

# Increase Capacity Manually

## OPERATING INSTRUCTIONS

**Copyright**

© Ericsson AB 2018. All rights reserved. No part of this document may be reproduced in any form without the written permission of the copyright owner.

**Disclaimer**

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Ericsson shall have no liability for any error or damage of any kind resulting from the use of this document.

**Trademark List**

All trademarks mentioned herein are the property of their respective owners. These are shown in the document Trademark Information.



# Contents

<b>1</b>	<b>Description</b>	<b>1</b>
<b>2</b>	<b>Procedure</b>	<b>1</b>
2.1	Increase Capacity Manually	1
2.2	Prepare for Scaling	2
2.3	Configure Scale-Out	2



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. Prepare for scaling, see Section 2.2 Prepare for Scaling on page 2.
2. Increase capacity, see Section 2.3 Configure Scale-Out on page 2.

## 2.2 Prepare for Scaling

### Steps

1. Connect to one of the SC nodes:

```
ssh <user>@<system management IP address>
```

2. Check the operational state of the scaling feature:

```
SC-1: ~ # cmw-configuration --status SCALING
```

The following is an example output:

```
Disable
```

3. If the result is Enable, scaling is prepared. Exit this procedure.
4. If the result is Disable, enable scaling functionality:  

```
SC-1: ~ # cmw-configuration --enable SCALING
```
5. Before any scaling-related activities are performed, create a system backup.  
See [Create Backup](#).

## 2.3 Configure Scale-Out

### Steps

1. Make sure that the scaling feature is enabled and a system backup is created.
2. Before any scaling-related activities are performed, create a system backup.  
See [Create Backup](#).
3. Check that the cluster is in a healthy state, see [CSCF Health Check](#).
4. 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.
5. Launch the new VMs in the VIM. The new VMs automatically PXE boot from the System Controller (SC) node VMs.
6. Navigate to the CrM Managed Object (MO), for example:



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

7. 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
```

8. 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.

9. Perform a health check, see [CSCF Health Check](#).