Source: **TSG CN WG 1**

Title: **CR to Rel-5 on Work Item QoS towards 24.008**

Agenda item: **8.1**

Document for: **APPROVAL**

Introduction:

This document contains **1** CR on **Rel-5 to** Work Item **"QoS"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #17 for approval.

CR#644 has a corresponding CR in 3GPP TS 29.207 (N3-020575).

Spec	CR #	Rev	CAT	Rel	Tdoc Title	Meeting	TDoc #	C_Version
24.008	644		F	Rel-5	Go related error code to UE	N1-25	N1-021609	5.4.0

CR-Form-v7

CHANGE REQUEST

| ⌘ | **24.008** CR **644** | ⌘**rev** | **-** | ⌘ | Current version: | **5.4.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network ☐ Core Network **X**

Title:	⌘	Go related error code to UE

Source:	⌘	Nokia

Work item code: ⌘	QoS	**Date:** ⌘	22.07.02

Category:	⌘	**F**		**Release:** ⌘	*Rel-5*

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP <u>TR 21.900</u>.

Use <u>one</u> of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
Rel-4   (Release 4)
Rel-5   (Release 5)
Rel-6   (Release 6)

Reason for change:	⌘	Go related error indication from GGSN to UE is carried in the Protocol Configuration Options information. The actual error codes and their usage need to be specified. It is proposed that the error codes are specified in the 29.207 and 24.008 specifies how these error codes are included in PCO.

Summary of change: ⌘	Go interface related error codes for PCO are specified.

Consequences if not approved:	⌘	Misalignment between specifications.

Clauses affected:	⌘	10.5.6.3 Protocol configuration options

			Y	**N**			
Other specs affected:	⌘		**X**		Other core specifications	⌘	29.207
					Test specifications		
					O&M Specifications		

Other comments:	⌘	Corresponding CN3 CR to 29.207, tdoc N3-020575, attached for information.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   Void.

[2]   Void.

[2a]   3GPP TR 21.905 "Vocabulary for 3GPP Specifications"

[3]   3GPP TS 22.002: "Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".

[4]   3GPP TS 22.003: "Teleservices supported by a Public Land Mobile Network (PLMN)".

[5]   3GPP TS 42.009: " Digital cellular telecommunications system (Phase 2+); Security aspects".

[6]   3GPP TS 22.011: " Digital cellular telecommunications system (Phase 2+); Service accessibility".

[7]   3GPP TS 42.017: " Digital cellular telecommunications system (Phase 2+); Subscriber Identity Modules (SIM); Functional characteristics".

[8]   3GPP TS 02.40: "Digital cellular telecommunications system (Phase 2+); Procedures for call progress indications".

[9]   3GPP TS 03.01: "Digital cellular telecommunications system (Phase 2+); Network functions".

[10]   3GPP TS 23.003: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".

[11]   3GPP TS 43.013: "Digital cellular telecommunications system (Phase 2+); Discontinuous Reception (DRX) in the GSM system".

[12]   3GPP TS 23.014: "Digital cellular telecommunications system (Phase 2+); Support of Dual Tone Multi-Frequency (DTMF) signalling".

[12a]   Void.

[13]   3GPP TS 43.020: "Digital cellular telecommunications system (Phase 2+); Security-related network functions".

[14]   3GPP TS 23.122: "Non-Access-Stratum functions related to Mobile Station (MS) in idle mode".

[15]   3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) access reference configuration".

[16]   3GPP TS 44.003: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface; Channel structures and access capabilities".

[17]   3GPP TS 44.004: "Digital cellular telecommunications system (Phase 2+); Layer 1; General requirements".

[18]   3GPP TS 44.005: "Digital cellular telecommunications system (Phase 2+); Data Link (DL) layer; General aspects".

[19]   3GPP TS 44.006: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface; Data Link (DL) layer specification".

[20]   3GPP TS 24.007: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3; General aspects".

[21]   3GPP TS 24.010: "Digital cellular telecommunications system ; Mobile radio interface layer 3; Supplementary services specification; General aspects".

[22]   3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[23]   3GPP TS 24.012: "Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface".

[23a]   3GPP TS 24.071: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 location services specification."

[23b]   3GPP TS 44.031 "Digital cellular telecommunication system (Phase 2+); Location Services LCS); Mobile Station (MS) - Serving Mobile Location Centre (SMLC); Radio Resource LCS Protocol (RRLP)".

[23c]   3GPP TS 25.331: "3rd Generation Partnership Project;Technical Specification Group Radio Access Network; Radio Resource Control (RRC) protocol specification"

[24]   3GPP TS 24.080: "Digital cellular telecommunications system (Phase 2+); Mobile radio Layer 3 supplementary service specification; Formats and coding".

[25]   3GPP TS 24.081: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services; Stage 3".

[26]   3GPP TS 24.082: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services; Stage 3".

[27]   3GPP TS 24.083: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 3".

[28]   3GPP TS 24.084: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services; Stage 3".

[29]   3GPP TS 24.085: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services; Stage 3".

[30]   3GPP TS 24.086: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services; Stage 3".

[31]   3GPP TS 24.088: "Call Barring (CB) supplementary services; Stage 3".

[32]   3GPP TS 45.002: "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path".

[33]   3GPP TS 45.005: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".

[34]   3GPP TS 45.008: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".

[35]   3GPP TS 45.010: "Digital cellular telecommunications system (Phase 2+); Radio subsystem synchronization".

[36]   3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[37]   3GPP TS 29.002: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[38]   3GPP TS 29.007: "Digital cellular telecommunications system (Phase 2+); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[39]   3GPP TS 51.010: "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification".

[40]   3GPP TS 51.021: "Digital cellular telecommunications system (Phase 2); GSM radio aspects base station system equipment specification".

[41]   ISO/IEC 646 (1991): "Information technology - ISO 7-bit coded character set for information interchange".

[42]   ISO/IEC 6429: "Information technology - Control functions for coded character sets".

[43]   ISO 8348 (1987): "Information technology -- Open Systems Interconnection -- Network Service Definition".

[44]   ITU-T Recommendation E.163: "Numbering plan for the international telephone service".

[45]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[46]   ITU-T Recommendation E.212: "The international identification plan for mobile terminals and mobile users".

[47]   ITU-T Recommendation F.69 (1993): "The international telex service - Service and operational provisions of telex destination codes and telex network identification codes".

[48]   ITU-T Recommendation I.330: "ISDN numbering and addressing principles".

[49]   ITU-T Recommendation I.440 (1989): "ISDN user-network interface data link layer - General aspects".

[50]   ITU-T Recommendation I.450 (1989): "ISDN user-network interface layer 3 General aspects".

[51]   ITU-T Recommendation I.500 (1993): "General structure of the ISDN interworking recommendations".

[52]   ITU-T Recommendation T.50: "International Alphabet No. 5".

[53]   ITU Recommendation Q.931: ISDN user-network interface layer 3 specification for basic control".

[54]   ITU-T Recommendation V.21: "300 bits per second duplex modem standardized for use in the general switched telephone network".

[55]   ITU-T Recommendation V.22: "1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[56]   ITU-T Recommendation V.22bis: "2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[57]   Void.

[58]   ITU-T Recommendation V.26ter: "2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[59]   ITU-T Recommendation V.32: "A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits".

[60]   ITU-T Recommendation V.110: "Support by an ISDN of data terminal equipments with V-Series type interfaces".

[61]   ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[62]   ITU-T Recommendation X.21: "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for synchronous operation on public data networks".

[63]   Void.

[64]   Void.

[65]   ITU-T Recommendation X.30: "Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".

[66]   ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[67]   Void.

[68]   Void.

[69]   ITU-T Recommendation X.121: "International numbering plan for public data networks".

[70]   ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".

[71]   ETSI ETS 300 102-2: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control; Specification Description Language (SDL) diagrams".

[72]   ISO/IEC 10646: "Information technology -- Universal Multiple-Octet Coded Character Set (UCS)".

[73]   3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description; Stage 1".

[74]   3GPP TS 23.060: "General Packet Radio Service (GPRS); Service Description; Stage 2".

[75]   3GPP TS 43.064: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2".

[76]   3GPP TS 44.060: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/Medium Access Control (RLC/MAC) protocol".

[77]   IETF RFC 1034: "Domain names - concepts and facilities.

[78]   3GPP TS 44.065: "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[79]   ITU Recommendation I.460: "Multiplexing, rate adaption and support of existing interfaces".

[80]   3GPP TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324".

[81]   3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".

[82]   3GPP TS 43.022: " Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode and group receive mode".

[83]   3GPP TS 26.103: "Speech Codec List for GSM and UMTS".

[84]   3GPP TS 44.018: "Mobile radio interface layer 3 specification, Radio Resource Control Protocol".

[85]   3GPP TS 48.008: "Mobile-services Switching Centre – Base Station System (MSC – BSS) interface; layer 3 specification".

[86]   3GPP TS 48.018: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol (BSSGP)".

[87]   3GPP TS 43.055: "Dual Transfer Mode (DTM); Stage 2".

[88]   3GPP TS 23.067: "enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 2"

[89]   3GPP TS 22.042: "Network Identity and Time Zone (NITZ), Stage 1".

[90]   3GPP TS 23.040: "Technical realization of Short Message Service (SMS)".

[91]   3GPP TS 44.056: "GSM Cordless Telephony System (CTS), (Phase 1) CTS Radio Interface Layer 3 Specification".

[92]   3GPP TS 23.226: "Global Text Telephony; Stage 2 "

[93]   3GPP TS 26.226: "Cellular Text Telephone Modem (CTM), General Description "

[94]   3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes"

[95]   3GPP TS 24.229: "3rd Generation Partnership Project; Technical Specification Group Core Network; IP Multimedia Call Control Protocol based on SIP and SDP"

[96]   3GPP TS 23.205: "3rd Generation Partnership Project; Technical Specification Group Core Network; Bearer-independent circuit-switched core network; Stage 2".

[97]   3GPP TS 23.172: "UDI/RDI Fallback and Service Modification; Stage 2".

[98]   3GPP TS 25.304: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode"

[99]   3GPP TS 29.207: "3rd Generation Partnership Project; Technical Specification Group Core Network; Policy control over Go interface"

****NEXT MODIFIED SECTION *******

10.5.6.3   Protocol configuration options

The purpose of the *protocol configuration options* information element is to:

-   transfer external network protocol options associated with a PDP context activation, and

-   transfer additional parameters and/or requests (such as, P-CSCF Address Request; 3GPP TS 24.229 [95]) that may serve any purpose other than defining network protocol options.

The *protocol configuration options* is a type 4 information element with a minimum length of 2 octets and a maximum length of 253 octets.

The *protocol configuration options* information element is coded as shown in figure 10.5.136/3GPP TS 24.008 and table 10.5.154/3GPP TS 24.008.
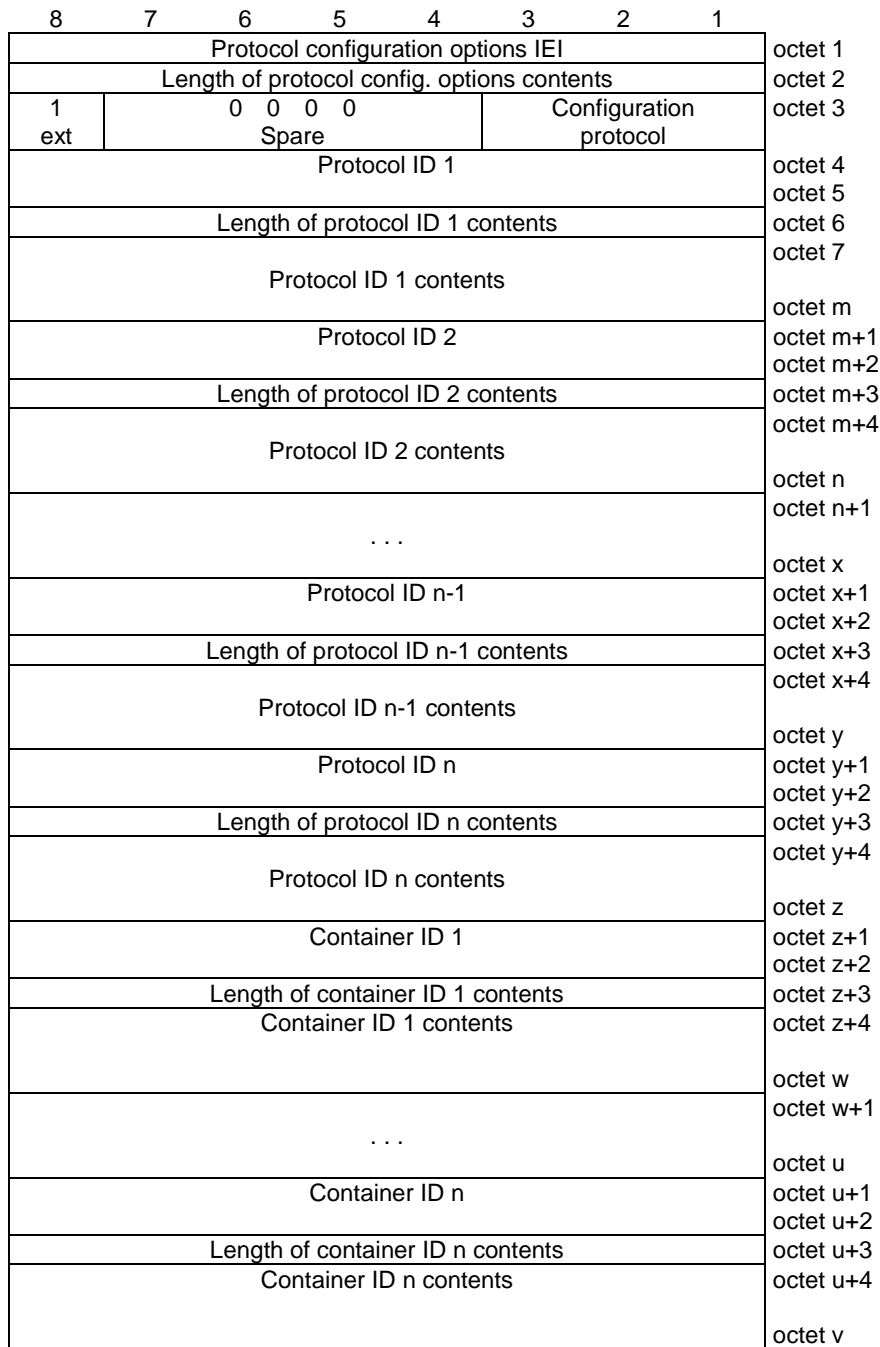
8	7	6	5	4	3	2	1	
Protocol configuration options IEI								octet 1
Length of protocol config. options contents								octet 2
1 ext	0 0 0 0 Spare				Configuration protocol			octet 3
Protocol ID 1								octet 4 octet 5
Length of protocol ID 1 contents								octet 6
Protocol ID 1 contents								octet 7 octet m
Protocol ID 2								octet m+1 octet m+2
Length of protocol ID 2 contents								octet m+3
Protocol ID 2 contents								octet m+4 octet n
. . .								octet n+1 octet x
Protocol ID n-1								octet x+1 octet x+2
Length of protocol ID n-1 contents								octet x+3
Protocol ID n-1 contents								octet x+4 octet y
Protocol ID n								octet y+1 octet y+2
Length of protocol ID n contents								octet y+3
Protocol ID n contents								octet y+4 octet z
Container ID 1								octet z+1 octet z+2
Length of container ID 1 contents								octet z+3
Container ID 1 contents								octet z+4 octet w
. . .								octet w+1 octet u
Container ID n								octet u+1 octet u+2
Length of container ID n contents								octet u+3
Container ID n contents								octet u+4 octet v

Figure 10.5.136/3GPP TS 24.008: *Protocol configuration options* **information element**

Table 10.5.154/3GPP TS 24.008: *Protocol configuration options* information element

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Configuration protocol (octet 3)
Bits
3 2 1
0 0 0   PPP for use with IP PDP type

All other values are interpreted as PPP in this version of the protocol.

After octet 3, i.e. from octet 4 to octet v, two logical lists are defined:

- the Configuration protocol options list (octets 4 to z), and

- the Additional parameters list (octets z+1 to v).

Configuration protocol options list (octets 4 to z)

The *configuration protocol options list* contains a variable number of logical units, the may occur in an arbitrary order within the *configuration protocol options list*.

Each unit is of variable length and consists of a:

- protocol identifier (2 octets);
- the length of the protocol identifier contents of the unit (1 octet); and
- the protocol identifier contents itself (n octets).

The *protocol identifier* field contains the hexadecimal coding of the configuration protocol identifier. Bit 8 of the first octet of the *protocol identifier* field contains the most significant bit and bit 1 of the second octet of the *protocol identifier* field contains the least significant bit.

If the *configuration protocol options list* contains a protocol identifier that is not supported by the receiving entity the corresponding unit shall be discarded.

The *length of the protocol identifier contents* field contains the binary coded representation of the length of the *protocol identifier contents* field of a unit. The first bit in transmission order is the most significant bit.

The *protocol identifier contents* field of each unit contains information specific to the configuration protocol specified by the *protocol identifier.*

PPP

At least the following protocol identifiers (as defined in RFC 1700) shall be supported in this version of the protocol:

- C021H (LCP;
- C023H (PAP);
- C223H (CHAP);and
- 8021H (IPCP).

The support of other protocol identifiers is implementation dependent and outside the scope of the present document.

The *protocol identifier contents* field of each unit corresponds to a "Packet" as defined in RFC 1661 that is stripped off the "Protocol" and the "Padding" octets.

The detailed coding of the *protocol identifier contents* field is specified in the RFC that is associated with the protocol identifier of that unit.

Additional parameters list (octets z+1 to v)

The *additional parameters list* is included when special parameters and/or requests (associated with a PDP context) need to be transferred between the MS and the network. These parameters and/or requests are not related to a specific configuration protocol (e.g. PPP), and therefore are not encoded as the "Packets" contained in the *configuration protocol options list*.

The *additional parameters list* contains a list of special parameters, each one in a separate container. The type of the parameter carried in a container is identified by

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a specific *container identifier*. In this version of the protocol, the following container identifiers are specified:

MS to network direction:

- 0001H (P-CSCF Address Request);

- 0002H (IM CN Subsystem Signaling Flag).

Network to MS direction:

- 0001H (P-CSCF Address).

- 0002H (Policy Control rejection code)

If the *additional parameters list* contains a container identifier that is not supported by the receiving entity the corresponding unit shall be discarded.

The *container identifier* field is encoded as the *protocol identifier* field and the *length of container identifier contents* field is encoded as the *length of the protocol identifier contents* field.

When the *container identifier* indicates P-CSCF Address, the *container identifier contents* field contains one IPv6 address corresponding to a P-CSCF address (see 3GPP TS 24.229 [95]). This IPv6 address is encoded as an 128-bit address according to RFC 2373 (IP version 6 addressing architecture). When there is need to include more than one P-CSCF address, then more logical units with *container identifier* indicating P-CSCF Address are used.

When the *container identifier* indicates P-CSCF Address Request, the *container identifi*er contents field is empty and the *length of container identifier contents* indicates a length equal to zero. If the *container identifier contents* field is not empty, it shall be ignored.

When the *container identifier* indicates IM CN Subsystem Signaling Flag (see 3GPP TS 24.229 [95]), the *container identifier contents* field is empty and the *length of container identifier contents* indicates a length equal to zero. If the *container identifier contents* field is not empty, it shall be ignored.

When the *container identifier* indicates Policy Control rejection code, the *container identifier contents* field contains a Go interface related cause code from the GGSN to the UE (see 3GPP TS 29.207 [99]). The *length of container identifier contents* indicates a length equal to one. If the *container identifier contents* field is empty or its actual length is greater than one octect, then it shall be ignored by the receiver.

NOTE 1: The *additional parameters list* and the *configuration protocol options list* are logically separated since they carry different type of information. The beginning of the *additional parameters list* is marked by a logical unit, which has an identifier (i.e. the first two octets) equal to a *container identifier* (i.e. it is not a *protocol identifier*).

NOTE 2: The *additional parameters list* is discarded by a receiver, which does not support this list (e.g. a R99 GGSN).