

## Projects to help develop sysadmin / network admin skills.

Here are some projects that can help you develop sysadmin and network admin skills:

### 1. Home Lab Setup

- **Objective:** Create a virtual lab environment.
- **Tools:** Use virtualization software like VirtualBox or VMware.
- **Skills Developed:** Network configuration, virtualization, and system management.

### 2. Network Configuration

- **Objective:** Set up a small office network.
- **Components:** Use routers, switches, and firewalls (physical or virtual).
- **Skills Developed:** IP addressing, subnetting, VLANs, and network security.

### 3. Linux Server Deployment

- **Objective:** Install and configure a Linux server.
- **Focus:** Set up services like a web server (Apache/Nginx), file server (Samba), or database server (MySQL/PostgreSQL).
- **Skills Developed:** Linux command line, server management, and service configuration.

### 4. Automated Backups

- **Objective:** Create a backup solution for your lab or personal data.
- **Tools:** Use scripts with cron jobs for automation.
- **Skills Developed:** Scripting, data integrity, and disaster recovery planning.

### 5. Monitoring and Logging

- **Objective:** Set up monitoring tools (e.g., Nagios, Zabbix, or Prometheus).
- **Focus:** Monitor system performance, logs, and alerts.
- **Skills Developed:** System monitoring, log management, and troubleshooting.

### 6. Build a Firewall

- **Objective:** Create a network firewall using a dedicated device or software (like pfSense).
- **Skills Developed:** Network security, rules configuration, and traffic analysis.

### 7. Configuration Management

- **Objective:** Use tools like Ansible, Puppet, or Chef to automate server configurations.
- **Skills Developed:** Infrastructure as Code, version control, and automation.

## 8. Cloud Services Exploration

- **Objective:** Deploy services on a cloud platform (AWS, Azure, or GCP).
- **Focus:** Set up virtual machines, databases, and networking components.
- **Skills Developed:** Cloud architecture, service management, and cost optimization.

## 9. Create a Personal Wiki or Knowledge Base

- **Objective:** Set up a wiki using software like MediaWiki or DokuWiki.
- **Skills Developed:** Web server management, database setup, and documentation practices.

## 10. Virtual Private Network (VPN)

- **Objective:** Set up a VPN for secure remote access.
- **Tools:** OpenVPN or WireGuard.
- **Skills Developed:** Network security, remote access configuration, and encryption.

## 11. Disaster Recovery Plan

- **Objective:** Develop a disaster recovery plan for your lab or a hypothetical company.
- **Skills Developed:** Risk assessment, documentation, and business continuity planning.

## 12. Scripting Projects

- **Objective:** Write scripts to automate common tasks (e.g., user management, log rotation).
- **Languages:** Bash, Python, or PowerShell.
- **Skills Developed:** Programming, automation, and process optimization.

## 13. Network Troubleshooting

- **Objective:** Simulate network issues and troubleshoot them.
- **Tools:** Wireshark, traceroute, and ping.
- **Skills Developed:** Problem-solving, diagnostics, and network analysis.

By tackling these projects, you'll build a solid foundation in sysadmin and network admin skills while gaining practical, hands-on experience.