

RWNOG 2022

DNS ADMINISTRATION

31st May to 04th June 2022

9:00 am (07:00 UTC) – 17:00 pm (15:00 UTC)

DNS Administration Workshop Overview

The Domain Name System (DNS) is a critical part of the Internet infrastructure and the largest distributed Internet directory service. DNS translates names to IP addresses, a required process for web navigation, email delivery, and other Internet functions. To guarantee the availability and the secure Internet services, it is important for networking professionals to understand DNS concepts, DNS Security, configurations, and operations.

This course will discuss the concept of DNS Operations, mechanisms to authenticate the communication between DNS Servers, mechanisms to establish authenticity, and integrity of the DNS data.

RWNOG WORKSHOP AGENDA

Day 1

Welcome remarks-**RICTA CEO** (9:00 - 9:30)

Introduction to the DNS: 9:30 – 17:00

Topics to be covered:

- Software Review (UNIX/LINUX)
- Unix – basics
- What is DNS?
- How is DNS built and how does it work?
- How does a query work?
- Record types
- Caching and Authoritative
- Delegation: domains vs zones
- Finding the error: where is it broken?

The day includes breaks sessions

Day 2: 9:00 – 17:00

Topics to be covered (the day is more on practical sessions)

- BIND (DNS server) and Resolver (DNS client) configurations
- Setting up domains
- DNS debugging tools, troubleshooting, and techniques
- Reverse DNS
- RNDC
- Access control lists (ACL)
- Split DNS
- Secured dynamic updates
- DNS and IPv6
- Advanced DNS operations and Security: DNS replication Master and Slave

The day includes breaks session

Day 3: 9:00 – 17:00

Improving DNS Security and Resiliency

- Threats to DNS

- DoS Attacks
- Amplification Attacks
- Cache Poisoning
- Dangers of zone transfer
- Authoritative vs Recursive
- Authoritative – BIND options
- Authoritative – IP filters
- Authoritative – Location
- Recursive BIND options
- Recursive – IP filters
- Client failover behavior
- Anycast
- Anycast DNS
- Configuration Management
- Diversify OS and DNS software
- Monitoring Availability – Nagios

Day 4: 9:00 – 4:00

The day is more on Cybersecurity Awareness

Closing: 4:00-4:30

Survey and handing of Certificates