Network Working Group
Request for Comments: 3485
Category: Standards Track

M. Garcia-Martin
Ericsson
C. Bormann
J. Ott
TZI/Uni Bremen
R. Price
Siemens/Roke Manor
A. B. Roach
dynamicsoft

February 2003

The Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Static Dictionary for Signaling Compression (SigComp)

Status of this Memo

Copyright Notice

Abstract

The Session Initiation Protocol (SIP) is a text-based protocol for initiating and managing communication sessions. The protocol can be compressed by using Signaling Compression (SigComp). Similarly, the Session Description Protocol (SDP) is a text-based protocol intended for describing multimedia sessions for the purposes of session announcement, session invitation, and other forms of multimedia session initiation. This memo defines the SIP/SDP-specific static dictionary that SigComp may use in order to achieve higher efficiency. The dictionary is compression algorithm independent.

Table of Contents

1. Introduction

SIP [3] and SDP [24] are text-based protocols that use the UTF-8 charset (RFC 2279 [5]). SIP and SDP were designed for rich bandwidth links. However, when SIP/SDP is run over narrow bandwidth links, such as radio interfaces or low speed serial links, the session setup time increases substantially, compared to an operation over a rich bandwidth link.

The session setup time can decrease dramatically if the SIP/SDP signaling is compressed. The signaling compression mechanisms specified in SigComp [1] provide a multiple compression/decompression algorithm framework to compress and decompress text-based protocols such as SIP and SDP.

When compression is used in SIP/SDP, the compression achieves its maximum rate once a few message exchanges have taken place. This is due to the fact that the first message the compressor sends to the decompressor is only partially compressed, as there is not a previous stored state to compress against. As the goal is to reduce the session setup time as much as possible, it seems sensible to investigate a mechanism to boost the compression rate from the first message.

In this memo we introduce the static dictionary for SIP and SDP. The dictionary is to be used in conjunction with SIP, SDP and SigComp. The static SIP/SDP dictionary constitutes a SigComp state that can be referenced in the first SIP message that the compressor sends out.

2. Design considerations

The static SIP/SDP dictionary is a collection of well-known strings that appear in most of the SIP and SDP messages. The dictionary is not a comprehensive list of reserved words, but it includes many of the strings that appear in SIP and SDP signaling.

The static dictionary is unique and MUST be available in all SigComp implementations for SIP/SDP. The dictionary is not intended to evolve as SIP or SDP evolve. It is defined once, and stays as is forever. This solves the problems of updating, upgrading and finding out the dictionary that is supported at the remote end when several versions of the same dictionary coexist.

Appendix A contains the collection of strings that SIP contributed to the static dictionary. The appendix includes references to the documents that define those strings.

Appendix B contains the collection of strings that SDP contributed to the static dictionary. Again, the appendix includes references to the documents that define those strings.

While these appendices are of an informative nature, Section 3 gives the normative binary form of the SIP/SDP dictionary. This is the dictionary that is included in the SigComp implementation. This dictionary has been formed from the collection of individual dictionaries given in appendices A and B.

The two input collections are collections of UTF-8 encoded character strings. In order to facilitate the readability, the appendices describe them in one table for each collection. In these tables, each row represents an entry. Each entry contains the string that actually occurs in the dictionary, its priority (see below), its offset from the first octet and its length (both in hexadecimal), and one or more references that elucidate why this string is expected to occur in SIP/SDP messages. Note: Length in this document always refers to octets.

The columns in the tables are described as follows:

String: represents the UTF-8 string that is inserted into the dictionary. Note that the quotes (") are not part of the string itself. Note also that the notation [CRLF] represents a Carriage Return character (ASCII code 0x0D) followed by a Line Feed character (ASCII code 0x0A).

Pr: indicates the priority of this string within the dictionary. Some compression algorithms, such as DEFLATE, offer an increased efficiency when the most commonly used strings are located at the bottom of the dictionary. To facilitate generating a dictionary that has the most frequently occurring strings further down at the bottom, we have decided to allocate a priority to each string in the dictionary. Priorities range from 1 until 5. A low number in the priority column (e.g., 1) indicates that we believe in a high probability of finding the string in SIP or SDP messages. A high number in the priority column (e.g., 5) indicates lower probability of finding the string in a SIP or SDP message. This is typically the case for less frequent error codes or optional infrequent tags.

Off: indicates the hexadecimal offset of the entry with respect to the first octet in the dictionary. Note that several strings in the collections can share space in the dictionary if they exhibit suitable common substrings.

Len: the length of the string (in octets, in hexadecimal).

References: contains one or more references to the specification and the section within the specification where the string is defined.

Note that the strings stored in the dictionary are case sensitive. (Again, the strings do not comprise the quotes ("), they are just shown here to increase the readability.) Where the string is a header field, we also included the colon ":" and the amount of white space expected to occur. Note that this means that not all messages that conform to the SIP Augmented BNF, which allows other combinations (e.g., a white space or horizontal tabulator before the colon (":") sign), will benefit as much from the dictionary -- the best increase in compression performance is to be expected for messages that use the recommended formatting guidelines for SIP.

Some strings appear followed by an equal sign and some others do not. This depends on whether the string is part of a parameter name or a parameter value.

In a SIP message, all the SIP headers terminate with a CRLF pair of characters. As these characters are appended to the end of each SIP header line, right after the header values, and because the header values are typically not part of the static SIP dictionary, we cannot include the terminating CRLF as part of the SIP static dictionary. Instead, the approach we have taken is to include in each header field entry the CRLF from the previous line that prefixes every header field. We have represented CRLF by the notation [CRLF]. Therefore, in generating the actual binary dictionary, an entry in the dictionary represented as: "[CRLF]From: " has been interpreted as

an entry whose value is CR, LF, the word From, a colon and a whitespace.

Note that most SIP header field names are included with the full string from CRLF to the colon-blank pair. However, in certain situations, when the likelihood of occurrence is not considered high (as indicated by a priority value of 3 to 5), and when there are common substrings shared by a number of headers, we have added one entry with the common substring and several entries with the non-common substrings remaining. An example is the "Proxy-Authenticate" and "Proxy-Authorization" headers. There are three entries in the dictionary: the common substring "[CRLF]Proxy-", and the non-common substrings "Authenticate: " and "Authorization: ". This allows the re-use of the non-common substrings by other entries and may save a number of bytes in the binary form of the dictionary. Note that this splitting mechanism does not apply with strings that are likely to occur very often (those whose priority is set to 1 or 2).

SIP responses start with a status code (e.g., "302") and a reason phrase (e.g., "Moved Temporarily"). The status code is a normative part, whereas the reason phrase is not normative, it is just a suggested text. For instance, both "302 Moved Temporarily" and "302 Redirect" are valid beginnings of SIP responses.

In the SIP dictionary we have included two entries per response code, one including only the status code and a space (e.g., "302 ") and another one including both the status code and the suggested reason phrase (e.g., "302 Moved Temporarily"). The former can be used when the SIP response changed the suggested reason phrase to another one. The latter can be used when the suggested reason phrase is part of the response. In this way, we accommodate both alternatives. (Note that in the actual dictionary, both strings occupy the same space in the string subset, but have two separate entries in the table subset.)

3. Binary representation of the SIP/SDP dictionary

This section contains the result of combining the SIP and the SDP dictionaries described in appendices A and B in order to create a single dictionary that is loaded into SigComp as a state.

The binary SigComp dictionary is comprised of two parts, the concatenation of which serves as the state value of the state item: A string subset, which contains all strings in the contributing collections as a substring (roughly ordered such that strings with low priority numbers occur at the end), and a table subset, which contains pairs of length and offset values for all the strings in the contributing collections. In each of these pairs, the length is

stored as a one-byte value, and the offset is stored as a two-byte value that has had 1024 added to the offset (this allows direct referencing from the stored value if the dictionary state has been loaded at address 1024).

The intention is that all compression algorithms will be able to use the (or part of the) string subset, and some compression methods, notably those that are related to the LZ78 family, will also use the table in order to form an initial set of tokens for that compression method. The text below therefore gives examples for referencing both the table subset and the string subset of the dictionary state item.

As defined in section 3.3.3 in the Signaling Compression specification [1], a SigComp state is characterized by a certain set of information. For the static SIP/SDP dictionary, the information in the following Table 1 fully characterizes the state item.

Note that the string subset of the dictionary can be accessed using:

```
STATE-ACCESS (%ps, 6, 0, 0x0D8C, %sa, 0),
```

and the table subset can be accessed using:

```
STATE-ACCESS (%ps, 6, 0x0D8C, 0x0558, %sa, 0),
```

where %ps points to UDVM memory containing

```
0xfbe507dfe5e6
```

and %sa is the desired destination address in UDVM memory (with UDVM byte copying rules applied).

If only a subset of the dictionary up to a specific priority is desired (e.g., to save UDVM space), the values for the third and forth operand in these STATE-ACCESS instructions can be changed to:

Priorities desired	String offset	String length	Table offset	Table length
1 only	0x0CB2	0x00DA	0x0D8C	0x003F
1..2	0x0920	0x046C	0x0D8C	0x0147
1..3	0x07B8	0x05D4	0x0D8C	0x01A7
1..4	0x0085	0x0D07	0x0D8C	0x044A
1..5	0x0000	0x0D8C	0x0D8C	0x0558

The state item consists of the following elements:

Name:	Value:
state_identifier	0xfbe507dfe5e6aa5af2abb914ceaa05f99ce61ba5
state_length	0x12E4
state_address	0 (not relevant for the dictionary)
state_instruction	0 (not relevant for the dictionary)
minimum_access_length	6
state_value	Representation of the table below.

```
0000  0d0a 5265 6a65 6374 2d43 6f6e 7461 6374  ..Reject-Contact
0010  3a20 0d0a 4572 726f 722d 496e 666f 3a20  : ..Error-Info:
0020  0d0a 5469 6d65 7374 616d 703a 200d 0a43  ..Timestamp: ..C
0030  616c 6c2d 496e 666f 3a20 0d0a 5265 706c  all-Info: ..Repl
0040  792d 546f 3a20 0d0a 5761 726e 696e 673a  y-To: ..Warning:
0050  200d 0a53 7562 6a65 6374 3a20 3b68 616e   ..Subject: ;han
0060  646c 696e 673d 696d 6167 653b 7075 7270  dling=image;purp
0070  6f73 653d 3b63 6175 7365 3d3b 7465 7874  ose=;cause=;text
0080  3d63 6172 6433 3030 204d 756c 7469 706c  =card300 Multipl
0090  6520 4368 6f69 6365 736d 696d 6573 7361  e Choicesmimessa
00A0  6765 2f73 6970 6672 6167 3430 3720 5072  ge/sipfrag407 Pr
00B0  6f78 7920 4175 7468 656e 7469 6361 7469  oxy Authenticati
00C0  6f6e 2052 6571 7569 7265 6469 6765 7374  on Requiredigest
00D0  2d69 6e74 6567 7269 7479 3438 3420 4164  -integrity484 Ad
00E0  6472 6573 7320 496e 636f 6d70 6c65 7465  dress Incomplete
00F0  6c65 7068 6f6e 652d 6576 656e 7473 3439  lephone-events49
0100  3420 5365 6375 7269 7479 2041 6772 6565  4 Security Agree
0110  6d65 6e74 2052 6571 7569 7265 6465 6163  ment Requiredeac
0120  7469 7661 7465 6434 3831 2043 616c 6c2f  tivated481 Call/
0130  5472 616e 7361 6374 696f 6e20 446f 6573  Transaction Does
0140  204e 6f74 2045 7869 7374 616c 653d 3530   Not Existale=50
0150  3020 5365 7276 6572 2049 6e74 6572 6e61  0 Server Interna
0160  6c20 4572 726f 726f 6275 7374 2d73 6f72  l Errorobust-sor
0170  7469 6e67 3d34 3136 2055 6e73 7570 706f  ting=416 Unsuppo
0180  7274 6564 2055 5249 2053 6368 656d 6572  rted URI Schemer
0190  6765 6e63 7934 3135 2055 6e73 7570 706f  gency415 Unsuppo
01A0  7274 6564 204d 6564 6961 2054 7970 656e  rted Media Typen
01B0  6469 6e67 3438 3820 4e6f 7420 4163 6365  ding488 Not Acce
01C0  7074 6162 6c65 2048 6572 656a 6563 7465  ptable Herejecte
01D0  6434 3233 2049 6e74 6572 7661 6c20 546f  d423 Interval To
01E0  6f20 4272 6965 6672 6f6d 2d74 6167 512e  o Briefrom-tagQ.
01F0  3835 3035 2056 6572 7369 6f6e 204e 6f74  8505 Version Not
0200  2053 7570 706f 7274 6564 3430 3320 466f   Supported403 Fo
0210  7262 6964 6465 6e6f 6e2d 7572 6765 6e74  rbiddenon-urgent
0220  3432 3920 5072 6f76 6964 6520 5265 6665  429 Provide Refe
0230  7272 6f72 2049 6465 6e74 6974 7934 3230  rror Identity420
0240  2042 6164 2045 7874 656e 7369 6f6e 6f72   Bad Extensionor
```

```
0250  6573 6f75 7263 650d 0a61 3d6b 6579 2d6d  esource..a=key-m
0260  676d 743a 6d69 6b65 794f 5054 494f 4e53  gmt:mikeyOPTIONS
0270  204c 616e 6775 6167 653a 2035 3034 2053   Language: 504 S
0280  6572 7665 7220 5469 6d65 2d6f 7574 6f2d  erver Time-outo-
0290  7461 670d 0a41 7574 6865 6e74 6963 6174  tag..Authenticat
02A0  696f 6e2d 496e 666f 3a20 4465 6320 3338  ion-Info: Dec 38
02B0  3020 416c 7465 726e 6174 6976 6520 5365  0 Alternative Se
02C0  7276 6963 6535 3033 2053 6572 7669 6365  rvice503 Service
02D0  2055 6e61 7661 696c 6162 6c65 3432 3120   Unavailable421
02E0  4578 7465 6e73 696f 6e20 5265 7175 6972  Extension Requir
02F0  6564 3430 3520 4d65 7468 6f64 204e 6f74  ed405 Method Not
0300  2041 6c6c 6f77 6564 3438 3720 5265 7175   Allowed487 Requ
0310  6573 7420 5465 726d 696e 6174 6564 6175  est Terminatedau
0320  7468 2d69 6e74 6572 6c65 6176 696e 673d  th-interleaving=
0330  0d0a 6d3d 6170 706c 6963 6174 696f 6e20  ..m=application
0340  4175 6720 3531 3320 4d65 7373 6167 6520  Aug 513 Message
0350  546f 6f20 4c61 7267 6536 3837 2044 6961  Too Large687 Dia
0360  6c6f 6720 5465 726d 696e 6174 6564 3330  log Terminated30
0370  3220 4d6f 7665 6420 5465 6d70 6f72 6172  2 Moved Temporar
0380  696c 7933 3031 204d 6f76 6564 2050 6572  ily301 Moved Per
0390  6d61 6e65 6e74 6c79 6d75 6c74 6970 6172  manentlymultipar
03A0  742f 7369 676e 6564 0d0a 5265 7472 792d  t/signed..Retry-
03B0  4166 7465 723a 2047 4d54 6875 2c20 3430  After: GMThu, 40
03C0  3220 5061 796d 656e 7420 5265 7175 6972  2 Payment Requir
03D0  6564 0d0a 613d 6f72 6965 6e74 3a6c 616e  ed..a=orient:lan
03E0  6473 6361 7065 3430 3020 4261 6420 5265  dscape400 Bad Re
03F0  7175 6573 7472 7565 3439 3120 5265 7175  questrue491 Requ
0400  6573 7420 5065 6e64 696e 6735 3031 204e  est Pending501 N
0410  6f74 2049 6d70 6c65 6d65 6e74 6564 3430  ot Implemented40
0420  3620 4e6f 7420 4163 6365 7074 6162 6c65  6 Not Acceptable
0430  3630 3620 4e6f 7420 4163 6365 7074 6162  606 Not Acceptab
0440  6c65 0d0a 613d 7479 7065 3a62 726f 6164  le..a=type:broad
0450  6361 7374 6f6e 6534 3933 2055 6e64 6563  castone493 Undec
0460  6970 6865 7261 626c 650d 0a4d 494d 452d  ipherable..MIME-
0470  5665 7273 696f 6e3a 204d 6179 2034 3832  Version: May 482
0480  204c 6f6f 7020 4465 7465 6374 6564 0d0a   Loop Detected..
0490  4f72 6761 6e69 7a61 7469 6f6e 3a20 4a75  Organization: Ju
04A0  6e20 6d6f 6465 2d63 6861 6e67 652d 6e65  n mode-change-ne
04B0  6967 6862 6f72 3d63 7269 7469 6361 6c65  ighbor=criticale
04C0  7274 6370 2d66 6234 3839 2042 6164 2045  rtcp-fb489 Bad E
04D0  7665 6e74 6c73 0d0a 556e 7375 7070 6f72  ventls..Unsuppor
04E0  7465 643a 204a 616e 2035 3032 2042 6164  ted: Jan 502 Bad
04F0  2047 6174 6577 6179 6d6f 6465 2d63 6861   Gatewaymode-cha
0500  6e67 652d 7065 7269 6f64 3d0d 0a61 3d6f  nge-period=..a=o
0510  7269 656e 743a 7365 6173 6361 7065 0d0a  rient:seascape..
0520  613d 7479 7065 3a6d 6f64 6572 6174 6564  a=type:moderated
0530  3430 3420 4e6f 7420 466f 756e 6433 3035  404 Not Found305
0540  2055 7365 2050 726f 7879 0d0a 613d 7479   Use Proxy..a=ty
```

```
0550  7065 3a72 6563 766f 6e6c 790d 0a61 3d74  pe:recvonly..a=t
0560  7970 653a 6d65 6574 696e 670d 0a6b 3d70  ype:meeting..k=p
0570  726f 6d70 743a 0d0a 5265 6665 7272 6564  rompt:..Referred
0580  2d42 793a 200d 0a49 6e2d 5265 706c 792d  -By: ..In-Reply-
0590  546f 3a20 5452 5545 6e63 6f64 696e 673a  To: TRUEncoding:
05A0  2031 3832 2051 7565 7565 6441 7574 6865   182 QueuedAuthe
05B0  6e74 6963 6174 653a 200d 0a55 7365 722d  nticate: ..User-
05C0  4167 656e 743a 200d 0a61 3d66 7261 6d65  Agent: ..a=frame
05D0  7261 7465 3a0d 0a41 6c65 7274 2d49 6e66  rate:..Alert-Inf
05E0  6f3a 2043 414e 4345 4c20 0d0a 613d 6d61  o: CANCEL ..a=ma
05F0  7870 7469 6d65 3a3b 7265 7472 792d 6166  xptime:;retry-af
0600  7465 723d 7561 6368 616e 6e65 6c73 3d34  ter=uachannels=4
0610  3130 2047 6f6e 650d 0a52 6566 6572 2d54  10 Gone..Refer-T
0620  6f3a 200d 0a50 7269 6f72 6974 793a 200d  o: ..Priority: .
0630  0a6d 3d63 6f6e 7472 6f6c 200d 0a61 3d71  .m=control ..a=q
0640  7561 6c69 7479 3a0d 0a61 3d73 6470 6c61  uality:..a=sdpla
0650  6e67 3a0d 0a61 3d63 6861 7273 6574 3a0d  ng:..a=charset:.
0660  0a52 6570 6c61 6365 733a 2052 4546 4552  .Replaces: REFER
0670  2069 7073 6563 2d69 6b65 3b74 7261 6e73   ipsec-ike;trans
0680  706f 7274 3d0d 0a61 3d6b 6579 7764 733a  port=..a=keywds:
0690  0d0a 6b3d 6261 7365 3634 3a3b 7265 6672  ..k=base64:;refr
06A0  6573 6865 723d 0d0a 613d 7074 696d 653a  esher=..a=ptime:
06B0  0d0a 6b3d 636c 6561 723a 3b72 6563 6569  ..k=clear:;recei
06C0  7665 643d 3b64 7572 6174 696f 6e3d 0d0a  ved=;duration=..
06D0  4163 6365 7074 3a20 0d0a 613d 6772 6f75  Accept: ..a=grou
06E0  703a 4641 4c53 453a 2049 4e46 4f20 0d0a  p:FALSE: INFO ..
06F0  4163 6365 7074 2d0d 0a61 3d6c 616e 673a  Accept-..a=lang:
0700  0d0a 6d3d 6461 7461 206d 6f64 652d 7365  ..m=data mode-se
0710  743d 0d0a 613d 746f 6f6c 3a54 4c53 756e  t=..a=tool:TLSun
0720  2c20 0d0a 4461 7465 3a20 0d0a 613d 6361  , ..Date: ..a=ca
0730  743a 0d0a 6b3d 7572 693a 0d0a 5072 6f78  t:..k=uri:..Prox
0740  792d 3b72 6561 736f 6e3d 3b6d 6574 686f  y-;reason=;metho
0750  643d 0d0a 613d 6d69 643a 3b6d 6164 6472  d=..a=mid:;maddr
0760  3d6f 7061 7175 653d 0d0a 4d69 6e2d 3b61  =opaque=..Min-;a
0770  6c67 3d4d 6f6e 2c20 5475 652c 2057 6564  lg=Mon, Tue, Wed
0780  2c20 4672 692c 2053 6174 2c20 3b74 746c  , Fri, Sat, ;ttl
0790  3d61 7574 733d 0d0a 723d 0d0a 7a3d 0d0a  =auts=..r=..z=..
07A0  653d 3b69 643d 0d0a 693d 6372 633d 0d0a  e=;id=..i=crc=..
07B0  753d 3b71 3d75 6173 3431 3420 5265 7175  u=;q=uas414 Requ
07C0  6573 742d 5552 4920 546f 6f20 4c6f 6e67  est-URI Too Long
07D0  6976 6575 7072 6976 6163 7975 6470 7265  iveuprivacyudpre
07E0  6665 7236 3030 2042 7573 7920 4576 6572  fer600 Busy Ever
07F0  7977 6865 7265 7175 6972 6564 3438 3020  ywherequired480
0800  5465 6d70 6f72 6172 696c 7920 556e 6176  Temporarily Unav
0810  6169 6c61 626c 650d 0a61 3d74 7970 653a  ailable..a=type:
0820  482e 3333 3230 3220 4163 6365 7074 6564  H.33202 Accepted
0830  0d0a 5365 7373 696f 6e2d 4578 7069 7265  ..Session-Expire
0840  733a 200d 0a53 7562 7363 7269 7074 696f  s: ..Subscriptio
```

```
0850  6e2d 5374 6174 653a 204e 6f76 200d 0a53  n-State: Nov ..S
0860  6572 7669 6365 2d52 6f75 7465 3a20 5365  ervice-Route: Se
0870  7020 0d0a 416c 6c6f 772d 4576 656e 7473  p ..Allow-Events
0880  3a20 4665 6220 0d0a 613d 696e 6163 7469  : Feb ..a=inacti
0890  7665 5254 502f 5341 5650 2052 5450 2f41  veRTP/SAVP RTP/A
08A0  5650 4620 416e 6f6e 796d 6f75 7369 7073  VPF Anonymousips
08B0  3a0d 0a61 3d74 7970 653a 7465 7374 656c  :..a=type:testel
08C0  3a4d 4553 5341 4745 200d 0a61 3d72 6563  :MESSAGE ..a=rec
08D0  766f 6e6c 790d 0a61 3d73 656e 646f 6e6c  vonly..a=sendonl
08E0  790d 0a63 3d49 4e20 4950 3420 0d0a 5265  y..c=IN IP4 ..Re
08F0  6173 6f6e 3a20 0d0a 416c 6c6f 773a 200d  ason: ..Allow: .
0900  0a45 7665 6e74 3a20 0d0a 5061 7468 3a20  .Event: ..Path:
0910  3b75 7365 723d 0d0a 623d 4153 2043 5420  ;user=..b=AS CT
0920  0d0a 5757 572d 4175 7468 656e 7469 6361  ..WWW-Authentica
0930  7465 3a20 4469 6765 7374 200d 0a61 3d73  te: Digest ..a=s
0940  656e 6472 6563 7669 6465 6f63 7465 742d  endrecvideoctet-
0950  616c 6967 6e3d 6170 706c 6963 6174 696f  align=applicatio
0960  6e2f 7364 7061 7468 6561 6465 7273 7061  n/sdpatheaderspa
0970  7574 683d 0d0a 613d 6f72 6965 6e74 3a70  uth=..a=orient:p
0980  6f72 7472 6169 7469 6d65 6f75 7474 722d  ortraitimeouttr-
0990  696e 7469 636f 6e63 3d34 3833 2054 6f6f  inticonc=483 Too
09A0  204d 616e 7920 486f 7073 6c69 6e66 6f70   Many Hopslinfop
09B0  7469 6f6e 616c 676f 7269 7468 6d3d 3630  tionalgorithm=60
09C0  3420 446f 6573 204e 6f74 2045 7869 7374  4 Does Not Exist
09D0  2041 6e79 7768 6572 6573 706f 6e73 653d   Anywheresponse=
09E0  0d0a 0d0a 5265 7175 6573 742d 4469 7370  ....Request-Disp
09F0  6f73 6974 696f 6e3a 204d 4435 3830 2050  osition: MD580 P
0A00  7265 636f 6e64 6974 696f 6e20 4661 696c  recondition Fail
0A10  7572 6570 6c61 6365 7334 3232 2053 6573  ureplaces422 Ses
0A20  7369 6f6e 2049 6e74 6572 7661 6c20 546f  sion Interval To
0A30  6f20 536d 616c 6c6f 6361 6c31 3831 2043  o Smallocal181 C
0A40  616c 6c20 4973 2042 6569 6e67 2046 6f72  all Is Being For
0A50  7761 7264 6564 6f6d 6169 6e3d 6661 696c  wardedomain=fail
0A60  7572 656e 6465 7265 616c 6d3d 5355 4253  urenderealm=SUBS
0A70  4352 4942 4520 7072 6563 6f6e 6469 7469  CRIBE preconditi
0A80  6f6e 6f72 6d61 6c69 7073 6563 2d6d 616e  onormalipsec-man
0A90  6461 746f 7279 3431 3320 5265 7175 6573  datory413 Reques
0AA0  7420 456e 7469 7479 2054 6f6f 204c 6172  t Entity Too Lar
0AB0  6765 3265 3138 3320 5365 7373 696f 6e20  ge2e183 Session
0AC0  5072 6f67 7265 7373 6374 7034 3836 2042  Progressctp486 B
0AD0  7573 7920 4865 7265 6d6f 7465 726d 696e  usy Heremotermin
0AE0  6174 6564 414b 4176 312d 4d44 352d 7365  atedAKAv1-MD5-se
0AF0  7373 696f 6e6f 6e65 0d0a 4175 7468 6f72  ssionone..Author
0B00  697a 6174 696f 6e3a 2036 3033 2044 6563  ization: 603 Dec
0B10  6c69 6e65 7874 6e6f 6e63 653d 3438 3520  linextnonce=485
0B20  416d 6269 6775 6f75 7365 726e 616d 653d  Ambiguousername=
0B30  6175 6469 6f0d 0a43 6f6e 7465 6e74 2d54  audio..Content-T
0B40  7970 653a 204d 6172 200d 0a52 6563 6f72  ype: Mar ..Recor
```

```
0B50  642d 526f 7574 653a 204a 756c 2034 3031  d-Route: Jul 401
0B60  2055 6e61 7574 686f 7269 7a65 640d 0a52   Unauthorized..R
0B70  6571 7569 7265 3a20 0d0a 743d 3020 302e  equire: ..t=0 0.
0B80  302e 302e 300d 0a53 6572 7665 723a 2052  0.0.0..Server: R
0B90  4547 4953 5445 5220 0d0a 633d 494e 2049  EGISTER ..c=IN I
0BA0  5036 2031 3830 2052 696e 6769 6e67 3130  P6 180 Ringing10
0BB0  3020 5472 7969 6e67 763d 300d 0a6f 3d55  0 Tryingv=0..o=U
0BC0  5044 4154 4520 4e4f 5449 4659 200d 0a53  PDATE NOTIFY ..S
0BD0  7570 706f 7274 6564 3a20 756e 6b6e 6f77  upported: unknow
0BE0  6e41 4d52 5450 2f41 5650 200d 0a50 7269  nAMRTP/AVP ..Pri
0BF0  7661 6379 3a20 0d0a 5365 6375 7269 7479  vacy: ..Security
0C00  2d0d 0a45 7870 6972 6573 3a20 0d0a 613d  -..Expires: ..a=
0C10  7274 706d 6170 3a0d 0a6d 3d76 6964 656f  rtpmap:..m=video
0C20  200d 0a6d 3d61 7564 696f 200d 0a73 3d20   ..m=audio ..s=
0C30  6661 6c73 650d 0a61 3d63 6f6e 663a 3b65  false..a=conf:;e
0C40  7870 6972 6573 3d0d 0a52 6f75 7465 3a20  xpires=..Route:
0C50  0d0a 613d 666d 7470 3a0d 0a61 3d63 7572  ..a=fmtp:..a=cur
0C60  723a 436c 6965 6e74 3a20 5665 7269 6679  r:Client: Verify
0C70  3a20 0d0a 613d 6465 733a 0d0a 5241 636b  : ..a=des:..RAck
0C80  3a20 0d0a 5253 6571 3a20 4259 4520 636e  : ..RSeq: BYE cn
0C90  6f6e 6365 3d31 3030 7265 6c75 7269 3d71  once=100reluri=q
0CA0  6f70 3d54 4350 5544 5071 6f73 786d 6c3b  op=TCPUDPqosxml;
0CB0  6c72 0d0a 5669 613a 2053 4950 2f32 2e30  lr..Via: SIP/2.0
0CC0  2f54 4350 2034 3038 2052 6571 7565 7374  /TCP 408 Request
0CD0  2054 696d 656f 7574 696d 6572 7073 6970   Timeoutimerpsip
0CE0  3a0d 0a43 6f6e 7465 6e74 2d4c 656e 6774  :..Content-Lengt
0CF0  683a 204f 6374 200d 0a56 6961 3a20 5349  h: Oct ..Via: SI
0D00  502f 322e 302f 5544 5020 3b63 6f6d 703d  P/2.0/UDP ;comp=
0D10  7369 6763 6f6d 7072 6f62 6174 696f 6e61  sigcomprobationa
0D20  636b 3b62 7261 6e63 683d 7a39 6847 3462  ck;branch=z9hG4b
0D30  4b0d 0a4d 6178 2d46 6f72 7761 7264 733a  K..Max-Forwards:
0D40  2041 7072 2053 4354 5052 4143 4b20 494e   Apr SCTPRACK IN
0D50  5649 5445 200d 0a43 616c 6c2d 4944 3a20  VITE ..Call-ID:
0D60  0d0a 436f 6e74 6163 743a 2032 3030 204f  ..Contact: 200 O
0D70  4b0d 0a46 726f 6d3a 200d 0a43 5365 713a  K..From: ..CSeq:
0D80  200d 0a54 6f3a 203b 7461 673d 0410 dd10   ..To: ;tag=....
0D90  1131 0d11 0a07 10b9 0c10 fe12 10e1 0611  .1..............
0DA0  4e07 114e 0311 4a04 114a 0710 b208 1179  N..N..J..J.....y
0DB0  0611 810f 1122 0b11 5506 116b 0b11 6013  ....."..U..k..‘.
0DC0  10b2 0811 7105 1187 1310 f709 0e8d 080d  ....q...........
0DD0  ae0c 10b9 0710 8e03 0d96 0310 8a04 108a  ................
0DE0  090d d70a 0f12 080f 8f09 0f8f 080d 6c06  ..............l.
0DF0  0e66 090e 6c0a 0e6c 060f c607 0fc6 0511  .f..l..l........
0E00  4806 1148 060f bf07 0fbf 070e 5506 0f16  H..H........U...
0E10  040e f403 0eb1 0310 a609 1050 0310 a30a  ...........P....
0E20  0db4 050e 3606 0ed6 030d f911 0ef8 040c  ....6...........
0E30  d908 0eea 0409 5303 0a4b 040e e410 0f35  ......S..K.....5
0E40  090e e408 0d3f 030f e10b 1001 0310 ac06  .....?..........
```

```
   0E50  1095 0c0e 760b 0feb 0a0f ae05 102b 0410  ....v........+..
   0E60  2b08 107a 100f 4907 0fb8 0910 3e0b 100c  +..z..I.....>...
   0E70  070f 780b 0f6d 0910 4708 1082 0b0f f608  ..x..m..G.......
   0E80  1062 080f 8708 106a 040f 780d 0fcd 080d  .b.....j..x.....
   0E90  ae10 0f5d 0b0f 9814 0d20 1b0d 2004 0de0  ...]..... .. ...
   0EA0  140e b40b 0fa3 0b07 340f 0d56 040e f403  ........4..V....
   0EB0  10af 070d 3409 0f27 0410 9b04 109f 0910  ....4..'........
   0EC0  5908 1072 0910 350a 1021 0a10 1708 0fe3  Y..r..5..!......
   0ED0  0310 a905 0cac 040c bd07 0cc1 080c c109  ................
   0EE0  0cf6 100c 720c 0c86 040d 640c 0cd5 090c  ....r.....d.....
   0EF0  ff1b 0bfc 110c 5d13 0c30 090c a40c 0c24  ......]..0.....$
   0F00  0c0d 3b03 0d1a 030d 1d16 0c43 090c 9209  ..;........C....
   0F10  0c9b 0d0e cb04 0d16 060d 1005 04f2 0b0c  ................
   0F20  e105 0bde 0a0c ec13 0be3 070b d408 0d08  ................
   0F30  0c0c c909 0c3a 040a e50c 0a23 080b 3a0e  .....:.....#..:.
   0F40  09ab 0f0e fa09 0f6f 0c0a 170f 0976 0c0a  .......o.....v..
   0F50  5f17 0de2 0f07 a80a 0f85 0f08 d60e 09b9  _...............
   0F60  0b0a 7a03 0bdb 0308 c104 0ec7 0308 d302  ..z.............
   0F70  048d 080b 4a05 0b8c 070b 6106 0548 0407  ....J.....a..H..
   0F80  f405 1030 0407 1e08 071e 050b 9110 04ca  ...0............
   0F90  090a 7109 0e87 0504 9805 0b6e 0b04 9b0f  ..q........n....
   0FA0  049b 0704 9b03 04a3 0704 a310 0798 0907  ................
   0FB0  9805 0b73 050b 7805 0b7d 0507 b905 0b82  ...s..x..}......
   0FC0  050b 8705 0b1d 0508 e405 0c81 050f 4405  ..............D.
   0FD0  1140 0508 7805 089d 050f 5805 073f 050c  .@..x.....X..?..
   0FE0  6d05 10f2 050c 5805 06a9 0407 b609 058c  m.....X.........
   0FF0  0606 1a06 0e81 0a06 160a 0ac4 070b 5a0a  ..............Z.
   1000  0aba 030b 1b04 1145 060c 8c07 05ad 0a0e  .......E........
   1010  da08 0b42 0d09 f70b 051c 0911 1608 05c9  ...B............
   1020  070d 8606 0bcf 0a06 4d04 0ba2 0606 8d08  ........M.......
   1030  05e6 080e 110b 0a9b 030a 0403 0bb5 0510  ................
   1040  d704 0994 050a e203 0bb2 060d 6704 0d11  ............g...
   1050  0808 b71b 0e3b 0a09 a114 0485 1507 8315  .....;..........
   1060  076e 0d09 3d17 06ae 0f07 e614 07be 0d06  .n..=...........
   1070  0a0d 0930 1606 f212 081e 2104 aa13 10c5  ...0......!.....
   1080  080a 0f1c 0e96 180b b81a 0595 1a05 7511  ..............u.
   1090  063d 1606 dc1e 0e19 1605 d11d 0620 2305  .=........... #.
   10A0  2711 087d 110d 9916 04da 0d0f 1c16 0708  '..}............
   10B0  1705 b40d 08c7 1307 f812 0857 1f04 fe19  ...........W....
   10C0  054e 1308 0b0f 08e9 1706 c513 067b 1905  .N...........{..
   10D0  f115 0744 180d fb0b 0f09 1b0d be12 0830  ...D...........0
   10E0  1507 5904 0ba6 040b ae04 0b9e 040b 9604  ..Y.............
   10F0  0b9a 0a0a b00b 0a90 080b 320b 096b 080b  ..........2..k..
   1100  2a0b 0a85 090b 120a 0aa6 0d09 ea13 0d74  *..............t
   1110  1407 d213 090b 1208 4210 095b 1209 1e0d  ........B..[....
   1120  0cb1 0e0c 1711 094a 0c0a 530c 0a47 090a  .......J..S..G..
   1130  f70e 09c7 0c0a 3b07 0669 0806 6906 09e3  ......;..i..i...
   1140  080b 520a 0ad8 1206 570d 0657 0709 e304  ..R.....W..W....
```

```
1150  0ae9 1007 3009 0b00 0c0a 2f05 0ae9 050a  ....0...../.....
1160  6b06 0a6b 0a0a ce09 0aee 030b db07 0f7e  k..k...........~
1170  0a09 970a 0671 0e09 d517 0693 070e 5c07  .....q........\.
1180  0fda 0a0f 350d 0dec 0a09 970a 0671 080b  ....5........q..
1190  220f 0985 060b 680c 0d4a 090b 0913 08f8  ".....h..J......
11A0  1508 a204 0baa 0f05 660d 0723 090a 060b  ........f..#....
11B0  0d4a 0f04 ee06 04f8 0409 2b04 0853 0708  .J........+..S..
11C0  c003 111f 0411 1e07 0d8c 0307 3404 10db  ............4...
11D0  0307 3603 0da9 0d04 200b 0451 0c04 3a04  ..6..... ..Q..:.
11E0  0bb8 040c 2404 0595 0404 7c04 0575 0404  ....$.....|..u..
11F0  8504 096b 0406 3d06 047b 0406 dc04 0783  ...k..=..{......
1200  040e 1912 0400 1008 8e10 0869 0e04 120d  ...........i....
1210  042d 0310 b904 05d1 0407 6e04 0620 0704  .-........n.. ..
1220  7404 0bfc 0a04 5c04 0527 0409 3d04 087d  t.....\..'..=..}
1230  040f ae04 0d99 0406 ae04 04da 0904 0908  ................
1240  1122 040f 1c04 07e6 040e cb05 08bd 0407  ."..............
1250  0804 0fa3 0406 5704 05b4 040f 5d04 08c7  ......W.....]...
1260  080b f404 07f8 0407 3004 07be 0408 5705  ........0.....W.
1270  0d46 0404 fe04 060a 0405 4e04 0e3b 0408  .F........N..;..
1280  0b04 0930 0408 e905 05ee 0406 c504 06f2  ...0............
1290  0406 7b04 09a1 0405 f104 081e 0407 4404  ..{...........D.
12A0  0bdd 040d fb04 04aa 040b e307 0eee 040f  ................
12B0  0904 0eb4 040d be04 10c5 0408 3005 0f30  ............0..0
12C0  0407 5904 0a0f 060e 6104 0481 040d ab04  ..Y.....a.......
12D0  0d93 0411 6b04 0e96 0504 6609 046b 0b04  ....k.....f..k..
12E0  4604 0ce1                                F...
```

Table 1: binary representation of the static SIP/SDP dictionary for SigComp

4. Security Considerations

The security considerations of [1] apply. This memo does not introduce any known additional security risk.

5. IANA Considerations

None.

6. Acknowledgements

The authors would like to thank Lars-Erik Jonsson, Zhigang C. Liu and Jonathan Rosenberg for their valuable comments.

7. References

7.1 Normative References

[1] Price, R., Bormann, C., Christoffersson, J., Hannu, H., Liu, Z. and J. Rosenberg, "Signaling Compression (SigComp)", RFC 3320, January 2003.

[2] Bradner, S., "Key words for use in RFCs to indicate requirement levels", BCP 14, RFC 2119, March 1997.

7.2 Informative References

[3] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M. and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.

[4] Garcia-Martin, M., "3rd-Generation Partnership Project (3GPP) Release 5 requirements on the Session Initiation Protocol (SIP)", Work in Progress.

[5] Yergeau, F., "UTF-8, a transformation format of ISO 10646", RFC 2279, January 1998.

[6] Franks, J., Hallam-Baker, P., Hostetler, J., Lawrence, S., Leach, P., Luotonen, A. and L. Stewart, "HTTP Authentication: Basic and Digest Access Authentication", RFC 2617, June 1999.

[7] Vaha-Sipila, A., "URLs for telephone calls", RFC 2806, April 2000.

[8] Donovan, S., "The SIP INFO Method", RFC 2976, October 2000.

[9] Roach, A. B., "Session Initiation Protocol (SIP)-Specific Event Notification", RFC 3265, June 2002.

[10] Rosenberg, J. and H. Schulzrinne, "Reliability of Provisional Responses in Session Initiation Protocol (SIP)", RFC 3262, June 2002.

[11] Rosenberg, J., "The Session Initiation Protocol UPDATE Method", RFC 3311, October 2002.

[12] Camarillo, G., Ed., Marshall, W., Ed. and J. Rosenberg, "Integration of Resource Management and Session Initiation Protocol (SIP)", RFC 3312, October 2002.

[13] Sparks, R., "The SIP Refer Method", Work in Progress.

[14] Mahy, R., Biggs, B. and R. Dean, "The Session Initiation Protocol (SIP) "Replaces" Header", Work in Progress.

[15] Sparks, R., "Internet Media Type message/sipfrag", RFC 3420, November 2002.

[16] Willis, D. and B. Hoeneisen, "Session Initiation Protocol (SIP) Extension Header Field for Registering Non-Adjacent Contacts", RFC 3327, December 2002.

[17] Schulzrinne, H., Oran, D. and G. Camarillo, "The Reason Header Field for the Session Initiation Protocol (SIP)", RFC 3326, December 2002.

[18] Donovan, S., and J. Rosenberg, "Session Timers in the Session Initiation Protocol (SIP)", Work in Progress.

[19] Niemi, A., Arkko, J. and V. Torvinen , "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)", RFC 3310, September 2002.

[20] Arkko, J., Torvinen, V., Camarillo, G., Niemi A. and T. Haukka, "Security Mechanism Agreement for the Session Initiation Protocol (SIP)", RFC 3329, January 2003.

[21] Campbell, B., Rosenberg, J., Schulzrinne, H., Huitema, C. and D. Gurle, "Session Initiation Protocol (SIP) Extension for Instant Messaging", RFC 3428, December 2002.

[22] Schulzrinne, H. and J. Rosenberg, "Session Initiation Protocol (SIP) Caller Preferences and Callee Capabilities", Work in Progress.

[23] Camarillo, G., "Compressing the Session Initiation Protocol (SIP)", RFC 3486, February 2003.

[24] Handley, M., Jacobson, V. and C. Perkins, "SDP: Session Description Protocol", Work in Progress.

[25] Sjoberg, J., Westerlund, M., Lakaniemi, A. and Q. Xie, "Real-Time Transport Protocol payload format and file storage format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) audio codecs", RFC 3267, June 2002.

[26] Camarillo, G., Eriksson, G., Holler, J. and H. Schulzrinne, "Grouping of Media Lines in the Session Description Protocol (SDP)", RFC 3388, December 2002.

[27] Schulzrinne, H. and S. Petrack, "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals", RFC 2833, May 2000.

[28] Arkko, J., Carrara, E., Lindholm, F., Naslund, M. and K. Norrman, "Key Management Extensions for SDP and RTSP", Work in Progress.

[29] Arkko, J., Carrara, E., Lindholm, F., Naslund, M. and K. Norrman, "MIKEY: Multimedia Internet KEYing", Work in Progress.

[30] Baugher, M., Blom, R., Carrara, E., McGrew, D., Naslund, M., Norrman, K. and D. Oran, "The Secure Real Time Transport Protocol", Work in Progress.

[31] Ott, J., Wenger, S., Fukunaga, S., Sato, N., Burmeister, C., and Rey, J., "Extended RTP Profile for RTCP-based feedback (RTP/AVPF)", Work in Progress.

[32] Rosenberg, J. and H. Schulzrinne, "An Offer/Answer Model with Session Description Protocol (SDP)", RFC 3264, June 2002.

[33] Peterson, J., "A Privacy Mechanism for the Session Initiation Protocol (SIP)", RFC 3323, November 2002.

[34] Sparks, R., "The Referred-By mechanism", Work in Progress.

[35] Willis, D. and B. Hoeneisen, "Session Initiation Protocol Extension Header Field for Service Route Discovery During Registration", Work in Progress.

Appendix A. SIP input strings to the SIP/SDP static dictionary

For reference, this section lists the SIP input strings that were used in generating the dictionary, as well as a priority value, the offset of the string in the generated dictionary, the length of the string, and one or more references into the referenced documents that motivate the presence of this string. Note that the notation "[CRLF]" stands for a sequence of two bytes with the values 0x0d and 0x0a, respectively.

The priority value is used for determining the position of the string in the dictionary. Lower priority values (higher priorities) cause the string to occur at a later position in the dictionary, making it more efficient to reference the string in certain compression algorithms. Hence, lower priority values were assigned to strings more likely to occur.

String	Pr	Off	Len	References
"sip:"	1	0CDD	0004	[3] 19.1.1
"sips:"	3	08AC	0005	[3] 19.1.1
"tel:"	3	08BD	0004	[7] 2.2
"SIP/2.0"	1	0CB9	0007	[3] 25.1
"SIP/2.0/UDP "	1	0CFE	000C	[3] 25.1
"SIP/2.0/TCP "	2	0CB9	000C	[3] 25.1
"INVITE"	1	0D4E	0006	[3] 25.1
"INVITE "	1	0D4E	0007	[3] 25.1
"ACK"	1	0D4A	0003	[3] 25.1
"ACK "	1	0D4A	0004	[3] 25.1
"OPTIONS"	4	0269	0007	[3] 25.1
"OPTIONS "	4	0269	0008	[3] 25.1
"BYE"	2	0C8A	0003	[3] 25.1
"BYE "	2	0C8A	0004	[3] 25.1
"CANCEL"	4	05E3	0006	[3] 25.1
"CANCEL "	4	05E3	0007	[3] 25.1
"REGISTER"	2	0B8F	0008	[3] 25.1
"REGISTER "	2	0B8F	0009	[3] 25.1
"INFO"	4	06E9	0004	[8] 2
"INFO "	4	06E9	0005	[8] 2
"SUBSCRIBE"	2	0A6C	0009	[9] 8.1.1
"SUBSCRIBE "	2	0A6C	000A	[9] 8.1.1
"NOTIFY"	2	0BC6	0006	[9] 8.1.2
"NOTIFY "	2	0BC6	0007	[9] 8.1.2
"PRACK"	2	0D48	0005	[10] 6
"PRACK "	2	0D48	0006	[10] 6
"UPDATE"	2	0BBF	0006	[11] 7, 10
"UPDATE "	2	0BBF	0007	[11] 7, 10
"REFER"	4	066B	0005	[13] 2.1, 7

"REFER "	4	066B 0006 [13] 2.1, 7
"MESSAGE"	3	08C1 0007 [21] 9
"MESSAGE "	3	08C1 0008 [21] 9
"[CRLF]Accept: "	4	06CE 000A [3] 20.1
"[CRLF]Accept-"	4	06EE 0009 [22] 5, [3] 20.2, 20.3
"Contact: "	5	0009 0009 [22] 5
"Encoding: "	4	0597 000A [3] 20.2, [3] 20.12
"Language: "	4	0271 000A [3] 20.3, [3] 20.13
"[CRLF]Alert-Info: "	4	05D5 000E [3] 20.4
"[CRLF]Allow: "	3	08F6 0009 [3] 20.5
"[CRLF]Allow-Events: "	3	0872 0010 [9] 8.2.1
"[CRLF]Authentication-Info: "	4	0293 0017 [3] 20.6
"[CRLF]Authorization: "	2	0AF8 0011 [3] 20.7
"[CRLF]Call-ID: "	1	0D55 000B [3] 20.8
"[CRLF]Call-Info: "	5	002D 000D [3] 20.9
"[CRLF]Contact: "	1	0D60 000B [3] 20.10
"[CRLF]Content-"	4	0B35 000A [3] 20.11, 20.12, 20.13, [3] 20.14, 20.15
"Disposition: "	4	09EC 000D [3] 20.11
"Encoding: "	4	0597 000A [3] 20.2, [3] 20.12
"Language: "	4	0271 000A [3] 20.3, [3] 20.13
"[CRLF]Content-Length: "	1	0CE1 0012 [3] 20.14
"[CRLF]Content-Type: "	2	0B35 0010 [3] 20.15
"[CRLF]CSeq: "	1	0D79 0008 [3] 20.16
"[CRLF]Date: "	4	0722 0008 [3] 20.17
"[CRLF]Error-Info: "	5	0012 000E [3] 20.18
"[CRLF]Event: "	3	08FF 0009 [9] 8.2.1
"[CRLF]Expires: "	2	0C01 000B [3] 20.19
"[CRLF]From: "	1	0D71 0008 [3] 20.20
"[CRLF]In-Reply-To: "	4	0585 000F [3] 20.21
"[CRLF]Max-Forwards: "	1	0D31 0010 [3] 20.22
"[CRLF]Min-"	4	0768 0006 [3] 20.23, [18] 5
"Expires: "	4	083A 0009 [3] 20.23
"SE: "	4	06E5 0004 [18] 5
"[CRLF]MIME-Version: "	5	0469 0010 [3] 20.24
"[CRLF]Organization: "	5	048E 0010 [3] 20.25
"[CRLF]Path: "	3	0908 0008 [16] 3
"[CRLF]Priority: "	4	0623 000C [3] 20.26
"[CRLF]Privacy: "	2	0BEB 000B [33] 4.2
"[CRLF]Proxy-"	4	073A 0008 [3] 20.27, 20.28, 20.29

"Authenticate: "	4 05AB 000E [3] 20.27
"Authorization: "	4 0AFA 000F [3] 20.28
"Require: "	4 0B6F 0009 [3] 20.29
"[CRLF]RAck: "	2 0C7A 0008 [10] 7.2
"[CRLF]Reason: "	3 08EC 000A [17] 2
"[CRLF]Record-Route: "	2 0B49 0010 [3] 20.30
"[CRLF]Refer-To: "	4 0617 000C [13] 2.1, 7
"[CRLF]Referred-By: "	4 0576 000F [34] 9
"[CRLF]Reject-Contact: "	5 0000 0012 [22] 5
"[CRLF]Replaces: "	4 065F 000C [14] 3.1
"[CRLF]Reply-To: "	5 003A 000C [3] 20.31
"[CRLF]Request-Disposition: "	4 09E2 0017 [22] 5
"[CRLF]Require: "	2 0B6D 000B [3] 20.32
"[CRLF]Retry-After: "	4 03A8 000F [3] 20.33
"[CRLF]Route: "	2 0C47 0009 [3] 20.34
"[CRLF]RSeq: "	2 0C82 0008 [10] 7.1
"[CRLF]Security-"	2 0BF6 000B [20] 3.3
"Client: "	2 0C62 0008 [20] 3.3
"Server: "	2 0B87 0008 [20] 3.3
"Verify: "	2 0C6A 0008 [20] 3.3
"[CRLF]Server: "	4 0B85 000A [3] 20.35
"[CRLF]Service-Route: "	3 085D 0011 [35]
"[CRLF]Session-Expires: "	3 0830 0013 [18] 4
"[CRLF]Subject: "	5 0051 000B [3] 20.36
"[CRLF]Subscription-State: "	3 0843 0016 [9] 8.2.3
"[CRLF]Supported: "	2 0BCD 000D [3] 20.37
"[CRLF]Timestamp: "	5 0020 000D [3] 20.38
"[CRLF]To: "	1 0D81 0006 [3] 20.39
"[CRLF]Unsupported: "	4 04D6 000F [3] 20.40
"[CRLF]User-Agent: "	4 05B9 000E [3] 20.41
"[CRLF]Via: "	1 0CB2 0007 [3] 20.42
"[CRLF]Via: SIP/2.0/UDP "	1 0CF7 0013 [3] 20.42
"[CRLF]Via: SIP/2.0/TCP "	1 0CB2 0013 [3] 20.42
"[CRLF]Warning: "	5 0046 000B [3] 20.43
"[CRLF]WWW-Authenticate: "	2 0920 0014 [3] 20.44
"[CRLF]WWW-Authenticate: Digest "	2 0920 001B [3] 20.44
"[CRLF][CRLF]"	2 09E0 0004 [3] 7
";transport="	4 067A 000B [3] 25.1
"udp"	4 07DB 0003 [3] 25.1, [24] A, [3] 25.1, [24] A
"tcp"	4 04C1 0003 [3] 25.1
"sctp"	4 0AC7 0004 [3] 25.1
"tls"	4 04D3 0003 [3] 25.1, [20] 3.3
";user="	3 0910 0006 [3] 25.1
"phone"	3 00F2 0005 [3] 25.1
"ip"	4 008D 0002 [3] 25.1
";method="	4 074A 0008 [3] 25.1

";ttl="	4 078C 0005 [3] 25.1	
";lr"	2 0CAF 0003 [3] 25.1	
"Digest "	2 0934 0007 [6] 3.2.1, 3.2.2	
"username="	2 0B27 0009 [6] 3.2.2	
"uri="	2 0C9B 0004 [6] 3.2.2	
"qop="	2 0C9F 0004 [6] 3.2.1, 3.2.2	
"cnonce="	2 0C8E 0007 [6] 3.2.2	
"nc="	2 0996 0003 [6] 3.2.2	
"response="	2 09D7 0009 [6] 3.2.2	
"nextnonce="	2 0B12 000A [6] 3.2.3	
"rspauth="	2 096C 0008 [6] 3.2.3	
"realm="	2 0A66 0006 [6] 3.2.1	
"domain="	2 0A55 0007 [6] 3.2.1	
"nonce="	2 0B16 0006 [6] 3.2.1	
"opaque="	4 0761 0007 [6] 3.2.1	
"stale="	4 0148 0006 [6] 3.2.1	
"true"	4 03F4 0004 [6] 3.2.1	
"false"	4 0C30 0005 [6] 3.2.1	
"algorithm="	2 09B4 000A [6] 3.2.1, [19] 3.1	
"MD5"	2 09F9 0003 [6] 3.2.1, [19] 3.1	
"MD5-sess"	2 0AEA 0008 [6] 3.2.1, [19] 3.1	
"auth"	4 031E 0004 [6] 3.2.1	
"auth-int"	4 031E 0008 [6] 3.2.1	
"AKAv"	2 0AE4 0004 [19] 3.1, 6	
"AKAv1-MD5"	2 0AE4 0009 [19] 3.1, 6	
"auts="	4 0791 0005 [19] 3.4	
"digest-integrity"	4 00CA 0010 [20] 3.3	
"ipsec-ike"	4 0671 0009 [20] 3.3	
"ipsec-man"	4 0A87 0009 [20] 3.3	
"smime"	4 0098 0005 [20] 3.3	
";alg="	4 076E 0005 [20] 3.3	
";purpose="	5 006B 0009 [3] 20.9	
"icon"	5 0993 0004 [3] 20.9, 20.11	
"info"	5 09AB 0004 [3] 20.9	
"card"	5 0081 0004 [3] 20.9	
";expires="	2 0C3E 0009 [3] 25.1, [9] 8.4	
"render"	5 0A61 0006 [3] 20.11	
"session"	5 0AEE 0007 [3] 20.11, [33] 4.2	
"alert"	5 04BD 0005 [3] 20.11	
";handling="	5 005C 000A [3] 20.11	
"optional"	2 09AE 0008 [3] 20.11,	

```
                                        [12] 4, [3] 20.11, [12] 4
   "required"                         5 07F4 0008 [3] 20.11
   "text"                             5 007C 0004 [3] 25.1
   "image"                            5 0066 0005 [3] 25.1
   "audio"                            5 0B30 0005 [3] 25.1
   "video"                            5 0946 0005 [3] 25.1
   "application"                      2 0334 000B [3] 25.1
   "application/sdp"                  2 0956 000F [3] 25.1
   "message/sip"                      4 009B 000B [3] 27.5
   "message/sipfrag"                  4 009B 000F [15] 2
   "message"                          4 009B 0007 [3] 27.5,
                                        [15] 2
   "sip"                              4 00A3 0003 [3] 27.5
   "sipfrag"                          4 00A3 0007 [15] 2
   "multipart/signed"                 4 0398 0010 [3] 23.3
   "multipart"                        4 0398 0009 [3] 25.1, 7.4.1
   "sdp"                              2 064B 0003
   "xml"                              2 0CAC 0003
   "Mon, "                            4 0773 0005 [3] 25.1
   "Tue, "                            4 0778 0005 [3] 25.1
   "Wed, "                            4 077D 0005 [3] 25.1
   "Thu, "                            4 03B9 0005 [3] 25.1
   "Fri, "                            4 0782 0005 [3] 25.1
   "Sat, "                            4 0787 0005 [3] 25.1
   "Sun, "                            4 071D 0005 [3] 25.1
   " Jan "                            4 04E4 0005 [3] 25.1
   " Feb "                            4 0881 0005 [3] 25.1
   " Mar "                            4 0B44 0005 [3] 25.1
   " Apr "                            4 0D40 0005 [3] 25.1
   " May "                            4 0478 0005 [3] 25.1
   " Jun "                            4 049D 0005 [3] 25.1
   " Jul "                            4 0B58 0005 [3] 25.1
   " Aug "                            4 033F 0005 [3] 25.1
   " Sep "                            4 086D 0005 [3] 25.1
   " Oct "                            4 0CF2 0005 [3] 25.1
   " Nov "                            4 0858 0005 [3] 25.1
   " Dec "                            4 02A9 0005 [3] 25.1
   " GMT"                             4 03B6 0004 [3] 25.1
   ";tag="                            1 0D87 0005 [3] 25.1
   "emergency"                        4 018C 0009 [3] 20.26
   "urgent"                           4 021A 0006 [3] 20.26
   "normal"                           4 0A81 0006 [3] 20.26
   "non-urgent"                       4 0216 000A [3] 20.26
   ";duration="                       4 06C4 000A [3] 20.33
   ";maddr="                          4 075A 0007 [3] 20.42
   ";received="                       4 06BA 000A [3] 20.42
   ";branch="                         5 0D22 0008 [3] 20.42
   ";branch=z9hG4bK"                  1 0D22 000F [3] 8.1.1.7
```

```
   "SIP"                                  5 0CB9 0003 [3] 25.1,
                                            [17] 2
   "UDP"                                  2 0CA6 0003 [3] 20.42
   "TCP"                                  2 0CA3 0003 [3] 20.42
   "TLS"                                  4 071B 0003 [3] 20.42
   "SCTP"                                 4 0D45 0004 [3] 20.42
   "active"                               4 088C 0006 [9] 8.4
   "pending"                              4 01AD 0007 [9] 8.4
   "terminated"                           4 0ADA 000A [9] 8.4
   ";reason="                             4 0742 0008 [9] 8.4
   ";retry-after="                        4 05F7 000D [9] 8.4
   "deactivated"                          4 011C 000B [9] 8.4
   "probation"                            4 0D16 0009 [9] 8.4
   "rejected"                             4 01C9 0008 [9] 8.4
   "timeout"                              4 0986 0007 [9] 8.4
   "giveup"                               4 07CF 0006 [9] 8.4
   "noresource"                           4 024D 000A [9] 8.4
   ";id="                                 4 07A2 0004 [9] 8.4
   "100rel"                               2 0C95 0006 [10] 8.1
   "precondition"                         2 0A76 000C [12] 8
   "refer"                                3 07DE 0005 [13] 3.1, 7
   "to-tag"                               4 028D 0006 [14] 3.2
   "from-tag"                             4 01E6 0008 [14] 3.2
   "replaces"                             4 0A11 0008 [14] 3.4
   "Q.850"                                5 01EE 0005 [17] 2
   ";cause="                              5 0074 0007 [17] 2
   ";text="                               5 007B 0006 [17] 2
   "path"                                 3 0964 0004 [16] 3
   ";refresher="                          4 069B 000B [18] 4
   "uac"                                  4 0604 0003 [18] 4
   "uas"                                  4 07B5 0003 [18] 4
   "timer"                                4 0CD7 0005 [18] 7.1
   "pref"                                 5 07DD 0004 [22] 4.1
   "TRUE"                                 4 0594 0004 [22] 6.2
   "FALSE"                                4 06E2 0005 [22] 6.2
   ";q="                                  4 07B2 0003 [3] 25.1,
                                            [22] 6.2, [20] 3.3
   ";comp=sigcomp"                        1 0D0A 000D [23] 6
   "privacy"                              3 07D4 0007 [33] 4.2
   "header"                               4 0967 0006 [33] 4.2
   "user"                                 4 0911 0004 [33] 4.2
   "none"                                 2 0AF4 0004 [33] 4.2,
                                            [12] 4
   "critical"                             4 04B7 0008 [33] 4.2
   "100 "                                 5 0BAE 0004 [3] 21.1.1
   "100 Trying"                           2 0BAE 000A [3] 21.1.1
   "180 "                                 5 0BA3 0004 [3] 21.1.2
   "180 Ringing"                          2 0BA3 000B [3] 21.1.2
```

```
   "181 "                                  5 0A3B 0004 [3] 21.1.3
   "181 Call Is Being Forwarded"           4 0A3B 001B [3] 21.1.3
   "182 "                                  5 05A1 0004 [3] 21.1.4
   "182 Queued"                            4 05A1 000A [3] 21.1.4
   "183 "                                  5 0AB4 0004 [3] 21.1.5
   "183 Session Progress"                  2 0AB4 0014 [3] 21.1.5
   "200 "                                  5 0D6B 0004 [3] 21.2.1
   "200 OK"                                1 0D6B 0006 [3] 21.2.1
   "202 "                                  5 0824 0004 [9] 8.3.1
   "202 Accepted"                          3 0824 000C [9] 8.3.1
   "300 "                                  5 0085 0004 [3] 21.3.1
   "300 Multiple Choices"                  4 0085 0014 [3] 21.3.1
   "301 "                                  5 0383 0004 [3] 21.3.2
   "301 Moved Permanently"                 4 0383 0015 [3] 21.3.2
   "302 "                                  5 036E 0004 [3] 21.3.3
   "302 Moved Temporarily"                 4 036E 0015 [3] 21.3.3
   "305 "                                  5 053D 0004 [3] 21.3.4
   "305 Use Proxy"                         4 053D 000D [3] 21.3.4
   "380 "                                  5 02AE 0004 [3] 21.3.5
   "380 Alternative Service"               4 02AE 0017 [3] 21.3.5
   "400 "                                  5 03E6 0004 [3] 21.4.1
   "400 Bad Request"                       4 03E6 000F [3] 21.4.1
   "401 "                                  5 0B5D 0004 [3] 21.4.2
   "401 Unauthorized"                      2 0B5D 0010 [3] 21.4.2
   "402 "                                  5 03BE 0004 [3] 21.4.3
   "402 Payment Required"                  4 03BE 0014 [3] 21.4.3
   "403 "                                  5 020A 0004 [3] 21.4.4
   "403 Forbidden"                         4 020A 000D [3] 21.4.4
   "404 "                                  5 0530 0004 [3] 21.4.5
   "404 Not Found"                         4 0530 000D [3] 21.4.5
   "405 "                                  5 02F2 0004 [3] 21.4.6
   "405 Method Not Allowed"                4 02F2 0016 [3] 21.4.6
   "406 "                                  5 041E 0004 [3] 21.4.7
   "406 Not Acceptable"                    4 041E 0012 [3] 21.4.7
   "407 "                                  5 00AA 0004 [3] 21.4.8
   "407 Proxy Authentication Required"     4 00AA 0021 [3] 21.4.8
   "408 "                                  5 0CC5 0004 [3] 21.4.9
   "408 Request Timeout"                   4 0CC5 0013 [3] 21.4.9
   "410 "                                  5 060F 0004 [3] 21.4.10
   "410 Gone"                              4 060F 0008 [3] 21.4.10
   "413 "                                  5 0A96 0004 [3] 21.4.11
   "413 Request Entity Too Large"          4 0A96 001C [3] 21.4.11
   "414 "                                  5 07B8 0004 [3] 21.4.12
   "414 Request-URI Too Long"              4 07B8 0018 [3] 21.4.12
   "415 "                                  5 0195 0004 [3] 21.4.13
   "415 Unsupported Media Type"            4 0195 001A [3] 21.4.13
   "416 "                                  5 0175 0004 [3] 21.4.14
   "416 Unsupported URI Scheme"            4 0175 001A [3] 21.4.14
```

```
   "420 "                                  5 023D 0004 [3] 21.4.15
   "420 Bad Extension"                     4 023D 0011 [3] 21.4.15
   "421 "                                  5 02DC 0004 [3] 21.4.16
   "421 Extension Required"                4 02DC 0016 [3] 21.4.16
   "422 "                                  5 0A19 0004 [18] 6, 12.1
   "422 Session Interval Too Small"        4 0A19 001E [18] 6, 12.2
   "423 "                                  5 01D1 0004 [3] 21.4.17
   "423 Interval Too Brief"                4 01D1 0016 [3] 21.4.17
   "429 "                                  5 0220 0004 [34] 9
   "429 Provide Referror Identity"         4 0220 001D [34] 9
   "480 "                                  5 07FC 0004 [3] 21.4.18
   "480 Temporarily Unavailable"           3 07FC 001B [3] 21.4.18
   "481 "                                  5 0127 0004 [3] 21.4.19
   "481 Call/Transaction Does Not Exist"   4 0127 0023 [3] 21.4.19
   "482 "                                  5 047D 0004 [3] 21.4.20
   "482 Loop Detected"                     4 047D 0011 [3] 21.4.20
   "483 "                                  5 0999 0004 [3] 21.4.21
   "483 Too Many Hops"                     4 0999 0011 [3] 21.4.21
   "484 "                                  5 00DA 0004 [3] 21.4.22
   "484 Address Incomplete"                4 00DA 0016 [3] 21.4.22
   "485 "                                  5 0B1C 0004 [3] 21.4.23
   "485 Ambiguous"                         4 0B1C 000D [3] 21.4.23
   "486 "                                  5 0ACB 0004 [3] 21.4.24
   "486 Busy Here"                         3 0ACB 000D [3] 21.4.24
   "487 "                                  5 0308 0004 [3] 21.4.25
   "487 Request Terminated"                4 0308 0016 [3] 21.4.25
   "488 "                                  5 01B4 0004 [3] 21.4.26
   "488 Not Acceptable Here"               4 01B4 0017 [3] 21.4.26
   "489 "                                  5 04C7 0004 [9] 8.3.2
   "489 Bad Event"                         4 04C7 000D [9] 8.3.2
   "491 "                                  5 03F8 0004 [3] 21.4.27
   "491 Request Pending"                   4 03F8 0013 [3] 21.4.27
   "493 "                                  5 0457 0004 [3] 21.4.28
   "493 Undecipherable"                    4 0457 0012 [3] 21.4.28
   "494 "                                  5 00FE 0004 [20] 3.3.1
   "494 Security Agreement Required"       4 00FE 001F [20] 3.3.1
   "500 "                                  5 014E 0004 [3] 21.5.1
   "500 Server Internal Error"             4 014E 0019 [3] 21.5.1
   "501 "                                  5 040B 0004 [3] 21.5.2
   "501 Not Implemented"                   4 040B 0013 [3] 21.5.2
   "502 "                                  5 04E9 0004 [3] 21.5.3
   "502 Bad Gateway"                       4 04E9 000F [3] 21.5.3
   "503 "                                  5 02C5 0004 [3] 21.5.4
   "503 Service Unavailable"               4 02C5 0017 [3] 21.5.4
   "504 "                                  5 027B 0004 [3] 21.5.5
   "504 Server Time-out"                   4 027B 0013 [3] 21.5.5
   "505 "                                  5 01F1 0004 [3] 21.5.6
   "505 Version Not Supported"             4 01F1 0019 [3] 21.5.6
```

"513 "	5	0344	0004	[3] 21.5.7
"513 Message Too Large"	4	0344	0015	[3] 21.5.7
"580 "	5	09FB	0004	[12] 8
"580 Precondition Failure"	4	09FB	0018	[12] 8
"600 "	5	07E3	0004	[3] 21.6.1
"600 Busy Everywhere"	3	07E3	0013	[3] 21.6.1
"603 "	5	0B09	0004	[3] 21.6.2
"603 Decline"	4	0B09	000B	[3] 21.6.2
"604 "	5	09BE	0004	[3] 21.6.3
"604 Does Not Exist Anywhere"	4	09BE	001B	[3] 21.6.3
"606 "	5	0430	0004	[3] 21.6.4
"606 Not Acceptable"	4	0430	0012	[3] 21.6.4
"687 "	5	0359	0004	[14] 3.5
"687 Dialog Terminated"	4	0359	0015	[14] 3.5
"Anonymous"	3	08A4	0009	[3] 8.1.1.3

Table A.1: SIP input strings for the SIP/SDP dictionary

Appendix B. SDP input strings to the SIP/SDP static dictionary

For reference, this section lists the SDP input strings that were used in generating the dictionary, as well as a priority value, the offset of the string in the generated dictionary, the length of the string, and one or more references into the referenced documents that motivate the presence of this string. Note that the notation "[CRLF]" stands for a sequence of two bytes with the values 0x0d and 0x0a, respectively.

The priority value is used for determining the position of the string in the dictionary. Lower priority values (higher priorities) cause the string to occur at a later position in the dictionary, making it more efficient to reference the string in certain compression algorithms. Hence, lower priority values were assigned to strings more likely to occur.

String	Pr	Off	Len	References
"v=0[CRLF]o="	2	0BB8	0007	[24] 6
"[CRLF]s="	2	0C2B	0004	[24] 6
"[CRLF]s= "	2	0C2B	0005	[32] 5
"[CRLF]i="	4	07A6	0004	[24] 6
"[CRLF]u="	4	07AE	0004	[24] 6
"[CRLF]e="	4	079E	0004	[24] 6
"[CRLF]c=IN IP4 "	3	08E1	000B	[24] 6
"[CRLF]c=IN IP6 "	2	0B98	000B	[24] 6
"[CRLF]c="	5	08E1	0004	[24] 6
"[CRLF]b="	3	0916	0004	[24] 6
"[CRLF]t="	2	0B78	0004	[24] 6
"[CRLF]t=0 0"	2	0B78	0007	[32] 5
"[CRLF]r="	4	0796	0004	[24] 6
"[CRLF]z="	4	079A	0004	[24] 6
"[CRLF]k=clear:"	4	06B0	000A	[24] 6
"[CRLF]k=base64:"	4	0690	000B	[24] 6
"[CRLF]k=uri:"	4	0732	0008	[24] 6
"[CRLF]k=prompt:"	4	056B	000B	[24] 6
"[CRLF]k="	5	056B	0004	[24] 6
"[CRLF]a=cat:"	4	072A	0008	[24] 6
"[CRLF]a=keywds:"	4	0685	000B	[24] 6
"[CRLF]a=tool:"	4	0712	0009	[24] 6
"[CRLF]a=ptime:"	4	06A6	000A	[24] 6
"[CRLF]a=maxptime:"	4	05EA	000D	[24] 6
"[CRLF]a=rtpmap:"	2	0C0C	000B	[24] 6, [32] 5
"[CRLF]a=recvonly"	3	08C9	000C	[24] 6
"[CRLF]a=sendrecv"	3	093B	000C	[24] 6
"[CRLF]a=sendonly"	3	08D5	000C	[24] 6
"[CRLF]a=inactive"	3	0886	000C	[24] 6

"[CRLF]a=orient:portrait"	4 0974 0013 [24] 6
"[CRLF]a=orient:landscape"	4 03D2 0014 [24] 6
"[CRLF]a=orient:seascape"	4 050B 0013 [24] 6
"[CRLF]a=type:broadcast"	4 0442 0012 [24] 6
"[CRLF]a=type:meeting"	4 055B 0010 [24] 6
"[CRLF]a=type:moderated"	4 051E 0012 [24] 6
"[CRLF]a=type:test"	4 08B1 000D [24] 6
"[CRLF]a=type:H.332"	4 0817 000E [24] 6
"[CRLF]a=type:recvonly"	4 054A 0011 [24] 6
"[CRLF]a=charset:"	4 0653 000C [24] 6
"[CRLF]a=sdplang:"	4 0647 000C [24] 6
"[CRLF]a=lang:"	4 06F7 0009 [24] 6
"[CRLF]a=framerate:"	4 05C7 000E [24] 6
"[CRLF]a=quality:"	4 063B 000C [24] 6
"[CRLF]a=fmtp:"	2 0C50 0009 [24] 6
"[CRLF]a=curr:"	2 0C59 0009 [12] 4
"[CRLF]a=des:"	2 0C72 0008 [12] 4
"[CRLF]a=conf:"	2 0C35 0009 [12] 4
"[CRLF]a=mid:"	4 0752 0008 [26] 3
"[CRLF]a=group:"	4 06D8 000A [26] 3
"[CRLF]a=key-mgmt:mikey"	4 0257 0012 [28] 2.1, [29] 6
"[CRLF]a=key-mgmt:"	4 0257 000D [28] 2.1
"[CRLF]a="	5 0257 0004 [24] 6
"[CRLF]m=audio "	2 0C21 000A [24] 6
"[CRLF]m=video "	2 0C17 000A [24] 6
"[CRLF]m=application "	4 0330 0010 [24] 6
"[CRLF]m=data "	4 0700 0009 [24] 6
"[CRLF]m=control "	4 062F 000C [24] 6
"[CRLF]m="	5 0330 0004 [24] 6
"AS "	3 091A 0003 [24] 6
"CT "	3 091D 0003 [24] 6
"RTP/AVP "	2 0BE3 0008 [24] A
"RTP/SAVP "	3 0892 0009 [30] 12
"RTP/AVPF "	3 089B 0009 [31] 4.1
"udp"	4 07DB 0003 [3] 25.1, [24] A, [3] 25.1, [24] A
"0.0.0.0"	4 0B7E 0007 [24] A
"qos"	2 0CA9 0003 [12] 4
"mandatory"	2 0A8D 0009 [12] 4
"optional"	2 09AE 0008 [3] 20.11, [12] 4, [3] 20.11, [12] 4
"none"	2 0AF4 0004 [33] 4.2, [12] 4
"failure"	4 0A5C 0007 [12] 4
"unknown"	4 0BDA 0007 [12] 4
"e2e"	2 0AB1 0003 [12] 4
"local"	2 0A36 0005 [12] 4

"remote"	2	0AD6	0006 [12]	4
"send"	2	08D9	0004 [12]	4
"recv"	2	0553	0004 [12]	4
"sendrecv"	2	093F	0008 [12]	4
"AMR"	2	0BE1	0003 [25]	8
"octet-align="	4	094A	000C [25]	8
"mode-set="	4	0709	0009 [25]	8
"mode-change-period="	4	04F8	0013 [25]	8
"mode-change-neighbor="	4	04A2	0015 [25]	8
"crc="	4	07AA	0004 [25]	8
"robust-sorting="	4	0166	000F [25]	8
"interleaving="	4	0323	000D [25]	8
"channels="	4	0606	0009 [25]	8
"octet-align"	4	094A	000B [25]	8
"telephone-event"	4	00EE	000F [27]	3.3, 6.1
"events"	4	00F8	0006 [27]	6.1
"rate"	4	052B	0004 [27]	6.1, 6.2
"tone"	4	0453	0004 [27]	6.2
"rtcp-fb"	4	04C0	0007 [31]	4
"ack"	4	0D1F	0003 [31]	4
"nack"	4	0D1E	0004 [31]	4
"ttr-int"	4	098C	0007 [31]	4
"app"	4	0334	0003 [31]	4
"rpsi"	4	0CDB	0004 [31]	4
"pli"	4	0336	0003 [31]	4
"sli"	4	09A9	0003 [31]	4

Table B.1: SDP input strings for the SIP/SDP dictionary

Authors' Addresses

Miguel A. Garcia-Martin
Ericsson
Hirsalantie 11
FIN-02420, Jorvas, Finland

Phone: +358 9299 3553
EMail: miguel.a.garcia@ericsson.com

Carsten Bormann
Universitaet Bremen TZI
Postfach 330440
D-28334 Bremen, Germany

Phone: +49 421 218 7024
EMail: cabo@tzi.org

Joerg Ott
Universitaet Bremen TZI
Postfach 330440
D-28334 Bremen, Germany

Phone: +49.421.201-7028
EMail: jo@tzi.org

Richard Price
Roke Manor Research Ltd
Romsey, Hants, SO51 0ZN, United Kingdom

Phone: +44 1794 833681
EMail: richard.price@roke.co.uk

Adam Roach
dynamicsoft
5100 Tennyson Parkway, Suite 1200
Plano, TX 75024, USA

EMail: adam@dynamicsoft.com

Full Copyright Statement

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.