PDSN Service Configuration Mode Commands

The PDSN Service Configuration Mode is used to create and manage PDSN service instances for the current context.

**Command Modes**

```
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name] host_name(config-pdsn-service)#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- a11-signalling-packets, page 4
- aaa 3gpp2-service-option, page 5
- aaa nas-ip-address, page 6
- access-flow traffic-validation, page 7
- access-network, page 8
- airlink bad-sequence-number, page 9
- allow alt-ppp, page 11
- always-on-indication, page 12
- associate, page 13
- authentication, page 14
- bcmcs, page 17
- bind, page 19
- data-available-indicator, page 21
- data-over-signaling, page 22
- default subscriber, page 23
- direct-lte-indicator, page 24
- dormant-transition, page 25
- end, page 26
- enhanced-pcf-redirection, page 27
- exit, page 28
- fragment, page 29
- gre, page 30
- inter-pdsn-handoff mobility-event-indicator, page 33
- inter-pdsn-handover, page 34
- ip header-compression rohc, page 35
- ip local-port, page 36
- ip source-violation, page 37
- lifetime, page 39
- max-retransmissions, page 41
- mobile-ip foreign-agent context, page 42
- mobile-ipv6, page 43
- msid length, page 44
- nai-construction, page 45
- new-call conflict, page 47
- pcf-monitor, page 48
- pcf-session-id-change restart-ppp, page 50
- pdsn type0-tft attempt-inner-match, page 52
- peer-pcf, page 53
- pma-capability-indicator, page 54
- policy, page 55
- ppp, page 59
- qos-profile-id-mapping, page 61
- qos update, page 64
- radius accounting dropped-pkts, page 66
- registration-accept, page 67
- registration-ack-deny terminate-session-on-error, page 68
- registration-deny, page 69
- registration-discard, page 72
- registration-update, page 74
- retransmission-timeout, page 76
- service-option, page 78
- setup-timeout, page 80
- simple-ip allow, page 81
- spi, page 82
- tft-validation wait-timeout, page 85
- threshold a11-ppp-send-discard, page 86
- threshold a11-rac-msg-discard, page 88
- threshold a11-rrp-failure, page 90
- threshold a11-rrq-msg-discard, page 92
- threshold init-rrq-rcvd-rate, page 94
a11-signalling-packets

Applies DSCP marking for IP header carrying outgoing A11-signalling packets.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

`{context_name}@host_name(config-pdsn-service)#`

**Syntax Description**

`a11-signalling-packets ip-header-dscp hexa_number`

- `no`
- `default`

`a11-signalling-packets ip-header-dscp`  

**no**

Disables the `a11-signalling-packets ip-header-dscp` option configuration.

- `default`

Sets / Restores default value assigned for specified parameter `a11-signalling-packets ip-header-dscp`.

- `hexa_number`

A Hexa decimal number between 0x0 and 0x3F.

**Usage Guidelines**

Use this command to configure value of DSCP to be set for all outgoing A11 signaling msg.

By default the CLI is disabled and DSCP is marked as 0 in ip-header.

**Examples**

The following command configures value of DSCP to be set for all outgoing A11 signaling message `0x3F`:

`a11-signalling-packets ip-header-dscp 0x3F`
aaa 3gpp2-service-option

Specifies the value for the 3gpp2-service option.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
aaa 3gpp2-service-option number
no aaa 3gpp2-service-option
default aaa 3gpp2-service-option
```

no

Disables the aaa 3gpp2-service option configuration.

default

Sets / Restores default value assigned for specified parameter `aaa 3gpp2-service-option`.

**number**

Service option `number` is integer and should be between 0 to 32767.

**Usage Guidelines**

Allows the configuration of a default service option value to be sent in accounting when service option values are not received from PCF. The PDSN will default the service option value to the configured value if the value is not specified by the PCF.

**Examples**

The following command sets the service option to be 40:

```
aaa 3gpp2-service-option 40
```
aaa nas-ip-address

Product  PDSN

Privilege  Security Administrator, Administrator

Command Modes  Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}\host_{name}(config-pdsn-service)#

Syntax Description

aaa nas-ip-address IPv4 address
no aaa nas-ip-address
default aaa nas-ip-address

no

Disables the aaa nas-ip-address option configuration.

default

Sets / Restores default value assigned for specified parameter aaa nas-ip-address by default this is disabled.

ipv4 address

Specifies the IPv4 addresses to be used.

Usage Guidelines  Allows the configuration.

Examples  The following command configures 1.2.3.4:

aaa as-ip-address 1.2.3.4
access-flow traffic-validation

If **access-flow traffic-validation** is enabled for the service and the subscriber then the flows are checked against the filter rules. If the packets does not match the filter rules, and N violations occur in K seconds, the rp connection is downgraded to best-effort flow, if it is not already a best-effort flow.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```plaintext
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```plaintext
access-flow traffic-validation [ threshold { interval seconds | violations limit } ]
no access-flow traffic-validation
default access-flow traffic-validation [ threshold { interval | violations } ]

no

Disable traffic validation for the service.

default

Traffic validation configuration for the service is set to the default value.

```plaintext
threshold { [ violations limit ] [ interval seconds ] } 
```

**violations limit**: Sets the parameters that determine traffic access violations. This is determined by setting the maximum number of violations within a set time period. must be an integer from 1 through 100000.

**interval seconds**: Sets the time interval, in seconds. must be an integer from 1 through 100000.

**Usage Guidelines**

Use this command to enable traffic validation for the current PDSN service.

**Examples**

The following command enables traffic validation for the current PDSN service and sets the limit allowed to 100 violations within 5 seconds:

```plaintext
access-flow traffic-validation threshold violations 100 interval 5
```
access-network

Configures access network parameters.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

`access-network { accounting identifier identifier_name | realm realm_name }`

`no access-network { accounting identifier | realm | }`

**no**

Disables the `access-network`.

**accounting identifier**

Configures accounting for the access-network. This value must be a string from 1 to 128 characters in length.

**realm realm_name**

Configures the realm for the access-network. `realm_name` must be a string from 1 to 128 characters in length.

**Usage Guidelines**

Use this command to configure access-network parameters for accounting and realms.

**Examples**

The following command creates an `access-network realm` named `realm2`.

```
access-network realm realm2
```
**airlink bad-sequence-number**

Configures PDSN behavior for airlink related parameters.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

```
airlink bad-sequence-number { accept | deny [use-deny-code | poorly-formed-request | unsupported-vendor-id ] } [ no | default ] airlinkbad-sequence-number
```

**no**

Disables the deny of bad-sequence number and accept it.

**default**

It is the default behavior.

**accept**

Accepts the A11 RRQ messages that have an Airlink Sequence number less than or equal to a previously received sequence number.

It is the default behavior.

**deny**

Rejects the A11 RRQ messages that have an Airlink Sequence number less than or equal to a previously received sequence number.

It uses `poorly-formed-request` option by default to deny a request.

**use-deny-code { poorly-formed-request | unsupported-vendor-id }**

These are optional keywords that used with `deny` sub-command to deny the A11 RRQ messages that have either an unsupported vendor Id or A11 Requests with bad/poor formation.

**unsupported-vendor-id** denies request on the basis of vendor Id.
poorly-formed-request will deny the A11 request on the basis of request formation or structure. It is the default deny code for deny sub-command.

**Usage Guidelines**

This command is used to configure the airlink parameters for A11 RRQs.

When configured it denies the A11 RRQ messages that have an Airlink Sequence number less than or equal to a previously received sequence number.

**Examples**

The following command would configure the system to deny all A11 RRQ messages having unsupported vendor Id or bad structure of message, including those having airlink sequence number less than or equal to a previously received sequence number:

```
airlinkbad-sequence-number deny
```
**allow alt-ppp**

Allows proprietary modified versions of PPP type sessions to connect this PDSN service.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name] host_name(config-pdsn-service)#
```

**Syntax Description**

- `allow alt-ppp`
- `no allow alt-ppp`
- `default allow alt-ppp`

- `no`

Disables the allowed alternate PPP feature.

- `default`

Sets the specified parameter to default.

**Usage Guidelines**

This command is used to deviate from standard PPP protocol and use a proprietary modified version of PPP with a pre-defined non-negotiable PPP parameters.

It is a vendor-specific licensed feature command.

**Examples**

```
allow alt-ppp
```
always-on-indication

Enables/disables the inclusion of 3GPP2 Always On Indicators in messages to the PCF.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

```
always-on-indication
no always-on-indication
```

- **no**
  
  Disables the sending of 3GPP2 Always On Indication messages.

**Usage Guidelines**

This command is available when the 3GPP2 Always-On RP Extensions feature-use license is installed.

When enabled, this command causes the PDSN service to include the Always On Indicators in the Normal Vendor Specific Extension (NVSE) part of an A11 Session Update message to the PCF. The indicator will only be sent for those subscriber sessions in which Always On functionality is enabled as determined after a successful authentication: the 3GPP2-Always-On attribute is set to a value of 1 (Active) for subscribers configured on a AAA server, or the always-on parameter is set for locally configured subscribers.

This functionality is enabled by default.

**Examples**

Use the following command to Enables the inclusion of 3GPP2 Always On Indicators in messages to the PCF.

```
always-on-indication
```
associate

Associates a PDSN-service with a Quality of Service (QoS) policy.

Product  PDSN

Privilege  Security Administrator, Administrator

Command Modes  Exec > Global Configuration > Context Configuration > PDSN Service Configuration
  configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-pdsn-service)#

Syntax Description  associate qci-qos-mapping string
  no associate qci-qos-mapping

  no
  Disables the configuration to associate PDSN-service with qos policy.

  qci-qos-mapping string
  qci-qos-mapping configures QCI to QoS mapping for this PDSN service.
  string a string of size 1 to 63.

Usage Guidelines  The following is used for configuration to associate PDSN-service with qos policy.

Examples  associate qci-qos-mapping sample
authentication

Configures authentication parameters for specific PDSN service.

Product PDSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description authentication { [ allow-noauth ] [ chap chap_priority ] [ mschap mschap_priority ] [ pap pap_priority ] } [ msid-auth ] default authentication
default

Configures authentication parameters for specific PDSN service.

allow-noauth

Default: Disabled

This option configures the system to provide subscribers with network access even though they have not been authenticated. This command issued by itself would cause the system to not attempt to authenticate subscribers. When the allow-noauth option is used in conjunction with commands specifying other authentication protocols and priorities to use, then if attempts to use those protocols fail, the system will treat the allow-noauth option as the lowest priority.

If no authentication is allowed, then NAI construct will be implemented in order to provide accounting records for the subscriber.

chap chap_priority

Default: 1

This option configures the system to attempt to use the Challenge Handshake Authentication Protocol (CHAP) to authenticate the subscriber.

A chap_priority must be specified in conjunction with this option. Priorities specify which authentication protocol should be attempted first, second, third and so on.
chap_priority must be an integer from 1 through 1000. The lower the integer, the higher the preference. CHAP is enabled by default as the highest preference.

**mschap mschap_priority**
Default: Disabled
This option configures the system to attempt to use the Microsoft Challenge Handshake Authentication Protocol (MSCHAP) to authenticate the subscriber.

A mschap_priority must be specified in conjunction with this option. Priorities specify which authentication protocol should be attempted first, second, third and so on.

mschap_priority must be an integer from 1 through 1000. The lower the integer, the higher the preference.

**pap pap_priority**
Default: 2
This option configures the system to attempt to use the Password Authentication Protocol (PAP) to authenticate the subscriber.

A pap_priority must be specified in conjunction with this option. Priorities specify which authentication protocol should be attempted first, second, third and so on.

pap_priority must be an integer from 1 through 1000. The lower the integer, the higher the preference. PAP is enabled by default as the second highest preference.

**msid-auth**
Default: Disabled
This option configures the system to attempt to authenticate the subscriber based on their Mobile Station Identity (MSID).

**Usage Guidelines**
Use to specify how the PDSN service should handle authentication and what protocols to use. The flexibility is given to configure this option to accommodate the fact that not every mobile will implement the same authentication protocols.

The chassis is shipped from the factory with the authentication options set as follows:

- allow-noauth disabled
- chap enabled with a priority of 1
- mschap disabled
- msid-auth disabled
- pap enabled with a priority of 2

**Important**
At least one of the keywords must be used to complete the command.
Examples

The following command would configure the system to allow no authentication for subscribers and would perform accounting using the default NAI-construct of username@domain:

```
authentication allow-noauth
```

The following command would configure the system to attempt subscriber authentication first using CHAP, then MSCHAP, and finally PAP. If the allow-noauth command was also issued, if all attempts to authenticate the subscriber using these protocols fail, then the subscriber would be allowed access:

```
authentication chap 1 mschap 2 pap 3
```
**bcmcs**

Sets the BCMCS (Broadcast Multicast Service) group username and password for RADIUS access.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
bcmcs { customptt | encrypted grppasswd group_passwd | flow-id value (flow-id-type | flow-id | program-id ) | grppasswd group_password | grpusrnamegroup_name | ptt { destination-context dest_name | disconnect-dscp-label dscp_label | mtu transmission_unit | rohc-profile-name rohc_profile_name } } default bcmcs | custom ptt | ptt { disconnect-dscp-label | mtu | rohc-profile-name } } no bcmcs { custom ptt | flow-id value {flow-id-type | flow-id | program-id } | grppasswd | grpusrname | ptt | destination-context | disconnect-dscp-label | mtu | rohc-profile-name } }
```

**custom**

Customise the BCMCS configuration.

**flow-id value**

Set the BCMCS flow-id. This value must be a hex string between 0x1000 and 0xFFFFFFFF.

Making this entry opens a new mode: bcmcs-flow-id.

**rohc-profile name**

Configure ROHC parameters name, name should be string of size 1 to 63.

**grpusrname group_name**

Sets the BCMCS group name for RADIUS access requests. This value must be a string from 1 to 127 characters in length.

**encrypted grppasswd group_passwd**

Set the BCMCS group password for RADIUS access requests. This value must be a string from 1 to 63 characters in length.
Password can be encrypted or clear.

```
ptt { destination-context dest_name | disconnect-dscp-label dscp_label | mtu transmission_unit | rohc-profile-name rohc_profile_name }
```

**destination-context**: Specify the intended destination context name. This value must be string of 1 to 79 characters in length.

**disconnect-dscp-label**: Configures the DSCP label to be present in the In Call Signalling packet based on which In Call Signalling and Media Flows will be disconnected. This value must be a Hexadecimal number between 0x0 and 0xFF.

**mtu transmission_unit**: Configures maximum transmission unit, This value must be ranging from 100 to 2000. Default is 1500.

**rohc_profile_name rohc_profile_name**: Profile name of the ROHC compressor and decompressor. This value should be a string of 1 to 63.

**Usage Guidelines**

Use this command to set the BCMCS group username and password for RADIUS access requests.

**Examples**

```
bcmcsgrpusername group_name
bcmcsgrppasswd group_password
```
**bind**

Binds the PDSN service to a logical IP interface serving as the R-P interface. Specifies the maximum number of subscribers that can access this service over the interface.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
bind address address  [ max-subscribers count ]
no bind address
```

**no**

Removes a previously configured binding.

**address**

Specifies the IP address (address) of the interface configured as the R-P interface. *address* is specified in dotted decimal notation.

**max-subscribers count**

**Default: 500000**

Specifies the maximum number of subscribers that can access this service on this interface. *count* can be configured to any integer value between 0 and 2500000.

**Important**

The maximum number of subscribers supported is dependent on the license key and the number of active PACs/PSCs installed in the system. A fully loaded system with 13 active PACs/PSCs can support 2500000 total subscribers. Refer to the license key command for additional information.
Usage Guidelines

Associate or tie the PDSN service to a specific logical IP address. The logical IP address or interface takes on the characteristics of an R-P interface. Only one interface can be bound to a service. The interface should be configured prior to issuing this command.

This command also sets a limit as to the number of simultaneous subscribers sessions that can be facilitated by the service/interface at any given time.

When configuring the max-subscribers option, be sure to consider the following:

• The total number of interfaces that you will configure for use as R-P interfaces
• The maximum number of subscriber sessions that all of the interfaces may handle during peak busy hours
• The average bandwidth for each of the sessions
• The type of physical port (10/100Base-Tx or 1000Base-T) to which these interfaces will be bound

Taking these factors into account and distributing your subscriber session across all available interfaces will allow you to configure your interfaces to optimally handle sessions without degraded performance.

Examples

The following command would bind the logical IP interface with the address of 192.168.3.1 to the PDSN service and specifies that a maximum of 600 simultaneous subscriber sessions can be facilitated by the interface/service at any given time.

    bind address 192.168.3.1 max-subscribers 600

The following command disables a binding that was previously configured:

    no bind address
**data-available-indicator**

Enables sending Data Available Indicator extension in R-P Registration Reply.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
[ no | default ] data-available-indicator
```

- **no**
  
  Default: Disabled
  
  Disable the sending of the Data Available Indicator extension in R-P Registration Reply.

- **default**
  
  Sets / Restores default value assigned for specified parameter for **data-available-indicator**.

**Usage Guidelines**

Use this command to enable or disable the sending of the Data Available Indicator extension in R-P Registration Reply.

**Examples**

Use the following command to enable sending the Data Available Indicator extension in R-P Registration Reply:

```
data-available-indicator
```

Use the following command to disable sending the Data Available Indicator extension in R-P Registration Reply:

```
no data-available-indicator
```
data-over-signaling

Enables the data-over-signaling marking feature for A10 packets.

Product PDSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description { no | default } data-over signaling

default

Sets / Restores default value assigned for specified parameter for data-over signaling

no

Default: Enabled

Disable the data-over signaling feature for A10 packets.

Usage Guidelines Use this command to enable or disable the data-over signaling feature for A10 packets.

Important This is a customer-specific command.

Examples no data-over-signaling
default subscriber

Specifies the name of a subscriber profile configured within the same context as the PDSN service from which to base the handling of all other subscriber sessions handled by the PDSN service.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

`default subscriber profile_name`

`no default subscriber`

*no*

Enables/Disables the option `default subscriber profile_name`

`profile_name`

Specifies the name of the configured subscriber profile. `profile_name` can be between 1 and 127 alpha and/or number characters and is case sensitive.

**Usage Guidelines**

Each subscriber profile specifies "rules" such as permissions, PPP settings, and timeout values.

By default, the PDSN service will use the information configured for the subscriber named default within the same context. This command allows for multiple PDSN services within the same context to apply different "rules" to sessions they process. Each set of rules can be configured under a different subscriber name which is pointed to by this command.

Use the `no default subscriber profile_name` command to delete the configured default subscriber.

**Examples**

To configure the PDSN service to apply the rules configured for a subscriber named `user1` to every other subscriber session it processes, enter the following command:

```
default subscriber user1
```
direct-lte-indicator

Enables sending Direct LTE Indicator VSA in Access Request.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description

[ no | default ] direct-lte-indicator

default

Sets / Restores default value assigned for specified parameter for data-over signaling

no

Default: Enabled

Disables sending Direct LTE Indicator VSA in Access Request.

Usage Guidelines

Use this command to enable or disable sending Direct LTE Indicator VSA in Access Request.

Important

This is a customer-specific command.

Examples

no direct-lte-indicator
dormant-transition

Configures the PDSN behavior to terminate A10 session, when the PDSN receives the A11-RRQ (Type 4) before the session for the original MN is established completely.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
[ no | default ] dormant-transition initial-session-setup
```

- **no**
  Terminates the A10 session, when PDSN receives the A11-RRQ (Type 4) before the original session established completely.

- **default**
  Keeps the A10 session live in case of A11-RRQ (Type 4) is received before the original session is established completely.

**Usage Guidelines**
When the status of A10 session goes to dormant before the session for the original MN is established completely, the different MN may possibly send the A11-RRQ (Type 4) to the PDSN and PPP renegotiation may start. This command is used to terminate the A10 session when the PDSN receives the A11-RRQ (Type 4) before the session for original MN is established completely.

**Examples**
Following command is used to release the A10 session in case of receiving A11-RRQ (Type 4) before the original session is established completely:

```
no dormant-transition initial-session-setup
```
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

cend

Usage Guidelines

Use this command to return to the Exec mode.
**enhanced-pcf-redirection**

Enables or disables PDSN support for enhanced PCF redirection.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-pdsn-service)#

**Syntax Description**

[no] enhanced-pcf-redirection

**no**

Disables PDSN support for enhanced PCF redirection.

**enhanced-pcf-redirection**

Enables PDSN support for enhanced PCF redirection.

**Usage Guidelines**

Use this command to enable or disable PDSN support for enhanced PCF redirection. By default, this feature is disabled.

**Important**

This is a customer-specific command.

**Examples**

The following command will disable PDSN support for enhanced PCF redirection.

no enhanced-pcf-redirection
exit

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
**fragment**

Enables or disables PPP payload fragmentation.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
[ no | default ] fragment ppp-data
```

- **no**
  
  Disables the fragmentation of ppp data.

- **default**
  
  Default enables ppp data fragmentation.

**Usage Guidelines**

This command is to indicate to the RP module to NOT fragment PPP payloads being sent to the PCF, if the total packet size (PPP+GRE+IP) exceeds 1500 bytes.

Disabling fragmentation may cause the *sessmgr* to perform outer IP fragmentation of the outgoing packet, if the resulting packet exceeds the MED MTU.

**Examples**

The following command enables PPP payload fragmentation.

```
fragment ppp-data
```
gre

Configures Generic Routing Encapsulation (GRE) parameters for the A10 protocol within the PDSN service.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-pdsn-service)#

Syntax Description

`gre { checksum | checksum-verify | ip-header-dscp value { all-control-packets | setup-packets-only } | protocol-type { any | byte-stream | ppp } | reorder-timeout value | segmentation | sequence-mode { none | reorder } | sequence-numbers | threegpp2-ext-header qos-marking }

no gre { checksum | checksum-verify | ip-header-dscp | segmentation | sequence-numbers | threegpp2-ext-headers qos-marking }

default gre { checksum | checksum-verify | ip-header-dscp | protocol-type | reorder-timeout | segmentation | sequence-mode | sequence-numbers | threegpp2-ext-headers qos-marking }

no`

Disables the specified functionality.

`default`

Restores the specified parameter to its default setting.

`checksum`

Default: disabled

Enables the introduction of the checksum field in outgoing GRE packets.

`checksum-verify`

Default: disabled

Enables verification of the GRE checksum (if present) in incoming GRE packets.
**ip-header-dscp**

*value* { all-control-packets | setup-packets-only }

**Default:** Disabled

Used to configure the QoS Differentiated Services Code Point (DSCP) marking for GRE packets.

- *value*: Represents the DSCP setting. It represents the first six most-significant bits of the ToS field. It can be configured to any hex value from 0x0 through 0x3F.
- *all-control-packets*: Dictates that the DSCP marking is to be provided in all GRE control packets.
- *setup-packets-only*: Dictates that the DSCP marking is to be provided only in GRE setup packets.

**protocol-type**

*any | byte-stream | ppp*

Specifies the protocol used for GRE encapsulation that is acceptable to

- *any*: Specifies that the PDSN service will accept GRE packets encapsulated using any protocol.
- *byte-stream*: Specifies that the PDSN service will accept GRE packets only encapsulated using byte stream. Using byte stream encapsulation, PPP packets are framed at different intervals and sent.
- *ppp*: Specifies that the PDSN service will accept GRE packets only encapsulated using the Point-to-Point Protocol (PPP). Using PPP encapsulation, PPP packets are framed at regular intervals and sent.

**reorder-timeout**

**Default:** 100

Configures max number of milliseconds to wait before processing reordered out-of-sequence GRE packets. *milliseconds* must be an integer from 0 through 5000.

**segmentation**

**Default:** disabled

Enables GRE Segmentation for the PDSN service.

**sequence-mode**

*none | reorder*

**Default:** none

Configures handling of incoming out-of-sequence GRE packets.

- *none*: Specifies that sequence numbers in packets are ignored and all arriving packets are processed in the order they arrive.
- *reorder*: Specifies that out of sequence packets are stored in a sequencing queue until one of the conditions is met:
  - The reorder timeout occurs: All queued packets are sent for processing and the accepted sequence number is updated to the highest number in the queue.
  - The queue is full (five packets): All packets in the queue are sent for processing, the reorder timer is stopped and the accepted sequence number is updated to the highest number in the queue.
  - An arriving packet has a sequence number such that the difference between this and the packet at the head of the queue is greater than five. All the packets in the queue are sent for processing, the reorder timer is stopped and the accepted sequence number is updated to the highest number that arrived.
A packet arrives that fills a gap in the sequenced numbers stored in the queue and creates a subset of packets whose sequence numbers are continuous with the current accepted sequence number. This subset of packets in the queue is sent for processing. The reorder timer continues to run and the accepted sequence number is updated to the highest number in the subset delivered.

**sequence-numbers**
Enables insertion of GRE sequence numbers in data that is about to be transmitted over the A10 interface. Data coming into the system containing sequence numbers but that is out of sequence is not re-sequenced.

**threegpp2-ext-headers qos-marking**
When threegpp2-ext-headers qos-marking is enabled and the PCF negotiates capability in the A11 RRQ, the PDSN will include the qos optional data attribute in the GRE 3gpp2 extension header.
The no keyword, enables qos-marking in the gre header based on the tos value in the header.

**Usage Guidelines**
The `gre protocol-type` command can be used to prevent the PDSN service from servicing PCFs that use a specific form of encapsulation.

Use the `no gre sequence-numbers` command to disable the inclusion of GRE sequence numbers in the A10 data path.

The chassis is shipped from the factory with the authentication options set as follows:

- `protocol-type any`
- `sequence-numbers enabled`

**Examples**
Use this command to configure the PDSN service to exclude byte stream encapsulated GRE traffic:

```
 gre protocol-type ppp
```
inter-pdsn-handoff mobility-event-indicator

Configures the PDSN to support the Mobility Event Identifier (MEI) during inter-PDSN handoffs. The presence of the Mobility Event Indicator (MEI) and Access Network Identifier (ANID) elements in an A11 handoff request represents an Inter-PDSN handoff.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > psdn-service service_name

Entering the above command sequence results in the following prompt:

```
(context_name)host_name(config-pdsn-service)#
```

**Syntax Description**

inter-pdsn-handoff mobility-event-indicator
no inter-pdsn-handoff mobility-event-indicator
default inter-pdsn-handoff mobility-event-indicator

- **no**
  Disables support for the MEI during inter-PDSN handoffs.

- **default**
  Sets / Restores default value assigned for `inter-pdsn-handoff mobility-event-indicator`. By default it is disabled.

**Usage Guidelines**
Use this command to configure support for the MEI during inter-PDSN handoffs.

**Examples**
Use the following command to enable support for the MEI during inter-PDSN handoffs

```
inter-pdsn-handoff mobility-event-indicator
```
**inter-pdsn-handover**

Configures Inter-PDSN handoff related parameters.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

**Syntax Description**

inter-pdsn-handover use-canid-panid

no inter-pdsn-handover use-canid-panid

default inter-pdsn-handover use-canid-panid

no

Disables support for the MEI during inter-PDSN handoffs parameters.

default

Sets / Restores default value assigned for **inter-pdsn-handoff mobility-event-indicator**. By default it is disabled.

**Usage Guidelines**

Use this command to configure Inter-PDSN handoff related parameters.

**Examples**

Use the following command to econfigure Inter-PDSN handoff related parameters.

inter-pdsn-handover use-canid-panid
ip header-compression rohc

Enters PDSN Service ROHC Configuration Mode and allows you to configure ROHC parameters that the PDSN conveys to the PCF in the initial A11 RRP message before PPP authentication.

By default, ROHC is disabled for a PDSN service.

Product
PDSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-pdsn-service)#

Syntax Description
ipheader-compression rohc
default ipheader-compression rohc
no ipheader-compression rohc

default
Sets all PDSN Service ROHC Configuration Mode values back to the defaults and disable ROHC for this PDSN service.

no
Disable IP header compression for this PDSN Service.

Usage Guidelines
Use this command to enter the PDSN Service ROHC Configuration Mode or disable ROHC for the current PDSN service.

Examples
The following command disables ROHC for the current PDSN service and sets all of the values for commands in PDSN Service ROHC Configuration Mode back to their default settings:

no ip header-compression rohc
ip local-port

Configures the local User Datagram Protocol (UDP) port for the R-P interfaces' IP socket.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

<context_name>host_name>(config-pdsn-service)#

**Syntax Description**

`ip local-port number`

default ip local-port

`number`

Default: 699

Specifies the UDP port number.

`number` can be any integer value between 1 and 65535.

`default`

Designates UDP port, default value as 699.

**Usage Guidelines**

Specify the UDP port that should be used for communications between the Packet Control Function (PCF) and the PDSN.

---

**Important**

The UDP port setting on the PCF must match the local-port setting for the PDSN service on the system in order for the two devices to communicate.

---

**Examples**

Use the following command to specify a UDP port of 3950 for the PDSN service to use to communicate with the PCF on the R-P interface:

`ip local-port 3950`
ip source-violation

Sets the parameters for IP source validation. Source validation is useful if packet spoofing is suspected or for verifying packet routing and labeling within the network.

Source validation requires the source address of received packets to match the IP address assigned to the subscriber (either statically or dynamically) during the session.

Product  
PDSN
PDIF

Privilege  
Security Administrator, Administrator

Command Modes  
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name] host_name (config-pdsn-service) #

Syntax Description  
ip source-violation { clear-on-valid-packet | drop-limit num | period secs | reneg-limit num }
no ip source-violation clear-on-valid-packet
default ip source-violation { drop-limit | period | reneg-limit }

no

Enables/Disables ip source-violation clear-on-valid-packet.

default

Configure default settings related to ip source-violation.

clear-on-valid-packet

Default: disabled

Configures the service to reset the reneg-limit and drop-limit counters after receipt of a properly addressed packet.

drop-limit num

Default: 10

Sets the number of allowed source violations within a detection period before forcing a call disconnect. If num is not specified, the value is set to the default.
num can be any integer value from 1 to 1000000.

period secs
	Default: 120

The length of time, in seconds, for a source violation detection period to last. drop-limit and reneg-limit counters are decremented each time this value is reached.

The counters are decremented in this manner: reneg-limit counter is reduced by one (1) each time the period value is reached until the counter is zero (0); drop-limit counter is halved each time the period value is reached until the counter is zero (0). If secs is not specified, the value is set to the default.

secs can be any integer value from 1 to 1000000.

reneg-limit num
	Default: 5

Sets the number of allowed source violations within a detection period before forcing a PPP renegotiation. If num is not specified, the value is set to the default.

num can be any integer value from 1 to 1000000.

Usage Guidelines

This function is intended to allow the operator to configure a network to prevent problems such as when a user gets handed back and forth between two PDIFs PDSNs a number of times during a handoff scenario.

This function operates in the following manner:

When a subscriber packet is received with a source address violation, the system increments both the IP source-violation reneg-limit and drop-limit counters and starts the timer for the IP-source violation period.

Every subsequent packet received with a bad source address during the IP-source violation period causes the reneg-limit and drop-limit counters to increment.

For example, if reneg-limit is set to 5, then the system allows 5 packets with a bad source address (source violations), but on the 5th packet, it re-negotiates PPP.

If the drop-limit is set to 10, the above process of receiving 5 source violations and renegotiating PPP occurs only once. After the second 5 source violations, the call is dropped. The period timer continues to count throughout this process.

If the configured source-violation period is exceeded at any time before the call is dropped, the reneg-limit counter is checked. If the reneg-limit counter is greater than zero (0), the reneg-limit is decremented by 1. If the reneg-limit counter equals zero, the drop-limit is decremented by half.

Examples

The following command sets the drop limit to 15 and leaves the other values at their defaults:

     ip source-violation drop-limit 15
**lifetime**

Specifies the time that an A10 connection can exist before its registration is considered expired.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

- `lifetime time`
- `no lifetime`
- `default lifetime`

`no lifetime`

Specifies that an A10 connection can exist for an infinite amount of time.

`default lifetime`

Sets / Restores default value assigned for `lifetime` as 1800.

`time`

Default: 1800

Specifies the time that an A10 connection can exist before its registration is considered expired.

`time` is measured in seconds and can be configured to any integer value between 1 and 65534.

**Usage Guidelines**

Set a limit to the amount of time that a subscriber session can remain up whether or not the session is active or dormant. If the lifetime timer expires before the subscriber terminates the session, their connection will be terminated automatically.

Use the `no lifetime` command to delete a previously configured lifetime setting. If after deleting the lifetime setting you desire to return the lifetime parameter to its default setting, use the `default lifetime` command.
The following command specifies a time of 3600 seconds (1 hour) for subscriber sessions on this PDSN service:

```
lifetime 3600
```
max-retransmissions

Configures the maximum number of times the PDSN service will attempt to communicate with a PCF before it marks it as unreachable.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description

max-retransmissions count

default max-retransmissions

default

Sets / Restores default value assigned for max-retransmissions as 5.

count

Specifies the maximum number of times the PDSN service will attempt to communicate with a PCF before it marks it as unreachable.

count can be configured to any integer value between 1 and 1,000,000.

Usage Guidelines

If the value configured for the max-retransmissions is reached the call will be dropped.

The chassis is shipped from the factory with the Internet maximum number of retransmissions set to 5.

Examples

The following command configures the maximum number of retransmissions for the PDSN service to 3:

max-retransmissions 3
mobile-ip foreign-agent context

For Mobile IP support, specifies the context in which the FA service(s) are configured.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description

mobile-ip foreign-agent context context_name [ fa-service name ]
no mobile-ip foreign-agent context

no
Enables/Disables mobile-ip foreign-agent context

context_name
Specifies the name of the previously configured context that facilitates the FA service(s).
context_name must be between 1 and 79 alpha or numeric characters and is case sensitive.

fa-service name
This optional keyword allows you to link the PDSN service to a particular FA service in the specified context.
name is the name of the FA service to link to. name is a string of size 1 to 63

Usage Guidelines

FA services on the system can be configured either in the same or different contexts from those facilitating PDSN services. When they are configured in separate contexts, this command configured with a PDSN service instructs the PDSN service to route traffic to the context facilitating the FA service.

Use the no mobile-ip foreign-agent context to delete a previously configured destination context.

Examples

The following command instructs the PDSN service to use the context named FA-destination for FA functionality:

mobile-ip foreign-agent context fa-destination
**mobile-ipv6**

Configures Mobile IPv6 parameters within specific PDSN service.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-pdsn-service)#`

**Syntax Description**

`mobile-ipv6 mobile-access-gateway context context_name [ mag-service name ]`

- **mobile-access-gateway**
  
  Configures Mobile Access Gateway (MAG) parameters within specific PDSN service.

- **context context_name**
  
  Designates name of the context in which the MAG service is configured. Must be followed by context name of MAG service.
  
  `context_name` is a string of size 1 to 79.

- **mag-service name**
  
  Designates name of the MAG service in that context. Must be followed by MAG service name.
  
  `name` is a string of size 1 to 63.

**Usage Guidelines**

This command is used to configure Mobile IPv6 parameters and Mobile Access Gateway (MAG) parameters within specific PDSN service.

**Examples**

The following command configures Mobile IPv6 parameters and Mobile Access Gateway (MAG) parameters within specific PDSN service.

`mobile-ipv6 mobile-access-gateway context pdsn1 mag-service serv1`
**msgid length**

Configures checking the length of the A11 MSID in A11 Session Specific Extn and airlink records.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```configure > context context_name > pdsn-service service_name```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

```msgid length { [ min min_length ] | max max_length } default msid length```

- **default**
  
  Specifies the default length of MSID (10 to 15) as per standard. By default `msgid` is disabled.

- **min min_length**
  
  Specifies the minimum length for MSID.
  
  *min_length* is any Integer value between 10 to 15, but should be less than *max_length* specified with *max*. Default is 10.

- **max max_length**
  
  Specifies the maximum length for MSID.
  
  *max_length* is any Integer value between 10 to 15, but should be more than *min_length* specified with *min*. Default is 15.

**Usage Guidelines**

MSID length can be configured either in the standard length or different customized length form. This command is used to specify the allowed length of MSID.

**Examples**

The following command specifies an MSID length between 12 and 15:

```msgid length min 12 max 15```
nai-construction

Specifies a domain alias that will be used to represent the context which the PDSN service should use for AAA functionality.

Product: PDSN

Privilege: Security Administrator, Administrator

Command Modes: Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

Syntax Description:

```
nai-construction domain alias
no nai-construction domain
```

domain alias

Alias represents the "domain" name that you would like to associate with the context in which AAA functionality is configured. alias can be between 1 and 79 alpha and/or numeric characters and is case-sensitive.

Usage Guidelines:

Enabling NAI will be constructed for the subscriber in the event that their mobile station (MS) does not negotiate CHAP, PAP, or MSCHAP. If this option is selected, no further attempts will be made to authenticate the user. Instead, the constructed NAI will be used for accounting purposes.

The context specified by this command would be used to provide the communication with the RADIUS accounting server.

Use the **no nai-construction** domain command to deleted a configured alias.

**Important**

This command should only be used if the PDSN service is configured to allow no authentication using the authentication allow-noauth command.

Additionally, the **aaa constructed-nai** command in the Context Configuration mode can be used to configure a password for constructed NAIs.
The following command configured a domain alias of aaa_context for the PDSN service to use when an NAI is constructed for a subscriber session:

```plaintext
nai-construction domain aaa_context
```
new-call conflict

Enable or disable to send A11-RUPD to current PCF, when system receives the A11-RRQ(Type1) from new PCF during the session exists.

Product PDSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > PDSN Service Configuration
   configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:
   [context_name]host_name(config-pdsn-service)#

Syntax Description
   [ no | default ] new-call conflict terminate-session-old-pcf

   no
   Disable to send A11-RUPD to current PCF, when system receives the A11-RRQ(Type1) from new PCF during the session exists.

   default
   Enable to send A11-RUPD to current PCF, when system receives the A11-RRQ(Type1) from new PCF during the session exists.

Usage Guidelines
   This configuration supports to enable or disable to send A11-RUPD to current PCF, when the system receives the A11-RRQ(Type1) from new PCF during the session exists.

   If the configuration is **no new-call conflict terminate-session-old-pcf** system will not send registration update to old PCF on receiving a new call (A11-RRQ(Type1)) request for an existing active/dormant session. The default behavior is to send registration updates.

Examples
   The following command configured a system to send a registration update on receiving an A11-RRQ (Type 1) request for an existing active/dormant session:
      new-call conflict terminate-session-old-pcf
**pcf-monitor**

Enables the monitoring of all the PCFs that have sessions associated with it. The PDSN stops monitoring a PCF if it is determined to be down. Once a PCF is determined to be down, the PDSN tears down all sessions that correspond to the PCF and generates AAA Accounting Stop messages. All the PCFs that are connected to the PDSN service are monitored.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```bash
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**
```
pcf-monitor [ interval seconds | max-inactivity-time seconds | num-retry num | timeout seconds ]
[ no | default ] pcf-monitor
```

**pcf-monitor**
Entering the command with no keywords enables the PCF monitoring function with all parameters set to the defaults.

**no**
Disables the pcf monitoring function.

**default**
Sets / Restores default value assigned for pcf-monitor.

**interval seconds**
Default: 60 seconds
Sets the amount of time to wait between ping request messages.

seconds must be an integer in the range from 1 through 3600.
max-inactivity-time seconds
Default: 120 seconds
The maximum amount of time (seconds) with no A10 traffic from a PCF before the ICMP-ping mechanism is triggered.
seconds must be an integer from 1 through 3600.

num-retry num
Default: 5
Sets the number of times that the PDSN retries to ping the PCF. When num-retry for a given PCF has been exhausted with no response, sessions that correspond to the non-responsive PCF are terminated and Accounting Stop records for each terminated session are generated.
um must be an integer in the range from 0 through 100.

timeout seconds
Default: 3 seconds
The amount of time to wait for a response before retrying.
seconds must be in the range from 1 through 10.

Usage Guidelines
Use this command to enable the PDSN service to monitor the PCFs that have sessions associated with the PDSN service.

Examples
The following command enables PCF monitoring with parameters set to the defaults:
   pcf-monitor
The following command enables PCF monitoring and sets the timeout to 10 seconds:
   pcf-monitor timeout 10
The following command disables pcf-monitoring:
   no pcf-monitor
pcf-session-id-change restart-ppp

Manages current session and PPP renegotiation on GRE-key change without any change in PCF/PANID/CANID. This command disables or enables the PPP renegotiation restart on receiving an RP registration request from the current PCF with GRE key (PCF session Id) change. With this command the PDSN aborts and restarts the call causing PPP renegotiation.

This is enabled by default.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name} host_name (config-pdsn-service) #

Syntax Description

[ no | default ] pcf-session-id-change restart-ppp

no

Disables the pcf-session-id-change restart-ppp function.

With this option PDSN does not restart the PPP renegotiation on GRE key change from current PCF in an RP registration request, unless it indicates change in PCF/PANID/CANID.

default

Set the pcf-session-id-change function to the default state on enabled.

Usage Guidelines

GRE key (PCF session ID) is sued to identify the data packet for a session and is negotiated through the A11 signaling messages between PCF and PDSN. By default PDSN aborts and restart the PPP renegotiation on receipt of any RP registration request with change in GRE key or PCF session Id.

With use of no pcf-session-id-change restart-ppp command PDSN is configured to disable the restart of call or PPP renegotiation on receipt of any RP registration request with changed GRE key, unless it has any PCF/PANID/CANID change. PDSN silently switches the GRE key for the session, retaining the existing PPP session.
The following command disables the PPP renegotiation restart action on receipt of any RP RRQ with changed GRE key from same PCF/PANID/CANID.

```
no pcf-session-id-change restart-ppp
```
**pdsn type0-tft attempt-inner-match**

Configures a type0 traffic flow template (tft) to a type1 traffic flow template.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

```
(context_name)host_name(config-pdsn-service)#
```

**Syntax Description**

```
[ no | default ] pdsn type0-tft attempt-inner-match
```

- **no**
  - Disables *pdsn type0-tft attempt-inner-match*.

- **default**
  - Sets / Restores default value assigned for *pdsn type0-tft attempt-inner-match*.

**Usage Guidelines**

This CLI is used make PDSN match inner IP packets for an AIMS call. When enabled, the PDSN tries to match a type-0 tft to match both outer and inner packet, so that MN can use a Type-0 filter for HoA traffic which are tunneled.

This is disabled by default.

**Examples**

The following command enables type0 tft:

```
pdsn type0-tft attempt-inner-match
```
**peer-pcf**

Configures settings for any PCF that has a connection with this PDSN.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
peer-pcf { ip_address | ip_address/mask } bcmcs-framing { hdlc-like | segment-based }
```

- **ip_address | ip_address/mask**
  - `ip_address` must be specified using the standard IPv4 dotted decimal notation or colon notation for IPv6.
  - `ip_address/mask` must be specified using the standard IPv4 dotted decimal notation or colon notation for IPv6, followed by the mask.

- **bcmcs-framing { hdlc-like | segment-based }**
  - Specifies the type of bcmcs_framing to use for this PCF connection.
  - hdlc-like: applies HDLC-like framing for all BCMCS flows
  - segment-based: applies segment-based framing for all BCMCS flows

**Usage Guidelines**

Use this command to configure the settings for any PCF that is connected to this PDSN. You can also specify bcmcs framing settings to use for the connection.

**Examples**

The following command configures the peer-pcf for an IP address of 131.2.3.4:

```
peer-pcf 131.2.3.4
```
**pma-capability-indicator**

Enables sending PMIP Capability Indicator VSA in Access Request.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
<context_name> host_name (config-pdsn-service) #
```

**Syntax Description**

```
pma-capability-indicator { 3gpp2
  no | default } pma-capability-indicator
```

- **3gpp2**
  
  Use 3GPP2 defined VSA. Default is to use Custom1 VSA.

- **no**
  
  Enables/Disables sending PMIP Capability Indicator VSA in Access Request.

- **default**
  
  Sets / Restores default value assigned for PMIP Capability Indicator.

**Usage Guidelines**

Use this command to enable sending PMIP Capability Indicator VSA in Access Request.

**Examples**

The following command enables sending PMIP Capability Indicator using 3GPP2 defined VSA in Access Request.

```
pma-capability-indicator 3gpp2
```
policy

Configures PDSN service policies.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-pdsn-service)#

Syntax Description

policy msid-match msid_with_wildcards redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] [ weight weight_num ]

no policy msid-match msid_with_wildcards

policy overload [ redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] ] | reject [ use-reject-code { admin-prohibited | insufficient-resources } ]

no policy overload [ redirect address [ address2 ... address16 ] ]

default policy overload

policy pcf-zone-match zone_number redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] | restricted [ redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] ]

no policy pcf-zone-match zone_number

default | no policy rrq mei-from-current-pcf suppress-ppp-restart

policy service-option enforce

default | no policy service-option

policy unknown-cvse enforce

default | no policy unknown-cvse

no

Enables/Disables the PDSN service policies.

default

Sets / Restores default value assigned for specified PDSN service policies.
policy msid-match msid_with_wildcards redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ]

Specifies how a PDSN service should handle an incoming call that matches a list of wildcard MSIDs.

*msid_with_wildcards:* An MSID in which up to 16 digits have been replaced with the wildcard ‘$’. This defines the list of possible matches for incoming calls.

*redirect:* This option enables a redirect policy for overloading conditions. When a redirect policy is invoked, the PDSN service rejects new sessions with an A11 Registration Reply Code of 88H (unknown PDSN address) and provides the IP address of an alternate PDSN. This command can be issued multiple times.

*address:* The IP address of an alternate PDSN expressed in IP v4 dotted decimal notation. Up to 16 IP addresses can be specified either in one command or by issuing the redirect command multiple times. If you try to add more than 16 IP addresses to the redirect policy the CLI issues an error message. If you specify an IP address and weight that already exists in the redirect policy the new values override the existing values.

*weight weight_num:* When multiple addresses are specified, they are selected in a weighted round-robin scheme. Entries with higher weights are more likely to be chosen. If a weight is not specified the entry is automatically assigned a weight of 1. *weight_num* must be an integer from 1 through 10.

policy overload { redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] | reject [ use-reject-code { admin-prohibited | insufficient-resources } ] }

Specifies how a PDSN service should handle an overload condition.

*redirect:* This option enables a redirect policy for overloading conditions. When a redirect policy is invoked, the PDSN service rejects new sessions with an A11 Registration Reply Code of 88H (unknown PDSN address) and provides the IP address of an alternate PDSN. This command can be issued multiple times.

*address:* The IP address of an alternate PDSN expressed in IP v4 dotted decimal notation. Up to 16 IP addresses can be specified either in one command or by issuing the redirect command multiple times. If you try to add more than 16 IP addresses to the redirect policy the CLI issues an error message. If you specify an IP address and weight that already exists in the redirect policy the new values override the existing values.

*weight weight_num:* When multiple addresses are specified, they are selected in a weighted round-robin scheme. Entries with higher weights are more likely to be chosen. If a weight is not specified the entry is automatically assigned a weight of 1. *weight_num* must be an integer from 1 through 10.

*reject:* This option will cause any overload traffic to be rejected. The PDSN will send an A11 Registration Reply Code of 82H (insufficient resources).

*use-reject-codeadmin-prohibited:* When this keyword is specified and traffic is rejected, the error code admin prohibited is returned instead of the error code insufficient resources. This is the default behavior.

*use-reject-codeinsufficient-resources:* When this keyword is specified and traffic is rejected, the error code insufficient resources is returned instead of the error code admin prohibited.

policy pcf-zone-match zone_number redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] | restricted { redirect address [ weight weight_num ] [ address2 [ weight weight_num ] ... address16 [ weight weight_num ] ] }

 Specifies how a PDSN service should handle an incoming call that matches a predefined zone number.

*zone_number:* An integer between 1 and 32 that defines the zone incoming calls must match for redirection.

*redirect:* This option enables a redirect policy for overloading conditions. When a redirect policy is invoked, the PDSN service rejects new sessions with an A11 Registration Reply Code of 88H (unknown PDSN address) and provides the IP address of an alternate PDSN. This command can be issued multiple times.
**address:** The IP address of an alternate PDSN expressed in IP v4 dotted decimal notation. Up to 16 IP addresses can be specified either in one command or by issuing the redirect command multiple times. If you try to add more than 16 IP addresses to the redirect policy the CLI issues an error message. If you specify an IP address and weight that already exists in the redirect policy the new values override the existing values.

**weight weight_num:** When multiple addresses are specified, they are selected in a weighted round-robin scheme. Entries with higher weights are more likely to be chosen. If a weight is not specified the entry is automatically assigned a weight of 1. *weight_num* must be an integer from 1 through 10.

**restricted:** This is an optional keyword which means the zone is restricted. Restricted zone is meaningful only if enhanced PCF redirection feature is enabled, otherwise the zone follows the default behavior.

**policy rrq mei-from-current-pcf suppress-ppp-restart**
- **rrq** configures policy for PPP restart after getting mei in rrq.
- **mei-from-current-pcf** mei is received in rrq from current pcf.
- **suppress-ppp-restart** suppresses ppp restart when mei is received in rrq from current pcf

**policy service-option enforce**
- **service-option** configures R-P service-option to use for specific PDSN service. Must be followed by valid service-option number, ranging from 0 to 1000.
- **enforce** designates enforcement of R-P service-option number.

**policy unknown-cvse enforce**
- **unknown-cvse** configures PDSN service unknown cvse policy.
- **enforce** enforces unknown cvse policy where unknown CVSEs in RRQs will cause Deny

**Usage Guidelines**

Policies can be implemented to dictate PDSN service behavior for various conditions such as overloading.

The system invokes the overload policy if the number of calls currently being processed exceeds the licensed limit for the maximum number of sessions supported by the system.

The system automatically invokes the overload policy when an on-line software upgrade is started.

Use the **no policy { overload | service-option }** command to delete a previously configured policy. If after deleting the policy setting you desire to return the policy parameter to its default setting, use the **default policy** command.

The chassis is shipped from the factory with the policy options set as follows:

- overload disabled
- sequence-numbers enforced enabled

**Caution**

Incorrect configuration of the **policy msid-match** and **policy pcf-zone-match** keywords could result in sessions failing to be established. For example, if PDSN1 is configured to redirect sessions to PDSN2 while PDSN2 is configured to redirect sessions to PDSN1, a loop is created in which all sessions would fail to be connected. In addition, sessions will not be established if the PDSN to which the sessions are being redirected is unavailable.
Examples

The following command configures the PDSN service to redirect traffic to two different destinations with weights of 1 and 10 respectively:

```plaintext
policy overload redirect 192.168.1.100 weight 1 192.168.1.200 weight 10
```
**ppp**

Sets PPP tunneling parameters for subscribers in the current PDSN service.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

`(context_name)host_name(config-pdsn-service)#`

**Syntax Description**

```
ppp { tunnel-context context_name | tunnel-type { l2tp | none } }
[ no | default ] ppp tunnel-type
```

- **no**
  Enables/Disables the PPP tunneling parameters for subscribers in the current PDSN service.

- **default**
  Sets / Restores default value assigned for PPP tunneling parameters for subscribers in the current PDSN service.

- **tunnel-context context_name**
  The name of the context that has a LAC service configured to handle all tunnels from this PDSN service.

- **tunnel-type { l2tp | none }**
  - **l2tp**: Force all subscriber sessions in this PDSN service to use L2TP tunneling.
  - **none**: Do not force L2TP tunneling. This is the default.

---

**Important**

If the context specified by the `ppp tunnel-context context_name` command does not have a LAC service configured and `tunnel-type` is set to `l2tp` or the call is rejected.
If the PPP tunnel context has not been set or has been cleared with the `no ppp tunnel-context` command and `tunnel-type` is set to `l2tp`, the context where the current PDSN service resides is used. If that context does not have a LAC service configured the call is rejected.

**Usage Guidelines**

Use this command to enable or disable forced L2TP tunneling for all subscribers using this PDSN service. Also use this command to define which context defines the L2TP tunneling parameters.

**Examples**

To set the tunnel context to the context named `context1` and enable forced L2TP tunneling, use the following commands:

```plaintext
ppp tunnel-context context1
ppp tunnel-type l2tp
```

To enable forced L2TP tunneling with IPSEC security, use the following commands:

```plaintext
ppp tunnel-type l2tp-secure
```

To disable forced tunneling, use the following command:

```plaintext
ppp tunnel-type none
```

To clear the setting for the tunnel context, use the following command:

```plaintext
no ppp tunnel-context
```
qos-profile-id-mapping

Creates the customized QoS profile identifier to QoS mapping for IMS authorization support.

**Product**
- PDSN
- HA

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```shell
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:
```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```shell
qos-profile-id-mapping profile-id id_num { [ description desc ] | [ downlink-bw dl_bw ] | [ drop-rate drop_percentage ] | [ latency latency_duration ] | [ qos-class { class-A | class-B | class-C | class-D | class-E | class-F } ] | [ uplink-bw ul_bw ] } + [ default | no ] qos-profile-id-mapping profile-id id_num
```

- `default`
  Configures the specified QoS profile ID for QoS mapping with default values in this PDSN service.

- `no`
  Removes the configured QoS profile ID mapping in this PDSN service.

- `profile-id id_num`
  Specifies the profile identifier for QoS parameters to be used as the customized profile ID or modifies the QoS parameters in a profile ID (id_num) coming from RAN.
  
  id_num must be an integer between 0 and 65535.

- `description desc`
  Specifies the user-defined description for profile identifier.
  
  desc must be an alpha and/or numeric string between 1 and 32 characters.
downlink-bw *dl_bw*
Default: 32
Specifies the downlink (towards the MN) data traffic bandwidth in kilo-bits per second for this QoS profile. 
*dl_bw* must be an integer value between 0 and 100000.

*drop-rate drop_percentage*
Default: 0
Specifies the permitted packet drop rate in percentage for traffic flow to this QoS profile. 
*drop_percentage* must be an integer value between 0 and 1000.

*latency latency_duration*
Default: 1000
Specifies the permitted latency duration in milli-seconds for this QoS profile. 
*latency_duration* must be an integer value between 0 and 1000.

*qos-class {class-A | class-B | class-C | class-D | class-E | class-F}*
Default: Class-C
Specifies the type of QoS class associated with this QoS profile
class-A: Specifies the A type of QoS class.
class-B: Specifies the B type of QoS class.
class-C: Specifies the C type of QoS class.
class-D: Specifies the D type of QoS class.
class-E: Specifies the E type of QoS class.
class-F: Specifies the F type of QoS class.

uplink-bw *ul_bw*
Default: 32
Specifies the uplink (from the MN) data traffic bandwidth in kilo-bits per second for this QoS profile. 
*ul_bw* must be an integer value between 0 and 100000.

+ More than one of the above keywords can be entered within a single command.

**Usage Guidelines**
Use this command to define the values associated with the profile ID on the PDSN. This profile ID is used during the mapping to and from the authorized QoS to the QoS parameters for the A10 link. This mapping is required because the PDSN only knows the profile IDs and not the actual configured values for the profile ID in the RAN. Also this configuration allows the use of custom profile IDs for the subscribers.
If no values are defined with a QoS profile ID, the values from matching QoS profile ID from RAN will be applicable to the subscriber traffic.
Examples

The following command sets the downlink bandwidth to 32 kbps, latency duration as 1000 ms, uplink bandwidth to 32 kbps, and QoS class to Class-C for the QoS profile ID 11 in a PDSN service:

```
default qos-profile-id-mapping profile-id 11
```
qos update

Sets QoS update parameters for policy mismatches or wait timeouts.

Product PDSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-pdsn-service)#

Syntax Description

qos-update { policy-mismatch | wait-timeout seconds action | disconnect-session |
   downgrade-to-best-effort | drop-packets } |

| no | default | qos-update { policy-mismatch | wait-timeout } |

no

Enables/Disables the qos-update [ policy-mismatch | wait-timeout ].

default

Sets / Restores default value for qos-update [ policy-mismatch | wait-timeout ].

policy-mismatch

PDSN raises a TFT violation if there is a QoS policy mismatch.

wait-timeout seconds action { disconnect-session | downgrade-to-best-effort | drop-packets } |

Sets the wait time for A11 RRQ for QoS changes. seconds must be an integer from 1 through 1000.

action: configures the action on the wait-timeout

• disconnect-session: Drops the call if the A11 RRQ has not been received for the QoS update. This includes all of the IP flows for the session.

• downgrade-to-best-effort: Drops packets if the A11 RRQ has not been received for the QoS update. Sends the forward traffic over best effort (flow FF or FE if available).

• drop-packets: Drops packets if the A11 RRQ has not been received for the QoS update.
Usage Guidelines

This command provides a PDSN service level configurable to configure an action, if the PCF ignores the QoS Update request from PDSN. It sets the amount of time to wait and the action to take, if no RRQ is received before the timeout. The action can be to drop packets for the flow, disconnect the session or to downgrade to best effort.

Examples

```bash
qos-update policy-mismatch
The following command sets wait-timeout to 60 seconds and invokes downgrade-to-best-effort if the A11 RRQ has not been received for the QoS update:
    qos-update wait-timeout 60 action downgrade-to-best-effort
```
radius accounting dropped-pkts

This command enables or disables RADIUS accounting related configuration for dropped packets.

---

Important
This command is customer-specific. Contact your Cisco account representative for more information.

---

Product
PDSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

\[context\_name\]host\_name(config-pdsn-service)#

Syntax Description
\[ no \] radius accounting dropped-pkts

\no\n
Enables the RADIUS accounting related configuration for dropped packets.

\nradius accounting dropped-pkts\n
Disables the RADIUS accounting related configuration for dropped packets. This is the default behavior.

Usage Guidelines
Use this command to enable or disable the RADIUS accounting related configuration for dropped packets. By default, the feature is disabled.

---

Important
The configuration will be picked up during call-setup and can not be changed dynamically.

---

Examples
The following command enables the RADIUS accounting related configuration for dropped packets for the PDSN service:
\no radius accounting dropped-pkts\n
registration-accept

Allows the PDSN to accept registration requests when a handoff disconnect is in progress. When the PDSN is tearing down a session and the MN moves over to a new PCF and initiates a new session, the PDSN by default does not accept the handoff until it tears down the old session.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
(context_name)host_name(config-pdsn-service)#
```

**Syntax Description**

```
[ no | default ] registration-accept handoff session-disconnect-in-progress
```

**no**

Disable accepting of registration requests when a handoff disconnect is still in progress.

**default**

Default is disabled.

Sets / Restores default value assigned for `registration-accept handoff session-disconnect-in-progress`.

**Usage Guidelines**

Use this command to allow the PDSN service to accept registration requests when a handoff disconnect is still in progress.

**Examples**

```
registration-accept handoff session-disconnect-in-progress
```
registration-ack-deny terminate-session-on-error

Configures the PDSN service to terminate an A11 session when a Registration ACK received from the PCF has an error status.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

{context_name}@host_name(config-pdsn-service)#

**Syntax Description**

[ no | default ] registration-ack-deny terminate-session-on-error

**no**

Disable terminating A11 sessions on a Registration ACK error from the PCF.

**default**

Sets / Restores default value assigned to registration-ack-deny terminate-session-on-error.

**Usage Guidelines**

Use this command to enable the PDSN service to terminate A11 sessions on a Registration ACK error from the PCF.

**Examples**

Use the following command to enable this functionality in the PDSN:

registration-ack-deny terminate-session-on-error
registration-deny

Configures parameters related to registration rejection.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
```

- **default**
  Sets / Restores default value for registration-deny.

- **no**
  Disables the specified option.

- **handoff**
  This command configures the handoff behavior.

  **closedrp-rp handoff-in-progress**: Configures parameters related to denying handoffs from Closed-RP to RP systems. When enabled the PDSN rejects retransmitted handoff R-P requests when a handoff is already in progress from Closed RP to RP. The deny code used is 'Reason Unspecified'. The default is disabled meaning that the PDSN simply discards such requests.
connection-setup-record-absent [ use-deny-code { poorly-formed-request | reason-unspecified } ]: When enabled the PDSN denies or discards handoff R-P sessions that do not have an Airlink Connection Setup record in the A11 Registration Request. Default is disabled. Default PDSN behavior is to accept such requests.

[use-deny-code { poorly-formed-request | reason-unspecified }]: Sets the specified Registration Deny Code when denying a handoff because of a missing connection setup record.

max-deny-reply-limit num
Default: 3
Configures max number of retries of erroneous registration request message from PCF for a session before PDSN terminates the session. num can be from 1 to 10.

mismatched-coa-source-address
Default: disabled
Denies RP requests which have a care-of-address field that is different from the request source address.

new-call { connection-setup-record-absent [ use-deny-code { poorly-formed-request | reason-unspecified } ] | reverse-tunnel-unavailable }

connection-setup-record-absent: Configures the PDSN to reject calls that do not have the airlink connection setup record in the RRQ.

use-deny-code { poorly-formed-request | reason-unspecified } When rejecting calls that do not have the airlink setup record, use the specified deny code.

reverse-tunnel-unavailable: Configures the PDSN to reject calls if the GRE key for a user collides with that of another user.

session-already-active
PDSN denies Registration requests for sessions that are already active with the error code "poorly formed request".

session-already-closed
PDSN denies RP renew and dereg requests with error code 0x8E for absent R-P sessions.

session-already-dormant
PDSN denies Registration requests for sessions that are already dormant with the error code "poorly formed request".

terminate-session-on-error
Default: Disabled.
Configures PDSN to terminate session if erroneous registration request message is received for the session.

use-zero-gre-key
Configures the PDSN to set the GRE key to zero (0) when denying a new R-P session.
Usage Guidelines

Use this command to configure parameters relating to the rejection of registration requests.

Examples

To reject calls that do not have the airlink setup record in the RRQ, enter the following command:

```
registration-deny new-call connection-setup-record-absent
```

To reject calls if the GRE key collides with that of another user, enter the following command:

```
registration-deny new-call reverse-tunnel-unavailable
```

To set the GRE key to 0 (zero) when a new R-P session is denied, enter the following command:

```
registration-deny new-call use-zero-gre-key
```
registration-discard

Configures the PDSN service to discard any Registration Request message containing multiple information elements of the same type or a different GRE key for existing IMSI session.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > psdn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-psdn-service)#
```

**Syntax Description**

```
[ default | no ] registration-discard { bad-extension | gre-key-change | handoffconnection-setup-record-absent }
```

- **default**

  Sets/Restores default value assigned for `registration-discard`.

- **no**

  Disables the discarding of Registration request messages containing multiple information elements or different GRE keys.

- **bad-extension**

  Default: Disabled

  Configures the PDSN to discard Registration Request message containing multiple information elements of same type.

- **gre-key-change**

  Default: Disabled

  Configures PDSN to discard Registration Request message containing different GRE key for existing IMSI session. Default is disable

- **handoff connection-setup-record-absent**

  Default: Disabled
When enabled, discards all Handoff requests that do not contain the Airlink Setup record.

Usage Guidelines

Use this command to configure the PDSN service to discard and Registration Requests that contain multiple information elements of the same type or discard Registration Requests that contain GRE keys that have different GRE keys for the existing IMSI session.

Examples

To configure the PDSN service to discard of Registration Requests that have multiple information elements of the same type, enter the following command:

```
registration-discard bad-extension
```

To configure the PDSN service to discard registration Requests that contain a GRE key that is different than the existing one for the existing IMSI session, enter the following command:

```
registration-discard gre-key-change
```
registration-update

Configures registration update related parameters for the PDSN.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

`{context_name}host_name(config-pdsn-service)#`

**Syntax Description**

```
registration-update { pdsn-code-nvse | wait-timeout secs }
{ default | no } registration-update { pdsn-code-nvse | wait-timeout }
```

**no**

If this option is used with the `pdsn-code-nvse` keyword, then pdsn-code-nvse configuration is disabled.

If this option is used with the `wait-timeout` keyword, a separate A11 timer is not used. The PDSN waits for the ppp retransmit-timeout and then sends the A11 Update. If a value is provided, then the "ppp retransmit-timeout" is ignored and a separate A11 timeout is started immediately upon sending the LCP Term-Ack. The A11 Update is then sent when the timer expires.

A value of 0 sends the A11 Update immediately after sending the LCP Term-Ack.

**default**

Sets/Restores default value assigned for `registration-update { pdsn-code-nvse | wait-timeout }

**pdsn-code-nvse**

Adds the PDSN code NVSE in all A11 registration update messages.

**secs**

The number of seconds to wait. `secs` must be an integer in the range from 0 through 16.
wait-timeout
After the Mobile Node terminates a PPP session between the PDSN and the Mobile Node, the PDSN service waits for the specified time period to receive an A11 RRQ from the PCF before it sends out a Registration-Update to clear the Session from the PCF.

Usage Guidelines
Use this command to configure registration update related
The wait-timeout keyword configures the PDSN to wait the specified amount of time before sending out a Registration-Update to clear the Session from the PCF.

Examples
Use the following command to set the registration wait-timeout to 16 seconds:
```
registration-update wait-timeout 16
```
**retransmission-timeout**

Configures the maximum allowable time for the PDSN service to wait for a response from the PCF before it:
Attempts to communicate with the PCF again (if the system is configured to retry the PCF)
OR
Marks the PCF as unreachable.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:
`{context_name}@host_name(config-pdsn-service)#`

**Syntax Description**
`retransmission-timeout time`
```
{default | no} retransmission-timeout
```

**no**
Enables/Disables the `retransmission-timeout`.  

**default**
Sets / Restores default value assigned for `retransmission-timeout`.

**time**
Specifies the maximum allowable time for the PDSN service to wait for a response from the PCF before it a) attempts to communicate with the PCF again (if the system is configured to retry the PCF) or b) marks the PCF as unreachable.

time is measured in seconds and can be configured to any integer value between 1 and 1,000,000.

**Usage Guidelines**
Use the retransmission timeout command in conjunction with the `max-retransmissions` command in order to configure the PDSN services behavior when it does not receive a response from a particular PCF.
Use the **no retransmission-timeout** command to delete a previously configured timeout value. If after deleting the lifetime setting you desire to return the lifetime parameter to its default setting, use the **default retransmission-timeout** command.

The chassis is shipped from the factory with the retransmission timeout set to 3 seconds.

**Examples**

The following command configures a retransmission timeout value of 5 seconds:

```
retransmission-timeout 5
```

The following command deletes a previously configured retransmission-timeout setting:

```
noretransmission-timeout
```
service-option

If the service option policy is enabled, this command specifies the service options supported by the PDSN service.

Product

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:
(context_name)host_name(config-pdsn-service)#

Syntax Description

service-option number
no service-option number

no

Enables/Disables the service-option number

default

Sets / Restores default value assigned for service-option.

number

Default: 7, 15, 22, 23, 24, 25, 33, 59, 67

Specifies a specific Service Option (SO) number that this PDSN service is allowed to support.

number can be configured to any integer value between 1 and 1000.

Usage Guidelines

Use the service option command in conjunction with the policy service option enforce command to configure specific SO numbers that are supported. If a particular SO number is not configured, then any subscriber session received with that SO number will be rejected and an A11 Registration Reply Code of 86 (poorly formed request) will be sent.

By default, PDSN services are configured to support the following service option numbers:

- 7: PCF specific
- 15: PCF specific
- 22: High Speed Packet Data Service: Internet or ISO Protocol Stack (RS1 forward, RS1 reverse)
- 23: High Speed Packet Data Service: Internet or ISO Protocol Stack (RS1 forward, RS2 reverse)
- 24: High Speed Packet Data Service: Internet or ISO Protocol Stack (RS2 forward, RS1 reverse)
- 25: High Speed Packet Data Service: Internet or ISO Protocol Stack (RS2 forward, RS2 reverse)
- 33: 3G High Speed Packet Data
- 59: High Rate Packet Data
- 67: RP A10 connection

**Important**

Option 67 is used for auxiliary connections for Rev-A calls. PPP encapsulation of data packets does not flow over this service option connection. ROHC can be performed without PPP for this service option.

Use the `no service-option number` command to delete a previously configured service option. If after deleting the service option setting you desire to return the service option parameter to its default setting, use the `default service-option command`.

**Examples**

The following command enables a service option of 12:

```
service-option 12
```

The following command disables the default service option 59:

```
no service-option 59
```
**setup-timeout**

Specifies the maximum amount of time allowed for session setup.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```bash
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**

```
{ no } setup-timeout seconds
default setup-timeout
```

- **default**
  
  Sets/Restores default value assigned for `setup-timeout`.

- **seconds**
  
  Default: 60 seconds

  The maximum amount of time, in seconds, to allow for setup of a session. `seconds` must be an integer from 1 through 1000000

**Usage Guidelines**

Use this command to set the maximum amount of time allowed for setting up a session.

**Examples**

Use the following command to set the maximum time allowed for setting up a session to 300 seconds:

```bash
setup-timeout 300
```
**Simple-ip allow**

Enables or disables Simple-IP sessions from making a connection before authorization takes place.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

`configure > context context_name > pdsn-service service_name`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-pdsn-service)#`

**Syntax Description**

```
[ no | default ] simple-ip allow
```

**no**

When a session attempts PPP authentication, it is assumed that it is a Simple-IP session and it is disconnected before the user is authenticated (RADIUS or local authentication). Also, if `allow-noauth` is enabled and PPP authentication is not performed, after IPCP the session is disconnected if it is discovered that it is a Simple-IP session.

**default**

Reset this command to allow Simple-IP sessions to connect.

**Usage Guidelines**

Use this command to prevent Simple-IP sessions from connecting to a PDSN service.

**Examples**

The following command configures the PDSN service so that it will reject any Simple-IP sessions:

```
no simple-ip allow
```

The following command configures the PDSN service to allow Simple-IP sessions:

```
simple-ip allow
```
spi

Configures the security parameter index (SPI) between the PDSN service and the PCF. This command also configures the redirection of call based on PCF zone.

Product
PDSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

\[
\text{(context_name)host_name(config-pdsn-service)}#
\]

Syntax Description

```
spi remote-address \{ pcf_ip_address | ip_addr_mask_combo \} spi-number number \{ encrypted secret enc_secret | secret secret \} \{ description string \} \{ hash-algorithm \{ md5 | rfc2002-md5 \} \} \{ replay-protection \{ nonce | timestamp \} \} \{ timestamp-tolerance tolerance \} \{ zone zone_id \}
no spi remote-address pcf_ip_address spi-number number
remote-address \{ pcf_ip_address | ip_addr_mask_combo \}
pcf_ip_address: Specifies the IP address of the PCF. pcf_ip_address is an IP address expressed in IP v4 dotted decimal notation.
ip_addr_mask_combo: Specifies the IP address of the PCF and specifies the IP address network mask bits. ip_addr_mask_combo must be specified using the form 'IP Address/Mask Bits' where the IP address must either be an IPv4 address expressed in dotted decimal notation or an IPv6 address expressed in colon notation and the mask bits are a numeric value which is the number of bits in the subnet mask.
spi-number number
Specifies the SPI (number) which indicates a security context between the PCF and the PDSN in accordance with IOS 4.1 and RFC 2002.
number can be configured to any integer value between 256 and 4294967295.
encrypted secret enc_secret | secret secret
Configures the shared-secret between the PDSN service and the PCF. The secret can be either encrypted or non-encrypted.
```
encrypted secret enc_secret: Specifies the encrypted shared key (enc_secret) between the PCF and the PDSN service. enc_secret must be between 1 and 254 alpha and/or numeric characters and is case sensitive.

secret secret: Specifies the shared key (secret) between the PCF and the PDSN services. secret must be between 1 and 127 alpha and/or numeric characters and is case sensitive.

The encrypted keyword is intended only for use by the chassis while saving configuration scripts. The system displays the encrypted keyword in the configuration file as a flag that the variable following the secret keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.

description string
This is a description for the SPI. string must be an alpha and or numeric string of from 1 through 31 characters.

hash-algorithm { md5 | rfc2002-md5 }
Default: md5
Specifies the hash-algorithm used between the PDSN service and the PCF.
md5: Configures the hash-algorithm to implement MD5 per RFC 1321.
rfc2002-md5: Configures the hash-algorithm to implement keyed-MD5 per RFC 2002.

replay-protection { nonce | timestamp }
Default: timestamp
Specifies the replay-protection scheme that should be implemented by the PDSN service.
nonce: Configures replay protection to be implemented using NONCE per RFC 2002.
timestamp: Configures replay protection to be implemented using timestamps per RFC 2002.

timestamp-tolerance tolerance
Default: 60
Specifies the allowable difference (tolerance) in timestamps that is acceptable. If the difference is exceeded, then the session will be rejected. If this is set to 0, then time stamp tolerance checking is disabled at the receiving end.
tolerance is measured in seconds and can be configured to any integer value between 0 and 65535.

zone zone_id
Specifies the different PCF zones to configure in PDSN service. Mapping of a zone-number to a set of PDSNs can be done per PDSN service basis.
zone_id must be an integer value between 1 and 32. A maximum of 32 PCF zones can be configured for a PDSN service.

Usage Guidelines
An SPI is a security mechanism configured and shared by the PCF and the PDSN service. Please refer to IOS 4.1 and RFC 2002 for additional information.
Multiple SPIs can be configured if the PDSN service is communicating with multiple PCFs.
The SPI configuration on the PCF must match the SPI configuration for the PDSN service on the system in order for the two devices to communicate properly.

Use the **no** version of this command to delete a previously configured SPI.

This command used with **zone zone_id** redirects all calls on the basis of PCF zone to the specific PDSN on the basis of parameters configured at policy pcf-zone-match command.

**Examples**

The following command configures the PDSN service to use an SPI of 256 when communicating with a PCF with the IP address 192.168.0.2. The key that would be shared between the PCF and the PDSN service is q397F65.

```
spi remote-address 192.168.0.2 spi-number 256 secret q397F65
```

The following command deletes the configured SPI of 400 for an PCF with an IP address of 172.100.3.200:

```
no spi remote-address 172.100.3.200 spi-number 400
```

The following command creates the configured SPI of 400 for an PCF with an IP address of 172.100.3.200 and zone id as 11:

```
spi remote-address 172.100.3.200 spi-number 400 zone 11
```
tft-validation wait-timeout

Configures the TFT validation wait timeout value for QoS changes. The QoS update timer triggers automatic QoS updates based on dynamic policies.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```plaintext
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-pdsn-service)#
```

**Syntax Description**
```
tft-validation wait-timeout seconds
[ default | no ] tft-validation wait-timeout
```

- **no**
  Removes the wait-timeout timer.

- **default**
  Sets / Restores default value assigned for `tft-validation wait-timeout`.

**Usage Guidelines**
Configures the TFT validation wait time value for A11 RRQ for QoS changes. `seconds` must be an integer from 1 through 65535.

**Examples**
Use the following command to set the TFT validation wait-timeout to 5 seconds:

```
tft-validation wait-timeout 5
```
threshold a11-ppp-send-discard

Sets an alarm or alert for the PDSN service based on the number of packets that the PPP protocol processing layer internally discarded on transmit for any reason.

Product PDSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:
{context_name}@host_name(config-pdsn-service)#

Syntax Description

```
threshold a11-ppp-send-discard high_thresh [ clear low_thresh ]
no threshold a11-ppp-send-discard
```

no

Deletes the alert or alarm.

**high_thresh**

*Default: 0*

The high threshold number of discarded PPP send packets that must be met or exceeded within the polling interval to generate an alert or alarm. It can be configured to any integer value between 0 and 100000.

**clear low_thresh**

*Default: 0*

The low threshold number of discarded PPP send packets that must be met or exceeded within the polling interval to clear an alert or alarm. It can be configured to any integer value between 0 and 100000.

**Important**

This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.
Usage Guidelines

Use this command to set an alert or an alarm when the number of discarded PPP send packets is equal to or greater than a specified number.

Alerts or alarms are triggered for the number of discarded PPP send packets is based on the following rules:

- **Enter condition**: Actual number of discarded PPP send packets > High Threshold
- **Clear condition**: Actual number of discarded PPP send packets ≤ Low Threshold

Examples

The following command configures a number of discarded PPP send packets threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```
threshold a11-ppp-send-discard 1000 clear 500
```
threshold a11-rac-msg-discard

Sets an alarm or alert based on the number of Discarded A11 Registration Acknowledgements for the PDSN service.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

```
threshold a11-rac-msg-discard high_thresh [clear low_thresh]
no threshold a11-rac-msg-discard
```

- **no**
  Deletes the alert or alarm.

- **high_thresh**
  Default: 0
  The high threshold number of Discarded A11 Registration Acknowledgements that must be met or exceeded within the polling interval to generate an alert or alarm. It can be configured to any integer value between 0 and 100000.

- **clear low_thresh**
  Default: 0
  The low threshold number of Discarded A11 Registration Acknowledgements that must be met or exceeded within the polling interval to clear an alert or alarm. It can be configured to any integer value between 0 and 100000.

**Important**

This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.
Usage Guidelines

Use this command to set an alert or an alarm when the number of Discarded A11 Registration Acknowledgements is equal to or greater than a specified number.

Alerts or alarms are triggered for the number of Discarded A11 Registration Acknowledgements based on the following rules:

- **Enter condition**: Actual number of Discarded A11 Registration Acknowledgements > High Threshold
- **Clear condition**: Actual number of Discarded A11 Registration Acknowledgements ≤ Low Threshold

Examples

The following command configures a number of Discarded A11 Registration Acknowledgements threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```
threshold a11-rac-msg-discard 1000 clear 500
```
threshold a11-rrp-failure

Sets an alarm or alert based on the number of A11 Registration Response failures for the PDSN service.

Product
PDSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:
{context_name}host_name(config-pdsn-service)#

Syntax Description
threshold a11-rrp-failure high_thresh [ clear low_thresh ]
no threshold a11-rrp-failure

no
Deletes the alert or alarm.

high_thresh
Default: 0
The high threshold number of A11 Registration Response failures that must be met or exceeded within the polling interval to generate an alert or alarm. It can be configured to any integer value between 0 and 100000.

clear low_thresh
Default: 0
The low threshold number of A11 Registration Response failures that must be met or exceeded within the polling interval to clear an alert or alarm. It can be configured to any integer value between 0 and 100000.

Important
This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines
Use this command to set an alert or an alarm when the number of A11 Registration Response failures is equal to or greater than a specified number.
Alerts or alarms are triggered for the number of A11 Registration Response failures based on the following rules:

- **Enter condition:** Actual number of A11 Registration Response failures > High Threshold
- **Clear condition:** Actual number of A11 Registration Response failures ≤ Low Threshold

**Examples**

The following command configures a number of A11 Registration Response failures threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```plaintext
threshold a11-rrp-failure 1000 clear 500
```
threshold a11-rrq-msg-discard

Sets an alarm or alert based on the number of Discarded A11 Registration Requests for the PDSN service.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > PDSN Service Configuration
configure > context context_name > pdsn-service service_name

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-pdsn-service)#
```

**Syntax Description**

```
threshold a11-rrq-msg-discard high_thresh [ clear low_thresh ]
no threshold a11-rrq-msg-discard
```

- **no**
  Deletes the alert or alarm.

  **high_thresh**
  Default: 0
  The high threshold number of Discarded A11 Registration Requests that must be met or exceeded within the polling interval to generate an alert or alarm. It can be configured to any integer value between 0 and 100000.

  **clear low_thresh**
  Default:0
  The low threshold number of Discarded A11 Registration Requests that must be met or exceeded within the polling interval to clear an alert or alarm. It can be configured to any integer value between 0 and 100000.

  **Important**
  This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

**Usage Guidelines**
Use this command to set an alert or an alarm when the number of Discarded A11 Registration Requests is equal to or greater than a specified number.
Alerts or alarms are triggered for the number of Discarded A11 Registration Requests based on the following rules:

- **Enter condition:** Actual number of Discarded A11 Registration Requests > High Threshold
- **Clear condition:** Actual number of Discarded A11 Registration Requests £ Low Threshold

**Examples**

The following command configures a number of Discarded A11 Registration Requests threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```
threshold a11-rrq-msg-discard 1000 clear 500
```
**threshold init-rrq-rcvd-rate**

Sets an alarm or alert based on the average number of calls setup per second for the context.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > PDSN Service Configuration

```bash
configure > context context_name > pdsn-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}host_name(config-pdsn-service)#
```

**Syntax Description**

```
threshold init-rrq-rcvd-rate high_thresh [ clear low_thresh ]
no threshold init-rrq-rcvd-rate
```

no

Deletes the alert or alarm.

**high_thresh**

Default: 0

The high threshold average number of calls setup per second must be met or exceeded within the polling interval to generate an alert or alarm. It can be configured to any integer value between 0 and 1000000.

**clear low_thresh**

Default: 0

The low threshold average number of calls setup per second that must be met or exceeded within the polling interval to clear an alert or alarm. It can be configured to any integer value between 0 and 1000000.

---

**Important**

This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

**Usage Guidelines**

Use this command to set an alert or an alarm when the average number of calls setup per second is equal to or greater than a specified number of calls per second.
Alerts or alarms are triggered for the number of calls setup per second based on the following rules:

- **Enter condition**: Actual number of calls setup per second > High Threshold
- **Clear condition**: Actual number of calls setup per second £ Low Threshold

**Examples**

The following command configures a number of calls setup per second threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```
threshold init-rrq-rcvd-rate 1000 clear 500
```
threshold init-rrq-rcvd-rate