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3GPP TS 29.232 (Media Gateway Controller (MGC) – Media Gateway (MGW) Interface; Stage 3) version 1.0.0 is attached. This is for information to CN Plenary.

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Technical Report

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document describes the protocol to be used on the Media Gateway Controller (MGC) – Media Gateway (MGW) interface. The Media Gateway Controllers covered in this specification are the MSC server and the GMSC server. The basis for this protocol is the H.248/MEGACO protocol as specified in ITU-T and IETF. The BICC architecture as described in ITU-T Q.1902 [7]-[11] and 3G TS 23.205 [3] defines the usage of this protocol.

This specification describes the changes to H.248/MEGACO which are needed to handle 3GPP specific traffic cases. This is done by using the H.248/MEGCO standard extension mechanism.

The present document is valid for a 3rd generation PLMN (UMTS) complying with Release 2000 and later.

2 References

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

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

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

?? For a non-specific reference, the latest version applies.

[Editor's note: not all references are stable yet.]

[1] ITU-T H.248: "Media Gateway Control Protocol" (06/00)

[2] 3GPP TS 25.415: "UTRAN Iu interface user plane protocols".

[3] 3GPP TS 23.205: "Bearer Independent CS Core Network – Stage 2"

[4] 3GPP TS 24.008: "Mobile radio interface layer 3 specification"

[5] 3GPP TS 29.007: "General requirements on interworking between the PLMN and the ISDN or PSTN"

[6] ITU-T Q.765.5: "Application Transport Mechanism"

[7] ITU-T Q.1902.1: "Bearer Independent Call Control CS2 Functional Description"

[8] ITU-T Q.1902.2: "Bearer Independent Call Control CS2 General Functions of Messages and Signals"

[9] ITU-T Q.1902.3: "Bearer Independent Call Control CS2 Formats and Codes"

[10] ITU-T Q.1902.4: "Bearer Independent Call Control CS2 Basic Call Procedures"

[11] ITU-T Q.1902.5: "Exceptions to the Application Transport Mechanism in the Context of Bearer Independent Call Control"

[12] ITU-T Q.CBC: "Draft Call Bearer Control Protocol"

[13] ITU-T Q.2210: "Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140"

[14] **RFC??? [Editors' note: reference for SIP -T is needed]**

[15] RFC2960 "Stream Control Transmission Protocol"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Context (H.248): A context is an association between a number of Terminations. The context describes the topology (who hears/sees whom) and the media mixing and/or switching parameters if more than two terminations are involved in the association.

Package (H.248): Different types of gateways may implement terminations which have differing characteristics. Variations in terminations are accommodated in the protocol by allowing terminations to have optional properties. Such options are grouped into packages, and a termination may realise a set of such packages.

Termination (H.248): A termination is a logical entity on an MGW which is the source and/or sink of media and/or control streams. A termination is described by a number of characterising properties, which are grouped in a set of descriptors which are included in commands. Each termination has a unique identity (TerminationID).

Termination Property (H.248): Termination properties are used to describe terminations. Related properties are grouped into descriptors. Each termination property has a unique identity (PropertyID).

3.2 Symbols

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

Iu	Interface between the RNS and the core network. It is also considered as a reference point.
Mc	Interface between the server and the media gateway.

3.3 Abbreviations

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

BICC	Bearer Independent Call Control
MGC	Media Gateway Controller
MTP3	Message Transfer Part layer 3
RFC	Request For Comment; this includes both discussion documents and specifications in the IETF domain
SCTP	Stream Control Transmission Protocol
TFO	Tandem Free Operation
TrFO	Transcoder Free Operation

4 UMTS capability set

This capability set shall be used in its entirety whenever it is used within an H.248 profile. Failure to do so will result in a non-standard implementation.

H.248 version 1 (06/00) [1] is supported by this Capability Set. The compatibility rules for packages, signals, events, properties and statistics and the H.248 protocol are defined in H.248 [1].

5 Naming conventions

5.1 MGC/MGW naming conventions

The MGC shall be named according to the naming structure of the underlying transport protocol which carries the H.248 protocol.

5.2 Termination names

The Termination ID structure is provisioned in the MGC and MGW and is known by the MGW and the MGC at or before start-up. It should be possible to distinguish between ephemeral and physical terminations.

6 Topology descriptor

The Topology Descriptor shall be supported by the MGW and MGC for handover and lawful interception.

7 Transaction timers

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

8 Transport

MTP3B as defined in ITU-Recommendation Q 2210 [13] (for ATM signalling transport) or SCTP as defined in RFC2960 [15] (for IP signalling transport) shall be used as the transport protocol.

9 Formats and codes

Table 1 shows the parameters which are required, in addition to those defined in the subclause "Formats and Codes" of Q.CBC [12].

Table 1: Additional parameters required

Activate Data interworking unit	Signal	As for the signal "Activate protocol" in subclause 13.1.2.3
Mode	Local control	As for the property "IuUP mode of operation" in subclause 13.1.1.1
PLMN bearer capability	Local control	As for the property "PLMN BC" in subclause 13.1.2.1

10 General on packages

11 BICC packages

11.1 Mandatory BICC packages

The following BICCpackages shall be supported:

- BICC Network Package (see [12] section 6.8.1);

- Bearer Network Connection Cut Through Package (see [12]section 6.8.2);
- Generic Bearer Establishment Package (see [12]section 6.8.4).

11.2 Optional BICC packages

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

- Reuse Idle Package (see [12]section 6.8.3);
- BICC Tunnel Package (see [12]section 6.8.5);
- BICC Announcement Package (see [12]section 6.8.6);
- BICC Tone Package (see [12]section 6.8.7).

12 H.248 standard packages

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

- Generic v1 (see [1] Annex E.1);
- Base Root Package v1 (see [1] Annex E.2);
- Tone Generator Package v1 (see [1] Annex E.3);
- Tone Detection Package v1 (see [1] Annex E.4);
- Basic DTMF Generator Package v1 (see [1] Annex E.5);
- DTMF Detection Package v1 (see [1] Annex E.6);
- Call Progress Tones Generator Package v1 (see [1] Annex E.7);
- Generic Announcement Package v1 (see [1] Annex E.K);
- TDM Circuit Package v1 (see [1] Annex E.1).

12.1 Call independent H.248 transactions

Table 2 shows the relationship between each non call-related procedure in Q.CBC [12] and the corresponding stage 2 procedure defined in 3GPP TS 23.205 [3].

Table 2: Correspondence between Q.CBC non call-related transactions and TS 23.205 procedures

Transaction used in Q.CBC	Procedure defined in Stage 2	Comments
BIWF_Service_Cancellation_Indication	MGW Out-of-Service	
BIWF_Lost_Communication	MGW Communication Up	
BIWF_Service_Restoration_Indication	MGW Restoration	
BIWF_Registration	MGW registration	
BIWF_Re-Registration	MGW re-registration	
CCU Ordered BIWF Re-Registration	Re-Register	
CCU Initiated Service Restoration	(G)MSC restoration	Not in present stage 2
CCU Initiated Service Cancellation	(G)MSC out of service	Not in present stage 2
BIWF_Service_Cancellation_Indication	Termination Out-of-Service	Is a part of BIWF Service cancellation in Q.CBC
BIWF_Service_Restoration_Indication	Termination Restoration	Is a part of BIWF Service cancellation in Q.CBC
Audit_Values	Audit Value	
Audit_Capabilities	Audit Capability	
BIWF_Capability_Change	Capability Update	

12.1.1 MGW out-of-service

This procedure is the same as described in the subclause "BIWF Service Cancellation Indication" in Q.CBC [12], with the following clarification.

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = Null Termination ID = Root Service Change Reason = MGW impending failure Service Change Method = Graceful / Forced	

Delay is not used.

12.1.2 MGW communication up

This procedure is the same as described in the subclause "BIWF Lost Communication" in Q.CBC [12].

Address Information	Control information	Bearer information

12.1.3 MGW restoration

This procedure is the same as described in the subclause "BIWF Service Restoration Indication" in Q.CBC [12] with the following clarification.

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = Null Termination ID = Root	

Delay is not used.

12.1.4 MGW register

This procedure is the same as described in the subclause "BIWF Registration" in Q.CBC [12].

12.1.5 MGW re-register procedure

This procedure is the same as described in the subclause "BIWF Re-Registration" in Q.CBC [12].

12.1.6 MGC ordered re-register

This procedure is the same as described in the subclause "CCU Ordered BIWF Re-registration" in Q.CBC [12] with the following correction.

Address Information	Control information	Bearer information
Use New MGC Control Address: Service Change Address = MGC Control Address	Service Change Reason = MGC impending failure	

12.1.7 MGC service restoration

This procedure is the same as described in the subclause "CCU initiated service restoration" in Q.CBC [12] with the following clarification.

Address Information	Control information	Bearer information
	Context ID = Null Termination ID = Root Service Change Reason = Cold Boot / Warm Boot Service Change Method = Restart	

Delay is not used.

12.1.8 Termination out-of-service

This procedure is the same as described in the subclause "BIWF Service Cancellation Indication" in Q.CBC [12] with the following clarification.

ServiceChange.req (Termination Out-of-Service) MGW to MGC

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = Contexts / Null / All Termination ID = Termination(s) Service Change Reason = Transmission failure / Termination malfunctioning / Loss of lower layer connectivity / Termination taken out of service Service Change Method = Graceful / Forced	

Delay is not used.

12.1.9 Termination restoration

This procedure is the same as described in the subclause "BIWF Service Restoration Indication" in Q.CBC [12].

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = Contexts / Null / All Termination ID = Termination(s) Service Change Reason = Service Restored Service Change Method = Restart	

12.1.10 Audit value

This procedure is the same as described in the subclause "Audit Values" in Q.CBC [12].

12.1.11 Audit capability

This procedure is the same as described in the subclause "Audit Capabilities" in Q.CBC [12].

12.1.12 MGW capability update/capability update ack

This procedure is the same as described in the subclause "BIWF Capability Change" in Q.CBC [12].

12.2 Call related H.248 transactions

Table 3 shows the relationship between each call-related procedure in Q.CBC [12] and the corresponding stage 2 procedure defined in 3GPP TS 23.205 [3].

Table 3: Correspondence between Q.CBC call-related transactions and TS 23.205 procedures

Transaction used in Q.CBC	Procedure defined in Stage 2	Comments
Change_Topology	Change Flow Direction	
Join	Join Bearer Terminations	
Isolate	Isolate Bearer Terminations	
Establish_BNC_notify	Establish Bearer	
Prepare_BNC_notify	Prepare Bearer	
Cut_Through	Change Through-Connection	
Not defined in Q.CBC	Activate Inter-working Function	
Releas e_BNC (include several procedures).	Release Bearer (Release Bearer and Release termination)	
BNC Established	Bearer Established	
BNC Release	Bearer Released	
Insert_Tone	Send Tone	
Insert_Annoucement	Play Announcement	
Signal Completion	Announcement Completed	
Detected_Digit	Detect DTMF	
Insert_Digit	Send DTMF	
Detect digit(BIWF)	Report DTMF	
Confirm_char	**[Editor's note: not in 23.153]**	
Modify_ Char	**[Editor's note: not in 23.153]**	
Reserve_Char	**[Editor's note: not in 23.153]**	
BNC Modified	**[Editor's note: not in 23.153]**	
Echo canceller	**[Editors note: No definition yet]**	
Reserve_BNC	**[Editors note: No definition yet]**	
Cut Through (MGW-MGC)	**[Editors note: No definition yet]**	
Reuse Idle	**[Editors note: No definition yet]**	

12.2.1 Change flow direction

This procedure is the same as defined in the subclause "Change Connection Topology" in Q.CBC [12].

12.2.2 Isolate

This procedure is the same as defined in the subclause "Isolate" in Q.CBC [12].

12.2.3 Join

This procedure is the same as defined in the subclause "Join" in Q.CBC [12].

12.2.4 Establish bearer

This procedure is the same as defined in the subclause "Establish BNC" in Q.CBC [12] with additions as shown below.

Address Information	Control information	Bearer information
	Iu mode = Mode PLMN bearer capability = PLMN capability Connection Configuration = (TerminationID = x1, TerminationID = x2, [type = x]),…	

For through connection see subclause 12.2.6.

When the MGW receives the command, it shall:

- Complete the through connection in accordance with the direction parameter;
- Set up the Iu framing protocol in accordance with the mode property. If the command does not include the mode, transparent mode is used.

If this is the second termination in the context, the MGW performs an analysis of the PLMN capability and determines whether a data interworking unit is required between the terminations. If a data interworking unit is required it is reserved for this purpose.

The parameter logical port is deleted.

12.2.5 Prepare Bearer

When the procedure "Prepare Bearer" is required the following procedure is initiated.

The MGC sends an ADD.req, MOD.req or MOV.req command with the following information.

1 ADD.req/MOD.req/MOV.req (..., Prepare bearer) MGC to MGW

Address Information	Control information	Bearer information
T-MGW-Address = “?”	IU mode = mode PLMN bearer capbility = PLMN capability Connection Configuration = (TerminationID = x1, TerminationID = x2, [type = x]),…	

For through connection see subclause 12.2.6.

When the MGW receives the command, it shall:

- Complete the through connection in accordance with the direction parameter;
- Set up the Iu framing protocol in accordance with the mode property. If the command does not include the mode, transparent mode is used.

If this is the second termination in the context, the MGW performs an analysis of the PLMN capability and determines whether a data interworking unit is required between the terminations. If a data interworking unit is required it is reserved for this purpose.

12.2.6 Change through connection

This procedure is the same as defined in the subclause "Cut through" in Q.CBC [12] with the following clarification and deletion.

The BIWF controlled cut through as defined in the subclause "Cut Through" - "BIWF controlled" in Q.CBC [12] is used.

The MGC controlled cut through is used for the change through connection procedure as defined in 3GPP TS 23.005 [3].

NotificationRequested = (Event ID = x,“Cut Through”) is deleted.

12.2.7 Activate interworking function

When the procedure "Activate Interworking function" is required the following procedure is initiated:

The MGC sends a MOD.req command with the following information.

1 MOD.req (Activate Interworking function) MGC to MGW

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = c1 Termination ID = x ActivateIWU = on / off	

When the MGW receives the command, it shall associate the relevant interworking unit resources with the specified termination.

When the processing of command (1) is complete, the MGC initiates the "Interworking function Ack" procedure.

2 MOV.resp (Interworking function Ack) MGC to MGW

Address Information	Control information	Bearer information
	Transaction ID = 1000 Context ID = c1	

12.2.8 Release procedures

This subclause includes a number of procedures.

12.2.8.1 Release bearer + release termination

This procedure is the same as defined in the subclause "Release-Originating" in Q.CBC [12].

12.2.8.2 Release termination

This procedure is the same as defined in the subclause "Release-Terminating" in Q.CBC [12].

12.2.8.3 Unsuccessful call

This procedure is the same as defined in the subclause "Release at BNC-Establishment Failure" in Q.CBC [12].

[Editor's note: This procedure is <u>not</u> defined in the stage 2]

12.2.9 Bearer released

This procedure is the same as defined in the subclause "BNC Release" in Q.CBC [12].

12.2.10 Bearer established

This procedure is the same as defined in the subclause "BNC Established" in Q.CBC [12].

12.2.11 Insert tone

This procedure is the same as defined in the subclause "Media Content Insertion" - "Insert Tone" in Q.CBC [12].

12.2.12 Play announcement

This procedure is the same as defined in the subclause "Media Content Insertion" - "Insert Announcement" in Q.CBC [12].

12.2.13 Insert digit

This procedure is the same as defined in the subclause "Media Content Insertion" - "Insert Digit" in Q.CBC [12].

12.2.14 Detect Digit

This procedure is the same as defined in the subclause "Media Content Detection" - "Detect Digit" in Q.CBC [12].

12.2.15 Report Digit

This procedure is the same as defined in the subclause "Detected Digit" in Q.CBC [12].

12.2.16 Announcement completed

This procedure is the same as defined in the subclause "Signal.Completion" in Q.CBC [12].

13 UMTS packages

13.1 Mandatory UMTS packages

The following packages are required for the UMTS Bearer Independent Circuit-Switched Core Network:

- Iu UP (Iu User Plane) package (seesubclause 13.1.1);
- Circuit Switched Data package (seesubclause 13.1.2);
- TFO package (see subclause 13.1.3).

13.1.1 IuUP package.

PackageID: 3giuup (0x####)

[Editor's note: PackageID to be allocated by IANA]

Version: 1

Extends: None

This package identifies that the Iu User Plane is used for the termination. It also contains some parameters for the Iu User Plane functions in the MGW.

The Iu User Plane is active in both directions independently of the Stream Mode.

13.1.1.1 Properties

Iu UP Mode of operation:

PropertyID: iumode (0x0001)

Description: Defines the mode of operation of the Iu User Plane functions:

Type: Enumeration

Possible Values:

“TR” (0x0001) Transparent mode

“SP” (0x0002) Support mode for predefined SDU sizes

Default: “TR” (0x0001) Transparent mode

Defined in: Local Control descriptor

Characteristics: Read/Write

Iu UP versions:

PropertyID: iuversions (0x0002)

Description: Defines the versions of the used Iu UP mode of operation.

Type: Sub-list

Possible Values:

{1,..., 16}

Default: {1}

Defined in: Local Control descriptor

Characteristics: Read/Write

Delivery of erroneous SDUs:

PropertyID: delerrsdu (0x0003)

Description: Indicates how erroneous SDUs should be handled.

Type: Enumeration

Possible Values:

“YE” (0x0001) Yes

“NO” (0x0002) No

“NA” (0x0003) Not Applicable

Default: “NA” (0x0003) Not Applicable

Defined in: Local Control descriptor

Characteristics: Read/Write

Interface:

PropertyID: interface (0x0004)

Description: Indicates the type of interface on which the termination is used.

Type: Enumeration

Possible Values:

“RAN” (0x0001) Iu RAN intrerface

“CN” (0x0002) Iu CN interface

Defined in: Local Control descriptor

Characteristics: Read/Write

Initialisation Direction

PropertyID: initdir (0x0005)

Description: Indicates whether or not the termination in the MGW should expect Initialisation information.

Type: Enumeration

Possible Values:

"IN" (0x0001) Incoming

"OUT" (0x0002) Outgoing

Defined in: Local Control descriptor

Characteristics: Read/Write

13.1.1.2 Events

None

13.1.1.3 Signals

None

13.1.1.4 Statistics

None

13.1.1.5 Procedures

The MGC uses this package to indicate to the MGW that the Iu User Plane is used between the RNC and the MGW. For more information on the Iu User Plane and for a description of 'Iu UP mode of operation', 'Iu UP versions' and 'Delivery of erroneous SDUs' see 3GPP TS 25.415 [2].

TheMGW shall be able to initiate and respond to the Iu UP control procedures (PDU type 14 frames) independently of the Stream Mode.

The following procedures are valid for Iu UP in Support Mode:

- The Iu UP Initialisation procedure is always acknowledged between MGW peers. If an MGW receives a request for a notification for the bearer establishment then the MGW shall not send the notification until after it has sent the acknowledgement for the Iu UP initialisation.
- The MGW shall always store RFCI parameters against the MGW termination which received the Iu UP initialisation.
- If an MGW has the Iu UP termination property Initialisation Procedure = Incoming then it expects to receive an Initialisation (either internally or externally).
- If an MGW has Iu UP termination property Initialisation Procedure = Outgoing then it generates a network originated Initialisation PDU.
- If an MGW has two terminations in the same context defined as supporting the Iu UP package, then when it receives an Iu Initialisation procedure from one side (provided the bearer connection from the other termination to its peer MGW is established) it shall start the Iu UP initialisation procedure towards the peer MGW. The MGW shall perform this procedure independently of the through-connection of the terminations in the context.
- If an MGW has one termination with Type = Iu-RAN and one termination with type Iu-CN in the same context, then it shall not forward the Iu UP initialisation from the Iu-RAN termination until it has received an Iu UP initialisation at the Iu-RAN side. If the RFCI values stored at the Iu-CN termination do not match the RFCI values stored at the Iu-RAN side then "RFCI Matching" may be performed to the Iu-RAN side: the MGW starts Iu UP initialisation with the RFCI values from the Iu-CN side. No "RFCI Matching" is permitted at the Iu-CN side.
- As an implementation option, "RFCI Matching" may be delayed if terminations are not through-connected; it will be triggered by connection modification. Otherwise it shall be performed immediately
- If "RFCI Matching" is not performed the MGW shall map the indexes for Iu frames from one side to the RFCI indexes for Iu frames from the other side.

- If an MGW has two Iu-RAN terminations connected to the same context then the "RFCI Matching" is performed to the most recently defined termination.
- If an MGW has two terminations which support the Iu UP package connected to the same context and both RFCI sets match then the MGW may switch into Iu UP transparent mode: no monitoring of the Iu frames is performed, provided that the terminations are through-connected
- If the MGW is in transparent mode (but Iu UP is defined as support mode) when it receives an H.248 procedure request which requires interpretation or interaction with the Iu UP then the MGW shall switch back to support mode, i.e. perform monitoring or termination of the Iu UP protocol.

13.1.2 Circuit Switched Data package

PackageID: 3gcsd (0x####)

[Editor's note: PackageID to be allocated by IANA]

Version: 1

Extends: None

This package contains the information needed to be able to support GSM and UMTS Circuit Switched Data from the media gateway.

13.1.2.1 Properties

PLMN BC

PropertyID: plmnbc (0x0001)

Description: The PLMN Bearer Capability.

Type: Octet string

Possible values:

Specified in the subclause "Bearer capability" in 3GPP TS 24.008 [4].

Defined in: Local Control Descriptor

Characteristics: Read/Write

13.1.2.2 Events

None

13.1.2.3 Signals

Activate Protocol

SignalID: actprot (0x0020)

Description: Activate the higher layer protocol.

Signal type: Brief

Duration: N/A

Additional parameters: None

13.1.2.4 Statistics

None

13.1.2.5 Procedures

This package is used to set up data calls which are not bit-transparent within the CS domain. For more information on the IWF, please refer to 3GPP TS 29.007 [5].

A data call can be set up by activating the IWF functionality in the MGW.

The terminations used by the IWF shall be provided with the PLMN BC (plmnbc property above) on the mobile side and the ISDN BC (standard H.248 properties) on the fixed side when they are first ADDed to the context.

After the bearer establishment has been confirmed, the IWF can be activated using the Activate Protocol (actprot) signal.

13.1.3 TFO package

PackageID: 3gtfoc (0x####)

[Editor's note: PackageID to be allocated by IANA]

Version: 1

Extends: None

This package defines events and properties for Tandem Free Operation (TFO) control. TFO uses inband signalling and procedures for Transcoders to enable compressed speech to be maintained between a tandem pair of transcoders. This package allows an MGW which has inserted a transcoder to support TFO.

13.1.3.1 Properties

TFO Activity Control

PropertyID: tfoactive (0x0001)

Description: Defines if TFO is enabled or not.

Type: Enumeration

Possible Values:

"on" (0x0001): TFO is enabled, TFO protocol is supported

"off" (0x0002): TFO is not enabled, TFO protocol is not initiated or terminated

Defined in: Local Control descriptor

Characteristics: Read/Write

TFO Codec List

PropertyID: codeclist (0x0002)

Description: List of codecs for use in TFO protocol, the active codec is always the first entry in the list.

Type: Octet string

Possible Values:

List ofcodec types; each entry:

As defined in Q.765.5 [6], or

As defined by an appropriate regional standards development organisation, identified by an Organisational Identifier in Q.765.5 [6].

Defined in: Local Control descriptor

Characteristics: Read/Write

13.1.3.2 Events

Codec Modify Event

EventID: codec_modfiy (0x0010)

Description: The event is used to notify the MGC that TFO negotiation has resulted in an optimal codec type being proposed.

EventsDescriptor Parameters: None

ObservedEventsDescriptor Parameters:

Optimal Codec Type

ParameterID: optimalcodec (0x0011)

Description: indicates which is the proposed codec type for TFO

Type: Octet string

Possible Values:

Codec Type:

As defined in Q.765.5 [6], or

As defined by an appropriate regional standards development organisation, identified by an Organisational Identifier in Q.765.5 [6].

Codec List Event

EventID: codec_list (0x0012)

Description: The event is used to notify the MGC that TFO negotiation has resulted in a codec list being determined.

EventsDescriptor Parameters: None

ObservedEventsDescriptor Parameters:

Optimal Codec Type

ParameterID: commonlist(0x0013)

Description: indicates the codec list for TFO

Type: Octet string

Possible Values:

List of codecs of type Codec Type:

As defined in Q.765.5 [6], or

As defined by an appropriate regional standards development organisation, identified by an Organisational Identifier in Q.765.5 [6].

The first Codec Type in the list is the one proposed for use (Optimal Codec Type).

13.1.3.3 Signals

None

13.1.3.4 Statistics

None

13.1.3.5 Procedures

For procedures for TFO see 3GPP reference for GSM & UMTS TFO stage 3 description TS 28.062 **[Editor's note: this specification does not exist]**.

The use of the properties in this package is applicable only when the MGW Termination to which the package properties are applied has the media stream property for Codec Type set to ITU-T G.711 (see Annex C of H.248). Furthermore, the package properties are applicable only if the Codec Type property of the media stream at the opposing MGW Termination is not set to ITU G.711.

13.2 Optional UMTS packages

Annex A:

History

Document history		
V0.0.1	September 2000	Initial draft created after N4#4 based on N4-000620
V0.1.0	October 2000	Updated after N4 R2000 Ad Hoc Stockholm based on N4-00823 and N4-000842
V0.2.0	November 2000	Reference for MTP 3B corrected; RFC reference for SCTP added
V0.3.0	November 2000	Updated according to N4-000996, N4-000998, N4-000999, N4-001000, N4-001021, N4-001028 & N4-001097 as agreed in CN4 #5
V1.0.0	November 2000	To TSG-CN Plenary #10 for information