

# CSCF, Throttling of Diameter Traffic on Cx/Dx Interface Initiated Call Session Control Function

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## OPERATING INSTRUCTIONS

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CSCF, Throttling of Diameter Traffic on Cx/Dx Interface Initiated



# 1 Introduction

This instruction concerns alarm handling.

## 1.1 Alarm Description

The alarm is issued to indicate the initiation of throttling of diameter traffic on the Cx/Dx interface. The diameter traffic is throttled if Home Subscriber Server (HSS) overload is detected, which means that the CSCF acts as if HSS would have responded with overload even though the CSCF does not send the request to HSS.

Overload is detected when the percentage of busy responses received from the node/realm over a configurable time period (`cscfThrottlingWindowLength`) exceeds a configurable threshold (`cscfUpperThrottlingThreshold`).

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

The alarm is raised when the number of `cscfThrottledHssRequests` 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=1`, and `thresholdLow=0`. This means that when the counter value is 1 or higher, the alarm is raised when the granularity period is ended. The alarm ceases when the counter `cscfThrottledHssRequests` has reached a value of 0 at the end of a granularity period.

**Note:** The thresholds for raising and ceasing this alarm are configurable where it can be turned on and off. The default distinguished name for the thresholds is `ManagedElement=<node_name>, SystemFunctions=1, Pm=1, PmJob=CscfCxIfStatisticsThreshold, MeasurementReader=cscfThrottledHssRequestsMeasReader, PmThresholdMonitoring=cscfThrottledHssRequests`.

Threshold values cannot be changed 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>cscfThrottledHssRequests</code> has reached or exceeded its configured upper threshold value.	The number of throttle d/rejected messages by CSCF on behalf of HSS has reached or exceeded the configured threshold.	Peer entity is too busy to respond to Cx/Dx requests.	Peer entity sending Diameter error 3004 Too Busy.	Throttling of diameter traffic on Cx/Dx interface between the CSCF and HSS.

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

The alarm attributes are listed and explained in Table 2.

Table 2 Alarm Attributes

Attribute Name	Attribute Value
Major Type	193
Minor Type	6684708
Managed Object Class	MeasurementReader
Managed Object Instance	ManagedElement=<node_name>, SystemFunctions=1, Pm=1, PmJob=CscfCxIfStatisticsThreshold, MeasurementReader=cscfThrottledHssRequestsMeasReader
Specific Problem	CSCF, Throttling of Diameter Traffic on Cx/Dx Interface Initiated
Event Type	communication (2)
Probable Cause	x733ThresholdCrossed (351)
Additional Text	The PM counter <code>cscfThrottledHssRequests</code> is keyed with both SUM and individual HSS node/realm. Check whether overload has been detected on HSS indicated by the key.
Perceived Severity	warning (6)



## 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:

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

### 1.2.2 Tools

No tools are required.

### 1.2.3 Conditions

Before starting this procedure, ensure that the following condition is met:

- An CSCF, Throttling of Diameter Traffic on Cx/Dx Interface Initiated alarm is raised.



CSCF, Throttling of Diameter Traffic on Cx/Dx Interface Initiated





## 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 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 3xxx (protocols errors):

```
grep "Result-Code= [30]" /storage/no-backup/cdclsv/log  
/lpmsv/*
```

3. Log off the SC.
4. Verify that the alarm is matching with the errors in the log.
5. Investigate why the HSS is busy.
6. If the cause is that the alarm threshold is set too low, adjust the alarm threshold.
7. Confirm that the alarm has ceased. If the alarm remains, consult the next level of maintenance support. Further actions are outside the scope of this instruction.
8. Job is completed.