UPC CUPS Release Change Reference

DNS-based UP Selection

Revision History

Revision Details	Release
First introduced.	21.27.2

Feature Description

In CUPS, support is enabled for overlapping IP pools between different UPs which are associated with the same CP. All UP groups that are associated with the same CP get the same IP Pool range. Disjointed IP pools are configured on different CPsthat enables assignment of the same IPto UEs at different location. The Virtual Routing and Forwarding (VRF) used on the pools is used to differentiate the traffic for the two UEs.

For more information, refer to the *DNS-based UP Selection* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

Dynamic HTTP Redirect

Revision History

Revision Details	Release
With this release, dynamic HTTP redirect is supported in ADC over Gx.	21.27
First introduced.	Pre 21.24

Feature Description

Redirection rules and actions that are received over Gx are part of RAR and CCA-U messages in a dynamic rule. CUPS supports redirection rules and actions to be conveyed from C-Plane to U-Plane and applied to U-Plane. The following fields are translated and sent to U-Plane and U-Plane redirects accordingly:

```
[V] Redirect-Information
   [V] Redirect-Support
   [M] Redirect-Address-Type
   [M] Redirect-Server-Address
```

In C-Plane:

- FAR, associated with PDR, is populated to support "Redirect-Information" AVP in ADC dynamic rule over Gx.
- PDR and FAR are sent with the "Redirect Information" IE to U-Plane in:
  - Sx Session Establishment Request in case "Redirect-Information" AVP is received in an ADC dynamic rule over Gx in CCA-I from PCRF.
  - Sx Session Modification Request in case "Redirect-Information" AVP is received in an ADC dynamic rule over Gx in CCA-U from PCRF.
  - Sx Session Modification Request in case "Redirect-Information" AVP is received in an ADC dynamic rule over Gx in RAR from PCRF.
- Support is added for removal of ADC dynamic rule.

In U-Plane:

- ADC dynamic rule for the subscriber is installed.
- The packet is redirected if ADC dynamic rule is matched.

For more details, refer to the *ADC Over Gx* chapter in the *Ultra Packet Core CUPS Conrol Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

Gx AVP for UP Identification

Revision History

Revision Details	Release
First introduced.	21.27

Feature Description

When an overlapping IP pool is used, the Packet Data Network (PDN) IP address and the UP function ID or identity/identification are both required to uniquely identify a session at the Policy and Charging Rules Function (PCRF). The information about the UP serving the UE is received by the PCRF from the CP. This information allows PCRF to construct a new master key based on the details collected. The PCRF is able to retrieve the identification of UP serving UE and this information is sent over Gx using the diameter dynamic dictionary configuration.

During the Packet Data Network (PDN) session establishment, the System Architecture Evolution Gateway-Control Plane (SAEGW-C) is allowed to propagate the identification of UP through the Gx interface. This new AVP is then included by SAEGW-C in the Gx CCR-I and the corresponding Gx CCR-x messages wherever applicable.

For more information, refer to the *Gx AVP for UP Identification* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

Host Route Explicit Advertisement

Revision History

Revision Details	Release
First introduced.	21.27

Feature Description

Whenever the IP chunk subnet route advertised to IP back bone is from a faulty site during SAEGW-C failover, once the UE session is established, it turns unusable. In such cases the host route is advertised instead of the route installation for IP chunk subnet during the UP chunk allocation process. This same host IP route is then advertised over the remote SAEGW-C for session reestablishment from the remote UP.

For more information, refer to the *Host Route Explicit Advertisement* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

IPv6 Chunk Size Increase

Revision History

Note Revision history details are not provided for features introduced before release 21.24.

Revision Details	Release
With this release, the maximum chunk-size value or IPv6 pools is increased to 65536.	21.27
Support of UP selection based on the availability of IP pool chunks.	21.26
With this release, the VPN limitation of 100 UPs per context has been removed.	21.25
First introduced	Pre 21.24

Feature Description

When the IP Pool is unused for a large part, it is not an efficient way of utilizing the resources. The User Plane (UP), which are short of IP resources, can benefit if the unused resources are available to them in a dynamic way.

In the CUPS architecture, there is a centralized Control Plane (CP), large number of UPs, and an automatic and efficient way of managing IP Pool across UPs for the following deployments:

- Co-Located CUPS
- Remote CUPS

This feature enables the configuration of maximum chunk size value of 65536 for IPv6 pools for minimum IP subnet /48 size for dynamic discovery and IP pool assignment to UP.

For more information, refer to the *IP Pool Management* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

LTE-M RAT Type Support

Revision History

Revision Details	Release
First introduced.	21.27

Feature Description

LTE-M (LTE-MTC low-power-wide area (LPWA)) is a cellular radio access technology that is specified by 3GPP that addresses low power-wide area connectivity solutions. It specifically refers to a category of LTE UEs that are suitable for IoT LTE-M, which supports IoT through lower device complexity and provides extended coverage, while allowing the reuse of the LTE installed base. The RAT Type Information Element (IE) is present in various call flows across many interfaces. When a Create Session Request is received with an unknown RAT Type, as the RAT Type is a mandatory IE in this message, S-GW or P-GW may reject a Create Session Request. With this feature, LTE-M RAT (Radio Access Technology) Type for CUPS is supported.

For more information, refer to the *LTE-M RAT Type Support* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

P2P Signing Process

Revision History

Revision Details	Release
First introduced.	21.27

Feature Description

StarOS/CUPS supports signature file verification along with P2P binary file. This feature is enabled in both trusted and normal builds. Verification is mandatory in trusted builds and is optional in normal builds.

Use the following CLI configuration command to verify the P2P signing process:

patch plugin filepath *binary_path* **certificate** *certificate_path* **signature** *signature_path*

When P2P binary file along with a signature file gets patched into the system, StarOS/CUPS verifies the signature and accepts or rejects the P2P binary file.

For more information, refer to the *Application Detection and Control Configuration* chapter in the *ADC Administration Guide*.

Post Processing Rule Condition Match for Traffic Steering

Revision History

Revision Details	Release
This release enables support for post processing rule condition match for traffic steering and for L2 up-appliance-group BFD configuration which can be done using the interface-name as well.	21.27

Revision Details	Release
First introduced.	Pre 21.24

Feature Description

A simple traffic classification helps in simplifying the operation and configuration processes in Traffic Steering due to the huge number of the charging rules across multiple rulebases.

- Trigger condition in service scheme framework supports post processing ruledef name match.
- The L3/L4 ruledef which is configured as a post processing rule for traffic is traffic-steered.
- Trigger action supports trigger condition of post processing rule match for traffic steering.
- The post processing ruledef name in trigger condition is supported in PFD push and RCM.

For more information, refer to the *NSH Traffic Steering* chapter in the *Ultra Packet Core CUPS Control Plane Administration Guide* or the *Ultra Packet Core CUPS User Plane Administration Guide*.

RCM BFD Manager in Non-Host Networking Mode

Revision History

Revision Details	Release
First introduced.	21.27

Feature Changes

Previous Behavior: The RCM BFD Manager runs only in host networking mode.

New Behavior: The RCM BFD Manager can run either in host networking mode (legacy) or non-host networking mode based on a CLI toggle.

Customer Impact: None.

Command Changes

The following two RCM Ops Center CLI commands are introduced:

1. **k8 smf profile rcm-bfd-ep host-networking { true | false }**

   The default value of this CLI command is **true**.

2. **k8 smf profile rcm-bfd-ep node-port-enabled { true | false }**

   The default value of this CLI command is **false**.

NOTES:

- The **node-port-enabled** must be set to **true** when **host-networking** is set to **false**.
- The **host-networking** to **false** must not be set in CNDP.