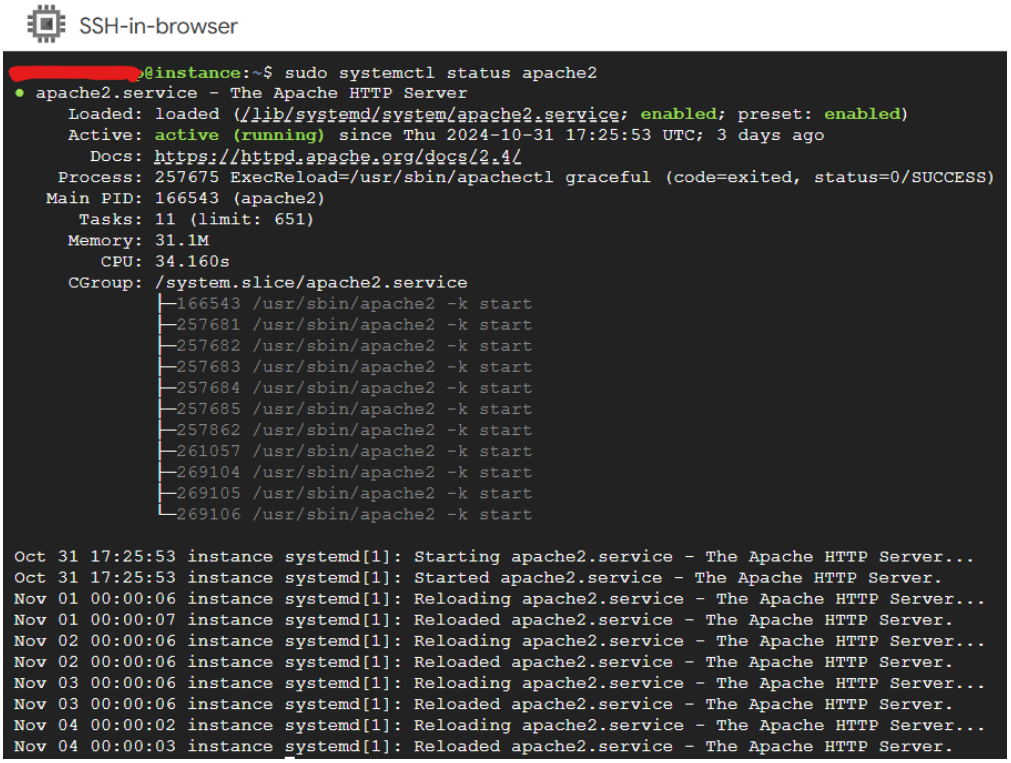
HTTPS Server Setup on Google Cloud Platform (GCP)



Overview

This document provides an overview of setting up an HTTPS server using Apache2 on a Google Cloud Platform (GCP) instance to host a portfolio website accessible at onkar-singh.com.

Skills Learned

- **Web Server Configuration**: Configured Apache2 as a web server on a GCP instance.
- **Domain and SSL Configuration**: Mapped a custom domain to the server and secured it with HTTPS using SSL/TLS.
- **Firewall and Access Management**: Implemented firewall settings to allow only necessary ports for secure access.

Process Overview

1. **Apache2 Installation**:
    - Accessed the GCP instance via SSH.
    - Updated the package list and installed Apache2 using the following commands:

      ```
      bash
      Copy code
      sudo apt update
      sudo apt install apache2 -y
      ```

    - Verified Apache2 status to ensure the server was running:

      ```
      bash
      Copy code
      sudo systemctl status apache2
      ```

2. **Domain Configuration**:
    - Configured **DNS settings** to point the domain `onkar-singh.com` to the public IP of the GCP instance.
    - Verified the domain resolves correctly to the instance IP.
3. **Enabling HTTPS with SSL/TLS**:
    - Generated and installed an **SSL certificate and key** for `onkar-singh.com`.
    - Configured the Apache2 server to use the SSL certificate by modifying the virtual host configuration file:

      ```
      bash
      Copy code
      sudo nano /etc/apache2/sites-available/default-ssl.conf
      ```

    - Enabled the SSL module and the SSL site configuration:

      ```
      bash
      Copy code
      sudo a2enmod ssl
      sudo a2ensite default-ssl
      sudo systemctl reload apache2
      ```

4. **Firewall Configuration**:
    - In the GCP Console, navigated to **VPC Network > Firewall Rules**.
    - Allowed only necessary ports:
        - **Port 80** for HTTP (temporary access during setup)
        - **Port 443** for HTTPS (permanent access)

- Removed or disabled HTTP access if only HTTPS is needed for security.

5. **Testing and Validation**:
   - Verified that the website was accessible via HTTPS at https://onkar-singh.com.
   - Checked that **HTTP requests redirect to HTTPS** automatically.
   - Used an SSL checker (such as SSL Labs) to validate certificate installation and grade the security.