

# Supporting Mail Servers with DNS

LPIC-2: Linux Engineer (202-450)

## Objectives:

At the end of this episode, I will be able to:

1. Describe how MX, SPF, and SRV records are used by email servers.
2. Configure MX, SPF, and SRV records in a Bind forward lookup zone.

Additional resources used during the episode can be obtained using the download link on the overview episode.

- Supporting Mail Servers with DNS
  - Email servers have special requirements
  - Record types
    - **MX** - Mail Exchanger
    - **SPF** - Sender Policy Framework
    - **SRV** - Service Locator
  - Stored alongside other zone records
  - `sudoedit /etc/bind/lab.itpro.tv.dns`
- Mail Exchanger (MX) Records
  - Used to locate an SMTP server
  - Required for proper email operation
  - Example: `user@lab.itpro.tv`
    - A lookup is performed against the `lab.itpro.tv` domain
    - The MX records identify the email servers
  - Format
    - `@ 3600 IN MX 10 mail.lab.itpro.tv.`
    - `<Host> <TTL> <Class> <Type> <Priority> <Server>`
- Sender Policy Framework (SPF) Records
  - Used to identify servers authorized to send email for a domain
  - Not required
  - Affects your deliverability (spam rating)
  - Format
    - Not an actual record type
    - Embedded in a TXT record
    - `@ 3600 IN TXT "v=spf1 mx -all"`
    - `<Host> <TTL> <Class> <Type> <SPF values>`
  - SPF values
    - `v` - Version
    - `mx` - Allow servers with MX records to send
    - `-all` - Strict
    - `?all` - Neutral
    - `~all` - Soft fail
- Specifying outbound servers
  - Syntax
    - `mx` - Use addresses from MX records
    - `a` - Use an address from a specific A record
    - `ip4` - Use a specific IPv4 address or CIDR range
    - `ip6` - Use a specific IPv6 address or range
    - `include` - Use records from an external domain
  - Example

- `v=spf1 mx a:smtp.lab.itpro.tv ip4:10.0.222.51 10.0.0.0/24 ip6:2001:1234::4321:2 include:mail.office365.com mail.sendgrid.com ~all`

- Service Locator (SRV) Records

- Versatile record
- Allows locating just about any service
- Provides more data than a normal record
  - Protocol - TLS, LDAP, SSH, etc.
  - Priority - Defined preferred server. Lower number wins.
  - Weight - Tie breaker for Priority. Higher number wins.
  - Port number - TCP/UDP port assigned to the service
- Example: VoIP support for Office 365
  - `_sip._tls 3600 IN SRV 100 1 443 mail.lab.itpro.tv.`
  - `<Service/Protocol> <TTL> <Class> <Type> <Priority> <Weight> <Port> <Host>`