



XMPP

XEP-0491: WebXDC

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This document defines an XMPP protocol extension to communicate WebXDC widgets and their state updates.

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1 Introduction

WebXDC is a specification for sharing interactive embeddable widgets built with web-like technologies (HTML, JavaScript) via a chat platform, and sharing state between participants in the chat without allowing external network connections. In order to use these, the host protocol must define a way to transmit the widgets and the associated state updates.

2 Sending a Widget in a Message

A widget may be attached to a message using any file-transfer mechanism supported by the client, such as [Out-of-Band Data \(XEP-0066\)](#)¹ or [Stateless Inline Media Sharing \(XEP-0385\)](#)². The message MUST contain a `<thread/>` element with a new, unique id.

Listing 1: An example of sending a widget

```
<message to='romeo@montague.lit' type='chat'>
  <thread>018fe972-ea89-7f4b-90f8-729b85b7f32d</thread>
  <media-sharing xmlns='urn:xmpp:sims:1'>
    <file xmlns='urn:xmpp:jingle:apps:file-transfer:5'>
      <media-type>application/xdc+zip</media-type>
      <name>Calendar</name>
      <size>3032449</size>
      <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>2
        XarmwT1NxDAMkvymloX3S5+VbylNrJt/15QyPa+YoU=</hash>
      <thumbnail xmlns='urn:xmpp:thumbs:1' uri='cid:sha1+
        ffd7c8d28e9c5e82afea41f97108c6b4@bob.xmpp.org' media-type='
        image/png' width='96' height='96' />
    </file>
    <sources>
      <reference xmlns='urn:xmpp:reference:0' type='data' uri='https:
        //download.montague.lit/4a771ac1-f0b2-4a4a-9700-f2a26fa2bb67
        /calendar.xdc_/>
    </sources>
  </media-sharing>
</message>
```

3 Sending a State Update

When a widget needs to communicate an update to other participants, this update may contain the following information:

¹XEP-0066: Out of Band Data <<https://xmpp.org/extensions/xep-0066.html>>.

²XEP-0385: Stateless Inline Media Sharing (SIMS) <<https://xmpp.org/extensions/xep-0385.html>>.

Item	Description
info	Human readable message to send to the chat
summary	Text which may be shown next to the widget launcher
document	Title which may be shown next to the widget launcher
payload	Arbitrary JSON serializable value

These items, except for the info item, are delivered in a message which **MUST** have the same `<thread>` as the message which originally delivered the widget itself, as children of an element `<x xmlns="urn:xmpp:webxdc:0">` as defined below.

3.1 The Info Item

The info item is human-readable and is not needed by the widget itself, thus it is appropriate to transmit it anywhere that it might be visible to all participants, such as in a message body. If this is the only item present, an empty `<x>` element **SHOULD** still be included in the message to signal this update came from the widget.

Listing 2: An example of sending just info

```
<message to='romeo@montague.lit' type='chat'>
  <thread>018fe972-ea89-7f4b-90f8-729b85b7f32d</thread>
  <x xmlns='urn:xmpp:webxdc:0' />
  <body>Juliet has added an event.</body>
</message>
```

3.2 The Document and Summary Items

These items are delivered as children of the `<x>` item, and in the same namespace. The document item using a `<document>` child and the summary item using a `<summary>` child.

Listing 3: An example of sending document and summary

```
<message to='romeo@montague.lit' type='chat'>
  <thread>018fe972-ea89-7f4b-90f8-729b85b7f32d</thread>
  <x xmlns='urn:xmpp:webxdc:0'>
    <document>Our Calendar</document>
    <summary>12 events</summary>
  </x>
</message>
```

3.3 The Payload Item

The payload item is delivered using [JSON Containers \(XEP-0335\)](#)³ as a child of the <x> element

Listing 4: An example of sending payload

```
<message to='romeo@montague.lit' type='chat'>
  <thread>018fe972-ea89-7f4b-90f8-729b85b7f32d</thread>
  <x xmlns='urn:xmpp:webxdc:0'>
    <json xmlns='urn:xmpp:json:0'>{}</json>
  </x>
</message>
```

4 Accessibility Considerations

None

5 Security Considerations

This XEP does not have any specific security considerations, however it is assumed that it will be paired with an implementation of [WebXDC](#) which requires very careful sandboxing.

6 Privacy Considerations

It should be clear to users that their actions inside an embedded widget may be transmitted to other participants.

7 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)⁴.

³XEP-0335: JSON Containers <<https://xmpp.org/extensions/xep-0335.html>>.

⁴The 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/>>.

8 XMPP Registrar Considerations

8.1 Protocol Namespaces

This specification defines the following XML namespace: urn:xmpp:webxdc:0

8.2 Protocol Versioning

If the protocol defined in this specification undergoes a revision that is not fully backwards-compatible with an older version, the XMPP Registrar shall increment the protocol version number found at the end of the XML namespaces defined herein, as described in Section 4 of XEP-0053.

9 XML Schema

```
<?xml version='1.0' encoding='UTF-8'?>
<xs:schema
  xmlns:xs='http://www.w3.org/2001/XMLSchema'
  targetNamespace='urn:xmpp:webxdc:0'
  xmlns='urn:xmpp:webxdc:0'
  xmlns:json='urn:xmpp:json:0'
  elementFormDefault='qualified'>
  <xs:annotation>
    <xs:documentation>
      The protocol documented by this schema is defined in
      XEP-0491: http://www.xmpp.org/extensions/xep-0491.html
    </xs:documentation>
  </xs:annotation>
  <xs:import namespace='urn:xmpp:json:0' schemaLocation='https://xmpp.org/schemas/json.xsd' />
  <xs:element name='x'>
    <xs:complexType>
      <xs:sequence>
        <xs:element name='summary' type='xsd:string' minOccurs='0'
          maxOccurs='1' />
        <xs:element name='document' type='xsd:string' minOccurs='0'
          maxOccurs='1' />
        <xs:element name='json' type='json:json' minOccurs='0'
          maxOccurs='1' />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

```
</xs:element>  
</xs:schema>
```