Installation Guide for LS-AUSS

1. Introduction

This guide provides a **step-by-step procedure** for installing, configuring, and executing the **Linux System Automation project** (/system_automation). The scripts automate critical tasks such as **disk monitoring, backups, process management, user provisioning, system health checks, and security auditing,** ensuring a more reliable and secure Linux environment.

2. Prerequisites

Supported Operating Systems

- Ubuntu 20.04+ (recommended)
- Debian 10+
- CentOS 7+ / RHEL 8+
- Fedora 34+

Required Packages & Dependencies

Ensure the following utilities are installed:

```
sudo apt install mailutils net-tools tar cron procps gawk sed -y
```

- **mail** → Sends notifications
- **tar** → Creates and extracts backups
- **df** → Monitors disk space
- **pgrep** → Checks active processes
- **awk/sed** → Log parsing
- **cron** → Job scheduling
- **netstat** → Network monitoring
- **journalctl** → Security audit logs

Permissions

- Root (**sudo**) privileges required for user management, backup, and system auditing.
- Scripts must have executable permissions (**chmod +x script.sh**).

3. Installation Steps

Step 1: Clone or Copy the Project

```
sudo mkdir -p /opt/system_automation
sudo cp -r <project_source>/* /opt/system_automation/
cd /opt/system_automation/scripts
```

Step 2: Set Permissions

```
sudo chmod +x *.sh
```

Step 3: Configure Environment Variables (Optional)

Add the scripts directory to your PATH:

```
echo 'export PATH=$PATH:/opt/system_automation/scripts' >> ~/.bashrc
source ~/.bashrc
```

Step 4: Setup Cron Jobs

Schedule automated execution:

```
crontab -e
```

Example entries:

```
0 8 * * * /opt/system_automation/scripts/master_script.sh     # Run daily at 8 AM
*/30 * * * * /opt/system_automation/scripts/disk_monitor.sh   # Run every 30 minutes
```

4. Execution Examples

Script	Functionality
./disk_monitor.sh	# Check disk space
./user_management.sh	# Add/Delete users
./backup.sh	# Run backup
./process_monitor.sh	# Restart failed services

./system_health.sh	# Display CPU & memory usage
./security_audit.sh	# Check failed SSH logins
./network_monitor.sh	# Show open ports
./performance_logger.sh	# Log performance metrics

Run All Scripts Together

- ./master_script.sh

5. Best Practices

- Always test scripts in a staging environment before production.
- Store backups on a separate partition or external server.
- Monitor cron jobs with:
- grep CRON /var/log/syslog