

Online Charging Support without Waiting for Credit Control Answer

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	P-GW
Applicable Platform(s)	• ASR 5500 • VPC - SI
Feature Default	Disabled - Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	• *P-GW Administration Guide*

Revision History

Revision Details	Release
In this release new CLI for online response is added under the APN level and the feature is fully qualified for this release.	21.20.3
First introduced.	21.20

Revision Details	Release
Important This feature is not fully qualified in this release and is available only for testing purposes. For more information, contact your Cisco Account Representative.	

Feature Description

For 5G subscribers, all rating groups and all bearers require to have the online charging flag set to "yes" and a Gy session established to create billing records. In order not to delay a call setup or block data flow for APNs/bearers/rating groups, P-GW supports a new feature to allow charging to be done over Gy but not delay session setup or hold up data. This will mimic 5G-ChF (Charging Function) behavior through OCS.

Policy and Charging Rules Function (PCRF) indicates through the following two AVPs, which bearers need the above behavior:

- Charging Level AVP –**Online-Response-Required** AVP is defined at the Charging level and is available only when the online charging is enabled. This AVP controls if the Session Create Response must "Wait" for CCA or not.
- Override Control AVP–**Online-Response-Required** is defined at the Override Control level and is available only when online charging is enabled. This AVP overrides the new charging AVP that is received from Policy and Charging Rules Function (PCRF).

How it works

The following call flow and procedure describes how the CCR is triggered during session create.

Table 1: Procedure

Step	Description
1	The P-GW receives Session Create Request.
2	Checks the charging AVPs received from PCRF.
3	In the PCRF, either **OnlineResponseRequired** or **Override-OnlineResponseRequired** AVP is activated in the Gx Interface at charging level or Override level with an option to WAIT to DONT_WAIT. The following action happens based on the Rule selection: • If the Session Create Request is received with WAIT rule indicating OnlineResponseRequired, Session Create response waits for CCA-I over Gy interface before sending the Session Create response. • If the Session Create Request is received with DONT_WAIT rule, Session Create response does not wait for CCA-I response.
4	P-GW sends Session Create Response based on the new AVP.

The following scenarios describe how the data flow is processed:

- If there is no quota the P-GW will Assume Positive for that flow.
- If there is Quota:
  - When the Charging level AVP specifies DONT_WAIT, then there is no traffic drop.
  - When the Quota expires, P-GW will Assume positive. Except for the Error Code 4012, if there is any error code P-GW triggers Assume Positive

Configuring Online Response Required Parameter

Use the following commands to configure the Online Response required AVP in the APN configuration mode.

```
configure
   context  context_name
      apn apn_name
         bearer-control-mode  mixed
           use-gx-avp-online-response-required
           no  use-gx-avp-online-response-required
            end
```

Notes:

- **apn** : Specifies the Access Point name.
- **bearer-control-mode mixed** : This keyword indicates that the bearer will be controlled by User Equipment (UE) and network side (from GGSN) as well. By default it is diabled.
- **use-gx-avp-online-response-required**: Enables P-GW to function according to the behavior requested in Gx AVP OnlineResponseRequired or override-OnlineResponseRequired.
- **no**: Disables the OnlineResponseRequired or override-OnlineResponseRequired feature for the specified APN.

Monitoring and Troubleshooting

Show Commands and Output

show-active-charging subscribers

The output of the above command has been enhanced to display the new parameter which shows the online response required rule definition chosen as Don't Wait. For example:

```
Override Control :
  Rule Name :
                      qci3
  Charging Parameters:
    Rating Group     : 555
    Service ID       : 333
    Online Enabled   : TRUE
```

```
    Offline Enabled  : TRUE
    Online Response Required: Don't Wait
  Policy Parameters:
    MBR UL           : 50000
    MBR DL           : 50000
```

show-active-charging-sessions-full-all

The output of the above command has been enhanced to display the new parameter which shows the online response required rule definition chosen as Wait.

```
For example
Dynamic Charging Rule Definition(s) Configured:
Name                 Prior Content-Id Chrg-Type Rule Parameters
-------------------- ----- ---------- --------- --------------------------
       ruleName_Dean     5         55      Both Gate Status:      Allow All
                                                QoS Class Identifier:     1
                                                ARP Priority Level:       6
                                                Reporting Level: Rating Grp
                                                Metering Method:   Duration
                                                Uplink MBR:        40960000
                                                Downlink MBR:      40960000
                                                Uplink GBR:        40960000
                                                Downlink GBR:      40960000
                                                Filter 1:
                                                Direction:           Uplink
                                                Dst Addr  0.0.0.0/0
                                                Filter 2:
                                                Direction:         Downlink
                                                Src Addr  0.0.0.0/0
                                                Filter 3:
                                                Direction:           Uplink
                                                Dst Addr  ::/0
                                                Filter 4:
                                                Direction:         Downlink
                                                Src Addr  ::/0
                                                Online Response Required: Wait
```

show apn-name

Use the following show apn name command output to verify the command entries.

Table 2:

Field	Description
Access Point Name (APN)	Indicates the name of the access point name (APN) for which counters are displayed.
Authentication Context	Name of the system context used for authentication for this APN.
Pdp Type	Indicates the type of PDP context. Pdp types are as follows: • IPv4 • IPv6

Field	Description
Emergency	Specifies whether **emergency-apn** option is configured in this APN or not.
Delay Tolerant	Displays whether Delay Tolerant behavior for PDN connection is available for UE in Power Saving Mode or not
PCO Options	Specifies which customized PCO (Protocol Configuration Options) options are sent in the network to MS GTP messages. PCO Options are as follows: • Custom1 • Mode • Link MTU • Nonlink MTU • ePDG Selection FQDN
Online Charging without Wait	Shows that the Online charging without Wait is defined at the APN level is disabled.