



Dedicated Bearer Creation by Service Flow Detection

This feature introduces the ability to create dedicated bearer for specific service flows based on the LAC/TAC configured on the P-GW.

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Feature Information

Summary Data

Status	New Functionality
Introduced-In Release	21.2
Modified-In Release(s)	Not Applicable
Applicable Product(s)	GGSN, P-GW
Applicable Platform(s)	ASR 5500
Default Setting	Disabled
Related CETS ID(s)	CSCvc99538
Related Changes in This Release	Not Applicable

Related Documentation	Command Line Interface Reference ECS Administration Guide Statistics and Counters Reference Statistics and Counters Reference - Counter Descriptions
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Revision History



Important

Revision history details are not provided for features introduced before release 21.2.

Revision Details	Release	Release Date
New in this release.	21.2	April 27, 2017

Feature Description

This feature introduces the ability to create dedicated bearer for specific service flows based on the LAC/TAC configured on the P-GW. The service flows are specified by destination IP addresses and the location is specified by TAI/ECGI/CGI. When the UE moves out from the location, this dedicated bearer is release. The dedicated bearer is created with support from the local policy on some specific service flow and subscriber location.

A new CLI keyword **activate-predef-rule** has been added to the CLI command **trigger-action** to create a dedicated bearer when enterprise user enters in corporate area and starts some specific service.



Important

This feature requires standard local-policy license. Contact your Cisco account or support representative for detailed licensing information.

How It Works

This section describes how this feature works:

- On a call set-up or on location change event, local-policy sends the list of rules to be activated and deleted to the P-GW.
- P-GW then caches the list of activated rules at subscriber level.
- It then does rule matching on the flow and evaluates the trigger-condition. If the condition matches, the configured trigger action is performed, which in this case is to activate predef-rule. This initiates a new bearer request towards the UE.
- On location change event, local-policy again send the list of rules to be added or deleted towards the P-GW. If the bearer is created on any of the deleted rules, then the delete bearer request is initiated towards the UE.

Limitations

Following are the limitations of this feature:

- Service flow is identified based on the destination IP address. So, in this case if delay-charging feature is enabled then for the TCP flows the trigger conditions are evaluated only when the first application packet is received.
- If the CLI command **flow control-handshaking charge-to-application** is configured under the rulebase and if the rule matches, then the bearer request is sent on the first application packet received on that flow.
- The predef rule defined for a bearer creation must be configured in the action priority line under the rulebase. The service flow rule and the predef rule both need to be present in the same rulebase.
- The activate bearer trigger action is taken only if local-policy-rule condition is specified in the trigger-condition of service-scheme framework.
- If the create bearer request fails for any reason, then the bearer request is not retried for the UE in that location.
- The session recovery is not supported when local-policy is enabled through the APN. This is because the local-policy rule is not supported in this mode. This feature works with local-policy configured in dual mode or fallback mode. Hence, the operator must configure the dummy IMSA with fallback mechanism.
- Rule-report-status should not be configured under local-policy as in this case P-GW is triggering the bearer creation.
- The multi-line-or all-lines CLI command should not be defined under trigger-condition for **trigger-action activate-predef-rule** in the service-scheme framework.

Configuring Dedicated Bearer

The following section provides the configuration commands to enable or disable the feature.

activate-predef-rule

The CLI keyword **activate-predef-rule** has been added to the command **trigger-action** to create dedicated bearer by service flow detection at specific location.

```
configure
  active-charging service service_name
    trigger-action trigger_action_name
    [ no ] activate-predef-rule
  end
```

Notes:

- **no:** Disables predefine rule or group of rules.
- **activate-predef-rule:** Activates predefine rule or group of rules.

Sample Configuration

This section lists sample local policy configuration, service scheme framework configuration, rule charging configuration, and deletion of bearer due to inactivity.

Local Policy Configuration

```

configure
  local-policy-service LOCAL_PCC
    ruledef ruledef-tai-group
      condition priority 1 tai mcc 214 mnc 365 tac ge 10
    #exit
    ruledef ruledef-ecgi-group
      condition priority 1 ecgi mcc 214 mnc 365 eci match *
    #exit
    actiondef activate_lp_action_tai
      action priority 1 activate-lp-rule name tai_action1
    #exit
    actiondef activate_lp_action_ecgi
      action priority 1 activate-lp-rule name ecgi_action1
    #exit
    eventbase default
      rule priority 1 event new-call ruledef ruledef-tai-group actiondef
activate_lp_action_tai
      rule priority 2 event location-change ruledef ruledef-tai-group
actiondef activate_lp_action_tai
      rule priority 3 event tai-change ruledef ruledef-tai-group actiondef
activate_lp_action_tai
      rule priority 4 event ecgi-change ruledef ruledef-ecgi-group actiondef
activate_lp_action_ecgi
    #exit
  end

configure
  context source
    ims-auth-service ims-auth
      policy-control
        associate failure-handling-template f1
        associate local-policy-service LOCAL_PCC
      exit
    exit
  exit
end

configure
  failure-handling-template f1
    msg-type any failure-type any action continue local-fallback
  end
end

```

Service Scheme Framework

```
configure
  active-charging service acs
    subscriber-base SB1
      priority 1 subs-class SC1 bind service-scheme SS1
    #exit

  subs-class SC1
    any-match = TRUE
  #exit

  service-scheme SS1
    trigger flow-create
      priority 1 trigger-condition TC1 trigger-action TA1
    #exit

  trigger-condition TC1
    local-policy-rule = tai_action1
    rule-name = ded-bearer-rule
  #exit

  trigger-action TA1
    activate-predef-rule predef-rule
  #exit
```

Rule-Charging Configuration

```
ruledef ded-bearer-rule
  ip dst-address = 10.10.10.1
#exit

ruledef predef-rule
  tcp either-port = 80
#exit

charging-action ch-pkt
  qos-class-identifier 6
  tft packet-filter ip-pkts
#exit

charging-action standard
  content-id 5
#exit

packet-filter ip-pkts
  ip protocol = 6
#exit

rulebase consumer
  action priority 1 ruledef ded-bearer-rule charging-action standard
  action priority 5 dynamic-only ruledef predef-rule charging-action
```

```
ch-pkt
#exit
```

Deletion of Bearer Due to Inactivity

```
configure
context source
apn cisco.com
timeout bearer-inactivity non-gbr 300 volume-threshold total 1 <<
this will delete non-gbr bearers if idle for 300 seconds
timeout bearer-inactivity exclude-default-bearer << needs to be
configured to exclude default bearer if nongbr is defined in above CLI
#exit
#exit
end
```

Monitoring and Troubleshooting

This section lists the commands available to monitor the "Dedicated Bearer Creation by Service Flow Detection" feature.

Show Commands

This section lists all the show commands available to monitor this feature.

show active-charging rulebase statistics name prepaid

This command has been modified to display the following output:

```
Service Name: acs

Rulebase Name: prepaid

Predefined Rule Retention Statistics:
  Total number of Predefined Retention Succeeded:      0
  Total number of Predefined Retention Failed:          0

Service Scheme Dedicated Bearer Statistics:
Predefined Rule Installation Statistics:
  Total Number of Installation Received:                6
  Total Number of Installation Succeeded:               6
  Total Number of Installation Failed:                  0

Predefined Rule Removal Statistics:
  Total Number of Removal Received:                     2
  Total Number of Removal Succeeded:                   2
  Total Number of Removal Failed:                       0
```

Bulk Statistics

This section lists all the bulk statistics that have been added, modified, or deprecated to support this feature.

ECS Schema

This section displays the bulk stats that have been added to display the number of bearers created and deleted for bearers created through the service-scheme framework.

- `servschm-predef-rule-install-received` - Number of predefined rules received for installation from Service Scheme
- `servschm-predef-rule-install-succeeded` - Number of predefined rules succeeded during installation from Service Scheme
- `servschm-predef-rule-install-failed` - Number of predefined rules installation failed from Service Scheme
- `servschm-predef-rule-remove-received` - Number of predefined rule removal received from Service Scheme
- `servschm-predef-rule-remove-succeeded` - Number of predefined rule removal successful from Service Scheme
- `servschm-predef-rule-remove-failed` - Number of predefined rule removal failed from Service Scheme

