XEP-0331: Data Forms - Color Field Types

Peter Waher
mailto:peterwaher@hotmail.com
xmpp:peter.waher@jabber.org
http://www.linkedin.com/in/peterwaher

2015-11-09
Version 0.3

Status	Type	Short Name
Deferred	Standards Track	color-parameter

This specification defines how to publish fields in data forms that take color values. Color values are best edited using a color picker dialog, rather than manual input.

Legal

Copyright

This XMPP Extension Protocol is copyright © 1999 – 2024 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

Some applications require configuration of color values. Examples can be what colors to use for different situations in control applications. There's up to this point no good way to publish color values in a Data Forms (XEP-0004) [1].

Some applications provide parameters of type list-single enabling the user to choose a color from a list of colors. This only allows the user to select from a small amount of colors, and doesn't provide any visual feedback of the actual color chosen.

Editing color values as color components or encoded strings is both impractical and unintuitive.

This document proposes a method to publish color field parameters in a way that allows clients to show a color picker dialog for the parameter instead of forcing the user to enter an encoded color value. For clients not supporting this extensions, the color value will still be editable as an encoded color string.

This extension also relies on Data Forms Validation (XEP-0122) [2] as a fallback mechanism so clients not recognizing the color data types can handle them as strings with a regular expressions validating user input.

2 Publishing a Color Field in a Data Form

The following example shows how to publish a Color Field parameter in a Data Form:

Listing 1: Publishing a Color Field in a Data Form

```
<field var='color' type='text-single' label='Color:'>
        <desc>Choose a color.</desc>
        <xdv:validate xmlns:xdv='http://jabber.org/protocol/xdata-
            validate'
                        xmlns:xdc='urn:xmpp:xdata:color'
                        datatype='xdc:Color'>
            <xdv:regex>^[0-9a-fA-F]{6}$</xdv:regex>
        </xdv:validate>
        <value>9400D3</value>
    </field>
```

The color value is represented by a string consisting of six case-insensitive hexadecimal digits. The first two represent the red component, the next two the green component and the last two the blue component.

If the client does not support XEP-0122 (Data Form Validation), it will interpret the field as a normal **text-single** field. It is up to the server to validate user input. But the user can still enter a color.

---

[1]XEP-0004: Data Forms <https://xmpp.org/extensions/xep-0004.html>.
[2]XEP-0122: Data Forms Validation <https://xmpp.org/extensions/xep-0122.html>.

A client that supports XEP-0122 (Data Form Validation), but not this extension, will not understand the data type **xdc:Color**. It will thus default to a normal string (xs:string). However, the client still supports the **regex** validation rule, making sure the client only allows user input that forms valid color values.

A client supporting this specification will recognize the **xdc:Color** data type, and choose to show a color picker dialog instead of a string input field. In this case, the regular expression in the validation statement will not be used, as the string is not edited directly by the user. However, it is still available implicitly in the xdc:Color data type.

3 Publishing a Color Field with Alpha channel in a Data Form

The following example shows how to publish a Color Field parameter including an Alpha channel in a Data Form:

Listing 2: Publishing a Color Field in a Data Form

```
<field var='color' type='text-single' label='Color:'>
        <desc>Choose a color.</desc>
        <xdv:validate xmlns:xdv='http://jabber.org/protocol/xdata-
            validate'
                      xmlns:xdc='urn:xmpp:xdata:color'
                      datatype='xdc:ColorAlpha'>
          <xdv:regex>^[0-9a-fA-F]{8}$</xdv:regex>
        </xdv:validate>
        <value>9400D3C0</value>
    </field>
```

The color value is represented by a string consisting of eight case-insensitive hexadecimal digits. The first two represent the red component, the next two the green component and the last two the blue component. The last two represents the alpha channel, where 00 means completely transparent and FF means completely opaque.

As with the xdc:Color type defined above, if the client does not support XEP-0122 (Data Form Validation), it will interpret the field as a normal **text-single** field. It is up to the server to validate user input. But the user can still enter a color.

A client that supports XEP-0122 (Data Form Validation), but not this extension, will not understand the data type **xdc:ColorAlpha**. It will thus default to a normal string (xs:string). However, the client still supports the **regex** validation rule, making sure the client only allows user input that forms valid color values.

A client supporting this specification will recognize the **xdc:ColorAlpha** data type, and choose to show a color picker dialog instead of a string input field. In this case, the regular expression in the validation statement will not be used, as the string is not edited directly by the user. However, it is still available implicitly in the xdc:ColorAlpha data type.

4 XMPP Registrar Considerations

4.1 Color datatype prefix: xdc

As defined in XEP-0122 §7.2.1, following is the submission to the XMPP Registrar of a new datatype prefix for use in data forms:

```
<datatype-prefix>
        <prefix>xdc</prefix>
        <desc>defines the Color data type</desc>
        <doc>http://xmpp.org/extensions/xep-0331.html</doc>
    </datatype-prefix>
```

4.2 Color datatype

As defined in XEP-0122 §7.2.2, following is the submission to the XMPP Registrar of a new datatype representing color values for use in data forms:

```
<datatype>
        <name>xdc:Color</name>
        <desc>a color value represented as an RGB value, expressed
            using 6 hexadecimal digits, with each pair of
        the hexadecimal digits representing the values of the Red,
            Green and Blue channel, respectively</desc>
        <methods>basic regex</methods>
        <min>N/A</min>
        <max>N/A</max>
    </datatype>
```

4.3 ColorAlpha datatype

As defined in XEP-0122 §7.2.2, following is the submission to the XMPP Registrar of a new datatype representing color values with alpha channel for use in data forms:

```
<datatype>
        <name>xdc:ColorAlpha</name>
        <desc>a color value represented as an RGBA value, expressed
            using 8 hexadecimal digits, with each pair of
        the hexadecimal digits representing the values of the Red,
            Green, Blue and Alpha channel, respectively</desc>
        <methods>basic regex</methods>
        <min>N/A</min>
        <max>N/A</max>
    </datatype>
```

5 XML Schema

```xml
<?xml version='1.0' encoding='UTF-8'?>
<xs:schema
    xmlns:xs='http://www.w3.org/2001/XMLSchema'
    targetNamespace='urn:xmpp:xdata:color'
    xmlns='urn:xmpp:xdata:color'
    elementFormDefault='qualified'>

    <xs:simpleType name='Color'>
        <xs:restriction base='xs:string'>
            <xs:pattern value='^[0-9a-fA-F]{6}$'/>
        </xs:restriction>
    </xs:simpleType>

    <xs:simpleType name='ColorAlpha'>
        <xs:restriction base='xs:string'>
            <xs:pattern value='^[0-9a-fA-F]{8}$'/>
        </xs:restriction>
    </xs:simpleType>

</xs:schema>
```

6 Acknowledgements

Thanks to Karin Forsell for all valuable feedback.