3GPP TSG CT Meeting #28 **CP-050256**
1st – 3rd June 2005. Quebec, CANADA.

Title: LS on Formal profile for IMS-CS interworking
Response to: LS 05bTD248 on Cooperation with TISPAN NGN for IMS-CS MGW protocol
Release: Rel-6

Source: 3GPP TSG CT
To: ETSI TISPAN WG3
Cc: 3GPP WG CT4

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Attachments: C4-050907 (as contained in tdoc CP-050208): CR 29.332, Rel-6; Introduction of formal profile.

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1. Overall Description:

3GPP TSG CT welcomes cooperation with TISPAN on the development of the MGW control interface (Mn).

3GPP is happy to inform that a CR introducing the new H.248 template defined by ITU-T SG16 to the 3GPP TS 29.332 has been approved. This introduces a formal profile for IMS-CS interworking.

3GPP has been informed that TISPAN WG3 has initiated a WI on the creation of a Trunking Media Gateway profile, which will be based on 29.332. 3GPP is now happy to inform that the profile in 3GPP TS 29.332 is now available in line with NGN Release 1 timeframe (TISPAN#7 meeting, July 2005).

3GPP TSG CT would like to emphasize, that creating multiple specifications to fulfill the same functionality (IMS-CS interworking in this case) increases complexity, reduces interoperability and increases device implementation costs.

3GPP looks forward to a close cooperation with TISPAN WG3 in the development of a profile that meets both NGN and 3GPP requirements.

2. Actions:

To ETSI TISPAN WG3 group.

ACTION: 3GPP TSG CT asks ETSI TISPAN WG3 group to consider the above information when standardizing IMS-CS interworking and to avoid creating multiple specifications to fulfill the same functionality.

3. Date of Next TSG-CT Meetings:

TSG-CT Meeting #29	21st – 23rd September 2005	Tallinn, ESTONIA.
TSG-CT Meeting #30	30th Nov – 02nd Dec 2005	MALTA

3GPP TSG-CT WG4 Meeting #27 **C4-050907**
Cancun,Mexico. 25th to 29th April 2005. ***(Revision of C4-050811)***

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.332** **CR** **01** ⌘ **rev** **4** ⌘ Current version: **6.1.0** ⌘

*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 ☒

Title:	⌘	Introduction Of Formal Profile
Source:	⌘	CT4(emailapproval)
Work item code:	⌘	IMS-CCR-Mn
Date:	⌘	23/05/2005
Category:	⌘	**B**
Release:	⌘	Rel6

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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	ITU-T SG16 has defined a formal profile template and this CR includes this format in the specification. This becomes very useful to be able to include the profiling requirements that have been added to the CS specification for the Mc interface that apply to this profile. In order to ensure differentiation between this profile, the Mc profile and other future defined profiles the Mn profile should register a formal profile name with IANA.
Summary of change:	⌘	Formal Profile Name defined, H.248.1 Profile template introduced, Changes made to define “open Mc” lifted into Mn profile.
Consequences if not approved:	⌘	Incomplete specification, formal profiling not defined.

Clauses affected:	⌘	6, 8, 12, 17			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

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

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

6 Topology descriptor

The Topology Descriptor shall be supported by the IM-MGW and MGCF. ~~FFS~~

7 Transaction timers

All transaction timers specified in H.248 shall be supported in this subset of the protocol.

8 Transport

Each implementation of the Mn interface should provide SCTP (as defined in IETF RFC2960 [14]). An implementation alternative may provide UDP (as defined in IETF RFC 768 [23]). The M3UA layer may also be added to SCTP for pure IP signalling transport (as defined in IETF RFC 3332 [24] with options detailed in 3GPP TS 29.202 [25]).

See also Clause 12.1

********** NEXT CHANGE **********

12 General on packages and Transactions

The base root package (0x0002) properties shall be provisioned in the MGW.

~~Event Buffering shall not be supported.~~

~~DigitMaps shall not be supported.~~

H.248 Statistics shall not be audited via the Mn~~e~~ interface. ~~and shall be suppressed in the replies to Subtract commands, except where specific 3GPP packages define their use.~~

~~Embedded Signals or Embedded Events shall not be supported on the Mc interface.~~

~~Only a single media stream per Termination shall be supported.~~

The use of "Overspecified" (e.g. range of values) and "Underspecifed" (e.g. "?") parameter specification shall not be permitted except where explicitly indicated in or referenced by the Mn~~e~~ interface specification.

12.1 Profile Details

12.1.1 Profile Identification

Table 12.1.1: Profile version

Profile name:	threegimscsiw
Version:	1

12.1.2 Summary

This Profile describes the minimum mandatory settings and procedures required to fulfil the requirements for the IMS-CS interworking gateway control.

12.1.3 Gateway Control Protocol Version

ITU Recommendation H.248.1 Version 2

12.1.4 Connection Model

Table 12.1.1: Connection Model

Maximum number of contexts:	FFS-<integer>
Maximum number of terminations per context:	32
Allowed terminations type combinations in a Context	All

12.1.5 Context Attributes

Table 12.1.5: Context attributes

Context Attribute	**Supported**	**Values Supported**
Topology	Yes	All
Priority Indicator	Yes	
Emergency Indicator	Yes	

12.1.6 Terminations

12.1.6.1 Termination Names

See Clause 5.

12.1.6.2 Multiplexed terminations

Table 12.1.6.2: Multiplexed terminations

MultiplexTerminations Supported	No

12.1.7 Descriptors

12.1.7.1 Stream Descriptor

Table 12.1.7.1: Stream descriptors

Maximum number of streams per termination type	1

12.1.7.2 Local Control Descriptor

Table 12.1.7.2: Local Control Descriptor

	Termination Type	**Stream Type**

Reserve group used:	No	ALL	ALL
Reserve value used:	Yes	ALL	ALL

12.1.7.3 Events Descriptor

Table 12.1.7.3/1: Events Descriptor

Events settable on termination types and stream types:	Yes		
	Event ID	**Termination Type**	**Stream Type**
	Detect_Digit(Digit)	ALL	ALL
	BNC Established	FFS	ALL
	BNC Modification Failed	FFS	ALL
	BNC Modified	FFS	ALL
	BNC Release	FFS	ALL
	Tunnel	Terminations towards BICC network with IP transport	ALL
	Signal Completion	ALL	ALL

Table 12.1.7.3/2: Event Buffer Control

Event Buffer Control used:	No

Table 12.1.7.3/3: Keep active

Keepactive used on events:	Yes

Table 12.1.7.3/4: Embedded events

Embedded events in an event descriptor:	No

Table 12.1.7.3/5: Embedded signals

Embedded signals in an event descriptor:	No

12.1.7.4 EventBuffer Descriptor

Table 12.1.7.4: Event Buffer Descriptor

Event Buffer descriptor used:	No

12.1.7.6 Signals Descriptor

Table 12.1.7.6/1: Signals Descriptor

Signals settable dependant on termination or streams types:	No Signals on ROOT termination shall not be supported

Table 12.1.7.6/2: Signal Lists

Signals Lists supported:	Yes

Table 12.1.7.6/3: Signal type and duration

Signal type and duration supported:	Optional

Table 12.1.7.6/4: Notify completion

Notify completion supported:	Yes

Table 12.1.7.6/5: Signals played simultaneously

Signals played simultaneously:	No

Table 12.1.7.6/6: Keep active

Keepactive used on signals:	Yes

12.1.7.7 DigitMap Descriptor

Table 12.1.7.7: DigitMAP Descriptor

Digit Maps supported:	No

12.1.7.8 Statistics Descriptor

Table 12.1.7.8: Statistics Descriptor

Statistics reported on subtract:	No

12.1.7.9 ObservedEvents Descriptor

Table 12.1.7.9: Observed Events Descriptor

Event detection time supported:	Yes

12.1.7.10 Topology Descriptor

Table 12.1.7.10: Topology Descriptor

Allowed triples:	ALL

12.1.7.11 Error Descriptor

Table 12.1.7.11/1: MGC Supported Error Codes:

Supported H.248.8 Error Codes:	FFS <ALL H.248.8, list of individual numbers>
Supported Error Codes defined in packages:	FFS-<Reference to the appropriate clause >

Table 12.1.7.11/2: MG Supported Error Codes:

Supported H.248.8 Error Codes:	FFS-<ALL H.248.8, list of individual numbers>
Supported Error Codes defined in packages:	FFS-<Reference to the appropriate clause >

12.1.8 Command API

12.1.8.1 Add

Table 12.1.8.1: Descriptors used by Command Add

Descriptors used by Add:	Events, Signals, LocalControl, Local And Remote, Error, Audit, Topology When command excludes an Audit Descriptor, the MGW response shall only include descriptors which contained underspecified or overspecified properties in the command request, with the exception of the Error Descriptor. Furthermore, only those properties that were underspecified or overspecified in the request shall be sent in the reply.

12.1.8.2 Modify

Table 12.1.8.2: Descriptors used by Command Modify

Descriptors used by Modify:	Events, Signals, LocalControl, Local And Remote, Error, Audit, Topology When command excludes an Audit Descriptor, the MGW response shall only include descriptors which contained underspecified or overspecified properties in the command request, with the exception of the Error Descriptor. Furthermore, only those properties that were underspecified or overspecified in the request shall be sent in the reply.

12.1.8.3 Subtract

Table 12.1.8.3: Descriptors used by Command Subtract

Descriptors used by Subtract:	AUDIT (empty)

12.1.8.4 Move

Table 12.1.8.4/1: Command Move

Move command used:	Yes

Table 12.1.8.4/2: Descriptors used by Move

Descriptors used by Move	Events, Signals, LocalControl, Local And Remote, Error, Audit, Topology

12.1.8.5 Auditvalue

Table 12.1.8.5: Auditvalue

Audited Properties:	**Property Name and Identity**	**Descriptor**
Termination ID	TerminationState: - TDM: ALL (indicating 1 TDM group) - ATM/IP: individual termination The ServiceState property within the TerminationState descriptor shall not take the value "Test".	TerminationState Descriptor
Termination ID	For Packages: - Root	Packages Descriptor
Audited Statistics:	None	
Audited Signals:	None	
Audited Events:	FFS<Event name and Identity e.g. Generic Error Event (g/cause, 0x0001/0x0001), ALL or None>	

12.1.8.6 Auditcapabilities

Table 12.1.8.6: Auditcapabilities

Audited Properties:	**Property Name and Identity**	**Descriptor**
	FFS	FFS
Audited Statistics:	None	
Audited Signals:	None	
Audited Events:	None	

12.1.8.7 Service Change

Table 12.1.8.7/1: Service Change Methods

ServiceChange Methods supported:	Graceful, Forced, Restart, Disconnected, Handoff(not involving more than 1 MGCF or MGW), Failover (except for 'MG impending failure') When a Service Change command on the Root termination with a method other than Graceful is sent, the command shall always be sent as the only command in a message. The sending node shall always wait for the reply to a Service Change command on the Root termination with a method other than Graceful before sending further command requests. A Service Change command on the Root termination with method Graceful may be combined with other commands in a single message.

Table 12.1.8.7/2: Service Change Reasons

ServiceChange Reasons supported:	900-910, 913-917

Table 12.1.8.7/2: Service Change Address

ServiceChangeAddress used:	FFS

Table 12.1.8.7/3: Service Change methode

ServiceChangeDelay used:	No

Table 12.1.8.7/4: Service Change Incomplete Flag

ServiceChange Incomplete Flag used:	FFS-<Yes/No>

Table 12.1.8.7/5: Service Change Version

Version used in ServiceChangeVersion:	2

Table 12.1.8.7/6: Profile negotiation

Profile negotiation as per H.248.18:	No

12.1.8.8 Manipulating and auditing context attributes

Table 12.1.8.8: Manipulating and auditing context attributes

Context Attributes Manipulated:	None
Context Attributes Audited:	None

12.1.9 Generic command syntax and encoding

Table 12.1.9: Encodings

Supported Encodings:	Binary (optional) Text (optional)

12.1.10 Transactions

Table 12.1.10/1: Commands per Transaction Requests

Maximum number of commands per Transaction request:	TBD

Table 12.1.10/2: Commands -per Transaction rReply

Maximum number of commands per Transaction reply:	TBD

Table 12.1.10/3: Optioenal Commands

Commands able to be marked "Optional":	AUDITVALUE, AUDITCAPABILTY

Table 12.1.10/4: Transaction Timers

Transaction Timer:	Value
normalMGExecutionTime	Provisioned
normalMGCExecutionTime	Provisioned
MGOriginatedPendingLimit	Provisioned
MGCOriginatedPendingLimit	Provisioned
MGProvisionalResponseTimerValue	Provisioned
MGCProvisionalResponseTimerValue	Provisioned

12.1.11 Messages

The MGC/MG Naming Conventions (MID addressing associated with the names of the MGC/MG) shall be in accordance with underlying transport. See Clause 8.

12.1.12 Transport

Table 12.1.12: Transport

Supported Transports:	SCTP(recommended), SCTP/M3UA(optional), UDP(optional)

12.1.13 Security

Table 12.1.13: Security

Supported Security:	None

12.1.14 Packages

Table 12.1.14/1: Mandatory packages

Package Name	Package ID
Generic v1 (see ITU-T Recommendation H.248.1 [9] Annex E.1);	
Base Root Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.2);	
Tone Detection Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.4);	
Basic DTMF Generator Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.5);	
DTMF Detection Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.6);	
TDM Circuit Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.13);	
Media Gateway Resource Congestion Handling Package v1 (see ITU-T Recommendation H.248.10 [12]).	
Basic Continuity Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.10);	
Generic Announcement Package v1 (see ITU-T Recommendation H.248.7 [28]). Only Fixed Part is Mandatory	

Table 12.1.14/2: Optional packages

Package Name	Package ID	Support dependent on:
Bearer Characteristics Package (see ITU-T Recommendation Q.1950 [23] annex A.3).		
Generic Bearer Connection Package (see ITU-T Recommendation Q.1950 [23] annex A.6).		Interworking with BICC
Tone Generator Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.3);		
Call Progress Tones Generator Package v1 (see ITU-T Recommendation H.248.1 [10] annex E.7).		
Basic Call Progress Tones Generator with Directionality, (see ITU-T Recommendation Q.1950 [23] annex A.8).		Services provided by network
Expanded Call Progress tones Generator Package (see ITU-T Recommendation Q.1950 [23] annex A.9).		Services provided by network
Basic Services Tones Generation Package, (see ITU-T Recommendation Q.1950 [23] annex A.10).		Services provided by network
Bearer Control Tunnelling Package (see ITU-T Recommendation Q.1950 [23] annex A.7).		Interworking with BICC and IP transport
Expanded Services Tones Generation Package (see ITU-T Recommendation Q.1950 [23] annex A.11).		Services provided by network
Intrusion Tones Generation Package (see ITU-T Recommendation Q.1950 [23] annex A.12).		Services provided by network
3GUP package (see subclause 15.1.1 of 3GPP TS 29.232 [5]);		Interworking with BICN PLMN
Modification of Link Characteristics Bearer Capability (see subclause 15.1.5 of 3GPP TS 29.232 [5]		Interworking with BICN PLMN with Codec Modification

Table 12.1.14/3: Package Provisioning Information

Package Name	Property, Parameter, Signal, Event ID	Provisioned Value:
Generic Announcement (H.248.7)	Fixed Announcement Play, AV	Provisioned

12.1.15 Mandatory support of SDP and Annex C information elements

Table 12.1.158.5: Supported Annex C and SDP information elements

Information Element	Annex C Support	SDP Support
v-line	"SDP_V "	
m-line	"SDP_M "	<port> <transport> and <fmt-list> are required. Both static and dynamic payload types shall be supported.
c-line	"SDP_C "	<connection address> required
a-line	"SDP_A "	For a dynamic RTP payload type, for each codec information on the codec type shall be provided in a separate SDP "a=rtpmap "-line and possibly additional SDP "a=fmtp "-line(s). See Clause 10.2.
b-line	"SDP_B "	B:RS and b:RR bandwidth modifiers required
NOTE: SDP or SDP_equivalents are only used for terminations towards the IM CN Subsystem.		

12.1.16 Procedures

For Call Independent Procedures see clause 14.

For IMS terminations the procedures are described in clause 15.

For TDM terminations the procedures are described in clause 16.

For BICC terminations the procedures are described in clause 17.

13 ~~H.248 standard packages~~VOID

~~The following H.248 packages are used by this UMTS Capability Set:~~

~~- Generic v1 (see ITU-T Recommendation H.248.1 [9] Annex E.1);~~

~~- Base Root Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.2);~~

~~- Tone Generator Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.3);~~

~~- Tone Detection Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.4);~~

~~- Basic DTMF Generator Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.5);~~

~~- DTMF Detection Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.6);~~

~~- Call Progress Tones Generator Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.7);~~

~~- Generic Announcement Package v1 (see ITU-T Recommendation H.248.1 [6] Annex K);~~

~~- TDM Circuit Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.13);~~

~~- Media Gateway Resource Congestion Handling Package v1 (see ITU-T Recommendation H.248.10 [12]) ;~~

- ~~Basic Continuity Package v1 (see ITU-T Recommendation H.248.1 [9] Annex E.10);~~

-

********** NEXT CHANGE **********

14 Call independent H.248 transactions

Table 14 shows the relationship between each non call-related procedure in 3GPP TS 29.232 [5] and the corresponding procedure defined in 3GPP TS 29.163 [4].

For further description of error codes and service change reasons, refer to ITU-T Recommendation H.248.8 [14].

Table 14: Non call-related transaction reused from 3GPP TS 29.232 [5]

Procedure defined in 3GPP TS 29.163 [4]	Procedure defined in 3GPP TS 29.232 [5]	Support	Comment
IM-MGW Out of service	MGW Out of Service	Mandatory	
IM-MGW Communication Up	MGW Communication Up	Mandatory	
IM-MGW Restoration	MGW Restoration	Mandatory	
IM-MGW Register	MGW Register	Mandatory	
IM-MGW Re-register	MGW Re-register	Mandatory	
MGCF Ordered Re-register	(G)MSC Server Ordered Re-register	Mandatory	
MGCF Restoration	(G)MSC Server Restoration	Optional	
MGCF Out of Service	(G)MSC Server Out of Service	Optional	
Termination Out-of-Service	Termination Out-of-Service	Mandatory	
Termination Restoration	Termination Restoration	Mandatory	
Audit Value	Audit Value	Mandatory	Only For Audit of Termination Service State.
Audit Capability	Audit Capability	Optional	
Command Rejected	Command Rejected	Mandatory	The “Command Rejected” procedure may be used in response both to call-related and non-call-related ITU-T Recommendation H.248 Commands
IM-MGW Capability Change	Capability Update	Optional	
IM-MGW Resource Congestion Handling - Activate	MGW Resource Congestion Handling - Activate	Mandatory	
IM-MGW Resource Congestion Handling - Indication	MGW Resource Congestion Handling - Indication	Mandatory	

15 Transactions towards IM CN Subsystem

15.1 Procedures related to a termination towards IM CN Subsystem

Table 1 shows the relationship between each call-related procedure in ITU-T Recommendation Q.1950 [14] (see 3GPP TS 29.205 [3]) or TS 29.232 [5] and the corresponding stage 2 procedure defined in 3GPP TS 29.163 [4].

Table 15.1.1: Correspondence between ITU-T Recommendation Q.1950 [13] or 29.232 [5] call-related transactions and 3GPP TS 29.163 [4] procedures

Procedure defined in 3GPP TS 29.163 [4]	Transaction used in Q.1950 [14]	Transaction used in TS 29.232 [5]	Supported	Comment
Reserve IMS Connection point	Not defined	n. a. for reuse	Mandatory	See 13.2.1.1
Configure IMS Resources	Not Defined	n. a. for reuse	Mandatory	See 13.2.1.2
Reserve IMS Connection Point and configure remote resources	Not defined	n. a. for reuse	Mandatory	See 13.2.1.3
Release IMS termination	n. a. for reuse	n. a. for reuse	Mandatory	See 13.2.1.4
Change IMS ThroughConnection	Cut Through	n. a. for reuse	Mandatory	
Detect IMS RTP Tel Event	Detect Digit	n. a. for reuse	Optional	Only applicable if termination towards IMS is connected with a termination towards a BICC network.
Notify IMS RTP Tel Event	Detected digit(BIWF)	n. a. for reuse	Optional	Only applicable if termination towards IMS is connected with a termination towards a BICC network.
NOTE: A procedure defined in table 13.2.1 can be combined with another procedure in the same table. This means that they can share the same contextID and termination ID(s) and that they can be combined in the same H.248 command.				

15.1.1 Reserve IMS Connection Point

When the procedure “Reserve IMS Connection Point” is required the following procedure is initiated:

The MGCF sends an Add.req command with the following information.

1 Add.req (Reserve IMS Connection Point) MGCF to IM-MGW

Table 15.1.2: Reserve IMS Connection Point Request

Address Information	Control information	Bearer information

Local Descriptor {
Port = ?
IP Address = ?
}
	Transaction ID = z
	Termination ID = ?
	If Context Requested:
	Context ID = ?
	If Context Provided:
	Context ID = c1
	If Resources for multiple Codecs shall be reserved:
	Reserve_Value
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Add.resp (Reserve IMS Connection Point Ack)

Table 15.1.3: Reserve IMS Connection Point Acknowledge

Address Information	Control information	Bearer information

Local Descriptor {
Port
IP Address
}
	Transaction ID
	Termination ID
	Context ID
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

15.1.2 Configure IMS Resources

When the procedure "Configure IMS Resources" is required the following procedure is initiated:

The MGCF sends an Mod.req command with the following information.

1 Mod.req (Configure IMS Resources) MGCF to IM-MGW

Table 15.1.4: Configure IMS Resources Request

Address Information	Control information	Bearer information

If local resources are modified:
Local Descriptor {
Port
IP Address
}
If remote resources are modified:
Remote Descriptor {
Port
IP Address
}
	Transaction ID
	Termination ID
	Context ID
	If Resources for multiple Codecs shall be reserved:
	Reserve_Value
		If local resources are modified:
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}
		If remote resources are modified:
		Remote Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Mod.resp (Configure IMS Resources Ack)

Table 15.1.5: Configure IMS Resources Acknowledge

Address Information	Control information	Bearer information

If local resources were provided in request:
Local Descriptor {
Port
IP Address
}
If remote resources were provided in request:
Remote Descriptor {
Port
IP Address
}
	Transaction ID
	Context ID
		If local resources were provided in request:
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}
		If remote resources were provided in request:
		Remote Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

15.1.3 Reserve IMS Connection Point and configure remote resources

When the procedure "Reserve IMS Connection Point and configure remote resources" is required the following procedure is initiated:

The MGCF sends a Mod.req command with the following information.

1 Add.req (Reserve IMS Connection Point and configure remote resources) MGCF to IM-MGW

Table 15.1.6: Reserve IMS Connection Point and configure remote resources Request

Address Information	Control information	Bearer information

Local Descriptor {
Port = ?
IP Address = ?
}
Remote Descriptor {
Port
IP Address
}
	Transaction ID
	Termination ID = ?
	If Context Requested:
	Context ID = ?
	If Context Provided:
	Context ID = c1
	If Resources for multiple Codecs shall be reserved:
	Reserve_Value
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}
		Remote Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Add.resp (Reserve IMS Connection Point and configure remote resources Ack)

Table 15.1.7: Reserve IMS Connection Point and configure remote resources Acknowledge

Address Information	Control information	Bearer information

Local Descriptor {
Port
IP Address
}
Remote Descriptor {
Port
IP Address
}
	Transaction ID
	Termination ID
	Context ID
		Local Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}
		Remote Descriptor {
		Codec List
		RTP Payloads
		RtcpbwRS
		RtcpbwRR
		}

15.1.4 Release IMS Termination

When the procedure “Release IMS Termination” is required the following procedure is initiated:

The MGCF sends an Sub.req command with the following information.

1 Sub.req (Release IMS Termination) MGCF to IM-MGW

Table 15.1.8: Release IMS Termination Request

Address Information	Control information	Bearer information
	Transaction ID Termination ID Context ID	

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Sub.resp (Release IMS Termination) IM-MGW to MGCF

Table 13.2.9: Release IMS Termination Acknowledge

Address Information	Control information	Bearer information
	Transaction ID Termination ID Context ID	

15.2 IMS packages

None

16 Transactions towards ISUP

Table 16.1: Correspondence between ITU-T Recommendation Q.1950 [13] or 29.232 [5] call-related transactions and 3GPP TS 29.163 [4] procedures related to a termination towards an ISUP network

Procedure defined in 3GPP TS 29.163 [4]	Transaction used in ITU-T Q.1950 [14]	Transaction used in TS 29.232 [5]	Support	Comment
Reserve TDM Circuit	n. a. for reuse	n. a. for reuse, (NOTE2)	Optional (NOTE 4)	See Clause 13.2.2.1
Change TDM Through-connection	Cut Through (CSM Controlled)	Change Through-connection	Optional (NOTE 4)	
Activate TDM voice-processing function	Echo Canceller	n. a. for reuse	Optional (NOTE 4)	
Send TDM Tone	Insert_Tone	n. a. for reuse	Optional (NOTE 4)	Only H.248 MOD command to an existing termination
Stop TDM Tone	Insert_Tone	n. a. for reuse	Optional (NOTE 4)	Only H.248 MOD command to an existing termination
Play TDM Announcement	Insert_Announcement	n. a. for reuse	Optional (NOTE 4)	Only H.248 MOD command to an existing termination
TDM Announcement Completed	Signal_Completion	n. a. for reuse	Optional (NOTE 4)	
Stop TDM Announcement	Insert Announcement	n. a. for reuse	Optional (NOTE 4)	Only H.248 MOD command to an existing termination
Continuity Check	Continuity Check Tone	n. a. for reuse	Optional (NOTE 4)	The addition to “Prepare BNC Notify” defined in Annex B.7.1.1 of Q.1950 [10] shall be applied instead to “Reserve TDM Circuit”, as defined in Clause 13.2.2.1
Continuity Check Verify	Continuity Check Verify	n. a. for reuse	Optional (NOTE 4)	
Continuity Check Response	Continuity Check Response	n. a. for reuse	Optional (NOTE 4)	The addition to “Prepare BNC Notify” defined in Annex B.7.1.2 of Q.1950 [10] shall be applied instead to “Reserve TDM Circuit”, as defined in Clause 13.2.2.1
Release TDM Termination	n. a. for reuse	n. a. for reuse	Optional (NOTE 4)	See Clause 13.2.2.2
Termination Out Of Service	BIWF_Service_Cancellation_Indication	n. a. for reuse	Optional (NOTE 4)	

NOTE 1: A procedure defined in table 13.2.2 can be combined with another procedure in the same table. This means that they can share the same contextID and termination ID(s) and that they can be combined in the same H.248 command.
NOTE 2: The reserve circuit procedure of 29.232 is not to be used only a reduced set of the parameters is required for reserve TDM circuit.
NOTE 3: Enhanced to include Camel Prepaid, otherwise same as Q.1950
NOTE 4: Necessary for optional terminations towards ISUP

16.1 Procedures related to a termination towards ISUP

16.1.1 Reserve TDM Circuit

When the procedure “Reserve TDM Circuit” is required the following procedure is initiated:

The MGCF sends an Add.req command with the following information.

1 Add.req (Reserve TDM Circuit) MGCF to IM-MGW

Address Information	Control information	Bearer information
	Transaction ID Termination ID If Context Requested: Context ID = ? If Context Provided: Context ID = c1	Bearer Service Characteristics

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Add.resp (Reserve TDM Circuit) IM-MGW to MGCF

Address Information	Control information	Bearer information
	Transaction ID Termination ID Context ID	

16.1.2 Release TDM Termination

When the procedure “Release TDM Termination” is required the following procedure is initiated:

The MGCF sends an Sub.req command with the following information.

1 Sub.req (Release TDM Termination) MGCF to IM-MGW

Address Information	Control information	Bearer information
	Transaction ID Termination ID Context ID	

When the processing of command (1) is complete, the IM-MGW initiates the following procedure.

2 Sub.resp (Release TDM Termination) IM-MGW to MGCF

Address Information	Control information	Bearer information
	Transaction ID Termination ID Context ID	

16.2 ISUP packages

None

17 Transactions towards BICC

17.1 Procedures related to a termination towards BICC

Table 17.1: Correspondence between ITU-T Recommendation Q.1950 [13] or 3GPP TS 29.232 [5] call-related transactions and 3GPP TS 29.163 [4] procedures related to a termination towards a BICC network

Procedure defined in 3GPP TS 29.163 [4]	Transaction used in Q.1950 [14]	Transaction used in TS 29.232 [5]	Support	Comment
Establish Bearer	Establish_BNC_Notify +(tunnel)	Establish Bearer (NOTE 1)	Optional (NOTE 5)	
Prepare Bearer	Prepare_BNC_Notify +(tunnel)	Prepare Bearer (NOTE 1), (NOTE 2)	Optional (NOTE 5)	
Change Through-Connection	Cut_Through	Change Through-Connection	Optional (NOTE 5)	
Release Bearer	Cut_BNC (MOD H.248 Command).	Release Bearer	Optional (NOTE 5)	(NOTE 3)
Release Termination	Cut_BNC (SUB H.248 Command).	Release Termination	Optional (NOTE 5)	Statistics about “Ctmbits” are not applicable in Sub.resp
Bearer Established	BNC Established	Bearer Established	Optional (NOTE 5)	(NOTE 3)
Bearer Released	BNC Release	Bearer Released	Optional (NOTE 5)	(NOTE 3)
Send Tone	Insert_Tone	n. a. for reuse	Optional (NOTE 5)	Only H.248 MOD command to an existing termination
Stop Tone	Insert Tone	n. a. for reuse	Optional (NOTE 5)	Only H.248 MOD command to an existing termination
Play Announcement	Insert_Annoucement	n. a. for reuse	Optional (NOTE 5)	Only H.248 MOD command to an existing termination
Stop Announcement	Insert Announcement	n. a. for reuse	Optional (NOTE 5)	Only H.248 MOD command to an existing termination
Announcement Completed	Signal Completion	n. a. for reuse	Optional (NOTE 5)	(NOTE 3)
Bearer Modification Support	Not defined	Bearer Modification Support	Optional (NOTE 5)	
Confirm Char	Confirm_Char	Confirm Bearer Characterictics (NOTE 1)	Optional (NOTE 6)	~~Optional~~
Modify Bearer Characteristics	Modify Char	Modify Bearer Characteristics (NOTE 1)	Optional (NOTE 6)	~~Optional~~
Reserve Char	Reserve_Char_Notify	Reserve Bearer Characteristics (NOTE 1)	Optional (NOTE 6)	~~Optional~~
Bearer Modified	BNC Modified	Bearer Modified	Optional (NOTE 6)	~~Optional~~
Activate Voice Processing Function	Echo Canceller	n. a. for reuse	Optional (NOTE 5)	
Tunnel Information Down	Tunnel (MGC-MGW)	Tunnel Information Down	Optional (NOTE 7)	~~Conditional:~~ For IP Transport at BICC termination
Tunnel Information Up	Tunnel (MGW-MGC)	Tunnel Information Up	Optional (NOTE 7)	~~Conditional:~~ For IP Transport at BICC termination
Termination Out-of-Service	BIWF Service Cancellation Indication	n. a. for reuse	Optional (NOTE 5)	

NOTE 1: The procedure is only applicable if the Nb framing protocol is applied at the BICC termination. Only requesting of Observed events defined in the corresponding TS 29.232 and parameters defined in the "3GUP" package of TS 29.232 are applicable in addition the parameters of the corresponding Q.1950 procedure. Those parameters shall be applies as follows: UP mode = Supported mode; UP versions = 2; interface = CN;
NOTE 2: Parameters and Observed events defined for Cellular Text telephone Modem Text Transport in the corresponding procedure of TS 29.232 are not applicable.
NOTE 3: Resp in Q1950 contains no terminationID. However, according to H248.1, terminationID is mandatory! Therefore, termination ID shall be provided.
NOTE 4: Enhanced to include Camel Prepaid, otherwise same as Q.1950
NOTE 5: Necessary for optional terminations towards BICC
NOTE 6: Optional for optional terminations towards BICC
NOTE 7: Necessary for optional terminations towards BICC network with IP transport

17.2 BICC packages

This Clause is only applicable for terminations towards BICC Networks. The support of terminations towards BICC networks is optional.

No new packages for terminations towards BICC Networks are defined in the present specification. See Clause 12.1.14 for reused packages from other specifications.

~~The following BICC packages shall be supported:~~

- ~~Bearer Characteristics Package (see ITU-T Recommendation Q.1950 [23] annex A.3).~~
- ~~Bearer Network Connection Cut Through Package (see ITU-T Recommendation Q.1950 [23] annex A.4).Generic Bearer Connection Package (see ITU-T Recommendation Q.1950 [23] annex A.6).~~

~~The following BICC packages shall be supported as required by the network services deployed in the network:~~

- ~~Basic Call Progress Tones Generator with Directionality, (see ITU-T Recommendation Q.1950 [23] annex A.8).~~
- ~~Expanded Call Progress tones Generator Package (see ITU-T Recommendation Q.1950 [23] annex A.9).~~
- ~~Basic Services Tones Generation Package, (see ITU-T Recommendation Q.1950 [23] annex A.10).~~
- ~~Bearer Control Tunnelling Package (see ITU-T Recommendation Q.1950 [23] annex A.7).~~
- ~~Expanded Services Tones Generation Package (see ITU-T Recommendation Q.1950 [23] annex A.11).~~
- ~~Intrusion Tones Generation Package (see ITU-T Recommendation Q.1950 [23] annex A.12).~~
- ~~Business Tones Generation Package (see ITU-T Recommendation Q.1950 [23] annex A.13).~~

If the Nb framing protocol (see 3GPP TS 29.415 [21]) is applied at the termination towards the BICC network, the following package shall be applied:

3GUP package (see subclause 15.1.1 of 3GPP TS 29.232 [5]);

To enable bearer modification at OoBTC capable networks on Nb interface (see 3GPP TS 23.153 [22]) at the termination towards the BICC network, the following package shall be applied:

- Modification of Link Characteristics Bearer Capability (see subclause 15.1.5 of 3GPP TS 29.232 [5]);