++101 Linux Commands

BOBBY ILIEV

Table of Contents

101 Linux commands Open-source eBook

This is an open-source eBook with 101 Linux commands that everyone should know. No matter if you are a DevOps/SysOps engineer, developer, or just a Linux enthusiast, you will most likely have to use the terminal at some point in your career.

Permission and Ownership

Setting Ownership After Creation

```
# Create directory and set ownership
mkdir myapp
sudo chown user:group myapp

# Create with specific permissions and ownership
sudo mkdir -m 755 /opt/myapp
sudo chown user:group /opt/myapp
```

Creating Directories for Different Users

```
# Create user-specific directories
sudo mkdir -p /home/newuser/{Documents,Downloads,Pictures}
sudo chown -R newuser:newuser /home/newuser
sudo chmod 755 /home/newuser
```

SELinux Context

81

Setting SELinux Context

```
# Create directory with specific SELinux context
mkdir -Z user_home_t user_data

# Create directory and set context afterward
mkdir secure_data
sudo semanage fcontext -a -t httpd_exec_t
"/path/to/secure_data(/.*)?"
sudo restorecon -R /path/to/secure_data
```

Troubleshooting

Common Issues and Solutions

```
# Permission denied
sudo mkdir /restricted/path  # Use sudo for system directories

# Parent directory doesn't exist
mkdir -p path/to/deep/directory  # Use -p flag

# Directory already exists
mkdir -p existing_dir  # -p prevents error if directory exists

# Invalid characters in name
mkdir "valid_name"  # Use quotes or escape special characters
```

Debugging Directory Creation

```
# Check available space before creating
df -h .

# Verify parent directory permissions
ls -ld parent_directory

# Check if directory was created successfully
if [ -d "newdir" ]; then
    echo "Directory created successfully"
    ls -ld newdir
fi
```

Options Reference

83

Option	Long Form	Description
`-m MODE`	`--mode=MODE`	Set file mode (permissions) for created directories
`-p`	`--parents`	Create parent directories as needed, no error if existing
`-v`	`--verbose`	Print a message for each created directory
`-Z CTX`	`--context=CTX`	Set SELinux security context
`--help`	-	Display help message and exit
`--version`	-	Output version information and exit

Best Practices

84

Directory Naming Conventions

```
# Use descriptive names
mkdir user_documents    # Good
mkdir stuff             # Poor

# Use consistent naming patterns
mkdir project_2024_01
mkdir project_2024_02

# Avoid spaces and special characters
mkdir my-project        # Good
mkdir "my project"      # Works but can cause issues
```

Organization Strategies

```
# Date-based organization
mkdir -p archives/$(date +%Y)/{01..12}

# Project-based organization
mkdir -p projects/{active,completed,archived}

# User-based organization
mkdir -p users/{admins,developers,testers}
```

Automation and Scripting

```bash
#!/bin/bash
# Script to create standard project structure

PROJECT_NAME="$1"
if [ -z "$PROJECT_NAME" ]; then
    echo "Usage: $0 <project_name>"
    exit 1
fi

echo "Creating project structure for: $PROJECT_NAME"
mkdir -p "$PROJECT_NAME"/{
    src/{main,test},
    docs/{api,user},
    config/{dev,prod,test},
    scripts/{build,deploy},
    data/{input,output,temp}
}

echo "Project structure created successfully!"
tree "$PROJECT_NAME"
```

Short Flag	Description
-h	print the heading of the columns displayed
-b	print the time of last system boot

The `free` command

The `free` command in Linux/Unix is used to show memory (RAM/SWAP) information.

Usage

102

Show memory usage

Action: --- Output the memory usage - available and used, as well as swap

Details: --- The values are shown in kibibytes by default.

Command:

```
free
```

This is a sample from "101 Linux Commands" by Bobby Iliev and the Hacktoberfest community.

For more information, [Click here](#).