

vDicos, Diameter Link Failure

OPERATING INSTRUCTIONS

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1 Alarm Description

The alarm is raised when a Diameter connection has failed.

Table 1 vDicos, Diameter Link Failure Alarm Causes

Alarm Cause	Description	Fault Reason	Fault Location	Impact
A Diameter connection has failed.	Format error of Capabilities-Exchange-Request (CER)/Capabilities Exchange Answer (CEA) messages	The received message has not been coded according to the diameter standard for coding parameters	Examine the log in /opt/cdclsv/storage/log/lpmsv to determine fault reason	Missing connection between one or more Diameter peer nodes, which can decrease the throughput of messages between Diameter applications
		One or more Attribute-Value Pairs (AVPs) are missing		
		A vendor-defined mandatory AVP is received and that AVP is not defined in the receiving node		
	Configuration fault	The security configuration is not the same on both sides	Software configuration	
		An application is not installed on both sides		
		The number of connections is not equal on both sides		
	Link inactivity	A connection to a Diameter peer is broken because of link inactivity without response to a watchdog message	Network interface	
	IP network failure	IP network failure	IP network	
		Socket failure	Socket	
		Malformed message	Network	
	System error	Internal	Software	
	Handler restarted	Internal	Software	
	Link not handled	Internal	Software	
	Internal error, connection to SCTP FE lost	Internal	Software	
	Internal error, CP user IDs conflict	Internal	Software	
	Connection failure	Network configuration fault	Misconfigured IP addresses or port numbers	
		Temporary fault	Any of the Diameter peer nodes	



The alarm is cleared automatically in the following situations:

- Related peer node is disabled

When a peer node is disabled, all vDicos Diameter Link Failure alarms on connections related to this peer node are cleared and a new vDicos, Diameter Peer Node Disabled alarm is raised.

- Own node is disabled

When the own node is disabled, alarms for connections (and peer nodes) related to the own node are cleared and a new vDicos, Diameter Own Node Disabled alarm is raised for the own node.

- A Diameter link is disabled

When a Diameter link for this connection is disabled, the alarm is cleared and a new vDicos, Diameter Link Disabled alarm is raised for the connection.

2 Procedure

2.1 Handle Alarm vDicos, Diameter Link Failure

Prerequisites

- This instruction references the following documents:
 - [Data Collection Guideline](#)
- No tools are required.
- The following conditions must apply:
 - The alarm is raised.
 - Diameter configuration data are correctly.
 - An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.

Steps

1. Check the `additionalText` attribute of the alarm.
2. Select action according to the attribute text:



- If `Format` error of CER/CEA messages, proceed with Section 2.2 on page 3.
- If `Configuration` fault, proceed with Section 2.3 on page 5.
- If `Link` inactivity, IP network failure, or `Connection` failure, proceed with Section 2.4 on page 7.
- If `System` error, proceed with Section 2.5 on page 9.

2.2 Handle Format Error of CER/CEA Messages

Steps

1. Wait for automatic reconnection.
2. Check the status of the links to the peer indicated by the alarm, for example:

```
>dn ManagedElement=NODE06ST,XYZFunction=xyz,DIA-CFG-Application
=DIA,DIA-CFG-StackContainer=abc,DIA-CFG-PeerNodeContainer=abc,D
IA-CFG-NeighbourNode=node12.ericsson.com\23abc
```

```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>show-table -m
DIA-CFG-Conn -p connId,linkStatus
```

The following is an example output:

```
=====
| connId                      | linkStatus |
=====
| abc\23node12...com\23conn1 | Down      |
| abc\23node12...com\23conn2 | Up        |
=====
```

3. Is at least one of the connections established for the peer node?

Yes: Continue with the next step.

No: Proceed with Step 10.

4. Navigate to the `DIA-CFG-Conn` Managed Object (MO) with link status Down, for example:

```
>dn ManagedElement=NODE06ST,XYZFunction=xyz,DIA-CFG-Application
=DIA,DIA-CFG-StackContainer=abc,DIA-CFG-PeerNodeContainer=abc,D
IA-CFG-NeighbourNode=node12.ericsson.com\23abc,DIA-CFG-Conn=abc
\23node12.ericsson.com\conn1
```

5. Disable and re-enable the connection:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1>configure
```



```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enabled  
=false
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit -s
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enable  
d=true
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit
```

6. Verify the setting:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>show enabled
```

```
enabled=true
```

7. Navigate up one step to the peer node:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>up
```

8. Check the status of the links again, for example:

```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>show-table -m  
DIA-CFG-Conn -p connId,linkStatus
```

The following is an example output:

```
=====
| connId                               | linkStatus |
=====
| abc\23node12...com\23conn1          | Up         |
| abc\23node12...com\23conn2          | Up         |
=====
```

9. Are there additional connections with link status Down?

Yes: Proceed with Step 4.

No: Proceed with Step 12.

10. Disable and re-enable the peer node, for example:

```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>configure
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>ena  
bled=false
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>commit  
-s
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>enable  
d=true
```




```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>commit
```

11. Verify the setting:

```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>show enabled
enabled=true
```

12. Check the link status of the connections:

```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>show-table -m
DIA-CFG-Conn -p connId,linkStatus
```

The following is an example output:

```
=====
| connId                      | linkStatus |
=====
| abc\23node12...com\23conn1 | Up         |
| abc\23node12...com\23conn2 | Up         |
=====
```

13. Is the connection established?

Yes: Continue with the next step.

No: Proceed with Step 15.

14. Is the alarm cleared?

Yes: Proceed with Step 17.

No: Continue with the next step.

15. Perform data collection, refer to [Data Collection Guideline](#).

16. Consult the next level of maintenance support. Further actions are outside the scope of this instruction.

17. Job is completed.

2.3 Handle Configuration Fault

Steps:

1. Wait for automatic reconnection.
2. Is the number of connections equal on both sides?

Yes: Continue with the next step.

No: Add or remove connections to get equal numbers on both sides.



3. Are any of the connections established for the peer node?

Yes: Continue with the next step.

No: Disable the peer node.

4. Is all but one connection established for the peer node?

Yes: Disable the connection.

No: Continue with the next step.

Note: Make sure that both nodes have the same applications installed and that Transport Layer Security (TLS) is not required by the other Diameter node. Enable the peer node, or enable the connection again.

5. Is the connection established, that is, the link status goes to Upper Part (UP)?

Yes: Proceed with Step 9.

No: Continue with the next step

6. Check the value of the blockReason attribute in the DIA-CFG-Conn MO, for example:

```
>dn ManagedElement=NODE06ST,XYZFunction=xyz,DIA-CFG-Application=DIA,DIA-CFG-StackContainer=abc,DIA-CFG-PeerNodeContainer=abc,DIA-CFG-NeighbourNode=node12.ericsson.com\23abc,DIA-CFG-Conn=abc\23node12.ericsson.com\conn1
```

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>show blockReason
```

The value of the blockReason attribute contains the result code. The following is an example output:

```
blockReason=3007(application is unsupported)
```

7. Perform one of the following actions, based on the result code:

- 3007(application is unsupported): Install the needed application.
- 3010(the peer is unknown): Define the peer node.
- 5010(there is no common application): Install the needed application.
- 5012(not enough resources defined): Define more connections for the peer node.

8. Disable the connection and enable it again.

9. Is the alarm cleared?

Yes: Continue with the next step.



No: Clear the alarm manually and contact the next level of maintenance support. Further actions are outside the scope of this Operating Instruction.

10. Job is completed.

2.4

Handle Link Inactivity, IP Network Failure, or Connection Failure

Steps

1. Wait for automatic reconnection.
2. Check the link status of the **DIA-CFG-Conn** MO indicated by the alarm, for example:

```
>dn ManagedElement=N0DE06ST,XYZFunction=xyz,DIA-CFG-Application
=DIA,DIA-CFG-StackContainer=abc,DIA-CFG-PeerNodeContainer=abc,D
IA-CFG-NeighbourNode=node12.ericsson.com\23abc,DIA-CFG-Conn=abc
\23node12.ericsson.com\conn1
```

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>show linkStatus
```

The following is an example output:

```
linkStatus=Down
```

3. Is at least one of the connections established for the peer node?

Yes: Continue with the next step.

No: Proceed with Step 6.

4. Disable and re-enable the connection:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>configure
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enabled
=false
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit -s
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enable
d=true
```

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit
```

5. Is the connection established?

Yes: Proceed with Step 11.

No: Continue with the next step.

6. Disable and re-enable the peer node, for example:



```
(DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>configure
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>enabled=false
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>commit -s
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>enabled=true
```

```
(config-DIA-CFG-NeighbourNode=node12.ericsson.com\23abc)>commit
```

7. Verify the setting:

```
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>show enabled
```

```
enabled=true
```

8. Wait for automatic reconnection.

9. Check the link status:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>show linkStatus
```

The following is an example output:

```
linkStatus=Up
```

10. Is the connection established?

Yes: Continue with the next step.

No: Proceed with Step 12.

11. Is the alarm cleared?

Yes: Proceed with Step 17.

No: Proceed with Step 15.

12. Use tools ping and traceroute to check the connection to the peer node.

Can the peer be reached within 10 seconds?

Yes: Proceed with Step 15.

No: Continue with the next step.

13. Contact the network administrator about a possible network fault.

14. Proceed with Step 17.



15. Perform data collection, refer to [Data Collection Guideline](#).
16. Consult the next level of maintenance support. Further actions are outside the scope of this instruction.
17. Job is completed.

2.5

Handle System Error, Handler Restarted, Link not Handled, Internal Error, Connection to SCTP FE Lost or Internal Error, CP User IDs Conflict

Steps

1. Wait for automatic reconnection.
2. Disable and re-enable the connection:

```
(DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>configure  
  
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enabled  
=false  
  
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit -s  
  
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>enabled  
d=true  
  
(config-DIA-CFG-Conn=abc\23node12.ericsson.com\conn1)>commit
```
3. Perform data collection, refer to [Data Collection Guideline](#).
4. Consult the next level of maintenance support. Further actions are outside the scope of this instruction.
5. Job is completed.