



UPF Local Configuration

This chapter covers the following topics:

- [Feature Summary and Revision History, on page 1](#)
- [Feature Description, on page 2](#)
- [Configuring the Local Configuration Support for UPF, on page 3](#)

Feature Summary and Revision History

Summary Data

Table 1: Summary Data

| | |
|--|-----------------------------------|
| Applicable Product(s) or Functional Area | 5G-UPF |
| Applicable Platform(s) | VPC-SI |
| Feature Default Setting | Disabled – Configuration Required |
| Related Changes in this Release | Not Applicable |
| Related Documentation | Not Applicable |

Revision History

Table 2: Revision History

| Revision Details | Release |
|-------------------|-----------|
| First Introduced. | 2020.02.0 |

Feature Description

The support for processing static and predefined rules in Control and User Plane Separation of EPC nodes (CUPS) architecture is dependent on the ruledef, rulebase, and charging action. For processing L3/L4 static and predefined rules, this information is made available at the control-plane in CUPS architecture. The control plane sends all these information to the associated user-plane using the PFD management message. The UPF cannot use the PFD management message to work with CN-SNF. With this feature, the local configuration support for the User Plane Function (UPF) is enabled, which allows the UPF to work with CN-SNF.

How it Works

The Access Control System (ACS) command line interface (CLI) is configured on the user-plane and the CLI module sends it to the ACS Controller (ACSCtrl). The ACSCtrl verifies the CLI and sends it to the Session Controller (SessCtrl). The SessCtrl stores the configuration in the SCT.

The SessCtrl maintains and stores different configuration types in a skiplist. When the length of the skiplist reaches the maximum (BULK configuration length) for a particular configuration type, the entire list is pushed in BULK from the Sessctrl to the Session Manager (SessMgr). As a result, the number of messenger event/message transactions between proclcts is greatly reduced since the configurations are sent in BULK in a single message. On the expiry of the bulk configuration timeout (2 seconds), the Bulk Configuration timer – which runs constantly at the Session Controller – pushes the different types of configurations to the SessMgrs.

- The following configuration types are supported for the Bulk Configuration push:
 - Ruledef
 - Charging Action
 - Action Priority Lines
 - Group of Ruledef Configuration
 - Rule in Group of Ruledef Configuration
 - Rulebase L3/L4/L7 Info Configuration
 - APN Configuration
 - ACS service Configuration

The configurations are pushed only through the bulk push mechanism for configurations that are either added or modified. On the other hand, when configurations are deleted, it is removed immediately without waiting for any response from the Bulk configuration push timer. The deleted configuration is removed from the SCT and other SessMgrs immediately.



Note The Bulk configuration timeout function is invoked forcefully to push all the pending configurations to the SessMgrs before pushing the configuration delete to avoid any race conditions.

- The configuration changes applied to all the new and existing calls are listed in Table as follows.

Table 3: Configuration Changes on New and Existing Call Flows

| Change in Configuration | Impact on Existing Calls Current Flows | Impact on Existing Calls New Flows | Impact on New Calls |
|--|---|---|---|
| Existing ruledef contents/New rule addition | Rule match is not enforced on existing flows after configuration change. TRM is not disengaged on existing flows. This may lead to billing issues if ruledef contents were changed for ongoing flows. | The configuration changes apply on new flows. For new flows, anyways fresh rule match would happen and the ruledef changes are applied on new flows for existing calls. | The configuration changes apply on new calls. For new flows, anyways fresh rule match would happen and the ruledef changes are applied on flows for new calls. |
| No Ruledef | Rule in use cannot be deleted. | Rule in use cannot be deleted | Rule in use cannot be deleted |
| New Group of Ruledefs/Changes to existing Group of Ruledefs contents (Add or Delete Rule in Group of Ruledefs) | Rule match is not enforced on existing flows after configuration change. TRM is not disengaged on existing flows. This may lead to billing issues if Group of Ruledefs contents were changed for ongoing flows. | The configuration changes apply on new flows. For new flows, anyways fresh rule match would happen and the Group of Ruledefs changes are applied on new flows for existing calls. | The configuration changes apply on new calls. For new flows, anyways fresh rule match happens and the Group of Ruledefs changes are applied on flows for new calls. |
| No Group of Ruledefs | Group of Ruledefs in use cannot be deleted | Group of Ruledefs in use cannot be deleted | Group of Ruledefs in use cannot be deleted |
| No Rule in GoR | Flows continue to match the ruledef defined in Group of Ruledefs unless the ruledef itself is deleted | New flows go through a fresh rule match and configuration change takes effect. | New flows go through a fresh rule match and configuration change takes effect. |
| Action Priority Changes/Action Priority addition | TRM is not disengaged for ongoing flows. configuration changes do not apply on existing flows | Configuration changes apply on new flows. | Configuration changes apply on new calls. |
| No Action Priority | No Impact on existing flows | Configuration changes apply on new flows. | Configuration changes apply on new calls. |
| Rulebase parameters change | Some parameter changes apply on existing calls | Some parameter changes apply on existing calls | Configuration changes apply on new calls |
| No Rulebase | No Rulebase is not supported | No Rulebase is not supported | No Rulebase is not supported |
| No APN | No APN is not supported | No APN is not supported | No APN is not supported |
| IP source violation | No impact on existing calls | No impact on existing calls | Configuration changes apply on new calls. |

Configuring the Local Configuration Support for UPF

Use the following CLI commands to configure the User Plane Function (UPF) locally.

```
configure
  require upf
end
```