

# **Set 1: Monitoring System Resources for a Proxy Server**

## **Table of Contents**

1. Introduction
2. Project Objectives
3. System Requirements
4. Script Functionality
  - o 1. Top 10 Most Used Applications
  - o 2. Network Monitoring
  - o 3. Disk Usage
  - o 4. System Load
  - o 5. Memory Usage
  - o 6. Process Monitoring
  - o 7. Service Monitoring
  - o 8. Custom Dashboard
5. Command-Line Options
6. Code Explanation
7. Deployment on AWS
8. Testing and Validation
9. Conclusion

## **Introduction**

This project involves the creation of a Bash script that monitors various system resources on a proxy server. The script presents the data in a dashboard format and refreshes it every few seconds to provide real-time insights. Users can also view specific parts of the dashboard using command-line switches.

## Project Objectives

- Develop a script to monitor key system resources such as CPU usage, memory, network activity, disk usage, and system load.
- Allow users to call specific sections of the dashboard using command-line options.
- Ensure the script can be easily deployed and managed on a proxy server.

## System Requirements

- **Operating System:** Linux
- **Tools:** Bash, awk, grep, top, netstat, df, vmstat
- **Privileges:** The script may require root privileges to monitor certain system resources.

## Script Functionality

### 1. Top 10 Most Used Applications

- **Description:** Displays the top 10 applications consuming the most CPU and memory.
- **Commands Used:**
  - ps aux --sort=-%cpu | head -n 11 for CPU usage.
  - ps aux --sort=-%mem | head -n 11 for memory usage.

### 2. Network Monitoring

- **Description:** Monitors the number of concurrent connections, packet drops, and data in/out.
- **Commands Used:**
  - netstat -an | grep ESTABLISHED | wc -l for active connections.
  - ifconfig or ip -s link to monitor packet drops and network data.

### 3. Disk Usage

- **Description:** Displays disk space usage by mounted partitions and highlights partitions using more than 80% of space.
- **Commands Used:**
  - df -h for disk usage.

- `df -h | awk '{if($5 > 80) print $0}'` to highlight high usage.

## 4. System Load

- **Description:** Shows the current load average and a breakdown of CPU usage.
- **Commands Used:**
  - `uptime` for load average.
  - `mpstat` or `vmstat` for CPU usage.

## 5. Memory Usage

- **Description:** Displays total, used, and free memory, including swap memory usage.
- **Commands Used:**
  - `free -m` for memory statistics.

## 6. Process Monitoring

- **Description:** Shows the number of active processes and the top 5 processes in terms of CPU and memory usage.
- **Commands Used:**
  - `ps -e | wc -l` for process count.
  - `ps aux --sort=-%cpu | head -n 6` and `ps aux --sort=-%mem | head -n 6` for top processes.

## 7. Service Monitoring

- **Description:** Monitors the status of essential services like `sshd`, `nginx`, and `iptables`.
- **Commands Used:**
  - `systemctl status sshd` (or `service sshd status`) for checking service status.

## 8. Custom Dashboard

- **Description:** Provides command-line switches to view specific parts of the dashboard.
- **Example:** `./monitor.sh -cpu`, `./monitor.sh -memory`.

## Command-Line Options

- **-cpu:** Display CPU-related information.
- **-memory:** Display memory usage statistics.
- **-network:** Show network-related metrics.
- **-disk:** Monitor disk space usage.
- **-services:** Check the status of essential services.
- **-dashboard:** Display the complete dashboard view.

## Code Explanation

Provide detailed explanations of each section of the Bash script. Include:

- **Why certain commands were chosen:** Explain the purpose of each command, like why ps is used for process monitoring or netstat for network monitoring.
- **How the data is processed:** For example, how awk or grep is used to filter and format the output.
- **Refresh Logic:** Explain the use of watch or any loop to refresh the data every few seconds.

## Deployment on AWS

Steps to deploy the monitoring script on an AWS instance:

1. **Launch an EC2 Instance:** Choose a Linux AMI.
2. **Connect to the Instance:** Use SSH to connect to your EC2 instance.
3. Set Permissions: Ensure the script has execute permissions (chmod +x monitor.sh).
4. Run the Script: Execute the script with the desired options (e.g., ./monitor.sh -dashboard).

Signed in

https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

AWS Services Search [Alt+S]

EC2 Instances Launch an instance

**Launch an instance** Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

**Name and tags** Info

Name monitoring Add additional tags

**Application and OS Images (Amazon Machine Image)** Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recent Quick Start

CloudShell Feedback

Sign in https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

Number of instances 1

Storage (volumes) 1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel Launch instance Review commands

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences ENG IN 11:54 22-08-2024

Signed in

https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

AWS Services Search [Alt+S]

EC2 Instances Launch an instance

**Application and OS Images (Amazon Machine Image)** Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Search our full catalog including 1000s of application and OS images

Recent Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Li

Browse more AMIs Including AMIs from AWS, Marketplace and the Community

**Amazon Machine Image (AMI)**

**Amazon Linux 2023 AMI** ami-069784287e588dad (64-bit (x86), uefi-preferred) / ami-023508951a94fc71 (64-bit (Arm), uefi) Virtualization: hvm ENA enabled: true Root device type: ebs Free tier eligible

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to

CloudShell Feedback

Sign in https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

Number of instances 1

Storage (volumes) 1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel Launch instance Review commands

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences ENG IN 11:54 22-08-2024

Signed in

https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

AWS Services Search [Alt+S]

EC2 Instances Launch an instance

**Create key pair**

Key pair name Key pairs allow you to connect to your instance securely. key-task

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type RSA RSA encrypted private and public key pair ED25519 ED25519 encrypted private and public key pair

Private key file format .pem For use with OpenSSH .ppk For use with PuTTY

When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. Learn more

Cancel Create key pair

CloudShell Feedback

Sign in https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances: PRED National Portal of In... DCC Login Nadu Nedu APRS - 2020 : Home APRS-2021-22 ErForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences ENG IN 11:53 22-08-2024

Screenshot of the AWS CloudShell interface showing the launch of an EC2 instance. The instance type selected is t2.micro, and a key pair named 'key-task' is chosen. A modal window provides information about the Free Tier benefits for t2.micro instances.

Screenshot of the AWS CloudShell interface showing the instance details for the launched t2.micro instance (i-0b59fd0fa58542cbd). The instance is running and has a public IP of 34.239.251.237.

Screenshot of the AWS CloudShell interface showing a terminal session connected to the instance. The session shows the user is running Amazon Linux 2023 and performing a yum update operation.

Screenshot of the AWS CloudShell interface showing the terminal session output. The user has completed the yum update command.

```

Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 Instance C... | + - X
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&...
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
aws Services Search [Alt+S]
SS EC2 VPC
Last login: Thu Aug 22 06:41:18 2024 from 18.206.107.28
[ec2-user@ip-172-31-7-171 ~]$ sudo -i
[ec2-user@ip-172-31-7-171 ~]$ yum update -y
Last metadata expiration check: 0:16:00 ago on Thu Aug 22 06:25:52 2024.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-7-171 ~]$ sudo yum install net-tools -y
Last metadata expiration check: 0:16:30 ago on Thu Aug 22 06:25:52 2024.
Package net-tools-2.0-0.59.20160912git.amzn2023.0.3.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-7-171 ~]$ sudo yum install procps-ng -y
Last metadata expiration check: 0:16:46 ago on Thu Aug 22 06:25:52 2024.
Package procps-ng-3.3.17-1.amzn2023.0.2.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-7-171 ~]$ sudo yum install sysstat -y
Last metadata expiration check: 0:17:01 ago on Thu Aug 22 06:25:52 2024.
Package sysstat-12.5.6-1.amzn2023.0.3.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-7-171 ~]$ vi monitor.sh

```

i-0b59fd0fa58542cbd (monitoring)

PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

CloudShell Feedback
29°C Haze
Search [Alt+S]
CloudShell Feedback
29°C Haze
Search [Alt+S]
Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 Instance C... | + - X
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&...
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
aws Services Search [Alt+S]
SS EC2 VPC
[root@ip-172-31-7-171 ~]# vi monitor.sh
[root@ip-172-31-7-171 ~]# ls -l
total 4
-rw-r--r-- 1 root root 3023 Aug 22 06:45 monitor.sh
[root@ip-172-31-7-171 ~]# chmod +x monitor.sh
[root@ip-172-31-7-171 ~]# ls -l
total 4
-rwxr-xr-x 1 root root 3023 Aug 22 06:45 monitor.sh
[root@ip-172-31-7-171 ~]# ./monitor.sh -dashboard
== System Monitoring Dashboard ==
Top 10 CPU-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1935 0.9 0.6 89004 5880 ? Ssl 06:25 0:12 /usr/sbin/rnqd -f -x pkcs11 -x nist
root 1 0.0 1.6 105192 16496 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gp]
root 5 0.0 0.0 0 0 ? I< 06:25 0:00 [slub_flushhwq]
root 6 0.0 0.0 0 0 ? I< 06:25 0:00 [kworker/u:0]
root 8 0.0 0.0 0 0 ? I< 06:25 0:00 [kworker/u:0:highpri]
root 10 0.0 0.0 0 0 ? I< 06:25 0:00 [mm_percpu_wq]
root 11 0.0 0.0 0 0 ? I 06:25 0:00 [rcu_tasks_kthread]

Top 10 Memory-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.8 725420 17844 ? Ss 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16496 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.8 52472 14872 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journal
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12824 ? Ss 06:41 0:00 /usr/lib/systemd/systemd -user
root 1715 0.0 1.1 31360 11272 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3634 0.0 1.0 14768 9936 ? Ss 06:25 0:00 /lib/systemd/systemd-networkd
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /lib/systemd/systemd-networkd
root 1942 0.0 0.9 17612 9712 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-logind
root 2169 0.0 0.8 13308 8396 ? Ss 06:25 0:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

Network Monitoring:
Concurrent connections: 1
Packet Drops: 0 packet receive errors
Network traffic:
RX packets 6492 bytes 29896480 (28.5 MiB)
TX packets 3293 bytes 303387 (374.4 KiB)
RX packets 12 bytes 1020 (1020.0 B)
TX packets 12 bytes 1020 (1020.0 B)

Disk Usage:
Filesystem Size Used Avail Use% Mounted on

```

i-0b59fd0fa58542cbd (monitoring)

PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

CloudShell Feedback
29°C Haze
Search [Alt+S]
CloudShell Feedback
29°C Haze
Search [Alt+S]
Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 Instance C... | + - X
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&...
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
aws Services Search [Alt+S]
SS EC2 VPC
Top 10 Memory-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.8 725420 17844 ? Ss 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16496 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.8 52472 14872 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journal
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12824 ? Ss 06:41 0:00 /usr/lib/systemd/systemd -user
root 1715 0.0 1.1 31360 11272 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3634 0.0 1.0 14768 9936 ? Ss 06:25 0:00 /lib/systemd/systemd-networkd
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /lib/systemd/systemd-networkd
root 1942 0.0 0.9 17612 9712 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-logind
root 2169 0.0 0.8 13308 8396 ? Ss 06:25 0:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

Network Monitoring:
Concurrent connections: 1
Packet Drops: 0 packet receive errors
Network traffic:
RX packets 6492 bytes 29896480 (28.5 MiB)
TX packets 3293 bytes 303387 (374.4 KiB)
RX packets 12 bytes 1020 (1020.0 B)
TX packets 12 bytes 1020 (1020.0 B)

Disk Usage:
Filesystem Size Used Avail Use% Mounted on

```

i-0b59fd0fa58542cbd (monitoring)

PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

Sign in | AWS | Services | Search [Alt+S] | 
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APRIS - 2020 : Home APRS-2021-22 ErForum AP-GWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
Disk Usage:
Filesystem Size Used Avail Use% Mounted on
/dev/mapper/...
tmpfs 4.0M 0 4.0M 0% /dev
tmpfs 475M 0 475M 0% /dev/shm
tmpfs 190M 440B 190M 1% /run
tmpfs 8.0G 1.6G 6.4G 20% /home
tmpfs 475M 0 475M 0% /tmp
/dev/xvda128 10M 1.3M 8.7M 13% /boot/efi
tmpfs 95M 0 95M 0% /run/user/1000

Partitions using more than 80% space:
Filesystem Size Used Avail Use% Mounted on

System Load:
06:46:34 up 21 min, 2 users, load average: 0.00, 0.00, 0.00

CPU Usage:
Linux 6.1.102-111.182.amzn2023.x86_64 (ip-172-31-7-171.ec2.internal) 08/22/24 _x86_64_ (1 CPU)
06:46:34 CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
06:46:34 all 2.56 0.00 0.45 0.09 0.00 0.00 0.40 0.00 0.00 96.50

Memory Usage:
total used free shared buff/cache available
Mem: 949Mi 121Mi 598Mi 0.0Ki 229Mi 690Mi
Swap: 0B 0B 0B

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
Natty midcap 0.73% 12:37 IN 22-08-2024
Sign in | AWS | Services | Search [Alt+S] |
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APRIS - 2020 : Home APRS-2021-22 ErForum AP-GWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
Process Monitoring:
Active Processes:
106
Top 5 CPU-consuming processes:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.9 0.6 89000 5880 ? Ssl 06:25 0:00 /usr/bin/rngd -f -x pkcs11 -x nist
root 1 0.0 0.6 105192 16456 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? Ts 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gpl]

Top 5 Memory-consuming processes:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.8 725420 17844 ? Ssl 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16496 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.5 52472 14872 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journal
systemd- 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12624 ? Ss 06:41 0:00 /usr/lib/systemd/systemd --user

Service Monitoring:
sshd is running
nginx is NOT running
apache2 is NOT running
iptables is NOT running
[root@ip-172-31-7-171 ~]# 

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
Natty midcap 0.73% 12:17 IN 22-08-2024
Sign in | AWS | Services | Search [Alt+S] |
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APRIS - 2020 : Home APRS-2021-22 ErForum AP-GWS mvgr APPSC General Stud... Home Page|Press In... Home | Endowment... N. Virginia vchinni
[root@ip-172-31-7-171 ~]# ./monitor.sh -cpu
System Load:
06:48:12 up 22 min, 2 users, load average: 0.00, 0.00, 0.00

CPU Usage:
Linux 6.1.102-111.182.amzn2023.x86_64 (ip-172-31-7-171.ec2.internal) 08/22/24 _x86_64_ (1 CPU)
06:48:12 CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
06:48:12 all 2.38 0.00 0.42 0.08 0.00 0.00 0.37 0.00 0.00 96.74

[root@ip-172-31-7-171 ~]# ./monitor.sh -memory
Memory Usage:
total used free shared buff/cache available
Mem: 949Mi 121Mi 598Mi 0.0Ki 229Mi 690Mi
Swap: 0B 0B 0B

[root@ip-172-31-7-171 ~]# ./monitor.sh -network
Network Monitoring:
Concurrent connections:
l
Packet Drops:
0 packet receive errors
Network Traffic:
RX packets 6715 bytes 29911522 (28.5 MiB)
TX packets 3509 bytes 410066 (400.4 KiB)
RX packets 12 bytes 1020 (1020.0 B)
TX packets 12 bytes 1020 (1020.0 B)
[root@ip-172-31-7-171 ~]# 

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
Natty midcap 0.67% 12:18 IN 22-08-2024

```

```

Sign in DevOps Engine | Indeed Messa... | DevOps Intern | Notifications | (20) WhatsApp | DevOps_Candi | Instances | EC2 Instance C | EC2 Instance C | + - X
https://us-east-1.console.aws.amazon.com/ec2/instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mgvr APPSC General Stud... Home Page/Press In... Home | Endowment... >
N. Virginia vchinni
aws Services Search [Alt+S]
S3 EC2 VPC
every 5.0s: ./monitor.sh -dashboard
24
System Monitoring Dashboard
Top 10 CPU-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.8 0.6 89004 5880 ? Ss1 06:25 0:12 /usr/sbin/rngd -f -x pkcs11 -x nist
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gp]
root 5 0.0 0.0 0 0 ? I< 06:25 0:00 [smp_wq]
root 6 0.0 0.0 0 0 ? I< 06:25 0:00 [netns]
root 8 0.0 0.0 0 0 ? I< 06:25 0:00 [kworker/0:0H-events_highpri]
root 10 0.0 0.0 0 0 ? I< 06:25 0:00 [mperfcpu_wq]
root 11 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_tasks_kthread]

Top 10 Memory-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.0 725420 17844 ? Ss 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.5 52472 14876 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journald
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12824 ? Ss 06:41 0:00 /usr/lib/systemd/systemd--user
root 1718 0.0 1.1 31012 11260 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3614 0.0 1.0 14768 9936 ? Ss 06:41 0:00 sshd: ec2-user [priv]
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-networkd
root 1942 0.0 0.9 17612 9712 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-logind

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```

CloudShell Feedback
BSE midcap 0.87%
Sign in DevOps Engine | Indeed Messa... | DevOps Intern | Notifications | (20) WhatsApp | DevOps_Candi | Instances | EC2 Instance C | EC2 Instance C | + - X
https://us-east-1.console.aws.amazon.com/ec2/instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mgvr APPSC General Stud... Home Page/Press In... Home | Endowment... >
N. Virginia vchinni
aws Services Search [Alt+S]
S3 EC2 VPC
[root@ip-172-31-7-171 ~]# vi monitor.sh
[root@ip-172-31-7-171 ~]# chmod +x monitor.sh
[root@ip-172-31-7-171 ~]# ./monitor.sh -dashboard
System Monitoring Dashboard
Top 10 CPU-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.8 0.6 89004 5880 ? Ss1 06:25 0:12 /usr/sbin/rngd -f -x pkcs11 -x nist
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gp]
root 5 0.0 0.0 0 0 ? I< 06:25 0:00 [smp_wq]
root 6 0.0 0.0 0 0 ? I< 06:25 0:00 [netns]
root 8 0.0 0.0 0 0 ? I< 06:25 0:00 [kworker/0:0H-events_highpri]
root 10 0.0 0.0 0 0 ? I< 06:25 0:00 [mperfcpu_wq]
root 11 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_tasks_kthred]

Top 10 Memory-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.0 725420 17844 ? Ss 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.5 52472 14916 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journald
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12824 ? Ss 06:41 0:00 /usr/lib/systemd/systemd--user
root 1718 0.0 1.1 31012 11260 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3614 0.0 1.0 14768 9936 ? Ss 06:41 0:00 sshd: ec2-user [priv]
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-networkd

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```

CloudShell Feedback
29C Haze
Sign in DevOps Engine | Indeed Messa... | DevOps Intern | Notifications | (20) WhatsApp | DevOps_Candi | Instances | EC2 Instance C | EC2 Instance C | + - X
https://us-east-1.console.aws.amazon.com/ec2/instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A
PRED National Portal of In... DCC Login Nadu Nedu : APR-EIS - 2020 : Home APRS-2021-22 EForum AP-GSWS mgvr APPSC General Stud... Home Page/Press In... Home | Endowment... >
N. Virginia vchinni
aws Services Search [Alt+S]
S3 EC2 VPC
[root@ip-172-31-7-171 ~]# ./monitor.sh -dashboard
System Monitoring Dashboard
Top 10 CPU-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1715 0.0 1.1 31012 11260 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3614 0.0 1.0 14768 9936 ? Ss 06:41 0:00 sshd: ec2-user [priv]
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-networkd
root 1942 0.0 0.9 17612 9712 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-logind
root 2169 0.0 0.8 13308 8396 ? Ss 06:25 0:00 sshd: /usr/sbin/sshd -D (listener) 0 of 10-100 startups

Network Monitoring:
Concurrent connections: 1
Packet Drops: 0 packet receive errors
Network Traffic:
RX packets 7427 bytes 29976761 (28.5 MB)
TX packets 4119 bytes 500317 (489.5 kB)
RX packets 12 bytes 1020 (1020.0 B)
TX packets 12 bytes 1020 (1020.0 B)

Disk Usage:
Filesystem Size Used Avail Use% Mounted on
devtmpfs 4.0M 0 4.0M 0% /dev
tmpfs 475M 0 475M 0% /dev/shm
tmpfs 190M 440K 190M 1% /run
/dev/xvda1 8.0G 1.6G 6.5G 20% /
tmpfs 475M 0 475M 0% /tmp
/dev/xvda12 10M 1.3M 8.7M 13% /boot/efi
tmpfs 95M 0 95M 0% /run/user/1000

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```

Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 | EC2 Instance Connect | ...
PREV National Portal of In... DCC Login Nadu Nedu PREIS - 2020 : Home APRIS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home PagePress In... Home | Endowment... N. Virginia vchinni

aws Services Search [Alt+S]
S3 EC2 VPC

Partitions using more than 80% space:
Filesystem Size Used Avail Use% Mounted on
system Load:
06:56:56 up 31 min, 2 users, load average: 0.00, 0.00, 0.00
CPU Usage:
Linux 6.1.102-111.182.amzn2023.x86_64 (ip-172-31-7-171.ec2.internal) 08/22/24 x86_64 (1 CPU)
06:56:56 CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
06:56:56 all 1.75 0.00 0.34 0.06 0.00 0.00 0.27 0.00 0.00 97.58
Memory Usage:
total used free shared buff/cache available
Mem: 949Mi 122Mi 597Mi 0.0Ki 229Mi 689Mi
Swap: 0B 0B 0B
Process Monitoring:
Active Processes: 103
Top 5 CPU-consuming processes:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.6 0.6 89004 5880 ? Ss1 06:25 0:12 /usr/sbin/rngd -f -x pkcs11 -x nist
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gp]

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

```

CloudShell Feedback
© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
29°C Haze
Search

Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 | EC2 Instance Connect | ...
PREV National Portal of In... DCC Login Nadu Nedu PREIS - 2020 : Home APRIS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home PagePress In... Home | Endowment... N. Virginia vchinni

aws Services Search [Alt+S]
S3 EC2 VPC

Process Monitoring:
Active Processes: 103
Top 5 CPU-consuming processes:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.6 0.6 89004 5880 ? Ss1 06:25 0:12 /usr/sbin/rngd -f -x pkcs11 -x nist
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthreadd]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_gp]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_par_gp]

Top 5 Memory-consuming processes:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.8 725420 17844 ? Ss1 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.6 105192 16524 ? Ss 06:25 0:00 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 1.5 52472 14916 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-journald
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 19904 12624 ? Ss 06:41 0:00 /usr/lib/systemd/systemd --user

Service Monitoring:
sshd is running
nginx is NOT running
apache2 is NOT running
iptables is NOT running
[root@ip-172-31-7-171 ~]# 

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

```

CloudShell Feedback
© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
29°C Haze
Search

Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 | EC2 Instance Connect | ...
PREV National Portal of In... DCC Login Nadu Nedu PREIS - 2020 : Home APRIS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home PagePress In... Home | Endowment... N. Virginia vchinni

aws Services Search [Alt+S]
S3 EC2 VPC


```

```

[root@ip-172-31-7-171 ~]# ./monitor.sh -cpu
System Load:
06:58:55 up 33 min, 2 users, load average: 0.00, 0.00, 0.00
CPU Usage:
Linux 6.1.102-111.182.amzn2023.x86_64 (ip-172-31-7-171.ec2.internal) 08/22/24 x86_64 (1 CPU)
06:58:55 CPU %usr %nice %sys %iowait %irq %soft %steal %guest %gnice %idle
06:58:55 all 1.65 0.00 0.32 0.06 0.00 0.00 0.25 0.00 0.00 97.71
[root@ip-172-31-7-171 ~]# ./monitor.sh -memory
Memory Usage:
total used free shared buff/cache available
Mem: 949Mi 122Mi 597Mi 0.0Ki 229Mi 689Mi
Swap: 0B 0B 0B
[root@ip-172-31-7-171 ~]# ./monitor.sh -network
Network Monitoring:
Concurrent connections: 1
0 packet receive errors
Network Traffic:
RX packets 7764 bytes 30002053 (28.6 MiB)
TX packets 4430 bytes 537485 (524.8 KiB)
RX packets 12 bytes 1020 (1020.0 B)
TX packets 12 bytes 1020 (1020.0 B)
[root@ip-172-31-7-171 ~]# 

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```

```

CloudShell Feedback
© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
29°C Haze
Search

Sign in DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Candi... | Instances | EC2 | EC2 Instance Connect | ...
PREV National Portal of In... DCC Login Nadu Nedu PREIS - 2020 : Home APRIS-2021-22 EForum AP-GSWS mvgr APPSC General Stud... Home PagePress In... Home | Endowment... N. Virginia vchinni

aws Services Search [Alt+S]
S3 EC2 VPC

```

```

Sign in | DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Cand... | Instances | EC2 Instance C... | EC2 Instance C...
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd8cosUser=ec2-user&region=us-east-1&...
aws Services Search [Alt+S]
aws S3 EC2 VPC
Every 5.0s: ./monitor.sh -dashboard
24
System Monitoring Dashboard ==
Top 10 CPU-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1939 0.6 0.6 89004 5880 ? Ssl 06:25 0:12 /usr/sbin/rngd -f -x pkcs11 -x nist
root 1 0.0 1.7 105192 16568 ? Ss 06:25 0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 2 0.0 0.0 0 0 ? S 06:25 0:00 [kthread]
root 3 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_kst_gpl]
root 4 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_kst_gpl]
root 5 0.0 0.0 0 0 ? I< 06:25 0:00 [slub flushwq]
root 6 0.0 0.0 0 0 ? I< 06:25 0:00 [netns]
root 8 0.0 0.0 0 0 ? I< 06:25 0:00 [kworker/u:0:H-events_highpri]
root 10 0.0 0.0 0 0 ? I< 06:25 0:00 [mm_percpu_wq]
root 11 0.0 0.0 0 0 ? I< 06:25 0:00 [rcu_tasks_kthrea]

Top 10 Memory-consuming applications:
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 2165 0.0 1.8 275420 17844 ? Ssl 06:25 0:00 /usr/bin/amazon-ssm-agent
root 1 0.0 1.7 105192 16568 ? Ss 06:25 0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
root 1042 0.0 0.0 21212 1632 ? S 06:25 0:00 /usr/lib/systemd/systemd-journald
systemd+ 1718 0.0 1.4 21212 14444 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-resolved
ec2-user 3527 0.0 1.3 219904 12824 ? Ss 06:41 0:00 /usr/lib/systemd/systemd --user
root 1715 0.0 1.1 31012 11260 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-udevd
root 3614 0.0 1.0 14768 9936 ? Ss 06:41 0:00 sshd: ec2-user [priv]
systemd+ 1944 0.0 1.0 235872 9736 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-networkd
root 1942 0.0 1.0 17612 9712 ? Ss 06:25 0:00 /usr/lib/systemd/systemd-logind

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```

Sign in | DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Cand... | Instances | EC2 Instance C... | EC2 Instance C...
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd8cosUser=ec2-user&region=us-east-1&...
aws Services Search [Alt+S]
aws S3 EC2 VPC
[root@ip-172-31-7-171 ~]# watch -n 5 ./monitor.sh -dashboard
[root@ip-172-31-7-171 ~]# git init
[root@ip-172-31-7-171 ~]# git config --global init.defaultBranch main
[root@ip-172-31-7-171 ~]# yum install git -y
Last metadata expiration check: 0:35:13 ago on Thu Aug 22 06:25:52 2024.
Dependencies resolved.

=====
Package                                Architecture      Version       Repository      Size
=
Installing:
git                                    x86_64          2.40.1-1.amzn2023.0.3   amazonlinux      54
k
Installing dependencies:
git-core                               x86_64          2.40.1-1.amzn2023.0.3   amazonlinux      4.3
M
git-core-doc                           noarch          2.40.1-1.amzn2023.0.3   amazonlinux      2.6
M
perl-Error                            noarch          1:0.17029-5.amzn2023.0.2   amazonlinux      41
M
perl-File-Find                         noarch          1.37-477.amzn2023.0.6   amazonlinux      26
M
perl-Git                              noarch          2.40.1-1.amzn2023.0.3   amazonlinux      42
M
perl-TermReadKey                      x86_64          2.38-9.amzn2023.0.2    amazonlinux      36

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```

Sign in | DevOps Engine | Indeed Messag... | DevOps Intern... | Notifications | (20) WhatsApp | DevOps_Cand... | Instances | EC2 Instance C... | EC2 Instance C...
https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd8cosUser=ec2-user&region=us-east-1&...
aws Services Search [Alt+S]
aws S3 EC2 VPC
[root@ip-172-31-7-171 ~]# git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /root/.git/
[root@ip-172-31-7-171 ~]# git add .
[root@ip-172-31-7-171 ~]# git status
On branch master

No commits yet

Changes to be committed:
(use "git rm --cached <file>..." to unstage)
  new file: .bash_logout
  new file: .bash_profile
  new file: .bashrc
  new file: .cshrc
  new file: .ssh/authorized_keys
  new file: .tcshrc
  new file: .wininfo

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

```



```
[root@ip-172-31-7-171 ~]# git commit -m "1st"
[master (root-commit) e5fff95] 1st
  Committer: root <root@ip-172-31-7-171.ec2.internal>
  Author: root <root@ip-172-31-7-171.ec2.internal>
  Your name and email address were configured automatically based
  on your username and hostname. Please check that they are accurate.
  You can suppress this message by setting them explicitly. Run the
  following command and follow the instructions in your editor to edit
  your configuration file:

  git config --global --edit

After doing this, you may fix the identity used for this commit with:
  git commit --amend --reset-author

8 files changed, 260 insertions(+)
create mode 100644 .bash_logout
create mode 100644 .bash_profile
create mode 100644 .bashrc
create mode 100644 .csrc
create mode 100644 .sshauthorized_keys
create mode 100644 .trsrc
create mode 100644 .viminfo
create mode 100755 monitor.sh

i-0b59fd0fa58542cbd (monitoring)
Public IPs: 34.239.251.237 Private IPs: 172.31.7.171

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
29°C Haze Search ENG IN 12:38 22-08-2024

[Sign In] https://us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0b59fd0fa58542cbd&osUser=ec2-user&region=us-east-1&s... A*
CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
Natty midcap 0.69% Search ENG IN 12:44 22-08-2024

[root@ip-172-31-7-171 set1]# git status
On branch master
Changes not staged for commit:
  (use "git add <file>" to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    deleted:   .../monitor.sh

no changes added to commit (use "git add" and/or "git commit -a")
[root@ip-172-31-7-171 set1]# git remote add origin https://github.com/vommidapuchinni/SafeSquid-Labs-task.git
Username for 'https://github.com': vommidapuchinni
Password for 'https://vommidapuchinni@github.com':
Enumerating objects: 100, done.
Compressing objects: 100% (14/14), done.
Writing objects: 100% (14/14), 3.33 KiB | 1.11 MiB/s, done.
Total 14 (delta 0), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/vommidapuchinni/SafeSquid-Labs-task.git
 * [new branch]      master -> master
[root@ip-172-31-7-171 set1]# cd ..
[root@ip-172-31-7-171 ~]# 

i-0b59fd0fa58542cbd (monitoring)
Public IPs: 34.239.251.237 Private IPs: 172.31.7.171
```

## Conclusion

This project successfully developed a Bash script for real-time monitoring of critical system resources on a proxy server. The script's flexibility, through customizable dashboards and command-line options, makes it a practical tool for maintaining server health and performance. It enhances proactive system management and provides a solid foundation for future enhancements, such as alerting mechanisms or additional monitoring features.

# **Set 2: Script for Automating Security Audits and Server Hardening on Linux Servers**

## **Overview**

This project contains Bash scripts for automating security audits and server hardening on Linux servers. The scripts are modular, allowing them to be easily deployed across multiple servers to ensure they meet stringent security standards.

## **Usage**

### **1. Run the Security Audit**

The audit.sh script performs a comprehensive security audit, including user and group audits, file and directory permission checks, service audits, firewall and network security checks, IP configuration checks, security updates, and log monitoring.

### **2. Apply Server Hardening Measures**

The harden.sh script implements various hardening measures, such as enforcing SSH key-based authentication, disabling IPv6 (if not required), securing the bootloader, configuring the firewall, and setting up automatic updates.

### **3. Custom Security Checks**

You can extend the functionality of the scripts by adding custom security checks. These can be defined in the config/custom\_checks.conf file. An example configuration is provided in the examples/ directory.

### **4. Review Audit Results**

Audit results and logs of hardening actions are stored in the logs/ directory. You can review these files to see the results of the audits and the actions taken by the hardening script.

### **5. Schedule Regular Audits and Hardening**

You can schedule the scripts to run regularly using cron jobs. For example, to run the audit script every day at midnight: crontab -e

```
Sign In DevOps | Indeed M... | DevOps | Notifications | (20) WhatsApp | DevOps | Instances | EC2 Instances | SafeSQL | Personal | + National Portal of India | DCC Login | Nadu Nedu | APREIS - 2020 | Home | APRS-2021-22 | ErForum | AP-GSWS | imgr | APPSC General Studies | Home Page | Press Release | Home | Endowment... | N. Virginia | vchinni | AWS Services Search [Alt+S] user@1000.service loaded active running User Manager for UID 1000

LOAD = Reflects whether the unit definition was properly loaded.
ACTIVE = The high-level unit activation state, i.e. generalization of SUB.
SUB = The low-level unit activation state, values depend on unit type.
20 loaded units listed.

2024-08-22 07:23:06 - Checking for unauthorized services:
2024-08-22 07:23:06 - Verifying firewall status and configuration...
./audit.sh: line 41: ufw: command not found
./audit.sh: line 42: iptables: command not found
2024-08-22 07:23:06 - Checking for open ports and associated services:
Netid State Recv-Q Send-Q Local Address:Port Peer Address:Port Process
udp UNCONN 0 0 127.0.0.1:323 0.0.0.0:* 
udp UNCONN 0 0 172.31.7.171:enX0:68 0.0.0.0:* 
udp UNCONN 0 0 [fe80::f9:85ff:fe82:2dc3]:enX0:546 [::]:* 
tcp LISTEN 0 120 0.0.0.0:22 0.0.0.0:* 
tcp LISTEN 0 120 [::]:22 [::]:* 

2024-08-22 07:23:06 - Checking IP and network configurations...
2024-08-22 07:23:06 - Identifying public and private IPs:
enX0 172.31.7.171/20

2024-08-22 07:23:06 - Checking for available security updates...
./audit.sh: line 54: apt-get: command not found
2024-08-22 07:23:06 - Checking logs for suspicious activities...
grep: /var/log/auth.log: No such file or directory
2024-08-22 07:23:06 - Security audit completed.
[root@ip-172-31-7-171 set2]# 

i-0b59fd0fa58542cbd (monitoring)
PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171
```

The screenshot shows a Windows desktop environment. At the top, there's a taskbar with various pinned icons including CloudShell, Feedback, Search, and several browser tabs. The system tray shows the date as 22-08-2024 and the time as 12:53. In the center, a terminal window titled 'CloudShell' displays a session with the command 'audit.sh harden.sh logs'. The output of this command is shown in the terminal window, detailing file operations like 'git add' and 'git status'. Below the terminal, a message box indicates the session has ended with the ID 'i-0b59fd0fa58542cbd'. At the bottom of the screen, a status bar shows 'PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171'.

```
[root@ip-172-31-7-171 set2]# cd logs/
[root@ip-172-31-7-171 logs]# ls
audit.log harden.log
[root@ip-172-31-7-171 logs]# cd ..
[root@ip-172-31-7-171 set2]# git add .
[root@ip-172-31-7-171 set2]# git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file: .harden.sh.swp
    new file: audit.sh
    new file: harden.sh
    new file: logs/audit.log
    new file: logs/harden.log

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified: ../.viminfo
        deleted: ..../monitor.sh

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    ../.bash_history

[root@ip-172-31-7-171 set2]#
```

i-0b59fd0fa58542cbd (monitoring)

PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with several pinned icons and open windows. One window is titled "DevOps" and another is "AWS CloudShell". The CloudShell window contains a terminal session with the following command history:

```

following command and follow the instructions in your editor to edit
your configuration file:
git config --global --edit

After doing this, you may fix the identity used for this commit with:
git commit --amend --reset-author

5 files changed, 4308 insertions(+)
create mode 100644 set2/,harden.sh.swp
create mode 100755 set2/audit.sh
create mode 100755 set2/harden.sh
create mode 100644 set2/logs/audit.log
create mode 100644 set2/logs/harden.log
[root@ip-172-31-7-171 set2]# git push origin master
Username for 'https://github.com': vommidapuchinni
Password for 'https://vommidapuchinni@github.com':
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Compressing objects: 100% (9/9), done.
Writing objects: 100% (9/9), 22.18 KiB | 2.77 MiB/s, done.
Total 9 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/vommidapuchinni/SafeSquid-Labs-task.git
 ab59b7a..aa3bee7 master -> master
[root@ip-172-31-7-171 set2]#

```

Below the terminal, the status bar shows "PublicIPs: 34.239.251.237 PrivateIPs: 172.31.7.171".

The browser window in the background is the AWS Management Console, showing the EC2 service page.

## Reporting

The scripts generate log files that contain detailed reports of the audit results and hardening actions. These logs are saved in the logs/ directory.

- **Audit Logs:** logs/audit.log
- **Hardening Logs:** logs/harden.log

## Troubleshooting

### Common Errors

- **Command Not Found:** If you encounter errors related to commands not being found (e.g., ufw, apt-get), ensure you are using the correct commands for your distribution (e.g., iptables instead of ufw on Red Hat-based systems).
- **Log Files Not Found:** If the script cannot find certain log files (e.g., /var/log/auth.log), ensure that you are pointing to the correct log files for your distribution (e.g., /var/log/secure on Red Hat-based systems).

## Conclusion:

The Server Hardening and Security Audit Script project automates and standardizes Linux server security through comprehensive audits and best-practice hardening measures. It offers flexibility, scalability, and ease of use, making it an essential tool for maintaining strong security standards across your

infrastructure. With clear documentation, logs, and customizable options, this project provides a reliable and efficient way to protect your servers from vulnerabilities.