

# Configure Scale-Out

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## OPERATING INSTRUCTIONS

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# 1 Introduction

This document describes how to perform scale-out operation, which adds a Virtual Machine (VM) to the cluster.

## 1.1 Prerequisites

This section describes the prerequisites, which must be fulfilled before using the procedure.

### 1.1.1 Conditions

The following conditions must apply:

- The scaling functionality is enabled.
- A default Role object exists.
- Other upgrade operations are not ongoing, for example, software upgrade.
- An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.





## 2 Procedure

To scale-out a VM:

1. Using the Ericsson Cloud Manager, create one or more VMs. The VMs must have the same number of Virtual CPUs (VCPUs), the same amount of RAM, and the same number of ports as the other Payload (PL) VMs in the cluster.

**Note:** If Ericsson Cloud Manager is not being used, refer to OpenStack CLI Commands in Section 3 on page 5, which illustrates how to perform this step using the OpenStack CLI

2. Launch the new VMs. The new VMs automatically PXE boot from the System Controller (SC) node VMs.
3. Navigate to the *CrM* managed object, for example

```
>dn ManagedElement=NODE06ST, SystemFunctions=1, SysM=1, CrM=1
```

4. Verify that the scale-out process has started:

```
(CrM=1) >show -r
```

The following is an example output:

```
CrM=1
autoRoleAssignment=ENABLED
ComputeResourceRole=PL-3
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, Role=Default-Role"
  uses="ManagedElement=1, Equipment=1, ComputeResource=PL-3"
ComputeResourceRole=PL-4
  adminState=UNLOCKED
  instantiationState=INSTANTIATING
  operationalState=DISABLED
  provides="ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, Role=Default-Role"
  uses="ManagedElement=1, Equipment=1, ComputeResource=PL-4"
Role=SYSTEM
  isProvidedBy
  scalability=NON_SCALABLE
Role=Default-Role
  isProvidedBy
    "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-3"
    "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-4"
  scalability=SCALABLE
```

This example shows that `instantiationState` has changed to `INSTANTIATING` for node PL-4. It means that the Scale out has started for node PL-4.

5. Continue to check the progress until the scale-out process has ended and that the added node has joined the cluster:



```
(CrM=1) > show -m ComputeResourceRole -p instantiationState,operationalState
```

The following example output shows the final result:

```
ComputeResourceRole=PL-3
  instantiationState=INSTANTIATED
  operationalState=ENABLED
ComputeResourceRole=PL-4
  instantiationState=INSTANTIATED
  operationalState=ENABLED
```

This example shows that `instantiationState` has changed to `INSTANTIATED` for node PL-4. It means that PL-4 is added to the cluster.

The example also shows that `operationalState` has changed to `ENABLED` for node PL-4. It means that node PL-4 has joined the cluster.

6. Perform a health check, refer to Health Check documentation available in the library.





### 3 OpenStack CLI Commands

The following is an example of the OpenStack CLI commands that are required to create a VM, attached to an existing VNF VLAN network.

```
>nova flavor-create flavor_PL-14 auto 16384 0 8
```

The following is an example output:

ID	Name	Memory_MB	Disk	Ephemeral	Swap	VCPUs	RXTX_Factor	Is_Public
785e88b1-f96e-4362-af8b-3302a59c3c17	flavor_PL-14	16384	0	0		8	1.0	False

```
>glance image-create -name pl14_pxe_image -disk-format=qcow2 -container-format=bare < pl14pxeboot.qcow2
```

The following is an example output:

ID	Name	Disk Format	Container Format	Size	Status
7c9b508f-2ce7-4417-a05a-56f404801732	pl14_pxe_image	qcow2	bare	4194304	active

```
>neutron port-create vnf_int_sp --fixed-ip ip_address=10.0.12.10 --name pl14_port_1
```

The following is an example output:

Port State	Port ID	Net ID	IP Addresses	Mac Addr
ACTIVE	352bf283-592d-487e-bbb7-787cb679c215	cf8cc55b-b2ac-4d84-9a8f-14b1dae829e0	10.35.56.85	02:10:20:00:01:01

```
>neutron port-create vnf_sig_sp2 --fixed-ip ip_address=10.35.56.82 --name pl14_port_2
```

The following is an example output:

Port State	Port ID	Net ID	IP Addresses	Mac Addr
ACTIVE	3dd35574-ef47-449b-937e-3852f3cf53c0	1cff56d8-42ce-4163-b6be-edd35abd56a4	169.254.100.1	02:10:20:00:01:01



```
>nova boot --flavor flavor_PL-4 --image <pl4_pxe_image_id>
--nic port-id=<pl14_port_1_id> --nic port-id=<pl14_
port_2_id> --hint different_host=<sc_1_vm_id> --hint
different_host=<sc2_vm_id> PL-4
```

Where:

Image <pl4\_pxe\_image\_id>=ID 7c9b508f-2ce7-4417-a05a-56f404801732

Port 1 <pl14\_port\_1\_id>=ID 352bf283-592d-487e-bbb7-787cb679c215

Port 2 <pl14\_port\_2\_id>=ID 3dd35574-ef47-449b-937e-3852f3cf53c0

<sc\_1\_vm\_id> and <sc\_2\_vm\_id> can be determined using the following command:

```
>nova flavor-list
```

The following is an example output:

ID	Name	Memory_MB	Disk	Ephemeral	Swap	VCPUs	RXTX_Factor	Is_Public
13b98018-da79-4f15-9e28-1d05b8ae5d5c	flavor_SC-1	16384	100	0		8	1.0	False
8aea3b45-3378-4086-852f-516473ac47fd	flavor_SC-2	16384	100	0		8	1.0	False