



User Plane Group Selection for S-GW

- [Revision History, on page 1](#)
- [Feature Description, on page 1](#)
- [How it Works, on page 1](#)
- [Configuring UP Group selection, on page 2](#)
- [Monitoring and Troubleshooting, on page 4](#)

Revision History

Revision Details	Release
First introduced.	21.28.m0

Feature Description

S-GW supports the selection of user plane group based on TAC, CC-profile, CC-behavior, UUT, or DCNR. This feature is applicable to S-GW and SAEGW (Pure-S) services. This feature is configurable using multiple conditions to select or associate the UP group.

The UP group selection profile associates with the APN profile. Once you select the APN profile, it verifies the association of the UP group selection profile with the APN profile.

- If the UP group selection profile associates with the APN profile, it verifies all preferences to match received filters from Create Session Request with the configured filter values. It applies the associated UP group with the lowest matched preference number for selecting S-GW UP.
- When no preference matches the received filters, S-GW applies the configured UP group name from the UPG selection profile if it is configured. If it is not configured, S-GW applies the configured UP group name (no preference associated).

How it Works

S-GW uses the TAC, CC-Profile, CC-Behavior, UUT, and DCNR values received in Create Session Request to select a UP group.

Selection of a UP group from the APN profile with UP group name is based on the following values:

- **TAC:** The received TAC value in ULI IE selects the associated TAC profile or TAC range with lower preference value.
- **CC-Profile:** The received CC-Profile value in Charging Characteristics IE selects the associated CC-Profile value with lower preference value.
- **CC-Behavior:** The received CC-Behavior value in Charging Characteristics IE selects the associated CC-Behavior value with lower preference value.
- **UUT:** The received UUT value in Mapped UE Usage Type IE selects the associated UUT profile with lower preference value.
- **DCNR:** The DCNR bit (with value set to 1) received in UP Function Selection Indication Flags IE selects the UP group name from APN profile with lower preference value.

Limitations

This feature has the following limitations:

- Supports only a maximum of 100 UP group selection profiles at global level. The memory usage is based on the number of profiles configured.
- Supports only a maximum of 100 preferences to associate an UP group with TAC, CC, UUT, and DCNR filters per UP group selection profile.
- The configuration can overlap between profiles. For example, you can configure the same UUT or TAC profile in multiple UP group selection profiles.
- The APN profile allows either UPG selection profile or UP group name. It does not allow more than one option in the configuration.

Configuring UP Group selection

Configuring the UP group selection involves the following steps:

- [Configuring UP Group Selection Profile, on page 2](#)
- [Associating UP Group Selection Profile with APN Profile, on page 4](#)

Configuring UP Group Selection Profile

To configure the UP group (UPG) selection profile, use the following configuration:

```
config
  upg-selection-profile name upg_profile_name
    preference preference_value { cc-behavior cc_behavior_value | cc-profile
cc_profile_index | dcnr dcnr_value | tac-profile tac_profile_name |
tracking-area-code-range tac_range | uut-profile uut_profile } user-plane-group
up_group_name
  [ no ] user-plane-group up_group_name
```

```

    exit
  exit
exit

```

NOTES:

- **upg-selection-profile name** *upg_profile_name*: Configure the UP group selection profile as an alphanumeric string of size 1–63 characters.
- **preference**: Configure the preference of rule.

You can configure a maximum number of 100 preferences to associate the UP group with TAC, CC, UUT, and DCNR filters per UP group selection profile.

- **cc-behavior** *cc_behavior_value*: Configure UP group for the cc-behavior value.
 - **cc-profile** *cc_profile_index*: Configure UP group for the cc-profile index as an integer in the range of 0–15.
 - **dcnr** *dcnr_value*: Configure UP group with DCNR capable subscribers if DCNR bit is set in UP Function Selection Indication Flags IE.
 - **tac-profile** *tac_profile_name*: Configure UP group for tracking area profile.
 - **tracking-area-code-range** *tac_range*: Configure UP group for tracking area code range.
 - **uut-profile** *uut_profile*: Configure UP group for UE Usage Type (UUT) profile.
 - **user-plane-group** *up_group_name*: Configure the user plane group name for this UPG selection profile.
- A maximum number of 100 UPG selection profiles are allowed at the global level.
- **no**: Disable the specified preference or UP group configuration in the UPG selection profile.

Verifying the Configuration

To verify the associated UP group details with different network filters, use the following command:

```
show upg-selection-profile { all | name upg_profile_name }
```

Example Configuration

The following is an example configuration of UP group selection:

```

[local]qvpc-si# show configuration
config
  upg-selection-profile name upg-profl
    preference 1 uut-profile uut-profl user-plane-group MatchUUTUPGrp1
    preference 2 tac-profile tac-profl user-plane-group MatchTACUPGrp1
    preference 4 uut-profile uut-profl dcnr rat-type utran user-plane-group
    MatchUUT_DCNR_UTRAN_UPGrp1
    preference 5 uut-profile uut-profl dcnr rat-type eutran user-plane-group
    MatchUUT_DCNR_EUTRAN_UPGrp1
    preference 6 cc-behaviour 0xff user-plane-group MatchCCBehaviour_UPGrp1
    preference 7 uut-profile uut-prof2 cc-behaviour 0xff user-plane-group
    MatchUUTCCBehaviour_UPGrp1
    preference 8 uut-profile uut-prof3 cc-profile cc-profl user-plane-group
    MatchCCProfile_UPGrp1
    user-plane-group UPGrp1
  exit
[local]qvpc-si#

```

Associating UP Group Selection Profile with APN Profile

The APN profile configuration uses the UP group (UPG) selection profile name to select the UP group.

To associate the UPG selection profile with the APN profile, use the following configuration:

```
config
  apn-profile apn_profile_name
    [ no ] upg-selection-profile upg_profile_name
  end
```

NOTES:

- **upg-selection-profile** *upg_profile_name*: Configure the UPG selection profile to associate the APN profile.
- **no**: Remove the association of UPG selection profile with APN profile.
- If you have already configured the UPG selection profile name, S-GW does not allow UP group name configuration in the APN profile.
- If you have already configured the UP group name in the APN profile, S-GW does not allow the configuration in the APN profile.
- To select the UP group name, the APN profile allows only one of the UP group selection profile name or UP group name.

Verifying the Configuration

To verify the configured UPG selection profile name, use the following command:

```
show apn-profile full name apn_profile_name
```

Monitoring and Troubleshooting

This section provides information to monitor and troubleshoot the UP group selection feature.

Show Commands and/or Outputs

This section provides information regarding show commands and their outputs in support of the feature.

show apn-profile full name

This command displays the information related to the UP group selection profile.

The following is a sample output of the **show apn-profile full name { all | name *upg_profile_name* }** command:

```
show apn-profile full name prof1
APN Profile Name                : prof1
Resolution Priority              : dns-fallback
.....
User Plane Group Name           : str
(or)
User Plane Group Selection Profile Name : prof1
```

```
(or)
User Plane Management Policy Name      : policy1
```

show upg-selection-profile

This command displays the associated UP group details with different network filters.

The following is a sample output of the **show upg-selection-profile** command:

```
show upg-selection-profile name prof1
User Plane Group Selection Profile Name      : prof1
User Plane Group Name                        : str
(or)
User Plane Management Policy Name            : policy1

Preference  Selected UP group/mgmt policy name  Rule-Definition
1           grp1                             UUT profile = prof1
                                     TAC Profile = prof1
2           grp2                             UUT profile = prof2
                                     CC Profile Index = 6
                                     TrackingAreaCodeRange
                                     from = 500 to 600
3           grppolicy1                       DCNR = enabled
                                     CC Behavior Bits = 0x7f
```

 show upg-selection-profile