

IPhone URL

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Abstract

This memo describes IPhone URL, which is employed for Internet telephone using NOTASIP protocol.

1. Introduction

In NOTASIP protocol [[NOTASIP](#)], end hosts does not negotiate each other for information on CODEC, UDP port number of a callee host, etc. Such information is written in Internet Phone (IPhone) URL in advance. IPhone URL provides NOTASIP with sufficient information for calling.

IPhone URL is defined with referring to Session Description Protocol (SDP) [[RFC2327](#)] and simplifying SDP.

2. Syntax

```

iphoneurl  = "iphone:" hostport [ "/" [ formats | media *[ "," media ] ] ]

formats    = format | formats "," format
format     = digits | encodingname [ ":" clockrate
                               [ ":" encodingparameter ] ]

media      = medium *[ "&" attribute ] *[ "&" medium *[ "&" attribute ] ]

medium     = rtpmedium
rtpmedium  = "m=rtp:" port ":" payloadtype
payloadtype = format | dynamicpayloadtype ":" format
dynamicpayloadtype = digits

encodingname = 1*unreserved
clockrate    = digits
encodingparameter = digits

attribute    = dtmfattr

dtmfattr    = "a=dtmf:" dtmfdigits
dtmfdigits  = 1*[ digit | "*" | "#" | "u" | "p" ]

```

Refer to [[RFC1738](#)] for undefined symbols.

3. Semantics

"hostport" indicates an IP address or DNS name of a callee host, and can also indicate a port number. A port number specified by "hostport" is used as long as "medium" indicates no port number. If a port number is not specified in "hostport" or "medium", XXXX (to be defined by IANA) is used instead.

There are two types of indications. One uses just "formats" and the other uses "media".

If both of "formats" and "media" that follow "/" are omitted, formats 0(PCMU=G.711mulaw, 64Kbps) and 5(DVI4=DVI ADPCM Wave Type, 32Kbps) are regarded to be available.

3.1 Simple Indication Just by "formats"

"formats" indicates one or more formats (payload types, encoding methods) determined by a callee. A caller specifies one of them when calling.

"format" is one of the formats defined in RTP/AVP [[RFC1890](#)], and it is specified by digit", or by "encodingname", "clockrate" and "encodingparameter"s. When digits are used, the value must be from 0 to 127. (Note that there is the name "1016" as a encoding name, this is distinguished from the range of the value.) "clockrate" is a clock rate, and the meanings of "encodingparameter"s are depend on "encodingname." However, for audio streams, the first "encodingparameter" is the number of channels by default, according to [RFC2327](#). If "encodingname" cannot uniquely identify a encoding method (e.g. DVI4), "clockrate" and/or "encodingparameter" must be also specified.

When "format" is used as an encoding method, the payload type is set to the value of the encoding method indicated by "format", which is defined in [RFC2327](#).

[3.2](#) Advanced Indication by "Media"

"Media" consists of "medium" and 0 or more "attribute"s. When multiple "media" are specified with divided by ",", the caller selects one of "media" and makes a call. The URL must be written so that the callee can judge which "media" is specified by the port number and/or the payload type that the caller specified.

"Medium" makes a port number to correspond to an encoding method. "rtppmedium" that employs RTP is currently defined.

"Rtppmedium" means that the payload type is set to the value indicated by "payloadtype" and send at the port number indicated by "port".

"Payloadtype" consists of just "format" or a pair of "dynamicpayloadtype" and "format". The latter is the way to assign a payload type dynamically.

If just "format" is specified, then the encoding method is what the format indicates, and the payload type in RTP packets is the value of the format.

If "dynamicpayloadtype" and "format" are specified, the encoding method is what "format" indicates, and the payload type in RTP packets is "dynamicpayloadtype".

"attribute" is an attribute of "media", and "dtmfattr" are currently defined.

If "dtmfattr" exists, after a stream of a "media" that precedes the "dtmfattr" is established, "dtmfdigits" are sent by DTMF tone using one of "format"s in the "media". There are special tones represented

by "u" and "p". "u" means a user number, and "p" means a PIN, respectively. If these numbers are registered in a caller host, and the caller host finds "u" and/or "p" in a URL, then it sends these numbers by DTMF tone.

4. Examples

1. `iphone://130.54.0.1:10000`
2. `iphone://130.54.0.1:10000/0,5`
3. `iphone://phone.ooi.co.jp/m=rtp:10000:0,m=rtp:10000:5`
4. `iphone://phone.ooi.co.jp/m=rtp:10000:0&a=dtmf:1234`
5. `iphone://130.54.0.1/m=rtp:9001:26`
6. `iphone://130.54.0.1/m=rtp:9001:JPEG`
7. `iphone://130.54.0.1/m=rtp:9001:100:JPEG:30`
8. `iphone://130.54.0.1/m=rtp:9000:5,
m=rtp:9000:99:DVI4:8000&m=rtp:9001:100:JPEG:8000`

Both of #1 and #2 examples mean that an IP address is 192.168.0.250, a port number is 10000, and encoding methods are PCMU (0) and DVI4 (5).

#3 is the same as the 1st and the 2nd, except that a DNS name is applied instead of an IP address, and different notation is used.

#4 specifies to send 1234 by DTMF tone after stream establishment.

#5 and #6 is the same. They send JPEG stream. Here, payload type 26 means JPEG. The default clockrate is 90kHz according to [RFC2035](#). Note that the frame rate can be determined by means of checking the received RTP packets.

#7 sends JPEG stream with setting the payload type number to 100 and the clock rate to 30.

#8 enables to select an audio stream only or both of audio and video streams. In the case of an audio stream only, the stream is sent to the port number of 9000 with the payload type of 5. In the case of both audio and video streams, the audio stream is sent with the port number of 9000, the payload type of 99 and the format of DVI4 8kHz, and the video stream is sent with the port number of 9001, the payload type of 100 and the format of JPEG. (Here, for synchronization, the clock rate of JPEG stream is adjusted to 8kHz. For instance, a JPEG stream becomes 29.96 fps by means of adding 267 to the time stamp for each frame.)

9. References

[NOTASIP] Ohta, M., and Fujikawa, K., "Nothing Other Than A Simple Internet Phone (NOTASIP)", Internet Draft [draft-ohta-notasip-03.txt](#) (work in progress), October 2001.

[RFC2327] Handley, M. and Jacobson, V., ``SDP: Session Description Protocol,`` [RFC 2327](#), November 1997.

[RFC1738] Berners-Lee, T., Masinter, L., McCahill, M., "Uniform Resource Locators (URL)", [RFC 1738](#), December 1994.

[RFC1890] Schulzrinne, H., "RTP Profile for Audio and Video Conferences with Minimal Control", [RFC 1890](#), January 1996.

Security Considerations

No security issues are addressed in this document.

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