

Scale Out Cluster Using Heat Orchestration

MTAS

OPERATION INSTRUCTIONS

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1 Description

This instruction describes how to increase the capacity of the MTAS 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.





2 Procedure

2.1 Scale Out Cluster Using Heat Orchestration

Prerequisites

- This instruction references the following documents:
 - [Create Backup](#)
 - [Ericsson Command-Line Interface User Guide](#)
 - [MTAS Hardening Guide](#)
 - [MTAS Health Check](#)
 - [MTAS Troubleshooting Guideline](#)
- No tools are required.
- The following conditions must apply:
 - The procedure must only be performed by support personnel with experience of Cloud and MTAS.
 - 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.
 - Scaling must only be performed after site-specific initial configuration is applied on the node. For more details, see to [MTAS Hardening Guide](#).
 - 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 4.
2. Increase capacity, see Section 2.3 Configure Scale-Out on page 4



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. Refer to [Create Backup](#).
6. Check that the cluster is in a healthy state, refer to [MTAS Health Check](#).

2.3 Configure Scale-Out

Steps

1. Make sure that the scaling feature is enabled and a system backup is created, see Section 2.2 Prepare for Scaling on page 4.
2. Check that the status of the MTAS stack is CREATE_COMPLETE or UPDATE_COMPLETE:

```
heat stack-list
```

If the status of the stack is not CREATE_COMPLETE or UPDATE_COMPLETE, stop the scaling procedure. For information on how to identify and correct the stack status, refer to the VIM documentation.

3. Check the value of parameter number_of_scaled_out_PL_VMs.

```
heat stack-show <MTAS stack name> | \
grep number_of_scaled_out_PL_VMs
```

4. Increase the value of parameter number_of_scaled_out_PL_VMs by the number of VMs to be scaled out.

For example: The current value of the parameter number_of_scaled_out_PL_VMs is 1 (meaning: beyond the initial size of 2+2; the cluster contains an extra



VM/PL, so the size of the VNF is actually 2+3). To increase the size of the cluster to 2+5, that is, scale out by 2 VMs, the new value of the parameter is 3.

5. Update the stack:

```
heat stack-update <MTAS stack name> -x -P \
number_of_scaled_out_PL_VMs=<number_of_scaled_out_PL_VMs>
```

6. Monitor the progress of the stack-update until the stack status is UPDATE_COMPLETE:

```
heat stack-list
```

7. If the stack status is not UPDATE_COMPLETE, check the reason and Troubleshoot the issue as described in [MTAS Troubleshooting Guideline](#) and then repeat Step 5:

```
heat stack-show
```

8. Navigate to the CrM MO, for example:

```
>dn ManagedElement=N0DE06ST,SystemFunctions=1,\
SysM=1,CrM=1
```

9. Verify that the new VMs are added and enabled, for example:

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

Note: It takes a few minutes until the VMs added in the stack shows up in the CrM MO.

```
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"
```

10. Perform a health check, refer to [MTAS Health Check](#).