user121@DESKTOP-JFJ21I5 MINGW64 ~

$ ssh-keygen -t rsa -b 2048 -f ~/.ssh/my\_gcp\_key

Generating public/private rsa key pair.

Enter passphrase for "/c/Users/user121/.ssh/my\_gcp\_key" (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /c/Users/user121/.ssh/my\_gcp\_key

Your public key has been saved in /c/Users/user121/.ssh/my\_gcp\_key.pub

The key fingerprint is:

SHA256:fH2tcNYYnoqDlKNDUqwawgwOMB+uade2Drepory8Eac user121@DESKTOP-JFJ21I5

The key's randomart image is:

+---[RSA 2048]----+

|o . |

|.+ . . |

|o o o . |

|\*o .o . . . . \* |

|+\*.ooo. S . o B o|

|..=o.o.o + . \* . |

| E.. oo . o . . |

|o.. + o. . |

|o=+..+ |

+----[SHA256]-----+

user121@DESKTOP-JFJ21I5 MINGW64 ~

$ ^C

user121@DESKTOP-JFJ21I5 MINGW64 ~

$ cat ~/.ssh/my\_gcp\_key.pub

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQC5qRWvwjWgngAmI6VcTBcxTwuTFax2y5LlJT3YdK05bOQPIjfGZ2arNu7cD7LzXycJpxUD0ncycaXUr9xTfwFqaAfaraQL2j7LvOsXKP3oVZjYgvhk1j1+5R+3kNLaxEEnKdMUGoqOcTlxElm04N3d29t0nQo9pfS5uIF30eAASFjDvakDo+GEV5aO9dli5ttEkCESs8mpLE+MNJhGw7N1uz1TKS/o1pB79haiIaUkAYXRQzUmSLnEjoFcpaF07VFfh1YzoLsNKGGG4cj/kduUF84ueaAFFbFGl14jh0noaNvHLFI954eGaDczXTjXgwpXoP1FpQ4UF+HHEsuxhawL user121@DESKTOP-JFJ21I5

user121@DESKTOP-JFJ21I5 MINGW64 ~

$ cat ~/.ssh/my\_gcp\_key

-----BEGIN OPENSSH PRIVATE KEY-----

b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABFwAAAAdzc2gtcn

NhAAAAAwEAAQAAAQEAuakVr8I1oJ4AJiOlXEwXMU8LkxWsdsuS5SU92HStOWzkDyI3xmdm

qzbu3A+y818nCacVA9J3MnGl1K/cU38BamgH2q2kC9o+y7zrFyj96FWY2IL4ZNY9fuUft5

DS2sRBJynTFBqKjnE5cRJZtODd3dvbdJ0KPaX0ubiBd9HgAEhYw72pA6PhhFeWjvXZYubb

RJAhErPJqSxPjDSYRsOzdbs9Uykv6NaQe/YWoiGlJAGF0UM1Jki5xI6BXKWhdO1RX4dWM6

C7DShhhuHI/5HblBfOLnmgBRWxRpdeI4dJ6GjbxyxSPeeHhmg3M10414MKV6D9RaUOFBfh

xxLLsYWsCwAAA9Ce01ArntNQKwAAAAdzc2gtcnNhAAABAQC5qRWvwjWgngAmI6VcTBcxTw

uTFax2y5LlJT3YdK05bOQPIjfGZ2arNu7cD7LzXycJpxUD0ncycaXUr9xTfwFqaAfaraQL

2j7LvOsXKP3oVZjYgvhk1j1+5R+3kNLaxEEnKdMUGoqOcTlxElm04N3d29t0nQo9pfS5uI

F30eAASFjDvakDo+GEV5aO9dli5ttEkCESs8mpLE+MNJhGw7N1uz1TKS/o1pB79haiIaUk

AYXRQzUmSLnEjoFcpaF07VFfh1YzoLsNKGGG4cj/kduUF84ueaAFFbFGl14jh0noaNvHLF

I954eGaDczXTjXgwpXoP1FpQ4UF+HHEsuxhawLAAAAAwEAAQAAAQAPApsUvyRbzHphmv8r

A6HaZDQg2586aYICUaz625AHtQSJLrCIs2JrFEFifEhxAa/jyWTbDsCBTQvlsqQjAgEoy6

la5i/9n1L1YNw23qMMjiMR2iDf8iw9nqOeUTCi7DwCQRDmLrEmDARjXmLvS0DUx4oqFuo1

ir3K6B5bhBXSn+OAlDbG5lqyjU3kBSyF80mAyOQIy07Ud0i26i94xvVzded5ZZratt41CS

TgMU3Vd+OMh01ORqEX9WiHDFSNbqQnJ3NnOCt8kjjJV6OzPGdmqdm5/Jv+t6octykL/Px8

U0dNXQfM6PReUsRse9JGNqix4FtQQPeygr10Q76QXeKpAAAAgA5Aff06zHHkskg5jpT6+n

Cj/qW92pY9I9eAzVK4Svuu4o5hfVu7IBAPi5oYBknNEkydWEiV/em33nuaOHdmEpSychog

HPmy6HFIRMsuONEkAHhaj+vzo3pFUscsXQFq9AlLFGaKLBIDBwBjNpqJnOJw+WmZ8Ni780

BZ2T3MB8ohAAAAgQDbj9/a9SkuA9TvJUYQHyj+2dK1aw4z2zPGmnwF0m+IZ3oWjj4Pwhwn

p7n9ak6XO+tv8cYldktQVe8JG47NBtk63KTT+78l7zERebPM4Do8HxaIPW+fzLuxMHWB2A

D0akOtI5ZuIBROnrj01e0veZf4jIz/Wf8nQ9A9Q88J5fNSMwAAAIEA2HjmH0T/QA52Hmwr

+q94aN3nusM+HITvtWi6H6iPrpMUunrAEHUcAr4vlsxQSXdtgvk5SFVs7jLz/5zGWvnk87

W1L5cn64SN2MHb95Y3ul2VfIvHD38Hjt1fWoMiZPyrwk8EZ67Ca08SxwDUOwiYn5kFS3Yt

6YtiiCzqSO2vVskAAAAXdXNlcjEyMUBERVNLVE9QLUpGSjIxSTUBAgME

-----END OPENSSH PRIVATE KEY-----

user121@DESKTOP-JFJ21I5 MINGW64 ~

$

can we ssh using internal ip address into private VM

**ChatGPT said:**

Yes, you can **SSH into a private VM** using its **internal IP address**, but there are certain conditions that need to be met for it to work properly.

Since the **private VM** does not have a public IP address, SSH access must be done using the **internal IP address** within the same **VPC network**. If you're trying to SSH directly using the internal IP, you need to ensure a few things:

**Requirements for SSH Access via Internal IP Address:**

1. **Same VPC Network**: Both the **public VM** (or your local machine) and the **private VM** must be within the same **VPC network**.
2. **Firewall Rules**: Ensure that the firewall rules allow **SSH (port 22)** from the **public VM** to the **private VM** on the **internal network**.
3. **Access via a Bastion Host (Public VM)**: Typically, you can SSH into a **private VM** using a **bastion host** or **jump host** (which has a public IP) by first SSHing into the bastion host and then accessing the private VM using the private IP address.

**Steps to SSH into Private VM using Internal IP:**

**Step 1: SSH into the Public VM (Bastion Host)**

* First, SSH into your **public VM** (bastion host) that has access to the **private VM**.

Run this command from your local machine:

bash

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gcloud compute ssh public-instance --zone us-central1-c --project YOUR\_PROJECT\_ID

Replace public-instance with the name of your **public VM**.

**Step 2: SSH from Public VM to Private VM using Internal IP**

Once you're on the **public VM**, you can SSH into the **private VM** using its **internal IP address**. For example:

bash

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ssh ubuntu@10.128.0.4

* Replace 10.128.0.4 with the **internal IP address** of your **private VM**.
* ubuntu is the default username for Ubuntu-based instances, but adjust this if you're using a different OS or username.

**Step 3: Verify Connection**

You should now be logged into the **private VM** via its internal IP. You can verify this by running a command like hostname or uname -a to confirm you're on the correct machine.

**Alternative: SSH from Local Machine to Private VM Using IAP (Identity-Aware Proxy)**

If you want to skip using the **public VM (bastion host)**, you can **SSH directly into the private VM** using **IAP** (Identity-Aware Proxy), which allows you to tunnel through the **Google Cloud infrastructure** without needing a public IP.

To SSH directly into the private instance via IAP:

bash

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gcloud compute ssh private-instance --zone us-central1-c --tunnel-through-iap --project YOUR\_PROJECT\_ID

This command will allow you to securely access the private VM from your local machine via **IAP**, which doesn't require a public IP and works over the internal IP address.

**Important Considerations:**

* **Internal IP Access**: You can only SSH to the **private VM** using the internal IP if the **public VM** or your machine is within the same **VPC** network and if the necessary **firewall rules** are configured.
* **Firewall Rules**: You must configure the firewall rules to allow SSH on port 22 within the same VPC network. To enable internal SSH access, you can add a firewall rule like this:

bash

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gcloud compute firewall-rules create allow-internal-ssh \

--network default \

--allow tcp:22 \

--source-ranges 10.128.0.0/9 \

--target-tags ssh-access

This rule allows SSH traffic (port 22) from the internal network (10.128.0.0/9) to all instances with the ssh-access tag.

**Conclusion:**

* **Direct Internal IP SSH**: You can SSH into a **private VM** using its **internal IP address** from within the same **VPC network**.
* **Using IAP**: Alternatively, you can use **IAP** for direct SSH access without needing to set up a public IP for the **private VM**.



