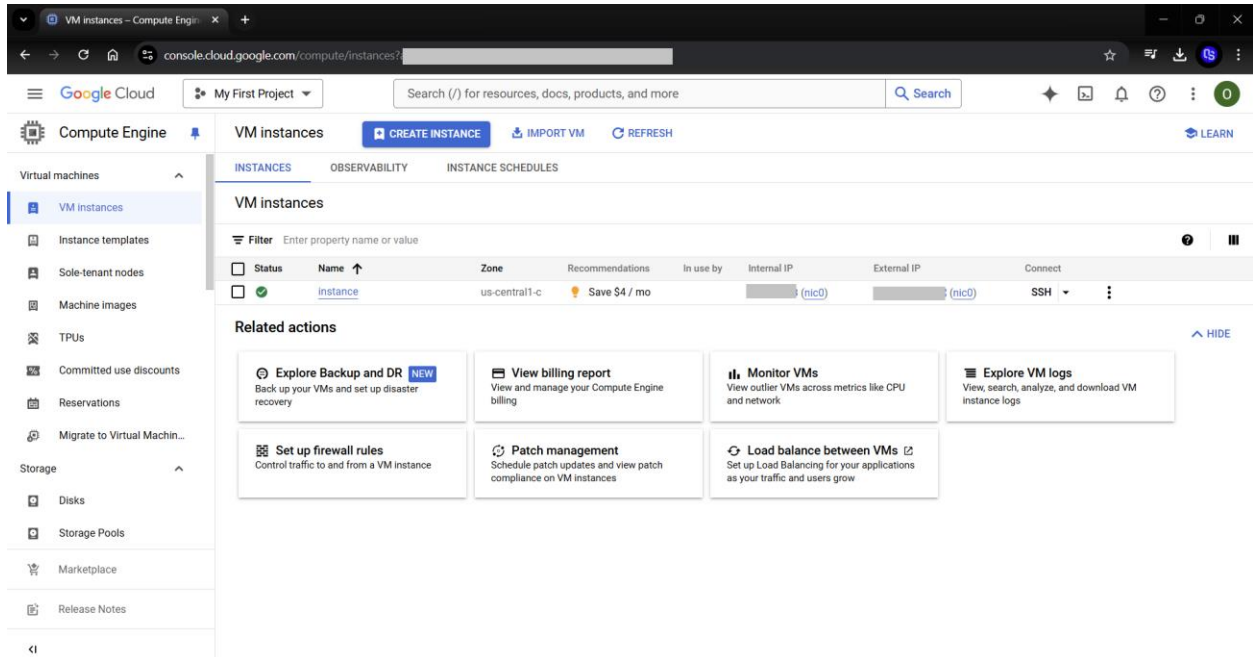


Google Cloud Platform (GCP) Instance Setup Documentation



Objective

To create a secure, publicly accessible virtual machine instance on Google Cloud Platform (GCP) with configured network rules for controlled access.

Skills Learned

- **Cloud Infrastructure Management:** Hands-on experience with Google Cloud Console for instance creation and management.
- **Network Security:** Application of GCP firewall rules for secure access.
- **IP Addressing:** Assigned and managed public IP addresses for external accessibility.
- **Instance Monitoring:** Gained familiarity with GCP tools for monitoring instance health and performance.

Process Overview

1. **Instance Creation:**
 - Logged into the **Google Cloud Console** and accessed the **Compute Engine** dashboard.
 - Selected the **Create Instance** option and chose a machine type and OS.
 - Assigned a **public IP address** to enable accessibility from external networks.
 - Configured storage options and other instance details as needed.
 2. **Security Configuration:**
 - Set up **firewall rules** in the VPC network section to secure the instance:
 - Defined ingress and egress rules to control traffic flow based on IP range and port.
 - Limited access to necessary ports only (e.g., SSH on port 22, HTTP/HTTPS on 80/443 if required).
 - Ensured only trusted IP addresses can connect by specifying allowed IP ranges.
 3. **Testing and Validation:**
 - Accessed the instance via SSH using the GCP Console or an SSH client.
 - Verified that the instance's public IP was accessible only through the specified firewall rules.
 - Checked logs to confirm traffic and monitor for unauthorized access attempts.
 4. **Troubleshooting:**
 - **Firewall Conflicts:** Resolved any conflicts by adjusting firewall rules in the **VPC network** section.
 - **Access Denied Issues:** Verified user permissions and corrected public IP and SSH key settings as needed.
 - **Instance Health Monitoring:** Used GCP's **Cloud Monitoring** tools to keep track of CPU, memory, and disk usage.
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Why I Chose GCP

I already have experience working with Azure and AWS, which provided a solid foundation in cloud infrastructure. However, I wanted to expand my skills by exploring additional cloud platforms and gaining exposure to different tools and services. Google Cloud Platform (GCP) was a natural choice to diversify my knowledge and gain hands-on practice with another major cloud provider, enhancing my overall cloud management skills. This exploration with GCP allows me to be more versatile and prepared for various cloud environments.