



# XMPP

## XEP-0331: Data Forms - Color Field Types

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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.

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## 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 \(XEP-0004\)](#)<sup>1</sup>.

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 \(XEP-0122\)](#)<sup>2</sup> 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.

<sup>1</sup>XEP-0004: Data Forms <<https://xmpp.org/extensions/xep-0004.html>>.

<sup>2</sup>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 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

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