

CSCF Charging Answers Indicate Permanent Failures

Call Session Control Function

OPERATING INSTRUCTIONS

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1 Introduction

This instruction concerns alarm handling.

1.1 Alarm Description

The threshold alarm `CSCF Charging Answers Indicate Permanent Failures` is issued 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*.

The possible alarm causes and the corresponding fault reasons, fault locations, and impacts are described in Table 1.



Table 1 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 re-established.

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

The following is the consequence for the node 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.

The alarm attributes are shown in Table 2.

Table 2 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)



Attribute Name	Attribute Value
Additional Text	cscfACAPermanentFailure between the CSCF and the Charging System
Perceived Severity	major (4)

1.2 Prerequisites

This section provides information on the documents, tools, and conditions that apply to the procedure.

1.2.1 Documents

This instruction references the following documents:

- *Managed Object Model (MOM)*
- *CSCF Configuration Management*

1.2.2 Tools

Before starting this procedure, ensure that the following tools are available:

- A Diameter protocol sniffer, refer to [RFC 3588 Diameter Base Protocol](#)

1.2.3 Conditions

No conditions.





2 Procedure

Note: If the reason for the alarm has disappeared after the granularity period, the alarm automatically ceases.

Do the following:

1. Log on and check that the System Controller (SC) is the primary processor:

```
cat/proc/drdb
```

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

or

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

2. Check the log file and **grep** on error 5xxx (permanent failures):

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

3. If no, or too few, 5xxx errors are found, check also for error 2002 (limited success):

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

4. Log off the SC.
5. Verify that the alarm is matching with the errors in the log.
6. Investigate why communication with the Charging Data Function node fails.
7. If the cause is that the alarm threshold is set too low, adjust the alarm threshold.
8. Confirm that the alarm has ceased. If the alarm remains, consult the next level of maintenance support and send the extracted information with result-code. Further actions are outside the scope of this instruction.
9. Job is completed.