iPerf3 High-Speed Test Server

Google Cloud Platform Setup Guide

# Quick Reference Information

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| --- | --- |
| **Source Project ID:** | innate-agency-472909-t7 |
| **Image Name:** | iperf3-server-tef |
| **Region:** | europe-west2 (London) |
| **Machine Type:** | n2-highcpu-8 |
| **Ports Required:** | 5201-5205 (TCP & UDP) |
| **Network Tier:** | Premium |

# Overview

This guide provides two methods to set up an iPerf3 server on Google Cloud Platform for high-speed UDP testing (up to 3Gbps). The server is configured with 5 parallel iPerf3 instances on ports 5201-5205 to prevent service interruptions during testing.

# Prerequisites

* Active Google Cloud Platform account
* Billing enabled on your GCP project
* Basic familiarity with command line

# OPTION 1: Quick Setup - Using Shared VM Image (Recommended)

**Time Required:** 5-10 minutes

**Advantages:** Fast, pre-configured, ready to use

## Step 1: Create Google Cloud Account & Project

1. Go to https://cloud.google.com/
2. Click "Get started for free" or "Console"
3. Create a new project (or use an existing one)
4. Enable billing for your project

## Step 2: Open Cloud Shell

1. In the Google Cloud Console, click the Cloud Shell icon (>\_) in the top-right corner
2. Wait for the terminal to load (~30 seconds)

## Step 3: Create VM from Shared Image

Copy and paste this command into Cloud Shell:

gcloud compute instances create my-iperf-server \

--zone=europe-west2-a \

--image=iperf3-server-tef \

--image-project=innate-agency-472909-t7 \

--machine-type=n2-highcpu-8 \

--network-tier=PREMIUM \

--boot-disk-size=20GB \

--boot-disk-type=pd-ssd

Press Enter. This creates your VM (takes ~2 minutes).

## Step 4: Create Firewall Rules

Allow incoming connections on iPerf3 ports:

gcloud compute firewall-rules create allow-iperf3-multi \

--allow tcp:5201-5205,udp:5201-5205 \

--source-ranges 0.0.0.0/0 \

--direction=INGRESS \

--priority=1000

## Step 5: Get Your Server IP Address

gcloud compute instances describe my-iperf-server \

--zone=europe-west2-a \

--format='get(networkInterfaces[0].accessConfigs[0].natIP)'

You'll see an IP address like 35.189.75.250 - **save this!**

# OPTION 2: Manual Setup - Configure Everything from Scratch

**Time Required:** 20-30 minutes

**Advantages:** Full control, learn the setup process, customizable

## Step 1-4: Initial Setup

Follow Option 1, Steps 1-2 for account setup, then create a basic Ubuntu VM and configure firewall rules as shown in Option 1, Step 3-4, but use the standard Ubuntu image instead of the pre-configured image.

## Step 5: Install and Configure iPerf3

sudo apt update

sudo apt install -y iperf3

iperf3 --version

## Step 6: Optimize Network Settings

Edit system configuration file:

sudo nano /etc/sysctl.conf

Add these network optimization parameters at the end of the file:

net.core.rmem\_max = 536870912

net.core.wmem\_max = 536870912

net.ipv4.tcp\_rmem = 4096 87380 536870912

net.ipv4.tcp\_wmem = 4096 65536 536870912

net.core.netdev\_max\_backlog = 250000

net.ipv4.udp\_mem = 8388608 12582912 16777216

net.ipv4.udp\_rmem\_min = 16384

net.ipv4.udp\_wmem\_min = 16384

Apply the settings:

sudo sysctl -p

## Step 7: Create Multi-Instance iPerf3 Service

**Important:** We do NOT use the -1 flag (exit after one client) because it can cause processes to get stuck indefinitely.

Create the template service:

sudo nano /etc/systemd/system/iperf3@.service

Paste this content:

[Unit]

Description=iPerf3 Server on port %i

After=network.target

[Service]

Type=simple

ExecStart=/usr/bin/iperf3 -s -p %i -B 0.0.0.0

Restart=always

RestartSec=1

User=root

StandardOutput=append:/var/log/iperf3-%i.log

StandardError=append:/var/log/iperf3-%i.log

TimeoutStopSec=60

KillMode=control-group

KillSignal=SIGTERM

[Install]

WantedBy=multi-user.target

## Step 8: Enable and Start All iPerf3 Instances

for port in {5201..5205}; do

sudo systemctl enable iperf3@$port

sudo systemctl start iperf3@$port

done

Verify all instances are running:

sudo systemctl status 'iperf3@\*'

sudo ss -tulpn | grep iperf3

# Testing Your Server

## Install iPerf3 Client

| **Platform** | **Installation** |
| --- | --- |
| **Android** | "iPerf3 WiFi Speed Test" from Play Store |
| **iOS** | "iPerf - Speed Test Tool" from App Store |
| **Linux** | sudo apt install iperf3 |
| **macOS** | brew install iperf3 |
| **Windows** | Download from https://iperf.fr/iperf-download.php |

## Test Commands

Replace [YOUR\_SERVER\_IP] with your actual server IP address.

**1. Basic TCP test (verify connectivity):**

iperf3 -c [YOUR\_SERVER\_IP] -p 5201 -t 10

**2. UDP Download test (3Gbps for 1 minute):**

iperf3 -c [YOUR\_SERVER\_IP] -p 5201 -u -b 3G -R -t 60

**3. UDP Upload test:**

iperf3 -c [YOUR\_SERVER\_IP] -p 5201 -u -b 3G -t 60

**4. Use different ports if one is busy:**

iperf3 -c [YOUR\_SERVER\_IP] -p 5202 -u -b 3G -R -t 60

### Command Explanation

|  |  |
| --- | --- |
| -c | Client mode (connect to server) |
| -p | Port number (5201-5205) |
| -u | UDP mode |
| -b 3G | Target bandwidth 3 Gbps |
| -R | Reverse mode (download: data flows FROM server TO client) |
| -t 60 | Test duration in seconds |

# Cost Consideration

**⚠ Important - Cloud Costs Apply**

Running this server on Google Cloud Platform incurs costs. **The majority of costs come from network data transfer (egress)** when data is sent from the server to clients during testing.

Please review Google Cloud Pricing to understand the costs for your usage patterns: https://cloud.google.com/compute/all-pricing

**Cost-Saving Tip:**

Stop your VM when not actively testing to minimize compute costs:

# Stop

gcloud compute instances stop my-iperf-server --zone=europe-west2-a

# Start

gcloud compute instances start my-iperf-server --zone=europe-west2-a

# Troubleshooting

## Problem: Cannot connect to server

Check firewall rules:

gcloud compute firewall-rules list | grep iperf

Ensure you see a rule allowing tcp:5201-5205,udp:5201-5205

## Problem: Server not responding after some time

Restart services:

gcloud compute ssh my-iperf-server --zone=europe-west2-a

for port in {5201..5205}; do

sudo systemctl restart iperf3@$port

done

## Problem: Low throughput or packet loss

* Verify you're using Premium Network Tier (not Standard)
* Check your mobile network connection quality
* Try a different iPerf3 port (5202, 5203, etc.)
* Reduce target bandwidth: -b 1G instead of -b 3G

# Maintenance & Management

## View Server Logs

# SSH into server

gcloud compute ssh my-iperf-server --zone=europe-west2-a

# View logs for specific port (live tail)

sudo tail -f /var/log/iperf3-5201.log

# View all logs at once

sudo tail -f /var/log/iperf3-\*.log

## Monitor Active Connections

# Check active connections on all ports

sudo ss -anp | grep iperf3

## Update iPerf3

sudo apt update

sudo apt upgrade iperf3 -y

# Restart services after update

for port in {5201..5205}; do

sudo systemctl restart iperf3@$port

done

For more information and updates, visit: https://github.com/Ak74i/iperf3-gcp-server

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