

# Configure ASR 5500 PGW to Avoid Reporting Double Data Usage

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## Introduction

This document describes the use of the Cisco ECS CC Usage Reporting options to specify the USU volumes that are reported to the OCS.

## Background Information

The StarOS Enhanced Charging Service (ECS) uses the Credit Control (CC) configuration Mode to configure prepaid services for Diameter/RADIUS applications. Within The Credit Control configuration Mode of the Active Charging Service Configuration in the Local Context, one of three ACS Credit Control Usage Reporting types can be configured.

USU - Used Service Units

OCS - Offline Charging System

```
Exec > ACS Configuration > Credit Control Configuration  
active-charging service service_name > credit-control  
[local]host_name(config-dcca)#
```

### Option 1: Default Usage-Reporting Quotas-to-Report

- Reports an AVP with CC-Total-Octets and an AVP with CC-Input-Octets and CC-Output-Octets in separate Used-Service-Units.

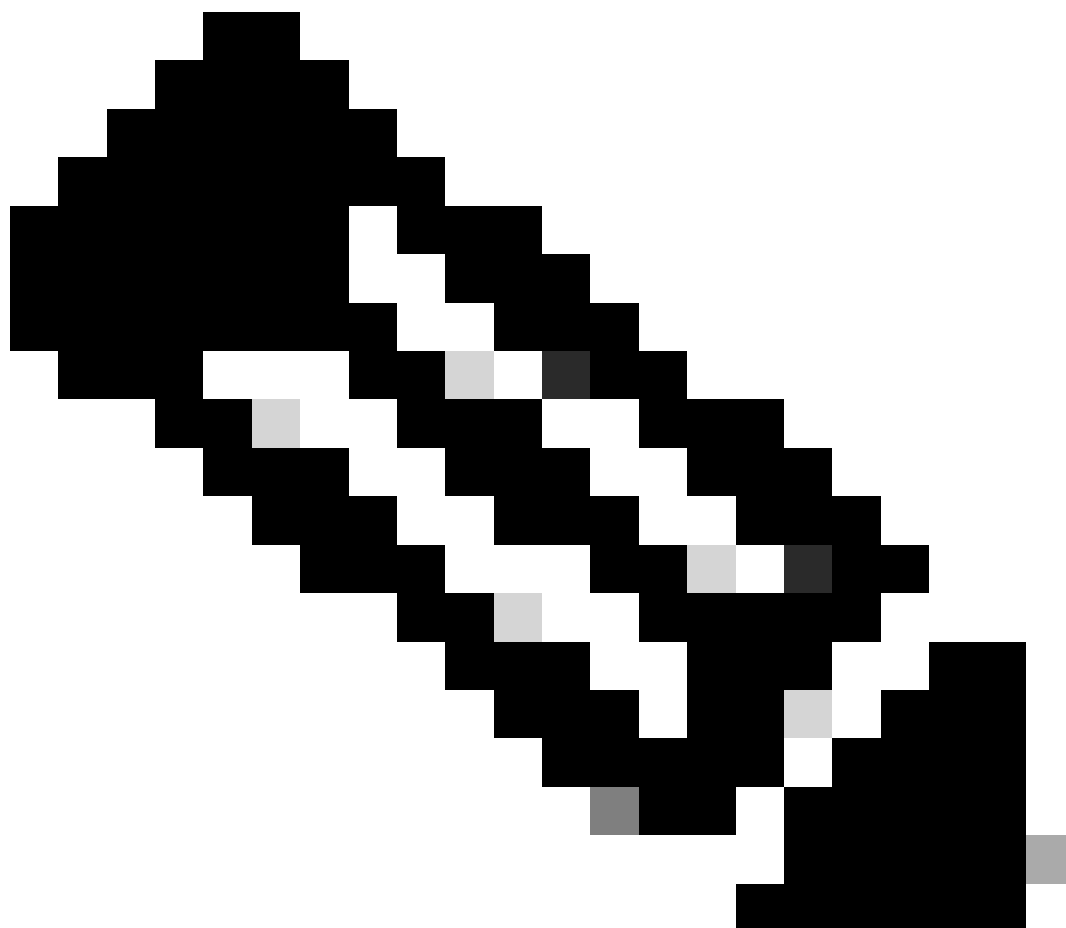
```
[local]host_name(config-dcca)# default usage-reporting quotas-to-report
```

## Option 2: Usage-Reporting Quotas-to-Report Based-on-Grant

- Configures reporting usage only for granted quota.

```
[local]host_name(config-dcca)# usage-reporting quotas-to-report based-on-grant
```

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**Note:** When Gy server is unavailable, no grant (quota) is received. In this case, P-GW sends both CC-OCTET and CC-TIME AVPs in the usage report.

## Option 3: Usage-Reporting Quotas-to-Report Based-on-Grant Report-Only-Granted-Volume

- Suppresses the input and output octets. If the Granted-Service-Unit (GSU) AVP comes with CC-Total-Octets, then the device sends total input and output octets in Used-Service-Unit (USU) AVP. If it comes with Total-Octets, the device sends only Total-Octets in USU.
- Use this command to configure reporting usage only for granted quota. On issuing this command, the Used-Service-Unit AVP reports quotas based on grant (for example, only the quotas present in the Granted-

Service-Unit AVP).

With this command, only the units for which the quota was granted by the DCCA server is reported irrespective of the reporting reason.

```
[local]host_name(config-dcca)# usage-reporting quotas-to-report based-on-grant { report-only-granted-vo
```

## Problem

A case study shows undesired reporting of Used Service Units by the PGW for an IoT device which was caused by the configuration. It also illustrates the configuration change made to resolve it. The OCS recorded twice the expected usage for IoT devices. This exhausted the IoT subscribers data bucket/allowance.

## Observation

Two separate used-service unit (USU) were reported; one with THRESHOLD and another with OTHER\_QUOTA\_TYPE. The OCS combines both USUs, which then results in the generation of the CDR. Because the PGW had the default Usage Reporting configuration option, default usage-reporting quotas-to-report, the PGW included CC-Total-Octets under one USU and CC-Input-Octets/CC-Output-Octet in different USU. This caused the OCS to generate CDRs with twice the amount of usage for the subscriber.

Used Service Units

CC-Total-Octets

Used Service Units

CC-Input-Octets

CC-Output-Octets

HEXDUMP-START

```
00 00 00 00 00 00 00 00 .....
[M] Used-Service-Unit
Code: 0x000001be (446) Used-Service-Unit
Flags: 0x40 (64) [M]
Length: 0x000028 (40)
[M] CC-Total-Octets
Code: 0x000001a5 (421) CC-Total-Octets
Flags: 0x40 (64) [M]
Length: 0x000010 (16)
Data: 858994289
```

HEXDUMP-START

```
00 00 00 00 33 33 36 71 ....336q
[V] [M] 3GPP-Reporting-Reason
Code: 0x00000368 (872) 3GPP-Reporting-Reason
Flags: 0xc0 (192) [V] [M]
Length: 0x000010 (16)
Vendor-Id: 0x000028af (10415) 3GPP
Data: THRESHOLD (0)
```

HEXDUMP-START

```
00 00 00 00 ....
[M] Used-Service-Unit
Code: 0x000001be (446) Used-Service-Unit
Flags: 0x40 (64) [M]
Length: 0x000054 (84)
[M] CC-Time
Code: 0x000001a4 (420) CC-Time
Flags: 0x40 (64) [M]
Length: 0x00000c (12)
Data: 237
```

HEXDUMP-START

```
00 00 00 ed ....
[M] CC-Input-Octets
Code: 0x0000019c (412) CC-Input-Octets
Flags: 0x40 (64) [M]
Length: 0x000010 (16)
Data: 2890014
```

HEXDUMP-START

```
00 00 00 00 00 2c 19 1e .....,..
[M] CC-Output-Octets
Code: 0x0000019e (414) CC-Output-Octets
Flags: 0x40 (64) [M]
Length: 0x000010 (16)
Data: 856104275
```

## Solution

The Credit Control Usage Reporting configuration was changed to use the option, Usage-reporting quotas-

to-report based on grant. Consequently, the CCR-U has only one USU reported with CC-Total-Octets, CC-Input-Octets, and CC-Output-Octets. Other\_quota\_type was not reported. This ensured that the amount reported would only be counted once on the OCS.

```
[M] Multiple-Services-Credit-Control:
    [M] Requested-Service-Unit:
    [M] Used-Service-Unit:
        [M] CC-Total-Octets: 5040
        [M] CC-Input-Octets: 2520
        [M] CC-Output-Octets: 2520
    [V] [M] 3GPP-Reporting-Reason: THRESHOLD (0)
```

## Related Information

- [Command Line Interface Reference, Modes C - D, StarOS Release 21.28 Chapter: Credit Control Configur...](#)
- [ECS Administration Guide, StarOS Release 21](#)