

Factorio on Docker/Google Cloud

Google Cloud Setup

1. Go to console.google.com
2. Enable billing and setup a mean of payment
3. Create a project named Factorio
4. Enable Compute Engine

Factorio docker image

We're using this image :

<https://hub.docker.com/r/factoriotools/factorio>

Other resources :

<https://completely-unique-view-blog.appspot.com/posts/hosting-factorio-on-gce>

Google Cloud Setup

- Give it a name
- Choose the closest region/zone
- CPU/Mem : 2vCPU/4GB should be ok

Name ?
Name is permanent

factorio-yt-1

Labels ? (Optional)

+ Add label

Region ?
Region is permanent

Zone ?
Zone is permanent

europa-west1 (Belgium)

europa-west1-c

Machine configuration

Machine family

General-purpose | Compute-optimised

Machine types for common workloads, optimised for cost and flexibility

Series

E2

CPU platform selection based on availability

Machine type

e2-medium (2 vCPU, 4 GB memory)

vCPU

Memory

GPUs

1 shared core

4 GB

-

⌵ CPU platform and GPU

Confidential VM service ?

☐ Enable the Confidential Computing service on this VM instance.

Container setting :

The name of the image is generated by Google from the image name.

Container Image : factoriotools/factorio
Restart Policy : always
Env Var :

Container image ?

factoriotools/factorio

Restart policy ?

Always

☐ Run as privileged ?

☐ Allocate a buffer for STDIN ?

☐ Allocate a pseudo-TTY ?

Command ?

Cloud

ManagementSecurityDisksNetworkingSole Tenancy

Boot disk

Deletion rule

☒ Delete boot disk when instance is deleted

Encryption

Data is encrypted automatically. Select an encryption key management solution.

☒ Google-managed key

No configuration required

☐ Customer-managed key

Manage via Google Cloud Key Management Service

☐ Custom

Volume mounts

Use to mount directories (host path), tmpfs and additional disks to container.

Device name

Used to reference the device for mounting or resizing.

Based on disk name (default)

factorio-disk1

Edit volume mount

Volume type

Disk

Mount path

/factorio

Disk name

factorio-disk1

Partition

(Optional)

Mode

Read/write

Done

Cancel

Disk

factorio-disk1

Mode

☒ Read-write

☐ Read-only

Deletion rule

When deleting instance

☒ Keep disk

☐ Delete disk

Device name

Used to reference the device for mounting or resizing.

Based on disk name (default)

factorio-disk1

Shielded VM

Turn on all settings for the most secure configuration.

☒ Turn on Secure Boot

☒ Turn on vTPM

☒ Turn on Integrity Monitoring

Network tags ? (Optional)

factorio-network

Hostname ?

Set a custom hostname for this instance or leave it default. Choice is permanent

factorio-yt-1.bcc.paris

Network interfaces ?

Network interface is permanent

default default (10.132.0.0/20)

+ Add network interface

i

To create another network interface you need to have a new network first.

factorio-yt-1.bcc.paris

factorio-firewall

Logs ?

Off
[view](#)

Network

default

Priority

1000

Direction

Ingress

Action on match

Allow

Targets

Target tags	factorio-network
-------------	------------------

Source filters

IP ranges	0.0.0.0/0
-----------	-----------

Protocols and ports

tcp:27015
udp:34197

Enforcement

Enabled

Insights

None

Applicable to instances

The following table shows only the VM instances that you have permission to view. The default network might contain other instances that aren't being displayed.

Filter by instance name, project or subnetwork

Name ↑	Subnetwork	Internal IP	Tags	Service accounts	Project	Labels	Network details
factorio- yt-1	default	10.132.0.4	factorio...	428559469680-compute@developer.gser...	factorio- bcc	container-... : cos-stable...	VIEW DETAILS ▼

Run the image

Connect in SSH to the server

Edit the server-setting.json, mod-list.json, copy the mods (the update script does not work well), copy your save game in place of the default autosave

Restart the docker image

Command Line Creation :

```
gcloud beta compute --project=factorio-bcc instances create-with-container factorio-yt-1
--zone=europe-west1-c --machine-type=e2-medium --subnet=default --network-tier=PREMIUM
--metadata=google-logging-enabled=true --maintenance-policy=MIGRATE
--service-account=428559469680-compute@developer.gserviceaccount.com
--scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append
--tags=factorio-network --image=cos-stable-85-13310-1041-28 --image-project=cos-cloud
--boot-disk-size=10GB --boot-disk-type=pd-standard --boot-disk-device-name=factorio-yt-1
--disk=name=factorio-disk1,device-name=factorio-disk1,mode=rw,boot=no --shielded-secure-boot
--shielded-vtpm --shielded-integrity-monitoring --container-image=factoriotools/factorio
--container-restart-policy=always --container-env=UPDATE_MODS_ON_START=true
--container-mount-disk=mount-path=/factorio,name=factorio-disk1,mode=rw
--labels=container-vm=cos-stable-85-13310-1041-28 --reservation-affinity=any
```

Rest Creation :

```
POST https://www.googleapis.com/compute/v1/projects/factorio-bcc/zones/europe-west1-c/instances
{
  "kind": "compute#instance",
  "name": "factorio-yt-1",
  "zone": "projects/factorio-bcc/zones/europe-west1-c",
  "hostname": "factorio-yt-1.bcc.paris",
  "machineType": "projects/factorio-bcc/zones/europe-west1-c/machineTypes/e2-medium",
  "displayDevice": {
    "enableDisplay": false
  },
  "metadata": {
    "kind": "compute#metadata",
    "items": [
      {
        "key": "gce-container-declaration",
```

```
    "value": "spec:\n  containers:\n    - name: factorio-yt-1\n      image: factoriotools/factorio\nvolumeMounts:\n  - name: pd-0\n    mountPath: /factorio\n    readOnly: false\nenv:\n  - name: UPDATE_MODS_ON_START\n    value: 'true'\n    stdin: false\n    tty: false\nrestartPolicy: Always\nvolumes:\n  - name: pd-0\n    gcePersistentDisk:\n      pdName: factorio-disk1\n      fsType: ext4\n      readOnly: false\n\n# This container declaration format is not public API and may change without notice. Please use gcloud command-line tool or Google Cloud Console to run Containers on Google Compute Engine."
```

```
  },
  {
    "key": "google-logging-enabled",
    "value": "true"
  }
]
},
"tags": {
  "items": [
    "factorio-network"
  ]
},
"disks": [
  {
    "kind": "compute#attachedDisk",
    "type": "PERSISTENT",
    "boot": true,
    "mode": "READ_WRITE",
    "autoDelete": true,
    "deviceName": "factorio-yt-1",
    "initializeParams": {
      "sourceImage": "projects/cos-cloud/global/images/cos-stable-85-13310-1041-28",
      "diskType": "projects/factorio-bcc/zones/europe-west1-c/diskTypes/pd-standard",
      "diskSizeGb": "10"
    },
    "diskEncryptionKey": {}
  },
  {
    "kind": "compute#attachedDisk",
    "source": "projects/factorio-bcc/zones/europe-west1-c/disks/factorio-disk1",
    "deviceName": "factorio-disk1",
    "mode": "READ_WRITE",
    "type": "PERSISTENT",
    "autoDelete": false,
    "forceAttach": false,
    "boot": false,
    "interface": "SCSI"
  }
],
"canIpForward": false,
"networkInterfaces": [
  {
    "kind": "compute#networkInterface",
    "subnetwork": "projects/factorio-bcc/regions/europe-west1/subnetworks/default",
    "accessConfigs": [
      {
        "kind": "compute#accessConfig",
        "name": "External NAT",
        "type": "ONE_TO_ONE_NAT",
        "networkTier": "PREMIUM"
      }
    ],
    "aliasIpRanges": []
  }
],
"description": "",
"labels": {
  "container-vm": "cos-stable-85-13310-1041-28"
},
"scheduling": {
  "preemptible": false,
  "onHostMaintenance": "MIGRATE",
```

```
    "automaticRestart": true,
    "nodeAffinities": []
  },
  "deletionProtection": false,
  "reservationAffinity": {
    "consumeReservationType": "ANY_RESERVATION"
  },
  "serviceAccounts": [
    {
      "email": "428559469680-compute@developer.gserviceaccount.com",
      "scopes": [
        "https://www.googleapis.com/auth/devstorage.read_only",
        "https://www.googleapis.com/auth/logging.write",
        "https://www.googleapis.com/auth/monitoring.write",
        "https://www.googleapis.com/auth/servicecontrol",
        "https://www.googleapis.com/auth/service.management.readonly",
        "https://www.googleapis.com/auth/trace.append"
      ]
    }
  ],
  "shieldedInstanceConfig": {
    "enableSecureBoot": true,
    "enableVtpm": true,
    "enableIntegrityMonitoring": true
  },
  "confidentialInstanceConfig": {
    "enableConfidentialCompute": false
  }
}
```

Firewall rule creation :

```
{
  "allowed": [
    {
      "IPProtocol": "tcp",
      "ports": [
        "27015"
      ]
    },
    {
      "IPProtocol": "udp",
      "ports": [
        "34197"
      ]
    }
  ],
  "creationTimestamp": "2020-11-15T09:19:13.108-08:00",
  "description": "",
  "direction": "INGRESS",
  "disabled": false,
  "enableLogging": false,
  "id": "2978681408171335166",
  "kind": "compute#firewall",
  "logConfig": {
    "enable": false
  },
  "name": "factorio-firewall",
  "network": "projects/factorio-bcc/global/networks/default",
  "priority": 1000.0,
  "selfLink": "projects/factorio-bcc/global/firewalls/factorio-firewall",
  "sourceRanges": [
    "0.0.0.0/0"
  ],
  "targetTags": [
    "factorio-network"
  ]
}
```

Tony/Thomas

```
POST https://www.googleapis.com/compute/v1/projects/factorio-bcc/zones/europe-west1-b/instances
{
  "kind": "compute#instance",
  "name": "ks2sett",
  "zone": "projects/factorio-bcc/zones/europe-west1-b",
  "hostname": "ks2sett.bcc.paris",
  "machineType": "projects/factorio-bcc/zones/europe-west1-b/machineTypes/e2-custom-2-12288",
  "displayDevice": {
    "enableDisplay": false
  },
  "metadata": {
    "kind": "compute#metadata",
    "items": [
      {
        "key": "gce-container-declaration",
```

```

    "value": "spec:\n  containers:\n    - name: ks2sett\n      image: factoriotools/factorio\nvolumeMounts:\n    - name: pd-0\n      mountPath: /factorio\n      readOnly: false\nenv:\n    - name: UDPDATE_MODS_ON_START\n      value: 'true'\n      stdin: false\n      tty: false\n  restartPolicy: Always\n  volumes:\n    - name: pd-0\n      gcePersistentDisk:\n        pdName: factorio-disk-1\n        fsType: ext4\n        readOnly: false\n\n# This container declaration format is not public API and may change without notice. Please\n# use gcloud command-line tool or Google Cloud Console to run Containers on Google Compute Engine."
  },
  {
    "key": "google-logging-enabled",
    "value": "true"
  }
]
},
"tags": {
  "items": [
    "factorio-network"
  ]
},
"disks": [
  {
    "kind": "compute#attachedDisk",
    "type": "PERSISTENT",
    "boot": true,
    "mode": "READ_WRITE",
    "autoDelete": true,
    "deviceName": "ks2sett",
    "initializeParams": {
      "sourceImage": "projects/cos-cloud/global/images/cos-stable-89-16108-470-16",
      "diskType": "projects/factorio-bcc/zones/europe-west1-b/diskTypes/pd-balanced",
      "diskSizeGb": "10"
    },
    "diskEncryptionKey": {}
  },
  {
    "kind": "compute#attachedDisk",
    "mode": "READ_WRITE",
    "autoDelete": false,
    "type": "PERSISTENT",
    "deviceName": "factorio-disk-1",
    "initializeParams": {
      "diskName": "factorio-disk-1",
      "diskType": "projects/factorio-bcc/zones/europe-west1-b/diskTypes/pd-ssd",
      "diskSizeGb": "10"
    }
  }
],
"canIpForward": false,
"networkInterfaces": [
  {
    "kind": "compute#networkInterface",
    "subnetwork": "projects/factorio-bcc/regions/europe-west1/subnetworks/default",
    "accessConfigs": [
      {
        "kind": "compute#accessConfig",
        "name": "External NAT",
        "type": "ONE_TO_ONE_NAT",
        "networkTier": "PREMIUM"
      }
    ],
    "aliasIpRanges": []
  }
],
"description": "",
"labels": {
  "container-vm": "cos-stable-89-16108-470-16"
},
"scheduling": {
  "preemptible": false,

```

```

    "onHostMaintenance": "MIGRATE",
    "automaticRestart": true,
    "nodeAffinities": []
  },
  "deletionProtection": false,
  "reservationAffinity": {
    "consumeReservationType": "ANY_RESERVATION"
  },
  "serviceAccounts": [
    {
      "email": "428559469680-compute@developer.gserviceaccount.com",
      "scopes": [
        "https://www.googleapis.com/auth/devstorage.read_only",
        "https://www.googleapis.com/auth/logging.write",
        "https://www.googleapis.com/auth/monitoring.write",
        "https://www.googleapis.com/auth/servicecontrol",
        "https://www.googleapis.com/auth/service.management.readonly",
        "https://www.googleapis.com/auth/trace.append"
      ]
    }
  ],
  "shieldedInstanceConfig": {
    "enableSecureBoot": false,
    "enableVtpm": true,
    "enableIntegrityMonitoring": true
  },
  "confidentialInstanceConfig": {
    "enableConfidentialCompute": false
  }
}

```

```

gcloud beta compute --project=factorio-bcc instances create-with-container ks2sett --zone=europe-west1-b
--machine-type=e2-custom-2-12288 --subnet=default --network-tier=PREMIUM
--metadata=google-logging-enabled=true --maintenance-policy=MIGRATE
--service-account=428559469680-compute@developer.gserviceaccount.com
--scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.wr
ite,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,http
s://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append
--tags=factorio-network --image=cos-stable-89-16108-470-16 --image-project=cos-cloud
--boot-disk-size=10GB --boot-disk-type=pd-balanced --boot-disk-device-name=ks2sett
--create-disk=mode=rw,size=10,type=projects/factorio-bcc/zones/europe-west1-b/diskTypes/pd-ssd,name=fact
orio-disk-1,device-name=factorio-disk-1 --no-shielded-secure-boot --shielded-vtpm
--shielded-integrity-monitoring --container-image=factoriotools/factorio
--container-restart-policy=always --container-env=UPDATE_MODS_ON_START=true
--container-mount-disk=mount-path=/factorio,name=factorio-disk-1,mode=rw
--labels=container-vm=cos-stable-89-16108-470-16 --reservation-affinity=any

```