

Media Gateway Control  
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Category: Standards Track

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## **Supplemental Tones Packages for Megaco/H.248**

Status of this Memo

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### **1. Abstract**

This document provides proposed definitions for several supplemental packages for Megaco/H.248. These packages address support of functionality for basic and enhanced telephony services.

### **2. Conventions used in this document**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC-2119](#) [2].

### **3. Packages and Megaco**

The packages defined in this draft are designed as discussed in [Section 12 of RFC 3015](#) [4]. Packages allow finite and expandable extensions of the Megaco/H.248 protocol, allowing adaptation to a wide range of applications, without requiring change to the definition of the protocol itself. The packages defined here allow a wide range of telephony services to be realized by the Megaco/H.248 protocol.

Note that several tones packages defined by ITU-T Recommendation Q.1950 [3] for use under the CBC protocol are suitable for use under the Megaco/H.248 protocol as well. Those packages are:

- \* Basic Call Progress Tones Generator with Directionality Package
- \* Expanded Call Progress Tones Generator Package
- \* Basic Services Tones Generation Package
- \* Expanded Services Tones Generation Package
- \* Intrusion Tones Generation Package
- \* Business Tones Generation Package

For more information regarding these packages, please see ITU-T Recommendation Q.1950 [3].

## **5. Conferencing Tones Generation Package**

PackageID: conftn (0x0038)  
Version: 1  
Extends: tonegen version 1

This package defines conferencing signals.

### **5.1 Properties**

None.

### **5.2 Events**

None.

### **5.3 Signals**

Conference Entrance Tone

SignalID: enter (0x0061)

Generate conference entrance tone, which indicates a new caller has joined the conference. The physical characteristic of conference entrance is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                          Internal    int    (0x02),  
                          Both        both (0x03)

Boyle, et al       Standards Track - Expires Sept. 2002       2  
 Supplemental Tones Packages for Megaco/H.248       Mar 2002

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

The other signals in this package are specified in exactly the same way. A table with all signal names and signal IDs is included. Note that each signal is defined as both a signal and a toneid, thus extending the basic tone generation package.

+-----+-----+	
Signal Name	Signal ID/tone ID
+-----+-----+	
Conf. Entrance Tone	enter    (0x0061)
Conf. Exit Tone	exit     (0x0062)
Conf. Lock Tone	lock     (0x0063)
Conf. Unlock Tone	unlock   (0x0064)
Time Limit Warning Tone	timelim (0x0065)
+-----+-----+	

#### Conference Exit Tone

SignalID: exit (0x0062)

Generate conference exit tone, which indicates a conferee has left the conference. The physical characteristic of conference exit is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal

Boyle, et al       Standards Track - Expires Sept. 2002       3  
Supplemental Tones Packages for Megaco/H.248       Mar 2002  
shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

#### Conference Lock Tone

SignalID: lock (0x0063)

Generate conference lock tone, which indicates the controller has blocked new callers from joining the conference. The physical characteristic of conference lock is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

#### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

## Conference Unlock Tone

SignalID: unlock (0x0064)

Generate conference unlock tone, which indicates the controller has allowed new callers to join the conference. The physical characteristic of conference unlock is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Boyle, et al	Standards Track - Expires Sept. 2002	4
	Supplemental Tones Packages for Megaco/H.248	Mar 2002
	Tone Direction	

ParameterID: btd (0x01)

Type: Enumeration

Possible Values:	External	ext	(0x01),
	Internal	int	(0x02),
	Both	both	(0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

## Time Limit Warning Tone

SignalID: timelim (0x0065)

Generate time limit warning tone, which indicates that there are only a few minutes remaining on the provisioned conference bridge. The physical characteristic of conference lock is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

Boyle, et al       Standards Track - Expires Sept. 2002       5  
                    Supplemental Tones Packages for Megaco/H.248       Mar 2002  
5.4 Statistics

None.

#### 5.5 Procedures

None.

### **6. Diagnostic Tones Generation Package**

PackageID: test (0x0039)  
Version: 1  
Extends: tonegen version 1

This package defines diagnostic signals for use by telephony providers. The definitions and usage of these tones are dependent upon the test application in use.

#### 6.1 Properties

None.

#### 6.2 Events

None.

#### 6.3 Signals

Low Tone

SignalID: low (0x0066)

Generate low tone. The physical characteristic of low tone is available in the gateway.

Signal Type: OnOff  
Duration: N/A  
Additional Parameters:

Tone Direction

ParameterID: btd (0x01)  
Type: Enumeration  
Possible Values: External    ext    (0x01),  
                  Internal    int    (0x02),  
                  Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal

Boyle, et al       Standards Track - Expires Sept. 2002       6  
Supplemental Tones Packages for Megaco/H.248       Mar 2002  
shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

The other signals in this package are specified in exactly the same way. A table with all signal names and signal IDs is included. Note that each signal is defined as both a signal and a toneid, thus extending the basic tone generation package.

+-----+-----+	
Signal Name	Signal ID/tone ID
+-----+-----+	
Low Tone	low    (0x0066)
High Tone	high   (0x0067)
Loud Tone	loud   (0x0068)
Faint Tone	faint   (0x0069)
Slow Interrupted Tone	slow   (0x006a)
Fast Interrupted Tone	fast   (0x006b)
+-----+-----+	

High Tone

SignalID: high (0x0067)

Generate high tone. The physical characteristic of high tone

is available in the gateway.

Signal Type: OnOff

Duration: N/A

Additional Parameters:

#### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

Boyle, et al       Standards Track - Expires Sept. 2002       7  
Supplemental Tones Packages for Megaco/H.248       Mar 2002

#### Loud Tone

SignalID: loud (0x0068)

Generate loud tone. The physical characteristic of loud tone is available in the gateway.

Signal Type: OnOff

Duration: N/A

Additional Parameters:

#### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the



termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

#### Faint Tone

SignalID: faint (0x0069)

Generate faint tone. The physical characteristic of faint tone is available in the gateway.

Signal Type: OnOff

Duration: N/A

Additional Parameters:

##### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values:	External	ext	(0x01),
	Internal	int	(0x02),
	Both	both	(0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the

Boyle, et al	Standards Track - Expires Sept. 2002	8
	Supplemental Tones Packages for Megaco/H.248	Mar 2002
context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.		

#### Slow Interrupted Tone

SignalID: slow (0x006a)

Generate slow interrupted tone. The physical characteristic of slow interrupted tone is available in the gateway.

Signal Type: OnOff

Duration: N/A

Additional Parameters:

## Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

## Fast Interrupted Tone

SignalID: fast (0x006b)

Generate fast interrupted tone. The physical characteristic of fast interrupted tone is available in the gateway.

Signal Type: OnOff

Duration: N/A

Additional Parameters:

## Tone Direction

Boyle, et al            Standards Track - Expires Sept. 2002            9  
                         Supplemental Tones Packages for Megaco/H.248            Mar 2002

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in

package tonegen to generate this signal will prevent the capability to use the directionality parameter.

#### 6.4 Statistics

None.

#### 6.5 Procedures

None.

### **7. Carrier Tones Generation Package**

PackageID: carr (0x003a)

Version: 1

Extends: tonegen version 1

This package defines signals for use by carrier services.

#### 7.1 Properties

None.

#### 7.2 Events

None.

#### 7.3 Signals

Carrier Dial Tone

SignalID: cdt (0x006c)

Generate carrier dial tone, indicating that a carrier other than the default is providing service for the call. The

Boyle, et al      Standards Track - Expires Sept. 2002      10  
Supplemental Tones Packages for Megaco/H.248      Mar 2002  
physical characteristic of carrier dial tone is available in  
the gateway.

Signal Type: Timeout

Duration: Provisioned, Not Auditable

Additional Parameters:

Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
Internal    int    (0x02),

Both            both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

The other signals in this package are specified in exactly the same way. A table with all signal names and signal IDs is included. Note that each signal is defined as both a signal and a toneid, thus extending the basic tone generation package.

+-----+-----+	
Signal Name	Signal ID/tone ID
+-----+-----+	
Carrier Dial Tone	cdt (0x006c)
Carrier Answer Tone	ans (0x006d)
Carrier Charging Tone	chg (0x006e)
Long Distance Ind. Tone	ldi (0x006f)
+-----+-----+	

#### Carrier Answer Tone

SignalID: ans (0x006d)

Generate carrier answer tone, also known as tone burst on answer, indicating that a carrier other than the default is providing service for the call. The physical characteristic of carrier answer tone is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Boyle, et al            Standards Track - Expires Sept. 2002            11  
Supplemental Tones Packages for Megaco/H.248            Mar 2002

#### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext (0x01),  
                         Internal    int (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

## Carrier Charging Tone

SignalID: chg (0x006e)

Generate carrier charging tone, also known as subscriber trunk dialing tone, indicating that a subscriber has dialed a trunk call, and charging is about to commence. The physical characteristic of carrier charging tone is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

### Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values:	External	ext	(0x01),
	Internal	int	(0x02),
	Both	both	(0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in

Boyle, et al	Standards Track - Expires Sept. 2002	12
	Supplemental Tones Packages for Megaco/H.248	Mar 2002
	package tonegen to generate this signal will prevent	
	the capability to use the directionality parameter.	

## Long Distance Indicator Tone

SignalID: ldi (0x006f)

Generate long distance indicator tone, indicating that the call is a long-distance connection. The physical characteristic of long distance indicator tone is available in the gateway.

Signal Type: Brief

Duration: Provisioned, Not Auditable

Additional Parameters:

Tone Direction

ParameterID: btd (0x01)

Type: Enumeration

Possible Values: External    ext    (0x01),  
                         Internal    int    (0x02),  
                         Both        both (0x03)

The tone direction indicates in which direction the signal shall proceed with respect to the center of the context. "Internal" denotes that the signal shall proceed toward the center of the context from the termination, while "external" denotes that the signal shall proceed toward the edge of the context. "Both" indicates that the signal shall proceed in both directions. Unspecified tone direction shall default to "external". Note that using the playtone signal in package tonegen to generate this signal will prevent the capability to use the directionality parameter.

#### 7.4 Statistics

None.

#### 7.5 Procedures

None.

### **8. Formal Syntax**

Not Applicable

### **9. Security Considerations**

[4].

## **10. IANA Considerations**

The packages defined in this document are registered as per [Section 13](#), "IANA Considerations", of [RFC 3015](#) [4].

## **11. Acknowledgements**

The authors would like to acknowledge that these package definitions have benefited from the review and contribution of several other organizations and individuals. Notably, Christian Groves (LM Ericsson), Bernhard Pfeil (Siemens) and Pieter Veenstra (KPN) were primary contributors in the addition of the capability for specifying directionality of tones.

## **12. References**

### Informative

- 1 Bradner, S., "The Internet Standards Process -- Revision 3", [BCP 9](#), [RFC 2026](#), October 1996
- 2 Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997

### Normative

- 3 ITU-T Recommendation Q.1950: "Call Bearer Control (CBC) Protocol"
- 4 Cuervo, et al., "Megaco Protocol Version 1.0", [RFC 3015](#), November 2000

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Boyle, et al	Standards Track - Expires Sept. 2002	14
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#### **18.    Expiration Date**

This memo is filed as <[draft-boyle-megaco-tonepkgs-07.txt](#)>, and expires September 1, 2002.

