

TR-459

**Multi-Service Disaggregated BNG with CUPS.
Reference Architecture, Deployment Models,
Interface, and Protocol Specification**

Issue: 3 Corrigendum 1

Issue Date: July 2025

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Issue History

Issue Number	Issue Date	Issue Editor	Changes
1	9 June 2020	Kenneth Wan, Nokia	Original
2	24 April 2023	Kenneth Wan, Nokia Nagaraj S Turaiyur, Juniper Networks	Subscriber Group Resiliency Subscriber Group Prefix Assignment DHCP relay ACL solution BBF PFCP node reports and error notifications Call Flow updates
3	29 January 2024	Kenneth Wan, Nokia Nagaraj S Turaiyur, Juniper Networks	New Resilience attributes for SGRP Subscriber QoS ACL programmability Call Flow updates
3 Corrigendum 1	02 July 2025	Kenneth Wan, Nokia Nagaraj S Turaiyur, Juniper Networks	Corrected PFCP IE in the following sections <ul style="list-style-type: none">- Section 6.7.8- Section 6.9.46- Section 6.1.1- Section 6.6

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Table of Contents

Executive Summary	5
1 Purpose and Scope	6
1.1 Purpose	6
1.2 Scope	6
2 References and Terminology.....	7
2.1 Conventions.....	7
2.2 References	7
2.3 Definitions.....	7
2.4 Abbreviations.....	7
3 Correction to section 6.7.8/TR-459 Issue 3	8
4 Insert section 6.9.46/TR-459 Issue 3	9
5 Correction to section 6.1.1/TR-459 Issue 3	9
6 Correction to section 6.6/TR-459 Issue 3	9

Executive Summary

TR-459 issue 3 used the same Information Element (IE) Type for two different IEs, BBF QGRP ID and BBF Parent QGRP in Table 56. This document provides the correction to this error and introduces a new PFCP IE for BBF Parent QGRP.

1 Purpose and Scope

1.1 Purpose

The purpose of this corrigendum is to correct the table 56 in section 6.7.8 where the same IE is repeated within the same grouped PFCP IE.

1.2 Scope

This document contains correction to TR-459 issue 3

The following sections are modified:

- Section 6.7.8
- Section 6.9.46
- Section 6.1.1
- Section 6.6

2 References and Terminology

2.1 Conventions

Please refer to TR-459 issue 3[1]

2.2 References

Please refer to TR-459 issue 3[1]

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Document	Title	Source	Year
[1] TR-459 issue 3	TR-459: Multi-Service Disaggregated BNG with CUPS. Reference Architecture, Deployment Models, Interface, and Protocol Specification issue 3	BBF	2025

2.3 Definitions

Please refer to TR-459 issue 3[1]

2.4 Abbreviations

Please refer to TR-459 issue 3[1]

3 Correction to section 6.7.8/TR-459 Issue 3

Replace the IE Type of BBF Parent QGRP of Table 56 in section 6.7.8 with the following

Octet 1 and 2	BBF QGRP IE Type = 32849 (decimal)		
Octets 3 and 4	Length = n		
Octets 5 and 6	Enterprise ID 3561		
Information elements	P	Condition / Comment	IE Type
BBF Parent QGRP*	O	This IE shall define the parent QGRP this QGRP feeds into. When not present no parent QGRP is defined. It is up to UP policy if a default parent rate (e.g., a port level scheduler) is required.	BBF Parent QGRP Identifier Detail in section 6.9.46

4 Insert section 6.9.46/TR-459 Issue 3

The following is to be inserted in TR-459 issue 3 as section 6.9.46.

6.9.46 BBF Parent QGRP Identifier

BBF Parent QGRP Identifier must be encoded as in shown below.

Octets	Bits							
	8	7	6	5	4	3	2	1
1 to 2	Type = 32860							
3 to 4	Length = n							
5 to 6	Enterprise ID 3561							
7 to 10	QGRP-Identifier							
11 to n+4	These octet(s) is/are present only if explicitly specified							

QGRP-Identifier

QGRP identifier MUST encoded as an unsigned 32-bit integer value that uniquely identifies the Parent QoS Group (Parent QGRP).

Value 0 is reserved

5 Correction to section 6.1.1/TR-459 Issue 3

Replace the Source Reference in Table 9 of section 6.1.1 PFCP IE “BBF Parent QGRP” with “TR-459 6.9.46”.

6 Correction to section 6.6/TR-459 Issue 3

Insert the following row to the bottom of Table 34 of TR-459 issue 3 section 6.6.

IE Type value (Decimal)	Information Elements	Section	Use Case					
			CP and UP Association	Default CPR	Per logical port		Server CPR	
					CP UL	CP DL	CP UL	CP DL
32860	BBF Parent QGRP ID	6.9.46	Yes	No	No	No	No	No

Insert the following row to the bottom of Table 35 of TR-459 issue 3 section 6.6.

IE Type value (Decimal)	Information Elements	Section	Use Case									
			IPoE					TWAG				
			CP UL	CP DL	UP UL	UP DL	Session	CP UL	CP DL	UP UL	UP DL	
32860	BBF Parent QGRP ID	6.9.46	No	No	No	No	No	No	No	No	No	No

Insert the following row to the bottom of Table 36 of TR-459 issue 3 section 6.6.

IE Type value (Decimal)	Information Elements	Section	Use Case				
			PPPoE				
			CP UL	CP DL	UP UL	UP DL	Session
32860	BBF Parent QGRP ID	6.9.46	No	No	No	No	No

Insert the following row to the bottom of Table 37 of TR-459 issue 3 section 6.6.

IE Type value (Decimal)	Information Elements	Section	Use Case				
			PPPoE				
			CP UL	CP DL	UP UL	UP DL	Session
32860	BBF Parent QGRP ID	6.9.46	No	No	No	No	No

Insert the following row to the bottom of Table 38 of TR-459 issue 3 section 6.6.

IE Type value (Decimal)	Information Elements	Section	Use Case						
			LNS tunnel		LNS subscriber session				
			CP UL	CP DL	CP UL	CP DL	UP UL	UP DL	Session
32860	BBF Parent QGRP ID	6.9.46	No	No	No	No	No	No	No

Insert the following row to the bottom of Table 39 of TR-459 issue 3 section 6.6.

BBF UP Function Features	IE Type Value	IE name
QoS Template Programming	32860	BBF Parent QGRP ID

End of Broadband Forum Technical Report TR-459