**Documentation: Auto LAN Scanner Script**

**Overview**

This Bash script is an **automatic LAN scanner** that detects your local subnet (the range of IP addresses in your LAN), and scans the network for active devices. It does not require prior knowledge of the network’s IP range. The script uses nmap to perform a ping scan (-sn) to identify active devices.

**Prerequisites**

* **Linux-based system**: This script is intended for Linux distributions (Ubuntu, Fedora, etc.).
* **nmap**: The script uses nmap for network scanning. If it is not installed, you can install it using:

bash

Копировать код

sudo apt-get install nmap # On Ubuntu/Debian-based systems

sudo yum install nmap # On CentOS/RedHat-based systems

**Features**

* **Auto Subnet Detection**: Automatically detects the IP range (subnet) of your local network.
* **Network Scan**: Scans the network to find active devices by pinging all IPs in the subnet.
* **Simple Output**: Displays the IP addresses of active devices on the network.

**Step-by-Step Guide**

**1. Save the Script**

First, copy the following script into a text file. You can name the file auto\_lan\_scanner.sh or any name you prefer.

bash

Копировать код

#!/bin/bash

# Automatic LAN IP Address Detector and Scanner

# Function to detect the local subnet

detect\_subnet() {

# Get the local subnet using ip command

SUBNET=$(ip -o -f inet addr show | awk '/scope global/ {print $4}' | head -n 1)

if [ -z "$SUBNET" ]; then

echo "Error: Unable to detect the subnet. Are you connected to a network?"

exit 1

fi

echo "Detected Subnet: $SUBNET"

echo "$SUBNET"

}

# Function to scan the detected subnet

scan\_lan() {

local subnet=$1

echo "Scanning the subnet: $subnet..."

echo "Please wait, scanning might take a few seconds."

# Use nmap to scan the subnet

nmap -sn "$subnet" | awk '/Nmap scan report/{print $NF}' | sed 's/[()]//g'

}

# Main Script Logic

echo "Auto IP Detection and LAN Scanner"

echo "---------------------------------"

# Detect the subnet

SUBNET=$(detect\_subnet)

# Scan the detected subnet

echo "Active devices on the LAN:"

scan\_lan "$SUBNET"

**2. Make the Script Executable**

After saving the script, make it executable by running the following command:

bash

Копировать код

chmod +x auto\_lan\_scanner.sh

This command grants execute permissions to the script so you can run it in the terminal.

**3. Run the Script**

To run the script, execute it using the following command:

bash

Копировать код

./auto\_lan\_scanner.sh

**4. Script Output**

The script will:

1. **Detect the local subnet**: It will automatically detect your local network’s IP address range.
   * Example: If you’re connected to 192.168.1.10, it will assume the subnet 192.168.1.0/24.
2. **Scan the subnet**: It will then use nmap to scan the subnet and detect active devices.
   * It will list active devices in the format:

text

Копировать код

192.168.1.1

192.168.1.2

192.168.1.10

**How the Script Works**

Here’s a breakdown of each part of the script:

**1. Detect Subnet (detect\_subnet function)**

bash

Копировать код

SUBNET=$(ip -o -f inet addr show | awk '/scope global/ {print $4}' | head -n 1)

* This command uses ip to get the IP address of the first active network interface.
* The awk command is used to extract the subnet from the IP address.
* If no subnet is found, the script will exit with an error message: Error: Unable to detect the subnet.

**2. Scan the LAN (scan\_lan function)**

bash

Копировать код

nmap -sn "$subnet" | awk '/Nmap scan report/{print $NF}' | sed 's/[()]//g'

* nmap -sn "$subnet" performs a **ping scan** (no port scan) on the provided subnet.
* awk extracts the IP address from the nmap output.
* sed removes any parentheses from the output to clean the IP addresses.

**3. Main Script Logic**

bash

Копировать код

echo "Auto IP Detection and LAN Scanner"

* Prints a header message to indicate the start of the LAN scanning process.

**Example Output**

When you run the script, you might see output like this:

text

Копировать код

Auto IP Detection and LAN Scanner

---------------------------------

Detected Subnet: 192.168.1.0/24

Scanning the subnet: 192.168.1.0/24...

Active devices on the LAN:

192.168.1.1

192.168.1.5

192.168.1.10

This indicates that the script has successfully detected and scanned the network for active devices.

**Error Handling**

* If the script cannot detect the subnet (e.g., if there is no active network interface), it will print an error and exit:

text

Копировать код

Error: Unable to detect the subnet. Are you connected to a network?

* If nmap is not installed, you will receive an error message instructing you to install it.

**Customizations**

You can modify the script for additional features or optimizations:

* **Custom Ports Scan**: You can adjust nmap options to perform port scans for more detailed information about devices.
* **Output Format**: Modify the awk and sed commands to display more information, such as device names or MAC addresses.