 4 Addressing
- Internet Protocol Routing
- IPv4 Address Classes
- Classfull IPv4 Address Ranges
- Multicast Addresses
- IPv4 Reserved Addresses
- IPv4 Address Assignment
- IPv4 Private Network Addressing
- Address Exercise
- IP Address Allocation
- Dynamic IP Address Allocation - RARP
- Dynamic IP Address Allocation - BOOTP
- Dynamic IP Address Allocation - DHCP
- Windows DHCP Commands
- The IPv4 Header
- IP Fragmentation
- IP Precedence
- Differentiated Services - DiffServ

Chapter 3 - Address Resolution

- Protocol Encapsulation with TCP/IP
- Address Resolution Protocol (ARP)
- Default Gateway
- Connecting Hosts

Chapter 4 - IP Address Limitations

- Limitations of the Classfull System
- Subnet Motivation - IP Addresses
- Subnet Extensions
- Subnetting
- Subnet Mask Application
- Defining Subnetworks
- Subnetworking in Action
- Subnet Granularity
- Subnet Mask Application
- Subnet/Supernet Calculators
- What is IPv6?

Chapter 5 - ICMP

- Internet Control Message Protocol
- PING
- PING Options
- TraceRoute
- PathPing

Chapter 6 - The Transport Layer

- TCP Concepts
- Simple Reliability
- TCP Segment
- TCP Port Numbers
- User Datagram Protocol (UDP)
- UDP Segment
- UDP versus TCP

Chapter 7 - IP Routing

- Routers and Routing
- Static Routing
- Static Routing
- Dynamic Routing
- Dynamic Routing Protocols
- Routing Information Protocol
- RIP Versions
- RIP Responses
- Open Shortest Path First
- An OSPF Network
- OSPF Costs
- Link State Algorithm
- The OSPF Hello Message
- OSPF Convergence

Chapter 8 - NAT & NAT With PAT

- Introduction
- Overview
- Network Address Translation
- Dynamic NAT with Port Address Translation
- NAT with Port Address Translation

Chapter 10 - The Domain Name System

- The Domain Name System
- The Domain Name Space
- Windows DNS Configuration
- Testing DNS

Chapter 11 - The Process Layer

- Processes
- File Transfer Protocol

- Trivial File Transfer Protocol
- Telnet
- Modern Network Management
- Simple Network Management Protocol
- Components of SNMP