

DNS Fundamentals and BIND Administration Hands on Training



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What Will You Learn?

- The history of DNS
- DNS terminology, concepts and operations
- Common DNS resource records
- BIND (DNS server) and resolver (DNS client) configuration
- DNS extensions
(dynamic updates, incremental zone transfers, DNS Notify)
- DNS and Microsoft Active Directory basics
- DNS and International domain names
(non-ASCII characters in domain names)
- DNS debugging tools and techniques
- DNS troubleshooting

Why is this Course Important for You and Your Organization?

The Domain Name System (DNS) is the heartbeat of the Internet, acting as a directory of host names and IP addresses in the same way that a telephone book acts as a directory of names and telephone numbers. Every time you access the Internet through a web browser, an FTP client, or an email program, you're relying on the proper operation of the Domain Name System. There are other reasons DNS is important:

- DNS is the world's largest distributed database system, comprising over one million servers operating as a single, worldwide database.
- Studies have shown that over 50% of DNS servers are misconfigured. This can diminish performance and render web sites and other Internet resources inaccessible.
- Misconfigured DNS Server can be a serious security threat.
- Emerging standards and technologies will make DNS even more critical than it is today: DNS Security Extensions (DNSSEC), the use of DNS with mobile phones (ENUM), and internationalized DNS (IDN). To guarantee the availability of Internet services, it's imperative for network professionals to understand DNS concepts and configuration.

Who Should Attend?

Network engineers, network planners, system administrators – anyone who has anything to do with designing and administering DNS and TCP/IP networks. The Men & Mice DNS Fundamentals and BIND Administration course will give you a good understanding of this fundamental Internet service.

Why DNS Training with Men & Mice?

Men & Mice has specialized in DNS research, products and technology for 10 years. Our main focus is simplifying the management of DNS. The class material is written by some of the best DNS experts in the world and is updated regularly.

During the four-day hands-on version of this training, all topics will be practiced in a sandbox Linux/Unix environment with the most current BIND version.

- Creating and verifying zone files
- Creating and verifying BIND configuration (named.conf)
- Configuring administrative tools (rndc)
- Configuring and verifying zone transfers
- Administration of dynamic zones, dynamic updates with the “nsupdate” tool, and incremental zone transfers
- Creating and maintaining international domain names (IDN) in a zone
- Live Troubleshooting in the Training Network

Course Outline

The History of DNS

- The ARPAnet and HOSTS.TXT
- The Advent of DNS

Basic DNS Theory

- The Namespace
- Nodes and Labels
- Domain Names
- Domains and Subdomains
- Delegation and Zones
- Primary Master and Slave Name Servers
- DNS Messages
- Resolvers
- Name Resolution
- Recursive and Iterative Queries
- Caching
- Roundtrip Time

DNS in Practice

- Generic Top-Level Domains
- Country-Code Top-Level Domains
- Organization of Top-Level Domains
- Registrars and Registries
- Root Name Servers
- Root Name Server Anycast

BIND

- A Brief History of BIND
- Choosing a Version

Master File Format and Resource Records

- Resource Record Syntax
- A, AAAA, PTR, NS, MX, SRV, TXT, CNAME, and SOA Records
- Classless Reverse-Delegation using CNAME (RFC 2317)
- DNS and Spam-Protection (SPF)
- DNS and Mail-Server Best Practices
- Shortcuts

Basic Name Server Configuration and Administration

- Getting and Building BIND
- BIND Configuration File “named.conf” Syntax
- The Working Directory
- Cryptographic Keys
- Address Match Lists
- Access Control Lists (ACLs)
- Controls
- Zones
- Configuring and Running rndc and ndc

Resolver Theory and Configuration

- The Local Domain Name
- The Search List
- Querying Name Servers
- BIND Resolver Configuration
- Service Order
- Windows 2000/2003/XP Resolver Configuration

Basic Name Server Security

- Version
- Single Points of Failure
- Filtering Traffic
- Restricting Recursive Queries
- Restricting Zone Transfers

DNSIND

- Dynamic Update Theory and Configuration
- NOTIFY Theory and Configuration
- Incremental Zone Transfer
- Theory and Configuration
- Dynamic Updates with BIND in a Windows Environment

Troubleshooting

- nslookup
- dig
- DNS Expert
- Troubleshooting Techniques
- Common Mistakes