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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS
Infrastructure of audiovisual services – Communication
procedures

Gateway control protocol: Advanced media server
packages

**Amendment 1: ASR, TTS and multimedia
enhancement**

ITU-T Recommendation H.248.9 (2005) – Amendment 1



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ITU-T Recommendation H.248.9

Gateway control protocol: Advanced media server packages

Amendment 1

ASR, TTS and multimedia enhancement

Summary

This Recommendation provides two sets of packages: syntactic and functional. The syntactic packages provide the ability to specify announcements with variable content, with a degree of flexibility constrained only by the provisioning of the MG and MGC. This syntax may in principle be used to specify multimedia announcements, although its application in this Recommendation is to evoke audio content. The functional packages provide advanced control of an Audio Resource Function using the H.248.1 protocol. The packages provide the ability to play recorded announcements with variable content, carry out prompted collection of digits, and carry out prompted collection of recorded audio. An additional package provides the ability to manage recorded media segments on the Media Gateway.

Additional functionality incorporated by H.248.9 Revision 1:

- 6.3.6.11 New variable type "tone" for dynamic audio segment specification.
- 6.4 Set extension of basic syntax: introduction of a new selector for text attributes.
- 6.5.5.1 Variable type "Phrase": introduction of subtypes.
- 9.3.1 Signal PlayCollect: enhanced functionality, new parameters.

NOTE – This Recommendation has been renumbered in 2002. It was formerly known as ITU-T Rec. H.248 Annex M.1.

This amendment defines packages which enable Automatic Speech Recognition (ASR), Text to Speech (TTS) and Multimedia playout functionality between a Media Gateway Controller (MGC) and a Media Gateway (MG) controlled by H.248.1. In this scenario, the MGC may take the form of a Media Controller (MC) and the MG may take the form of a Media Processor (MP).

Source

Amendment 1 to ITU-T Recommendation H.248.9 (2005) was approved on 29 August 2007 by ITU-T Study Group 16 (2005-2008) under the ITU-T Recommendation A.8 procedure.

FOREWORD

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Gateway control protocol: Advanced media server packages

Amendment 1

ASR, TTS and multimedia enhancement

Modifications introduced by this amendment are shown in revision marks. Unchanged text is replaced by ellipsis (...). Some parts of unchanged texts (clause numbers, etc.) may be kept to indicate the correct insertion points.

1 Scope

This Recommendation uses the package mechanism to define a parameter syntax to provide a means of referring to provisioned announcements and variable content to be played within them. As indicated in documentation of the packages concerned, this syntax contains optional features, the support of which is indicated by the presence of the additional packages on the termination. The syntax may ~~potentially~~ be used to evoke multimedia content, ~~but, for the most part, that topic is for further study.~~ In addition, this Recommendation adds a series of functional packages to the Megaco/H.248.1 protocol to control an Audio or Multimedia Resource Function which may reside on a Media Gateway or specialized Audio Server.

The announcement specification syntax is described in a series of packages:

- Basic syntax package: Provides the syntax by which to refer to provisioned media segments, with a general capability for extension. See 6.1 for an introduction and 6.2 for detailed definition.
- Voice variables package: An optional extension to the base syntax, which provides stand-alone and embedded variables, with an initial set of voice variable types. See 6.1.45 for an introduction and 6.3 for detailed definition.
- Set syntax package: An optional extension to the base syntax, which provides an arbitrary number of user-defined qualifiers to be used in resolving complex audio structures. For example, the user could define qualifiers for any or all of the following: language, accent, audio file format, gender, speaker or customer. See 6.1.56 for an introduction and 6.4 for detailed definition.
- Generic text syntax package: An optional extension to the base syntax, which provides a generic text voice variable type. See 6.1.67 for an introduction and 6.5 for a detailed definition.

The functional packages documented in this Recommendation are as follows:

- Advanced Audio Server (AAS) Base Package: Provides a signal to play an announcement and events to monitor the outcome of the playout request. See clause 8.
- AAS Base Package for TTS enhancement: Provides signals to play TTS and an event to monitor the outcome of the playout request. See clause 13.
- AAS Digit Collection Package: Extends the AAS Base Package by providing a signal and events to coordinate digit collection with the playout of prompting announcements. See clause 9.

- AAS Recording Package: Extends the AAS Base Package by providing a property, signals and events to coordinate the collection of recorded voice with the playout of prompting announcements. See clause 10.
- AAS Segment Management Package allows the MGC to specify an alternative audio segment, which is played in place of a given segment whenever that segment is invoked, until the override is terminated by the MGC. It also allows deletion of persistent segments. Unlike the other packages, this package is defined on a special logical segment control termination and uses only the basic announcement specification syntax. See clause 11.
- AAS Automatic Speech Recognition Package: Provides signals to play ASR and events to indicate the result of the play request. See clause 12.
- AAS Multimedia Play Package: Provides a signal to play a multimedia file and events to monitor the outcome of the playout request. See clause 14.
- AAS Multimedia Recording Package: Extends the AAS Recording Package to coordinate the collection of recorded multimedia. See clause 15.

2 Reference

2.1 Normative references

...

- IETF RFC 2616 (1999), *Hypertext Transfer Protocol – HTTP/1.1*.
- IETF RFC ~~3066~~4646 (2004), *Tags for ~~the~~Identifyingication of Languages*.

...

- ISO/IEC 10646-1:2000 (and amendments), *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane*.
- W3C Recommendation (2004), *Speech Synthesis Markup Language (SSML) Version 1.0*.
- W3C Recommendation (2004), *Speech Recognition Grammar Specification (SRGS) Version 1.0*.

2.2 Informative references

- W3C Working Draft (2007), *EMMA: Extensible Multimodal Annotation markup language*.
- IETF RFC 2279 (1998), *UTF-8, a transformation format of ISO 10646*.
- IETF RFC 2326 (1998), *Real Time Streaming Protocol (RTSP)*.
- IETF RFC 2805 (2000), *Media Gateway Control Protocol Architecture and Requirements*.
- IETF RFC 4234 (2005), *Augmented BNF for Syntax Specifications: ABNF*.

3 Definitions

This Recommendation defines the following terms:

3.1 audio segment: A separately specifiable unit of audio content. The concept may be generalized to *media segment*, with general multimedia content.

3.2 segment specification: The set of information, which the controller must provide to invoke playout of an audio or multimedia segment. ~~Potentially segment specifications of the form defined~~

in this Recommendation may also be used to invoke playout of multimedia content, but the details are for further study.

...

3.8 announcement: The audible result of playout of a sequence of audio or multimedia segments. ~~The generation of multimedia announcements is for further study.~~

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AAS	Advanced Audio Server
ABNF	Augmented Backus-Naur Form
ASN.1	Abstract Syntax Notation One
<u>ASR</u>	<u>Automatic Speech Recognition</u>
BER	Basic Encoding Rules
BR	Brief (type of signal in ITU-T Rec. H.248.1)
<u>EMMA</u>	<u>Extensible Multimodal Annotation markup language</u>
FTP	File Transfer Protocol
HTTP	Hypertext Transfer Protocol
INAP	Intelligent Network Application Part
MG	Media Gateway
MGC	Media Gateway Controller
OO	On/Off (Type of signal in ITU-T Rec. H.248.1)
RTSP	Real Time Streaming Protocol
<u>SRGS</u>	<u>Speech Recognition Grammar Specification</u>
<u>SSML</u>	<u>Speech Synthesis Markup Language</u>
TO	Timeout (type of signal in ITU-T Rec. H.248.1)
<u>TTS</u>	<u>Text-To-Speech</u>
UCS	Universal Character Set
URI	Universal Resource Identifier
URL	Universal Resource Locator
UTF	UCS Transformation Format
<u>W3C</u>	<u>World Wide Web Consortium</u>

...

6 Announcement specification syntax

6.1 Syntactical concepts: audio segments, multimedia segments, variables and embedded variables

All packages in this Recommendation rely on the use of a special parameter syntax to describe the announcements to be played out. This syntax allows announcements to be described as a series of

audio or multimedia segments, each of which has either been provisioned at some physical location or is dynamically specified by the announcement description itself (in the form of a stand-alone voice variable).

The Base Announcement Syntax Package supports both simple and complex audio structures. A simple audio structure might be a single announcement such as "Welcome to the Automated Directory Assistance Service." A more complex audio structure might consist of an announcement followed by voice variable followed by another announcement, for example "There are thirty seven minutes remaining on your prepaid calling card," where "There are" is a prompt, the number of minutes is a voice variable, and "minutes remaining on your prepaid calling card" is another prompt.

The Base Announcement Syntax Package also supports multimedia structures. A multimedia structure might be a multimedia content segment.

...

6.1.2 Provisioned multimedia segments

Similarly, URIs are used to designate the provisioned multimedia segment, and the file ext name in URIs is used to describe the multimedia file type.

6.1.2.3 Dynamically specified audio segments

A dynamically specified audio segment is one specified by a stand-alone voice variable. See 6.1.45 for more information on variables.

6.1.3.4 Segment identifiers

Provisioned segments and segments recorded at run time are identified by URIs as defined in IETF RFC 2396.

A URI can be a simple name or it can be a URL. Three URL schemes are allowed: the file: scheme, the ftp: scheme, and the http: scheme. The file: scheme is used for audio local to the Audio Server. The ftp: scheme is used for audio remote to the Audio Server. The http: scheme can be used for audio local to the Audio Server using the http://localhost convention or for audio remote to the Audio Server. All audio references that require parameters encoded in the URL must use the http: scheme. The following examples show some of the possibilities. More examples are shown in 6.6.

NOTE 1 – For playout of more general media over IP transport, the rtsp: scheme should also be considered. ~~Multimedia announcement specifications are for further study.~~

Reference to local audio (simple name):	12354
Reference to local audio (flat file):	file://welcome
Reference to local audio:	file://audio/xyztel/welcome
Reference to remote audio:	http://audio/xyztel/welcome
<u>Reference to local multimedia (simple name):</u>	<u>12354.xxx</u>
<u>Reference to local multimedia (flat file):</u>	<u>file://welcome.xxx</u>
<u>Reference to local multimedia:</u>	<u>file://multimedia/xyztel/welcome.xxx</u>
<u>Reference to remote multimedia:</u>	<u>http://multimedia/xyztel/welcome.xxx</u>

NOTE 2 – The file extension name "xxx" represents the file type, e.g., 3gp represents a 3GP file.

6.1.4.5 Variables

...

6.1.45.1 Example of use of variables in a sequence

...

6.1.56 Segment sets

...

6.1.56.1 Set example

...

6.1.56.2 Example of set with embedded variable

...

6.1.67 Generic text variables

...

6.4 Set extension to basic syntax

...

Version: 23

...

6.4.5 Procedures

Segment sets are described in 6.1.56. They provide an optional extension to the basic syntax for specification of a media segment. This Recommendation defines two selector tags.

6.4.5.1 "lang", the language selector

The values associated with this selector are the tags defined in IETF RFC ~~3066~~4646. These tags combine language with optional additional information such as region or country. Examples of such tags are "en-us" for English as spoken in the United States, or "cy" for Welsh (no locality qualifier required). The selector concept is applicable to multimedia content, although the examples provided in this Recommendation show its use only with audio segments.

...

6.4.5.3 Text encoding for both selectors

...

The definition of Language-Tag is taken unchanged from IETF RFC ~~3066~~4646. The syntax of the language tag in ABNF [IETF RFC 4234] is:

```
Language-Tag = langtag  
/ privateuse ; private use tag  
/ grandfathered ; grandfathered registrations  
  
langtag = (language  
["-" script]  
["-" region]  
*("-" variant)  
*("-" extension)  
["-" privateuse])
```

```

language      = (2*3ALPHA [ extlang ] ) ; shortest ISO 639 code
                 / 4ALPHA                ; reserved for future use
                 / 5*8ALPHA              ; registered language subtag

extlang       = *3("-" 3ALPHA)           ; reserved for future use

script        = 4ALPHA                  ; ISO 15924 code

region        = 2ALPHA                  ; ISO 3166 code
                 / 3DIGIT                ; UN M.49 code

variant       = 5*8alphanumeric       ; registered variants
                 / (DIGIT 3alphanumeric)

extension     = singleton 1*("-" (2*8alphanumeric))

singleton     = %x41-57 / %x59-5A / %x61-77 / %x79-7A / DIGIT
                 ; "a"- "w" / "y"- "z" / "A"- "W" / "Y"- "Z" / "0"- "9"
                 ; Single letters: x/X is reserved for private use

privateuse    = ("x"/"X") 1*("-" (1*8alphanumeric))

grandfathered = 1*3ALPHA 1*2("-" (2*8alphanumeric))
                 ; grandfathered registration
                 ; Note: i is the only singleton
                 ; that starts a grandfathered tag

alphanumeric = (ALPHA / DIGIT)         ; letters and numbers

Language-Tag = Primary-subtag *( "-" Subtag )
 ; Case insensitive

Primary-subtag = 1*8ALPHA
 ; Generally from ISO 639, but see RFC 3066

Subtag = 1*8(ALPHA / DIGIT)
 ; Generally from ISO 3166, but see RFC 3066

```

...

6.5.5 Procedures

This clause defines the generic text variable type as an optional extension to the basic set of variable types defined in 6.3.6. See also 6.1.67.

...

6.6 Examples

These examples use the Play signal of the Advanced Audio Server Base package, the PlayCollect signal of the AAS Digit Collection package, and the PlayRecord signal of the AAS Recording package, the TTS signal of the Advanced Audio Server base package for TTS enhancement and the ASR signal of the Advanced Audio Server base package for ASR enhancement.

...

Give the user three chances to enter an 11-digit number that begins with 0 or 1. If the user makes a mistake while entering digits, he can press the * key to discard any digits already collected, replay the prompt, and resume collection.

```
Signals { aasdc/playcol { ip = "sid=<file://enterdigits>",
                        mxatt = 3, dm = elevendig, rsk = "*" } },
DigitMap = elevendig { [0-1]xxxxxxxxxx }
```

Play a file URI three times with two seconds of silence between plays.

```
Signals { aasstts /playsid { an = "sid=<file://brenda>",
                           it = 3 , iv = 20 } }.
```

Play an Initial announcement to the user, then start speech recognition against the given SRGS file:

```
Signals { asr /asrid { ip = "sid=<file://info>",
                      rgid = "sid=<file://grammar.srgs>" } }.
```

...

8 Advanced audio server base package

...

Version: 42
Extends: None.

...

8.3.1.1.6 Parameter name: Announcement Direction

ParameterID: di (0x0006)

Description: The direction parameter can be used to indicate the direction that the announcement is to be sent.

Type: Enumeration

Optional: Yes

Possible values: Ext (0x01): External indicates that the announcement is sent from the MG to an external point;

Int (0x02): Internal indicates that the announcement is played into the MG to the other terminations;

Both (0x03): Both indicates internal and external behaviour.

Default: Ext

NOTE – The direction text should match the existing for direction e.g., in ITU-T Rec. Q.1950.

...

9.2.2.2 ObservedEventDescriptor parameters

9.2.2.2.1 Digits Collected

Parameter Name: Digits collected

ParameterID: dc (0x00031)

NOTE – In previous versions of this Recommendation, dc was incorrectly assigned to the value of 0x0003.

...

9.5.1 PlayCollect digit processing model

...

- 1) The playcol command becomes active. Number of attempts is zero. Set "current prompt" to <InitialPrompt>. Clear the digit collection buffer (which will receive all digits, whether part of intended user input or a command sequence).
- 2) Collection loop. Increment number of attempts. Initialize digit map processing. If <ClearDigitBuffer> is TRUE, ~~clear the digit collection buffer.~~Clear the digit collection buffer if:
 - this is the first PlayCollect Signal set on this termination in this context;
 - the number of attempts within this PlayCollect Signal is greater than one; or
 - <ClearDigitBuffer> is TRUE.

...

- 11) Failure to match digit map. Check number of attempts. If it is equal to <MaxAttempts>, play <FailureAnnouncement> if one has been specified, exit and generate an Audio Operation Failure event with return code 619 "Max Attempts Exceeded". Otherwise set current announcement to <Reprompt>, ~~retain any digit accumulation buffer contents beyond the digits already processed (i.e., discarding the digit which "broke the pattern").~~discard all digit accumulation buffer contents and return to step 2).

10 AAS recording package

...

Version: 4₂
Extends: aasb (0x0033) version 4₂.

...

10.2.2.2.3 Recording Result

...

Possible values: "normal" (0): a temporary audio segment has been recorded, and end of speech was detected before the expiration of the RecordLengthTimer period.
 "trunc" (1): a temporary audio segment has been recorded, and it was truncated when the RecordLengthTimer period expired.
 "keyend" (2): the Return Key command key sequence was detected. No recorded audio has been retained.
 "endinput" (3): the EndInput Key command key sequence was detected. A temporary audio segment has been recorded.
 "endinput norecord" (4): the EndInput Key command key sequence was detected. No temporary audio has been recorded.

...

10.3.1.1.15 Return Key

...

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: terminate the current recording attempt and delete any speech recorded to this point, play <SuccessAnnouncement> if specified, and generate a PlayRecord Success event indicating that the operation was terminated by <ReturnKey>. During a recording, all digits except for the restart, reinput, endinput and return keys (if defined) are ignored and become part of the recording.

...

10.3.1.1.16 EndInput Key

Parameter Name: EndInputKey

ParameterID: eik (0x0010)

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: terminate the current recording attempt, play <SuccessAnnouncement> if specified, and generate a PlayRecord Success event indicating that the operation was terminated by <EndInputKey>.

Type: String

Optional: Yes

Possible values: A sequence of one or more characters from the set 0-9, A-D or a-d, *, and # representing DTMF digits.

Default: None

10.3.1.1.17 Record direction

Parameter Name: Record direction

ParameterID: rd (0x0011)

Description: The record direction indicates the direction that the media is to be received.

Type: Enumeration

Optional: Yes

Possible values: Ext (0x01): External indicates that recording is on the media which is received from an external point to the MG;

Int (0x02): Internal indicates that recording is on the media received from the other terminations in the MG.

Default: External

...

10.5 Procedures

...

- If <ReturnKey> is detected, any recorded audio is deleted. If the MG allocated the URI identifying the recorded audio segment the URI is deallocated. The <SuccessAnnouncement>, if any, is played and a PlayRecord Success event is generated indicating termination of the operation by <ReturnKey>.

- If <EndInputKey> is detected, the MG will terminate the recording. The <SuccessAnnouncement>, if any, is played and a PlayRecord Success event is generated indicating termination of the operation by <EndInputKey> and whether or not temporary audio has been recorded. If no temporary audio was recorded and the MG allocated the URI identifying the recorded audio segment the URI is deallocated.

Applications may support additional command key sequences beyond <RestartKey>, <ReinputKey>, <EndInputKey> and <ReturnKey>.

...

Failure of the MakePersistent signal must be reported as an appropriate error code in the response to the transaction invoking it. That is, the response must not be returned to the MGC until the outcome of the MakePersistent operation is known.

When the MGC sends a Modify Command containing a Signals Descriptor that no longer contains the playrec Signal along with a new Events Descriptor containing the audfail and precsucc Events, the MG should interpret this as a request to immediately halt recording and return precsucc if the recording succeeded or audfail if the recording failed.

The MGC may apply the parameter rd to control the MG which stream directions are recorded. When the "rd" value is "ext", the MG shall record the stream data from an external point of the MG to the context; and when the "rd" value is "int", the MG shall record the streams coming from the other terminations in the context.

...

11.5 Procedures

The transaction response for a request which includes signals of this package must not be returned until the outcome of the invoked operations is known. At that point, if an error occurs and one of the error codes defined in clause 7 is applicable, it should be used in the returned error descriptor.

12 Automatic Speech Recognition Package

Package Name: ASR Package

PackageID: asr (0x00a6)

Description: The ASR package provides a signal to play an ASR and an event to indicate failure of the play request. In connection with the latter, the package defines a return code and some possible values of that code.

Version: 1

Extends: None.

12.1 Properties

None.

12.2 Events

12.2.1 Automatic Speech Recognition Failure

Event Name: ASR Failure

EventID: asrfail (0x0001)

Description: A return code indicating why an ASR operation failed. This package adds the following codepoints for the return code returned by the ASR operation failure event:

625 user does not input

626 user input does not match grammar

627 grammar file does not exist or grammar file failed

628 syntax error

629 recognition error or timeout

12.2.1.1 EventDescriptor Parameters

None.

12.2.1.2 ObservedEventDescriptor parameters

Refer to signal of aasdc/audfail.

12.2.2 Automatic Speech Recognition Success

Event Name: ASR Success

EventID: asrsucc (0x0002)

Description: This event signifies the successful completion of playout of the ASR signal and successful recognition.

12.2.2.1 EventDescriptor Parameters

None.

12.2.2.2 ObservedEventDescriptor parameters

12.2.2.2.1 Automatic Speech Recognition Result

Parameter Name: ASR Result

ParameterID: asrr (0x0001)

Description: An octet string was generated by the ASR signal. The type may be the EMMA script or the other format.

Type: OctectString

Optional: No

Possible values: An octet text string describing the voice input,

For the H.248.1 text encoding the octet string shall be encoded according to the hexadecimal octet encoding as defined in Annex B.3/H.248.1.

NOTE – The hexadecimal octet encoding is used in order to ensure that the script can be carried without violating the H.248.1 VALUE syntax. Character escaping, such as ", would result in script pre-processing.

Default: None

12.2.2.2.2 Automatic Speech Recognition Result Format Type

Parameter Name: ASR Result Format Type

ParameterID: asrft (0x0002)

Description: Indicates the ASR result format type.

Type: Enumeration

Optional: Yes

Possible values: EMMA (0x0001): The type of result format is EMMA. EMMA can support multiple recognition results that are mutually exclusive. Only the speech-related section is used here. For example, the input modality is sole, medium = acoustic, mode = speech, function = speak, verbal = true. Each result may be able to be structured by multiple parts in time sequence with the input time, may be able to include the text token to which the value will correspond as defined by the SRGS grammar, may be able to include the interpretation of application-specific markup, may be able to include the confidence score that represents the recognition quality.

Other (0x0002): Other format, for further study.

Default: EMMA (0x0001)

12.3 Signals

12.3.1 Automatic Speech Recognition Start With Grammar Script

Signal Name: ASR Recognition With Grammar Script

SignalID: asrwgs (0x0001)

Description: This signal triggers the ASR function with grammar script.

SignalType: Brief

Duration: N/A

12.3.1.1 Additional parameters

12.3.1.1.1 Initial Prompt Announcement

Parameter Name: InitialPrompt

ParameterID: ip (0x0001)

Description: The initial announcement prompting the user to input voice. May consist of one or more audio segments. If not specified, ASR begins immediately.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. Support for optional aspects of that syntax, for this and the other announcement parameters, is indicated by the presence of the associated packages.

Default: None

12.3.1.1.2 Recognition Grammar Script

Parameter Name: Recognition Grammar Script

ParameterID: rgs (0x0002)

Description: This parameter indicates the ASR grammar. The content format of the ASR grammar shall comply with the SRGS format or other Format, etc.

Type: OctetString

Optional: No

Possible values: The grammar script conforming to the W3C SRGS or other grammar format.
For the H.248.1 text encoding, the octet string shall be encoded according to the hexadecimal octet encoding as defined in Annex B.3/H.248.1.
NOTE – The hexadecimal octet encoding is used in order to ensure that the script can be carried without violating the H.248.1 VALUE syntax. Character escaping, such as ", would result in script pre-processing.

Default: None

12.3.1.1.3 Recognition Grammar Script Type

Parameter Name: Recognition Grammar Script Type

ParameterID: rgst (0x0003)

Description: The recognition grammar script type indicates the recognition grammar script type.

Type: Enumeration

Optional: Yes

Possible values: SRGS (0x0001): W3C's Speech Recognition Grammar Specification Version 1 (SRGS).

Other (0x0002): User defined.

Default: SRGS (0x0001)

12.3.1.1.4 Recognition Grammar Script Format

Parameter Name: Recognition Grammar Script Format

ParameterID: rgsf (0x0004)

Description: This parameter indicates the grammar script form, includes ABNF and XML.

Type: Enumeration

Optional: Yes

Possible values: ABNF (0x0001): The script uses ABNF form.

XML (0x0002): The script uses XML form.

Default: ABNF (0x0001)

12.3.1.1.5 Recognition Mode

Parameter Name: Recognition Mode

ParameterID: rm (0x0005)

Description: Indicates which mode the speech recognizer will adopt.

Type: Enumeration

Optional: Yes

Possible values: Normal (0x0001): Normal mode recognition tries to match all of the speech against the grammar.

Hotword (0x0002): Hotword mode is where the recognizer looks for a match against a specific subset of speech grammar from the full spoken text.

Default: Normal (0x0001)

12.3.1.1.6 End Input Key

Parameter Name: End Input Key

ParameterID: eik (0x0006)

Description: Indicates to end the speech recognition. See clause 9.3.1.1.19 for further details.

Type: String

Optional: Yes

Possible values: Implementation dependent.

Default: None

12.3.1.1.7 Maximum Recognition Time

Parameter Name: Maximum Recognition Time

ParameterID: mrt (0x0007)

Description: Defines the maximum time to wait for recognition of speech, specified in units of 10 milliseconds. When the MG receives the user input, it shall start this timer. If timeout occurs, the MG returns the timeout error to the MGC.

Type: Integer

Optional: Yes

Possible values: Any integer greater than 0.

Default: None

12.3.1.1.8 Waiting Input Time

Parameter Name: Waiting Time for Input

ParameterID: wit (0x0008)

Description: Defines the time to wait to detect user input, specified in units of 10 milliseconds. If timeout occurs, the MG returns the timeout error to the MGC.

Type: Integer

Optional: Yes

Possible values: Any integer greater than 0.

Default: Provisioned

12.3.1.1.9 Recognition Precision

Parameter Name: Recognition Precision

ParameterID: ra (0x0009)

Description: Depending on the implementation and capability of the recognizer resource, it may be tunable towards performance or precision. Higher precision may mean more processing and higher CPU utilization, meaning fewer active sessions per server and vice versa. The value is an integer between 0 and 100. A value of 0 means fastest recognition. A value of 100 means best precision.

Type: Integer

Optional: Yes

Possible values: 0~100

Default: Provisioned

12.3.1.1.10 Recognition Sensitivity

Parameter Name: Recognition Sensitivity

ParameterID: rs (0x000a)

Description: To filter out background noise so that it is not mistaken for speech, the recognizer may support a variable level of sound sensitivity. The sensitivity level is an integer value between 0 and 100, if the sensitivity is higher, the result is affected less by the environment.

Type: Integer

Optional: Yes

Possible values: 0~100

Default: Provisioned

12.3.1.1.11 Record File

Parameter Name: Record File

ParameterID: rf (0x000b)

Description: The location to save the record: when voice-to-text conversion, the inputting voice can be recorded and saved.

Type: String

Optional: Yes

Possible values: The record file specification conforming to the syntax described in clause 6.

Default: None

12.3.1.1.12 Post Speech Timer

Parameter Name: PostSpeechTimer

ParameterID: pst (0x000c)

Description: The amount of silence necessary after the end of the speech, specified in units of 10 milliseconds.

Type: Integer

Optional: Yes

Possible values: 1 upwards.

Default: Provisioned

12.3.2 Automatic Speech Recognition Start with grammar identifier

Signal Name: ASR recognition with grammar identifier

SignalID: asrid (0x0002)

Description: This signal triggers the ASR function with grammar identifier.

SignalType: Brief

Duration: NA

12.3.2.1 Additional parameters

12.3.2.1.1 Initial Prompt Announcement

Parameter Name: InitialPrompt

ParameterID: ip (0x0001)

Description: The initial announcement prompting the user to input voice. May consist of one or more audio segments. If not specified, ASR begins immediately.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. Support for optional aspects of that syntax, for this and the other announcement parameters, is indicated by the presence of the associated packages.

Default: None

12.3.2.1.2 Recognition Grammar Identifier

Parameter Name: Recognition Grammar Identifier

ParameterID: rgid (0x0002)

Description: The parameter indicates the ASR grammar identifier. The identifier conforms to the syntax described in clause 6. The content format of the ASR grammar shall comply with the SRGS format or others.

Type: String

Optional: No

Possible values: The grammar identifier conforming to the syntax described in clause 6.

Default: None

12.3.2.1.3 Recognition Grammar Script Type

Parameter Name: Recognition Grammar Script Type

ParameterID: rgst (0x0003)

Description: The recognition grammar script type indicates the recognition grammar script type.

Type: Enumeration

Optional: Yes

Possible values: SRGS (0x0001): W3C's Speech Recognition Grammar Specification Version 1 (SRGS).

Other (0x0002): User defined.

Default: SRGS (0x0001)

12.3.2.1.4 Recognition Grammar Script Format

Parameter Name: Recognition Grammar Script Format

ParameterID: rgsf (0x0004)

Description: The recognition grammar script format indicates the grammar script form, includes ABNF and XML.

Type: Enumeration
Optional: Yes
Possible values: ABNF (0x0001): The script uses ABNF form.
XML (0x0002): The script uses XML form.
Default: ABNF (0x0001)

12.3.2.1.5 Recognition Mode

Parameter Name: Recognition Mode
ParameterID: rm (0x0005)
Description: Indicates which mode the speech recognizer will adopt.
Type: Enumeration
Optional: Yes
Possible values: Normal (0x0001): Normal mode recognition tries to match all of the speech against the grammar.
Hotword (0x0002): Hotword mode is where the recognizer looks for a match against a specific subset of speech grammar from the full spoken text.
Default: Normal (0x0001)

12.3.2.1.6 End Input Key

Parameter Name: End Input Key
ParameterID: eik (0x0006)
Description: Indicates to end the speech recognition. See clause 9.3.1.1.19 for further details.
Type: String
Optional: Yes
Possible values: Implementation dependent.
Default: None

12.3.2.1.7 Maximum Recognition Time

Parameter Name: Maximum Recognition Time
ParameterID: mrt (0x0007)
Description: Defines the maximum time to wait for recognition of speech, specified in units of 10 milliseconds. When the MG receives the user input, it shall start this timer. If timeout occurs, the MG returns the timeout error to the MGC.
Type: Integer
Optional: Yes
Possible values: Any integer greater than 0
Default: None

12.3.2.1.8 Waiting Input Time

Parameter Name: Waiting Time for Input
ParameterID: wit (0x0008)

Description: Defines the time to wait to detect user input, specified in units of 10 milliseconds. If timeout occurs, the MG returns the timeout error to the MGC.

Type: Integer

Optional: Yes

Possible values: Any integer greater than 0

Default: Provisioned

12.3.2.1.9 Recognition Precision

Parameter Name: Recognition Precision

ParameterID: ra (0x0009)

Description: Depending on the implementation and capability of the recognizer resource it may be tunable towards performance or precision. Higher precision may mean more processing and higher CPU utilization, meaning fewer active sessions per server and vice versa. The value is an integer between 0 and 100. A value of 0 means fastest recognition. A value of 100 means best precision.

Type: Integer

Optional: Yes

Possible values: 0~100

Default: Provisioned

12.3.2.1.10 Recognition Sensitivity

Parameter Name: Recognition Sensitivity

ParameterID: rs (0x000a)

Description: To filter out background noise so that it is not mistaken for speech, the recognizer may support a variable level of sound sensitivity. The sensitivity level is an integer value between 0 and 100, if the sensitivity is higher, the result is affected less by the environment.

Type: Integer

Optional: Yes

Possible values: 0~100

Default: Provisioned

12.3.2.1.11 Record File

Parameter Name: Record File

ParameterID: rf (0x000b)

Description: The location to save the record: when voice-to-text conversion, the inputting voice can be recorded and saved.

Type: String

Optional: Yes

Possible values: The record file specification conforming to the syntax described in clause 6.

Default: None

12.3.2.1.12 Post Speech Timer

Parameter Name: PostSpeechTimer

ParameterID: pst (0x000c)

Description: The amount of silence necessary after the end of the speech, specified in units of 10 milliseconds.

Type: Integer

Optional: Yes

Possible values: 1 upwards.

Default: Provisioned

12.4 Statistics

None.

12.5 Procedures

The MGC can instruct the MG to recognize the voice by this package. The MGC indicates to the MG to begin the ASR function with the parameters, such as grammar file name, waiting recognition time. The MG can report the ASR errors to the MGC. After the ASR function is finished, the result is notified to the MGC.

If the MGC sends to the MG the signal "asrid", the recognition grammar shall be a grammar identifier in the form of a URI.

If the MGC sends to the MG the signal "asrwgs", the recognition grammar shall be the SRGS or another script.

The two parameters of "rgst" and "rgsf" indicate to the MG the script type and form. The MG shall process the script according to two parameters. The default is SRGS with ABNF form.

If the grammar type is SRGS, the MGC may indicate the SRGS form (ABNF or XML) to the MG.

The MGC may indicate to the MG the SRGS script or the SRGS file identifier to start ASR. If the SRGS grammar is valid, the MG shall recognize the subscriber's input speech stream according to the SRGS grammar. When the MGC indicates to start ASR, the size of the SRGS script shall be limited to avoid segmentation. When the MGC finds the grammar size too large to be taken by a H.248 message, it shall indicate this by using the grammar file identifier, otherwise the MGC fails the process.

If the syntax of recognition grammar is in error, the MG shall return the error code 628.

If the parameter "recognition mode" is normal mode, the MG will try to match all of the speech against the grammar. If it is hotword mode, the MG shall look for a match against specific speech grammar. If the MG gets the recognition grammar failed, it shall return error code 627 to the MGC.

If the parameter "End Input Key" is set, when the corresponding key(s) is detected, the ASR is stopped and the recognized result is discarded.

If the subscriber does not input voice before the "Waiting Time for Input" timeout, the MG shall report the error code 625 to the MGC.

If the MG does not finish the recognition before the "Maximum Recognition Time" timeout, the MG shall report the error code 629 to the MGC.

If the "PostSpeechTimer" has timed out and the input has not been matched with the grammar, the MG shall report the error code 626 to the MGC.

The MGC shall set the parameter "Record File" to a valid URI string if recording is required.

13 Advanced Audio Server base package for TTS enhancement

Package Name: Advanced Audio Server base package enhancement

PackageID: aastts (0x00a8)

Description: The Advanced Audio Server (AAS) package for TTS enhancement provides a signal to play a TTS and an event to indicate failure of the playout request. In connection with the latter, the package defines a return code and possible values of that code.

Version: 1

Extends: None.

13.1 Properties

None.

13.2 Events

13.2.1 Audio operation failure

Event name: TTS operation failure

EventID: ttsfail (0x0001)

Description: Signifies the failure of a TTS operation subsequent to the return of the response to the transaction that invoked it.

13.2.1.1 EventDescriptor parameters

None.

13.2.1.2 ObservedEventDescriptor parameters

13.2.1.2.1 Return Code

Parameter Name: Return Code

ParameterID: rc (0x0001)

Description: A return code indicating why an Advanced Audio Server operation failed.

Type: Integer

Optional: No

Possible values: Failure return codes range from 600-699. Failure codes 600 to 617 report the same errors as the corresponding error codes in clause 7, except that the error conditions in the present case are detected after the transaction reply has been returned (the possibility of such post-reply errors is dependent on the implementation and the specific audio segments invoked).

618: SSML text syntax error.

Default: None

13.3 Signals

13.3.1 Play Segment Identifier

Signal name: Play Segment Identifier

SignalID: playsid (0x0001)
Description: Plays one or more TTS Segment Identifier(s).
SignalType: Defaults to BR (play continues until the specified or default number of iterations is completed).
Duration: Not applicable to BR signals.

13.3.1.1 Additional parameters

13.3.1.1.1 Announcement

ParameterID: an (0x0001)
Description: Text to be played. Consists of one or more text Segment Identifier(s). The content of the segment may be SSML format or may also be another text format. This is the only non-optional parameter for the Play Segment Identifier signal.
Type: String
Optional: No
Possible values: One or more segment identifiers adhering to the syntax described in clause 6.
Default: None

13.3.1.1.2 Segment Type

ParameterID: sgt (0x0002)
Description: Indicates the segment type.
Type: Enumeration
Optional: Yes
Possible values: SSML (0x0001): The segment type is SSML.
Other (0x0002): Other format, for further study.
Default: SSML (0x0001)

13.3.1.1.3 Iterations

ParameterID: it (0x0003)
Description: The maximum number of times an announcement is to be played.
Type: Integer
Optional: Yes
Possible values: As described below, playout may end before the specified number of iterations is completed if the signal type is set to TO and the limit set by the Duration parameter is reached first. A value of 0 (zero) indicates that the announcement is to be repeated until halted by other means, regardless of the number of iterations.
Default: 1

13.3.1.1.4 Interval

ParameterID: iv (0x0004)
Description: The interval of silence to be inserted between iterative plays. Specified in units of 10 milliseconds.

Type: Integer

Optional: Yes

Possible values: 0 upwards.

Default: None

13.3.1.1.5 Direction

ParameterID: di (0x0005)

Description: The direction parameter can be used to indicate the direction that the TTS is to be sent.

Type: Enumeration

Optional: Yes

Possible values: Ext (0x01): External indicates that the TTS is sent from the MG to an external point;

Int (0x02): Internal indicates that the TTS is played into the MG to the other terminations;

Both (0x03): Both indicates internal and external behaviour.

Default: Ext (0x01)

13.3.2 Play script

Signal name: Play script

SignalID: playscript (0x0002)

Description: Play a TTS script.

SignalType: Defaults to BR (play continues until the specified or default number of iterations is completed).

Duration: Not applicable to BR signals.

13.3.2.1 Additional parameters

13.3.2.1.1 Script

ParameterID: script (0x0001)

Description: Script to be played.

Type: Octet string

Optional: No

Possible values: A SSML script or other format script. The type of script is provided by the parameter "script type".

For the H.248.1 text encoding the octet string shall be encoded according to the hexadecimal octet encoding as defined in Annex B.3/H.248.1.

NOTE – The hexadecimal octet encoding is used in order to ensure that the script can be carried without violating the H.248.1 VALUE syntax. Character escaping such as " would result in script pre-processing.

Default: None

13.3.2.1.2 Script Type

ParameterID: sct (0x0002)

Description: The script type to be played.
Type: Enumeration
Optional: Yes
Possible values: SSML (0x0001): The type of script is SSML.
 Other (0x0002): Other Type (for extension).
Default: SSML (0x0001)

13.3.2.1.3 Iterations

ParameterID: it (0x0003)
Description: The maximum number of times a script is to be played.
Type: Integer
Optional: Yes
Possible values: As described below, playout may end before the specified number of iterations is completed if the signal type is set to TO and the limit set by the Duration parameter is reached first. A value of 0 (zero) indicates that the announcement is to be repeated until halted by other means regardless of the number of iterations.
Default: 1

13.3.2.1.4 Interval

ParameterID: iv (0x0004)
Description: The interval of silence to be inserted between iterative plays. Specified in units of 10 milliseconds.
Type: Integer
Optional: Yes
Possible values: 0 upwards.
Default: None

13.3.2.1.5 Direction

ParameterID: di (0x0005)
Description: The direction parameter can be used to indicate the direction that the TTS is to be sent.
Type: Enumeration
Optional: Yes
Possible values: Ext (0x01): External indicates that the TTS is sent from the MG to an external point.
 Int (0x02): Internal indicates that the TTS is played into the MG to the other terminations.
 Both (0x03): Both indicates internal and external behaviour.
Default: Ext (0x01)

13.4 Statistics

None.

13.5 Procedure

The MGC invokes aasts/playsid with at least the announcement parameter set to play out a specified TTS. TTS playout is subject to termination by events or new Signals descriptor settings in the normal way. If the signalType parameter is set to OO, this is the only way to end the TTS: the Duration and Iterations parameters are both ignored. If the signalType parameter is set to its default value of BR, Duration is ignored but the TTS will complete when the specified number of iterations has been played out. If the signalType parameter is set to TO, the TTS will complete at the earlier of the elapse of the time given by the Duration parameter (which must be specified) and the completion of playout of the number of iterations and intervening pauses specified by the Iterations parameter.

The MGC can use the standard signal NotifyCompletion capability to determine when and why playout has ended. For more detailed information on failures, the MGC should enable the Playout Failure event.

The aasts/playsid signal can be used as part of a prompted digit collection operation. The MGC must either enable individual DTMF digit events or a standard H.248.1 digit map as well as invoking aasts/playsid. When individual DTMF digit events are enabled, the MGC can, if required, set the event KeepActive flag so that prompting continues to completion even if the subscriber starts keying early. If the MGC determines that the subscriber has made an error or has not keyed anything, the MGC can reinvoke the aasts/playsid signal with new prompts as required.

If SSML format is used for TTS playout, the MG may execute the basic SSML elements and may ignore any non-supported SSML elements. The usage of the signal "aasts/playscript" is the same as aasts/playsid.

When the aasts/playscript signal is used, the MGC shall limit the size of SSML to avoid the segmentation, the MGC may remove unnecessary elements from the SSML.

14 Multimedia Play Package

Package Name: Multimedia Play Package

PackageID: mpp (0x00a9)

Description: Multimedia Play Package indicates that the playout is associated with multimedia rather than a single media audio playout. As the playout may result in media being played over several streams, the signal shall be played at a termination level only.

Version: 1

Extends: aasb (0x0033) version 2.

14.1 Properties

None.

14.2 Events

None.

14.3 Signals

14.3.1 Play

Signal name: Play

SignalID: play (0x0001)

Description: Plays one or more multimedia segments.

SignalType: Defaults to BR (play continues until the specified or default number of iterations is completed).

Duration: Not applicable to BR signals.

14.3.1.1 Additional parameters

14.3.1.1.1 Announcement

ParameterID: an (0x0001)

Description: An announcement to be played. Consists of one or more multimedia announcement segments. This is the only non-optional parameter for the Play signal.

Type: String

Optional: No

Possible values: A sequence of segment specifications adhering to the syntax described in clause 6. Support for optional elements of that syntax is indicated by the presence of the corresponding packages on the termination.

Default: None

14.3.1.1.2 Iterations

ParameterID: it (0x0002)

Description: The maximum number of times a multimedia announcement is to be played.

Type: Integer

Optional: Yes

Possible values: As described below, playout may end before the specified number of iterations is completed if the signal type is set to TO and the limit set by the Duration parameter is reached first. A value of 0 (zero) indicates that the multimedia announcement is to be repeated until halted by other means regardless of the number of iterations.

Default: 1

14.3.1.1.3 Interval

ParameterID: iv (0x0003)

Description: The interval of silence to be inserted between iterative plays. Specified in units of 10 milliseconds.

Type: Integer

Optional: Yes

Possible values: 0 upwards.

Default: None

14.3.1.1.4 Speed

ParameterID: sp (0x0004)

Description: The relative playback speed of multimedia announcement, specifiable as a positive (faster) or negative (slower) percentage variation from the normal playback speed. Actual playback speed as a percentage of normal speed is equal to the value of this parameter plus 100.

Type: Integer

Optional: Yes

Possible values: -99 upwards.

Default: 0

14.3.1.1.5 Volume

ParameterID: vl (0x0005)

Description: The relative playback volume of the audio component of a multimedia announcement, specifiable as a positive (louder) or negative (quieter) decibel variation from the normal playback volume.

Type: Integer

Optional: Yes

Possible values: Implementation dependent.

Default: 0

14.3.1.1.6 Announcement Direction

ParameterID: di (0x0006)

Description: The direction parameter can be used to indicate the direction that the multimedia announcement is to be sent.

Type: Enumeration

Optional: Yes

Possible values: Ext (0x01): External indicates that the multimedia announcement is sent from the MG to an external point,

Int (0x02): Internal indicates that the announcement is played into the MG to the other terminations,

Both (0x03): Both indicates internal and external behaviour.

Default: Ext (0x01)

14.3.1.1.7 Brightness

ParameterID: btn (0x0007)

Description: The relative playback brightness of video in multimedia, specifiable as a positive (brighter) or negative (darker) variation from the normal playback brightness. Actual playback brightness of normal brightness is equal to 0, the scope of value is -99~99.

Type: Integer

Optional: Yes

Possible values: -99 to 99

Default: 0

14.3.1.1.8 Contrast

ParameterID: ctn (0x0008)

Description: The relative playback contrast of video in multimedia, specifiable as a positive (clearer) or negative (fainter) variation from the normal playback contrast. Actual playback contrast as a percentage of normal contrastness is equal to 0, the scope of value is -99~99.

Type: Integer

Optional: Yes

Possible values: -99 to 99

Default: 0

14.4 Statistics

None.

14.5 Error Codes

None.

14.6 Procedures

The procedures are the same as aasb. This extension package designates that the play signal relates to multimedia content rather than aasb, which relates to audio playout only. The type of multimedia file to be played shall be determined from the file extension given in an announcement segment as defined in clause 6.1.4.

15 Multimedia Recording Package

Package Name: Multimedia Recording Package

PackageID: mrp (0x00b3)

Description: The Multimedia Recording Package indicates that the recording is associated with multimedia rather than a single media audio recording.

Version: 1

Extends: aasrec (0x0035) version 2.

15.1 Properties

None.

15.2 Events

None.

15.3 Signals

15.3.1 PlayRecord

Signal name: PlayRecord

SignalID: playrec (0x0002)

Description: Records a multimedia segment.

SignalType: Defaults to TO.

Duration: Defaults to 30000 (5 minutes) or as provisioned for the termination.

15.3.1.1 Additional parameters

15.3.1.1.1 Initial Prompt

Parameter Name: InitialPrompt

ParameterID: ip (0x0001)

Description: The initial announcement prompting the user to speak for the record. May consist of one or more multimedia segments.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. Support for optional aspects of that syntax, for this and the other announcement parameters, is indicated by the presence of the associated packages on the termination. If not specified, the MG proceeds to the recording phase immediately.

Default: None

15.3.1.1.2 No Speech Prompt

Parameter Name: NoSpeechPrompt

ParameterID: ns (0x0002)

Description: Played after the user has failed to speak following a prompt. Consists of one or more multimedia segments.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. Defaults to InitialPrompt.

Default: None

15.3.1.1.3 Success of Announcement

Parameter Name: SuccessAnnouncement

ParameterID: sa (0x0003)

Description: Played when recording has succeeded. Consists of one or more multimedia segments.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. No announcement is played if this parameter is unspecified.

Default: None

15.3.1.1.4 Failure Announcement

Parameter Name: FailureAnnouncement

ParameterID: fa (0x0004)

Description: Played when all recording attempts have failed. Consists of one or more multimedia segments.

Type: String

Optional: Yes

Possible values: Any announcement specification conforming to the syntax described in clause 6. No announcement is played if this parameter is unspecified.

Default: None

15.3.1.1.5 Maximum Number of Attempts

Parameter Name: MaxAttempts

ParameterID: mxatt (0x0005)

Description: The maximum number of prompts the user is given to speak. Prompts resulting from use of <RestartKey> are not included. If <MaxAttempts> is reached, <FailureAnnouncement> is played out if specified and an Audio Operation Failure event is generated with return code 622 "No Speech".

Type: Integer

Optional: Yes

Possible values: 1 upwards.

Default: None

15.3.1.1.6 Pre-Speech Timer

Parameter Name: PreSpeechTimer

ParameterID: prt (0x0006)

Description: The amount of time to wait for the user to initially speak. Specified in units of 10 milliseconds.

Type: Integer

Optional: No

Possible values: 1 upwards

Default: None

15.3.1.1.7 Post Speech Timer

Parameter Name: PostSpeechTimer

ParameterID: pst (0x0007)

Description: The amount of silence necessary after the end of the last speech segment for the recording to be considered complete. Specified in units of 10 milliseconds. Once the PostSpeechTimer period has elapsed, the MG plays out <SuccessAnnouncement> if it has been specified and generates a PlayRecord Success event indicating normal termination.

Type: Integer

Optional: No

Possible values: 1 upwards.

Default: None

15.3.1.1.8 Record Length Timer

Parameter Name: RecordLengthTimer

ParameterID: rlt (0x0008)

Description: The maximum allowable length of the recording, not including pre- or post-speech silence. Specified in units of 10 milliseconds. Once the recording length exceeds (RecordLengthTimer – PostSpeechTimer), the MG plays out <SuccessAnnouncement> if it has been specified and generates a PlayRecord Success event indicating truncation of the recording. A value of 0 (zero) means there is no limit to the recording length. The recording is open-ended, and it is up to the application to manage the storage used by the recording.

Type: Integer

Optional: No

Possible values: 0 upwards.

Default: None

15.3.1.1.9 Recording Identifier

Parameter Name: RecordingIdentifier

ParameterID: rid (0x0009)

Description: Specifies a URI to be assigned to the physical segment which is to be recorded by the playrec event. If this parameter is set to the CHOOSE wildcard, "\$", the Multimedia Server will allocate the URI, associate it with the newly recorded segment, and return it to the call agent with the OperationComplete event. This parameter is mandatory.

Type: String

Optional: No

Possible values: Either "\$" or a physical segment identifier satisfying the syntax of 6.2.5.2. If the identifier is an http:// URL, it must not have a query part.

Default: None

15.3.1.1.10 Speed

Parameter Name: Speed

ParameterID: sp (0x000a)

Description: The relative playback speed of each prompt, specifiable as a positive (faster) or negative (slower) percentage variation from the normal playback speed. Actual playback speed as a percentage of normal speed is equal to the value of this parameter plus 100.

Type: Integer

Optional: Yes

Possible values: –99 upwards.

Default: 0

15.3.1.1.11 Volume

Parameter Name: Volume

ParameterID: vl (0x000b)

Description: The relative playback volume of each prompt specifiable as a positive (louder) or negative (quieter) decibel variation from the normal playback volume.

Type: Integer

Optional: Yes

Possible values: Implementation dependent.

Default: 0

15.3.1.1.12 Offset

Parameter Name: Offset

ParameterID: off (0x000c)

Description: Specifies the offset into the initial prompt at which to start playing. A positive offset is the offset going forward from the beginning of the prompt. A negative offset is the offset going backwards from the end of the prompt. Offsets are specified in 10 millisecond units.

Offsets are useful to allow the user to skip back and forward through a prompt, particularly when that prompt is actually a user recording being played back.

Type: Integer

Optional: Yes

Possible values: 0, positive, or negative. The absolute value cannot exceed the length of the initial prompt.

Default: 0

15.3.1.1.13 Restart Key

Parameter Name: RestartKey

ParameterID: rsk (0x000d)

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: discard any recording made up to the point where the command sequence was entered, replay the prompt, and reattempt to detect and record speech. The reprompt forced by this key does not count against the number of attempts specified by the MaxAttempts parameter.

Type: String

Optional: Yes

Possible values: A sequence of one or more characters from the set 0-9, A-D or a-d, *, and # representing DTMF digits. Default is no sequence defined (may be overridden by provisioning).

Default: None

15.3.1.1.14 Reinput Key

Parameter Name: ReinputKey

ParameterID: rik (0x000e)

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: discard any

recording collected up to the point of input of the command sequence and reattempt to detect and record speech without playing a new prompt.

Type: String

Optional: Yes

Possible values: A sequence of one or more characters from the set 0-9, A-D or a-d, *, and # representing DTMF digits.

Default: None

15.3.1.1.15 Return Key

Parameter Name: ReturnKey

ParameterID: rtk (0x000f)

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: terminate the current recording attempt and delete any speech recorded to this point, play <SuccessAnnouncement> if specified, and generate a PlayRecord Success event indicating that the operation was terminated by <ReturnKey>. During a recording, all digits except for the restart, reinput, endinput and return keys (if defined) are ignored and become part of the recording.

Type: String

Optional: Yes

Possible values: A sequence of one or more characters from the set 0-9, A-D or a-d, *, and # representing DTMF digits.

Default: None

15.3.1.1.16 EndInput Key

Parameter Name: EndInputKey

ParameterID: eik (0x0010)

Description: Defines a key sequence consisting of a command key optionally followed by zero or more keys. This key sequence has the following action: terminate the current recording attempt, play <SuccessAnnouncement> if specified, and generate a PlayRecord Success event indicating that the operation was terminated by <EndInputKey>.

Type: String

Optional: Yes

Possible values: A sequence of one or more characters from the set 0-9, A-D or a-d, *, and # representing DTMF digits.

Default: None

15.3.1.1.17 Record Direction

Parameter Name: Record Direction

ParameterID: rd (0x0011)

Description: The record direction indicates the direction that the multimedia streams are to be received.

Type: Enumeration

Optional: Yes

Possible values: Ext (0x01): External indicates that recording is on the media which is received from an external point to the MG;

Int (0x02): Internal indicates that recording is on the media received from the other terminations in the MG.

Default: Ext (0x01)

15.4 Statistics

None.

15.5 Error Codes

None.

15.6 Procedures

The procedures are the same as aasrec. This extension package designates that the play signal relates to multimedia content rather than aasrec that relates to audio playout only. The type of multimedia file to be recorded shall be determined from the file extension given in an announcement segment as defined in clause 6.1.4.

Some prompt parameters (e.g., InitialPrompt, NoSpeechPrompt, SuccessAnnouncement) may be multimedia announcement segment.

Typically there are both audio streams and video streams in a multimedia session. If the mrp/playrec signal is used on a termination level, all audio and video streams on that termination should be recorded. If it is used at a stream level, then only the stream it is played on is recorded.

The MGC may apply the parameter rd to control which stream directions the MG is to record. When the "rd" value is "ext", the MG shall record the stream data from an external point of the MG to the context; and when the "rd" value is "int", the MG shall record the streams coming from the other terminations in the context.

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