

ENM Performance Management Troubleshooting Guide

Check List

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1 ENM Performance Management Troubleshooting Guide

Use this guide to diagnose and resolve problems encountered while using Network Health Monitor, Event Based Statistics, and PM Initiation and Collection. Check our other Help resources or contact Local Ericsson Support if your problem is not covered.

Target Group

System Administrators



2 VM Security Tasks

After an initial installation or upgrade, you must execute these tasks to secure the `vm_private_key`, which is used for Virtual Machine (VM) connectivity.

The `vm_private_key` is generated automatically during an initial installation, or upgrade, if the `--regenerate_keys` option is passed. It is stored on the LMS (see layout diagram in the *ENM Product Description*).

Note: Connection to each VM is permitted only through `ccloud-user`. The `ccloud-user` is a password-less system user, that works with the `vm_private_key`.

The `vm_private_key` is available under the following path: `# /root/.ssh/vm_private_key`

Note: It is highly recommended that you store the `vm_private_key` in a secure location off the system, and only copy it back when VM access is necessary.

Prerequisites

- Initial installation or upgrade was completed successfully.

Steps

1. Log on to the ENM MS as the `litp-admin` user, then switch to the root user.
2. Locate the `vm_private_key`:

```
[root@ms-1 ~]# ls /root/.ssh/vm_private_key
```

3. Move the `vm_private_key` from the LMS and store it in a secure location away from the deployment.

Results

VM access is restricted to the `ccloud-user` ID using the `vm_private_key`.



3 Connect to a Virtual Machine

To connect to the virtual machine (VM) linked to the deployment, determine what environment you are working on and follow the task relevant to your environment.

3.1 Connect to a Virtual Machine on a Physical ENM Deployment

Prerequisites

A command window is open and you have superuser privileges.

Steps

1. Log on to the ENM MS as **litp-admin** user and switch to the **root** user.
2. List the contents of the host file to view all connected VMs within the deployment.

```
[root@ms-1 ~]# cat /etc/hosts
192.168.99.20 svc-1-pmserv # Created by LITP. Please do not edit
192.168.99.26 svc-1-netex # Created by LITP. Please do not edit
192.168.99.16 svc-1-ebc # Created by LITP. Please do not edit
192.168.99.36 svc-1-mspm # Created by LITP. Please do not edit
192.168.99.28 svc-1-uiserv # Created by LITP. Please do not edit
192.168.99.14 svc-1-supervc # Created by LITP. Please do not edit
192.168.99.32 svc-1-mscm # Created by LITP. Please do not edit
192.168.99.50 svc-1-jms # Created by LITP. Please do not edit
192.168.99.3 logstash # Created by LITP. Please do not edit
192.168.99.2 httpd # Created by LITP. Please do not edit
192.168.99.40 sso # Created by LITP. Please do not edit
192.168.99.12 svc-1-medrout # Created by LITP. Please do not edit
192.168.99.22 svc-1-cmserv # Created by LITP. Please do not edit
192.168.99.52 svc-1-sec # Created by LITP. Please do not edit
192.168.99.8 openidm # Created by LITP. Please do not edit
```

The aliases for the parallel VMs take the form of <SVC host>-<service>.

For example: svc-1-cmserv, svc-2-cmserv.

The active-passive VMs take the form of <service>.

For example: httpd, sso, openidm.

3. To access the VM, copy the private key of the cloud-user from its secure location to the MS or SVC node.



```
[root@ms-1 ~]# /root/.ssh/vm_private_key
```

Refer to *VM Security Tasks* in the *ENM System Administrator Guide* to learn more about the `vm_private_key`.

4. Connect by SSH to the VM you want.

To access the VM, use the `cloud-user` user ID and include the path to the VM private key. For example:

```
[root@ms-1 ~]# ssh -i /root/.ssh/vm_private_key cloud-user@svc-1-cmserv
Last login: Thu Feb 26 10:14:43 2015 from 192.110.0.59
[cloud-user@svc-1-cmserv ~]# sudo su - root
[root@svc-1-cmserv ~]#
```

3.2 Connect to a Virtual Machine on an ENM on Cloud Deployment

Prerequisites

- A command window is open and you have superuser privileges.
- You have access to the private key file for authentication, contact your OpenStack administrator

Steps

1. List the virtual machine aliases from the consul service:

Using the private key for authentication, copy the key to the EMP server. Log on to EMP server and list the consul members to view all connected VMs within the deployment:

```
> scp -i <cloud-user private key> <cloud-user private key> cloud-user@<EMP IP Address>:/var/tmp/vm_private_key
> ssh -i <cloud-user private key> cloud-user@<EMP IP Address>
[cloud-user@ostk003-emp-0 ~]$ chmod 700 /var/tmp/vm_private_key
[cloud-user@ostk003-emp-0 ~]$ sudo su -
[root@ostk003-emp-0 ~]# consul members
Node           Address           Status  Type    Build  Protocol
DC
haproxy        10.3.2.31:8301    alive  client  0.8.1  2
dc1
opendj-1       10.3.2.83:8301    alive  client  0.8.1  2
dc1
opendj-2       10.3.2.84:8301    alive  client  0.8.1  2
dc1
openidm        10.3.2.85:8301    alive  client  0.8.1  2
dc1
ostk003-accesscontrol-0  10.3.1.251:8301  alive  client  0.8.1  2
dc1
ostk003-accesscontrol-1  10.3.1.252:8301  alive  client  0.8.1  2
dc1
ostk003-elasticsearch-0  10.3.2.15:8301   alive  client  0.8.1  2
dc1
...
ostk003-neo4j-2  10.3.2.77:8301   alive  client  0.8.1  2
dc1
```



```

ostk003-nfscommon-0      10.3.0.81:8301  alive  client  0.8.1  2  →
dc1
ostk003-nfsnrbk-0       10.3.0.83:8301  alive  client  0.8.1  2  →
dc1
ostk003-nfspm-0         10.3.0.85:8301  alive  client  0.8.1  2  →
dc1
ostk003-nfspm-1         10.3.0.82:8301  alive  client  0.8.1  2  →
dc1
...
ostk003-secserv-1       10.3.2.98:8301  alive  client  0.8.1  2  →
dc1
ostk003-serviceregistry-0 10.3.2.100:8301 alive  server  0.8.1  2  →
dc1
ostk003-serviceregistry-1 10.3.2.101:8301 alive  server  0.8.1  2  →
dc1
ostk003-serviceregistry-2 10.3.2.102:8301 alive  server  0.8.1  2  →
dc1
ostk003-uiserv-0        10.3.2.116:8301 alive  client  0.8.1  2  →
dc1
ostk003-uiserv-1        10.3.2.117:8301 alive  client  0.8.1  2  →
dc1
ostk003-vnflaf-services 10.3.1.249:8301 alive  client  0.8.1  2  →
dc1
...
svc-2-httpd             10.3.2.35:8301  alive  client  0.8.1  2  →
dc1
svc-2-sps               10.3.2.111:8301 alive  client  0.8.1  2  →
dc1
svc-2-sso               10.3.2.113:8301 alive  client  0.8.1  2  →
dc1

```

2. SSH to the VM you want.

To access the VM, use the cloud-user user ID and include the path to the VM private key. The VM can be accessed using either the node identifier or its IP address. For example:

```

[cloud-user@ostk003-emp-0 ~]$ ssh -i /var/tmp/vm_private_key cloud-user@10.3 →
.2.31
The authenticity of host 'haproxy (10.3.2.31)' can't be established.
RSA key fingerprint is b9:4f:ca:4f:bc:55:00:de:a8:77:e5:08:56:7c:db:98.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'haproxy,10.3.2.31' (RSA) to the list of known ho →
sts.
[cloud-user@haproxy ~]$

```



4 Event Based Statistics (EBS) Troubleshooting

This section provides the tasks recommended to diagnose and resolve common problems in Event Based Statistics (EBS) Value Pack features.

4.1 Check that EBS (File-Based) Value Packs are Receiving and Processing Input Event Data

Verify that EBS (File-based) Value Packs are handling input event data, and producing output EBS counter files for all nodes in active subscriptions.

4.1.1 EBS-L Value Pack Feature

Verify that EBS-L (File-based) Value Packs are handling input event data, and producing output EBS counter files for all nodes in active subscriptions.

Prerequisites

- Administrator access to the ENM server.
- Needed Network Elements are under management in ENM.
- The ENM Deployment variant includes the Events (EVT) cluster to support file-based EBS.
- EBS-L Value Pack feature has a valid license installed, and an Active Cell Trace / EBS-L Subscription with EBS-L Counters in PMIC.

Steps

1. Connect to ebsmcontroller1 VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsmcontroller1  
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```

2. Verify that the input Cell Trace event files are collected and stored in a directory for each eNodeB node in the active EBS-L subscription:



Display a sorted list of all the input directories for each node in the active subscription by using the following command:

```
[root@evt-1-ebsmcontroller1 ~]# ls /ericsson/pmic*/CELLTRACE/ | sort -u
```

3. Display the input files for any input directory by using the following command:

```
ls -lrt /ericsson/pmic*/CELLTRACE/<DIRECTORY_NAME>
```

Where <DIRECTORY_NAME> represents any of the directories listed at [Step 2](#).

Example

```
[root@evt-1-ebsmcontroller1 ~]# ls -lrt /ericsson/pmic*/CELLTRACE/SubNetwork →
=NETSimW,ManagedElement=LTE94dg2ERBS00160
```

If Cell Trace files are not collected correctly, see [Identify the Cause of Missed File Collections or Generations for Nodes](#) on page 31.

4. Verify that the output EBS-L counter files are produced and stored in a directory for each eNodeB in the active EBS-L subscription:

One EBS-L counter file must be present per node, per 15 minute ROP, for every node in the active subscriptions.

Display a sorted list of all the output directories for each node in the active subscription by using the following command:

```
[root@evt-1-ebsmcontroller1 ~]# ls /ericsson/pmic1/ebsl/data/ | sort -u
```

5. Display the output files for an output directory by using the following command:

```
ls -lrt /ericsson/pmic1/ebsl/data/<DIRECTORY_NAME>
```

Where <DIRECTORY_NAME> represents any of the directories listed at [Step 4](#).

Example

```
[root@evt-1-ebsmcontroller1 ~]# ls -lrt /ericsson/pmic1/ebsl/data/SubNetwork →
=NETSimW,ManagedElement=LTE94dg2ERBS00160
```

6. Do the following checks if all EBS counter files are not produced:
 - a. Log on to the ENM MS as the `litp-admin` user and switch to the root user.
 - b. Execute the following command to ensure that all EBS services are online:



```
[root@ms ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebs
```

- c. Log on to `ebsmcontroller1` VM on Events cluster blade EVT-1.

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsm →
controller1
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```

- d. Execute the following to ensure that JBoss service is running:

```
[root@evt-1-ebsmcontroller1 ~]# service jboss status
```

- e. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- f. Repeat steps (c) and (d) on `ebsmcontroller1` VM on Events cluster blade EVT-2:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-2-ebsm →
controller1
[cloud-user@evt-2-ebsmcontroller1 ~]# su -
[root@evt-2-ebsmcontroller1 ~]# service jboss status
```

- g. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- h. If the root cause of the problem cannot be remedied at this stage and the EBS counter files are not produced, consult Ericsson Local Support.

4.1.2

EBS-M Value Pack Feature

Verify that EBS-M (File-based) Value Packs are handling input event data, and producing output EBS counter files for all nodes in active subscriptions.

Prerequisites

- Administrator access to the ENM server.
- Needed Network Elements are under management in ENM.
- The ENM Deployment variant includes the Events (EVT) cluster to support file-based EBS.
- EBS-M Value Pack feature has a valid license installed, and an Active EBM / EBS-M Subscription with EBS-M Counters in PMIC.



Steps

1. Connect to ebsmcontroller1 VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsmcontroller1
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```

2. Verify that the input EBM event files are collected and stored in a directory for each SGSN-MME node in the active EBS-M subscription:

Display a sorted list of all the input directories for each node in the active subscription by using the following command:

```
[root@evt-1-ebsmcontroller1 ~]# ls /ericsson/pmic*/ebm/data/ | sort -u
```

3. Display the input files for a certain input directory by using the following command:

```
ls -lrt /ericsson/pmic*/ebm/data/<DIRECTORY_NAME>
```

Where <DIRECTORY_NAME> represents any of the directories listed at [Step 2](#).

Example

```
[root@evt-1-ebsmcontroller1 ~]# ls -lrt /ericsson/pmic*/ebm/data/SubNetwork=NETSimW,ManagedElement=SGSN-16A-V1-CP0201
```

If EBM files are not collected correctly, see [Identify the Cause of Missed File Collections or Generations for Nodes](#) on page 31.

4. Verify that the output EBS-M counter files are produced and stored in a directory for each SGSN-MME node in the active EBS-M subscription :

EBS-M counter files must be present per node, per 15 minute ROP, for every node in the active subscription.

Note: EBS-M feature can be configured for external output, ENIQ output, or both. External output counter files are stored in /ericsson/pmic1/ebm/data/3gppoutput/, ENIQ output counter files are stored in /ericsson/pmic1/ebm/data/eniqoutput/.

Display a sorted list of all the output directories for each node in the active subscription by using the following commands:



```
[root@evt-1-ebsmcontroller1 ~]# ls /ericsson/pmic1/ebsm/data/3gppoutput/ | s →  
ort -u  
[root@evt-1-ebsmcontroller1 ~]# ls /ericsson/pmic1/ebsm/data/eniqoutput/ | s →  
ort -u
```

5. Display the output files for a certain output directory by using the following command:

```
ls -lrt /ericsson/pmic1/ebsm/data/3gppoutput/<DIRECTORY_NAME>  
ls -lrt /ericsson/pmic1/ebsm/data/eniqoutput/<DIRECTORY_NAME>
```

Where <DIRECTORY_NAME> represents any of the directories listed at [Step 4](#).

Example

```
[root@evt-1-ebsmcontroller1 ~]# ls -lrt /ericsson/pmic1/ebsm/data/3gppoutput →  
/SubNetwork=NETSimW,ManagedElement=SGSN-16A-V1-CP0201  
[root@evt-1-ebsmcontroller1 ~]# ls -lrt /ericsson/pmic1/ebsm/data/eniqoutput →  
/SubNetwork=NETSimW,ManagedElement=SGSN-16A-V1-CP0201
```

6. Do the following checks if all EBS counter files are not produced:
 - a. Log on to the ENM MS as the `litp-admin` user and switch to the root user.
 - b. Run the following to ensure that all EBS services are online:

```
[root@ms ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebs
```

- c. Log on to `ebsmcontroller1` VM on Events cluster blade EVT-1.

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsm →  
controller1  
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```

- d. Run the following to ensure that JBoss service is running:

```
[root@evt-1-ebsmcontroller1 ~]# service jboss status
```

- e. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- f. Repeat steps (c) and (d) on `ebsmcontroller1` VM on Events cluster blade EVT-2:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-2-ebsm →  
controller1  
[cloud-user@evt-2-ebsmcontroller1 ~]# su -  
[root@evt-2-ebsmcontroller1 ~]# service jboss status
```



- g. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- h. If the root cause of the problem cannot be remedied at this stage and the EBS counter files are not produced, consult Ericsson Local Support.

4.1.3

EBS-N Value Pack Feature

Verify that EBS-N (File-based) Value Packs are handling input event data, and producing output EBS counter files for all nodes in active subscriptions.

Prerequisites

- Administrator access to the ENM server.
- Needed Network Elements are under management in ENM.
- The ENM Deployment variant includes the Events (EVT) cluster to support file-based EBS.
- EBS-N Value Pack feature has a valid license installed, and an Active Cell Trace / EBS-N Subscription with EBS-N Counters in PMIC..

Steps

1. Connect to `ebsmcontroller1` VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsmcontroller1
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```

2. Verify that the input Cell Trace event files are collected and stored in a directory for each gNodeB node in the active EBS-N subscription:

Use the following command to display a sorted list of all the input directories, for each node in the active subscription:

```
[cloud-user@evt-1-ebsm1 ~]# ls /ericsson/pmic*/CELLTRACE/ | sort -u
```

3. Display the input files for an input directory by using the following command:

```
ls -lrt /ericsson/pmic*/CELLTRACE/<DIRECTORY_NAME> | grep "_1_1.gpb.gz"
```

Where `<DIRECTORY_NAME>` represents any of the directories listed at [Step 2](#).



Example

```
[cloud-user@evt-1-ebsm1 ~]# ls -lrt /ericsson/pmic*/CELLTRACE/SubNetwork=NET →  
SimW,ManagedElement=NR03gNodeBRadio00040 | grep "_1_1.gpb.gz"
```

If Cell Trace files are not collected correctly, see [Identify the Cause of Missed File Collections or Generations for Nodes](#) on page 31.

4. Verify that the output EBS-N counter files are produced, and stored, in a directory for each gNodeB node in the active EBS-N subscription.

One EBS-N counter file must be present per node (celltrace input file), per network function, per 15 minute ROP, for every node in the active subscription.

Using the following command, display and sort the output directories for each node in the active subscription:

```
[cloud-user@evt-1-ebsm1 ~]# ls /ericsson/pmic*/ebsn/data | sort -u
```

5. Display the output files for a certain output directory by executing the following command:

```
ls -lrt /ericsson/pmic*/ebsn/data/<DIRECTORY_NAME>
```

Where <DIRECTORY_NAME> represents any of the directories listed at [Step 4](#).

Example

```
[cloud-user@evt-1-ebsm1 ~]# ls -lrt /ericsson/pmic*/ebsn/data →  
/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,Mana →  
gedElement=NR120gNodeBRadio00040
```

6. Do the following checks if all EBS counter files are not produced:
 - a. Log on to the ENM MS as the `litp-admin` user and switch to the root user.
 - b. Run the following to ensure that all EBS services are online:

```
[root@ms ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebs
```

- c. Log on to `ebsmcontroller1` VM on Events cluster blade EVT-1.

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebsm →  
controller1  
[cloud-user@evt-1-ebsmcontroller1 ~]# sudo su -
```



- d. Run the following to ensure that JBoss service is running:

```
[root@evt-1-ebsmcontroller1 ~]# service jboss status
```

- e. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- f. Repeat steps (c) and (d) on `ebsmcontroller1` VM on Events cluster blade EVT-2:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-2-ebsmcontroller1 →
[cloud-user@evt-2-ebsmcontroller1 ~]# su -
[root@evt-2-ebsmcontroller1 ~]# service jboss status
```

- g. Check the JBoss log, `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.
- h. If the root cause of the problem cannot be remedied at this stage and the EBS counter files are not produced, consult Ericsson Local Support.

4.2 Check that EBS (Stream-Based) Value Packs are Receiving and Processing Input Event Data

Verify that the EBS (Stream-based) Value Packs are handling input event data and producing output EBS counter files for all nodes in active subscriptions.

4.2.1 EBS-L Value Pack Feature

Prerequisites

- Administrator access to the ENM server.
- Needed Network Elements are under management in ENM.
- The ENM Deployment variant includes the Streaming and EBS clusters to support stream-based EBS-L.
- EBS-L Value Pack feature has a valid license installed, and an Active Cell Trace / EBS-L Subscription with EBS-L Counters in PMIC.

Steps

1. Log on to the ENM MS as the `litp-admin` user and switch to the root user.



2. Run the `streaming_metrics.py` script. Verify the stream input event rates and that input events are available on the Kafka decoded bus for EBS-L to consume.

```
[root@ms]# cd /ericsson/tor/data/streaming/bin/
[root@ms]# ./streaming_metrics.py
```

- Tip:** — To determine the overall event rate into the Streaming Cluster, run the following command:

```
[root@ms]# ./streaming_metrics.py |awk -v RS= 'NR==1'|tail -1|a →
wk '{print "Total Events received per second at Stream Termina →
tor: "$5}'
Total Events received per second at Stream Terminator: 1923016
```

Note: For detailed output of this script, please refer to the log file `/ericsson/tor/data/streaming/bin/get_streaming_metrics.log`.

- To determine the event rate per Event Parser instance, run the following command:

```
root@ms]# ./streaming_metrics.py|grep "str-.*-apeps"|awk '{pri →
nt $2 " Process("$3") Events Per Second: " $4}' →
str-1-apeps1_TOR Process(1) Events Per Second: 23050
str-1-apeps1_TOR Process(2) Events Per Second: 0
str-1-apeps2_TOR Process(1) Events Per Second: 23045
str-1-apeps2_TOR Process(2) Events Per Second: 23551
str-1-apeps3_TOR Process(1) Events Per Second: 25296
str-1-apeps3_TOR Process(2) Events Per Second: 22502
str-1-apeps4_TOR Process(1) Events Per Second: 24251
str-1-apeps4_TOR Process(2) Events Per Second: 25398
str-1-apeps5_TOR Process(1) Events Per Second: 20366
str-1-apeps5_TOR Process(2) Events Per Second: 20512
str-1-apeps6_TOR Process(1) Events Per Second: 23704
str-1-apeps6_TOR Process(2) Events Per Second: 22570
str-2-apeps1_TOR Process(1) Events Per Second: 21520
str-2-apeps1_TOR Process(2) Events Per Second: 24706
:
:
str-8-apeps4_TOR Process(1) Events Per Second: 0
str-8-apeps4_TOR Process(2) Events Per Second: 0
str-8-apeps5_TOR Process(1) Events Per Second: 23984
str-8-apeps5_TOR Process(2) Events Per Second: 24667
str-8-apeps6_TOR Process(1) Events Per Second: 0
str-8-apeps6_TOR Process(2) Events Per Second: 22681
```

Note: For detailed output of this script, please refer to the log file `/ericsson/tor/data/streaming/bin/get_streaming_metrics.log`.

Example

Example `streaming_metrics.py` script output:

```
Starting collection for: msstr, event type: 3Events
----- DDC Data for MSSTR -----
| DDC Instance Events per Second Events since startup Total Events/Second |
| ieatebs9_TOR 0 0 0 |
| ieatebs10_TOR 160654 28212762313 160654 |
| ieatebs11_TOR 329901 58055979370 490555 |
```



```
| ieatebs12_TOR 325295 57058445227 815850 |
| ieatebs15_TOR 214762 38373026444 1030612 |
| ieatebs16_TOR 0 0 1030612 |
| ieatebs17_TOR 407524 72706797979 1438136 |
| ieatebs18_TOR 430607 77026497154 1868743 |
```

Starting collection for: apeps, event type: :name=epsExt_PmRecordStreamParser_eventsReceived

----- DDC Data for APEPS -----

```
| DDC Instance Process Events per Second Events since startup Total Events/Second |
| str-1-apeps1_TOR 1 24468 4237803138 24468 |
| str-1-apeps1_TOR 2 22559 3960587720 47027 |
| str-1-apeps2_TOR 1 22212 3841624531 69239 |
| str-1-apeps2_TOR 2 21923 3768792276 91162 |
| str-1-apeps3_TOR 1 21485 3750809395 112647 |
| str-1-apeps3_TOR 2 22135 3865816646 134782 |
| str-1-apeps4_TOR 1 22679 3915144758 157461 |
| str-1-apeps4_TOR 2 23243 4052633790 180704 |
| str-1-apeps5_TOR 1 20946 3657467561 201650 |
| str-1-apeps5_TOR 2 22068 3816271318 223718 |
| str-1-apeps6_TOR 1 23640 4123496316 247358 |
| str-1-apeps6_TOR 2 24407 4229179288 271765 |
| str-2-apeps1_TOR 1 22707 3962971938 294472 |
| str-2-apeps1_TOR 2 0 432638 294472 |
| str-2-apeps2_TOR 1 21417 3744051576 315889 |
| str-2-apeps2_TOR 2 26496 4599122540 342385 |
| str-2-apeps3_TOR 1 24729 4310342873 367114 |
| str-2-apeps3_TOR 2 23228 4028548737 390342 |
| str-2-apeps4_TOR 1 23214 4028214942 413556 |
| str-2-apeps4_TOR 2 21001 3659873298 434557 |
| str-2-apeps5_TOR 1 0 429094 434557 |
| str-2-apeps5_TOR 2 20821 3659693393 455378 |
| str-2-apeps6_TOR 1 22021 3799032969 477399 |
| str-2-apeps6_TOR 2 23975 4105903379 501374 |
| str-3-apeps1_TOR 1 23586 4112722020 524960 |
| str-3-apeps1_TOR 2 25799 4446371921 550759 |
| str-3-apeps2_TOR 1 24059 4213574640 574818 |
| str-3-apeps2_TOR 2 23042 4041427577 597860 |
| str-3-apeps3_TOR 1 0 423875 597860 |
| str-3-apeps3_TOR 2 21327 3688930997 619187 |
| str-3-apeps4_TOR 1 24325 4277204165 643512 |
| str-3-apeps4_TOR 2 22687 3963340031 666199 |
| str-3-apeps5_TOR 1 24588 4307380471 690787 |
| str-3-apeps5_TOR 2 22246 3841870125 713033 |
| str-3-apeps6_TOR 1 24312 4204179646 737345 |
| str-3-apeps6_TOR 2 24919 4281942443 762264 |
| str-4-apeps1_TOR 1 24659 4296028681 786923 |
| str-4-apeps1_TOR 2 22343 3907453506 809266 |
| str-4-apeps2_TOR 1 24192 4189710989 833458 |
| str-4-apeps2_TOR 2 0 428248 833458 |
| str-4-apeps3_TOR 1 20913 3677857295 854371 |
| str-4-apeps3_TOR 2 24165 4157500722 878536 |
| str-4-apeps4_TOR 1 0 425483 878536 |
| str-4-apeps4_TOR 2 23665 4081472592 902201 |
| str-4-apeps5_TOR 1 0 424943 902201 |
| str-4-apeps5_TOR 2 23033 3988493966 925234 |
| str-4-apeps6_TOR 1 21780 3769463657 947014 |
| str-4-apeps6_TOR 2 22500 3948092427 969514 |
| str-5-apeps1_TOR 1 20913 3648242227 990427 |
| str-5-apeps1_TOR 2 21557 3756345474 1011984 |
| str-5-apeps2_TOR 1 23482 4052447599 1035466 |
| str-5-apeps2_TOR 2 22295 3889905955 1057761 |
| str-5-apeps3_TOR 1 0 424489 1057761 |
| str-5-apeps3_TOR 2 0 430065 1057761 |
| str-5-apeps4_TOR 1 22685 3940513204 1080446 |
| str-5-apeps4_TOR 2 22877 3907355251 1103323 |
| str-5-apeps5_TOR 1 26646 4603568726 1129969 |
| str-5-apeps5_TOR 2 22949 3943178336 1152918 |
| str-5-apeps6_TOR 1 24301 4199800585 1177219 |
| str-5-apeps6_TOR 2 26489 4578558986 1203708 |
| str-6-apeps1_TOR 1 23530 4072824125 1227238 |
| str-6-apeps1_TOR 2 25691 4468112635 1252929 |
| str-6-apeps2_TOR 1 24021 4198586068 1276950 |
| str-6-apeps2_TOR 2 22645 3927958075 1299595 |
| str-6-apeps3_TOR 1 22634 3907043387 1322229 |
| str-6-apeps3_TOR 2 23805 4181483434 1346034 |
| str-6-apeps4_TOR 1 21448 3704821096 1367482 |
| str-6-apeps4_TOR 2 0 181521 1367482 |
| str-6-apeps5_TOR 1 24207 4230324526 1391689 |
```



```

| str-6-aeps5_TOR 2 24666 4294748315 1416355 |
| str-6-aeps6_TOR 1 27159 4720919956 1443514 |
| str-6-aeps6_TOR 2 26519 4598121733 1470033 |
| str-7-aeps1_TOR 1 23191 3991963066 1493224 |
| str-7-aeps1_TOR 2 0 89197 1493224 |
| str-7-aeps2_TOR 1 22677 3949208710 1515901 |
| str-7-aeps2_TOR 2 0 427299 1515901 |
| str-7-aeps3_TOR 1 26312 4569793010 1542213 |
| str-7-aeps3_TOR 2 23702 4123029708 1565915 |
| str-7-aeps4_TOR 1 0 423446 1565915 |
| str-7-aeps4_TOR 2 25068 4376794137 1590983 |
| str-7-aeps5_TOR 1 23017 4025252409 1614000 |
| str-7-aeps5_TOR 2 26005 4511220024 1640005 |
| str-7-aeps6_TOR 1 21531 3769832649 1661536 |
| str-7-aeps6_TOR 2 0 0 1661536 |
| str-8-aeps1_TOR 1 0 426916 1661536 |
| str-8-aeps1_TOR 2 21818 3837708555 1683354 |
| str-8-aeps2_TOR 1 21413 3732358632 1704767 |
| str-8-aeps2_TOR 2 25799 4398759890 1730566 |
| str-8-aeps3_TOR 1 0 0 1730566 |
| str-8-aeps3_TOR 2 21494 3753526484 1752060 |
| str-8-aeps4_TOR 1 25220 4386174701 1777280 |
| str-8-aeps4_TOR 2 22610 3898452488 1799890 |
| str-8-aeps5_TOR 1 21526 3730983042 1821416 |
| str-8-aeps5_TOR 2 0 429100 1821416 |
| str-8-aeps6_TOR 1 23290 4072348795 1844706 |
| str-8-aeps6_TOR 2 23996 4189107924 1868702 |

Starting collection for: kafka
----- DDC Data for Kafka -----
| DDC Instance Raw in Decoded in |
| ieatebs9_TOR 19713 14448812 |
| ieatebs10_TOR 19734 13564025 |
| ieatebs11_TOR 19540 13563184 |
| ieatebs12_TOR 19856 14343713 |
| ieatebs15_TOR 19442 14067321 |
| ieatebs16_TOR 19658 14087288 |
| ieatebs17_TOR 19813 14152411 |
| ieatebs18_TOR 19661 13886519 |

Starting collection for: streaminglvsrouter_TOR
----- DDC Data for LVS -----
| DDC Instance Total Bytes In Total Bytes Out |
| ieatebs9_TOR 0 0 |
| ieatebs10_TOR 19481821364745 0 |
| ieatebs11_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatebs12_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatebs15_TOR 24932298486343 0 |
| ieatebs16_TOR 0 0 |
| ieatebs17_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatebs18_TOR Could not retrieve DDC data Could not retrieve DDC data |

```

Note: The instances on which `streaminglvsrouter` service is not available will show value as "Could not retrieve DDC data".

- From the MS, connect to an `ebsstream` VM instance. See "*VM Security Tasks*" and "*Connect to a Virtual Machine*" in the *ENM System Administrator Guide, 1/1543-AOM 901 151 Uen*.

```

[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-1-ebsstream1
[cloud-user@ebs-1-ebsstream1 ~]# sudo su -

```

- Verify that EBS-L is processing event data from the Kafka decoded bus, and producing output EBS-L counters for that `ebsstream` VM instance.

```

[root@ebs-1-ebsstream1 ~]# ll /ericsson/log/ebs-eps[1-2]/ebs-eps[1-2].log
-rw-r--r--. 1 jboss_user jboss 23147580 Sep 26 16:56 /ericsson/log/ebs-eps1
/ebs-eps1.log

```



```
-rw-r--r--. 1 jboss_user jboss 133756703 Sep 26 16:56 /ericsson/log/ebs-eps2 →
/ericsson/log/ebs-eps2.log
[root@ebs-1-ebstream1 ~]# less /ericsson/log/ebs-eps1/ebs-eps1.log | grep →
Instrumentation
```

Example

Example output:

```
[pool-5-thread-1] INFO com.ericsson.oss.itpf.EVENT_LOGGER - [NO USER DATA, →
EBS Instrumentation, COARSE, EBSM-Counter-Generation-Service, EBSM-Counter-G →
eneration-Metrics, EpsId=ebs-1-ebstream1_ebs-eps1_ropId=0_ropName=, expected →
NumInputRops=0,ropsReceived=0,incompleteInputRops=0,eventsProcessed=0,ignore →
dEvents=0,invalidEvents=0,filesReceived=0,erroneousFiles=0,processingTimeInM →
illiSec=0,fileOutputTimeInMilliSec=30,countersProduced=6866,numOfFilesWritte →
n=1]
```

Note: This instrumentation record is generic for both EBS-L (Stream-based) and EBS-L (File-based) solutions. The data of interest is the countersProduced field.

All the ROP-related fields are specific to the EBS-L (File-based) solution and can be disregarded in this case.

- From the MS, connect to the ebsstreamcontroller1 VM. See "*VM Security Tasks*" and "*Connect to a Virtual Machine*" in the *ENM System Administrator Guide, 1/1543-AOM 901 151 Uen*.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-2-ebstreamcont →
roller1
[cloud-user@ebs-2-ebstreamcontroller1 ~]# sudo su -
```

- Verify that the output EBS-L counter files are produced with the EBS-L files.

The files are stored in a separate directory for each node in the active EBS-L. One EBS-L counter file must be present per node per 5 minute or 15 minute ROP for every node in the active subscriptions.

Example

```
[root@ebs-2-ebstreamcontroller1 ~]# ls /ericsson/pmic1/ebs1/data/ | sort -u →
| wc -l
[root@ebs-2-ebstreamcontroller1 ~]# ls /ericsson/pmic1/ebs1/data/ | sort -u →
[root@ebs-2-ebstreamcontroller1 ~]# ls -lrt /ericsson/pmic1/ebs1/data/SubNe →
twork=subnetwork,ManagedElement=LTE94dg2ERBS00160
```

To access the PIB (Platform Integration Bridge) script to upgrade parameters for ENM applications, determine the environment and follow the task relevant to this environment. This task outlines the steps to read and configure PIB parameters on an ENM on Cloud Deployment.

- Do the following checks if all EBS counter files are not produced:

- From the MS, run the following command to ensure that all EBS services are online:

```
[root@ms ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebs
```



- b. Log on to ebsstreamcontroller1 VM on EBS cluster node, EBS-2:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-2-ebsstreamcontroller1  
[cloud-user@ebs-2-ebsstreamcontroller1 ~]# sudo su -
```

- c. Run the following command to ensure that JBoss service is running:

```
[root@ebs-2-ebsstreamcontroller1 ~]# service jboss status
```

- d. Check the JBoss log, /ericsson/3pp/jboss/standalone/log/server.log, for any errors or exceptions.
- e. Repeat steps (b) and (c) on ebsstreamcontroller1 VM on EBS cluster node, EBS-3:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-3-ebsstreamcontroller1  
[cloud-user@ebs-3-ebsstreamcontroller1 ~]# sudo su -  
[root@ebs-3-ebsstreamcontroller1 ~]# service jboss status
```

- f. Check the JBoss log, /ericsson/3pp/jboss/standalone/log/server.log, for any errors or exceptions.
- g. Log on from the MS to ebskafka1 VM on EBS cluster node, EBS-1:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-1-ebskafka1  
[cloud-user@ebs-1-ebskafka1 ~]# sudo su -
```

- h. Run the following command to ensure that the JBoss service is running:

```
[root@ebs-1-ebskafka1 ~]# service kafka status
```

- i. Check the Kafka log, /ericsson/kafka/kafka_*/logs/server.log, for any errors or exceptions.
- j. Repeat steps (g) and (h) on ebskafka1 VM on EBS cluster nodes EBS-2 and EBS-3:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-2-ebskafka1  
[cloud-user@ebs-2-ebskafka1 ~]# sudo su -  
[root@ebs-2-ebskafka1 ~]# service kafka status  
  
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-3-ebskafka1  
[cloud-user@ebs-3-ebskafka1 ~]# sudo su -  
[root@ebs-3-ebskafka1 ~]# service kafka status
```

- k. Check the Kafka log, /ericsson/kafka/kafka_*/logs/server.log, for any errors or exceptions.



- I. If the root cause of the problem cannot be remedied at this stage and the EBS-L counter files are not produced, consult Ericsson Local Support.

4.2.2 EBS-N Value Pack Feature

Prerequisites

- Administrator access to the ENM server
- Required Network Elements are under management in ENM.
- ENM deployment variant includes the streaming and EBS clusters to support stream-based EBS-N
- EBS-N Value Pack feature has a valid license installed, and an Active Cell Trace / EBS-N Subscription with EBS-N Counters in PMIC

Steps

1. Log on to the ENM MS as the `litp-admin` user and switch to the root user.
2. Run the `streaming_metrics.py` script. Verify that the stream input event rates and that the input events are available on the Kafka depd bus for the EBS-N (raw5g) to consume.

```
[root@ms]# cd /ericsson/tor/data/streaming/bin/  
[root@ms bin]# ./streaming_metrics.py
```



Tip: To determine the overall event rate into the Streaming Cluster, run the following command:

```
a. [root@ieatlms7600 bin]# ./streaming_metrics.py | awk -v RS= 'NR==2' | tail -1 | awk '{print "Total Events received per second at Stream Terminator: "$5}'
Total Events received per second at Stream Terminator: 277012
```

For detailed output of this script, see the log file stored at /ericsson/tor/data/streaming/bin/get_streaming_metrics.log.

b. To determine the event rate per Event Parser instance, run the following command:

```
[root@ms bin]# ./streaming_metrics.py|grep "str-.*-apeps"|awk '{print $2 " Process("$3") Events Per Second: " $4}'
str-1-apeps1_TOR Process(1) Events Per Second: 15781
str-1-apeps1_TOR Process(2) Events Per Second: 15617
...
str-8-apeps5_TOR Process(2) Events Per Second: 18476
str-8-apeps6_TOR Process(1) Events Per Second: 17818
str-8-apeps6_TOR Process(2) Events Per Second: 14248
```

For detailed output of this script, see the log file stored at /ericsson/tor/data/streaming/bin/get_streaming_metrics.log.

Example

```
Starting collection for: msstr, event type: 3Events
----- DDC Data for MSSTR 3Events ---->
| DDC Instance Events per Second Events since startup Total Events/Second |
| ieatrcx867_TOR 0 0 0 |
| ieatrcx866_TOR 268251 410379156957 268251 |
| ieatrcx865_TOR 459672 713997622794 727923 |
| ieatrcx864_TOR 0 48436 727923 |
| ieatrcx863_TOR 0 2 727923 |
| ieatrcx862_TOR 224786 355687724881 952709 |
| ieatrcx861_TOR 452973 714265817313 1405682 |
| ieatrcx860_TOR 0 4 1405682 |

Starting collection for: msstr, event type: 2Events
----- DDC Data for MSSTR 2Events ---->
| DDC Instance Events per Second Events since startup Total Events/Second |
| ieatrcx867_TOR 0 7 0 |
| ieatrcx866_TOR 28246 16857408760 28246 |
| ieatrcx865_TOR 56502 33709692553 84748 |
| ieatrcx864_TOR 56470 33709688954 141218 |
| ieatrcx863_TOR 0 7 141218 |
| ieatrcx862_TOR 27159 22538981958 168377 |
| ieatrcx861_TOR 54307 45078073761 222684 |
| ieatrcx860_TOR 54312 45078014631 276996 |

Starting collection for: apeps, event type: :name=epsExt_PmRecordStreamParse
r_eventsReceived
----- DDC Data for AP
EPS ----->
| DDC Instance Process Events per Second Events since startup Total Events/S
econd |
| str-1-apeps1_TOR 1 16003 25043367386 16003 |
| str-1-apeps1_TOR 2 15833 24784055629 31836 |
```



```

...
| str-8-apeps6_TOR 1 17823 28019391027 1615121 |
| str-8-apeps6_TOR 2 14621 22574933019 1629742 |

Starting collection for: kafka, Topic: [TOPIC]
----- DDC Data for Kafka -----
| DDC Instance Raw |
| ieatrcx867_TOR 14770 |
| ieatrcx866_TOR 15360 |
| ieatrcx865_TOR 15037 |
| ieatrcx864_TOR 14507 |
| ieatrcx863_TOR 14769 |
| ieatrcx862_TOR 15351 |
| ieatrcx861_TOR 14747 |
| ieatrcx860_TOR 15177 |

Starting collection for: streaminglvsrouter_TOR
----- DDC Data for LVS -----
| DDC Instance Total Bytes In Total Bytes Out |
| ieatrcx867_TOR 0 0 |
| ieatrcx866_TOR 154183581193450 0 |
| ieatrcx865_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatrcx864_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatrcx863_TOR 0 0 |
| ieatrcx862_TOR 140229714201317 0 |
| ieatrcx861_TOR Could not retrieve DDC data Could not retrieve DDC data |
| ieatrcx860_TOR Could not retrieve DDC data Could not retrieve DDC data |

```

Note: The instances on which the streaminglvsrouter service is unavailable, show the value as Could not retrieve DDC data.

- From the MS, connect to an ebsstream VM instance. For details, see the *VM Security Tasks* and the *Connect to a Virtual Machine* topics in the *ENM System Administrator Guide, 1/1543-AOM 901 151 Uen*.

```

[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-1-ebsstream1
[cloud-user@ebs-1-ebsstream1 ~]# sudo su -

```

- Verify that the EBS-N is processing event data and producing output EBS-N counters for that ebsstream VM instance.

```

[root@ebs-1-ebsstream1 ~]# ll /ericsson/log/ebs-eps[1-2]/ebs-eps[1-2].log
-rw-r--r--. 1 jboss_user jboss 26683923 Apr 8 09:59 /ericsson/log/ebs-eps1/e
bs-eps1.log
-rw-r--r--. 1 jboss_user jboss 101781656 Apr 8 09:59 /ericsson/log/ebs-eps2/
ebs-eps2.log
[root@ebs-1-ebsstream1 ~]# less /ericsson/log/ebs-eps[1-2]/ebs-eps[1-2].log
| grep Instrumentation

```

Example

```

[pool-8-thread-1] INFO com.ericsson.oss.itpf.EVENT_LOGGER - [NO USER DATA,
EBS Instrumentation, COARSE,
EBSM-Counter-Generation-Service, EBSM-Counter-Generation-Metrics, EpsId=ebs
-1-ebsstream1_ebs-eps2,
ropId=0, ropName=NetworkElement=NR18gNodeBRadio00032:A20200408.0820+0100-0825
+0100,
expectedNumInputRops=0, ropsReceived=0, incompleteInputRops=0, eventsProcessed=
0, ignoredEvents=0, invalidEvents=0, filesReceived=0, erroneousFiles=0, processin
gTimeInMilliSec=0, fileOutputTimeInMilliSec=34, countersProduced=48, numOffFiles
Written=1, isDuplicate=false, numOffFileReWritten=0]

```



The countersProduced field indicates that the EBS-N is processing event data. If EBS-N is processing event data, the value of the countersProduced field is never 0.

Note: The instrumentation record is generic for both EBS (Stream-based) and EBS (File-based) solutions. The data of interest is the countersProduced field

All the ROP-related fields are specific to the EBS (File-based) solution and can be ignored in this case.

5. From the MS, connect to the ebsstreamcontroller1 VM. For details, see the *VM Security Tasks* and the *Connect to a Virtual Machine* topics in the *ENM System Administrator Guide, 1/1543-AOM 901 151 Uen*.

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-2-ebsstreamcont →
roller1
[cloud-user@ebs-1-ebsstreamcontroller1 ~]# sudo su -
```

6. Verify that the output EBS-N counter files are produced with the EBS-N files. The files are stored in a separate directory for each node in the active EBS-N. One EBS-N counter file must be present per node per 5 minute or 15 minute ROP for every node in the active subscriptions.

```
[root@ebs-1-ebsstreamcontroller1 ~]# ls /ericsson/pmic1/ebsn/data/ | sort -u →
| wc -l
```

Note: The number in the output of this command must match the number of nodes in active subscriptions.

```
[root@ebs-1-ebsstreamcontroller1 ~]# ls /ericsson/pmic1/ebsn/data/ | sort -u
ManagedElement=NR01gNodeBRadio00004
ManagedElement=NR120gNodeBRadio00004
```

Note: The managed elements listed by this command must match the names of the managed elements in active subscriptions

```
[root@ebs-1-ebsstreamcontroller1 ~]# ls -lrt /ericsson/pmic1/ →
ebsn/data/ManagedElement\=NR120gNodeBRadio00004/ →
total 264
-rw-r--r--. 1 jboss_user jboss 717 Apr 20 12:25 A20200420.122 →
0+0100-1225+0100_ManagedElement=NR120gNodeBRadio00004_ossoun →
terfile_CUCP_1.xml.gz
-rw-r--r--. 1 jboss_user jboss 514 Apr 20 12:25 A20200420.122 →
0+0100-1225+0100_ManagedElement=NR120gNodeBRadio00004_ossoun →
terfile_CUUP_1.xml.gz
-rw-r--r--. 1 jboss_user jboss 743 Apr 20 12:25 A20200420.122 →
0+0100-1225+0100_ManagedElement=NR120gNodeBRadio00004_ossoun →
terfile_DU_1.xml.gz
...
```



To access the PIB (Platform Integration Bridge) script to upgrade parameters for ENM applications, determine the environment and follow the task relevant to this environment. This task outlines the steps to read and configure PIB parameters on an ENM on Cloud Deployment.

7. Do the following checks if all EBS counter files are not produced:

- a. From the MS, run the following command to ensure that all EBSservices are online:

```
[root@ms ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebs
```

- b. Log on to ebsstreamcontroller1 VM on EBS cluster node, EBS-2:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-2-ebss →
treamcontroller1
[cloud-user@ebs-2-ebssstreamcontroller1 ~]# sudo su -
```

- c. Run the following command to ensure that JBoss service is running:

```
[root@ebs-2-ebssstreamcontroller1 ~]# service jboss status
```

- d. Check the JBoss log at `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.

- e. Repeat *step b* and *step c* on ebsstreamcontroller1 VM on EBS cluster node, EBS-3:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-3-ebss →
treamcontroller1
[cloud-user@ebs-3-ebssstreamcontroller1 ~]# sudo su -
[root@ebs-3-ebssstreamcontroller1 ~]# service jboss status
```

- f. Check the JBoss log at `/ericsson/3pp/jboss/standalone/log/server.log`, for any errors or exceptions.

- g. Log on from the MS to ebskafka1 VM on EBS cluster node, EBS-1:

```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-1-ebsk →
afka1
[cloud-user@ebs-1-ebskafka1 ~]# sudo su -
```

- h. Run the following command to ensure that the JBoss service is running:

```
[root@ebs-1-ebskafka1 ~]# service kafka status
```

- i. Check the Kafka log at `/ericsson/kafka/kafka_*/logs/server.log`, for any errors or exceptions.

- j. Repeat *step g* and *step h* on ebskafka1 VM on EBS cluster nodes EBS-2 and EBS-3:



```
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-us →  
er@ebs-2-ebskafka1  
[cloud-user@ebs-2-ebskafka1 ~]# sudo su -  
[root@ebs-2-ebskafka1 ~]# service kafka status →  
[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-us →  
er@ebs-3-ebskafka1  
[cloud-user@ebs-3-ebskafka1 ~]# sudo su -  
[root@ebs-3-ebskafka1 ~]# service kafka status
```

- k. Check the Kafka log at `/ericsson/kafka/kafka_*/logs/server.log`, for any errors or exceptions.
- l. If the root cause of the problem cannot be remedied at this stage and the EBS-N counter files are not produced, contact Ericsson Local Support.

4.3 Check that CM Topology Data is Available for EBS-L/EBS-N (File-Based) Value Pack

Verify that CM topology data is available for EBS-L/EBS-N (File-based) Value Pack so that EBS-L/EBS-N counters can be aggregated and produced as per CM topology data.

Prerequisites

- Administrator access to the ENM server.
- Needed Network Elements are under management in ENM.
- The ENM Deployment variant includes the Events (EVT) cluster to support file-based EBS.
- EBS-L/EBS-N Value Pack feature has a valid license installed.

Steps

1. Log on to the ENM MS as the `l1tp-admin` user and switch to the `root` user.
2. Verify that all EBS Topology services are online:

```
[root@ms: ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebstopology
```

3. Verify that one of the EBS topology instances has started as the master instance:

Log on to each `ebstopology` VM. See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3.



Check the server log file to identify which instance is the master instance:

```
[root@ms ~]# cat /etc/hosts | grep ebstopology
<evt-3-ebstopology IP address> evt-3-ebstopology          ebstopology-3-intern →
al # Created by LITP. Please do not edit
<evt-2-ebstopology IP address> evt-2-ebstopology          ebstopology-2-intern →
al # Created by LITP. Please do not edit
<evt-1-ebstopology IP address> evt-1-ebstopology          ebstopology-1-intern →
al # Created by LITP. Please do not edit

[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@evt-1-ebstopology

[cloud-user@evt-1-ebstopology ~]# grep -i master /ericsson/3pp/jboss/standalone/log/server.log*

2017-02-02 02:50:12,523 INFO [com.ericsson.oss.services.pm.ebs.topology.service.clustering.MembershipListener] (ViewHandler,EBSTopologyPmCluster,evt-1-ebstopology-19263 (, payload=44 bytes)) This node is now the master node
```

The example output shows that evt-1-ebstopology VM is the master instance: This node is now the master node

4. Verify that the master EBS topology instance requested that a CM export for each EBS supported network element type:

Example

```
[cloud-user@evt-1-ebstopology ~]# grep "Triggering the export" /ericsson/3pp/jboss/standalone/log/server.log
2017-01-09 14:01:21,869 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: MSRBS_V1
2017-01-09 14:01:28,429 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: ERBS
2017-01-09 14:01:36,308 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: RadioNode

[cloud-user@evt-1-ebstopology ~]# grep "CM Export triggered for" /ericsson/3pp/jboss/standalone/log/server.log

- If any nodes of type ERBS exist in DPS:
2017-01-09 14:01:36,159 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : ERBS 371

- If any nodes of type RadioNode exist in DPS:
2017-01-09 14:01:38,665 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : RadioNode 373

- If any nodes of type MSRBS_V1 exist in DPS:
2017-01-09 14:32:17,274 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : MSRBS_V1 375
```

5.

If Topology Cache Type	Then execute the command to verify that the Topology Cache is loaded for a specific network element:
EBS-L	<pre>[root@cloud-ms-1 ~]# curl -vsS http://evt-1-ebstopology:8080/ebs-topology-service/ebstopology/topology/node?fdn="NetworkElement=LTE02ERBS00073" python -m json.tool {</pre>



If Topology Cache Type	Then execute the command to verify that the Topology Cache is loaded for a specific network element:
	<pre> "errorCode": 0, "message": "", "status": "COMPLETE", "topologyData": { "cellId_1": "ManagedElement=1,ENodeBFunction=1,EUtranCellFDD=LTE102ERBS00002-1", "eNB_func": "ManagedElement=1,ENodeBFunction=1", "meContext": "SubNetwork=ERBS-SUBNW-1,MeContext=LTE102ERBS00002", "swVersion": "CXPL16ACP1_G1101", "termPointENB_353_57_244": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE82ERBS00001,TermPointToENB=1", "termPointENB_353_57_245": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE82ERBS00002,TermPointToENB=1", "termPointENB_353_57_246": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE82ERBS00003,TermPointToENB=1", "termPointENB_353_57_247": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE83ERBS00001,TermPointToENB=1", "termPointENB_353_57_248": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE83ERBS00002,TermPointToENB=1", "termPointENB_353_57_249": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE83ERBS00003,TermPointToENB=1", "termPointENB_353_57_250": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE84ERBS00001,TermPointToENB=1", "termPointENB_353_57_251": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE84ERBS00002,TermPointToENB=1", "termPointENB_353_57_252": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE84ERBS00003,TermPointToENB=1", "termPointENB_353_57_324": "ManagedElement=1,ENodeBFunction=1,UtraNetwork=1,ExternalENodeBFunction=LTE108ERBS00003,TermPointToENB=1" } } </pre>
EBS-N	<pre> [root@ieatlm5167 bin]# curl -vsS 'http://ebstopology-1-internal:8080/ebstopology-service/ebstopology/topology/node/nr?fdn=NetworkElement=NR03gNodeBRadio00040&managedFunction=GNBDUFunction' python -mjson.tool { "errorCode": 0, "message": "", "status": "COMPLETE", "topologyData": { "gNBDU": "ManagedElement=NR03gNodeBRadio00040,GNBDUFunction=1", "meContext": "SubNetwork=NETSimW,ManagedElement=NR03gNodeBRadio00040", "mfContext": "SubNetwork=NETSimW,ManagedElement=NR03gNodeBRadio00040,GNBDUFunction", "neTimeZone": "GB-Eire", "nrCellDUId_1": "ManagedElement=NR03gNodeBRadio00040,GNBDUFunction=1,NRCellDU=1", "swVersion": "CXP9024418/12_R35A108" } } </pre>

6. Consult Ericsson Local Support if the EBS-L/EBS-N Topology Cache is not loaded with CM data.



4.4 Check that CM Topology Data is Available for EBS-L/EBS-N (Stream-Based) Value Pack

Verify that CM topology data is available for EBS-L/EBS-N (Stream-based) Value Pack so that EBS-L/EBS-N counters can be aggregated and produced as per CM topology data.

Prerequisites

- The ENM Deployment variant includes the Streaming and EBS clusters to support stream-based EBS-L/EBS-N.
- EBS-L Value Pack feature has a valid license installed.

Steps

1. Log on to the ENM MS as the `litp-admin` user and switch to the root user.
2. Verify that all EBS Topology services are online:

```
[root@ms: ~]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebsstreamtopology
```

3. Verify that one of the EBS Stream Topology instances has started as the master instance.

Log on to each `ebsstreamtopology` VM. See "*VM Security Tasks*" and "*Connect to a Virtual Machine*" in the *ENM System Administrator Guide, 1/1543-AOM 901 151 Uen*.

Check the server log file to identify which instance is the master instance:

```
[root@ms ~]# cat /etc/hosts | grep ebsstreamtopology
<ebs-1-ebsstreamtopology IP address> ebs-1-ebsstreamtopology ebsstreamtopology-1-internal # Created by LITP. Please do not edit
<ebs-2-ebsstreamtopology IP address> ebs-2-ebsstreamtopology ebsstreamtopology-2-internal # Created by LITP. Please do not edit
<ebs-3-ebsstreamtopology IP address> ebs-3-ebsstreamtopology ebsstreamtopology-3-internal # Created by LITP. Please do not edit

[root@ms ~]# ssh -i /root/.ssh/vm_private_key cloud-user@ebs-1-ebsstreamtopology

[cloud-user@ebs-1-ebsstreamtopology ~]# grep -i master /ericsson/3pp/jboss/sandalone/log/server.log*
2017-09-27 16:50:09,758 INFO [com.ericsson.oss.services.pm.ebs.stream.topology.service.clustering.MembershipListener]
(Incoming-1,EBSStreamTopologyPmCluster,ebs-1-ebsstreamtopology-43753 (,payload=57 bytes)) This node is now the master node
```

The example output shows that `ebs-1-ebsstreamtopology` VM is the master instance: This node is now the master node



4. Verify that the master EBS Stream topology instance requested that a CM export for each EBS-L/EBS-N supported network element type:

Example

```
[cloud-user@ebs-1-ebsstreamtopology ~]# grep "Triggering the export" /ericsson/3pp/jboss/standalone/log/server.log
2017-09-09 14:01:21,869 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: MSRBS_V1
2017-09-09 14:01:28,429 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: ERBS
2017-09-09 14:01:36,308 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) Triggering the export for network element type: RadioNode

[cloud-user@ebs-1-ebsstreamtopology ~]# grep "CM Export triggered for" /ericsson/3pp/jboss/standalone/log/server.log

- If any nodes of type ERBS exist in DPS:
2017-09-09 14:01:36,159 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : ERBS 371

- If any nodes of type RadioNode exist in DPS:
2017-09-09 14:01:38,665 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : RadioNode 375

- If any nodes of type MSRBS_V1 exist in DPS:
2017-09-09 14:32:17,274 INFO [com.ericsson.oss.services.pm.ebs.topology.service.bulkcm.CmExportHandler] (EJB default - 1) CM Export triggered for Network Element Type : MSRBS_V1 375
```

5. From the MS, use the following command to verify that the EBS Stream Topology Cache is loaded for a specific network element:

Example

Topology Cache Type	Command
EBS-N	<pre>[root@ms]\$ curl "http://ebs-1-ebsstreamtopology:8080/ebs-stream-topology-service/ebsstreamtopology/topology/node/nr?fdn=NetworkElement=NR01gNodeBRadio00002&managedFunction=GNBCUCPFunction" python -mjson.tool % Total % Received % Xferd Average Speed Time Time Current Dload Upload Total Spent Left Speed 103 622 0 622 0 0 258k 0 --:--:-- --:--:-- --:--:-- --:--:-- --:--:-- 607k { "errorCode": 0, "message": "", "status": "COMPLETE", "topologyData": { "gNBCUCP": "ManagedElement=NR01gNodeBRadio00002,GNBCUCPFunction=1", "meContext": "ManagedElement=NR01gNodeBRadio00002", "mfContext": "ManagedElement=NR01gNodeBRadio00002,GNBCUCPFunction", "neTimeZone": "Europe/Dublin", "nrCellCUId_10": "ManagedElement=NR01gNodeBRadio00002,GNBCUCPFunction=1,NRCellCU=NR01gNodeBRadio00002-1", "...", "nrCellCUId_6": "ManagedElement=NR01gNodeBRadio00002,GNBCUCPFunction=1"</pre>



Topology Cache Type	Command
	<pre> , NRCellICU=NR01gNodeBRadio00002-3" "swVersion": "CXP9024418/12_R44A118 } } </pre>
EBS-L	<pre> [root@ms]\$ curl http://ebs-1 -ebsstreamtopology:8080/ebs- stream-topology-service/ebs- streamtopology/topology/node? fdn=NetworkElement=LTE26dg2E RBS00002 python -mjson.tool 1 % Total % Received % Xferd A verage Speed Time Time Time Current Dload Upload Total Spent Lef t Speed 100 14414 0 14414 0 0 8319k 0 --:--:-- --:--:-- --:--:-- 13.7M { "errorCode": 0, "message": "", "status": "COMPLETE", "topologyData": { "cellId_1": "ManagedElement= LTE26dg2ERBS00002,ENodeBFunc tion=1,EUtranCellFDD=LTE26dg 2ERBS00002-1", "eNB_func": "ManagedElement= LTE26dg2ERBS00002,ENodeBFunc tion=1", "eUtranCellRelation_1_353_57 _128_1": "EUtranFreqRelation =4,EUtranCellRelation=1", "eUtranCellRelation_1_353_57 _168_1": "EUtranFreqRelation =4,EUtranCellRelation=101", "meContext": "ManagedElement =LTE26dg2ERBS00002", "neTimeZone": "Europe/Dublin ", "swVersion": "CXP9028815/12_ R43B02", "termPointENB_353_57_128": " ManagedElement=LTE26dg2ERBS0 0002,ENodeBFunction=1,EUtraN etwork=1,ExternalENodeBFunc tion=LTE26dg2ERBS00003,TermPo </pre>



Topology Cache Type	Command
	<pre>intToENB=1", "termPointENB_353_57_168": " ManagedElement=LTE26dg2ERBS0 0002,ENodeBFunction=1,EUtraN etwork=1,ExternalENodeBFunct ion=LTE34ERBS00003,TermPoint ToENB=1" } }</pre>

6. Consult Ericsson Local Support if the EBS-L Stream Topology Cache is not loaded with CM export data.



5 PM Initiation and Collection (PMIC) Troubleshooting

This section provides the tasks recommended to diagnose and resolve common problems in ENM PM Initiation and Collection (PMIC).

5.1 Identify the Cause of Missed File Collections or Generations for Nodes

Learn the criteria for successful file collection or generation, and the troubleshooting steps to perform when a failure is identified for nodes.

Prerequisites

- Subscription Administrative Status is active
- SECURITY_ADMIN role available
- Amos_Administrator role available
- Amos_Operator role available
- ADMINISTRATOR role available
- Fully deployed ENM system available
- Valid connection to an ENM system
- Authentication through NBI available
- Access to the Virtual Machine (VM):
 - Physical: Root access to the ENM Management Server (MS).
 - Cloud: User is connected to the EMP VM. Refer to [Connect to a Virtual Machine on an ENM on Cloud Deployment](#) on page 4.

Note: There is an exception for predefined scanners on nodes that are not part of a subscription.



Steps

1. Use the File Lookup Service (FLS) to verify that the file was collected for the last ROP for the identified node. See *Interwork Description for File Lookup Service (FLS), 1/155 19-CNA4033301 Uen*.

Note: If the file was collected for the last ROP, the issue no longer exists. The missed files are recovered following the supported recovery scenarios. No further steps to be taken.

File recovery is not applicable for:

- CISCO-ASR900 series and CISCO-ASR9000 series nodes.
 - SIU02 and TCU02 nodes.
 - JUNIPER- MX, JUNIPER- PTX, JUNIPER- SRX, JUNIPER- vMX, and JUNIPER- vSRX series nodes.
 - ESC and SCU nodes.
 - MINI-LINK Indoor (i.e., MINI-LINK-6691, MINI-LINK-6692, MINI-LINK-6693, MINI-LINK-6694, MINI-LINK-6651, MINI-LINK-6654, MINI-LINK-6655, MINI-LINK-6366, MINI-LINK-6251, MINI-LINK-6252, MINI-LINK-6262, MINI-LINK-6291, MINI-LINK-TN, MINI-LINK-LH ,MINI-LINK-CN210,MINI-LINK-CN510R1,MINI-LINK-CN510R2,MINI-LINK-CN810R1 and MINI-LINK-CN810R2) SNMP continuous counters files.
2. Check if PmFunction is enabled for the node. If it is disabled, enable it.
Follow the procedure in the section "*PMIC PmFunction*" in the *ENM Performance System Administrator Guide, 1/1543-AOM 901 151-3*.
 3. Check if fileCollectionState is enabled for the node. If it is disabled, enable it.
Follow the procedure in the section "*PMIC PmFunction*" in the *ENM Performance System Administrator Guide, 1/1543-AOM 901 151-3*.
 4. Check that the node is connected to ENM:
 - a. Check **Log Viewer** in the ENM Launcher to identify Connectivity errors to the node.
For example, in **Log Viewer**, search for the COULD_NOT_CONNECT_TO_NODE string for the selected node.
 - b. Run the following commands in the ENM CLI to retrieve the relevant credential and connectivity information for the node (username/password/IP).

```
1. secadm credentials get --usertype secure -pt show -n <Node name> →  
:- get password of the node (user must have appropriate privilege)
```



```
2. cmedit get NetworkElement=<node name> CppConnectivityInformation →
   .ipAddress :- get Ip address of the node
3. cmedit get NetworkElement=<node name> ComConnectivityInformation →
   .ipAddress:-get Ip address of the node
```

- c. Log on to the node using AMOS or SSH and the credentials retrieved from the previous step (3.b.).

Note: If unable to connect to the node, consult Ericsson Local Support

5. For node types and subscription types (listed in [Criteria for Successful File Collection or Generation](#) on page 34) where Node CM Synchronized is listed as Required, check the synchronized state of the node. If the synchronized state of the node is not synchronized, then synchronize the node to ENM.
6. Check if FLS has stopped adding entries to the database because the maximum capacity within the database has been reached.

Log on to the ENM management server (Physical) or VNF Laf (Cloud) and check the property stopAll0peration0nFlsDB:

Run the command:

```
/ericsson/pib-scripts/etc/config.py read --app_server_address →
=<dlms_services_host_name>:8080--name=stopAll0peration0nFlsDB
```

where <dlms_services_host_name> is your DLMS services hostname (example = svc-4-dlms)

Example:

```
/ericsson/pib-scripts/etc/config.py read --app_server_address →
=svc-4-dlms:8080--name=stopAll0peration0nFlsDB
```

7. If the value of stopAll0peration0nFlsDB is true, log on to the file systems and check if the files have been collected:

```
ls -larth /ericsson/pmic1/...
```

Check the file collection time intervals to determine if files have been collected. If files have been collected, use this mechanism to find files while FLS is not adding entries to the database. If the result is true, contact Local Ericsson Support to report that FLS has stopped adding entries to the database.

8. If the files are with Flexible ROPs (not 15 minute ROP), refer to ENM Fails to Collect Performance Management Flexible ROP Files.



9. Contact Local Ericsson Support if the preceding steps do not indicate a problem and the counter files are generated on the node but not available in ENM.

5.1.1 Criteria for Successful File Collection or Generation

Certain criteria must be satisfied in ENM to ensure successful file collection or generation from nodes based on supported node type and subscription type.

The operational status of a subscription indicates the success or failure of the subscription to activate towards one or more nodes. This is not a criteria for file collection. File collection can be successful for nodes in a subscription where the subscription **Operational Status** displayed in the PMIC GUI is **Error**. File collection fails for nodes where the subscription activation failed.

Table 1

Network Element Type	Subscription Type	File Collection or Generation Criteria		Additional Comments
		Node Connected	Node CM Synchronized	
5GRadioNode	Statistical Subscription	Yes	Yes	
Baseband T605	Statistical Subscription	Yes	Yes	
BGF(ECIM)	Statistical Subscription	Yes	Yes	
BSC	BSC Recordings Subscription	Yes	No	
C608	Statistical Subscription	Yes	Yes	
CCPC	Statistical Subscription	Yes	No	
CCRC	Statistical Subscription	Yes	No	
CCSM	Statistical Subscription	Yes	No	
CCDM	Statistical Subscription	Yes	No	
CCES	Statistical Subscription	Yes	No	
CISCO-ASR900 series	Statistical Subscription	Yes	No	
CISCO-ASR9000 series	Statistical Subscription	Yes	No	
Compact CTC	Statistical Subscription	Yes	No	
Compact IP-STP	Statistical Subscription	Yes	No	
Compact MSC-S	Statistical Subscription	Yes	No	
CSCF(ECIM)	Statistical Subscription	Yes	Yes	
CTC BC (BSP)	Statistical Subscription	Yes	No	
CTC BC (IS)	Statistical Subscription	Yes	No	
CTC DB	Statistical Subscription	Yes	No	
CUDB	Statistical Subscription	Yes	No	
DSC(ECIM)	Statistical Subscription	Yes	Yes	
EIR-FE	Statistical Subscription	Yes	No	
EME(ECIM)	Statistical Subscription	Yes	Yes	



Network Element Type	Subscription Type	File Collection or Generation Criteria		Additional Comments
		Node Connected	Node CM Synchronized	
eNodeB Baseband Radio Node (Micro & Macro RBS)	Statistical Subscription	Yes	Yes	
	UE Trace Subscription	Yes	Yes	Either UeTrace is enabled by PIB parameter or there is an active UeTrace subscription in ENM.
	Cell Trace Subscription	Yes	Yes	
	CCTR	Yes	Yes	
eNodeB DU Radio Node (Micro & Macro RBS)	Statistical Subscription	Yes	No	
	UE Trace Subscription	Yes	No	Either UeTrace is enabled by PIB parameter or there is an active UeTrace subscription in ENM.
	Cell Trace Subscription	Yes	No	
	CCTR	Yes	No	
eNodeB Pico Radio Node	Statistical Subscription	Yes	Yes	
	Cell Trace Subscription	Yes	Yes	
	CCTR	Yes	Yes	
EPG	Statistical Subscription	Yes	Yes	
ESC	Statistical Subscription	Yes	No	
Fronthaul 6622	Statistical Subscription	Yes	Yes	
Fronthaul 6624	Statistical Subscription	Yes	Yes	
Fronthaul 6080	Statistical Subscription	Yes	Yes	
Fronthaul 6392	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
GenericESA	Statistical Subscription	Yes	No	
gNodeB Baseband Radio Node	Statistical Subscription	Yes	Yes	
	UE Trace Subscription	Yes	Yes	Either UeTrace is enabled by PIB parameter or there is an active UeTrace subscription in ENM.
	Cell Trace Subscription	Yes	Yes	
	CCTR	Yes	Yes	
GSM Baseband Radio Node	Statistical Subscription	Yes	Yes	
HLR-FE (BSP)	Statistical Subscription	Yes	No	
HLR-FE (IS)	Statistical Subscription	Yes	No	
HLR-FE (APZ)	Statistical Subscription	Yes	No	
HSS-FE(ECIM)	Statistical Subscription	Yes	Yes	
IPWorks(ECIM)	Statistical Subscription	Yes	Yes	
IP-STP	Statistical Subscription	Yes	No	
JUNIPER-MX, JUNIPER-PTX, JUNIPER-SRX, JUNIPER-vMX, JUNIPER-vSRX	Statistical Subscription	Yes	No	
MINI-LINK TN	Statistical Subscription	Yes	Yes	Node and ENM time zone should be the same.



Network Element Type	Subscription Type	File Collection or Generation Criteria		Additional Comments
		Node Connected	Node CM Synchronized	
MINI-LINK LH	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK CN210	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK CN510R1	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK CN510R2	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK CN810R1	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK CN810R2	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK 669X	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK 665X	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK 6366	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK 6351	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK 6352	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MINI-LINK PT 2020	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
MGW	Statistical Subscription	Yes	Yes	
MRF(ECIM)	Statistical Subscription	Yes	Yes	
MRS	Statistical Subscription	Yes	Yes	
MSC	MTR Subscription	Yes	No	
MSC-S BC (BSP)	Statistical Subscription	Yes	No	
MSC-S BC (IS)	Statistical Subscription	Yes	No	
MSC-S DB	Statistical Subscription	Yes	No	
MTAS(ECIM)	Statistical Subscription	Yes	Yes	
NodeB Baseband Radio Node	Statistical Subscription	Yes	Yes	
NodeB DU Radio Node	Statistical Subscription	Yes	No	
	MO Instance Subscription	Yes	No	
	GPEH	Yes	No	
NSDS(ECIM)	Statistical Subscription	Yes	Yes	
PCC	Statistical Subscription	Yes	No	
PCG	Statistical Subscription	Yes	No	
RNC	Statistical Subscription	Yes	Yes	"Flexible PM Statistics" feature must be



Network Element Type	Subscription Type	File Collection or Generation Criteria		Additional Comments
		Node Connected	Node CM Synchronized	
				activated to collect files for ROPs different from default 15-min.
	MO Instance Subscription	Yes	Yes	Node Sync is required to get the MO Instances populated in the MO Instances tab, which is required to Activate the subscription.
	CTR	Yes	Yes	Node Sync is required to get the Cells populated in the Cells tab, which is required to Activate the subscription.
	UETR	Yes	Yes	Node Sync is required to Activate the subscription.
	GPEH	Yes	Yes	Node Sync is required to get the Cells populated in the Cells tab, which is required to Activate the subscription.
	Cell Instance	Yes	Yes	Node Sync is required to get the Cells populated in the Cells tab, which is required to Activate the subscription.
Router6672	Statistical Subscription	Yes	Yes	
Router6675	Statistical Subscription	Yes	Yes	
Router6273	Statistical Subscription	Yes	Yes	
Router6274	Statistical Subscription	Yes	Yes	
Router6x71	Statistical Subscription	Yes	Yes	
SBG (ECIM)	Statistical Subscription	Yes	Yes	
SBG-IS	Statistical Subscription	Yes	No	
SC	Statistical Subscription	Yes	No	
SCU	Statistical Subscription	Yes	No	
SGSN-MME	Statistical Subscription	Yes	Yes	
	UE Trace Subscription	Yes	No	Either UeTrace is enabled by PIB parameter or there is an active UeTrace subscription in ENM.
	EBM Subscription	Yes	No	
	CTUM	Yes	No	
SIU02	Statistical Subscription	Yes	No	
Switch 6391	Statistical Subscription	Yes	Yes	Refer to MINI-LINK-TN Additional comments column.
TCU02	Statistical Subscription	Yes	No	
UPG(ECIM)	Statistical Subscription	Yes	Yes	
vAFG	Statistical Subscription	Yes	No	
vBGF(ECIM)	Statistical Subscription	Yes	Yes	
vCSCF(ECIM)	Statistical Subscription	Yes	Yes	
vCTC Compact	Statistical Subscription	Yes	No	
vCTC HC	Statistical Subscription	Yes	No	



Network Element Type	Subscription Type	File Collection or Generation Criteria		Additional Comments
		Node Connected	Node CM Synchronized	
vCUDB	Statistical Subscription	Yes	No	
vDU	Statistical Subscription	Yes	No	
vDSC(ECIM)	Statistical Subscription	Yes	Yes	
vEIR-FE	Statistical Subscription	Yes	No	
vEME(ECIM)	Statistical Subscription	Yes	Yes	
vEPG	Statistical Subscription	Yes	Yes	
(v)EPG-OI	Statistical Subscription	Yes	Yes	
vHLR-FE	Statistical Subscription	Yes	No	
vHSS-FE(ECIM)	Statistical Subscription	Yes	Yes	
vIP-STP Compact	Statistical Subscription	Yes	No	
vIPWorks(ECIM)	Statistical Subscription	Yes	Yes	
vMRF(ECIM)	Statistical Subscription	Yes	Yes	
vMSC-S Compact	Statistical Subscription	Yes	No	
vMSC-S HC	Statistical Subscription	Yes	No	
vMTAS(ECIM)	Statistical Subscription	Yes	Yes	
vNSDS(ECIM)	Statistical Subscription	Yes	Yes	
vPP(ECIM)	Statistical Subscription	Yes	Yes	
vRC(ECIM)	Statistical Subscription	Yes	Yes	
vSAPC	Statistical Subscription	Yes	Yes	
vSBG(ECIM)	Statistical Subscription	Yes	Yes	
vSGSN-MME	Statistical Subscription	Yes	Yes	
	UE Trace Subscription	Yes	No	Either UeTrace is enabled by PIB parameter or there is an active UeTrace subscription in ENM.
	EBM Subscription	Yes	No	
	CTUM	Yes	No	
vTIF	Statistical Subscription	Yes	Yes	
vUPG(ECIM)	Statistical Subscription	Yes	Yes	
vWA(ECIM)	Statistical Subscription	Yes	Yes	
vWMG	Statistical Subscription	Yes	Yes	
WA(ECIM)	Statistical Subscription	Yes	Yes	
WMG	Statistical Subscription	Yes	Yes	
WMG-OI	Statistical Subscription	Yes	Yes	
vWMG-OI	Statistical Subscription	Yes	Yes	

5.2 Identify the Cause of Counters/Events Unavailability for Nodes



Diagnostics

The node cannot show the list of counters/events until the valid `OssModelIdentity` is attached to the node, and `OssModelIdentity` attribute gets updated once the node gets synced.

To complete this procedure you must have the `cmedit_operator` role.

1. Use Command Line Interface (CLI) to check `OssModelIdentity` Attribute value set for Node by using the following command:

```
cmedit get NetworkElement=<node name>
```

2. Check if `OssModelIdentity` attribute has value. If `OssModelIdentity` has no value, enable CM supervision for node.

Note: For enabling CM Sync, see *Sync a Node* section of CLI application Online Help.

5.3 ENM Fails to Collect Performance Management Files

Check that the `timeZone` attribute is set on the node so Performance Management Initiation and Collection (PMIC) can create the needed destination file.

Note: — `timeZone` is not supported by PM for the following network element types:

MINI-LINK-6691, MINI-LINK-6692, MINI-LINK-6693, MINI-LINK-6694, MINI-LINK-6651, MINI-LINK-6654, MINI-LINK-6655, MINI-LINK-6366, MINI-LINK-6251, MINI-LINK-6252, MINI-LINK-6262, MINI-LINK-6291, MINI-LINK-TN, MINI-LINK-LH, MINI-LINK-CN210, MINI-LINK-CN510R1, MINI-LINK-CN510R2, MINI-LINK-CN810R1 and MINI-LINK-CN810R2.

Prerequisites

The `cmedit_operator` role.

Cause

PMIC cannot create the destination file used for file collection in ENM without `timezone` information.

Steps

1. Log on to ENM and get attribute information for the Network Element:



```
cmedit get NetworkElement=<node name>
```

Example

```
cmedit get NetworkElement=RNC23MSRBS-V201
FDN : NetworkElement=RNC23MSRBS-V201
controllingBsc : null
controllingRnc : NetworkElement=RNC23
neProductVersion : [{identity=CXP9024418/6, revision=R29A151}]
networkElementId : RNC23MSRBS-V201
neType : RadioNode
nodeModelIdentity : 18.Q1-R33A54
ossModelIdentity : 18.Q1-R33A54
ossPrefix :
platformType : null
release : 18.Q1
technologyDomain : [EPS, GSM, UMTS]
timeZone : null
utcOffset : null
```

2. Check the `timeZone` attribute.

It is not set if the value is null or empty.

3. Set the `timeZone` attribute value on the Network Element using the ENM CLI:

```
cmedit set <node name> NetworkElement timezone=<timeZone>,utcOffset=<"offset value">
```

Example

```
cmedit set RNC23MSRBS-V201 NetworkElement timezone="GMT" ,utcOffset="+04:00"
SUCCESS FDN : NetworkElement=RNC23MSRBS-V201

cmedit get NetworkElement=RNC23MSRBS-V201
FDN : NetworkElement=RNC23MSRBS-V201
controllingBsc : null
controllingRnc : NetworkElement=RNC23
neProductVersion : [{identity=CXP9024418/6, revision=R29A151}]
networkElementId : RNC23MSRBS-V201
neType : RadioNode
nodeModelIdentity : 18.Q1-R33A54
ossModelIdentity : 18.Q1-R33A54
ossPrefix :
platformType : null
release : 18.Q1
technologyDomain : [EPS, GSM, UMTS]
timeZone : GMT
utcOffset : +04:00
```

5.4 ENM Fails to Collect Performance Management Files for AXE nodes

Check that the PM job is configured on AXE nodes to generate Statistical/Recording files, so Performance Management Initiation and Collection (PMIC) can create the needed destination file. This is applicable for following AXE Variants supported nodes:

BSC (ECIM)



Compact CTC
Compact IP-STP
Compact MSC-S
Compact vCTC
Compact vIP-STP
Compact vMSC-S
CTC BC (BSP)
CTC BC (IS)
CTC DBM
HLR-FE (APZ)
HLR-FE (BSP)
HLR-FE (IS)
IP-STP
MSC-S BC (BSP)
MSC-S BC (IS)
MSC-S DB
vCTC HC
vHLR-FE
vMSC-S HC

Prerequisites

You must have the `cmedit_Operator` role.

Steps

1. Check the PMFunction MO and make sure the source directory attribute is updated with the correct path as configured on the Nodes.

```
cmedit get NetworkElement=<Node_Name>, PmFunction=1
```

Example

```
Check the PmFunction
>cmedit get NetworkElement=BSC028,PmFunction=1
output:
FDN : NetworkElement=BSC028,PmFunction=1
PmFunctionId : 1
barSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready
cerSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready
ctrSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready/
fileCollectionState : ENABLED
mrrSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready
mtrSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready/
neConfigurationManagerState : ENABLED
pmEnabled : false
```



```
rirSourceDir : /data_transfer/destinations/CDHDEFAULT/Ready  
scannerMasterState : ENABLED  
sourceDir : /data_transfer/destinations/CDHDEFAULT/Ready/
```

2. Check whether Files are available on the source directory.

If files are not generated on the node , setup the PM jobs on the Nodes. See *PMIC File Generation Initiation on AXE Nodes* in the ENM Performance Management System Administration Guide, 1/1543-AOM 901 151-3 Uen. Wait for the next ROP to see if the files collection is happening.

3. Check if the filename of statistical and recordings files has the correct naming convention.

If files are generated on the Nodes, check if the naming format is correct. See *PMIC File Generation Initiation on AXE Nodes* in the ENM Performance Management System Administration Guide, 1/1543-AOM 901 151-3 Uen.

5.5 ENM Fails to Collect MTR Files from BSC Nodes

- Check whether the MSCs present in the active MTR subscription, and their associated BSCs, are managed in same ENM application server.
- Check and identify the MTR subscription and perform the following actions accordingly:
 - In the case of a manual user defined MTR subscription, remove affected nodes from the subscription, then add them back into the subscription.
 - In the case of CBS, deactivate and activate the MTR subscription. In this case, the error scenario may rectify the affected nodes but other nodes in the subscription may have gone into an error state.

If the issue is still not resolved contact local Ericsson support.

5.6 MTR Subscription goes to Error State during Activation or Deactivation

Check and identify the MTR subscription and perform the following actions accordingly:

- In the case of a manual user defined MTR subscription, remove affected nodes from the subscription, then add them back into the subscription.
- In the case of CBS, deactivate and activate the MTR subscription. In this case, the error scenario may rectify the affected nodes but other nodes in the subscription may have gone into an error state.

If the issue is still not resolved contact local Ericsson support.



5.7 Continuous Cell Trace NRAN Subscription goes to Operational Status Error

If a Baseband Radio Node was re-configured from an eNodeB Baseband Radio Node to also have a gNodeB Baseband Radio Node added to it, it can take up to the time period set in the parameter `scannerPollingIntervalMinutes` before the subscription's operational status changes back to Ok. See [ENM Performance Management System Administrator Guide](#) for information on how to read the parameter.

5.8 UeTrace Subscription goes to Operational Status Error

Check the version of the Network Element(s) listed as ERROR in the PM Node Processes for the UeTrace subscription.

- UeTrace Subscription with IPv6 streaming destination address is only supported for (v)SGSN-MME node version 1.35 or higher.

Please note that node version information can be verified from the "release" attribute of the Network Element MO using ENM CLI.

```
cmedit get NetworkElement=<node name> NetworkElement.release
```

Example:

```
cmedit get NetworkElement=CORE01SGSN001 NetworkElement.release
FDN : NetworkElement=CORE01SGSN001
release : 1.36
1 instance(s)
```

5.9 Expected Outside ROP Scenarios for PM File Collection

PMIC collects Files Outside ROP data in the following cases:

1. Node connectivity issues.

PMIC collects current and previous ROP data in the current ROP. In this case, ROP collection leads to Outside ROP Files. Following are the scenarios:

- a. ENM Upgrade.
- b. Node Software upgrade/downgrade.
- c. Network Connectivity Issues.
- d. Node Restart.



2. Unavailability of Network File System (limited to Cloud) during upgrade.

Because of NFS failover, PMIC collects files outside ROP.

3. Unavailability of SMRS instance during upgrade.

When the SMRS instance goes down during the ENM upgrade. All the ongoing SFTP file transfer connection in that `smrs` instance are terminated abruptly. In the next ROP, PUSH-based PMIC mediation detects missed files, and reconfigures the SFTP details on the node. Node pushes all the buffered files into SMRS File system, and they are processed and marked as Outside ROP files.

Note: This is applicable only for Push-based nodes.

5.10 Missing Nodes from View Node Process list for PMIC subscription

Nodes that are part of PMIC subscriptions having connectivity or CM heartbeat failure, will not be processed for the subscription.

The nodes will not be visible in the node process list but visible in subscription resources.

The Subscription `Operational` Status in PMIC UI will be shown as active.

5.11 ENM Fails to Collect Performance Management Files for Push-Based Nodes

If PM file collection is failing for Push-based nodes, there might be a chance that node is not pushing PM files to the respective SMRS directory. In such cases, configuration of SSH key should be done on Node. This is applicable for following Push based nodes:

- CSCF, MTAS, HSSFE, cSAPC (TSP based Nodes)
- vAFG (ESA based node)
- Check whether files are available in SMRS directory : `/home/smrs/smrsroot/pm/<ne_type>/<ne_name>/`

Example:

```
[root@svc-3-smrsvr CORE38MTAS01]# pwd
/home/smrs/smrsroot/pm/mtas-tsp/CORE38MTAS01
```

- If no files are available in SMRS directory, check whether SSH key configuration is done on the node. See *Configuration of SSH keys for File*



Transfer in the Node Preliminary Configuration Guide, 2/127 01-CRA 119 2183 Uen. Wait for the next ROP to see if the files collection is happening.

5.12 ENM Fails to Collect Performance Management Flexible ROP Files

Refer to *Identify the Cause of Missed File Collections or Generations for Nodes*.

If the steps in *Identify the Cause of Missed File Collections or Generations for Nodes* do not resolve the problem follow these additional steps related to particular Network Element Types.

5.12.1 RNC Network Element

Do!

Check if the selected counters are supported for the selected ROP and check if the license is active on the node in order to have Flexible PM Statistics feature enabled.

Prerequisites

- PM_Operator role available
- ccredit_Operator role available

Steps

1. Check if the selected counters are supported for the selected ROP. Refer to [Managed Object Model \(MOM\) RNC](#). If at least one of the selected counters is not supported, remove affected counter/s from the subscription.
2. Check the status of the subscription. If the status is Active and red, check *PM Node Processes* for the cause of activation failure on the RNC Network Element. If the Error Details contains NO_VALID_LICENSE, follow the procedure *Manage Flexible PM Statistics Feature on RNC* in the [ENM Performance Management System Administrator Guide](#) to check and activate the license on the node.
3. Contact Local Ericsson Support if the preceding steps do not indicate a problem and the counter files are not available in ENM.



5.12.2 vSAPC Network Element

Do!

Check if predefined jobs are active on the Network Element with the same ROP of the active subscription.

This can prevent the file collection to start on the Network Element.

Prerequisites

- PM_Operator role available

Cause

At deployment time vSAPC Network Element provides some active measurement collection jobs with granularity period 5 minutes. The granularity can be changed manually by user.

To use Flex ROP for vSAPC on ENM the operator must manually delete the predefined measurement collection jobs on the Network Element and manually delete the previously generated default performance files.

Steps

1. Check the status of the subscription. If the status is Active and red, check *PM Node Processes* for the cause of activation failure on the vSAPC Network Element. If the Error Details indicates scanner in ERROR, check Log Viewer for the following error:

```
"Transaction commit failed, [*FAILED, All jobs with jobGroup=' ' and reportin →  
gPeriod=<reportingPeriod enum> must have same compressionType*.]"
```

If present and the reportingPeriod is equal to the selected ROP, there is a conflict with pre-defined jobs on the network element.

Note: For information on mapping between reportingPeriod in error message from Network Element and ROP values in ENM, refer to [SAPC, Managed Object Model](#).

Follow the procedure in [Measurements Ericsson Service-Aware Policy Controller User Guide](#) to delete the pre-defined jobs and manually delete the previously generated default performance files on node.

2. Contact Local Ericsson Support if the preceding step does not indicate a problem and the counter files are not available in ENM.



5.13 ENM Fails to Collect Performance Management Files - Configure SFTP Connection Parameters

How to configure SFTP parameter, how to check and update SFTP time-out parameter. Use the following steps to troubleshoot when file collection failure is because of a time-out in SFTP connection to node.

PMIC file collection opens SFTP connections towards Network Elements to collect measurement files. PMIC uses the default `ftpSession`, `ftpSocket`, and `ftpChannel` time-out values when opening those SFTP connections. PMIC has one resource adapter, and increasing these time-out values impacts the overall PMIC file collection KPI. These time-out values can be configured by the operator based on specific conditions.

The following parameters are used to configure default time-out values for all nodes:

- `ftpSocketTimeout`
- `ftpSessionTimeout`
- `ftpChannelTimeout`

There are two configurable time-out values which are specific to `MSRBS_V1` node type and supersede the default `ftpSessionTimeout` & `ftpChannelTimeout` values:

- `pmicMSRBSV1FtpSessionTimeout`
- `pmicMSRBSV1FtpChannelTimeout`

Prerequisites

User has root access to the ENM server.

Expected Result

- The maximum time-out value when opening an FTP socket connection is modified by changing the value of the `ftpSocketTimeout` parameter.
- The maximum time-out value when opening an FTP session is modified by changing the value of the `ftpSessionTimeout` parameter.
- The maximum time-out value when opening an FTP channel is modified by changing the value of the `ftpChannelTimeout` parameter.
- The maximum time-out value when opening an FTP session is modified for `MSRBS_V1` nodes by changing the value of the `pmicMSRBSV1FtpSessionTimeout` parameter.



- The maximum time-out value when opening an FTP channel is modified for MSRBS_V1 nodes by changing the value of the pmicMSRBSV1FtpChannelTimeout parameter.

Steps

1. Log on the ENM MS as the litp-admin user and switch to the root user.
2. Change to the following directory: /ericsson/pib-scripts/etc/

```
[root@ms~]#cd /ericsson/pib-scripts/etc/
[root@ms etc]#
```

3. For Cloud environment logon laf services virtual machine, connect to emp virtual machine, and change to the following directory:/ericsson/pib-scripts/etc/

```
[root@ms~]#cd /ericsson/pib-scripts/etc/
[root@ms etc]#
```

Table 2

Parameter Name	Default Value	Description
ftpSocketTimeout	120000	SFTP socket time-out default value.
ftpSessionTimeout	20000	SFTP session time-out default value.
ftpChannelTimeout	20000	SFTP channel connect default time-out.
pmicMSRBSV1FtpSessionTimeout	30000	SFTP session time-out value for MSRBS_V1NodeType.
pmicMSRBSV1FtpChannelTimeout	30000	SFTP channel connect time-out value for MSRBS_V1NodeType.

Considering ftpSocketTimeout as an example parameter for demonstrating the available operations:

Example 1

View Current ftpSocketTimeout

```
./config.py read --app_server_address=<pmic_services_host_name>:8080 --name=ftpSocketTimeout →
```

where



<pmic_services_host_name> is pmic services hostname (example = svc-1-pmserv).

```
./config.py read --app_server_address=svc-1-pmserv:8080 --name=ftpSocketTimeout
```

expected result: 120000

Example 2

Edit Current ftpSocketTimeout

```
./config.py update --app_server_address=<pmic_services_host_name>:8080 --name=ftpSocketTimeout --value=<value>
```

where

<pmic_services_host_name> is pmic services hostname (example = svc-1-pmserv).

<value> is value to change.

```
./config.py update --app_server_address=svc-1-pmserv:8080 --name=ftpSocketTimeout --value=150000
```

expected result: 150000



6 Stream Termination and Parsing Troubleshooting

This section provides the tasks recommended to diagnose and resolve common Stream Termination and Parsing problems.

6.1 Verify All Streaming Cluster Services Are Running

Check that all Native services are running: Streaming LVS Router, Stream Terminator, and Kafka.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. Identify all Streaming cluster peer servers:

```
grep str-[0-9]'\s' /etc/hosts
```

2. Connect to one of the Streaming cluster peer servers.

See *Connect to each ENM Physical Node* in the *ENM System Administrator Guide*.

3. Check that the `streaminglvsrouter` service is online:

```
service streaminglvsrouter status
```

4. Check that Stream Terminator service is running:

```
service pmstream status
```

5. Check that the `kafka` service is running:

```
service kafka status
```

6. Repeat the Streaming LVS Router, Stream Terminator, and Kafka checks for each Streaming cluster peer server.



6.2 Verify That Event Data Is Being Written to Correct Topics (EBS-L Streaming)

Ensure that raw and decoded topics in Kafka contain event data when network elements are streaming to ENM.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. On a Streaming cluster peer server, execute the `streaming_metrics` script:

```
python /ericsson/tor/data/streaming/bin/streaming_metrics.py
```

2. Look for the section beginning with `Starting collection for: kafka` to verify that messages have been loaded to the raw and decoded topics.

Consult Ericsson Local Support if the Raw and Decoded Topics are not loading event data.

6.3 Verify That Event Data Is Being Written to Correct Topics (EBS-N Streaming)

Ensure that raw and celltrace5g topics in Kafka contain event data when network elements are streaming to ENM.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. On a Streaming cluster peer server, execute the `streaming_metrics` script:

```
python /ericsson/tor/data/streaming/bin/streaming_metrics.py
```

2. Look for the section beginning with `Starting collection for: kafka` to verify that messages have been loaded to the raw and decoded topics.



Note: Contact Ericsson Local Support if the Raw and celltrace5g Topics are not loading the event data.

6.4 Validate Advertised Kafka Hostname Property

Check that the IP of the property set in `/ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties` matches the IP of the hostname.

Prerequisite

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. Identify all Streaming cluster peer servers:

```
grep str-[0-9]'\s' /etc/hosts
```

2. Connect to one of the Streaming cluster peer servers.

See *Connect to each ENM Physical Node* in the *ENM System Administrator Guide*.

3. Get and note the host IP:

```
/usr/bin/getent hosts |grep $(hostname)
```

4. Get and note the `<advertised.host.name>` IP in the `<server.properties>` file:

```
grep 'advertised.host.name=' /ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties
```

5. Compare the two noted IP addresses to ensure that they are the same.

Consult Ericsson Local Support if the Advertised Kafka Hostname IP does not match the host IP.

6. Repeat the procedure on all Streaming cluster peer servers.



6.5 Validate Kafka zookeeper.connect Property

Ensure that Kafka has the correct IP addresses and number of zookeepers set for the `<zookeeper.connect>` property in `/ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties`.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. Get all the zookeeper addresses and note all the IP addresses returned:

```
grep str-[0-9]-zoo /etc/hosts
```

2. Get and note the `<zookeeper.connect>` IP in the `<server.properties>` file:

```
grep 'zookeeper.connect=' /ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties →
```

3. Compare the noted IP addresses to ensure that they are the same.

Consult Ericsson Local Support if the Kafka and Zookeeper IP addresses do not match.

- Note:**
- For a Production deployment, zookeeper runs in server mode. The result of running the command from Step 2 returns a comma-separated list of IP addresses matching all the IPs from Step 1.
 - For a Lab deployment, zookeeper runs in standalone mode. The result of running the command from Step 2 returns a single IP address matching one of the IPs from Step 1.

6.6 Ensure Correct Kafka Topics Exist

Check that `raw`, `decoded`, and `_schemas` topics are present in the `/ericsson/kafka/data/` directory.



Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. Log on to one of the Streaming cluster peer servers.

See *Connect to each ENM Physical Node* in the *ENM System Administrator Guide*.

2. Find and note all zookeeper IP addresses:

```
grep str-[0-9]-zoo /etc/hosts
```

3. Get and note the list of topics on each zookeeper:

```
/ericsson/kafka/kafka_2.11-0.10.2.0/bin/kafka-topics.sh --zookeeper <IP_Address>:2181 --describe | grep PartitionCount
```

Replace `<IP_Address>` with a zookeeper IP address. If no response is returned, repeat for each zookeeper IP address until a list is generated in the console.

4. Verify that `raw`, `decoded`, and `_schemas` partitions exist on the console output with the expected `<Replication Factor>`, `<Partition Count>`, and `<Configs:min.insync.replicas>` values.

Consult Ericsson Local Support if the expected values are not present.

Table 3 Expected Partition Values

	Partition Count	Replication Factor	In-Sync Replicas
raw	96	2	1
decoded	80	2	1
celltrace5g	96	2	1

Tip: The partition distribution can be verified by performing the following checks on each of the Streaming cluster peer servers:

- a. List all directories under `/ericsson/kafka/data`:

```
ls /ericsson/kafka/data
```

- b. Compare the output with the list from [Step 3](#) to verify that the partitions are distributed as expected.



6.7 Validate Schema Registry `kafkastore.connection.url` Property

Ensure the IP addresses from the `schema-registry.properties` file match the host IP addresses for the zookeeper instances.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Cloud-user access to the schema registry on STR peer servers.

Steps

1. List the schema registry IP addresses:

```
grep str-[0-9]-reg /etc/hosts
```

2. Connect as `cloud-user` to access one of the schema registry Virtual Machines:

```
ssh -i /root/.ssh/vm_private_key cloud-user@str-<n>-reg1
```

3. Get and note the zookeeper IP addresses:

```
grep str-[0-9]-zoo /etc/hosts
```

4. Check that the `/ericsson/registry/schema-registry.properties` file contains the correct zookeeper addresses:

```
grep 'kafkastore.connection.url=' /ericsson/registry/schema-registry.properties
```

Consult Ericsson Local Support if the file does not contain matching zookeeper IP addresses.

- Note:**
- For a Lab deployment, zookeeper runs in standalone mode. The result of running the command from [Step 3](#) returns a single IP address matching one of the IPs from [Step 1](#).
 - For a Production deployment, zookeeper runs in server mode. The result of running the command from [Step 3](#) returns a comma-separated list of IP addresses matching all the IPs from [Step 1](#).

5. Repeat Steps [Step 2](#) to [Step 4](#) for each IP address listed in [Step 1](#).



6.8 Verify Stream Terminator is Receiving Events

Ensure that Stream Terminator is receiving events when Network Elements are streaming to ENM.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Steps

1. Identify all Streaming cluster peer servers:

```
grep str-[0-9]'\s' /etc/hosts
```

2. Connect to one of the Streaming cluster peer servers.

See *Connect to each ENM Physical Node* in the *ENM System Administration Guide*.

3. Execute the `streaming_metrics` script as follows, which returns the latest measured total input event rate in events per second to the entire Streaming cluster for 5G:

```
python /ericsson/tor/data/streaming/bin/streaming_metrics.py|awk -v RS= 'NR= →  
=1'|tail -1|awk '{print "Total Events received per second at Stream Terminat →  
or: "$5}'
```

4. Execute the `streaming_metrics` script as follows, which returns the latest measured total input event rate in events per second to the entire Streaming cluster for LTE:

```
python /ericsson/tor/data/streaming/bin/streaming_metrics.py|awk -v RS= 'NR= →  
=2'|tail -1|awk '{print "Total Events received per second at Stream Terminat →  
or: "$5}'
```

5. Get the input event count per Streaming cluster peer server for LTE:

```
tail -500f /var/ericsson/log/pmstream/default/metrics.csv | grep -i '3events'
```

Result: A list of events is displayed in the console output. The first value after the time stamp provides the number of received events:

```
stream_in_server@3Events,2017-10-24 10:44:42,1,0.0,0.0,0.0,0.0  
stream_in_server@3Events,2017-10-24 10:44:52,2,0.0,0.0,0.0,0.0  
stream_in_server@3Events,2017-10-24 10:45:02,3,0.0,0.0,0.0,0.0
```



6. Get the input event count per Streaming cluster peer server for 5G:

```
tail -500f /var/ericsson/log/pmstream/default/metrics.csv | grep -i '2events' →
```

Result: A list of events is displayed in the console output. The first value after the time stamp provides the number of received events:

```
stream_in_server_5g@2Events,2020-04-23 13:33:30,10901,0.39878309623384434,0. →
0546471576671655,0.3753273703363732,0.3696669999352206 →
stream_in_server_5g@2Events,2020-04-23 13:33:40,10901,0.3375626031572443,0.0 →
5464439094635468,0.3630226755409126,0.36558232349505276 →
stream_in_server_5g@2Events,2020-04-23 13:33:50,10901,0.28574057457911006,0. →
05464162437320939,0.35112137662322596,0.361542781139409
```

7. Repeat on each Streaming cluster peer server to monitor the events received for that server instance.

6.9 Verify a Specific eNodeB/gNodeB Is Connected to Stream Terminator

Check that an eNodeB/gNodeB is connected to the stream terminator process.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- `litp-admin` access to all STR peer servers.
- The specific eNodeB/gNodeB is in an active PMIC subscription for a stream-based application (for example, EBS-L, EBS-N or ASR). It is suspected that there is no event stream being received in ENM for that eNodeB/gNodeB.
- The FDN of the specific eNodeB.

Solution

1. Get the IP address of the specific eNodeB/gNodeB:
 - a. Log on to ENM, navigate to Topology Browser, and click **Search for an Object** at the top of the page.
 - b. Enter the FDN of the eNodeB/gNodeB and click **Search**.
 - c. Click the result, then click the **Node Details** tab on the right of the page.



- d. Copy the IP address of the eNodeB/gNodeB.
2. Check the eNodeB is connected to the stream terminator process:
 - a. On the MS, list all STR cluster peer servers:

```
cat /etc/hosts | grep 'str-[0-9]\s'
```

- b. Log on to each STR peer server as `litp-admin`.
- c. Run the following command, with the IP address of the eNodeB/gNodeB from [Step 1](#).

```
cat /var/ericsson/log/pmstream/default/terminator-standalone-kafka.log | grep -i "<Node_IP_Address>" →
```

Note: If the IP address of the eNodeB/gNodeB is not found, continue with this procedure. If the IP address of the eNodeB is found, then the node is connected to the stream terminator process.

- d. Repeat steps b and c for each STR peer server until the connection status of the eNodeB/gNodeB is verified.
 - e. If a connection for the eNodeB is not found on any STR peer server, it is not connected to the stream terminator process.
3. Verify that Event Streaming is activated on the eNodeB/gNodeB.

The Event Streaming Value Pack must be activated on the node for Event Streaming to be active on the eNodeB/gNodeB.

Consult Ericsson Local Support if Event Streaming is active on the eNodeB/gNodeB and a connection to ENM stream terminator process is not established.

6.10

Verify Parsers Are Receiving Events for a Specific eNodeB/gNodeB

Check that Parsers are receiving streamed events from a specific eNodeB/gNodeB.

Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the MS.



- The specific eNodeB is in an active PMIC subscription for a stream-based application (for example, EBS-L, EBS-N or ASR). It is suspected that there is no streamed events being received into parsers for that eNodeB/gNodeB.
- The FDN of the specific eNodeB/gNodeB.

Solution

1. Log on to ENM, navigate to the Command Line Interface, and get the eNodeB/gNodeB with the FDN of the specific eNodeB/gNodeB and the network function required:

```
gNodeB CUCP :
cmedit get <Node_FDN> GNBCUCPFunction.gNBId
Example:
» cmedit get NR01gNodeBRadio00009 GNBCUCPFunction.gNBId
FDN : ManagedElement=NR01gNodeBRadio00009,GNBCUCPFunction=1
gNBId : 1

gNodeB CUUP:
cmedit get <Node_FDN> GNBCUUPFunction.gNBId
Example:
» cmedit get NR01gNodeBRadio00009 GNBCUUPFunction.gNBId
FDN : ManagedElement=NR01gNodeBRadio00009,GNBCUUPFunction=1
gNBId : 1

gNodeB DU:
cmedit get <Node_FDN> GNBCUCPFunction.gNBId
Example:
» cmedit get NR01gNodeBRadio00009 GNBDUFunction.gNBId
FDN : ManagedElement=NR01gNodeBRadio00009,GNBDUFunction=1
gNBId : 1

eNodeB:
cmedit get <Node_FDN> GNBCUCPFunction.gNBId
Example:
» cmedit get LTE26dg2ERBS00001 EnodeBfunction.eNBId
FDN : ManagedElement=LTE26dg2ERBS00001,ENodeBFunction=1
eNBId : 126
```

2. Check on the MS which parser instance is receiving events from the node with the eNBId identified in step 1:

```
/ericsson/tor/data/streaming/bin/streaming_kvms_command_executor.py --s apeps →
--c 'python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id <NODE →
_ID>'
```



3. Check the values in the count column of the command output:

Example

```
Connected to str-2-aeps3
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:45 2018 from ms-1
ing_metrics.py -id 19783 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps3-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       Node Not Found |
Connected to str-2-aeps1
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:45 2018 from ms-1
ing_metrics.py -id 19781 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps1-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-1-aeps5
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:46 2018 from ms-1
ing_metrics.py -id 19785 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-1-aeps5-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-1-aeps4
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:46 2018 from ms-1
ing_metrics.py -id 19784 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-1-aeps4-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-2-aeps6
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:47 2018 from ms-1
ing_metrics.py -id 19786 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps3-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       Node Not Found |
Connected to str-1-aeps1
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Fri Apr 27 11:04:24 2018 from ms-1
ing_metrics.py -id 19781 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps6-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-2-aeps5
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:48 2018 from ms-1
ing_metrics.py -id 19785 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-1-aeps1-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-2-aeps4
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:48 2018 from ms-1
ing_metrics.py -id 19784 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps5-----
|   eNodeBid   instance   count   |
|   1978       aeps1       0       |
|   1978       aeps2       0       |
Connected to str-1-aeps6
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:49 2018 from ms-1
ing_metrics.py -id 19786 ~]# sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-aeps4-----
|   eNodeBid   instance   count   |
|   1978       aeps1       17895  |
|   1978       aeps2       0       |
Connected to str-1-aeps3
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
```



```

Last login: Thu Apr 26 17:24:49 2018 from ms-1
ing_metrics.py -id 19783 ~]$ sudo python /ericsson/tor/data/streaming/bin/stream
-----str-1-apeps6-----
|   eNodeBid   instance   count   |
|   1978       apeps1     Node Not Found |
|   1978       apeps2     0       |
Connected to str-2-apeps2
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:50 2018 from ms-1
ing_metrics.py -id 19782 ~]$ sudo python /ericsson/tor/data/streaming/bin/stream
-----str-2-apeps2-----
|   eNodeBid   instance   count   |
|   1978       apeps1     43 (only 1 value available) |
|   1978       apeps2     0       |
Connected to str-1-apeps2
sudo python /ericsson/tor/data/streaming/bin/streaming_metrics.py -id 1978
Last login: Thu Apr 26 17:24:50 2018 from ms-1
ing_metrics.py -id 19782 ~]$ sudo python /ericsson/tor/data/streaming/bin/stream
-----str-1-apeps2-----
|   eNodeBid   instance   count   |
|   1978       apeps1     0       |
|   1978       apeps2     0       |

```

In the sample output, `str-2-apeps4` received a total of 17895 events for eNodeBid 1978 between the last two measurements. All other KVMs had either:

- No increase in their counts as that eNodeBid was not currently active on that KVM (count=0), or:
- The node never registered on that KVM (count=Node Not Found).

Note: Where only one value is available on one or more servers, as per `str-2-apeps2`, compare the time stamps for these values with the most recent value for a valid count (see `str-2-apeps4`), or other single value counts. This can be done by manually checking `/var/log/messages` on the respective peer servers to determine which is the most recent value. This determines which STR peer server the node is active on.

Consult Ericsson Local Support if Parsers are not receiving events for the specific eNodeB.

6.11 Reduce RAM Disk Usage when the Kafka Clean Up Procedure Fails

In some circumstances, the Kafka log cleaner thread is unable to continue the cleanup process. When this happens, it stops cleaning up files under the directory `/ericsson/kafka/data/__consumer_offsets-<partition-id>/` on Streaming (STR) peer servers. The `/ericsson/kafka/data` partition fills up, and eventually reaches 100% usage.



Prerequisites

- The ENM Deployment variant includes the Streaming (STR) cluster.
- Root access to the STR peer servers.

Diagnostics

1. From the LMS, identify all Streaming (STR) cluster peer servers:

```
grep str-[0-9]'\s' /etc/hosts
```

2. Connect to each of the STR peer servers. See *Connect to each ENM Physical Node* in the *ENM System Administrator Guide*.

- a. Execute the following command to check the current tmpfs usage:

```
df -kh /ericsson/kafka/data
```

- b. If tmpfs usage is above 80%, check if there are consumer_offsets files older than 24 hours:

```
find /ericsson/kafka/data/__consumer_offsets* -type f -mtime +1
```

3. On each STR peer server with files older than 24 hours, proceed with the following Solution, otherwise this procedure may be exited.

Solution

1. From the LMS, offline Grp_CS_str_cluster_kafka1 service on the affected STR peer server:

```
/opt/ericsson/enminst/bin/vcs.bsh --offline -s <hostname of problematic rack →  
> -g Grp_CS_str_cluster_kafka1
```

2. Log on to the affected STR peer server as root user, and clean up the partition files:

```
find /ericsson/kafka/data/__consumer_offsets-* -type f -mtime +1 -exec rm -r →  
f {} \;
```

3. Check tmpfs usage, to ensure usage has decreased:

```
df -kh /ericsson/kafka/data
```

4. From the LMS, check the status of the Grp_CS_str_cluster_kafka1 service on the affected peer server:



```
/opt/ericsson/enminst/bin/vcs.bsh --group | grep Grp_CS_str_cluster_kafka1
```

If the `Grp_CS_str_cluster_kafka1` service is in `FAULTED` state, then execute the following commands. Otherwise continue to [Step 5](#).

```
/opt/ericsson/enminst/bin/vcs.bsh --clear -s <hostname of problematic rack> -g Grp_CS_str_cluster_kafka1 →
```

After 10 minutes, check the service status again to ensure it is not in `FAULTED` state:

```
/opt/ericsson/enminst/bin/vcs.bsh --group | grep Grp_CS_str_cluster_kafka1
```

5. From the LMS, online `Grp_CS_str_cluster_kafka1` service on the affected peer server by executing the following command:

```
/opt/ericsson/enminst/bin/vcs.bsh --online -s <hostname of affected rack> -g Grp_CS_str_cluster_kafka1 →
```

6. After 10 minutes, check the service status again to ensure it is in `ONLINE` state:

```
/opt/ericsson/enminst/bin/vcs.bsh --group | grep Grp_CS_str_cluster_kafka1
```



7 ENIQ ENM Integration (ENIQ-I) Troubleshooting

This section provides the tasks recommended to diagnose and resolve common problems in ENM integration with ENIQ.

7.1 Delta Topology Export Files are not Available for ENIQ Events

Check that the necessary file transfer configuration is set up between ENM and ENIQ Events.

Prerequisites

- Access to the Virtual Machine (VM):
 - Physical: Root access to the ENM Management Server (MS).
 - Cloud: User is connected to the EMP VM. See [Connect to a Virtual Machine on an ENM on Cloud Deployment](#) on page 4.
- User is familiar with ENIQ and has the necessary administrator privileges.

Cause 1

ENIQ Events are not integrated to ENM.

Solution

1. Follow *List Integrated ENIQs in ENM* section of the *OSS-RC Configuration for ENIQ* document to list integrated ENIQ in ENM.

If the IP of ENIQ Events system is not listed, follow the integration steps given in *ENIQ Events Activation on ENM* in the same document.

Cause 2

ENM NAS is not correctly mounted in ENIQ Events.



Solution

1. Log on to the ENIQ Events server as root user.
2. Use the `df -hk` command to check the mount points of the ENM file system.
Expected result: pm1, pm2 and pm1links file systems of ENM are shown in the command output.
3. If mount points are not visible, follow *Restart Connected Monitor Daemon to Recover OSS Mounts* section of *OSS-RC Configuration for ENIQ* document.

Cause 3

ENIQ Events IP is listed but the delta export is not enabled in ENM.

Solution

1. Check and configure PIB `ETS_DeltaExportEnabledEvents` if it is not enabled.

Check the parameter on ENM.

- a. Physical ENM:

```
./config.py read --app_server_address=<impexpserv_services_host_name>:8080 --name=<parameter_name> --service_identifier=<PIB_service_identifier>
```

- b. Cloud ENM:

```
python config.py read --app_server_address=<impexpserv_services_host_name>:8080 --name=<parameter_name> --service_identifier=<PIB_service_identifier>
```

Note: An example for `<impexpserv_services_host_name>` is `svc-1-impexpserv`.

Example

The following command shows if delta export is enabled for ENIQ Events on a physical ENM:

```
./config.py read --app_server_address=svc-1-impexpserv:8080 --name=ETS_DeltaExportEnabledEvents --service_identifier=GLOBAL
```

Expected result is `true`.



If the result is `false`, enable delta topology export by following *Enabling Delta Export for ENIQ Events in ENM* section in *OSS-RC Configuration for ENIQ* document.

Note: ENM ENIQ Integration function can process up to 50 notifications per second or 45,000 notifications per ROP (15 Minutes) to export delta topology under load.

If the notification rate exceeds 45,000 per ROP, the `impexpserv` VM could go out of service, and may impact the other ongoing export and import jobs in the VM. Increase in notification rate can occur in scenarios such as upgrade, cutover, or migration of nodes where the number of notifications could be above 100,000.

If the notification rate can exceed 45,000, disable delta topology export.

Cause 4

Nodes are not in synchronized state in ENM.

Solution

1. Log on to the ENM CLI and check the required node with synchronized state:

```
cmedit get NetworkElement=<Node Name>,CmFunction=1
```

Example

```
cmedit get NetworkElement=LTE01dg2ERBS00013,CmFunction=1
FDN : NetworkElement=LTE01dg2ERBS00013,CmFunction=1
CmFunctionId : 1
failedSyncsCount : 0
iposCopyConfigFrequency : 64800
lastFailedSync : null
lostSynchronization : null
syncStatus : SYNCHRONIZED
1 instance(s)
```

Contact Local Ericsson Support if the steps outlined do not indicate a problem and delta topology files are not generated by the ENM.



8 GSM Event Based Applications Troubleshooting

This section provides the tasks recommended to diagnose and resolve common problems with the generation of BSC Performance Events, BSC Performance Event Statistics, BSC Performance Event Monitors, and RTT files on PM NBI.

Note: If there are issues found with GSM Event Based Applications based on these troubleshooting procedures, then consult Ericsson Local Support.

8.1 Verify Generation of BSC Performance Events, BSC Performance Event Statistics, BSC Performance Event Monitors, and RTT Files

Use the File Lookup Service (FLS) to verify that the required files were generated as per active BSC Performance Events / RTT subscriptions. See *Interwork Description for File Lookup Service (FLS)*.

Note:

- IMSI/IMEI values are replaced with pseudonym values as part of RTT file names and directories in the PM file system. For more information, refer to *IMSI/IMEI/IMEISV Pseudonymization in Trace File Names* in the [ENM Privacy User Guide Reference](#).
- If the pseudonymization service is unavailable to perform the mapping of IMSI/IMEI to pseudonymized IMSI/IMEI, then the corresponding RTT events will be written into a Dummy IMSI file with IMSI value as 1000000000000000.

8.2 Verify that BSC (ECIM) Nodes are configured to Stream to ENM

Verify that the BSC nodes are configured correctly to stream RPMO and RTT events. See *Configure BSC (ECIM) nodes to stream BSC RPMO and RTT events to ENM* in the *ENM Performance Management System Administration Guide [11]*.

8.3 Verify that PMIC Subscriptions are Active

1. Check that subscription status in PMIC for BSC Performance Events subscription is active for the required BSC nodes and cells.



2. Check that subscription status in PMIC for RTT subscription is active for the required BSC nodes and IMSI/IMEI numbers.

8.4 Verify that all EBA Cluster Services are Running

Check that all Native services are running.

Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. Identify all EBA cluster peer servers:

```
grep eba-[0-9]'\s' /etc/hosts
```

2. Connect to ebalvsrouter VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the ebalvsrouter service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebalvsrouter
sudo su
service keepalived status
```

3. Connect to ebamsstr[1-2] VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that Stream Terminator service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebamsstr1
sudo su
service pmstream status
```

4. Connect to ebakafka[1-2] VM:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the Kafka service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebakafka1
sudo su
service kafka status
```

5. Connect to rpmokafka[1-2]:



See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the Kafka service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-rpmokafka1
sudo su
service kafka status
```

6. Connect to rpmoflow[1-3]:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the rpmoflow service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-rpmoflow1
sudo su
service rpmo-eps status
```

7. Connect to rttflow[1-2]:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the rttflow service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-rttflow1
sudo su
service rtt-eps status
```

8. Connect to ebaapeps[1-4]:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the ebaapeps service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebaapeps1
sudo su
service apeps1 status
```

9. Connect to ebsgflow[1-3]:

See [VM Security Tasks](#) on page 2 and [Connect to a Virtual Machine](#) on page 3, and check that the ebsgflow service is running:

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebsgflow1
sudo su
service ebsg-eps status
```

10. Repeat the previous steps for each KVM.

8.5 Verify that BSC Event Data is being Written to Raw and Decoded Topics in Kafka

Ensure that raw and decoded topics in Kafka contain event data when network elements are streaming to ENM.



Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. On the LMS, execute the `streaming_metrics` script:

```
python /ericsson/tor/data/eba/bin/streaming_metrics.py  
Logs path : /ericsson/tor/data/eba/streaming_metrics/*
```

2. Look for the section beginning with `Starting collection for: kafka` to verify that messages have been loaded to the Raw and RPMO/RTT Decoded topics.

8.6 Validate Advertised Kafka Hostname Property

Check that the IP address of the property set in `/ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties` matches that of the hostname.

Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. Identify all ebakafka kvm:

```
grep ebakafka /etc/hosts
```

2. Connect to one of the ebakafka KVM.
3. Get, and note, the host IP address:

```
/usr/bin/getent hosts | grep $(hostname)
```

4. Get, and note, the IP in the `<server.properties>` file:

```
grep "advertised.host.name=" /ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties
```

5. Compare the IP addresses from [Step 3](#) and [Step 4](#) to ensure that they are the same.



6. Repeat the procedure on all ebakafka kvm.

8.7 Validate Kafka zookeeper.connect Property

Ensure that Kafka has the correct IP addresses, and number of zookeepers, set for the property in `/ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties`.

Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. Identify Zookeeper KVM and note all the IP addresses returned:

```
grep ebazoo /etc/hosts
```

2. Connect to one of the EBA cluster peer servers.
3. Get, and note, the IP addresses in the `<server.properties>` file:

```
grep 'zookeeper.connect=' /ericsson/kafka/kafka_2.11-0.10.2.0/config/server.properties →
```

4. Compare the IP addresses from [Step 1](#) and [Step 3](#) to ensure that they are the same.

- Note:**
- For a Production deployment, Zookeeper runs in server mode. The result of running the command from [Step 3](#) returns a comma-separated list of IP addresses matching all the IP addresses from [Step 1](#).
 - For a Lab deployment, Zookeeper runs in standalone mode. The result of running the command from [Step 3](#) returns a single IP address matching one of the IP addresses from [Step 1](#).

8.8 Ensure Correct Kafka Topics Exist for both ebakafka and rpmokafka

Check that `raw`, `decoded`, `__consumer_offset`, and `__schemas` topics are present in the `/ericsson/kafka/data/` directory for ebakafka.

Check that `rpmo_data`, `rtt_data`, and `__consumer_offset` are present in the `/ericsson/kafka/data/` directory for rpmokafka.



Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. Connect to Zookeeper KVM.
2. Find, and note, all zookeeper IP addresses:

```
grep ebazoo /etc/hosts
```

3. Get, and note, the list of topics on each zookeeper:

```
/ericsson/kafka/kafka_2.11-0.10.2.0/bin/kafka-topics.sh --zookeeper <IP_Addr> →  
ess>:2181 --describe | grep PartitionCount
```

Replace with a Zookeeper IP address. If no response is returned, repeat for each Zookeeper IP address until a list is generated in the console.

4. Verify that:

`raw`, `rpmo_decoded`, `rtt_decoded`, `__consumer_offset`, and `_schemas` partitions exist on the console output with the expected `<Replication Factor>`, `<Partition Count>` and `<Configs:min.insync.replicas>` values.

Expected Partition Values for ebakafka:

	Partition Count	Replication Factor	In-Sync Replicas
<code>_schema</code>	1	2	
<code>rtt_decoded</code>	2	2	1
<code>__consumer_offsets</code>	12	2	
<code>raw</code>	16	2	1
<code>rpmo_decoded</code>	16	2	1

5. Get the list of topics on `rpmokafaka`:

```
/ericsson/kafka/kafka_2.11-0.10.2.0/bin/kafka-topics.sh --zookeeper <IP_Addr> →  
ess>:2181/rpmokafka --describe | grep PartitionCount
```

6. Verify that:

`rpmo_data`, `rtt_data`, and `__consumer_offset` partitions exist on the console output with the expected `<Replication Factor>`, `<Partition Count>` and `<Configs:min.insync.replicas>` values.

Expected Partition Values for rpmokafaka:



```
/ericsson/kafka/kafka_2.11-0.10.2.0/bin/kafka-topics.sh --zookeeper <IP_Address>:2181/rpmokafka --describe | grep PartitionCount →
```

	Partition Count	Replication Factor	In-Sync Replicas
rpmo_data	16	2	1
rtt_data	2	2	1
__consumer_offsets	12	2	

8.9 Verify Stream Terminator is Receiving Events

Ensure that Stream Terminator is receiving events when Network Elements are streaming to ENM.

Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- Root access to the EBA peer servers.

Steps

1. Identify all stream terminator KVM:

```
grep ebamsstr /etc/hosts
```

2. Connect to one of the Streaming Terminator KVM.

```
ssh -i /root/.ssh/vm_private_key cloud-user@eba-1-ebamsstr1
sudo su
```

3. Execute the `streaming_metrics` script as follows, which returns the latest measured total input event rate in events per second to the entire Streaming Terminator KVM:

```
python /ericsson/tor/data/eba/bin/streaming_metrics.py
```

4. Get the input event count per Streaming KVM :

```
tail -500f /var/ericsson/log/pmstream/default/metrics.csv
```

5. Repeat on each Streaming KVM to monitor the events received for that KVM instance.



8.10 BSC Performance Events (Data and Control)

BSC Performance Events (Data and Control) files not being produced after PM file system was full.

In the event of the PM file system having becoming full and subsequently cleared, it is necessary to take the actions below to resume the output of BSC Performance Events (Data and Control) files.

Prerequisites

- The ENM Deployment variant includes the EBA cluster.
- The PM file system has been cleared following being full and being in a read only state.
- BSC Performance Events files are not being produced on PM NBI. As a result, the following BSC Performance Events file data types are not being produced in File Lookup Service (FLS):

Table 4

BSC Performance Events file format	File dataType in FLS
pmicBSCPerfEventsFileFormat = BINARY	— PM_BSC_PERFORMANCE_EVENT_RAW
pmicBSCPerfEventsFileFormat = TEXT	— PM_BSC_PERFORMANCE_EVENT — PM_BSC_PERFORMANCE_CTRL

Steps

1. Connect to the ENM MS as the root user.
2. List the `rpmoflow` VM instances.

```
[root@ms]# /opt/ericsson/enminst/bin/vcs.bsh --groups | grep rpmoflow
```

3. Restart all `rpmoflow` VM instances listed above.

```
[root@ms]# /opt/ericsson/enminst/bin/vcs.bsh --restart -g Grp_CS_eba_cluster →
_rpmoflow1
[root@ms]# /opt/ericsson/enminst/bin/vcs.bsh --restart -g Grp_CS_eba_cluster →
_rpmoflow2
[root@ms]# /opt/ericsson/enminst/bin/vcs.bsh --restart -g Grp_CS_eba_cluster →
_rpmoflow3
```



9 Flexible Counter Management (FCM) Troubleshooting

This section provides the tasks recommended to diagnose and resolve common problems in Flexible Counter Management (FCM).

9.1 User Interface Fails to Provide Updated Information on Flexible Counter Batch Generation

1. Log on to the ENM MS and switch to root user.
2. Use the following command to replace the placeholder with the ENM user:

```
REST_USER=<user name of ENM administrator or user name of user that has access rights for Flexible Counter Management GUI>
```

3. Use the following command to print the JSON representation of the flexible counters that are generated and deployed. The output is also the list of flexible counters that would appear in the table of the FCM application in Available status.

```
hostname=$(cat /etc/hosts | egrep "ebsmcontroller" | awk '{print $2}' | head -n 1) && \
curl --silent -H "X-Tor-UserID:$REST_USER" -H "Accept:application/json" \
http://$hostname:8080/ebscountermanagement/flex/counters/ \
| python -c "import sys, json; data = json.load(sys.stdin); available = list(filter(lambda x: x['status'] == 'AVAILABLE', data)); print json.dumps(available, sort_keys=False)" \
| python -m json.tool
```

9.2 User Interface Fails to Display the Number of Flexible Counters in the System

1. Log on to the ENM MS and switch to root user.
2. Use the following command to replace the placeholder with the ENM user

```
REST_USER=<user name of ENM administrator or user name of user that has access rights for Flexible Counter Management GUI>
```

3. Print the number of flexible counters that appear in the table of the FCM application.

```
hostname=$(cat /etc/hosts | egrep "ebsmcontroller" | awk '{print $2}' | head -n 1) && \
```



```
curl --silent -H "X-Tor-UserID:$REST_USER" -H "Accept:application/json" \
http://$hostname:8080/ebscountermanagement/flex/counters/ | python -m json.t →
ool | grep -c "flexCounterName": "
```

4. Print a JSON representation of all the flexible counters with their information, such as their state.

```
hostname=$(cat /etc/hosts | egrep "ebsmcontroller" | awk '{print $2}' | head →
-n 1) && \
curl --silent -H "X-Tor-UserID:$REST_USER" -H "Accept:application/json" \
http://$hostname:8080/ebscountermanagement/flex/counters/
```

9.3 User Interface Fails to Initiate the Generation of Flexible Counter Batches

Check the status of the Service Group EBS controller.

Steps

1. Log on to the ENM MS and switch to root user.
2. To check the status of the Service Group, run the following commands.

```
/opt/ericsson/enminst/bin/vcs.bsh --groups
/opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebsmcontroller
```

3. From the lines returned, if the `ServiceState` value of the instances of `ebsmcontroller` are not `ONLINE`, then you must restart them. Note that if one of the instance is in `OFFLINE` state, the Service Group is still able to process requests.
4. To start an instance which is `OFFLINE`, take the Group name of the `ebsmcontroller` from the previous step and run the command:

```
/opt/ericsson/enminst/bin/vcs.bsh --online -s <svc_system_name>
```

5. Wait until the completion of the restart. The completion can be checked with the following command.

```
/opt/ericsson/enminst/bin/vcs.bsh --groups | grep ebsmcontroller
```

If all the instances are `ONLINE`, proceed with the next steps.

6. Get the hostnames of all the `ebsmcontroller` servers (for example, `evt-2-ebsmcontroller1`, `evt-3-ebsmcontroller1`) from the `/etc/hosts` file:

```
cat /etc/hosts | egrep "ebsmcontroller" | awk '{print $2}'
```

7. For each of the hostnames execute the following:



```
ssh -i /root/.ssh/vm_private_key cloud-user@<hostname>  
sudo -su root  
service jboss status
```

8. The following output shows that the JBoss is running:

```
Jboss CURL command success. jboss-as is running
```

All the ebsm-controller servers must have JBoss running. In case one or more are not in running state, use the VCS command described in the previous steps to restart them successfully.



Reference List

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- [2] *ENM Network Integration Guideline*, 1/102 72-AOM 901 151.
- [3] *ENM Operator's Guide*, 1/1553-AOM 901 151
- [4] *ENM Security System Administrator Guide*, 2/1543-AOM 901 151
- [5] *VNF-LCM Installation Instructions*, 1/1531-CNA 403 3313, available in the ENM Installation and Support CPI Library.
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- [7] *ENM Backup and Restore System Administrator Guide*, 3/1543-AOM 901 151
- [8] *ENM Configuration System Administrator Guide*, 1/1543-AOM 901 151-1
- [9] *ENM Data Collection Guideline*, available from local Ericsson Support.
- [10] *ENM Interwork Description for File Lookup Service (FLS)*, 1/155 19-CNA4033301
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- [14] *ENM Configuration Troubleshooting Guide*, 1/159 01-AOM 901 151-1
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- [19] *ENM Troubleshooting Guide*, 1/159 01-AOM 901 151
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- [25] *ENM Product Description*, 1/1551-AOM 901 151
- [26] *ENM Monitoring System Administrator Guide*, 1/1543-AOM 901 151-2
- [27] *LITP Node Hardening Instructions*, 2/1531-CSA 113 110



- [28] *CAS Software Dropbox End-User Guide*, 6/1553-HSC 901 110, available from Ericsson Support.
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- [30] *ENM System Monitor User Guide*, 1/1553-cna 403 3115
- [31] ENM NIG Connection Matrix
- [32] *ENM System Security Configuration Programmers Guide*
1/19817-cna 403 3065 Uen
- [33] *Neo4j Documentation*
<https://support.neo4j.com/hc/en-us/articles/360006361794-Causal-Cluster-FAQ-for-heavy-workloads>
- [34] *ENM Parameter List*, 1/19059-AOM 901 151
- [35] *Managed Object Model (MOM) RNC*, [155 54-CXC 173 5901/1-V1](#)
- [36] *SAPC, Measurements Ericsson Service-Aware Policy Controller User Guide*, [1/15553 - AXB 901 33/7](#)
- [37] *SAPC, Managed Object Model*, [155 54-LZN 708 0672/5-V1](#)
- [38] *ENM Privacy User Guide*, 2/1553-AOM 901 151