**3GPP TSG-CT WG1 Meeting #128-eC1-21xxxx\_was1043**

**Electronic meeting, 25 February – 5 March 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **27.007** | **CR** | **0719** | **rev** | **1** | **Current version:** | **17.0.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | AT command for activate an MA PDU session |
|  |  |
| ***Source to WG:*** | Mediatek Inc. |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | ATSSS |  | ***Date:*** | 2020-03-02 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)...Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | An ATSSS-capable UE need to support TE to define an MA PDU session in the MT.<1> New field is needed for TE to configure *"MA PDU request"* according to 24.501 6.4.1.2:*If the UE requests to establish an MA PDU session, the UE shall set the request type to "MA PDU request" in the UL NAS TRANSPORT message.*<2> New field is needed for TE to configure "*ATSSS-ST*" according to 24.501 6.4.1.2:*If the UE requests to establish a new MA PDU session or if the UE requests to establish a new PDU session and the UE allows the network to upgrade the requested PDU session to an MA PDU session:**a) if the UE supports ATSSS Low-Layer functionality with any steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "ATSSS Low-Layer functionality with any steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message;**b) if the UE supports MPTCP functionality with any steering mode and ATSSS-LL functionality with only active-standby steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "MPTCP functionality with any steering mode and ATSSS-LL functionality with only active-standby steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message; and**c) if the UE supports MPTCP functionality with any steering mode and ATSSS-LL functionality with any steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "MPTCP functionality with any steering mode and ATSSS-LL functionality with any steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message.* |
|  |  |
| ***Summary of change:*** | 1. extend <request\_type> to support "MA PDU request"2. new <ATSSS-ST> is introduced for +CGDCONT |
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| ***Consequences if not approved:*** | TE is not able to trigger MT to activate an MA PDU session . |
|  |  |
| ***Clauses affected:*** | 10.1.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* Change \* \* \* \*

### 10.1.1 Define PDP context +CGDCONT

Table 111: +CGDCONT parameter command syntax

|  |  |
| --- | --- |
| Command | Possible response(s) |
| +CGDCONT=[<cid>[,<PDP\_type>[,<APN>[,<PDP\_addr>[,<d\_comp>[,<h\_comp>[,<IPv4AddrAlloc>[,<request\_type>[,<P-CSCF\_discovery>[,<IM\_CN\_Signalling\_Flag\_Ind>[,<NSLPI>[,<securePCO>[,<IPv4\_MTU\_discovery>[,<Local\_Addr\_Ind>[,<Non-IP\_MTU\_discovery>[,<Reliable\_Data\_Service>[,<SSC\_mode>[,<S-NSSAI>[,<Pref\_access\_type>[,<RQoS\_ind>[,<MH6-PDU>[,<Always-on\_req>[,<old-cid>[,<ATSSS-ST>]]]]]]]]]]]]]]]]]]]]]]]] |  |
| +CGDCONT? | [+CGDCONT: <cid>,<PDP\_type>,<APN>,<PDP\_addr>,<d\_comp>,<h\_comp>[,<IPv4AddrAlloc>[,<request\_type>[,<P-CSCF\_discovery>[,<IM\_CN\_Signalling\_Flag\_Ind>[,<NSLPI>[,<securePCO>[,<IPv4\_MTU\_discovery>[,<Local\_Addr\_Ind>[,<Non-IP\_MTU\_discovery>[,<Reliable\_Data\_Service>[,<SSC\_mode>[,<S-NSSAI>[,<Pref\_access\_type>[,<RQoS\_ind>[,<MH6-PDU>[,<Always-on\_req>[,<old-cid>[,<ATSSS-ST>]]]]]]]]]]]]]]]]]]][<CR><LF>+CGDCONT: <cid>,<PDP\_type>,<APN>,<PDP\_addr>,<d\_comp>,<h\_comp>[,<IPv4AddrAlloc>[,<request\_type>[,<P-CSCF\_discovery>[,<IM\_CN\_Signalling\_Flag\_Ind>[,<NSLPI>[,<securePCO>[,<IPv4\_MTU\_discovery>[,<Local\_Addr\_Ind>[,<Non-IP\_MTU\_discovery>[,<Reliable\_Data\_Service>[,<SSC\_mode>[,<S-NSSAI>[,<Pref\_access\_type>[,<RQoS\_ind>[,<MH6-PDU>[,<Always-on\_req>[,<old-cid>[,<ATSSS-ST>]]]]]]]]]]]]]]]]]][...]] |
| +CGDCONT=? | +CGDCONT: (range of supported <cid>s),<PDP\_type>,,,(list of supported <d\_comp>s),(list of supported <h\_comp>s),(list of supported <IPv4AddrAlloc>s),(list of supported <request\_type>s),(list of supported <P-CSCF\_discovery>s),(list of supported <IM\_CN\_Signalling\_Flag\_Ind>s),(list of supported <NSLPI>s),(list of supported <securePCO>s),(list of supported <IPv4\_MTU\_discovery>s),(list of supported <Local\_Addr\_Ind>s),(list of supported <Non-IP\_MTU\_discovery>s),(list of supported <Reliable\_Data\_Service>s),(list of supported <SSC\_mode>s),,(list of supported <Pref\_access\_type>s),(list of supported <RQoS\_ind>s),(list of supported <MH6-PDU>s),(list of supported <Always-on\_req>s),(range of supported <old-cid>s),(list of supported <ATSSS-ST>s)[<CR><LF>+CGDCONT: (range of supported <cid>s),<PDP\_type>,,,(list of supported <d\_comp>s),(list of supported <h\_comp>s),(list of supported <IPv4AddrAlloc>s),(list of supported <request\_type>s),(list of supported <P-CSCF\_discovery>s),(list of supported <IM\_CN\_Signalling\_Flag\_Ind>s),(list of supported <NSLPI>s),(list of supported <securePCO>s),(list of supported <IPv4\_MTU\_discovery>s),(list of supported <Local\_Addr\_Ind>s),(list of supported <Non-IP\_MTU\_discovery>s),(list of supported <Reliable\_Data\_Service>s),(list of supported <SSC\_mode>s),,(list of supported <Pref\_access\_type>s),(list of supported <RQoS\_ind>s),(list of supported <MH6-PDU>s),(list of supported <Always-on\_req>s),(range of supported <old-cid>s),(list of supported <ATSSS-ST>s)[...]] |

**Description**

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid> and also allows the TE to specify whether security protected transmission of ESM information is requested, because the PCO can include information that requires ciphering. There can be other reasons for the UE to use security protected transmission of ESM information, e.g. if the UE needs to transfer an APN. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

For EPS the PDN connection and its associated EPS default bearer is identified herewith.

For 5GS the PDU session and its associated QoS flow of the default QoS rule is identified herewith.

A special form of the set command, +CGDCONT=<cid> causes the values for context number <cid> to become undefined.

If the initial PDP context is supported, the context with <cid>=0 is automatically defined at startup, see subclause 10.1.0. As all other contexts, the parameters for <cid>=0 can be modified with +CGDCONT. If the initial PDP context is supported, +CGDCONT=0 resets context number 0 to its particular default settings.

The read command returns the current settings for each defined context.

The test command returns values supported as compound values. If the MT supports several PDP types, <PDP\_type>, the parameter value ranges for each <PDP\_type> are returned on a separate line.

**Defined values**

<cid>: integer type; specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1 or if the initial PDP context is supported (see subclause 10.1.0), minimum value = 0) is returned by the test form of the command.

NOTE 1: The <cid>s for network-initiated PDP contexts will have values outside the ranges indicated for the <cid> in the test form of the commands +CGDCONT and +CGDSCONT.

<PDP\_type>: string type; specifies the type of packet data protocol. The default value is manufacturer specific.

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)

IP Internet Protocol (IETF STD 5 [103])

IPV6 Internet Protocol, version 6 (see RFC 2460 [106])

IPV4V6 Virtual <PDP\_type> introduced to handle dual IP stack UE capability. (See 3GPP TS 24.301 [83])

OSPIH Internet Hosted Octect Stream Protocol (Obsolete)

PPP Point to Point Protocol (IETF STD 51 [104])

Non-IP Transfer of Non-IP data to external packet data network (see 3GPP TS 23.401 [82])

Ethernet Ethernet protocol (IEEE  802.3)

Unstructured Transfer of Unstructured data to the Data Network via N6 (see 3GPP TS 23.501 [165])

NOTE 2: Only IP, IPV6, IPV4V6 and Non-IP values are supported for EPS services. Only IP, IPV6, IPV4V6, Ethernet and Unstructured values are supported for 5GS service.

<APN>: string type; a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP\_addr>: string type; identifies the MT in the address space applicable to the PDP.

 When +CGPIAF is supported, its settings can influence the format of this parameter returned with the read form of +CGDCONT.

NOTE 3: The value of this parameter is ignored with the set command. The parameter is included in the set command for backwards compatibility reasons only.

<d\_comp>: integer type; controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 44.065 [61]).

0 off

1 on (manufacturer preferred compression)

2 V.42bis

3 V.44

<h\_comp>: integer type; controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62]).

0 off

1 on (manufacturer preferred compression)

2 RFC 1144 [105] (applicable for SNDCP only)

3 RFC 2507 [107]

4 RFC 3095 [108] (applicable for PDCP only)

<IPv4AddrAlloc>: integer type; controls how the MT/TA requests to get the IPv4 address information.

0 IPv4 address allocation through NAS signalling

1 IPv4 address allocated through DHCP

<request\_type>: integer type; indicates the type of PDP context activation request for the PDP context, see 3GPP TS 24.501 [161] (subclause 6.4.1), 3GPP TS 24.301 [83] (subclause 6.5.1.2) and 3GPP TS 24.008 [8] (subclause 10.5.6.17). If the initial PDP context is supported (see subclause 10.1.0) it is not allowed to assign <cid>=0 for emergency (bearer) services. According to 3GPP TS 24.008 [8] (subclause 4.2.4.2.2 and subclause 4.2.5.1.4) and 3GPP TS 24.301 [83] (subclause 5.2.2.3.3 and subclause 5.2.3.2.2), a separate PDP context must be established for emergency (bearer) services.

NOTE 4: If the PDP context for emergency (bearer) services is the only activated context, only emergency calls are allowed, see 3GPP TS 23.401 [82] subclause 4.3.12.9.

0 PDP context is for new PDP context establishment or for handover from a non-3GPP access network (how the MT decides whether the PDP context is for new PDP context establishment or for handover is implementation specific)

1 PDP context is for emergency (bearer) services

2 PDP context is for new PDP context establishment

3 PDP context is for handover from a non-3GPP access network

4 PDP context is for handover of emergency (bearer) services from a non-3GPP access network

5 context is for MA PDU session establishment

NOTE 5: A PDP context established for handover of emergency (bearer) services from a non-3GPP access network has the same status as a PDP context for emergency (bearer) services.

<P-CSCF\_discovery>: integer type; influences how the MT/TA requests to get the P-CSCF address, see 3GPP TS 24.229 [89] annex B and annex L.

0 Preference of P-CSCF address discovery not influenced by +CGDCONT

1 Preference of P-CSCF address discovery through NAS signalling

2 Preference of P-CSCF address discovery through DHCP

<IM\_CN\_Signalling\_Flag\_Ind>: integer type; indicates to the network whether the PDP context is for IM CN subsystem-related signalling only or not.

0 UE indicates that the PDP context is not for IM CN subsystem-related signalling only

1 UE indicates that the PDP context is for IM CN subsystem-related signalling only

<NSLPI>: integer type; indicates the NAS signalling priority requested for this PDP context:

0 indicates that this PDP context is to be activated with the value for the low priority indicator configured in the MT.

1 indicates that this PDP context is to be activated with the value for the low priority indicator set to "MS is not configured for NAS signalling low priority".

NOTE 6: The MT utilises the provide NSLPI information as specified in 3GPP TS 24.301 [83] and 3GPP TS 24.008 [8].

<securePCO>: integer type. Specifies if security protected transmission of PCO is requested or not (applicable for EPS only, see 3GPP TS 23.401 [82] subclause 6.5.1.2).

0 Security protected transmission of PCO is not requested

1 Security protected transmission of PCO is requested

<IPv4\_MTU\_discovery>: integer type; influences how the MT/TA requests to get the IPv4 MTU size, see 3GPP TS 24.008 [8] subclause 10.5.6.3.

0 Preference of IPv4 MTU size discovery not influenced by +CGDCONT

1 Preference of IPv4 MTU size discovery through NAS signalling

<Local\_Addr\_Ind>: integer type; indicates to the network whether or not the MS supports local IP address in TFTs (see 3GPP TS 24.301 [83] and 3GPP TS 24.008 [8] subclause 10.5.6.3).

0 indicates that the MS does not support local IP address in TFTs

1 indicates that the MS supports local IP address in TFTs

<Non-IP\_MTU\_discovery>: integer type; influences how the MT/TA requests to get the Non-IP MTU size, see 3GPP TS 24.008 [8] subclause 10.5.6.3.

0 Preference of Non-IP MTU size discovery not influenced by +CGDCONT

1 Preference of Non-IP MTU size discovery through NAS signalling

<Reliable\_Data\_Service>: integer type; indicates whether the UE is using Reliable Data Service for a PDN connection or not, see 3GPP TS 24.301 [83] and 3GPP TS 24.008 [8] subclause 10.5.6.3.

0 Reliable Data Service is not being used for the PDN connection

1 Reliable Data Service is being used for the PDN connection

<SSC\_mode>: integer type; indicates the session and service continuity (SSC) mode for the PDU session in 5GS, see 3GPP TS 23.501 [165].

0 indicates that the PDU session is associated with SSC mode 1

1 indicates that the PDU session is associated with SSC mode 2

2 indicates that the PDU session is associated with SSC mode 3

<S-NSSAI>: string type in hexadecimal character format. Dependent of the form, the string can be separated by dot(s) and semicolon(s). The S-NSSAI is associated with the PDU session for identifying a network slice in 5GS, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161]. For the format and the encoding of S-NSSAI, see also 3GPP TS 23.003 [7]. This parameter shall not be subject to conventional character conversion as per +CSCS. The <S-NSSAI> has one of the forms:

 sst only slice/service type (SST) is present
sst;mapped\_sst SST and mapped configured SST are present
sst.sd SST and slice differentiator (SD) are present
sst.sd;mapped\_sst SST, SD and mapped configured SST are present
sst.sd;mapped\_sst.mapped\_sd SST, SD, mapped configured SST and mapped configured SD are present

<Pref\_access\_type>: integer type; indicates the preferred access type for the PDU session in 5GS, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

0 indicates that the preferred access type is 3GPP access

1 indicates that the preferred access type is non-3GPP access

<RQoS\_ind>: integer type; indicates whether the UE supports reflective QoS for the PDU session, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

0 indicates that reflective QoS is not supported for the PDU session

1 indicates that reflective QoS is supported for the PDU session

<MH6-PDU>: integer type; indicates whether the UE supports IPv6 multi-homing for the PDU session, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

0 indicates that IPv6 multi-homing is not supported for the PDU session

1 indicates that IPv6 multi-homing is supported for the PDU session

<Always-on\_req>: integer type; indicates whether the UE requests to establish the PDU session as an always-on PDU session, see 3GPP TS 24.501 [161].

0 always-on PDU session is not requested

1 always-on PDU session is requested

<old-cid>: integer type; indicates the context identifier of the QoS flow of the default QoS rule of the SSC mode 2 or SSC mode 3 PDU session where the network requests relocation of the PDU session anchor.

<ATSSS-ST>: integer type; indicates the "Supported ATSSS steering functionalities and steering modes (ATSSS-ST)" for the PDU session in 5GS, see 3GPP TS 24.501 [161].

0 ATSSS not supported

1 ATSSS Low-Layer functionality with any steering mode supported

2 MPTCP functionality with any steering mode and ATSSS-LL functionality with only active-standby steering mode supported

3 MPTCP functionality with any steering mode and ATSSS-LL functionality with any steering mode supported

**Implementation**

Mandatory unless only a single subscribed context is supported.

\* \* \* End of Changes \* \* \* \*