3GPP TSG-CN Meeting #22   **NP-030527**

10th - 12th December. Maui, Hawaii.

Source:	**3GPP TSG CN2**
Title:	**Collective CR for TS 29.078 on Rel-6 Enhanced Dialled Services**
Agenda item:	**9.14**
Document for:	**APPROVAL**

This document contains Collective CR on Enhanced Dialled Services for CAMEL for TS 29.078 (Release 6 WI EDCAMEL). The document was approved by CN2 (N2-030570) and is sent to CN#22 for approval.

After approval of this collective CR, CAMEL stage 3 specification for Release 6 will be created (TS 29.078 v6.0.0.)

3GPP TSG CN WG2 Meeting #31   ***N2-030570***
Bangkok, Thailand, 27ᵗʰ – 31ˢᵗ October 2003

CR-Form-v7

CHANGE REQUEST

| ⌘ | **29.078** CR **332** | ⌘**rev** | **1** | ⌘ | Current version: | **5.5.0** | ⌘ |

*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 ☐   Radio Access Network ☐   Core Network **X**

Title: ⌘	Collective CR for Rel-6 Enhanced Dialled Services	
Source: ⌘	CN2	
Work item code: ⌘	EDCAMEL	***Date:*** ⌘ 29/10/2003

Category: ⌘ **B**	***Release:*** ⌘ Rel-6

Use one 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 TR 21.900.

Use one 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: ⌘	The enhanced dialled services was introduced as one of the CAMEL4 features in Rel-6 stage 1 22.078. This is proposing the related stage 3 work for the enhanced dialled services.
Summary of change: ⌘	Add the abbreviation EDS as the acronym of Enhanced Dialled Services in clause 3. Define the type and structure of this new additional parameter *'enhancedDialledServicesAllowed'* in InitialDP operation and arguments in clause 6.1.1. Add and Define the description for a new optional parameter, *'enhancedDialledServicesAllowed'* in the InitialDP procedure in clause 11.20.1.1 in order to indicate that the gsmSCF may use the Enhanced Dialled Services.
Consequences if not approved: ⌘	Enhanced Dialled Services is not available for the CAMEL Phase 4 feature. And this 29.078 specification will not be coincident with CAMEL specifications 22.078 and 23.078 for enhanced dialled services.

Clauses affected: ⌘	3, 6.1.1, 11.20.1.1, 11.22.2.1

		Y	N		
Other specs	⌘	X		Other core specifications ⌘	23.078-CR553, 23.018-CR126, 29.002-CR687
affected:			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘	This document includes the changes of following CRs:
	1. N2-030445
	2. N2-030560

— First modified section —

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Application Context
AE	Application Entity
AEI	Application Entity Invocation
APDU	Application Protocol Data Unit
ASE	Application Service Element
ASN.1	Abstract Syntax Notation One
BCSM	Basic Call State Model
CAP	CAMEL Application Part
CCF	Call Control Function
CCITT	International Telegraph and Telephone Consultative Committee
CPH	Call Party Handling
CS1	Capability Set 1
CS2	Capability Set 2
CS	Call Segment
	Circuit Switched
CSA	Call Segment Association
CSI	CAMEL Subscription Information
CSID	Call Segment (followed by an identification Number e.g. CSID1)
DP	Detection Point
DSS1	Digital Subscriber Signalling System No. One
EDP	Event Detection Point
EDP-N	Event Detection Point - Notification
EDP-R	Event Detection Point - Request
EDS	Enhanced Dialled Services
FE	Functional Entity
FEAM	Functional Entity Access Manager
ffs	for further study
FSM	Finite State Model
gprsSSF	GPRS Service Switching Function
gsmSCF	GSM Service Control Function
gsmSRF	GSM Specialized Resource Function
gsmSSF	GSM Service Switching Function
GT	Global Title
ID	IDentifier
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
IP	Intelligent Peripheral
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
LE	Local Exchange
MACF	Multiple Association Control Function
MO	Mobile Originated
MS	Mobile Station
MSC	Mobile services Switching Centre
MT	Mobile Terminated
MTP	Message Transfer Part
NA	North American
O-BCSM	Originating BCSM
PDU	Protocol Data Unit
PE	Physical Entity
PIA	Point In Association
PIC	Point In Call

PLMN	Public Land Mobile Network
PSTN	Public Switched Telecommunication Network
ROS	Remote Operations Service
ROSE	ROS Element
SACF	Single Association Control Function
SAO	Single Association Object
SCCP	Signalling Connection Control Part
SCP	Service Control Point
SDL	System Description Language
SL	Service Logic
SLP	Service Logic Program
SLPI	Service Logic Program Instance
SM	Short Message
SM-CP	Short Message Control Protocol
SMS	Short Message Service
SMSC	Short Message Service Centre
smsSSF	Short Message Service Service Switching Function
SMF	Service Management Function
SRME	gsmSRF Management Entity
SRSM	gsmSRF Call State Model
SS7	Signalling System no. 7
smsSSF	SMS Service Switching Function
SSME	gsmSSF Management Entity
SSN	Sub-System Number
SSP	Service Switching Point
T-BCSM	Terminating BCSM
TC	Transaction Capabilities
TCAP	Transaction Capabilities Application Part
TDP	Trigger Detection Point
TDP-R	Trigger Detection Point - Request

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6 Circuit Switched Call Control

6.1 gsmSSF/CCF - gsmSCF Interface

6.1.1 Operations and arguments

...

```
initialDP {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT        InitialDPArg {bound}
    RETURN RESULT   FALSE
    ERRORS          {missingCustomerRecord |
                    missingParameter |
                    parameterOutOfRange |
                    systemFailure |
                    taskRefused |
                    unexpectedComponentSequence |
                    unexpectedDataValue |
                    unexpectedParameter}
    CODE            opcode-initialDP}
-- Direction: gsmSSF -> gsmSCF, Timer: T_idp
-- This operation is used after a TDP to indicate request for service.

InitialDPArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    serviceKey                          [0] ServiceKey  ,
    calledPartyNumber                   [2] CalledPartyNumber {bound}                 OPTIONAL,
    callingPartyNumber                  [3] CallingPartyNumber {bound}                OPTIONAL,
    callingPartysCategory               [5] CallingPartysCategory                     OPTIONAL,
    cGEncountered                       [7] CGEncountered                             OPTIONAL,
    iPSSPCapabilities                   [8] IPSSPCapabilities {bound}                 OPTIONAL,
    locationNumber                      [10] LocationNumber {bound}                   OPTIONAL,
    originalCalledPartyID                [12] OriginalCalledPartyID {bound}           OPTIONAL,
    extensions                          [15] Extensions {bound}                       OPTIONAL,
    highLayerCompatibility              [23] HighLayerCompatibility                   OPTIONAL,
    additionalCallingPartyNumber        [25] AdditionalCallingPartyNumber {bound}     OPTIONAL,
    bearerCapability                    [27] BearerCapability {bound}                 OPTIONAL,
    eventTypeBCSM                       [28] EventTypeBCSM                             OPTIONAL,
    redirectingPartyID                  [29] RedirectingPartyID {bound}               OPTIONAL,
    redirectionInformation              [30] RedirectionInformation                   OPTIONAL,
    cause                               [17] Cause {bound}                            OPTIONAL,
    serviceInteractionIndicatorsTwo     [32] ServiceInteractionIndicatorsTwo          OPTIONAL,
    carrier                             [37] Carrier {bound}                          OPTIONAL,
    cug-Index                           [45] CUG-Index                                OPTIONAL,
    cug-Interlock                       [46] CUG-Interlock                            OPTIONAL,
    cug-OutgoingAccess                  [47] NULL                                     OPTIONAL,
    iMSI                                [50] IMSI                                     OPTIONAL,
    subscriberState                     [51] SubscriberState                         OPTIONAL,
    locationInformation                 [52] LocationInformation                      OPTIONAL,
    ext-basicServiceCode                [53] Ext-BasicServiceCode                     OPTIONAL,
    callReferenceNumber                 [54] CallReferenceNumber                      OPTIONAL,
    mscAddress                          [55] ISDN-AddressString                       OPTIONAL,
    calledPartyBCDNumber                [56] CalledPartyBCDNumber {bound}             OPTIONAL,
    timeAndTimezone                     [57] TimeAndTimezone {bound}                  OPTIONAL,
    callForwardingSS-Pending            [58] NULL                                     OPTIONAL,
    initialDPArgExtension               [59] InitialDPArgExtension {bound}            OPTIONAL,
    ...
    }

InitialDPArgExtension {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    gmscAddress                         [0] ISDN-AddressString                        OPTIONAL,
    forwardingDestinationNumber         [1] CalledPartyNumber {bound}                 OPTIONAL,
    ms-Classmark2                       [2] MS-Classmark2                             OPTIONAL,
    iMEI                                [3] IMEI                                      OPTIONAL,
    supportedCamelPhases                [4] SupportedCamelPhases                      OPTIONAL,
    offeredCamel4Functionalities        [5] OfferedCamel4Functionalities
    OPTIONAL,
```

```
    ...,
    enhancedDialledServicesAllowed      [6] NULL                                    OPTIONAL
}
-- If iPSSPCapabilities is not present then this denotes that a colocated gsmSRF is not
-- supported by the gsmSSF. If present, then the gsmSSF supports a colocated gsmSRF capable
-- of playing announcements via elementaryMessageIDs and variableMessages, the playing of
-- tones and the collection of DTMF digits. Other supported capabilities are explicitly
-- detailed in the IPSSPCapabilities parameter itself.
-- Carrier is included at the discretion of the gsmSSF operator.
```

...

— Next modified section —

11.20   InitialDP procedure

11.20.1 General description

The gsmSSF uses this operation after detection of a TDP-R in the BCSM, to request the gsmSCF for instructions to complete the call.

11.20.1.1 Parameters

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF; this parameter is not for SCP addressing.

- calledPartyNumber:
  This parameter contains the number used to identify the called party in the forward direction, i.e. see ETSI EN 300 356-1 [23]. This parameter shall be sent only in the Mobile Terminating, Mobile Forwarding and mobile originating on unsuccessful TDP cases.

- callingPartyNumber:
  This parameter carries the calling party number to identify the calling party or the origin of the call. See ETSI EN 300 356-1 [23] Calling Party Number signalling information.

- callingPartysCategory:
  Indicates the type of calling party (e.g. operator, pay phone, ordinary subscriber). See ETSI EN 300 356-1 [23] Calling Party Category signalling information.

- locationNumber:
  This parameter is used to convey the geographical area address for mobility services, see ITU-T Recommendation Q.762 [44]. It is used when "callingPartyNumber" does not contain any information about the geographical location of the calling party (e.g., origin dependent routeing when the calling party is a mobile subscriber).

- originalCalledPartyID:
  If the call has met call forwarding on the route to the gsmSSF, then this parameter carries the dialled digits. Refer to EN 300 356-1[23] Original Called Number signalling information.

- highlayerCompatibility:
  This parameter indicates the type of the high layer compatibility, which will be used to determine the ISDN - teleservice of a connected ISDN terminal. The highlayerCompatibility can also be transported by ISUP (e.g. within the ATP (see ITU-T Recommendation Q.763 [45]) parameter).

- additionalCallingPartyNumber:
  The calling party number provided by the access signalling system of the calling user, e.g. provided by a PBX.

- bearerCapability:
  This parameter indicates the type of the bearer capability connection or the transmission medium requirements to the user. It is a network option to select which of the two parameters to be used:

  - bearerCap:
    This parameter contains the value of the ISUP User Service Information parameter.

    The parameter "bearerCapability" shall be included in the "InitialDP" operation only in the case the ISUP User Service Information parameter is available at the gsmSSF.

    If User Service Information and User Service Information Prime are available at the gsmSSF, then the "bearerCap" shall contain the value of the User Service Information Prime parameter.

- eventTypeBCSM:
  This parameter indicates the armed BCSM DP event, resulting in the "InitialDP" operation.

- redirectingPartyID:
  This parameter indicates the last directory number the call was redirected from.

- redirectionInformation:
  This parameter contains forwarding related information, such as redirecting counter.
  See ITU-T Recommendation Q.763 [45] Redirection Information signalling information.

- iPSSPCapabilities:
  This parameter indicates which gsmSRF resources supported within the VMSC or GMSC the gsmSSF resides in are attached and available.

- serviceInteractionIndicatorsTwo:
  This parameter contains indicators that are used to resolve interactions between CAMEL based services and network based services.

- iMSI:
  This parameter contains the IMSI of the mobile subscriber for which the service is invoked.

- subscriberState:
  This parameter indicates the the state of the mobile subscriber for which the service is invoked. The possible states are "busy", "idle" and "not reachable".

- locationInformation:
  This parameter indicates the location of the MS and the age of the information defining the location.

- ext-BasicServiceCode:
  This parameter indicates the Basic Service Code.

- callReferenceNumber:
  This parameter contains the call reference number assigned to the call by the CCF.

- mscAddress:
  This parameter contains the mscId assigned to the MSC.

- gmscAddress:
  This parameter contains the gmscId assigned to the GMSC.

- calledPartyBCDNumber:
  This parameter contains the number used to identify the called party in the forward direction. It may also include service selection information, including * and # characters.

- time&Timezone:
  This parameter contains the time that the gsmSSF was triggered, and the time zone that the invoking gsmSSF resides in.

- callForwardingSS-Pending:
  This parameter indicates that a forwarded-to-number was received and that the call will be forwarded due to the Call Forwarding supplementary service in the GMSC or in the VMSC, unless otherwise instructed by the gsmSCF.

- carrier:
  This parameter contains carrier information. It consists of the carrier selection field followed by the Carrier ID information associated with the calling subscriber of a mobile originating call, the called subscriber of a mobile terminating call or the forwarding subscriber of a mobile fowarded call.

  It contains the following embedded parameter:

  - carrierSelectionField:
    This parameter indicates how the selected carrier is provided (e.g. pre-subscribed).

  - carrierID:
    This parameter indicates the carrier to use for the call. It contains the digits of the carrier identification code.

- cug-Index:
  This parameter is used to select a CUG for an outgoing call at the user, or to indicate an incoming CUG call to the user.

- cug-Interlock:
  This parameter uniquely identifies a CUG within a network.

- cug-OutgoingAccess:
  This parameter indicates if the calling user has subscribed to the outgoing access inter-CUG accessibility subscription option.

- cGEncountered:
  This parameter indicates the type of call gapping the related call has been subjected to, if any.

- cause:
  This parameter indicates the release cause which triggered the event:

  For Route_Select_Failure" it shall contain the "FailureCause", if available.

  For T_Busy it may contain the following parameters, if available.

  - If the busy event is triggered by an ISUP release message, then the BusyCause shall a copy of the ISUP release cause, for example: Subscriber absent, 20 or User busy, 17.

  - If the busy event is triggered by a MAP error, for example: Absent subscriber, received from the HLR, then the MAP cause is mapped to the corresponding ISUP release cause.

  - If the busy event is triggered by call forwarding invocation in the GMSC or VMSC, then the BusyCause shall refer to the type of the call forwarding service in accordance with the mapping table in 3GPP TS 23.078 [7].

- forwardingDestinationNumber:
  This parameter contains the forwarding destination.

- ms-Classmark2:
  This parameter contains the MS Classmark 2 of the mobile subscriber for which the service is invoked.

- iMEI:
  This parameter contains the IMEI (with software version) of the mobile subscriber for which the service is invoked.

- supportedCamelPhases:
  This parameter indicates the CAMEL Phases supported in the GMSC or VMSC which sends this operation.

- offeredCamel4Functionalities:
  This parameter contains the offered CAMEL phase 4 functionalities.

- enhancedDialledServicesAllowed:
  This parameter indicates that the gsmSCF may use the Enhanced Dialled Services (EDS) for this call.

11.20.2 Invoking entity (gsmSSF)

11.20.2.1 Normal procedure

gsmSSF preconditions:

  (1) An event fulfilling the criteria for the DP being executed has been detected.

  (2) Call gapping and SS7 overload are not in effect for the call.

gsmSSF postconditions:

  (1) If the DP was armed as a TDP-R and trigger conditions, if present, are fulfilled, then a control relationship between the gsmSCF and the gsmSSF is established. The gsmSSF transits to the State "Waiting_for_Instructions".

The address of the gsmSCF shall be fetched from the valid CSI. The gsmSSF shall provide all available parameters to the gsmSCF.

If no triggering takes place, because trigger conditions were not fulfilled, then the gsmSSF shall proceed with call handling without CAMEL Service.

The gsmSSF application timer Tssf is loaded and started when the gsmSSF sends "InitialDP" for requesting instructions from the gsmSCF. It is used to prevent excessive call suspension time.

11.20.2.2 Error handling

If the gsmSCF is not accessible, then the call proceeds in accordance with the Default Call Handling parameter in the CSI.

When Tssf expires, then the gsmSSF shall abort the interaction with the gsmSCF by means of an abort to TC and shall call continue the call in accordance with the Default Call Handling parameter in the valid CSI.

If the calling party abandons after the sending of "InitialDP" and before the TC dialogue is established, then the gsmSSF shall abort the interaction with the gsmSCF by means of an abort to TC.

Generic error handling for the operation related errors are described in clause 10 and the TC services which are used for reporting operation errors are described in clause 14.

— Next modified section —

11.22   MoveLeg procedure

11.22.1 General Description

The gsmSCF uses this operation to request the gsmSSF to move the leg from its current Call Segment to CSID1.

11.22.1.1 Parameters

- legIDToMove:
  This parameter indicates the leg that shall be moved.

11.22.2 Responding entity (gsmSSF)

11.22.2.1 Normal procedure

gsmSSF preconditions:

1)   A control relationship exists between the gsmSCF and the gsmSSF.

2)   The source BCSM is in the alerting, active or mid-call phase.

3)   The target Call Segment fulfills the following preconditions:

   -   At least one leg in the target Call Segment is in the alerting, active or mid-call phase, or

   -   The original BCSM in the target Call Segment is at Terminating_Attempt_Authorised, Analysed_Information (for EDS only) or Collected_Info detection point, and the outgoing leg of that BCSM has been disconnected by the gsmSCF.

4)   The CS_gsmSSF FSM for each Call Segment involved is in the state "Waiting_for_Instructions" or in the state "Monitoring".

5)   User Interaction is not in progress in either Call Segment.

gsmSSF postconditions:

1)   The gsmSSF performs the appropriate call processing actions.

2)   The CS_gsmSSF FSM for CSID1 transits to the state "Waiting_for_Instructions". The BCSM instances within CSID1transit to the O_Mid_Call DP or to the T_Mid_Call DP, if not already suspended. The Mid_Call EDP shall not be reported for this case.

3)   The CS_gsmSSF process for the source Call Segment is terminated.

4)   A Return Result is sent to the gsmSCF immediately after successful execution of this operation.

11.22.2.2 Error handling

Generic error handling for the operation related errors is described in clause 10, and the TC services which are used for reporting operation errors are described in clause 14.

— End of Modification —