

Decrease Capacity Manually

OPERATING INSTRUCTIONS

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Decrease Capacity Manually



1 Description

This instruction describes how to decrease the Call Session Control Function (CSCF) cluster capacity by performing a graceful scale-in operation, which removes a Virtual Machine (VM) from the cluster.

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 Decrease 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. Select an action based on the type of scale-in:
 - Decrease capacity through graceful scale-in, see Section 2.2 Configure Graceful Scale-In on page 2.
 - Decrease capacity through forceful scale-in, see Section 2.3 Configure Forceful Scale-In on page 5.

2.2 Configure Graceful Scale-In

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. Navigate to the CrM MO, for example:
>dn ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1
4. Verify that the VM to be scaled in is scalable:

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

The following is an example output:



```
CrM=1
autoRoleAssignment=ENABLED
ComputeResourceRole=PL-5
  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-5"
ComputeResourceRole=PL-7
  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-7"
ComputeResourceRole=PL-4
  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-4"
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=SC-2
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=SYSTEM"
  uses="ManagedElement=1,Equipment=1,ComputeResource=SC-2"
ComputeResourceRole=SC-1
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=SYSTEM"
  uses="ManagedElement=1,Equipment=1,ComputeResource=SC-1"
ComputeResourceRole=PL-6
  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-6"
Role=SYSTEM
  isProvidedBy
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=SC-1"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=SC-2"
  scalability=NON_SCALABLE
Role=Default-Role
  isProvidedBy
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-6"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-3"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-4"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-5"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-7"
  scalability=SCALABLE
```

5. Retrieve the Universally Unique Identifier (UUID) for the VM to be scaled in, for example:

```
(CrM=1)>show ManagedElement=1,Equipment=1,\
ComputeResource=PL-8
```

The following is an example output:

```
ComputeResource=PL-8
macAddress
  "fa:16:3e:b7:d3:a3"
  "fa:16:3e:27:cb:90"
  "fa:16:3e:24:73:4a"
uuid="a4dcda89-cf95-4bf6-81bd-99d47fde9eef"
```



6. Navigate to the `ComputeResourceRole` MO for the VM to be scaled in, for example:

```
(CrM=1)>ComputeResourceRole=PL-8
```

7. Enter Config mode:

```
(ComputeResourceRole=PL-8)>configure
```

8. Prepare the scale-in operation:

```
(config-ComputeResourceRole=PL-8)>no provides
```

9. Navigate to the `CrM` MO:

```
(config-ComputeResourceRole=PL-8)>up
```

10. Perform the scale-in:

```
(config-CrM=1)>commit
```

Note: To cancel the scale-in, run **abort**.

11. Verify that the scale-in process has started:

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

The following is an example output:

```
ComputeResourceRole=PL-8
adminState=SHUTTINGDOWN
instantiationState=UNINSTANTIATING
operationalState=ENABLED
uses="ManagedElement=1,Equipment=1,ComputeResource=PL-8"
```

12. If a failure occurs during the scale-in, see [CSCF Troubleshooting Guideline](#).

13. Verify that the VM is scaled in:

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

The following is an example output showing that the VM `ComputeResourceRole=PL-8` is no longer running:



```
CrM=1
autoRoleAssignment=ENABLED
ComputeResourceRole=PL-3
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=SYSTEM"
  uses="ManagedElement=1,Equipment=1,ComputeResource=PL-3"
ComputeResourceRole=PL-4
  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-4"
ComputeResourceRole=SC-1
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=SYSTEM"
  uses="ManagedElement=1,Equipment=1,ComputeResource=SC-1"
ComputeResourceRole=SC-2
  adminState=UNLOCKED
  instantiationState=INSTANTIATED
  operationalState=ENABLED
  provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=SYSTEM"
  uses="ManagedElement=1,Equipment=1,ComputeResource=SC-2"
ComputeResourceRole=PL-5
  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-5"
ComputeResourceRole=PL-6
  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-6"
ComputeResourceRole=PL-7
  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-7"
Role=Default-Role
  isProvidedBy
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-4"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-5"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-6"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-7"
  scalability=SCALABLE
Role=SYSTEM
  isProvidedBy
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=PL-3"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=SC-1"
    "ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,ComputeResourceRole=SC-2"
  scalability=NON_SCALABLE
```

14. Remove the VM with the UUID that is retrieved in Step 5 from the VIM. See the VIM documentation.

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

2.3 Configure Forceful Scale-In

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. Remove one of the scalable VMs from the VIM.
Note: Do not delete any of the VMs named SC-1, SC-2, PL-3, or PL-4.
4. Navigate to the **CrM** MO, for example:
`>dn ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1`
5. Identify the **ComputeResourceRole** where the **adminState** is **LOCKED** and **operationalState** is **DISABLED**:

`(CrM=1)>show -r`

The following is an example output:

```
ComputeResourceRole=PL-8
adminState=LOCKED
instantiationState=INSTANTIATED
operationalState=DISABLED
provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=Default-Role"
uses="ManagedElement=1,Equipment=1,ComputeResource=PL-8"
```

6. Enter Config mode:
`(ComputeResourceRole=PL-8)>configure`
7. Prepare the scale-in operation:
`(config-ComputeResourceRole=PL-8)>no provides`
8. Navigate to the **CrM** MO:
`(config-ComputeResourceRole=PL-8)>up`
9. Perform the scale-in:
`(config-CrM=1)>commit`
10. Verify that the scale-in process has started:
`(CrM=1)>show -r`

The following is an example output:

```
ComputeResourceRole=PL-8
adminState=LOCKED
instantiationState=INSTANTIATED
operationalState=DISABLED
provides="ManagedElement=1,SystemFunctions=1,SysM=1,CrM=1,Role=Default-Role"
uses="ManagedElement=1,Equipment=1,ComputeResource=PL-8"
```

11. If a failure occurs during the scale-in, see [CSCF Troubleshooting Guideline](#).
12. Verify that the VM is scaled in:

`(CrM=1)>show -r`



The following is an example output showing that the VM ComputeResourceRole=PL-8 is no longer running:

```
CrM=1
  autoRoleAssignment=ENABLED
  ComputeResourceRole=PL-3
    adminState=UNLOCKED
    instantiationState=INSTANTIATED
    operationalState=ENABLED
    provides="ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, Role=SYSTEM"
    uses="ManagedElement=1, Equipment=1, ComputeResource=PL-3"
  ComputeResourceRole=PL-4
    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-4"
  ComputeResourceRole=SC-1
    adminState=UNLOCKED
    instantiationState=INSTANTIATED
    operationalState=ENABLED
    provides="ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, Role=SYSTEM"
    uses="ManagedElement=1, Equipment=1, ComputeResource=SC-1"
  ComputeResourceRole=SC-2
    adminState=UNLOCKED
    instantiationState=INSTANTIATED
    operationalState=ENABLED
    provides="ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, Role=SYSTEM"
    uses="ManagedElement=1, Equipment=1, ComputeResource=SC-2"
  ComputeResourceRole=PL-5
    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-5"
  ComputeResourceRole=PL-6
    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-6"
  ComputeResourceRole=PL-7
    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-7"
  Role=Default-Role
    isProvidedBy
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-4"
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-5"
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-6"
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-7"
    scalability=SCALABLE
  Role=SYSTEM
    isProvidedBy
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=PL-3"
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=SC-1"
      "ManagedElement=1, SystemFunctions=1, SysM=1, CrM=1, ComputeResourceRole=SC-2"
    scalability=NON_SCALABLE
```

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