**How to Set Up a DNS Server with BIND on Fedora**

Setting up a DNS (Domain Name System) server is a foundational task in network administration. On Fedora Server, you can use **BIND** (Berkeley Internet Name Domain) to create your own internal or external DNS server.

In this article, you'll learn how to install BIND, configure a basic zone file, and test your setup. This is an essential skill for sysadmins who want to run local domains, support enterprise networks, or build out lab environments.

What You’ll Learn

* How to install and configure BIND on Fedora Server
* How to create a forward lookup zone
* How to test DNS queries using dig or nslookup
* Understand basic DNS concepts like zone files, records, and services

Step 1: Install BIND

Use the following command to install the BIND DNS server package (named) and related tools:

1. sudo dnf install bind bind-utils -y

These include:

* named: the BIND DNS server
* bind-utils: tools like dig, nslookup, and host for querying DNS

Step 2: Enable and Start the BIND Service

Enable and start the named service:

1. sudo systemctl enable named
2. sudo systemctl start named

To check the status:

1. sudo systemctl status named

Step 3: Configure the DNS Zone

Let’s create a forward zone for a fictional domain called example.local.

Edit the BIND configuration file:

1. sudo nano /etc/named.conf

Look for the section that defines your zone. Add the following inside the options block to allow queries from your local network:

1. listen-on port 53 { any; };
2. allow-query { any; };

Below the options block, define your new zone:

1. zone "example.local" IN {
2. type master;
3. file "/var/named/example.local.db";
4. allow-update { none; };
5. };

Step 4: Create the Zone File

Now create the DNS zone file /var/named/example.local.db:

1. sudo nano /var/named/example.local.db

Add this example content:

1. $TTL 86400
2. @ IN SOA ns1.example.local. admin.example.local. (
3. 2025060101 ; Serial
4. 3600 ; Refresh
5. 1800 ; Retry
6. 604800 ; Expire
7. 86400 ) ; Minimum TTL
9. @ IN NS ns1.example.local.
10. ns1 IN A 192.168.1.10
11. www IN A 192.168.1.20

Make sure your server IPs match the A records.

Step 5: Set Permissions

Ensure BIND can read the file:

1. sudo chown root:named /var/named/example.local.db
2. sudo chmod 640 /var/named/example.local.db

Step 6: Check Configuration and Restart

Before restarting BIND, verify the configuration:

1. sudo named-checkconf
2. sudo named-checkzone example.local /var/named/example.local.db

If everything is good:

1. sudo systemctl restart named

Step 7: Test the DNS Server

Use dig or nslookup from a client machine or the server itself:

1. dig @localhost www.example.local

You should see an ANSWER SECTION showing the IP address.

Optional: Allow Through Firewall

If you're using firewalld, open port 53 for DNS:

1. sudo firewall-cmd --add-service=dns --permanent
2. sudo firewall-cmd --reload

Summary

You’ve now installed and configured a working DNS server on Fedora using BIND! This setup can be extended to include reverse lookup zones, DNS forwarding, or even public-facing DNS.