

Request #: **HUTRR104**  
Title: Generalized Stylus No Preferred Color  
Spec Release: 1.22  
Requester: Kenneth Albanowski  
Company: Google Inc.

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Pages Affected: Digitizers (0x0D)  
Values checked: Matthew Williams (Chair)  
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Current Status: **Approved**  
Priority:

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Required Voter: Wacom  
Required Voter: Logitech  
Required Voter: Intel  
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Voting Begins: 4<sup>th</sup> August 2021  
Voting Ends: 11<sup>th</sup> August 2021  
Voting Result: 3-0  
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Summary:

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The 24 bit color variant of “Digitizers[0x0D] - Preferred Color[0x5C]” explicitly does not support 'No Preferred Color', while 8 bit color does. We introduce a new Usage to provide this state.

Background:

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Styli may wish to present a color, as presented in HUTRR60, and more modern equipment may wish to use a 24 bit Preferred Color in preference to, or in combination with the 8 bit W3C colors. The current definition of 24 bit Preferred Color specifically does not support a 'No Preferred Color' state.

The state of 'No Preferred Color' is useful, just as there is a 'No Preference' selection for the 'Preferred Line Style' Usage.

As there are no undefined numeric values suitable for use as a Null value within the 24 bit Preferred Color Usage, we propose a new DF Usage to indicate the state of having No Preferred Color.

Combinations of utilization of 8 and 24 bit Preferred Color fields to represent this state were considered, but a distinct Usage is considered simplest to understand, particularly for new designs that might have no need for 8 bit colors, and for future extension beyond a 24-bit color representation.

Proposal:

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Add/modify to Table 16.1: Digitizers Page

Usage ID: 0x6F

Usage Name: No Preferred Color

Usage Types: DF

Add/Modify following text in section 16.3.1: Digitizer-Specific Fields

Usage Name: Preferred Color

Usage Type: DV

Description: An indication of what color ink the transducer would prefer to render. This may be an indication of the body color (for a set of virtual crayons) or might be an indication of a switch selection (for example tail switches to choose color in a fashion similar to multi-color inking pens). If the transducer allows writing to the usage it may store a color for later retrieval. Only two data sizes are allowed, 8 bits and 24 bits. An eight-bit value specifies a color index based on the W3C named colors with the elimination of the grey/gray duplicates. The color name to index mapping is presented in Appendix A Indices for 8 bit Preferred Colors. A value of 0xFF indicates no preferred color. A 24-bit value specifies three 8 bits values for RGB color in that order. **The 24-bit value cannot represent the absence of a preferred color; instead use additional 'No Preferred Color'.**

**Note: 8- and 24-bit Preferred Colors should only both be reported when backwards compatibility is relevant. The device must maintain consistency between the 8-bit value and the 24-bit value combined with the No Preferred Color flag. Hosts are expected to assume consistency and use either the 8-bit value or the combined 24-bit value and the No Preferred Color flag.**

Usage Name: No Preferred Color

Usage Type: DF

Description: Describe whether the transducer has a preferred color. This may be used in conjunction with a 24-bit Preferred Color, and is intended to take priority; if set, there is not a preferred color, regardless of the value of 24-bit Preferred Color.

Usage Name: Preferred Color Is Locked

Usage Type: MC

Description: This is an indication that the preferred color cannot be changed. This may be because the body color or tail switch selection is expected to be honored, or that the transducer does not allow or is incapable of changing the preferred color. **This relates to 8-bit and 24-bit Preferred Color values, as well as the No Preferred Color flag.**

## Sample Descriptor:

Stylus InputReport1 contains X/Y coordinates, a 24-bit Preferred Color and the new 'No Preferred Color' Usage.

FeatureReport1 contains a 24-bit Preferred Color and the new 'No Preferred Color' Usage. A Host can use this report to get or set a precise color, including indication if there is no preferred color.

FeatureReport2 is the back-compat alternative with Hosts expecting 8-bit colors, allowing a color or 'no preferred color' to be get/set. Getting the Feature returns the nearest 8-bit indexed color to a precise 24-bit color (as described in FeatureReport2), or 255 (no preferred color), if the No Preferred Color Usage is set.

```
0x05, 0x0D,          // UsagePage(Digitizers[13])
0x09, 0x20,          // UsageId(Stylus[32])
0xA1, 0x01,          // Collection(Application)
0x85, 0x01,          // ReportId(1)
0x05, 0x01,          // UsagePage(Generic Desktop[1])
0x09, 0x30,          // UsageId(X[48])
0x15, 0x00,          // LogicalMinimum(0)
0x26, 0xFF, 0x0F,    // LogicalMaximum(4,095)
0x95, 0x01,          // ReportCount(1)
0x75, 0x0C,          // ReportSize(12)
0x81, 0x02,          // Input(Data, Variable, Absolute)
0x09, 0x31,          // UsageId(Y[49])
0x81, 0x02,          // Input(Data, Variable, Absolute)
0x05, 0x0D,          // UsagePage(Digitizers[13])
0x09, 0x5C,          // UsageId(Preferred Color[92])
0x27, 0xFF, 0xFF, 0xFF, 0x00, // LogicalMaximum(16,777,215)
0x75, 0x18,          // ReportSize(24)
0x81, 0x02,          // Input(Data, Variable, Absolute)
0x09, 0x6F,          // UsageId(No Preferred Color[111])
0x25, 0x01,          // LogicalMaximum(1)
0x75, 0x01,          // ReportSize(1)
0x81, 0x02,          // Input(Data, Variable, Absolute)
0x75, 0x07,          // ReportSize(7)
0x81, 0x03,          // Input(Constant, Variable, Absolute)
0x85, 0x01,          // ReportId(1)
0x09, 0x5C,          // UsageId(Preferred Color[92])
0x27, 0xFF, 0xFF, 0xFF, 0x00, // LogicalMaximum(16,777,215)
0x75, 0x18,          // ReportSize(24)
0xB1, 0x02,          // Feature(Data, Variable, Absolute)
0x09, 0x6F,          // UsageId(No Preferred Color[111])
0x25, 0x01,          // LogicalMaximum(1)
0x75, 0x01,          // ReportSize(1)
0xB1, 0x02,          // Feature(Data, Variable, Absolute)
0x75, 0x07,          // ReportSize(7)
0xB1, 0x03,          // Feature(Constant, Variable, Absolute)
0x85, 0x02,          // ReportId(2)
0x09, 0x5C,          // UsageId(Preferred Color[92])
0x26, 0xFF, 0x00,    // LogicalMaximum(255)
0x75, 0x08,          // ReportSize(8)
0xB1, 0x02,          // Feature(Data, Variable, Absolute)
0xC0,                // EndCollection()
```