



## ***Introduction***

Now-a-days almost every organization depends on e-mailing system as communication medium, and even it is not only used for communication, but also acts as an identity of an employee/user. Along with easy communication, emails convey lots of confidential data, the mailing system of an organization should be managed and administered by its in-house resources. In addition of deploying secured and healthy mail server, a mail gateway server is needed to protect the mail server against all email threats from the outside world to protect their users from spam, viruses, phishing and trojans. Domain name system (DNS) is the backbone of the Internet that is used to translate human-memorable domain names into the corresponding IP addresses as well as to identify and locate computer systems and resources on the Internet.

The training will focus on deploying industry standard mailing system using postfix, dovecot, roundcube, where a mail server is to be protected by gateway server as safeguard using PMG (Proxmox Mail Gateway) which is the leading open-source email security solution helping organizations of any size from anti-spam and anti-virus facility.

This training will also focus on setting up DNS servers for a domain using BIND 9, and demonstrates DNS Security Extension (DNSSEC), how they works and how to prevent attackers from manipulation or poisoning DNS requests.



This 24 hours course features intensive hands-on training that focuses on installing, configuring, and managing emailing system and DNS server, which includes a detail explanation of each configuration parameters and pre-defined troubleshooting to common practical problems. This course prepares you to administer a full-fledge emailing and DNS infrastructure for an organization of any size.

**At the end of this training, the participants will be able to:**

- Deploy an industry standard mailing system.
- Set up advanced methods (SPF, DKIM, ADSP, DMARC) for enhancing email deliverability and security.
- Aware of major security concerns in time of setting up the mailing system.
- Ensure security of the mailing system by deploying a mail gateway
- Implement clustered (master/slave) DNS server with DNSSEC securityenable
- Migrate mail server from one platform to another
- Setup email marketing infrastructure.

## Details Course Outlines

<b>Module-01</b>	<p><b>Course Introduction</b></p> <ul style="list-style-type: none"> <li>• Course Introductions</li> <li>• Enterprise DNS &amp; Email System Overview</li> <li>• Course objectives</li> <li>• Course Prerequisites</li> <li>• Home Lab Setup</li> </ul>
<b>Module-02</b>	<p><b>Introduction to Domain Name System (DNS)</b></p> <ul style="list-style-type: none"> <li>• How DNS works</li> <li>• DNS Components</li> <li>• DNS Server Types</li> <li>• Categories of DNS Server</li> <li>• Public DNS, Resolver DNS, Recursive DNS</li> </ul>
<b>Module-03</b>	<p><b>Detail Understanding of DNS Records</b></p> <ul style="list-style-type: none"> <li>• What is Start of Authority (SOA) Type Record</li> <li>• What are Zone files, NS, MX, CNAME, A, PTR Types Record</li> <li>• DNS Delegation Concepts</li> <li>• DNS Testing Tools (Mx toolbox, DNSChecker, etc..)</li> </ul>
<b>Module-04</b>	<p><b>Implement Master DNS Server using BIND 9</b></p> <ul style="list-style-type: none"> <li>• Master and Slave DNS concept</li> <li>• Prerequisites</li> <li>• Setup bind package</li> <li>• Adding Forward Zone and Reverse Zone</li> <li>• How Iterative and Recursive Query works</li> </ul>
<b>Module-05</b>	<p><b>Implement Slave/Secondary DNS Server using BIND 9</b></p> <ul style="list-style-type: none"> <li>• Installation and Configuration of bind package</li> <li>• Replication setup between master and its slaves</li> <li>• Testing and Troubleshooting</li> </ul> <p><b>Implement DNSSEC security on Primary and Slave DNS servers</b></p>

<b>Module-06</b>	<b>Detail Overview to Mailing System and Prerequisite setup</b> <ul style="list-style-type: none"> <li>• How an Email server works</li> <li>• System Environment Setup <ul style="list-style-type: none"> <li>○ Disabling SELinux</li> <li>○ FIREWALL Configuration</li> <li>○ Changing SSH port</li> <li>○ Date and Time</li> <li>○ Set hostname and package update</li> </ul> </li> <li>• DNS Setup for mail Server</li> </ul>
<b>Module-07</b>	<b>Installation and Configuration of Postfix</b> <ul style="list-style-type: none"> <li>• Mail Transfer Agent (MTA) Concept</li> <li>• Set up SMTP with Postfix</li> </ul> <b>MySQL Database Setup for overall system</b>
<b>Module-08</b>	<b>Installation and Configuration of Dovecot</b> <ul style="list-style-type: none"> <li>• Mail Delivery Agent (MDA) &amp; LDA Concept</li> <li>• Differences between IMAP and POP3</li> <li>• Set up Dovecot and connect with DB and MTA</li> </ul>
<b>Module-09</b>	<b>Installation and Configuration of NGINX with Certbot</b> <ul style="list-style-type: none"> <li>• Prerequisites</li> <li>• Install NGINX and Certbot</li> <li>• Set up NGINX</li> <li>• Obtain the SSL/TLS Certificate</li> <li>• Automating Renewal</li> </ul>
<b>Module-10</b>	<b>Installation and Configuration of Roundcube</b> <ul style="list-style-type: none"> <li>• Mail User Agent (MUA) Concept</li> <li>• Different type of MUA Application</li> <li>• Introducing Round Cube as a Webmail Client</li> <li>• Features of RoundCube</li> <li>• Installation pre-requisite of RoundCube Email Client</li> <li>• PHP 8.0 setup in AlmaLinux</li> <li>• Set up Roundcube Web mail Interface</li> </ul>
<b>Module-11</b>	<b>Installation and Configuration of ViMbAdmin</b> <ul style="list-style-type: none"> <li>• Setup ViMbAdmin</li> <li>• Setup nginx for ViMbAdmin</li> <li>• Administration of ViMbAdmin</li> </ul>

<p><b>Module-12</b></p>	<p><b>Integration of MAIL GATEWAY</b></p> <ul style="list-style-type: none"> <li>• DNS Setup for Mail Gateway</li> <li>• Set Up Proxmox Mail Gateway (PMG)</li> <li>• Basic Configuration via GUI</li> </ul> <p>Integrating Mail Server with Gateway</p>
<p><b>Module-13</b></p>	<p><b>How to Enhance Email Deliverability and Security</b></p> <ul style="list-style-type: none"> <li>• SPF (Sender Policy Framework) <ul style="list-style-type: none"> <li>○ Adding SPF records to DNS (For outgoing mails)</li> <li>○ Adding SPF policy agent to Postfix (For Incomingmails)</li> </ul> </li> <li>• DKIM (Domain Keys Identified Mail) <ul style="list-style-type: none"> <li>○ Setting up OpenDKIM Package</li> <li>○ Hook OpenDKIM into Postfix</li> <li>○ Adding DNS Record for DKIM</li> </ul> </li> <li>• ADSP (Author Domain Signing Practices)</li> <li>• DMARC (Domain Message Authentication, Reporting andConformance)</li> <li>• Verify that everything's fully operational (Testing of SPF, DKIM and DMARC)</li> </ul>
<p><b>Module-14</b></p>	<p><b>Additional Settings on Mail Server</b></p> <ul style="list-style-type: none"> <li>• Branding of your Organization</li> <li>• Enabling Password Plugin on Roundcube</li> <li>• Enabling Filter using Managesieve</li> <li>• Install sieve</li> <li>• Changing Size of Attachment and Mail</li> </ul>
<p><b>Module-15</b></p>	<p><b>Enabling Logging and Final Testing</b></p> <ul style="list-style-type: none"> <li>• Postfix</li> <li>• Dovecot</li> <li>• NGINX</li> <li>• PHP</li> <li>• MySQL</li> <li>• Let's Encrypt</li> <li>• ViMbAdmin</li> </ul>

**Module-16****Mail Server Migration**

- email data transfer
- email accounts transfer
- Adjust DNS records

**Email Marketing**

- Email marketing Components
- MTA setup
- Authentication Process
- Email deliverability
- Email list management
- Campaign setup