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Task 4: Service Monitoring Documentation

# Introduction

This document provides detailed documentation for the shell script created to monitor and restart critical services on company servers. The script ensures that specified services (httpd and sshd) are running, restarts them if they are not, and sends a notification email to the system administrator.

# Script Functionality

The shell script performs the following tasks:  
1. Service Monitoring: Checks if the specified services (httpd and sshd) are running.  
2. Restart Service: If a service is not running, the script attempts to start the service.  
3. Notification: Sends a notification email to the system administrator if a service was found stopped and restarted.  
4. Automation: The script is designed to be set up as a cron job to run at regular intervals.

# Script Usage

1. Save the script as `task4\_service\_monitoring.sh`.  
2. Make the script executable:  
 ```  
 chmod +x task4\_service\_monitoring.sh  
 ```  
3. Run the script:  
 ```  
 ./task4\_service\_monitoring.sh  
 ```

# Documentation

The script is thoroughly documented with comments explaining the purpose of each major step. Below is the complete script:

#!/bin/bash  
  
# Script to monitor and restart services if necessary  
  
# Variables  
SERVICES=("httpd" "sshd")  
EMAIL=" secretchapshoorveer802@gmail.com"  
  
# Function to check if a service is running  
is\_service\_running() {  
 systemctl is-active --quiet $1  
}  
  
# Function to restart a service  
restart\_service() {  
 sudo systemctl start $1  
}  
  
# Function to install httpd if not found  
install\_httpd() {  
 echo "httpd service not found. Attempting to install..."  
 sudo yum install httpd -y  
 sudo systemctl start httpd  
 sudo systemctl enable httpd  
}  
  
# Loop through each service and check its status  
for SERVICE in "${SERVICES[@]}"; do  
  
 # Check if the service exists  
 if ! systemctl list-units --type=service --all | grep -q "$SERVICE"; then  
 if [ "$SERVICE" == "httpd" ]; then  
 install\_httpd  
 else  
 echo "Service $SERVICE not found."  
 continue  
 fi  
 fi  
  
 # Check if the service is running  
 if is\_service\_running $SERVICE; then  
 echo "$SERVICE is running."  
 else  
 echo "$SERVICE is not running. Attempting to restart..."  
 restart\_service $SERVICE  
  
 # Check if the service was restarted successfully  
 if is\_service\_running $SERVICE; then  
 echo "$SERVICE has been restarted successfully."  
  
 # Send notification email  
 echo -e "Subject: Service $SERVICE Restarted\n\nThe $SERVICE service was found stopped and has been restarted on $(hostname) at $(date)." | sendmail -v $EMAIL  
 else  
 echo "Failed to restart $SERVICE."  
 fi  
 fi  
done

# Cron Job Setup

To automate the script to run at regular intervals, set up a cron job:  
1. Open the crontab file:  
 ```  
 crontab -e  
 ```  
2. Add the following line to run the script every 5 minutes:  
 ```  
 \*/5 \* \* \* \* /home/aniket-server/task4\_service\_monitoring.sh  
 ```

# Verification

To verify the script's functionality, perform the following steps:  
1. Stop a service manually:  
 ```  
 sudo systemctl stop httpd (or)  
 sudo systemctl stop sshd  
 ```  
2. Run the script:  
 ```  
 ./task4\_service\_monitoring.sh  
 ```  
3. Check if the service is restarted:  
 ```  
 sudo systemctl status httpd (or)  
 sudo systemctl status sshd  
 ```  
4. Verify that the notification email is received by the system administrator.

# Execution and Verification Commands

- Make the script executable:  
 ```  
 chmod +x task4\_service\_monitoring.sh  
 ```  
- Run the script:  
 ```  
 ./task4\_service\_monitoring.sh  
 ```  
- Stop a service manually for testing:  
 ```  
 sudo systemctl stop httpd (or)  
 sudo systemctl stop sshd  
 ```  
- Check if the service is restarted:  
 ```  
 sudo systemctl status httpd (or)  
 sudo systemctl status sshd  
 ```  
- Set up the cron job:  
 ```  
 crontab -e  
 # Add the following line to the crontab file  
 \*/5 \* \* \* \* /home/aniket-server/task4\_service\_monitoring.sh  
 ```

# Script’s Screenshots:

