# COMMON-ISDN-API Version 2.0

# Part III

Supplementary Services

# 5<sup>th</sup> Edition

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# ANNEX C (NORMATIVE): SUPPLEMENTARY SERVICES

# C.1 Overview

Certain supplementary services are supported by COMMON-ISDN-API Part I:

- MSN (Multiple Subscriber Number, ETS 300 050)
   see parameter Called/Calling Party Number
- CW (Call Waiting, ETS 300 056)
- see parameter *B* Channel Information
- SUB (Subaddressing, ETS 300 059)
- see parameters Called/Calling Party Subaddress, Connected Subaddress
  DDI (Direct Dialing In, ETS 300 062)
- see parameters *Called Party Number* and *Info Mask* (bit 7)
- CLIP/CLIR (Calling Line Identification Presentation/Restriction, ETS 300 089/090)
- see parameters Calling Party Number/Subaddress
  COLP/COLR (Connected Line Identification Presentation/Restriction, ETS 300 094/095)
- see parameter Connected Party Number/Subaddress
   AOC (Advice of Charge, ETS 300 178-180) see parameter Info Mask (bit 6)
- UUS1 (User-User Signaling Stage 1, ETS 300 284) see parameter Additional Info
- Redirection Number (ETS 300 207)
- see parameter Info Mask (bit 10)
  Redirecting Number (ETS 300 207)
- see parameter Info Mask (bit 10)
  Name Identification (ETS 300 238-1)
- see parameter Additional Info, Info Mask (bit 13)

**COMMON-ISDN-API** Part III covers the following supplementary services:

- HOLD (Call Hold, ETS 300 139)
- TP (Terminal Portability, ETS 300 053)
- CF (Call Forwarding, ETS 300 199-201)
- CD (Call Deflection, ETS 300 202)
- ECT (Explicit Call Transfer, ETS 300 367)
- 3PTY (Three-Party-Conference, ETS 300 186)
- MCID (Malicious Call Identification, ETS 300 128)
- CCBS (Completion of Calls to Busy Subscriber, ETS 300 359-1 excluding Section 10)
- MWI (Message Waiting Indication, ETS 300 650, ECMA-242, ITU H.450.7)
- CCNR (Completion of Calls on No Reply, ETS 301 065)
- CONF (Conference call, ETS 300 185-1)

Access to these supplementary services is provided by the **COMMON-ISDN-API** messages FACILTY\_REQ, FACILITY\_CONF, FACILITY\_IND and FACILITY\_RESP. A new facility selector introduces new functions, which are described below.

**COMMON-ISDN-API** indicates support for these supplementary services in the CAPI\_GET\_PROFILE structure, Global Options bit field. If **COMMON-ISDN-API** indicates support for supplementary services, then it must support at least the function GetSupportedServices.

The message parameters are described in the following chapter. The extended state diagrams reflect support for supplementary services. These are followed by flow charts which illustrate the usage of **COMMON-ISDN-API** messages and parameters to support supplementary services.

# C.2 Messages

# C.2.1 FACILITY\_REQ

Facility Request Parameter (struct)

The purpose of the facility request parameter is to offer additional information concerning the message FACILITY\_REQ. This parameter is coded as a structure with the following elements, depending on the value of *facility selector*:

Facility selector:

0x0003 Supplementary Services:

Function	word	0x0000: Get Supported Services
1 diletion	word	0x0000: Oet Supported Services
		0x0002. Holu
		0x0006: ECT (Explicit Call Transfer)
		0x0007: 3PTY Begin (Three Party Conference)
		0x0008: 3PTY End
		0x0009: CF Activate (Call Forwarding)
		0x000A: CF Deactivate
		0x000B: CF Interrogate parameters
		0x000C: CF Interrogate numbers
		0x000D: CD (Call Deflection)
		0x000E: MCID (Malicious Call Identification)
		0x000F: CCBS request (Completion of Calls to Busy Sub.)
		0x0010: CCBS deactivate
		0x0011: CCBS interrogate
		0x0012: CCBS call
		0x0013: MWI Activate
		0x0014: MWI Deactivate
		0x0015: CONR request
		0x0016: CONR interrogate
		0x0010: CONF Begin
		0x0017. CONF Degin
		0x0019. CONF split
		0x001C: CONF reattach
		0x001D: MVVI Interrogate
		0x001E0x7FFF: reserved
		The following values are reserved for notifications, and are
		therefore not applicable in the FACILITY_REQ message:
		0x8000: Hold Notification
		0x8001: Retrieve Notification
		0x8002: Suspend Notification
		0x8003: Resume Notification
		0x8004: Call is Diverting Notification
		0x8005: Diversion Activated Notification
		0x8006: CF Activate Notification
		0x8007: CF Deactivate Notification
		0x8008: Diversion Information
		0x8000: Diversion information
		0x8009. Call Transfer Active Notification
		0x000A. Call Hallslei Active Notification
		0x800B. Conference Established Notification
		0x800C. Conference Disconnect Notification
		0x800D: CCBS erase call linkage ID
		UX800F: CCBS remote user free
		UX8010: CCBS B-free
		UX8011: CCBS erase
		0x8012: CCBS stop alerting
		0x8013: CCBS info retain
		0x8014: MWI Indication
		0x8015: CCNR info retain
		0x8016: CONF partyDISC
		0x8017: CONF Notifications
		0x80180xFFFF: reserved
	struct	Supplementary Service-specific parameter

Supplementary Service-specific parameter:

0x0000 **Get Supported Services** Parameter does not apply (coded as struct with length 0)

0x0001 Listen		
Notification mask	dword	Bit field, coding as follows:         [0]: Hold / Retrieve Notifications         [1]: Terminal portability Notifications         [2]: ECT Notifications         [3]: 3PTY Notifications         [4]: Call Forwarding/Deflection Notifications/Information         [5]: reserved (no Notifications for Call-Deflection)         [6]: reserved (no Notifications for MCID)         [7]: CCBS Notifications/Information         [8]: MWI Indication         [9]: CCNR Notifications/Information         [10]: CONF Notifications/Information         [11]: MWI Interrogation Notification         [12 to 31]: reserved

Note:

The Notification mask applies to all connections on the specified controller, so the parameter Controller/PLCI/NCCI (FACILITY\_REQ) identifies the controller. If Bit 9 (CCNR) is set, Bit 7 (CCBS) must also be set because CCNR uses CCBS notifications. CCBS without CCNR is possible, whereas CCNR implies CCBS facilities.

0x0002 0x0003 Hold Retrieve Parameter does not apply (coded as struct with length 0)

0x0004	Suspend		
Call Identity		struct	Unique identifier, coded in accordance with ETS 300 102 [4.5.6]
0x0005	Resume		

oxoooo nesune		
Call Identity	struct	Unique identifier, coded in accordance with ETS 300 102 [4.5.6]
Dynamic TEI Selection Info	struct	Information to select a specific TEI

0x0006	ECT		
0x0007	3PTY Beg	in	
0x0008	3PTY End		
PLCI		dword	Call in state P-HELD

### 0x0009 **CF** Activate

Handle	dword	Unique identification of this operation
Type of Call Forwarding	word	0x0000: CFU (Call Forwarding Unconditional)
		0x0001: CFB (Call Forwarding Busy)
		0x0002: CFNR (Call Forwarding No Reply)
		0x0003 to 0xFFFF: reserved
Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Served User Number	struct	Coding as for Facility Party Number (if empty, all numbers are affected)
Forwarded-to Number	struct	Coding as for Facility Party Number
Forwarded-to Sub- address	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I
Activating User Number	struct	Coding as for Facility Party Number
Dynamic TEI Selection Info	struct	Information to select a specific TEI

0x000A CF Deact 0x000B CF Interr	ivate ogate Param	eters
Handle	dword	Unique identification of this operation
Type of Call Forwarding	word	0x0000: CFU (Call Forwarding Unconditional) 0x0001: CFB (Call Forwarding Busy) 0x0002: CFNR (Call Forwarding No Reply) 0x0003 to 0xFFFF: reserved

Basic Service	word	Basic Service, coded in accordance with ETS 300196 [D.5]
Served User Number	struct	Coding as for Facility Party Number (if empty, all numbers are affected)
Deactivating/Inter- rogating User Number	struct	Coding as for Facility Party Number
Dynamic TEI Selection Info	struct	Information to select a specific TEI

# 0x000C CF Interrogate Numbers

Handle	dword	Unique identification of this operation
Dynamic TEI Selection	struct	Information to select a specific TEI
Info		

# 0x000D CD

Presentation Allowed	word	0x0000: Display of Own Address Not Allowed 0x0001: Display of Own Address Allowed 0x0002 to 0xFFFF: reserved
Deflected-to Number	struct	Coding as for Facility Party Number
Deflected-to Subaddress	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I
Await Connect	word	0x0000: release the original call upon ALERTING received 0x0001: release the original call upon CONNECT received

# 0x000E MCID request Parameter does not apply (coded as struct with length 0)

# 0x000F CCBS request Handle dword Unique identification of this operation CCBS Call Linkage ID word As received in CCBS info retain indication Dynamic TEI Selection struct Information to select a specific TEI

## 0x0010 CCBS deactivate

Handle	dword	Unique identification of this operation
CCBS Reference	word	As received in CCBS request indication
Dynamic TEI Selection	struct	Information to select a specific TEI
Info		

# 0x0011 CCBS interrogate

Handle	dword	Unique identification of this operation
CCBS Reference	word	Identifies ring-back
Facility Party Number	struct	Served User Number
Dynamic TEI Selection	struct	Information to select a specific TEI
Info		

### 0x0012 CCBS call Identifies ring-back See CAPI 2.0, Part I **CCBS** Reference word **CIP** Value word Reserved word Reserved, coded as 0 B protocol See CAPI 2.0, Part I struct See CAPI 2.0, Part I See CAPI 2.0, Part I BC struct LLC struct struct See CAPI 2.0, Part I HLC Additional Info See CAPI 2.0, Part I struct

# 0x0013 MWI Activate

Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Number of Messages	dword	0x00000000 0x0000FFFF: Number of messages
		0xFFFFFFFF: suppress Number of Messages
Message Status	word	0x0000: added Message(s)
-		0x0001: removed Message(s)
		0xFFFF: suppress Message Status and Message Reference
Message Reference	word	used only if MessageStatus available

Invocation Mode	word	0x0000: deferred
		0x0001: immediate
		0x0002: combined
		0xFFFF: suppress Invocation Mode
Receiving User Number	struct	Coding as for Facility Party Number (mandatory element)
Controlling User Number	struct	Coding as for Facility Party Number (optional element, may
-		be coded as an empty struct)
Controlling User Provid-	struct	Coding as for Facility Party Number (optional element, may
ed Number		be coded as an empty struct)
Time	struct	Generalized time, coded in accordance with X.208 §32 (op-
		tional element, may be coded as an empty struct)
Handle	dword	Unique identification of this operation

# 0x0014 MWI Deactivate

Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Invocation Mode	word	0x0000: deferred
		0x0001: immediate
		0x0002: combined
		0xFFFF: suppress Invocation Mode
Receiving User Number	struct	Coding as for Facility Party Number (mandatory element)
Controlling User Number	struct	Coding as for Facility Party Number (optional element, may
_		be coded as an empty struct)
Handle	dword	Unique identification of this operation

0x0015 CCNR red	quest	
Handle	dword	Unique identification of this operation
CCBS Call Linkage ID	word	As received in CCNR info retain indication
Dynamic TEI Selection Info	struct	Information to select a specific TEI

# 0x0016 CCNR interrogate

Handle	dword	Unique identification of this operation
CCBS Reference	word	identifies ring-back
Facility Party Number	struct	Served User Number
Dynamic TEI Selection Info	struct	Information to select a specific TEI

# 0x0017 CONF Begin

Conference Size	dword	maximum number of remote users
		0x80 0xFFFFFFFF: reserved
		(may be coded 0x00 if unknown)

0x0018	CONF ad	d	
PLCI		dword	PLCI of the related Conference Call
0x0019 0x001A 0x001B 0x001C	CONF sp CONF dro CONF iso CONF rea	lit op blate attach	
Party Identifier		dword	identifier of the Conference user 0x80 0xFFFFFFF: reserved
Dynamic TEI S Info	election	struct	Information to select a specific TEI

# 0x001D MWI Interrogate

Handle	dword	Unique identification of this operation
Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Served User Number	struct	Coding as for Facility Party Number (mandatory element)
Controlling User Number	struct	Coding as for Facility Party Number (mandatory element)

This information element appears in:

FACILITY\_REQ

# C.2.2 FACILITY\_CONF

# **Facility Confirmation Parameter (struct)**

The purpose of the facility confirmation parameter is to offer additional information concerning the message FACILITY\_CONF.

This parameter is coded as a structure with the following elements, depending on the value of *facility selector:* 

Facility selector:

Function	word	0v0000 Cat Supported Sandasa
Function	word	UXUUUU: Get Supported Services
		UXUUU3. Retrieve
		0x0004: Suspend
		0x0005: Resume
		0x0006: ECT (Explicit Call Transfer)
		0x0007: 3PTY Begin (Three Party Conference)
		0x0008: 3PTY End
		0x0009: CF Activate (Call Forwarding)
		0x000A: CF Deactivate
		0x000B: CF Interrogate Parameters
		0x000C: CF Interrogate Numbers
		0x000D: CD (Call Deflection)
		0x000E: MCID (Malicious Call Identification)
		0x000F: CCBS request (Completion of Calls to Busy Sub.)
		0x0010: CCBS deactivate
		0x0011: CCBS interrogate
		0x0012: CCBS call
		0x0013: MWI Activate
		0x0014: MWI Deactivate
		0x0015: CCNR request
		0x0016: CCNR interrogate
		0x0017: CONF Begin
		0x0018: CONF add
		0x0019: CONF split
		0x001A: CONF drop
		0x001B: CONF isolate
		0x001C: CONF reattach
		0x001D: MWI Interrogate
		0x001E0x7FFF: reserved
	struct	Supplementary Service-specific parameter

0x0003 Supplementary Services:

# Supplementary Service-specific parameter:

0x0000 Get Supp	oported Services	
Supplementary Service Info	word	0x0000: success
Supported Services	dword	<ul> <li>Bit field, coding as follows:</li> <li>[0]: Hold / Retrieve supported     <ul> <li>(includes functions 0x0002, 0x0003, 0x8000, 0x8001)</li> </ul> </li> <li>[1]: Terminal Portability supported     <ul> <li>(includes functions 0x0004, 0x0005, 0x8002, 0x8003)</li> <li>[2]: ECT supported</li> <li>(includes functions 0x0006, 0x8009, 0x800A)</li> </ul> </li> <li>[3]: 3PTY supported     <ul> <li>(includes functions 0x0007, 0x0008, 0x800B, 0x800C)</li> </ul> </li> <li>[4]: Call-Forwarding supported     <ul> <li>(includes functions 0x00090x000C, 0x8004 0x8008)</li> </ul> </li> <li>[5]: Call-Deflection supported     <ul> <li>(includes function 0x000D)</li> </ul> </li> <li>[6]: MCID supported     <ul> <li>(includes function 0x000E)</li> </ul> </li> <li>[7]: CCBS supported     <ul> <li>(includes functions 0x000F0x0012, 0x800D 0x8013)</li> </ul> </li> <li>[8]: MWI supported     <ul> <li>(includes functions 0x000F0x0014, 0x8014)</li> </ul> </li> <li>[9]: CCNR supported     <ul> <li>(includes functions 0x0015, 0x0016, 0x8015)</li> </ul> </li> <li>[10]: CONF supported     <ul> <li>(includes functions 0x00170x001C, 0x8016, 0x8017)</li> </ul> </li> <li>[11]: MWI Interrogate supported     <ul> <li>(includes functions 0x00170x001C, 0x8016, 0x8017)</li> </ul> </li> <li>[11]: MWI Interrogate supported     <ul> <li>(includes functions 0x00170x001C, 0x8016, 0x8017)</li> </ul> </li> <li>[12 to 31]: reserved</li> </ul> <li>Note: For each group supported, COMMON-ISDN-API must support all functions.</li>

0x0001	Listen
0x0002	Hold
0x0003	Retrieve
0x0004	Suspend
0x0006	ECT
0x0007	3PTY Begin
0x0008	3PTY End
0x000E:	MCID request

Supplementa Info	ary Service	word	0x0000: Success 0x300E: Supplementary service not supported 0x3010: Request not allowed in this state
0x0005 0x000A	Resume CF Deact	ivate	

	Of Dealoritate
0x000B	CF Interrogate Parameters
0x000C	CF Interrogate Numbers
0x000F:	CCBS request
0x0010:	CCBS deactivate
0x0011:	CCBS interrogate

Supplementary Service	word	0x0000: Success
Info		0x300E: Supplementary service not supported
		0x3010: Request not allowed in this state
		0x3306 : TEI Selection failure, no more in-
		stances available
		0x3307 : TEI Selection failure, Layer 2 Link
		Handle invalid
		0x3308 : TEI Selection failure, Fixed TEI Value collision

0x0009 CF Activate

Supplementary Service word Info	0x0000: Success 0x300E: Supplementary service not supported 0x3010: Request not allowed in this state 0x3305: Rejected by Supplementary Services Supervision 0x3306 : TEI Selection failure, no more in- stances available 0x3307 : TEI Selection failure, <i>Layer 2 Link</i> <i>Handle</i> invalid 0x3308 : TEI Selection failure, <i>Fixed TEI Value</i> collision
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# 0x000D

Supplementary Service	word	0x0000: Success
Info		0x300E: Supplementary service not supported
		0x3010: Request not allowed in this state
		0x3305: Rejected by Supplementary Services Supervision

# 0x0012: CCBS call

CD

Info / Supplementary Service Info	word	0x0000: Success 0x2007: Illegal message parameter coding 0x3001: B1 protocol not supported 0x3002: B2 protocol not supported 0x3003: B3 protocol not supported 0x3004: B1 protocol parameter not supported 0x3005: B2 protocol parameter not supported 0x3006: B3 protocol parameter not supported 0x3007: B protocol combination not supported 0x3009: CIP Value unknown 0x300E: Supplementary service not supported 0x3010: Request not allowed in this state 0x3306 : TEI Selection failure, no more in- stances available 0x3307 : TEI Selection failure, <i>Layer 2 Link</i> <i>Handle</i> invalid 0x3308 : TEI Selection failure, <i>Fixed TEI Value</i> collision

### 0x0013: MWI Activate 0x0014: MWI Deactivate

Supplementary Service	word	0x0000: Success
Info		0x300E: Supplementary service not supported
		0x3010: Request not allowed in this state

# Note

Call Forwarding (CF Activate) could be rejected for security reason (Supplementary Service Info = 0x3305) if parameters (Basic Service, Served User Number, Forwarded-to Number and Forwarded-to Subaddress) of the corresponding FACILITY\_REQ are not allowed.

Call Deflection (CD) could be rejected for security reason (Supplementary Service Info = 0x3305) if parameters of the corresponding FACILITY\_REQ (Deflected-to Number and Deflected-to Subaddress) and CONNECT\_IND (CIP Value) are not allowed.

# 0x0015: CCNR request 0x0016: CCNR interrogate

Supplementary Service	word	0x0000: Success
Info		UX300E: Supplementary service not supported
		0x3010: Request not allowed in this state
		0x3306 : TEI Selection failure, no more in-
		stances available
		0x3307 : TEI Selection failure, Layer 2 Link
		Handle invalid
		0x3308 : TEI Selection failure, Fixed TEI Value collision

0x0017:	CONF Be	egin	
0x0018	CONF ad	d	
0x001A	CONF dro	op	
0x001B	CONF iso	olate	
0x001C	CONF rea	attach	
0x001D	MWI Inter	rrogate	
Supplementary Info	Service	word	0x0000: Success 0x300E: Supplementary service not supported 0x3010: Request not allowed in this state

Supplementary Service	word	0x0000: Success
Info		0x300E: Supplementary service not supported
		0x3010: Request not allowed in this state
		0x3306 : TEI Selection failure, no more in-
		stances available
		0x3307 : TEI Selection failure, Layer 2 Link
		Handle invalid
		0x3308 : TEI Selection failure, Fixed TEI Value collision

This information element appears in:

FACILITY\_CONF

# C.2.3 FACILITY\_IND

# **Facility Indication Parameter (struct)**

The purpose of the facility indication parameter is to offer additional information concerning the message FACILITY\_IND.

This parameter is coded as a structure with the following elements, depending on the value of *facility selector*:

Facility selector:

0x0003	Supplementary	Services:
--------	---------------	-----------

Function	word	0x0002: Hold
FUNCTION	woru	
		0x0004: Suspend
		0x0005: Resume
		0x0006: ECT (Explicit Call Transfer)
		0x0007: 3PTY Begin (Three Party Conference)
		0x0008: 3PTY End
		0x0009: CF Activate (Call Forwarding)
		0x000A: CF Deactivate
		0x000B: CF Interrogate Parameters
		0x000C: CF Interrogate Numbers
		0x000D: CD (Call Deflection)
		0x000E: MCID (Malicious Call Identification)
		0x000E: MOID (Malicious Gali Identification)
		0x00001. CCBS deactivate
		0x0015: CCNR request
		0x0016: CCNR interrogate
		0x0017: CONF Begin
		0x0018: CONF add
		0x0019: CONF split
		0x001A: CONF drop
		0x001B: CONF isolate
		0x001C: CONF reattach
		0x001D: MWI Interrogation Result
		0x8000: Hold Notification
		0x8001: Retrieve Notification
		0x8002: Suspend Notification
		0x8003: Resume Notification
		0x8004: Call is Diverting Notification
		0x8005: Diversion Activated Notification
		0x8006: CF Activate Notification
		0x8007: CF Deactivate Notification
		0x8008: Diversion Information
		0x8009: Call Transfer Alerted Notification
		0x800A: Call Transfer Active Notification
		0x800B: Conference Established Notification
		0x800C: Conference Disconnect Notification
		0x800D: CCBS oraça call linkago ID
		0x000D. CCDS elase call lilikage ID
		0x000E: CCBS status
		0x000F. CCBS Terror
		UXOUTI. UCDS effase
		UXOUTZ. UCDO STOP alerting
		UX8013: CCBS Into retain (Completion of Calls to Busy Sub.)
		UX8014: MVVI Indication
		UX8015: CONR Into retain
		0x8016: CONF partyDISC
		0x8017: CONF Notifications
		0x8018: MWI Interrogate Notification

struct	Supplementary Service-specific parameter

# Supplementary service-specific parameter:

0x0002 0x0003 0x0004 0x0005 0x0006 0x0007 0x0008	Hold Retrieve Suspend Resume ECT 3PTY Beg 3PTY End	yin 1	
Supplementary Reason	Service	word	See C.3

0x0009 0x000A	CF activa CF deact	ite ivate	
Supplementary Reason	Service	word	See C.3
Handle		dword	Unique identification of this operation

# 0x000B CF interrogate parameters

Supplementary Service	word	See C.3
Reason		
Handle	dword	Unique identification of this operation
Instances	struct	Struct containing structs of type Interrogate-Response

# Interrogate-Response struct

Type of CF	word	0x0000: CFU (Call Forwarding Unconditional) 0x0001: CFB (Call Forwarding Busy) 0x0002: CFNR (Call Forwarding No Reply) 0x0003 to 0xFFFF: reserved
Basic Service	word	Basic Service, coded in accordance with ETS 300196 [D.5]
Served User Number	struct	Coding as for Facility Party Number
Forwarded-to Number	struct	Coding as for Facility Party Number
Forwarded-to Sub- address	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I
Remote enabled	word	0x0000: Remote not enabled 0x0001: Remote enabled 0x0002 to 0xFFFF: reserved

# 0x000C CF interrogate numbers

Supplementary Service Reason	word	See C.3
Handle	dword	Unique identification of this operation
Served User Numbers	struct	Struct containing Facility Party Number structs

0x000D CD 0x000E MCID red	uest	
Supplementary Service	word	See C.3
Reason		

0x000F CCBS I	equest	
Supplementary Service	word	See C.3
Reason		
Handle	dword	Unique identification of this operation
CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back

# 0x0010 CCBS deactivate

Supplementary Service	word	See C.3
Reason		
Handle	dword	Unique identification of this operation

# 0x0011 CCBS interrogate

Supplementary Service	Word	See C.3
Reason		

Handle	dword	Unique identification of this operation
CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Instances	struct	Struct containing structs of type CCBS-Interrogate-Response

0x0012	CCBS cal	I				
Supplementary Reason	Service	Word	See C.3			

Note: FACILITY\_IND/CCBS call is sent on failure only.

0x0013	MWI Activate

0X0014 MIWI Dea	ctivate	
Supplementary Service Reason	Word	See C.3
Handle	dword	Unique identification of this operation

# 0x0015 CCNR request

Supplementary Service Reason	word	See C.3
Handle	dword	Unique identification of this operation
CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back

0x0016 CCN	R interrogate	
Supplementary Servi	ce word	See C.3
Reason		
Handle	dword	Unique identification of this operation
CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Instances	struct	Struct containing structs of type CCBS-Interrogate-Response

# 0x0017: CONF Begin

0x0018 CONF ad	d	
Supplementary Service	Word	See C.3
Reason		
Party Identifier	dword	identifier of the Conference user
		0x80 0xFFFFFFFF: reserved

0x0019 CONF sp	lit	
Supplementary Service	Word	See C.3
Reason		
PLCI	dword	PLCI of the splitted Remote User Call

0x001A CONF 0x001B CONF 0x001C CONF	drop isolate reattach	
Supplementary Service Reason	Word	See C.3

# 0x001D MWI Interrogation Result

Supplementary Service	word	See C.3
Reason		
Handle	dword	Unique identification of this operation
MWI Interrogation result	struct	Struct containting structs of type MWI Interrogation result
_		element

0x8000	Hold Notification
0x8001	Retrieve Notification
0x8002	Suspend Notification
0x8003	Resume Notification
0x8004	Call Being Diverted Notification
0x8005	Diversion Activated Notification
Parameter	does not apply (coded as struct with length 0)

0x8006 CF Activate Notification

Type of Call Forwarding	word	0x0000: CFU (Call Forwarding Unconditional) 0x0001: CFB (Call Forwarding Busy) 0x0002: CFNR (Call Forwarding No Reply) 0x0003 to 0xFFFF: reserved
Basic Service	word	Basic Service coded in accordance with ETS 300196 [D.5]
Served User Number	struct	Coding as for Facility Party Number
Forwarded-to Address	struct	Coding as for Facility Party Number
Forwarded-to Sub- address	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I

# 0x8007 CF Deactivate Notification

Type of Call Forwarding	word	0x0000: CFU (Call Forwarding Unconditional) 0x0001: CFB (Call Forwarding Busy) 0x0002: CFNR (Call Forwarding No Reply) 0x0003 to 0xFFFF: reserved
Basic Service	word	Basic Service, coded in accordance with ETS 300196 [D.5]
Served User Number	struct	Coding as for Facility Party Number

# 0x8008 Diversion Information

Basic Service	word	Basic Service, coded in accordance with ETS 300196 [D.5]
Diversion Reason	word	0x0000: unknown 0x0001: CFU (Call Forwarding Unconditional) 0x0002: CFB (Call Forwarding Busy) 0x0003: CFNR (Call Forwarding No Reply) 0x0004: CD Alerting 0x0005: CD Immediate 0x0006 to 0xFFFF: reserved
Last diverting reason	word	0x0000: unknown 0x0001: CFU (Call Forwarding Unconditional) 0x0002: CFB (Call Forwarding Busy) 0x0003: CFNR (Call Forwarding No Reply) 0x0004: CD Alerting 0x0005: CD Immediate 0x0006 to 0xFFFF: reserved
Served User Sub- address	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I
Calling number	struct	Coding as for Facility Party Number
Calling subaddress	struct	Coding as for Called Party Subaddress, see CAPI 2.0, Part I
Original called number	struct	Coding as for Facility Party Number
Last diverting number	struct	Coding as for Facility Party Number

0x8009	Call Transfer Alerted Notification
0~000	Call Transfor Active Netification

CT Redirection Number struct Address of the transferred remote user				
	CT Redirection Num	ber	struct	Address of the transferred remote user

0x800B	Conference Established Notification
0x800C	Conference Disconnect Notification
Parameter	does not apply (coded as struct with length 0)

# 0x800D CCBS erase call linkage ID

CCBS Call Linkage ID	word	Unique identifier of call
Called Party Number	struct	See CAPI 2.0, Part I
Called Party	struct	See CAPI 2.0, Part I
Subaddress		

# 0x800E CCBS status

CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back
CIP Value	word	See CAPI 2.0, Part I
BC	struct	See CAPI 2.0, Part I
LLC	struct	See CAPI 2.0, Part I
HLC	struct	See CAPI 2.0, Part I
Called Party Number	struct	See CAPI 2.0, Part I
Called Party Sub-	struct	See CAPI 2.0, Part I
address		

# 0x800F CCBS remote user free

CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back
CIP Value	word	See CAPI 2.0, Part I
BC	struct	See CAPI 2.0, Part I
LLC	struct	See CAPI 2.0, Part I
HLC	struct	See CAPI 2.0, Part I
Called Party Number	struct	See CAPI 2.0, Part I
Called Party Sub-	struct	See CAPI 2.0, Part I
address		
Facility Party Number	struct	Address of B-party
Facility Party Sub-	struct	Subaddress of B-party, coded as Called Party Subaddress,
address		see CAPI 2.0, Part I

# 0x8010 CCBS B-free

CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back
CIP Value	word	See CAPI 2.0, Part I
BC	struct	See CAPI 2.0, Part I
LLC	struct	See CAPI 2.0, Part I
HLC	struct	See CAPI 2.0, Part I
Called Party Number	struct	See CAPI 2.0, Part I
Called Party	struct	See CAPI 2.0, Part I
Subaddress		
Facility Party Number	struct	Address of B-party
Facility Party Sub- address	struct	Subaddress of B-party

# 0x8011 CCBS erase

CCBS Recall Mode	word	Specifies who may respond to ring-back
CCBS Reference	word	Identifies ring-back
CCBS Erase Reason	word	Reason why ring-back has been erased by network
CIP Value	word	See CAPI 2.0, Part I
BC	struct	See CAPI 2.0, Part I
LLC	struct	See CAPI 2.0, Part I
HLC	struct	See CAPI 2.0, Part I
Called Party Number	struct	See CAPI 2.0, Part I
Called Party Subaddress	struct	See CAPI 2.0, Part I
Facility Party Number	struct	Address of B-party
Facility Party Sub- address	struct	Subaddress of B-party, coded as Called Party Subaddress, see CAPI 2.0, Part I.

0x8012 CC	BS stop alerting	
CCBS Reference	word	Identifies ring-back

# 0x8013 CCBS info retain

•••••••••••••••••••••••••••••••••••••••		
CCBS Call Linkage ID	word	Unique identifier of call

0x8014 MWI Indi	cation	
Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]. 0xFFFF: Basic Service not available
Number of Messages	dword	0x000000000 0x0000FFFF: Number of Messages 0xFFFFFFE: Unknown Number of Messages 0xFFFFFFFF: Number of Messages not available
Message Status	word	0x0000: added Message 0x0001: removed Message 0xFFFF: Message Status & Message Reference not available
Message Reference	word	Valid only if Message Status available
Controlling User Number	struct	Coding as for Facility Party Number
Controlling User Provid- ed Number	struct	Coding as for Facility Party Number
Time	struct	Generalized time, coded in accordance with X.208 §32
Called Party Number	struct	See CAPI 2.0, Part I

0x8015 CCNR inf	o retain	
CCBS Call Linkage ID	word	Unique identifier of call

0x8016 CONF partyDISC	;
-----------------------	---

Party Identifier	dword	identifier of the Conference user
		0x80 0xFFFFFFFF: reserved

# 0x8017 CONF Notifications

Notification Identifier	dword	0xC2 CONF established
		0xC3 CONF disconnected
		0xC4 CONF other party added
		0xC5 CONF isolated
		0xC6 CONF reattached
		0xC7 CONF other party isolated
		0xC8 CONF other party reattached
		0xC9 CONF other party split
		0xCA CONF other party disconnected

# 0x8018 MWI Interrogate Notification

Basic Service	Word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Served User Number	struct	Coding as for Facility Party Number (mandatory element)
Controlling User Number	Struct	Coding as for Facility Party Number (mandatory element)

This information element appears in:

# FACILITY\_IND

# C.2.4 FACILITY\_RESP

# Facility Response Parameter (struct)

The purpose of the facility response parameter is to offer additional information concerning the message FACILITY\_RESP.

This parameter is coded as a structure with the following elements, depending on the value of facility selector:

Facility selector:

Function	word	0x0002: Hold
		0x0003. Retrieve
		0x0004: Suspend
		0x0005: Resume
		0x0006: ECT (Explicit Call Transfer)
		0x0007: 3PTY Begin (Three Party Conference) 0x0008: 3PTY End
		0x0009: CF Activate (Call Forwarding)
		0x000A: CF Deactivate
		0x000B: CF Interrogate Parameters
		0x000C: CF Interrogate Numbers
		0x000D: CD (Call Deflection)
		0x000E: MCID (Malicious Call Identification)
		0x000F: CCBS request (Completion of Calls to
		0x0010: CCBS deactivate
		0x0011: CCBS interrogate
		0x0012: CCBS call
		0x0013: MWI Activate
		0x0014: MWI Deactivate
		0x0015: CCNR request
		0x0016: CCNR interrogate
		0x0018: CONF add
		0x0019: CONF split
		0x001A: CONF drop
		0x001B: CONF Isolate
		0x001C. CONF reallach
		0x0001D. WWW Interrogation Result
		0x8001: Rotriovo Notification
		0x0001. Relieve Notification

0x0003	Supplementary Services:
--------	-------------------------

0X000b. CF Interrogate Parameters
0x000C: CF Interrogate Numbers
0x000D: CD (Call Deflection)
0x000E: MCID (Malicious Call Identification)
0x000F: CCBS request (Completion of Calls to Busy Sub.)
0x0010: CCBS deactivate
0x0011: CCBS interrogate
0x0012: CCBS call
0x0013: MWI Activate
0x0014: MWI Deactivate
0x0015: CCNR request
0x0016: CCNR interrogate
0x0017: CONF Begin
0x0018: CONF add
0x0019: CONF split
0x001A: CONF drop
0x001B: CONF isolate
0x001C: CONF reattach
0x001D: MWI Interrogation Result
0x8000: Hold Notification
0x8001: Retrieve Notification
0x8002: Suspend Notification
0x8003: Resume Notification
0x8004: Call is Diverting Notification
0x8005: Diversion Activated Notification
0x8006: CF Activate Notification
0x8007: CF Deactivate Notification
0x8008: Diversion Information
0x8009: Call Transfer Alerted Notification
0x800A: Call Transfer Active Notification
0x800B: Conference Established Notification
0x800C: Conference Disconnect Notification
0x800D: CCBS erase call linkage ID
0x800E: CCBS status
0x800F: CCBS remote user free
0x8010: CCBS B-free
0x8011: CCBS erase
0x8012: CCBS stop alerting
0x8013: CCBS info retain
0x8014: MWI Indication
0x8015: CCNR info retain
0x8016: CONF partyDISC
0x8017: CONF Notifications
0x8018: MWI Interrogate Notification

struct	Supplementary Service-specific parameter	
		_

# Supplementary Service-specific parameter:

0x0002:	Hold
0x0003:	Retrieve
0x0004:	Suspend
0x0005:	Resume
0x0006:	ECT
0x0007:	3PTY Begin
0x0008:	3PTY End
0x0009:	CF Activate
0x000A:	CF Deactivate
0x000B:	CF Interrogate Parameters
0x000C:	CF Interrogate Numbers
0x000D:	CD
0x000E:	MCID (Malicious Call Identification)
0x000F;	CCBS request
0x0010:	CCBS deactivate
0x0011:	CCBS interrogate
0x0012:	CCBS call
0x0013:	MWI Activate
0x0014:	MWI Deactivate0x8000: Hold Notification
0x0015:	CCNR request
0x0016:	CCNR interrogate
0x0017:	CONF Begin
0x0018	CONF add
0x0019	CONF split
0x001A	CONF drop
0x001B	CONF isolate
0x001C	CONF reattach
0x001D	MWI Interrogation Result
0x8001:	Retrieve Notification
0x8002:	Suspend Notification
0x8003:	Resume Notification
0x8004:	Call is Diverting Notification
0x8005:	Diversion Activated Notification
0x8006:	CF Activate Notification
0x8007:	CF Deactivate Notification
0x8008:	Diversion Information
0x8009:	Call Transfer Alerted Notification
0x800A:	Call Transfer Active Notification
0x800B:	Conference Established Notification
0x800C:	Conference Disconnect Notification
0x800D:	CCBS erase call linkage ID
Parameter doe	es not apply (coded as struct with length 0)

0x800E: CCBS s	tatus	
CCBS Status Report	word	Current application status
Dynamic TEI Selection Info	struct	Information to select a specific TEI

0x800F:	CCBS remote user free
0x8010:	CCBS B-free
0x8011:	CCBS erase
0x8012:	CCBS stop alerting
0x8013:	CCBS info retain
0x8014:	MWI Indication
0x8015:	CCNR info retain
0x8016	CONF partyDISC
0x8017	CONF Notifications
Parameter do	es not apply (coded as struct with length 0)

0x8018 MWI Inter	MWI Interrogate Notification		
Supplementary Service Reason	Word	See C.3	
MWI Interrogation result	Struct	Struct containting structs of type MWI Interrogation result element	

An MWI interrogate notification will be broadcasted to all applications that have the MWI Interrogation Notification bit set in the Notification mask. The application that responds first with the corresponding RESP will provide the answer that is sent to the remote entity requesting the MWI Interrogate.

This information element appears in:

FACILITY\_RESP

# C.3 Parameters

# CCBS Call Linkage ID (word)

The parameter CCBS Call Linkage ID is used in the CCBS procedure to provide a link between the application and a call currently in progress which is rejected by the network with cause "user busy". The CCBS Call Linkage ID allows the application to request the CCBS service even after the call has been completely released and the associated PLCI no longer exists. The unique value of the CCBS Call Linkage ID (from 0 to 127) is assigned by the network and remains valid for a certain time (cf. ETS 300 359-1, timer T-RETENTION).

This information element appears in:

FACILITY\_REQ FACILITY\_IND

# **CCBS Reference** (word)

The parameter CCBS Reference is to identify an activated ring-back. The unique value of CCBS Reference is in the range from 0 to 127 and is assigned by the network. If used in the CCBS interrogation procedure, the value 0x00FF indicates that the interrogation is intended for **all** CCBS References managed by the network rather than for a single CCBS Reference. This capability is provided by the network (internally, the controller maps the value 0x00FF to the ASN.1 null tag).

This information element appears in:

FACILITY\_REQ FACILITY\_IND

# CCBS Status Report (word)

The parameter CCBS Status Report provides the current status of the application to the network.

The following values are defined:

0x0000 Busy 0x0001..0xFFFF Free

This information element appears in:

FACILITY\_RESP

CCBS Recall Mode (word)

The parameter CCBS Recall Mode specifies which applications may respond to a FACILITY\_IND / CCBS remote user free message.

The following values are defined:

0x0000

Global call-back: all applications may try to answer the call

0x0001 Specific call-back: only the initiator of the CCBS procedure may try to answer the call

This information element appears in:

# FACILITY\_IND

# **CCBS Erase Reason (word)**

The parameter CCBS Erase Reason provides detailed information why the network has deleted an activated CCBS request (e.g., timers have expired, deactivation by the application or the ring-back has been completed successfully). Reception of this message implies deletion of the associated CCBS Reference value.

The low byte of this parameter contains the values as defined in ETS 300 359; the high byte is zero.

This information element appears in:

# FACILITY\_IND

# **CCBS-Interrogate-Response** (struct)

The parameter CCBS-Interrogate-Response provides the information the application requested in a FACILITY\_REQ / CCBS interrogate message.

The parameter has the following structure:

CCBS Reference	word	Identifies ring-back
CIP Value	word	See CAPI 2.0, Part I
BC	struct	See CAPI 2.0, Part I
LLC	struct	See CAPI 2.0, Part I
HLC	struct	See CAPI 2.0, Part I
Facility Party Number	struct	Address of B-party
Facility Party Sub-	struct	Subaddress of B-party, coded as Called Party Subaddress:
address		see CAPI 2.0, Part I
Initiator Party Sub-	struct	Subaddress of A-party, coded as Called Party Subaddress:
address		see CAPI 2.0, Part I

This information element appears in:

# FACILITY\_IND

# **CT Redirection Number (struct)**

The parameter *Redirection Number* is used in the ECT procedure to signal the transfered remote user's address, provided by the network, after completion of the call transfer. The coding is in accordance with ETS 300 207-1:

Byte 0

Type of number and numbering plan as received from the network.

Byte 1 Presentation indicator as received from the network.

Bytes 2...n Digits of the *Redirection Number* information element.

This information element appears in:

FACILITY\_IND

# **Facility Party Number (struct)**

The purpose of the parameter *facility party number* is to identify origin and destination numbers in Supplementary Service calls.

Byte 0	Type of facility party number: 0x00: Unknown 0x01: Public Party Number 0x02 to 0xFF: reserved
Byte 1	Type of number and numbering plan identification (coding as for byte 0 of the <i>calling party number</i> ). This byte is only valid if byte 0 contains the value 0x01: Public Party Number.
Byte 2	Presentation and screening indicator (coding as for byte 1 of the calling party num- ber). This byte is only valid if byte 0 contains the value 0x01: Public Party Number.
Bytes 3n	Digits of the facility party number information element.

This information element appears in:

FACILITY\_REQ FACILITY\_IND

# **MWI-Interrogation-Result-Element** (struct)

The parameter MWI-Interrogation-Result-Element provides the information the application requested in a FACILITY\_REQ / MWI interrogate message.

The parameter has the following structure:

Basic Service	word	Basic Service, coded in accordance with ETS 300 196 [D.5]
Number of Messages	dword	0x00000000 0x0000FFFF: Number of messages 0xFFFFFFFF: suppress Number of Messages
Controlling User Number	struct	Coding as for Facility Party Number (optional element)
Controlling User Provid- ed Number	struct	Coding as for Facility Party Number (optional element)
Time	struct	Generalized time, coded in accordance with X.208 §32

This information element appears in:

FACILITY\_IND

# Supplementary Service Info (word)

The purpose of the parameter *Supplementary Service Info* is to provide error information to the application.

Value	Reason
0x0000	Success
0x300E	Supplementary service not supported
0x3305	Rejected by Supplementary Services Supervision
0x3010	Request not allowed in this state

This information element appears in:

# FACILITY\_CONF

# Supplementary Service Reason (word)

The purpose of the parameter Supplementary Service Reason is to provide error information to the application concerning Supplementary Services. The defined values are:

0x3303:	Time-out: network did not respond within the required time.
Class 0x34xx:	Disconnect cause from the network according to Q.850/ETS 300 102-1. The cause value received within a cause information element (octet 4) from the network is indicated in the field "xx".
Class 0x36xx:	Error information concerning the requested supplementary service. The field "xx" contains the failure reason, coded in accordance with ETS 300 196 [D.2].
Class 0x37xx:	Error information regarding the context of a supplementary service request. The field "xx" contains the failure reason, coded in accordance with ETS 300 196 [D.1], "InvokeProblem".

This information element appears in:

FACILITY\_IND

# C.4 State Diagram (Extended for Supplementary Services)





# PLCI - state machine 2<sup>\*</sup>/2

\*extended for supplementary services



# C.5 Flow Charts (Informative, for Supplementary Services)

# C.5.1 Hold and Retrieve

# C.5.1.1 Activation of Hold

Application	CAPI	
FACILITY_REQ (Hold)	<b>&gt;</b>	
•	FACILITY_CONF	At this point, the application requests the Hold facility for the specified call. If a B-channel connection exists, it is released by the DISCONNECT_B3_IND message.
<	FACILITY_IND	At this point the call is held and the cor-
FACILITY_RESP		responding B-channel can be used for another connection. The "current" PLCI is in the P- HELD state (see C.4), but until the call is re- trieved, no B-channel connection may be estab-

lished.

# C.5.1.2 Activation of Retrieve



Note for connectionless protocols: An application must always initiate the B-channel connection after retrieving a call, even if this connection was associated with an incoming call.

# C.5.2 Suspend & Resume

# C.5.2.1 Activation of Suspend

Application	CAPI	
FACILITY_REQ (Suspend)	<b>&gt;</b>	At this point the application requests the sus-
FACI	LITY_CONF (Suspend)	channel connection exists, it is released by the DISCONNECT_B3_IND message.
FA	CILITY_IND (Suspend)	
FACILITY_RESP (Suspend)		At this point the call is suspended and can be resumed by the corresponding FACILITY_REQ (Resume) message.
•	DISCONNECT_IND	
DISCONNECT_RESP		As the call has now been completely terminat- ed, the PLCI is released at this point.

# C.5.2.2 Successful Activation of Resume



Note for connectionless protocols: An application must always initiate the B channel connection after resuming a call, even if this connection was associated with an incoming call.

# C.5.2.3 Unsuccessful Activation of Resume

Application	CAPI	
FACILITY_REQ (Resume)		At this point the application attempts to recume
•	FACILITY_CONF (Resume)	a call.
FACILITY_RESP (Resume)	FACILITY_IND (Resume)	At this point a new PLCI is allocated by CAPI for the "new" call.
•	DISCONNECT_IND	The resume operation fails for some reason.
DISCONNECT_RESP		The PLCI previously allocated by CAPI is now freed.

# C.5.3 Hold, Retrieve, Suspend & Resume Notifications

## CAPI Application FACILITY\_REQ (Listen) At this point the application tells CAPI that it wishes to be informed about Supplementary FACILITY\_CONF (Listen) Service information. About here, a connection is established between the local and a remote site (see Annex A, A.1.1 or A.1.2). At this point the application is informed that the FACILITY\_IND (Hold Notification) remote site has put the call on hold. CAPI does not shut down any established B-FACILITY\_RESP (Hold Notification) channel protocol stack automatically. The Bchannel protocol may be released due to protocol-specific time-outs, however. FACILITY\_IND (Retrieve Notification) At some later time, the application is informed that the remote site has retrieved the call again. FACILITY\_RESP (Retrieve Notification)

# C.5.3.1 Hold and Retrieve Notifications

# C.5.3.2 Suspend and Resume Notifications



# C.5.4 Three-Party-Conference

# Application CAPI FACILITY\_REQ (3PTY begin) At this point, one call has been put on hold and another call is currently active. In any other state, an error is indicated. The PLCI identifies the call on hold. FACILITY\_IND (3PTY begin) At this point the active call and the held call identified by the PLCI are joined in a three-party-conference.

# C.5.4.1 Activation of 3PTY with One Active and One Held Call

# C.5.4.2 Deactivation of 3PTY



# C.5.4.3 Disconnection of the Held Connection During 3PTY

Application	CAPI	
DISCONNECT_REQ	DISCONNECT_CONF	A three-party-conference is in progress. The party that had been on hold is to be disconnected.
FACILITY_RESP (3PTY)	FACILITY_IND (3PTY end)	The end of the three-party-conference is sig- naled.
◀ DISCONNECT_RESP	DISCONNECT_IND	At this point one held connection has been released. The remaining call is in the active state; the B-channel connection is still active.

# C.5.4.4 Disconnection of the Active Connection During 3PTY

Application	CAPI
DISCONNECT_REQ	A three-party conference is in progress. The active connection is to be released
DISCONNECT_CC	INF
DISCONNECT_B3_I	<ul> <li>The active B-channel connection is released first.</li> </ul>
FACILITY_IND (3PTY of FACILITY_RESP (3PTY)	The end of the three-party conference is sig- naled.
■ DISCONNECT_I DISCONNECT_RESP	<ul> <li>At this point the active connection has been released. The remaining call is in the held state; it must be retrieved before a B-channel connection can be established.</li> </ul>

# C.5.4.5 Disconnection by the Remote Active Party During 3PTY

Application	CAPI	
DISCONNECT_1	B3_IND	A three-party-conference is in progress. The active connection releases the call. The B-
DISCONNECT_B3_RESP		channel connection is therefore released as well.
FACILITY_IND (3P	TY end)	The end of the three-party conference is sig-
FACILITY_RESP (3PTY)		naled.
DISCONNEC	CT_IND	The active connection has been released. The
DISCONNECT_RESP		remaining call is in the held state; it must be retrieved before a B-channel connection can be established.

# C.5.4.6 Disconnection by the Remote Held Party During 3PTY

Application	CAPI	
4	FACILITY_IND (3PTY end)	The end of the three-party conference is sign
FACILITY_RESP (3PTY)		naled.
4	DISCONNECT_IND	At this point the held connection has been
DISCONNECT_RESP		released. The remaining call is in the active state; a B3 connection is still established.

# C.5.5 Explicit Call Transfer

# C.5.5.1 Activation of ECT

Application	CAPI	
DISCONNECT_B3_REQ		One call has been put on hold and another call is currently active. For the call transfer to be
•	DISCONNECT_B3_CONF	initiated, an existing B-channel connection must be released; otherwise an error will be signaled.
•	DISCONNECT_B3_IND	
DISCONNECT_B3_RESP		
FACILITY_REQ (ECT)		At this point the explicit call-transfer is initiated
•	FACILITY_CONF (ECT)	(see note).
	FACILITY_IND (ECT)	The call transfer has been successfully en-
FACILITY_RESP (ECT)		gaged.
	DISCONNECT_IND	The first cell is now released
DISCONNECT_RESP		The first call is now released.
	DISCONNECT_IND	The second cell is also released
DISCONNECT_RESP	<b>&gt;</b>	i ne secono cali is also releaseo.

Note: ECT can be invoked implicitly and explicitly. For explicit invocation, the application must provide both PLCIs in the FACILITY\_REQ (ECT). The PLCI of the active connection is in the parameter *PLCI*, and the PLCI of the held connection is in the parameter *Facility Request Parameter/Supplementary Service-specific parameter/PLCI*). For implicit invocation, the application must offer only the held PLCI in both parameters.

# C.5.6 Call Forwarding

# C.5.6.1 Activation of CF



# C.5.6.2 Deactivation of CF

Application	CAPI	
FACILITY_REQ (Deactivate CF) FACILITY_CONF (Deactivate	• CF)	At this point the deactivation of a specific type of call forwarding is requested.
FACILITY_IND (Deactivate CF Respo	onse)	The result of the deactivation is returned (op- eration successful/unsuccessful).
FACILITY_IND (Deactivate	• CF)	Now every application is informed of the call forwarding changes that occurred.

# C.5.6.3 Interrogate Numbers



# C.5.6.4 Interrogate Parameters



# C.5.6.5 Activation of Call Deflection – Call has been signaled

Application	CAPI	
<	CONNECT_IND	An incoming call has been signaled, but neither accepted nor rejected(!).
FACILITY_REQ (CD)	ACILITY_CONF (CD)	Forwarding to a specific destination is requested at this time.
FACILITY_RESP (CD)	FACILITY_IND (CD)	The call deflection has been successfully en- gaged.
■ DISCONNECT_RESP	DISCONNECT_IND	The call is now released.

# C.5.6.6 Activation of Call Deflection - Held Call in active State

Application	CAPI	
FACILITY_REQ (CD)	FACILITY_CONF (CD)	At this point, a call has been put on hold. For- warding (Transfering) to a specific destination is requested at this time.
FACILITY_RESP (CD)	FACILITY_IND (CD)	The call deflection has been successfully en- gaged.
disconnect_resp	DISCONNECT_IND	The call is now released.

# C.5.7 Malicious Call Identification

# C.5.7.1 Activation of MCID

Application	CAPI	
FACILITY_REQ (MCID)		
•	FACILITY_CONF (MCID)	At this point the MCID request is confirmed locally.
4	FACILITY_IND (MCID)	At this point the MCID request is in progress.
FACILITY_RESP (MCID)		

# C.5.8 Completion of Calls to Busy Subscriber

These flowcharts are based on the diagrams given in the ETS 300 359-1 document.

# C.5.8.1 Successful Activation of CCBS by Application

Application	CAPI	Controller/PLCI related, CCBS parameter
CONNECT_REQ	CONF	Controller PLCI
FACILITY_IND (CCBS info re FACILITY_RESP (CCBS info retain)	etain)	PLCI, CCBS Call Linkage ID PLCI
disconnect_	_IND	PLCI PLCI
FACILITY_REQ (CCBS request) FACILITY_CONF (CCBS req	Juest)	Controller, CCBS Call Linkage ID Controller
FACILITY_IND (CCBS req FACILITY_RESP (CCBS request)	luest)	Controller, CCBS Reference, CCBS Supple- mentary Service Reason = 0 Controller
FACILITY_IND (CCBS erase Call Linkag FACILITY_RESP (CCBS erase Call Linkage ID)	e ID)	Controller, CCBS Call Linkage ID Controller

Application	CAPI	Controller/PLCI related, CCBS parameter
CONNECT_REQ	CONF	Controller PLCI
FACILITY_IND (CCBS info retain)	etain)	PLCI, CCBS Call Linkage ID PLCI
disconnect_ disconnect_resp	_IND	PLCI PLCI
FACILITY_REQ (CCBS request) FACILITY_CONF (CCBS req	Juest)	Controller, CCBS Call Linkage ID Controller
FACILITY_IND (CCBS req FACILITY_RESP (CCBS request)	luest)	Controller, CCBS Supplementary Service Reason <> 0 Controller
FACILITY_IND (CCBS erase Call Linkag FACILITY_RESP (CCBS erase Call Linkage ID)	e ID)	Controller, CCBS Call Linkage ID Controller

# C.5.8.2 Unsuccessful Activation of CCBS by Application

# C.5.8.3 Successful Deactivation of CCBS by Application

Application	CAPI	Controller/PLCI related, CCBS parameter
FACILITY_REQ (CCB	S deactivate)	Controllor, CCBS reference
FA	CILITY_CONF (CCBS deactivate)	
FACILITY_RESP (CCI	FACILITY_IND (CCBS deactivate) 3S deactivate)	Controller, CCBS Supplementary Service Reason = 0 Controller
<	FACILITY_IND (CCBS erase)	Controller, CCBS reference
FACILITY_RESP (CCI	BS erase)	Controller

# C5.8.4 Deactivation of CCBS by Network (e.g. after timeout)

Application	CAPI	Controller/PLCI related, CCBS parameter
FACILITY_IND (CCBS e	rase)	Controller, CCBS reference
FACILITY_RESP (CCBS erase)	→	Controller

# C.5.8.5 Remote Party Becomes "Not Busy"

C.5.8.5.1 Initiating Application is "Not Busy"

Application CAPI	Controller/PLCI related, CCBS parameter
FACILITY_IND (CCBS status)	Controller, CCBS Reference
FACILITY_RESP (CCBS status)	Controller, CCBS status report = "free"
FACILITY_IND (CCBS remote user free)	Controller, CCBS Reference. Note: Alerting may be started at this point. Controller
FACILITY_REQ (CCBS call)	Controller, CCBS Reference PLCI. Note: a new PLCI is allocated by this operation.
FACILITY_IND (CCBSStop Alerting)	Controller, CCBS reference
FACILITY_RESP (CCBS Stop Alerting)	Controller
	Note: This message is generated only if CCBS Recall Mode == global (network option)
FACILITY_IND (CCBS erase)	Controller, CCBS reference
FACILITY_RESP (CCBS erase)	Controller
CONNECT_ACTIVE_IND	From this point the standard message flow for connection setup applies, e.g.:

# Application CAPI Controller/PLCI related, CCBS parameter FACILITY\_IND (CCBS status) Controller, CCBS Reference FACILITY\_RESP (CCBS status) Controller, CCBS Status report = "busy" FACILITY\_IND (CCBS B free) Controller, CCBS Reference FACILITY\_RESP (CCBS B free) Controller DISCONNECT\_REQ After some time the application may release the connection causing the busy condition DISCONNECT\_CONF DISCONNECT\_IND DISCONNECT\_RESP Now the busy condition is cleared. The next CCBS status indication can be answered with CCBS Status report = "free" (see C.5.8.5.1, Initiating application is "not busy")

# C.5.8.5.2 Initiating Application Has Become "Busy"

# C.5.9 Message Waiting Indication

# C.5.9.1 Activation of MWI



# C.5.9.2 Deactivation of MWI

Application	CAPI	
FACILITY_REQ (MWI)		The deactivation of MWI is requested
•	FACILITY_CONF	
4	FACILITY_IND	The result of the activation is returned
FACILITY_RESP		(operation successful/unsuccessful)

# C.5.9.3 Indication of MWI

Application	CAPI	
<	FACILITY_IND (MWI)	Waiting messages are signaled to the applica- tion
FACILITY_RESP (Retrieve)		

# C.5.9.4 Active Interrogation of MWI (Softphone for example)



4	FACILITY_IND (MWI Interrogate Result)
FACILITY	RESP

The set of results is indicated to the application

# C.5.9.5 Passive Interrogation of MWI (Voicemail-Server for example)

# Application

•

CAPI

FACILITY_IND (MWI Interrogate Notification)

Incoming interrogation is signaled to the application

FACILITY\_RESP (MWI Interrogate Notification)

Application provides information about waiting messages to the requestor.

# C.5.10 Completion of Calls on No Reply

Note: the message flow of CCNR is nearly identical to CCBS. There are CCNR specific messages for activation and interrogation, the other flow charts are identical to CCBS.

# C.5.10.1 Activation of CCNR Application CAPI Controller/PLCI related, CCBS/CCNR parameter CONNECT\_REQ Controller CONNECT\_CONF PLCI FACILITY\_IND (CCNR info retain) PLCI, CCBS Call Linkage ID FACILITY RESP (CCNR info retain) PLCI FACILITY\_REQ (CCNR request) Controller, CCBS Call Linkage ID FACILITY\_CONF (CCNR request) Controller DISCONNECT\_IND PLCI DISCONNECT RESP PLCI Controller, CCBS Reference, if CCBS Supple-FACILITY\_IND (CCNR request) mentary Service Reason = 0 activation has been successful, else unsuccessful FACILITY\_RESP (CCNR request) Controller FACILITY\_IND (CCBS erase Call Linkage ID) Controller, CCBS Call Linkage ID FACILITY\_RESP (CCBS erase Call Linkage ID) Controller C.5.10.2 Interrogation of CCNR Application CAPI FACILITY\_REQ (CCNR interrogate) The interrogation of CCNR is requested FACILITY\_CONF (CCNR interrogate) FACILITY\_IND (CCNR interrogate) The result of the interrogation is returned (operation successful/unsuccessful) FACILITY\_RESP (CCNR interrogate)

# C.5.11 CONF Functions

# C.5.11.1 Beginning a Conference with one Held Call



# C.5.11.2 Adding an existing Active Call to the Held Conference Call

	CAPI	Application
	1)	FACILITY_REQ (CONF
Adding the Active Call to the Conference is in progress.	ACILITY_CONF(CONF add)	ł
At this point the Active Call is successfully	FACILITY_IND(CONF add)	F
added to the Conference.	(F	FACILITY_RESP(CONI
The Active Call is now released.	DISCONNECT_IND	
		DICSONNECT RESP

C.5.11.3 Isolate a Remote User

Application	C	API	
FACILITY_REQ (	CONF isolate)	•	locioting a Call from the Conference is in pro
•	FACILITY_CONF(CONF isolate)		gress.
	FACILITY_IND (CONF isolate)	)	At this point the Call is successfully isolated
FACILITY_RESP	(CONF isolate)	►	from the Conference.

# C.5.11.4 Reattach a Remote User

Application	CA	ΔPI	
FACILITY_REQ (	CONF reattach)	•	Destination of Call to the Conference is in
<	FACILITY_CONF(CONF reattach)	_	progress.
4	FACILITY_IND (CONF reattach)	_	At this point the Call is successfully reattached
FACILITY_RESP	(CONF reattach)	•	to the Conference.

# C.5.11.5 Split a Remote User from the Conference

Application	САРІ
FACILITY_REQ (CONF split)	Calitying a user from the Conference is in pro
FACILITY_CONF(CONF	gress.
FACILITY_IND (CONF	At this point the remote user is splitted from the Conference.
	<b>→</b>
CONNECT_ACTIVE	The splitted user is now connected and a B- channel connection may be established.
CONNECT_ACTIVE_RESP	→ ·
CONNECT_B3_REQ	<b>→</b>
CONNECT_B3_C	ONF
CONNECT_B3_ACTIVE	IND
CONNECT_ B3_ACTIVE_RESP	<b>→</b>



# C.5.11.6 Disconnect a Remote User by served User

# C.5.11.7 Disconnect by Remote User

Application	CAPI
FACILITY_IN	ND (CONF partyDISC)
FACILITY_RESP (CONF partyDISC	from the C

A remote user has successfully disconnected from the Conference.

# C.5.11.8 Clear the Conference

Application	CAPI	
DISCONNECT_REQ		
•	DISCONNECT_CONF	Clearing the Conference Call is in progress.
4	DISCONNECT_IND	The Conference is cleared.
DICSONNECT_RESP		

# INDEX (PART III)

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