

# Increase Capacity Manually

## OPERATING INSTRUCTIONS

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Increase Capacity Manually



# 1 Description

This instruction describes how to increase the capacity of the Call Session Control Function (CSCF) cluster, that is, to scale out, by adding a Virtual Machine (VM) to it.

This document always refers to horizontal scaling, where the scalability of the system is provided by multiple instances to distribute the load in parallel for having the capacity needed. Vertical scaling is not considered in this document.

The scaling function does not require a license.

**Note:** Even though the PL-3 and PL-4 Virtual Machines (VMs) are considered to be part of the scaling domain, they cannot be scaled in.

## 2 Procedure

### 2.1 Increase Capacity Manually

#### Prerequisites

- This instruction references the following documents:
  - [CSCF Health Check](#)
  - [Ericsson Command-Line Interface User Guide](#)
- No tools are required.
- The following conditions must apply:
  - The procedure must only be performed by support personnel with experience of Cloud and the CSCF.
  - No other upgrade or maintenance activity must be performed during the procedure.
  - Before starting these procedures, the user performing the operations must have access to the System Controller (SC) nodes.
  - Signaling Manager Command-Line Interface (CLI) or Graphical User Interface (GUI) must be closed before the start of the Scaling Operations. Manual updates of the configurations during Scaling Operations are not allowed.
  - A Virtual Infrastructure Manager (VIM) is available.



- An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.

### Steps

1. Before any scaling-related activities are performed, create a system backup. See [Create Backup](#).
2. Check that the cluster is in a healthy state, see [CSCF Health Check](#).
3. Create VMs that 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. See the VIM documentation for how to create VMs.
4. Launch the new VMs in the VIM. The new VMs automatically PXE boot from the System Controller (SC) node VMs.

5. Navigate to the CrM Managed Object (MO), for example:

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

6. 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
```

7. Continue to check the progress of the scale-out process until it ends. Also make sure 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.

8. Check that the cluster is in a healthy state, see [CSCF Health Check](#).