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The Session Initiation Protocol (SIP) and Session Description Protocol (SDP) static dictionary for Signaling Compression (SigComp)
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Abstract

The Session Initiation Protocol (SIP) [2] is a text-based protocol for initiating and managing communication sessions. The protocol can be compressed by using Signaling Compression (SigComp) [1]. Similarly, the Session Description Protocol (SDP) [24] 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.....	2
2. Design considerations.....	2
3. Binary representation of the SIP/SDP dictionary.....	5
4. Security Considerations.....	12
5. IANA Considerations.....	12
6. Authors' Addresses.....	12
7. Acknowledgements.....	13
8. References.....	13
8.1 Normative references.....	13
8.2 Informative references.....	13
Appendix A. SIP input strings to the SIP/SDP static dictionary.....	17
Appendix B. SDP input strings to the SIP/SDP static dictionary.....	25
Full Copyright Statement.....	28

1. Introduction

SIP [2] and SDP [1] are text-based protocols that use the UTF-8 charset ([RFC 2279](#) [4]). 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.

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) indicate 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 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 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 by another one. The later 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, 0x0D8F, %sa, 0),

and the table subset can be accessed using:

```
STATE-ACCESS (%ps, 6, 0x0D8F, 0x0558, %sa, 0),
```

where %ps points to UDVM memory containing

```
0x450a414e6584
```

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	0x0CD4	0x00BB	0x0D8F	0x0033
1..2	0x0937	0x0458	0x0D8F	0x013E
1..3	0x07C0	0x05CF	0x0D8F	0x01A1
1..4	0x0085	0x0D0A	0x0D8F	0x044A
1..5	0x0000	0x0D8F	0x0D8F	0x0558

The state item consists of the following elements:

Name:	Value:
=====	=====
state_identifier	0x450a414e6584c810e10ec83c1d90f9a5c5bd3cf1
state_length	0x12E7
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	4361	6c6c	2d49	6e66	6f3a	200d	0a54	..Call-Info: ..T
0030	696d	6573	7461	6d70	3a20	0d0a	5265	706c	imESTAMP: ..Repl
0040	792d	546f	3a20	0d0a	5375	626a	6563	743a	y-To: ..Subject:
0050	200d	0a57	6172	6e69	6e67	3a20	3b68	616e	..Warning: ;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

Garcia et al.

[Page 6]

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	6451	2e38	3530	3520	5665	7273	696f	6e20	dQ.8505 Version	
01E0	4e6f	7420	5375	7070	6f72	7465	6434	3233	Not Supported423	
01F0	2049	6e74	6572	7661	6c20	546f	6f20	4272	Interval Too Br	
0200	6965	6672	6f6d	2d74	6167	3430	3320	466f	iefrom-tag403 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	4d49	4b45	594f	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	ervice503 Service	
02D0	2055	6e61	7661	696c	6162	6c65	3430	3520	Unavailable405	
02E0	4d65	7468	6f64	204e	6f74	2041	6c6c	6f77	Method Not Allow	
02F0	6564	3432	3120	4578	7465	6e73	696f	6e20	ed421 Extension	
0300	5265	7175	6972	6564	3438	3720	5265	7175	Required487 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	3330	3220	4d6f	7665	6420	5465	Aug 302 Moved Te	
0350	6d70	6f72	6172	696c	7933	3031	204d	6f76	mporarily301 Mov	
0360	6564	2050	6572	6d61	6e65	6e74	6c79	3531	ed Permanently51	
0370	3320	4d65	7373	6167	6520	546f	6f20	4c61	3 Message Too La	
0380	7267	656d	756c	7469	7061	7274	2f73	6967	rgemultipart/sig	
0390	6e65	6436	3837	2044	6961	6c6f	6720	5465	ned687 Dialog Te	
03A0	726d	696e	6174	6564	0d0a	5265	7472	792d	rminated..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	questtrue491 Requ	
0400	6573	7420	5065	6e64	696e	6735	3031	204e	est Pending501 N	

0410 6f74 2049 6d70 6c65 6d65 6e74 6564 0d0a ot Implemented..
0420 613d 7479 7065 3a62 726f 6164 6361 7374 a=type:broadcast

0430	6f6e	6536	3036	204e	6f74	2041	6363	6570	one606 Not Accep
0440	7461	626c	6534	3036	204e	6f74	2041	6363	table406 Not Acc
0450	6570	7461	626c	6534	3933	2055	6e64	6563	eptable493 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	3330	3520	5573	6520	5072	6f78	7934	3034	305 Use Proxy404
0540	204e	6f74	2046	6f75	6e64	0d0a	613d	7479	Not Found..a=ty
0550	7065	3a72	6563	766f	6e6c	790d	0a61	3d74	pe:recvonly..a=t
0560	7970	653a	6d65	6574	696e	674d	4553	5341	ype:meetingMESSA
0570	4745	200d	0a6b	3d70	726f	6d70	743a	0d0a	GE ..k=prompt:..
0580	496e	2d52	6570	6c79	2d54	6f3a	200d	0a52	In-Reply-To: ..R
0590	6566	6572	7265	642d	4279	3a20	5452	5545	eferred-By: TRUE
05A0	6e63	6f64	696e	673a	2031	3832	2051	7565	ncoding: 182 Que
05B0	7565	640d	0a55	7365	722d	4167	656e	743a	ued..User-Agent:
05C0	200d	0a41	6c65	7274	2d49	6e66	6f3a	2041	..Alert-Info: A
05D0	7574	6865	6e74	6963	6174	653a	200d	0a61	uthenticate: ..a
05E0	3d66	7261	6d65	7261	7465	3a43	414e	4345	=framerate:CANCE
05F0	4c20	0d0a	613d	6d61	7870	7469	6d65	3a3b	L ..a=maxptime:;
0600	7265	7472	792d	6166	7465	723d	7561	6368	retry-after=uach
0610	616e	6e65	6c73	3d34	3130	2047	6f6e	650d	annels=410 Gone.
0620	0a52	6566	6572	2d54	6f3a	200d	0a50	7269	.Refer-To: ..Pri
0630	6f72	6974	793a	200d	0a61	3d71	7561	6c69	ority: ..a=quali
0640	7479	3a0d	0a61	3d73	6470	6c61	6e67	3a0d	ty:..a=sdplang:.
0650	0a52	6570	6c61	6365	733a	200d	0a61	3d63	.Replaces: ..a=c
0660	6861	7273	6574	3a0d	0a6d	3d63	6f6e	7472	harset:..m=contr
0670	6f6c	2052	4546	4552	2069	7073	6563	2d69	ol REFER ipsec-i
0680	6b65	3b74	7261	6e73	706f	7274	3d0d	0a61	ke;transport=..a
0690	3d6b	6579	7764	733a	0d0a	6b3d	6261	7365	=keywds:..k=base
06A0	3634	3a3b	7265	6672	6573	6865	723d	3b72	64;;refresher=;r
06B0	6563	6569	7665	643d	0d0a	6b3d	636c	6561	eceived=..k=clea
06C0	723a	3b64	7572	6174	696f	6e3d	0d0a	4163	r;;duration=..Ac
06D0	6365	7074	3a20	0d0a	613d	6772	6f75	703a	cept: ..a=group:
06E0	0d0a	613d	7074	696d	653a	4641	4c53	453a	..a=ptime:FALSE:
06F0	2049	4e46	4f20	0d0a	613d	746f	6f6c	3a0d	INFO ..a=tool:.
0700	0a61	3d6c	616e	673a	0d0a	6d3d	6461	7461	.a=lang:..m=data
0710	206d	6f64	652d	7365	743d	0d0a	4163	6365	mode-set=..Acce
0720	7074	2d54	4c53	756e	2c20	0d0a	4461	7465	pt-TLSun, ..Date
0730	3a20	0d0a	613d	6361	743a	0d0a	6b3d	7572	: ..a=cat:..k=ur

```
0740 693a 0d0a 5072 6f78 792d 3b72 6561 736f i:...Proxy-;reaso
0750 6e3d 3b6d 6574 686f 643d 0d0a 613d 6d69 n=;method=..a=mi
```

0760	643a	3b6d	6164	6472	3d6f	7061	7175	653d	d;;maddr=opaque=
0770	0d0a	4d69	6e2d	3b61	6c67	3d4d	6f6e	2c20	..Min-;alg=Mon,
0780	5475	652c	2057	6564	2c20	4672	692c	2053	Tue, Wed, Fri, S
0790	6174	2c20	3b74	746c	3d61	7574	733d	0d0a	at, ;ttl=auts=..
07A0	693d	0d0a	7a3d	0d0a	753d	0d0a	653d	3b69	i=..z=..u=..e=i
07B0	643d	6372	633d	0d0a	723d	7561	733b	713d	d=crc=..r=uas;q=
07C0	3431	3420	5265	7175	6573	742d	5552	4920	414 Request-URI
07D0	546f	6f20	4c6f	6e67	6976	6575	7072	6976	Too Longiveupriv
07E0	6163	7975	6470	7265	6665	7236	3030	2042	acyudprefer600 B
07F0	7573	7920	4576	6572	7977	6865	7265	7175	usy Everywherequ
0800	6972	6564	3438	3020	5465	6d70	6f72	6172	ired480 Temporar
0810	696c	7920	556e	6176	6169	6c61	626c	650d	ily Unavailable.
0820	0a61	3d74	7970	653a	482e	3333	3230	3220	.a=type:H.33202
0830	4163	6365	7074	6564	0d0a	5365	7373	696f	Accepted..Sessio
0840	6e2d	4578	7069	7265	733a	200d	0a53	7562	n-Expires: ..Sub
0850	7363	7269	7074	696f	6e2d	5374	6174	653a	scription-State:
0860	204e	6f76	200d	0a53	6572	7669	6365	2d52	Nov ..Service-R
0870	6f75	7465	3a20	5365	7020	0d0a	416c	6c6f	oute: Sep ..Allo
0880	772d	4576	656e	7473	3a20	4665	6220	0d0a	w-Events: Feb ..
0890	5265	636f	7264	2d52	6f75	7465	3a20	4a75	Record-Route: Ju
08A0	6c20	0d0a	613d	696e	6163	7469	7665	5254	l ..a=inactiveRT
08B0	502f	4156	5046	2052	5450	2f53	4156	5020	P/AVPF RTP/SAVP
08C0	416e	6f6e	796d	6f75	7369	7073	3a0d	0a61	Anonymousips:..a
08D0	3d74	7970	653a	7465	7374	656c	3a0d	0a61	=type:testel:..a
08E0	3d72	6563	766f	6e6c	790d	0a45	7665	6e74	=recvonly..Event
08F0	3a20	2020	200d	0a61	3d73	656e	646f	6e6c	: ..a=sendonl
0900	790d	0a63	3d49	4e20	4950	3420	0d0a	5265	y..c=IN IP4 ..Re
0910	6173	6f6e	3a20	0d0a	416c	6c6f	773a	200d	ason: ..Allow: .
0920	0a50	6174	683a	203b	7573	6572	3d0d	0a62	.Path: ;user=..b
0930	3d43	5420	4153	200d	0a57	5757	2d41	7574	=CT AS ..WWW-Aut
0940	6865	6e74	6963	6174	653a	2044	6967	6573	henticate: Diges
0950	7420	0d0a	613d	7365	6e64	7265	6376	6964	t ..a=sendrecvid
0960	656f	6374	6574	2d61	6c69	676e	3d61	7070	eoctet-align=app
0970	6c69	6361	7469	6f6e	2f73	6470	6174	6865	lication/sdpathe
0980	6164	6572	7370	6175	7468	3d0d	0a61	3d6f	aderspauth=..a=o
0990	7269	656e	743a	706f	7274	7261	6974	696d	rient:portraitim
09A0	656f	7574	7472	2d69	6e74	6963	6f6e	633d	eouttr-inticonc=
09B0	3438	3320	546f	6f20	4d61	6e79	2048	6f70	483 Too Many Hop
09C0	736c	696e	666f	7074	696f	6e61	6c67	6f72	slinfoptionalgor
09D0	6974	686d	3d36	3034	2044	6f65	7320	4e6f	ithm=604 Does No
09E0	7420	4578	6973	7420	416e	7977	6865	7265	t Exist Anywhere
09F0	7370	6f6e	7365	3d0d	0a0d	0a52	6571	7565	sponse=....Reque
0A00	7374	2d44	6973	706f	7369	7469	6f6e	3a20	st-Disposition:
0A10	4d44	3538	3020	5072	6563	6f6e	6469	7469	MD580 Preconditi
0A20	6f6e	2046	6169	6c75	7265	706c	6163	6573	on Failureplaces
0A30	3432	3220	5365	7373	696f	6e20	496e	7465	422 Session Inte
0A40	7276	616c	2054	6f6f	2053	6d61	6c6c	6f63	rval Too Smalloc
0A50	616c	3138	3120	4361	6c6c	2049	7320	4265	al181 Call Is Be
0A60	696e	6720	466f	7277	6172	6465	646f	6d61	ing Forwardedoma

0A70 696e 3d66 6169 6c75 7265 6e64 6572 6561 in=failurenderea
0A80 6c6d 3d53 5542 5343 5249 4245 2069 7073 lm=SUBSCRIBE ips

0A90	6563	2d6d	616e	6461	746f	7279	7072	6563	ec-mandatoryprec
0AA0	6f6e	6469	7469	6f6e	6f72	6d61	6c34	3133	onditionormal413
0AB0	2052	6571	7565	7374	2045	6e74	6974	7920	Request Entity
0AC0	546f	6f20	4c61	7267	6532	6534	3836	2042	Too Large2e486 B
0AD0	7573	7920	4865	7265	6d6f	7465	726d	696e	usy Heremotetermin
0AE0	6174	6564	3138	3320	5365	7373	696f	6e20	ated183 Session
0AF0	5072	6f67	7265	7373	6374	700d	0a43	6f6e	Progressctp..Con
0B00	7465	6e74	2d4c	656e	6774	683a	204f	6374	tent-Length: Oct
0B10	2041	4b41	7631	2d4d	4435	2d73	6573	7369	AKAv1-MD5-sessi
0B20	6f6e	6f6e	650d	0a41	7574	686f	7269	7a61	onone..Authoriza
0B30	7469	6f6e	3a20	3630	3320	4465	636c	696e	tion: 603 Declin
0B40	6578	746e	6f6e	6365	3d34	3835	2041	6d62	extnonce=485 Amb
0B50	6967	756f	7573	6572	6e61	6d65	3d61	7564	iguouusername=aud
0B60	696f	0d0a	436f	6e74	656e	742d	5479	7065	io..Content-Type
0B70	3a20	4d61	7220	3430	3120	556e	6175	7468	: Mar 401 Unauth
0B80	6f72	697a	6564	0d0a	5265	7175	6972	653a	orized..Require:
0B90	2053	4354	5052	4143	4b20	0d0a	743d	3020	SCTPRACK ..t=0
0BA0	302e	302e	302e	300d	0a53	6572	7665	723a	0.0.0.0..Server:
0BB0	2052	4547	4953	5445	5220	0d0a	633d	494e	REGISTER ..c=IN
0BC0	2049	5036	2031	3830	2052	696e	6769	6e67	IP6 180 Ringing
0BD0	3130	3020	5472	7969	6e67	763d	300d	0a6f	100 Tryingv=0..o
0BE0	3d4e	4f54	4946	5920	5550	4441	5445	200d	=NOTIFY UPDATE .
0BF0	0a53	7570	706f	7274	6564	3a20	756e	6b6e	.Supported: unkn
0C00	6f77	6e41	4d52	5450	2f41	5650	200d	0a50	ownAMRTP/AVP ..P
0C10	7269	7661	6379	3a20	0d0a	4578	7069	7265	rivacy: ..Expire
0C20	733a	200d	0a53	6563	7572	6974	792d	0d0a	s: ..Security-..
0C30	613d	7274	706d	6170	3a0d	0a6d	3d76	6964	a=rtpmap:..m=vid
0C40	656f	200d	0a6d	3d61	7564	696f	200d	0a73	eo ..m=audio ..s
0C50	3d20	6661	6c73	650d	0a52	6f75	7465	3a20	= false..Route:
0C60	3b65	7870	6972	6573	3d0d	0a61	3d63	7572	;expires=..a=cur
0C70	723a	0d0a	613d	666d	7470	3a0d	0a61	3d63	r:..a=fmtp:..a=c
0C80	6f6e	663a	0d0a	5241	636b	3a20	0d0a	613d	onf:..RAck: ..a=
0C90	6465	733a	0d0a	5253	6571	3a20	436c	6965	des:..RSeq: Clie
0CA0	6e74	3a20	5665	7269	6679	3a20	4259	4520	nt: Verify: BYE
0CB0	636e	6f6e	6365	3d31	3030	7265	6c75	7269	cnonce=100reluri
0CC0	3d71	6f70	3d71	6f73	5443	5055	4450	786d	=qop=qosTCPUDPxm
0CD0	6c3b	6c72	0d0a	5669	613a	2053	4950	2f32	l;lr..Via: SIP/2
0CE0	2e30	2f54	4350	2034	3038	2052	6571	7565	.0/TCP 408 Reque
0CF0	7374	2054	696d	656f	7574	696d	6572	7073	st Timeoutimerps
0D00	6970	3a0d	0a56	6961	3a20	5349	502f	322e	ip:..Via: SIP/2.
0D10	302f	5544	5020	3b63	6f6d	703d	7369	6763	0/UDP ;comp=sigc
0D20	6f6d	7072	6f62	6174	696f	6e61	636b	3b62	omprobationack;b
0D30	7261	6e63	683d	7a39	6847	3462	4b0d	0a4d	ranch=z9hG4bK..M
0D40	6178	2d46	6f72	7761	7264	733a	2041	7072	ax-Forwards: Apr
0D50	2049	4e56	4954	4520	0d0a	4361	6c6c	2d49	INVITE ..Call-I
0D60	443a	200d	0a43	6f6e	7461	6374	3a20	3230	D: ..Contact: 20
0D70	3020	4f4b	0d0a	4672	6f6d	3a20	0d0a	4353	0 OK..From: ..CS
0D80	6571	3a20	0d0a	546f	3a20	3b74	6167	3d04	eq: ..To: ;tag=.
0D90	10ff	0811	7c0b	1158	0710	db0c	110a	0710	X.....

0DA0 d406 1151 0711 510b 1163 0511 8a06 1184 ...Q..Q..c.....
0DB0 0f11 2e0d 1116 0611 6e08 1174 1311 0310n..t....

0DC0	113d	080d	c504	0f21	030e	c803	0f96	040f	.=.....!
0DD0	9604	10bd	0410	c103	10ac	0410	ac07	10b0	
0DE0	030d	ad08	0fb1	090f	b109	0dee	0a0f	3f09	?.
0DF0	0e83	0a0e	8306	0fe1	070f	e105	0f94	060f	
0E00	9406	0fe8	070f	e808	0d83	060e	7d07	0e6c	}.1
0E10	060f	4303	10cb	0910	7203	10c8	0a0d	cb05	..C.....r.....
0E20	0e4d	060e	d603	0e10	110f	2504	0cf9	080f	.M.....%.
0E30	1704	0953	030a	4704	0f11	120e	fb10	0f62	...S..G.....b
0E40	090f	1108	0d56	0310	030b	1018	0310	ce06	V.....
0E50	10b7	0c0e	9c0b	100d	0a0f	d004	104d	0510	M..
0E60	4d08	1084	070f	da09	1060	0b10	2e07	0f9a	M.....`.....
0E70	0b0f	8609	1057	0810	940b	1023	0810	9c08	W.....#....
0E80	0fa9	0810	a404	0f9a	0d0f	ef08	0dc5	100f	
0E90	760b	0fba	140d	371b	0d37	040d	f714	0ee4	v.....7..7.....
0EA0	0b0f	c50b	0734	0f0d	6d04	0f21	0310	d107	4..m..!....
0EB0	0d4b	090f	5409	1069	0810	8c09	107b	0a10	.K..T..i.....{..
0EC0	430a	1039	0810	0503	10c5	090e	9305	0cc8	C..9.....
0ED0	040c	d90c	10db	090d	1610	0c7a	0c0c	a204	Z....
0EE0	0d7b	0c0c	f50c	0ce9	070b	dc0b	0d01	130b	.{.....
0EF0	eb08	0d1f	0c0c	dd13	10d4	0a0d	0c0d	0ecb	
0F00	030d	3403	0d31	1b0c	0409	0cb7	090c	ae11	..4..1.....
0F10	0c65	0c0c	2c0c	0d52	130c	3810	0c8e	160c	.e.,...R..8.....
0F20	4b06	0d27	0504	f209	0cc0	050b	e604	0d2d	K..'.....-
0F30	0f09	7e06	0b70	090c	4204	0aed	0c0a	2b08	..~...p..B.....+
0F40	0b42	0e09	cf0f	0f27	090f	880c	0a1f	0f09	.B.....'.....
0F50	8d0c	0a4f	170d	f90f	07a8	0a0f	a70f	08d6	...O.....
0F60	0e09	b30b	0a82	030b	e303	08c1	040e	f703	
0F70	08d3	0204	8d08	0b52	050b	9407	0b69	0605	R.....i..
0F80	4804	07f4	0510	5204	071e	0807	1e05	0b99	H.....R.....
0F90	1004	ca09	0a79	090e	8d05	0498	050b	760b	y.....v.
0FA0	049b	0f04	9b07	049b	0304	a307	04a3	1007	
0FB0	8309	0783	050b	7b05	0b80	050b	8505	07b9	{.....
0FC0	050b	8a05	0b8f	050b	2505	08e4	050c	8905	%.
0FD0	0f71	0511	4c05	0878	0508	9d05	0c9d	0507	.q..L..x.....
0FE0	3f05	0c75	050f	0c05	0c60	0506	a904	07b6	?..u.....`.....
0FF0	0905	8c06	061a	060e	a70a	0616	0a0a	c207	
1000	0b62	0a0a	ae03	0b23	040f	9106	0ca8	0705	.b.....#.....
1010	ad0a	0eda	080b	4a0d	09ff	0b05	1c09	1122	J....."
1020	0805	c907	0d9d	060b	d70a	064d	040b	ae06	M....
1030	068d	0806	0208	0e28	0b0a	a303	0a0c	030b	(.....
1040	ba05	10f9	0409	9c05	0aea	030b	bd06	0d7e	~
1050	040d	2808	08b7	1b0e	520a	09a9	1404	8515	..(.....R.....
1060	0759	1507	440d	0930	1706	ae0f	07e6	1407	.Y..D..0.....
1070	be0d	060a	0d09	3d16	06dc	1208	4521	04aa	=.....E!..
1080	1310	e708	0a17	1c0e	ad18	0bc0	1a05	951a	
1090	0575	1106	3d16	06f2	1e0e	3016	05ed	1d06	.u..=.....0.....
10A0	2023	0527	1108	7d11	0db0	1604	da0d	0f49	#..'...}. I
10B0	1607	0817	05b4	0d08	c713	07f8	1208	571f	W.
10C0	04fe	1905	4e13	080b	0f08	e917	06c5	1306	N.....

```
10D0 7b19 05d4 1507 6e18 0e12 0b0f 361b 0dd5 {.....n.....6...
10E0 1208 3315 0793 040b 9e04 0ba6 040b aa04 ..3.....
```

```

10F0 0bb6 040b a20a 0ab8 0b0a 9808 0b3a 0b09 .....:..
1100 7308 0b32 0b0a 8d09 0af6 0a0a e00d 09f2 s..2.....
1110 130d 8b14 07d2 1309 0b12 081e 1009 5b12 .....[.
1120 091e 0d0c cd0e 0c1f 1109 4a0c 0a5b 0c0a .....J..[.
1130 4309 0aff 0e09 dd0c 0a37 0706 6908 0669 C.....7..i..i
1140 0609 eb08 0b5a 0a0a d612 0657 0d06 5707 .....Z.....W..W.
1150 09eb 040a f110 0730 090b 080c 0a67 050a .....0.....g..
1160 f105 0a73 060a 7307 096b 0809 6b03 0be3 ...s..s..k..k...
1170 070f a00a 0acc 090b 1a0a 099f 0a06 7107 .....q.
1180 0e73 070f fc0e 09c1 1706 930a 0efb 0d0e .s.....
1190 030a 099f 0a06 7108 0b2a 0c0d 6109 0b11 .....q..*..a...
11A0 1308 f815 08a2 040b b20f 0566 0d07 2309 .....f..#.
11B0 0a0e 0b0d 610f 04ee 0604 f804 092b 0408 ....a.....+..
11C0 2f07 08c0 0311 2b04 112a 070d a303 0734 /.....+..*.....4
11D0 0410 fd03 0736 030d c00d 042d 0b04 460c .....6.....-..F.
11E0 043a 040b c004 0c2c 0405 9504 047c 0405 .:.....,.....|..
11F0 7504 0485 0409 7304 063d 0604 7b04 06f2 u.....s..=..{...
1200 0407 5904 0e30 1204 0010 088e 1008 690e ..Y..0.....i.
1210 0412 0d04 2003 10db 0405 ed04 0744 0406 ....D..
1220 2007 0474 040c 040a 045c 0405 2704 0930 ..t.....\'...0
1230 0408 7d04 0fd0 040d b004 06ae 0404 da09 ..}.....
1240 0409 0811 2e04 0f49 0407 e604 0ecb 0508 .....I.....
1250 bd04 0708 040f c504 0657 0405 b404 0f76 .....W.....v
1260 0408 c708 0bfc 0407 f804 0730 0407 be04 .....0....
1270 0857 050d 5d04 04fe 0406 0a04 054e 040e .W..].....N..
1280 5204 080b 0409 3d04 08e9 0505 d104 06c5 R.....=.....
1290 0406 dc04 067b 0409 a904 05d4 0408 4504 .....{.....E.
12A0 076e 040b e504 0e12 0404 aa04 0beb 070f .n.....
12B0 1b04 0f36 040e e404 0dd5 0410 e704 0833 ...6.....3
12C0 050f 5d04 0793 040a 1706 0e78 0404 8104 ..].....x....
12D0 0dc2 040d aa04 116e 040e ad05 0466 0904 .....n.....f..
12E0 6b0b 0451 040d 01 k..Q...

```

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.

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Garcia et al.

[Page 12]

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Garcia et al.

[Page 15]

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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, small priority values were assigned to strings more likely to occur.

String	Pr	Off	Len	References
=====	==	=====	=====	=====
"sip:"	1	0CFF	0004	[2] 19.1.1
"sips:"	3	08C8	0005	[2] 19.1.1
"tel:"	3	08D9	0004	[6] 2.2
"SIP/2.0"	1	0CDB	0007	[2] 25.1
"SIP/2.0/UDP "	1	0D0A	000C	[2] 25.1
"SIP/2.0/TCP "	3	0CDB	000C	[2] 25.1
"INVITE"	1	0D51	0006	[2] 25.1
"INVITE "	1	0D51	0007	[2] 25.1
"ACK"	2	0B96	0003	[2] 25.1
"ACK "	2	0B96	0004	[2] 25.1
"OPTIONS"	4	0269	0007	[2] 25.1
"OPTIONS "	4	0269	0008	[2] 25.1
"BYE"	2	0CAC	0003	[2] 25.1
"BYE "	2	0CAC	0004	[2] 25.1
"CANCEL"	4	05EB	0006	[2] 25.1
"CANCEL "	4	05EB	0007	[2] 25.1
"REGISTER"	2	0BB1	0008	[2] 25.1
"REGISTER "	2	0BB1	0009	[2] 25.1
"INFO"	4	06F1	0004	[7] 2
"INFO "	4	06F1	0005	[7] 2
"SUBSCRIBE"	2	0A83	0009	[8] 8.1.1
"SUBSCRIBE "	2	0A83	000A	[8] 8.1.1
"NOTIFY"	2	0BE1	0006	[8] 8.1.2
"NOTIFY "	2	0BE1	0007	[8] 8.1.2
"PRACK"	2	0B94	0005	[9] 6
"PRACK "	2	0B94	0006	[9] 6
"UPDATE"	2	0BE8	0006	[10] 7, 10
"UPDATE "	2	0BE8	0007	[10] 7, 10
"REFER"	4	0673	0005	[12] 2.1, 7
"REFER "	4	0673	0006	[12] 2.1, 7

"MESSAGE"
"MESSAGE "

4 056B 0007 [20] 9
4 056B 0008 [20] 9

"[CRLF]Accept: "	4 06CC 000A [2] 20.1
"[CRLF]Accept-"	4 071A 0009 [22] 5, [2] 20.2, 20.3
"Contact: "	5 0009 0009 [22] 5
"Encoding: "	4 059F 000A [2] 20.2, [2] 20.12
"Language: "	4 0271 000A [2] 20.3, [2] 20.13
"[CRLF]Alert-Info: "	4 05C1 000E [2] 20.4
"[CRLF]Allow: "	3 0916 0009 [2] 20.5
"[CRLF]Allow-Events: "	3 087A 0010 [8] 8.2.1
"[CRLF]Authentication-Info: "	4 0293 0017 [2] 20.6
"[CRLF]Authorization: "	2 0B25 0011 [2] 20.7
"[CRLF]Call-ID: "	1 0D58 000B [2] 20.8
"[CRLF]Call-Info: "	5 0020 000D [2] 20.9
"[CRLF]Contact: "	1 0D63 000B [2] 20.10
"[CRLF]Content-"	4 0AFB 000A [2] 20.11, 20.12, 20.13, [2] 20.14, 20.15
"Disposition: "	4 0A03 000D [2] 20.11
"Encoding: "	4 059F 000A [2] 20.2, [2] 20.12
"Language: "	4 0271 000A [2] 20.3, [2] 20.13
"[CRLF]Content-Length: "	2 0AFB 0012 [2] 20.14
"[CRLF]Content-Type: "	2 0B62 0010 [2] 20.15
"[CRLF]CSeq: "	1 0D7C 0008 [2] 20.16
"[CRLF]Date: "	4 072A 0008 [2] 20.17
"[CRLF]Error-Info: "	5 0012 000E [2] 20.18
"[CRLF]Event: "	3 08E9 000C [8] 8.2.1
"[CRLF]Expires: "	2 0C18 000B [2] 20.19
"[CRLF]From: "	1 0D74 0008 [2] 20.20
"[CRLF]In-Reply-To: "	4 057E 000F [2] 20.21
"[CRLF]Max-Forwards: "	1 0D3D 0010 [2] 20.22
"[CRLF]Min-"	4 0770 0006 [2] 20.23, [17] 5
"Expires: "	4 0842 0009 [2] 20.23
"SE: "	4 06ED 0004 [17] 5
"[CRLF]MIME-Version: "	5 0469 0010 [2] 20.24
"[CRLF]Organization: "	5 048E 0010 [2] 20.25
"[CRLF]Path: "	3 091F 0008 [15] 3
"[CRLF]Priority: "	4 062B 000C [2] 20.26
"[CRLF]Privacy: "	2 0C0D 000B [34] 4.2
"[CRLF]Proxy-"	4 0742 0008 [2] 20.27, 20.28, 20.29
"Authenticate: "	4 05CF 000E [2] 20.27
"Authorization: "	4 0B27 000F [2] 20.28
"Require: "	4 0B88 0009 [2] 20.29
"[CRLF]RAck: "	2 0C84 0008 [9] 7.2
"[CRLF]Reason: "	3 090C 000A [16] 2

"[CRLF]Record-Route: "
"[CRLF]Refer-To: "

3 088E 0010 [2] 20.30
4 061F 000C [12] 2.1, 7

"[CRLF]Referred-By: "	4	058D	000F	[35]	9
"[CRLF]Reject-Contact: "	5	0000	0012	[22]	5
"[CRLF]Replaces: "	4	064F	000C	[13]	3.1
"[CRLF]Reply-To: "	5	003A	000C	[2]	20.31
"[CRLF]Request-Disposition: "	4	09F9	0017	[22]	5
"[CRLF]Require: "	2	0B86	000B	[2]	20.32
"[CRLF]Retry-After: "	4	03A8	000F	[2]	20.33
"[CRLF]Route: "	2	0C57	0009	[2]	20.34
"[CRLF]RSeq: "	2	0C94	0008	[9]	7.1
"[CRLF]Security-"	2	0C23	000B	[19]	3.3
"Client: "	2	0C9C	0008	[19]	3.3
"Server: "	2	0BA9	0008	[19]	3.3
"Verify: "	2	0CA4	0008	[19]	3.3
"[CRLF]Server: "	4	0BA7	000A	[2]	20.35
"[CRLF]Service-Route: "	3	0865	0011	[36]	
"[CRLF]Session-Expires: "	3	0838	0013	[17]	4
"[CRLF]Subject: "	5	0046	000B	[2]	20.36
"[CRLF]Subscription-State: "	3	084B	0016	[8]	8.2.3
"[CRLF]Supported: "	2	0BEF	000D	[2]	20.37
"[CRLF]Timestamp: "	5	002D	000D	[2]	20.38
"[CRLF]To: "	1	0D84	0006	[2]	20.39
"[CRLF]Unsupported: "	4	04D6	000F	[2]	20.40
"[CRLF]User-Agent: "	4	05B3	000E	[2]	20.41
"[CRLF]Via: "	1	0CD4	0007	[2]	20.42
"[CRLF]Via: SIP/2.0/UDP "	1	0D03	0013	[2]	20.42
"[CRLF]Via: SIP/2.0/TCP "	3	0CD4	0013	[2]	20.42
"[CRLF]Warning: "	5	0051	000B	[2]	20.43
"[CRLF]WWW-Authenticate: "	2	0937	0014	[2]	20.44
"[CRLF]WWW-Authenticate: Digest "	2	0937	001B	[2]	20.44
"[CRLF][CRLF]"	2	09F7	0004	[2]	7
";transport="	4	0682	000B	[2]	25.1
"udp"	4	07E3	0003	[2]	25.1,
				[24]	A, [2] 25.1, [24] A
"tcp"	4	04C1	0003	[2]	25.1
"sctp"	4	0AF7	0004	[2]	25.1
"tls"	4	04D3	0003	[2]	25.1,
				[19]	3.3
";user="	3	0927	0006	[2]	25.1
"phone"	3	00F2	0005	[2]	25.1
"ip"	4	008D	0002	[2]	25.1
";method="	4	0752	0008	[2]	25.1
";ttl="	4	0794	0005	[2]	25.1
";lr"	2	0CD1	0003	[2]	25.1
"Digest "	2	094B	0007	[5]	3.2.1,
					3.2.2
"username="	2	0B54	0009	[5]	3.2.2
"uri="	2	0CBD	0004	[5]	3.2.2
"qop="	2	0CC1	0004	[5]	3.2.1,
					3.2.2

"cnonce="

2 0CB0 0007 [5] 3.2.2

"nc="

2 09AD 0003 [5] 3.2.2

"response="	2	09EE	0009	[5]	3.2.2
"nextnonce="	2	0B3F	000A	[5]	3.2.3
"rspauth="	2	0983	0008	[5]	3.2.3
"realm="	2	0A7D	0006	[5]	3.2.1
"domain="	2	0A6C	0007	[5]	3.2.1
"nonce="	2	0B43	0006	[5]	3.2.1
"opaque="	4	0769	0007	[5]	3.2.1
"stale="	4	0148	0006	[5]	3.2.1
"true"	4	03F4	0004	[5]	3.2.1
"false"	4	0C52	0005	[5]	3.2.1
"algorithm="	2	09CB	000A	[5]	3.2.1,
			[18]		3.1
"MD5"	2	0A10	0003	[5]	3.2.1,
			[18]		3.1
"MD5-sess"	2	0B17	0008	[5]	3.2.1,
			[18]		3.1
"auth"	4	031E	0004	[5]	3.2.1
"auth-int"	4	031E	0008	[5]	3.2.1
"AKAv"	2	0B11	0004	[18]	3.1, 6
"AKAv1-MD5"	2	0B11	0009	[18]	3.1, 6
"auts="	4	0799	0005	[18]	3.4
"digest-integrity"	4	00CA	0010	[19]	3.3
"ipsec-ike"	4	0679	0009	[19]	3.3
"ipsec-man"	4	0A8D	0009	[19]	3.3
"smime"	4	0098	0005	[19]	3.3
";alg="	4	0776	0005	[19]	3.3
";purpose="	5	006B	0009	[2]	20.9
"icon"	5	09AA	0004	[2]	20.9, 20.11
"info"	5	09C2	0004	[2]	20.9
"card"	5	0081	0004	[2]	20.9
";expires="	2	0C60	0009	[2]	25.1,
			[8]		8.4
"render"	5	0A78	0006	[2]	20.11
"session"	5	0B1B	0007	[2]	20.11,
			[34]		4.2
"alert"	5	04BD	0005	[2]	20.11
";handling="	5	005C	000A	[2]	20.11
"optional"	2	09C5	0008	[2]	20.11,
			[11]	4, [2]	20.11, [11] 4
"required"	5	07FC	0008	[2]	20.11
"text"	5	007C	0004	[2]	25.1
"image"	5	0066	0005	[2]	25.1
"audio"	5	0B5D	0005	[2]	25.1
"video"	5	095D	0005	[2]	25.1
"application"	2	0334	000B	[2]	25.1
"application/sdp"	2	096D	000F	[2]	25.1
"message/sip"	4	009B	000B	[2]	27.5
"message/sipfrag"	4	009B	000F	[14]	2
"message"	4	009B	0007	[2]	27.5,

"sip"

[14] 2
4 00A3 0003 [2] 27.5

Garcia et al.

[Page 20]

"sipfrag"	4 00A3 0007 [14] 2
"multipart/signed"	4 0383 0010 [2] 23.3
"multipart"	4 0383 0009 [2] 25.1, 7.4.1
"sdp"	2 0647 0003
"xml"	2 0CCE 0003
"Mon, "	4 077B 0005 [2] 25.1
"Tue, "	4 0780 0005 [2] 25.1
"Wed, "	4 0785 0005 [2] 25.1
"Thu, "	4 03B9 0005 [2] 25.1
"Fri, "	4 078A 0005 [2] 25.1
"Sat, "	4 078F 0005 [2] 25.1
"Sun, "	4 0725 0005 [2] 25.1
" Jan "	4 04E4 0005 [2] 25.1
" Feb "	4 0889 0005 [2] 25.1
" Mar "	4 0B71 0005 [2] 25.1
" Apr "	4 0D4C 0005 [2] 25.1
" May "	4 0478 0005 [2] 25.1
" Jun "	4 049D 0005 [2] 25.1
" Jul "	4 089D 0005 [2] 25.1
" Aug "	4 033F 0005 [2] 25.1
" Sep "	4 0875 0005 [2] 25.1
" Oct "	4 0B0C 0005 [2] 25.1
" Nov "	4 0860 0005 [2] 25.1
" Dec "	4 02A9 0005 [2] 25.1
" GMT"	4 03B6 0004 [2] 25.1
";tag="	1 0D8A 0005 [2] 25.1
"emergency"	4 018C 0009 [2] 20.26
"urgent"	4 021A 0006 [2] 20.26
"normal"	4 0AA7 0006 [2] 20.26
"non-urgent"	4 0216 000A [2] 20.26
";duration="	4 06C2 000A [2] 20.33
";maddr="	4 0762 0007 [2] 20.42
";received="	4 06AE 000A [2] 20.42
";branch="	5 0D2E 0008 [2] 20.42
";branch=z9hG4bK"	1 0D2E 000F [2] 8.1.1.7
"SIP"	5 0CDB 0003 [2] 25.1, [16] 2
"UDP"	2 0CCB 0003 [2] 20.42
"TCP"	2 0CC8 0003 [2] 20.42
"TLS"	4 0723 0003 [2] 20.42
"SCTP"	4 0B91 0004 [2] 20.42
"active"	4 08A8 0006 [8] 8.4
"pending"	4 01AD 0007 [8] 8.4
"terminated"	4 0ADA 000A [8] 8.4
";reason="	4 074A 0008 [8] 8.4
";retry-after="	4 05FF 000D [8] 8.4
"deactivated"	4 011C 000B [8] 8.4
"probation"	4 0D22 0009 [8] 8.4
"rejected"	4 01C9 0008 [8] 8.4

"timeout"
"giveup"

4 099D 0007 [8] 8.4
4 07D7 0006 [8] 8.4

"noresource"	4	024D	000A	[8]	8.4
";id="	4	07AE	0004	[8]	8.4
"100rel"	2	0CB7	0006	[9]	8.1
"precondition"	2	0A9C	000C	[11]	8
"refer"	3	07E6	0005	[12]	3.1, 7
"to-tag"	4	028D	0006	[13]	3.2
"from-tag"	4	0202	0008	[13]	3.2
"replaces"	4	0A28	0008	[13]	3.4
"Q.850"	5	01D1	0005	[16]	2
";cause="	5	0074	0007	[16]	2
";text="	5	007B	0006	[16]	2
"path"	3	097B	0004	[15]	3
";refresher="	4	06A3	000B	[17]	4
"uac"	4	060C	0003	[17]	4
"uas"	4	07BA	0003	[17]	4
"timer"	4	0CF9	0005	[17]	7.1
"pref"	5	07E5	0004	[22]	4.1
"TRUE"	4	059C	0004	[22]	6.2
"FALSE"	4	06EA	0005	[22]	6.2
";q="	4	07BD	0003	[2]	25.1,
				[22]	6.2, [19] 3.3
";comp=sigcomp"	1	0D16	000D	[23]	6
"privacy"	3	07DC	0007	[34]	4.2
"header"	4	097E	0006	[34]	4.2
"user"	4	0928	0004	[34]	4.2
"none"	2	0B21	0004	[34]	4.2,
				[11]	4
"critical"	4	04B7	0008	[34]	4.2
"100 "	5	0BD0	0004	[2]	21.1.1
"100 Trying"	2	0BD0	000A	[2]	21.1.1
"180 "	5	0BC5	0004	[2]	21.1.2
"180 Ringing"	2	0BC5	000B	[2]	21.1.2
"181 "	5	0A52	0004	[2]	21.1.3
"181 Call Is Being Forwarded"	4	0A52	001B	[2]	21.1.3
"182 "	5	05A9	0004	[2]	21.1.4
"182 Queued"	4	05A9	000A	[2]	21.1.4
"183 "	5	0AE4	0004	[2]	21.1.5
"183 Session Progress"	2	0AE4	0014	[2]	21.1.5
"200 "	5	0D6E	0004	[2]	21.2.1
"200 OK"	1	0D6E	0006	[2]	21.2.1
"202 "	5	082C	0004	[8]	8.3.1
"202 Accepted"	3	082C	000C	[8]	8.3.1
"300 "	5	0085	0004	[2]	21.3.1
"300 Multiple Choices"	4	0085	0014	[2]	21.3.1
"301 "	5	0359	0004	[2]	21.3.2
"301 Moved Permanently"	4	0359	0015	[2]	21.3.2
"302 "	5	0344	0004	[2]	21.3.3
"302 Moved Temporarily"	4	0344	0015	[2]	21.3.3
"305 "	5	0530	0004	[2]	21.3.4

"305 Use Proxy"
"380 "

4 0530 000D [2] 21.3.4
5 02AE 0004 [2] 21.3.5

"380 Alternative Service"	4	02AE	0017	[2]	21.3.5
"400 "	5	03E6	0004	[2]	21.4.1
"400 Bad Request"	4	03E6	000F	[2]	21.4.1
"401 "	5	0B76	0004	[2]	21.4.2
"401 Unauthorized"	2	0B76	0010	[2]	21.4.2
"402 "	5	03BE	0004	[2]	21.4.3
"402 Payment Required"	4	03BE	0014	[2]	21.4.3
"403 "	5	020A	0004	[2]	21.4.4
"403 Forbidden"	4	020A	000D	[2]	21.4.4
"404 "	5	053D	0004	[2]	21.4.5
"404 Not Found"	4	053D	000D	[2]	21.4.5
"405 "	5	02DC	0004	[2]	21.4.6
"405 Method Not Allowed"	4	02DC	0016	[2]	21.4.6
"406 "	5	0445	0004	[2]	21.4.7
"406 Not Acceptable"	4	0445	0012	[2]	21.4.7
"407 "	5	00AA	0004	[2]	21.4.8
"407 Proxy Authentication Required"	4	00AA	0021	[2]	21.4.8
"408 "	5	0CE7	0004	[2]	21.4.9
"408 Request Timeout"	4	0CE7	0013	[2]	21.4.9
"410 "	5	0617	0004	[2]	21.4.10
"410 Gone"	4	0617	0008	[2]	21.4.10
"413 "	5	0AAD	0004	[2]	21.4.11
"413 Request Entity Too Large"	4	0AAD	001C	[2]	21.4.11
"414 "	5	07C0	0004	[2]	21.4.12
"414 Request-URI Too Long"	4	07C0	0018	[2]	21.4.12
"415 "	5	0195	0004	[2]	21.4.13
"415 Unsupported Media Type"	4	0195	001A	[2]	21.4.13
"416 "	5	0175	0004	[2]	21.4.14
"416 Unsupported URI Scheme"	4	0175	001A	[2]	21.4.14
"420 "	5	023D	0004	[2]	21.4.15
"420 Bad Extension"	4	023D	0011	[2]	21.4.15
"421 "	5	02F2	0004	[2]	21.4.16
"421 Extension Required"	4	02F2	0016	[2]	21.4.16
"422 "	5	0A30	0004	[17]	6, 12.1
"422 Session Interval Too Small"	4	0A30	001E	[17]	6, 12.2
"423 "	5	01ED	0004	[2]	21.4.17
"423 Interval Too Brief"	4	01ED	0016	[2]	21.4.17
"429 "	5	0220	0004	[35]	9
"429 Provide Referrer Identity"	4	0220	001D	[35]	9
"480 "	5	0804	0004	[2]	21.4.18
"480 Temporarily Unavailable"	3	0804	001B	[2]	21.4.18
"481 "	5	0127	0004	[2]	21.4.19
"481 Call/Transaction Does Not Exist"	4	0127	0023	[2]	21.4.19
"482 "	5	047D	0004	[2]	21.4.20
"482 Loop Detected"	4	047D	0011	[2]	21.4.20
"483 "	5	09B0	0004	[2]	21.4.21
"483 Too Many Hops"	4	09B0	0011	[2]	21.4.21
"484 "	5	00DA	0004	[2]	21.4.22
"484 Address Incomplete"	4	00DA	0016	[2]	21.4.22

"485 "

5 0B49 0004 [2] 21.4.23

"485 Ambiguous"

4 0B49 000D [2] 21.4.23

Garcia et al.

[Page 23]

"486 "	5	0ACB	0004	[2]	21.4.24
"486 Busy Here"	3	0ACB	000D	[2]	21.4.24
"487 "	5	0308	0004	[2]	21.4.25
"487 Request Terminated"	4	0308	0016	[2]	21.4.25
"488 "	5	01B4	0004	[2]	21.4.26
"488 Not Acceptable Here"	4	01B4	0017	[2]	21.4.26
"489 "	5	04C7	0004	[8]	8.3.2
"489 Bad Event"	4	04C7	000D	[8]	8.3.2
"491 "	5	03F8	0004	[2]	21.4.27
"491 Request Pending"	4	03F8	0013	[2]	21.4.27
"493 "	5	0457	0004	[2]	21.4.28
"493 Undecipherable"	4	0457	0012	[2]	21.4.28
"494 "	5	00FE	0004	[19]	3.3.1
"494 Security Agreement Required"	4	00FE	001F	[19]	3.3.1
"500 "	5	014E	0004	[2]	21.5.1
"500 Server Internal Error"	4	014E	0019	[2]	21.5.1
"501 "	5	040B	0004	[2]	21.5.2
"501 Not Implemented"	4	040B	0013	[2]	21.5.2
"502 "	5	04E9	0004	[2]	21.5.3
"502 Bad Gateway"	4	04E9	000F	[2]	21.5.3
"503 "	5	02C5	0004	[2]	21.5.4
"503 Service Unavailable"	4	02C5	0017	[2]	21.5.4
"504 "	5	027B	0004	[2]	21.5.5
"504 Server Time-out"	4	027B	0013	[2]	21.5.5
"505 "	5	01D4	0004	[2]	21.5.6
"505 Version Not Supported"	4	01D4	0019	[2]	21.5.6
"513 "	5	036E	0004	[2]	21.5.7
"513 Message Too Large"	4	036E	0015	[2]	21.5.7
"580 "	5	0A12	0004	[11]	8
"580 Precondition Failure"	4	0A12	0018	[11]	8
"600 "	5	07EB	0004	[2]	21.6.1
"600 Busy Everywhere"	3	07EB	0013	[2]	21.6.1
"603 "	5	0B36	0004	[2]	21.6.2
"603 Decline"	4	0B36	000B	[2]	21.6.2
"604 "	5	09D5	0004	[2]	21.6.3
"604 Does Not Exist Anywhere"	4	09D5	001B	[2]	21.6.3
"606 "	5	0433	0004	[2]	21.6.4
"606 Not Acceptable"	4	0433	0012	[2]	21.6.4
"687 "	5	0393	0004	[13]	3.5
"687 Dialog Terminated"	4	0393	0015	[13]	3.5
"Anonymous"	3	08C0	0009	[2]	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, small priority values were assigned to strings more likely to occur.

String	Pr	Off	Len	References
=====	==	====	====	=====
"v=0[CRLF]o="	2	0BDA	0007	[24] 6
"[CRLF]s="	2	0C4D	0004	[24] 6
"[CRLF]s= "	2	0C4D	0005	[32] 5
"[CRLF]i="	4	079E	0004	[24] 6
"[CRLF]u="	4	07A6	0004	[24] 6
"[CRLF]e="	4	07AA	0004	[24] 6
"[CRLF]c=IN IP4 "	3	0901	000B	[24] 6
"[CRLF]c=IN IP6 "	2	0BBA	000B	[24] 6
"[CRLF]c="	5	0901	0004	[24] 6
"[CRLF]b="	3	092D	0004	[24] 6
"[CRLF]t="	2	0B9A	0004	[24] 6
"[CRLF]t=0 0"	2	0B9A	0007	[32] 5
"[CRLF]r="	4	07B6	0004	[24] 6
"[CRLF]z="	4	07A2	0004	[24] 6
"[CRLF]k=clear:"	4	06B8	000A	[24] 6
"[CRLF]k=base64:"	4	0698	000B	[24] 6
"[CRLF]k=uri:"	4	073A	0008	[24] 6
"[CRLF]k=prompt:"	4	0573	000B	[24] 6
"[CRLF]k="	5	0573	0004	[24] 6
"[CRLF]a=cat:"	4	0732	0008	[24] 6
"[CRLF]a=keywds:"	4	068D	000B	[24] 6
"[CRLF]a=tool:"	4	06F6	0009	[24] 6
"[CRLF]a=ptime:"	4	06E0	000A	[24] 6
"[CRLF]a=maxptime:"	4	05F2	000D	[24] 6
"[CRLF]a=rtpmap:"	2	0C2E	000B	[24] 6, [32] 5
"[CRLF]a=recvonly"	3	08DD	000C	[24] 6
"[CRLF]a=sendrecv"	3	0952	000C	[24] 6
"[CRLF]a=sendonly"	3	08F5	000C	[24] 6
"[CRLF]a=inactive"	3	08A2	000C	[24] 6
"[CRLF]a=orient:portrait"	4	098B	0013	[24] 6

"[CRLF]a=orient:landscape"
"[CRLF]a=orient:seascape"

4 03D2 0014 [24] 6
4 050B 0013 [24] 6

"[CRLF]a=type:broadcast"	4	041E	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	08CD	000D	[24]	6
"[CRLF]a=type:H.332"	4	081F	000E	[24]	6
"[CRLF]a=type:recvonly"	4	054A	0011	[24]	6
"[CRLF]a=charset:"	4	065B	000C	[24]	6
"[CRLF]a=sdplang:"	4	0643	000C	[24]	6
"[CRLF]a=lang:"	4	06FF	0009	[24]	6
"[CRLF]a=framerate:"	4	05DD	000E	[24]	6
"[CRLF]a=quality:"	4	0637	000C	[24]	6
"[CRLF]a=fmtp:"	2	0C72	0009	[24]	6
"[CRLF]a=curr:"	2	0C69	0009	[11]	4
"[CRLF]a=des:"	2	0C8C	0008	[11]	4
"[CRLF]a=conf:"	2	0C7B	0009	[11]	4
"[CRLF]a=mid:"	4	075A	0008	[26]	3
"[CRLF]a=group:"	4	06D6	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	0C43	000A	[24]	6
"[CRLF]m=video "	2	0C39	000A	[24]	6
"[CRLF]m=application "	4	0330	0010	[24]	6
"[CRLF]m=data "	4	0708	0009	[24]	6
"[CRLF]m=control "	4	0667	000C	[24]	6
"[CRLF]m="	5	0330	0004	[24]	6
"AS "	3	0934	0003	[24]	6
"CT "	3	0931	0003	[24]	6
"RTP/AVP "	2	0C05	0008	[24]	A
"RTP/SAVP "	3	08B7	0009	[30]	12
"RTP/AVPF "	3	08AE	0009	[31]	4.1
"udp"	4	07E3	0003	[2]	25.1,
			[24]	A, [2]	25.1, [24] A
"0.0.0.0"	4	0BA0	0007	[24]	A
"qos"	2	0CC5	0003	[11]	4
"mandatory"	2	0A93	0009	[11]	4
"optional"	2	09C5	0008	[2]	20.11,
			[11]	4, [2]	20.11, [11] 4
"none"	2	0B21	0004	[34]	4.2,
			[11]	4	
"failure"	4	0A73	0007	[11]	4
"unknown"	4	0BFC	0007	[11]	4
"e2e"	2	0AC8	0003	[11]	4
"local"	2	0A4D	0005	[11]	4
"remote"	2	0AD6	0006	[11]	4
"send"	2	08F9	0004	[11]	4
"recv"	2	0553	0004	[11]	4
"sendrecv"	2	0956	0008	[11]	4

"AMR"

2 0C03 0003 [25] 8

"octet-align="

4 0961 000C [25] 8

"mode-set="	4	0711	0009	[25]	8
"mode-change-period="	4	04F8	0013	[25]	8
"mode-change-neighbor="	4	04A2	0015	[25]	8
"crc="	4	07B2	0004	[25]	8
"robust-sorting="	4	0166	000F	[25]	8
"interleaving="	4	0323	000D	[25]	8
"channels="	4	060E	0009	[25]	8
"octet-align"	4	0961	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	042F	0004	[27]	6.2
"rtcp-fb"	4	04C0	0007	[31]	4
"ack"	4	0D2B	0003	[31]	4
"nack"	4	0D2A	0004	[31]	4
"ttr-int"	4	09A3	0007	[31]	4
"app"	4	0334	0003	[31]	4
"rpsi"	4	0CFD	0004	[31]	4
"pli"	4	0336	0003	[31]	4
"sli"	4	09C0	0003	[31]	4

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

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Expiration Date

This memo is filed as <[draft-ietf-sipping-sigcomp-sip-dictionary-04.txt](#)> and expires February 2003.

