



# XMPP

## XEP-0103: URL Address Information

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This document defines a structure for providing information about an Uniform Resource Locator (URL), and a protocol signaling retrieval states.

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## 1 Introduction

As Jabber becomes more widely utilized, applications of the protocol are veering away from traditional use as an IM product and are utilizing it for more generic data transportation and negotiation. While many advances are being made to facilitate non-IM data transportation, they do not address the use of already-established mechanisms of transporting data via URLs. This document provides a method that is compatible with these data transportation mechanisms and that is based on standard Internet Uniform Resource Locators (see [RFC 3986](#)<sup>1</sup>).

## 2 Requirements

The requirements this protocol fulfills are:

- Simple usage that can be easily extended
- Provide any meta-data necessary for using the URL
- Compatibility with [Stream Initiation \(XEP-0095\)](#)<sup>2</sup>

## 3 Use Cases

### 3.1 "Publishing" URLs

The simplest use of this protocol is to provide just a URL to another entity.

Listing 1: Exchanging a simple HTTP URL

```
<message from='d20M@festhall.outer-planes.net'  
  to='linuxwolf@outer-planes.net'>  
  <body>ANNOUNCEMENT: Next Session</body>  
  <url-data  
    xmlns='http://jabber.org/protocol/url-data'  
    target='http://festhall.outer-planes.net/d20M/announce/latest/'/  
  >  
</message>
```

If more information is necessary for successfully using the URL, the sender includes meta-information in a scheme-specific format such as that defined in [HTTP Scheme for URL Data \(XEP-0104\)](#)<sup>3</sup>:

---

<sup>1</sup>RFC 3986: Uniform Resource Identifiers (URI): Generic Syntax <<http://tools.ietf.org/html/rfc3986>>.

<sup>2</sup>XEP-0095: Stream Initiation <<https://xmpp.org/extensions/xep-0095.html>>.

<sup>3</sup>XEP-0104: HTTP Scheme for URL Data <<https://xmpp.org/extensions/xep-0104.html>>.

Listing 2: Exchanging a HTTP URL with Headers

```

<message from='d20M@festhall.outer-planes.net'
         to='linuxwolf@outer-planes.net'>
  <body>ANNOUNCEMENT: Next Session</body>
  <url-data
    xmlns='http://jabber.org/protocol/url-data'
    xmlns:http='http://jabber.org/protocol/url-data/scheme/http'
    target='http://festhall.outer-planes.net/d20M/announce/latest/'>
    <http:header name='Cookie'>jsessionId=1324123wdwfq341w1243asdf'</
      http:header>
  </url-data>
</message>

```

The above example illustrates supplying a HTTP URL with a cookie header. Additional information could be provided, such as HTTP authentication requirements or even POST data. To support the use of bulk publishing methods such as [Publish-Subscribe \(XEP-0060\)](#)<sup>4</sup> or messages of type "headline", the <desc/> element is used to provide a textual description:

Listing 3: &lt;message/&gt; Headlines

```

<message
  from='d20M@festhall.outer-planes.net'
  to='linuxwolf@outer-planes.net'
  type='headline'>
  <body>Complete list of Session Announcements</body>
  <url-data
    xmlns='http://jabber.org/protocol/url-data'
    xmlns:http='http://jabber.org/protocol/url-data/scheme/http'
    target='http://festhall.outer-planes.net/d20M/announce/latest/'>
    <http:header name='Cookie'>jsessionId=1324123wdwfq341w1243asdf'</
      http:header>
  <desc>Dept-7_d20M_Campaign</desc>
  </url-data>
  <url-data
    xmlns='http://jabber.org/protocol/url-data'
    xmlns:http='http://jabber.org/protocol/url-data/scheme/http'
    target='http://festhall.outer-planes.net/add2/announce/latest/'>
    <http:header name='Cookie'>jsessionId=234asa4123wdwfq341w1243asdf'
      </http:header>
    <desc>Forgotten Realms, 2nd Edition</desc>
  </url-data>
  <url-data
    xmlns='http://jabber.org/protocol/url-data'
    xmlns:http='http://jabber.org/protocol/url-data/scheme/http'
    target='http://festhall.outer-planes.net/dd3/announce/latest/'>
    <http:header name='Cookie'>jsessionId=234asa4123wdwfq341w1242341f'
      </http:header>

```

<sup>4</sup>XEP-0060: Publish-Subscribe <<https://xmpp.org/extensions/xep-0060.html>>.

```

<<<<<desc>Greyhawk_in_3rd_Edition</desc>
<<<</url-data>
</message>

```

### 3.2 SI Usage

To use "url-data" in conjunction with SI, the "sid" attribute of <url-data/> is used. This attribute MUST be equal to the SI session id.

The general process flow for using "url-data" with SI is as follows<sup>5</sup>:

1. The sender makes a SI request, adding "http://jabber.org/protocols/url-data" as one of the "stream-method" features.
2. The receiver accepts the SI request, and selects "http://jabber.org/protocols/url-data".
3. The sender provides an <iq/> with the <url-data/>.
4. The receiver retrieves the data from the provided URL [E1, E2].
5. Once retrieval is complete, the Receiver responds to Sender (EUC).
  - E1: The given URL is not supported/understood
  - E2: Failure to connect to the given URL

The sender starts with an SI request, using the semantics from XEP-0095:

Listing 4: Requesting SI transfer

```

<iq type='set' id='offer1' to='receiver@jabber.org/resource'>
  <si xmlns='http://jabber.org/protocol/si'
    id='a0'
    mime-type='text/plain'
    profile='http://jabber.org/protocol/si/profile/file-transfer'>
    <file xmlns='http://jabber.org/protocol/si/profile/file-transfer'
      name='test.txt'
      size='1022' />
    <feature xmlns='http://jabber.org/protocol/feature-neg'>
      <x xmlns='jabber:x:data' type='form'>
        <field var='stream-method' type='list-single'>
          <option><value>http://jabber.org/protocol/url-data</value></option>
          <option><value>http://jabber.org/protocol/bytestreams</value></option>
          <option><value>http://jabber.org/protocol/ibb</value></option>

```

<sup>5</sup>The error conditions for SI are fully-documented in that document, and are therefore not included here.

```

        </field>
      </x>
    </feature>
  </si>
</iq>

```

The receiver then accepts the request, specifying "url-data" as the stream method:

```

<iq type='result' to='sender@jabber.org/resource' id='offer1'>
  <si xmlns='http://jabber.org/protocol/si'>
    <feature xmlns='http://jabber.org/protocol/feature-neg'>
      <x xmlns='jabber:x:data' type='submit'>
        <field var='stream-method'>
          <value>http://jabber.org/protocol/url-data</value>
        </field>
      </x>
    </feature>
  </si>
</iq>

```

The sender then sends an <iq/> with type "set" to the receiver, providing the <url-data/> element with the URL in the "target" attribute:

Listing 5: Providing <url-data/>

```

<iq type='set' from='sender@jabber.org/resource' to='receiver@jabber.
org/resource' id='offer2'>
  <url-data xmlns='http://jabber.org/protocol/url-data'
    sid='a0'
    target='http://pass.jabber.org:8519/test.txt' />
</iq>

```

The receiver attempts to retrieve the data from the given URL. The receiver MUST NOT respond to the <iq/> until the data is completely retrieved, or an error occurs. If the retrieval is successful, the receiver responds with an "iq-result":

Listing 6: Receiver responds successfully

```

<iq type='result' from='receiver@jabber.org/resource' to='
sender@jabber.org/resource' id='offer2'>
  <url-data xmlns='http://jabber.org/protocol/url-data'
    sid='a0'
    target='http://pass.jabber.org:8519/test.txt' />
</iq>

```

Including the <url-data/> element in the result is NOT REQUIRED.

If the receiver does not understand or support the URL, it responds with an "iq-error" with the <malformed-url/> condition:

Listing 7: Receiver does not understand/support URL

```

<iq type='error' from='receiver@jabber.org/resource' to='sender@jabber
.org/resource' id='offer2'>
  <url-data xmlns='http://jabber.org/protocol/url-data'
    sid='a0'
    target='http://pass.jabber.org:8519/thefile.txt' />
  <error type='cancel' code='400'>Malformed URL
    <bad-request xmlns='urn:ietf:params:xml:ns:xmpp-stanzas' />
    <malformed-url xmlns='http://jabber.org/protocol/url-data' />
  </error>
</iq>

```

If the receiver fails to retrieve data from the URL, it responds with an "iq-error" with the <transfer-failed/> condition:

Listing 8: Receiver does not understand/support URL

```

<iq type='error' from='receiver@jabber.org/resource' to='sender@jabber
.org/resource' id='offer2'>
  <url-data xmlns='http://jabber.org/protocol/url-data'
    sid='a0'
    target='http://pass.jabber.org:8519/thefile.txt' />
  <error type='cancel' code='500'>transfer failed
    <undefined-condition xmlns='urn:ietf:params:xml:ns:xmpp-stanzas' />
    <transfer-failed xmlns='http://jabber.org/protocol/url-data' />
  </error>
</iq>

```

If the receiver refuses to accept the URL, it responds with an "iq-error" with the <transfer-refused/> condition:

Listing 9: Receiver does not understand/support URL

```

<iq type='error' from='receiver@jabber.org/resource' to='sender@jabber
.org/resource' id='offer2'>
  <url-data xmlns='http://jabber.org/protocol/url-data'
    sid='a0'
    target='http://pass.jabber.org:8519/thefile.txt' />
  <error type='cancel' code='500'>transfer failed
    <undefined-condition xmlns='urn:ietf:params:xml:ns:xmpp-stanzas' />
    <transfer-refused xmlns='http://jabber.org/protocol/url-data' />
  </error>
</iq>

```



## 4 Implementation Notes

### 4.1 Schemes

The additional information provided by a particular scheme is OPTIONAL. The additional data is provided as XML in a dedicated namespace, and this namespace SHOULD be declared (with an appropriate prefix) within the <url-data/> element.

Entities receiving a <url-data/> element MAY incorporate this information into the use of the URL as necessary. An entity providing a <url-data/> with scheme-specific information SHOULD NOT assume the receiving entity understands it, even if the receiving entity is capable of processing a URL for that scheme.

## 5 Formal Description

### 5.1 <url-data/> Root Element

The <url-data/> element provides the root structure for providing URL addresses. The element has attribute for the target URL and (optional) stream identifier. It contains content for the optional description, and any and all scheme-specific content.

The attribute "target" contains the URL. This attribute MUST be present, and MUST be a valid URL.

The attribute "sid" contains the stream identifier. While this attribute is optional, its usage is REQUIRED when used with Stream Initiation, and MUST contain the Stream Initiation identifier previously agreed to.

### 5.2 <desc/> Element

In cases where textual descriptions cannot be provided, this element fulfills this need. It MAY include the "xml:lang" attribute for localization purposes, and its content is the text of the description. Multiple instances of <desc/> MAY be present, but each instance MUST have a different value for "xml:lang" attribute.

### 5.3 Error Conditions

To simplify the discussion on error conditions, this document uses the following mapping between namespace URIs and namespace prefixes<sup>6</sup>.

---

<sup>6</sup>This mapping is for the purpose of simplifying this discussion, and is not intended to be used in the actual protocol.

Prefix	URI
xmpp	urn:ietf:params:xml:ns:xmpp-stanzas
url	http://jabber.org/protocol/url-data

Below are the errors that can result.

Error Type	General Condition	Specific Condition	Description
modify	<xmpp:bad-request/>	<url:malformed-url/>	The URL is not supported or understood.
cancel	<xmpp:not-acceptable/>	<url:transfer-refused/>	The URL transfer failed for some unspecified reason.
cancel	<xmpp:undefined-condition/>	<url:transfer-failed/>	The URL transfer failed for some unspecified reason.

## 5.4 XML Schema

```
<?xml version='1.0' encoding='UTF-8'?>
<xs:schema
  xmlns:xs='http://www.w3.org/2001/XMLSchema'
  targetNamespace='http://jabber.org/protocol/url-data'
  xmlns='http://jabber.org/protocol/url-data'
  elementFormDefault='qualified'>
  <xs:import namespace='http://www.w3.org/XML/1998/namespace'
    schemaLocation='http://www.w3.org/2001/xml.xsd'/>
  <xs:element name='url-data'>
    <xs:complexType>
      <xs:sequence>
        <xs:any namespace='##other' minOccurs='0' maxOccurs='unbounded'
          />
        <xs:element ref='desc' minOccurs='0' maxOccurs='unbounded' />
      </xs:sequence>
      <xs:attribute name='target' type='xs:anyURI' use='required' />
      <xs:attribute name='sid' type='xs:string' use='optional' />
    </xs:complexType>
  </xs:element>
  <xs:element name='desc' type='xs:string'>
```

```
<xs:complexType>
  <xs:attribute ref='xml:lang' use='optional' />
</xs:complexType>
</xs:element>

<xs:element name='malformed-url' />
<xs:element name='transfer-failed' />
<xs:element name='transfer-refused' />

</xs:schema>
```

## 6 Security Considerations

This document does not yet have any security considerations.

## 7 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)<sup>7</sup>.

## 8 XMPP Registrar Considerations

The [XMPP Registrar](#)<sup>8</sup> shall register the namespace "http://jabber.org/protocol/url-data" as a standard namespace. Also, the XMPP Registrar shall register the [Feature Negotiation \(XEP-0020\)](#)<sup>9</sup> option "url-data" for use with Stream Initiation.

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<sup>7</sup>The 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/>.

<sup>8</sup>The 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/>.

<sup>9</sup>XEP-0020: Feature Negotiation <https://xmpp.org/extensions/xep-0020.html>.