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Migrate Compute shape from VM.Standard2.x to flexible shape

You can change the shape of a virtual machine (VM) instance on Oracle Cloud Infrastructure without having to rebuild the instance or redeploy your applications. Changing shapes lets you scale up your Compute resources for increased performance or scale down to reduce costs.

January 2024, Version 1.0

Marius Scholtz
EMEA Oracle Cloud Infrastructure domain specialist

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Disclaimer

Overview

The previous generation OCI Compute shapes such as VM.Standard.2.1, VM.Standard.2.2, and VM.Standard.2.4 are static and are difficult for customers to adjust the CPU and memory as required. The End of orderability date for these shapes was 28 February 2022.

A flexible shape is a shape that lets you customize the number of OCPUs and the amount of memory when launching or resizing your VM. When you create a VM instance using a flexible shape, you select the number of OCPUs and the amount of memory that you need for the workloads that run on the instance. The network bandwidth and number of VNICs scale proportionately with the number of OCPUs. This flexibility lets you build VMs that match your workload, enabling you to optimize performance and minimize cost.

Therefore the recommendation is to migrate the existing Compute shapes from VM.Standard2 to flexible VM.Standard3.Flex (Intel) or VM.Standard.E5.Flex (AMD). You can migrate from Intel to AMD or vice versa.

The table below shows an example of comparing static VM.Standard2 shapes with newer, and flexible VM.Standard3 or VM.Standard.E4 shapes.

CRITERIA	CURRENT ENV: VM.STANDARD2.2 (REF 1)	PROPOSED VM.STANDARD3.FLEX (INTEL) (REF 2)	PROPOSED VM.STANDARD.E4.FLEX (AMD) (REF 2)
CPU Generation	X7	X9	AMD E4/E5
CPU detail	Intel Xeon Platinum 8167M. Base frequency 2.0 GHz	Intel Xeon Platinum 8358. Base frequency 2.6 GHz	AMD EPYC 7J13. Base frequency 2.55 GHz
Unit list price per hour ($US, Aug 2023) – Source: Cost Estimator	Part number: B88514 Unit Price per hour: 1.093532	Part number: B94176 Unit Price per hour: 0.6856	Part number: B93113 Unit Price per hour: 0.4285

(REF 1) Previous generation VM shapes (VM.Standard2)

https://docs.oracle.com/en-us/iaas/Content/Compute/References/computeshapes.htm#previous-generation-shapes

(REF 2) Ref: OCI Compute Shape detail (X9, E4, E5): Detail: https://docs.oracle.com/en-us/iaas/Content/Compute/References/computeshapes.htm

Limitations and Considerations

Below are some **limitations and considerations** to be aware of when moving to Flexible Compute shapes:

- Customers must have sufficient service limits for the new shape. If you don't have service limits, the instance will remain with the original shape.
- Different shapes are billed at **different rates**. When you change the shape of an instance, you are billed to the nearest second of usage for each shape that you use. For more information, see Compute Pricing and Resource Billing for Stopped Instances.
- When **licensing** software is running on environment and the number of cores changes, then licenses will be affected, for example in the case of EBS. All licensing must adhere to Oracle licensing policy explained here: https://www.oracle.com/assets/cloud-licensing-070579.pdf.
- Some Marketplace images cannot be resized because of licensing constraints. If you want to resize a Microsoft SQL Server image, contact support.
- Further information about the **Limitations and Consideration** are listed here: https://docs.oracle.com/en-us/iaas/Content/Compute/Tasks/resizinginstances.htm#Changing_the_Shape_of_an_Instance

Changing the Shape of an Instance

The migration process for moving from VM.Standard.2 Compute shape to flexible shapes are explained here: https://docs.oracle.com/en-us/iaas/Content/Compute/Tasks/resizinginstances.htm#Changing_the_Shape_of_an_Instance

Customers can **change the shape** of a virtual machine (VM) instance **without having to rebuild** your instances or redeploy your applications. This lets you **scale up** your Compute resources for increased performance or scale down to reduce cost. When you change the shape of an instance, it affects the number of OCPUs, amount of memory, network bandwidth, and maximum number of VNICs for the instance. Optionally, you can change a regular instance to a burstable instance or change a burstable instance to a regular instance. You can also select a shape that uses a different processor. The instance's public and private IP addresses, volume attachments, and VNIC attachments **remain the same**.

The picture below shows a screenshot of the migration process. The process is detailed here: https://docs.oracle.com/en-us/iaas/Content/Compute/Tasks/resizinginstances.htm#Changing_the_Shape_of_an_Instance

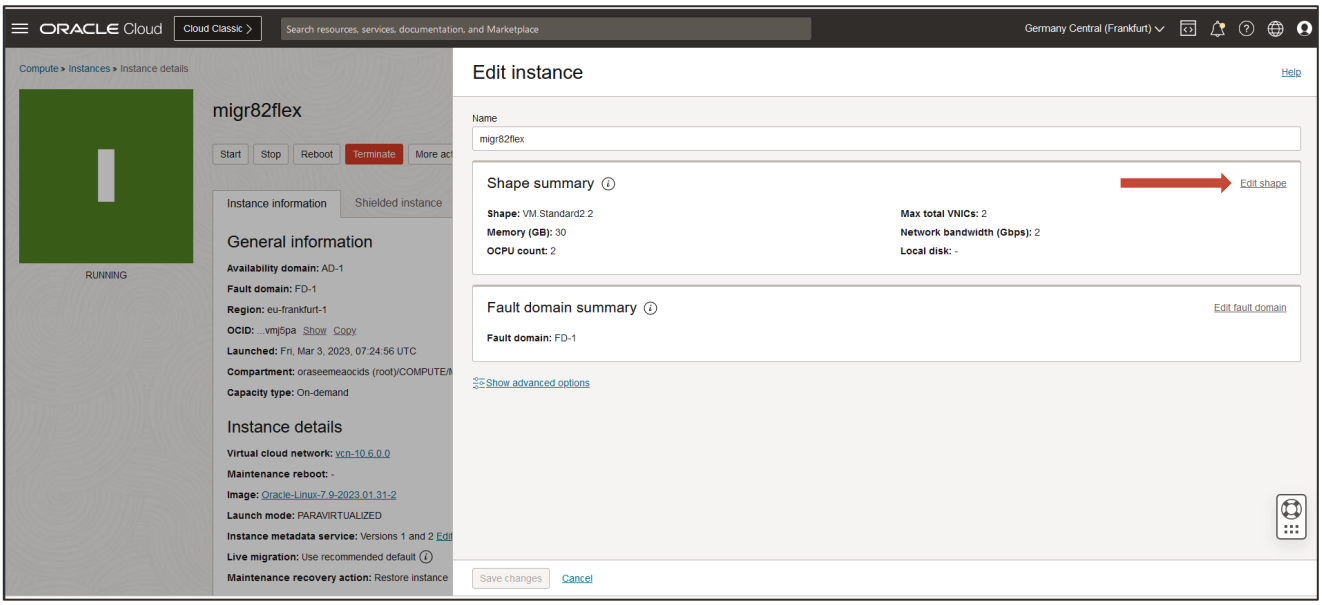
Using the Console

1. Open the navigation menu and click **Compute**. Under **Compute**, click **Instances**.
2. Click the instance that you're interested in.
3. Click **More Actions**, and then click **Edit**.
4. Click **Edit shape**.
5. In the **Shape series** section, select a processor group. The following options are available:
   - **AMD:** Standard shapes that use current generation AMD processors. The AMD shapes are flexible shapes.
   - **Intel:** Standard and optimized shapes that use current generation Intel processors. Includes flexible shapes.
   - **Ampere:** The Ampere A1 Compute shape, which uses current generation Arm-based processors. The Arm-based shape is a flexible shape.
   - **Specialty and previous generation:** Standard and GPU shapes with previous generation Intel and AMD processors.
6. Select the shape that you want to scale to.

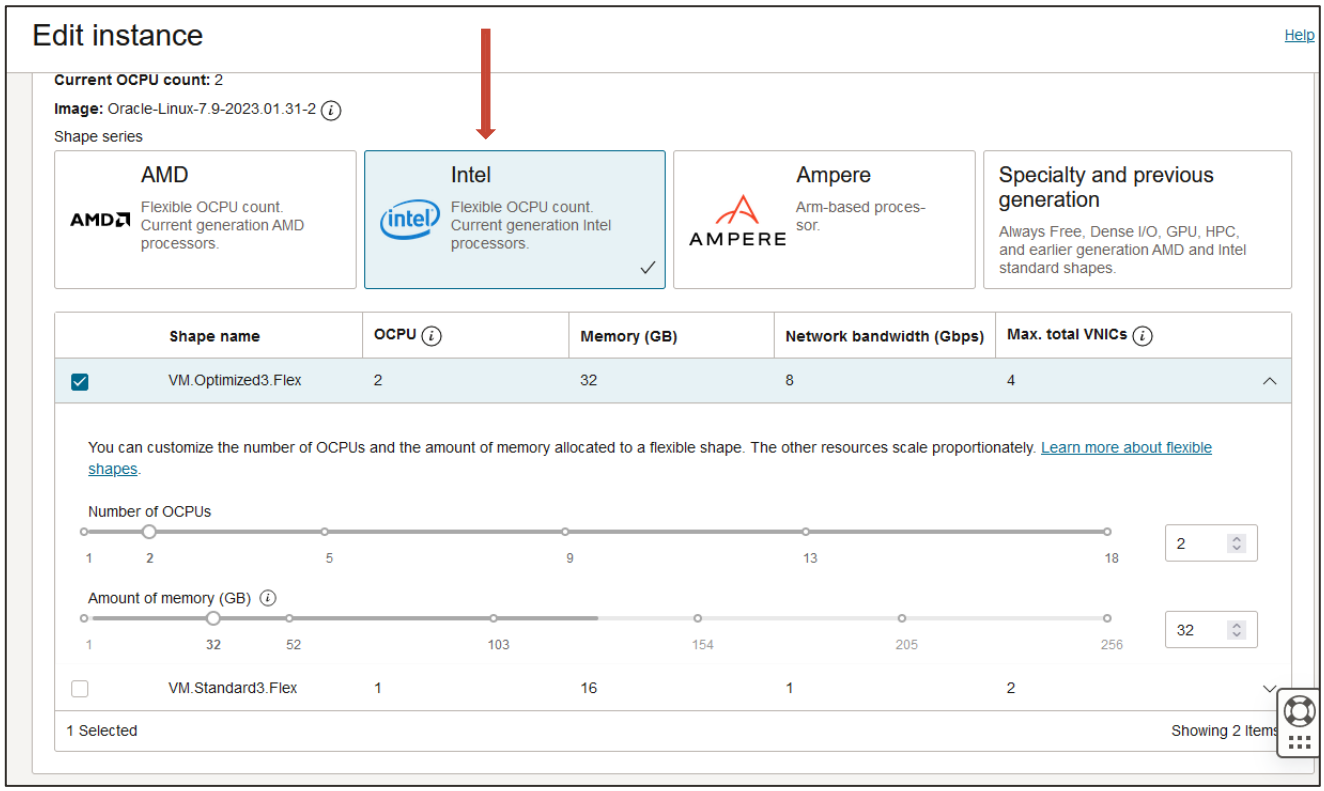
   The instance's current shape and image determine which shapes you can select as a target for the new shape.
7. If you select a flexible shape, do the following:
   a. For **Number of OCPUs**, choose the number of OCPUs that you want to allocate to this instance by dragging the slider. The other resources scale proportionately.
   b. If you want this to be a burstable instance and the shape supports bursting, select the **Burstable** option. Then, in the **Baseline utilization per OCPU** list, select the baseline OCPU utilization for the instance. This value is the percentage of OCPUs that you want to use most of the time.
   c. For **Amount of memory (GB)**, choose the amount of memory that you want to allocate to this instance by dragging the slider. The amount of memory allowed is based on the number of OCPUs selected.

   For more information about the minimum memory, maximum memory, and ratio of memory to OCPUs for each shape, see Flexible Shapes.
8. Click **Save changes**.

   If the instance is running, it is rebooted. Confirm when prompted.



Select the appropriate shape. The example below shows Intel VM.Optimized3.Flex as the target device.



After the Shapes has been edited, the OCI Compute shape **needs to be rebooted** to reflect the new CPU and memory sizes. Run '*lsmem'* and *'lscpu'* on the modified environment to verify CPU and memory totals.

Resources

- Compute shapes available on Oracle Cloud Infrastructure: https://docs.oracle.com/en-us/iaas/Content/Compute/References/computeshapes.htm
- List of Oracle Cloud Services: https://www.oracle.com/cloud/
- Get started with Oracle Cloud Infrastructure Core Services (LiveLab): https://apexapps.oracle.com/pls/apex/r/dbpm/livelabs/view-workshop?wid=648&clear=RR,180&session=6977773868457