

CSCF Charging Answers Indicate Permanent Failures

Call Session Control Function

OPERATING INSTRUCTIONS

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1 Alarm Description

The threshold alarm `CSCF Charging Answers Indicate Permanent Failures` is raised when it is not possible to send one or more Accounting-Requests (ACRs) from the CSCF to the charging system.

The alarm is associated to the Performance Management counter `cscfACAPermanentFailure`.

The alarm is raised when the number of Accounting-Answer (ACA) with permanent errors (code 5xxx) or limited success (code 2002) received through Diameter has reached or exceeded its configured `thresholdHigh` within the time period configured by `thresholdRateOfVariation` and `granularityPeriod`.

The alarm is automatically ceased when it reaches or goes below the configured `thresholdLow` value.

The default values related to this alarm are `thresholdRateOfVariation=PER_GP`, `granularityPeriod=FIVE_MIN`, `thresholdHigh=2`, and `thresholdLow=0`. This means that when the counter value is 2 or higher, the alarm is raised when the Granularity Period is ended. The alarm is ceased when the counter `cscfACAPermanentFailure` has reached a value of 0 at the end of a Granularity Period.

Note: The thresholds for raising and ceasing this alarm are configurable. The default Distinguished Name for the thresholds is `ManagedElement=<node_name>`, `SystemFunctions=1`, `Pm=1`, `PmJob=CscfChargingStatisticsThreshold`, `MeasurementReader=cscfACAPermanentFailureMeasReader`, `PmThresholdMonitoring=cscfACAPermanentFailure`.

It is not possible to change threshold values once they have been set. To change a threshold, first the `PmThresholdMonitoring` instance must be deleted and recreated with required `thresholdHigh` and `thresholdLow`.

For more information, refer to [Performance Management](#).

If the alarm is not solved, there is a limited amount of memory reserved (in the range of a few days) to store the charging information temporarily. When this buffer is full, subsequent charging information is lost, and the alarm `CSCF Charging Backup File System Unavailable` is also raised.



Table 1 CSCF Charging Answers Indicate Permanent Failures Alarm Causes

Alarm Cause	Description	Fault Reason	Fault Location	Impact
The PM counter <code>cscfACAPermanentFailure</code> has reached or exceeded its configured upper threshold value.	The number of received ACA with Result-Code 5xxx (permanent errors) or 2002 (limited success) for sent ACR has reached or exceeded the configured threshold.	Peer entity problems to interpret or manage ACR messages.	Peer entity Charging Data Function (CDF) or protocol compatibility problems between CSCF and CDF.	Charging information is buffered on persistent media until communication to CDF is reestablished.

Note: This alarm can appear as a result of maintenance activity.

Table 2 CSCF Charging Answers Indicate Permanent Failures Alarm Attributes

Attribute Name	Attribute Value
Major Type	193
Minor Type	6684680
Managed Object Class	MeasurementReader
Managed Object Instance	ManagedElement=<node_name>, SystemFunctions=1, Pm=1, PmJob=CscfChargingStatisticsThreshold, MeasurementReader=cscfACAPermanentFailureMeasReader
Specific Problem	CSCF Charging Answers Indicate Permanent Failures
Event Type	communication (2)
Probable Cause	x733ThresholdCrossed (351)
Additional Text	cscfACAPermanentFailure between the CSCF and the Charging System
Perceived Severity	major (4)



2 Procedure

2.1 Handle Alarm CSCF Charging Answers Indicate Permanent Failures

Prerequisites

- This instruction references the following documents:
 - CSCF Configuration Management
 - Managed Object Model (MOM)
- Before starting this procedure, ensure that the following tool is available:
 - A Diameter protocol sniffer, refer to [RFC 3588 Diameter Base Protocol](#).
- The following condition must apply:
 - The alarm is raised.

Steps

Note: If the reason for the alarm has disappeared after the Granularity Period, the alarm automatically ceases.

1. Log on to the System Controller (SC).
2. Make sure that the SC is the primary processor:

```
cat/proc/dxldb
```

The following is the expected output when the SC is the primary processor:

```
0:cs:Connected st:Primary/Secondary id:Consistent
```

The following is the expected output when the SC is the secondary processor:

```
0:cs:Connected st:Secondary/Primary id:Consistent
```

3. Check the log file for error 5xxx (permanent failures):

```
grep "Result-Code= [50]" /storage/no-backup/cdclsv/log/lpmsv/*
```

4. Are there no or too few 5xxx errors?

Yes: Continue to the next step.

No: Proceed to Step 6.

5. Check the log file also for error 2002 (limited success):



```
grep "Result-Code= [2002]" /storage/no-backup/cdc1sv/log/lpmsv/*
```

6. Log off the SC.
7. Make sure that the alarm is matching with the errors in the log.
8. Find the cause why the communication with the Charging Data Function node fails.
9. Is the alarm threshold is set too low?

Yes: Adjust the alarm threshold and then continue with the next step.

No: Continue with the next step.

10. Has the alarm ceased?

Yes: Proceed with Step 12.

No: Continue with the next step.

11. If the alarm is not ceased, consult the next level of maintenance support.

Further actions are outside the scope of this instruction.

12. Job is completed.