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Creating groups of unmanaged instances

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An unmanaged instance group is a collection of virtual machines (VMs) that reside in a single zone, VPC network, and subnet. An unmanaged instance groups is useful for grouping together VMs that require individual configuration settings or tuning.

For VMs that require consistent configuration settings, you can use a [managed instance group \(MIG\)](#) with an [instance template](#). When possible, consider [using managed instance groups](#) instead of unmanaged ones. To create a managed instance group, see [Creating groups of managed instances](#).

You can add either type of instance group as a backend to a Google Cloud load balancer. For more information, see [Cloud Load Balancing overview](#). For the number of VMs per instance group that Google Cloud supports, see [VMs per instance group](#).

To learn more about instance groups, see [Instance groups overview](#).

Before you begin

- If you want to use the command-line examples in this guide:
 1. Install or update to the latest version of the [gcloud command-line tool](#).
 2. [Set a default region and zone](#).
- If you want to use the API examples in this guide, [set up API access](#).
- Read about the [difference](#) between managed and unmanaged instance groups.

Working with unmanaged instance groups

Creating groups

Unlike [managed instance groups](#), unmanaged instance groups are just collections of distinct VMs that do not share a common instance template. You simply create a group, and add individual VMs to the group.

[Console](#) [gcloud](#) [API](#)

1. In the Cloud Console, go to the **Instance groups** page.

Go to the Instance Groups page
2. Click **Create an instance group**.
3. Click **New unmanaged instance group**.
4. Enter a name for the unmanaged instance group.
5. Under **Location**, select a region and a zone.
6. Select a **Network** and **Subnetwork**.
7. Under **VM instances**, select the VMs to add to this group.
8. Click **Create**.

When you create a new unmanaged instance group with `gcloud` command-line tool or the API, no VMs are added to it automatically. You can [add VMs to the unmanaged instance group](#) manually.

Listing and describing groups

Retrieve a list of existing unmanaged instance groups.

[Console](#) [gcloud](#) [API](#)

In the Cloud Console, the **Instance groups** page lists existing unmanaged and [managed instance groups](#).

[Go to the Instance Groups page](#)

Deleting groups

Unlike a managed instance group, deleting an unmanaged instance group does not delete any of the VMs within the group. Deleting an unmanaged instance group only removes the logical grouping of VMs.

You can't delete an instance group if the group is a backend of a Google Cloud load balancer. You must first [remove the backend from the backend service](#).

[Console](#) [gcloud](#) [API](#)

1. In the Cloud Console, go to the **Instance groups** page.

[Go to the Instance Groups page](#)
2. Select one or more unmanaged instance groups from the list.
3. Click **Delete** to remove the groups. The groups are removed, but the VMs in the groups are not deleted.

Group membership

Adding VMs

After you [create an unmanaged instance group](#), you can add VMs to the group.

1. In the Cloud Console, go to the **Instance groups** page.

[Go to the Instance Groups page](#)

2. Under the **Name** column of the list, click the name of the instance group where you want to add your VMs. A page opens with the instance group properties and a list of VMs that are already part of the group.
3. Click **Edit group** to modify this unmanaged instance group.
4. Under **VM instances** select one or more existing VMs to add to the group. You can only select VMs that are in the same zone, VPC network, and subnet as existing VMs.
5. Click **Save** to add the new VMs to the group.

Listing VMs

You can retrieve a list of member VMs in an unmanaged instance group.

1. In the Cloud Console, go to the **Instance groups** page.

[Go to the Instance Groups page](#)

2. Under the **Name** column of the list, click the name of the unmanaged instance group that you want to view. A page with the list of instances that are included in the group appears.

Removing VMs

You can remove VMs from an unmanaged instance group. Removing a VM from the instance group does not delete the VM.

★ **Note:** If the group is attached to backend service that has [connection draining](#) enabled, it can take up to 60 seconds *after* the connection draining timeout for the VM instance to be removed from the unmanaged instance group.

1. In the Cloud Console, go to the **Instance groups** page.

[Go to the Instance Groups page](#)

2. Under the **Name** column of the list, click the name of the instance group from which you want to remove VMs. A page opens with the instance group properties and a list of VMs that are included in the group.
3. In the list, select one or more VMs that you want to remove from the group.
4. Click **Remove from group**. VMs that you remove from an unmanaged instance group continue to exist and run unless you stop or delete them.

Working with named ports

Named ports are key-value pairs that represent a port's name and number. They are used in conjunction with Google Cloud load balancers. Load balancers [that act as proxies](#) subscribe to a single named port in their [backend service](#) configuration. The port's name is translated to a port number based on the named ports mapping of each instance group backend.

For example, a backend service can subscribe to a port that is named `http-port`. The backend instance group can have a port named `http-port:80`. The backend instance group instructs the load balancer to send traffic to a VM in the group on port `80` using a protocol (such as TCP). The protocol is defined in the load balancer's backend service.

You can define multiple named ports in an instance group. However, a load balancer's backend service only subscribes to a single named port. Backend instance groups on the same backend service can use different named port mappings. To illustrate, consider an example backend service that subscribes to the named port `http-port`, and that has two backend instance groups:

- `instance-group-a` with a named port of `http-port:80`
- `instance-group-b` with a named port of `http-port:79`

This backend service sends traffic to port 80 for VMs in `instance-group-a` and port 79 for VMs in `instance-group-b`.

★ **Important:** Named ports do **not** create or modify Google Cloud [firewall rules](#). To permit traffic to backend VMs, you must still create necessary firewall rules.

Console

gcloud

API

1. In the Cloud Console, go to the **Instance groups** page.

[Go to the Instance Groups page](#)

2. Under the **Name** column of the list, click the name of the instance group where you want to specify named ports. A page opens with the instance group properties.

3. Click **Edit group** to modify this unmanaged instance group.

4. In the **Port name mapping (Optional)** section, click **Add item**, and enter a port name and its number. Add or remove other named ports as necessary.

5. Click **Save** to update the list of named ports for the unmanaged instance group.

What's next

- Create a [zonal managed instance group](#).
- Create a [regional managed instance group](#).
- Learn about [Cloud Load Balancing](#).

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