LFCS: Essential Commands (20%)

This document covers essential Linux commands for Git, services, system performance, application constraints, disk troubleshooting, and SSL management.

Goals

Essential Commands 20%

- Basic Git Operations
- Create, configure, and troubleshoot services
- Monitor and troubleshoot system performance and services
- Determine application and service specific constraints
- Troubleshoot diskspace issues
- Work with SSL certificates

---

1. Basic Git Operations

Learn

- Clone repositories, check status, commit, and push.

Commands

```
# Clone repository
git clone <url>
```

```
# Check status
git status

# Add files and commit
git add <file>
git commit -m "message"

# Push to remote
git push origin main

# Pull latest changes
git pull
```

Exercises

1. Clone a public repository.
2. Make a change, commit it, and push to a forked repo.

---

2. Create, Configure, Troubleshoot Services

Learn

- Use `systemctl` to manage services.
- Check logs for troubleshooting.

Commands

```
# Start, stop, restart service
sudo systemctl start <service>
sudo systemctl stop <service>
sudo systemctl restart <service>

# Enable/disable at boot
```

```
sudo systemctl enable <service>
sudo systemctl disable <service>

# Check logs
journalctl -u <service>
```

Exercises

1. Enable and start a service.
2. Check the last 20 lines of the service log.

---

3. Monitor & Troubleshoot System Performance

Learn

- Check CPU, memory, disk usage.
- Identify resource-consuming processes.

Commands

```
# CPU and memory
top
htop
vmstat 2 5

# Disk usage
df -h
du -sh /path/to/dir

# Check running processes
ps aux | sort -nk 3 | tail -10
```

Exercises

1. Identify top 5 processes consuming CPU.
2. Check disk usage of `/var/log`.

---

4. Application & Service Constraints

Learn

- Resource limits for users or services.
- Configure ulimit.

Commands

```
# Check limits
ulimit -a

# Set temporary limit
ulimit -n 4096

# Persistent limits
sudo nano /etc/security/limits.conf
# user soft nofile 4096
# user hard nofile 8192
```

Exercises

1. Increase the open file limit for a user temporarily.
2. Make the change permanent.

---

5. Troubleshoot Diskspace Issues

Learn

- Find large files or directories.
- Free space using cleanup tools.

Commands

```
# Find large directories
du -ah / | sort -rh | head -20


# Remove old logs
sudo journalctl --vacuum-time=7d
```

Exercises

1. Identify top 10 largest files.
2. Clear old logs to free space.

---

6. Work with SSL Certificates

Learn

- Generate, verify, and check certificates.
- Use OpenSSL.

Commands

```
# Generate self-signed certificate
openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout server.key -out server.crt
```

```
# Verify certificate
openssl x509 -in server.crt -text -noout

# Check SSL connection
openssl s_client -connect example.com:443
```

Exercises

1. Generate a self-signed certificate.
2. Inspect and verify the certificate using OpenSSL.

Exam Tips

- Practice using **systemctl, top, df, du** frequently.
- Know basic Git workflows.
- Be comfortable troubleshooting disk space and service issues.
- Understand SSL certificate basics with OpenSSL.

Revision #2
Created 2025-11-07 10:38:07 UTC by Loïc
Updated 2025-11-07 14:24:08 UTC by Loïc