



XMPP

XEP-0229: Stream Compression with LZW

Peter Saint-Andre
<mailto:xsf@stpeter.im>
<xmpp:peter@jabber.org>
<http://stpeter.im/>

2007-09-26
Version 1.0

Status	Type	Short Name
Draft	Standards Track	N/A

This document specifies how to use the LZW algorithm in XML stream compression.

Legal

Copyright

This XMPP Extension Protocol is copyright © 1999 – 2017 by the [XMPP Standards Foundation](#) (XSF).

Permissions

Permission is hereby granted, free of charge, to any person obtaining a copy of this specification (the "Specification"), to make use of the Specification without restriction, including without limitation the rights to implement the Specification in a software program, deploy the Specification in a network service, and copy, modify, merge, publish, translate, distribute, sublicense, or sell copies of the Specification, and to permit persons to whom the Specification is furnished to do so, subject to the condition that the foregoing copyright notice and this permission notice shall be included in all copies or substantial portions of the Specification. Unless separate permission is granted, modified works that are redistributed shall not contain misleading information regarding the authors, title, number, or publisher of the Specification, and shall not claim endorsement of the modified works by the authors, any organization or project to which the authors belong, or the XMPP Standards Foundation.

Warranty

NOTE WELL: This Specification is provided on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE.

Liability

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall the XMPP Standards Foundation or any author of this Specification be liable for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising from, out of, or in connection with the Specification or the implementation, deployment, or other use of the Specification (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if the XMPP Standards Foundation or such author has been advised of the possibility of such damages.

Conformance

This XMPP Extension Protocol has been contributed in full conformance with the XSF's Intellectual Property Rights Policy (a copy of which can be found at <https://xmpp.org/about/xsf/ipr-policy>) or obtained by writing to XMPP Standards Foundation, P.O. Box 787, Parker, CO 80134 USA).

Contents

1	Introduction	1
2	Background	1
3	Definition	1
4	Optionality	2
5	Security Considerations	2
6	IANA Considerations	2
7	XMPP Registrar Considerations	2
7.1	Compression Methods Registry	2

1 Introduction

Stream Compression (XEP-0138) ¹ specifies an extensible framework for XML stream compression and defines a registry for compression methods (see <https://xmpp.org/registry/compress.html>). However, XEP-0138 registers only the ZLIB method (see RFC 1950 ²). This document specifies usage of the LZW compression method.

2 Background

The "LZW" compression algorithm was originally developed by Abraham Lempel and Jacob Ziv, subsequently improved by Terry Welch ³, and patented by Sperry Corporation (later Unisys Corporation) as U.S. Patent Number 4,464,650 ⁴. This patent expired on June 20, 2003 ⁵ and ⁶. Therefore implementations of LZW are no longer patent-encumbered. The algorithm is specified by Ecma International in Standard ECMA-151 ⁷ under the name "DCLZ".

3 Definition

If the receiving entity (server) supports the LZW algorithm, it MUST include a <method/> element whose XML character data is "lzw" in the compression stream feature, as follows.

Listing 1: Receiving Entity Offers Stream Compression Feature, Including LZW Method

```
<stream:features>
  <starttls xmlns='urn:iETF:params:xml:ns:xmpp-tls' />
  <compression xmlns='http://jabber.org/features/compress'>
    <method>zlib</method>
    <method>lzw</method>
  </compression>
</stream:features>
```

If the initiating entity wishes to use the LZW algorithm, then it MUST specify that method.

Listing 2: Initiating Entity Requests Stream Compression Using LZW

¹XEP-0138: Stream Compression <https://xmpp.org/extensions/xep-0138.html>.

²RFC 1950: ZLIB Compressed Data Format Specification version 3.3 <http://tools.ietf.org/html/rfc1950>.

³See "A Technique for High-Performance Data Compression", Computer (June 1984), pp. 8-19.

⁴See <http://patft.uspto.gov/netacgi/nph-Parser?patentnumber=4,464,650>.

⁵See http://compression-links.info/Link/1264_LZW_Patent_Expiration.htm

⁶See http://compression-links.info/Link/1814_LZW_Patent_Expiration.htm.

⁷Standard ECMA-151: Data Compression for Information Interchange - Adaptive Coding with Embedded Dictionary - DLCZ Algorithm <http://www.ecma-international.org/publications/standards/Ecma-151.htm>.

```
<compress xmlns='http://jabber.org/protocol/compress'>
  <method>lzw</method>
</compress>
```

The initiating entity and receiving entity then MUST attempt to negotiate use of the LZW algorithm in accordance with XEP-0138.

If the use of the LZW algorithm is negotiated, the usage SHOULD follow the definition in ECMA-151.

4 Optionality

The LZW algorithm is OPTIONAL to implement for XEP-0138 implementations and this specification does not define a mandatory-to-implement technology.

5 Security Considerations

The security considerations specified in XEP-0138 apply to usage of the LZW algorithm.

6 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)⁸.

7 XMPP Registrar Considerations

7.1 Compression Methods Registry

The [XMPP Registrar](#)⁹ maintains a registry of compression methods at <https://xmpp.org/registrar/compress.html>.

The LZW algorithm is already registered. This specification updates the registry submission as follows:

⁸The Internet Assigned Numbers Authority (IANA) is the central coordinator for the assignment of unique parameter values for Internet protocols, such as port numbers and URI schemes. For further information, see <http://www.iana.org/>.

⁹The XMPP Registrar maintains a list of reserved protocol namespaces as well as registries of parameters used in the context of XMPP extension protocols approved by the XMPP Standards Foundation. For further information, see <https://xmpp.org/registrar/>.

```
<method>
  <name>lzw</name>
  <desc>the LZW (DCLZ) compression method</desc>
  <doc>XEP-0229</doc>
</method>
```