Proposed Update Unicode® Technical Report #51

UNICODE EMOJI

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Summary

This document provides design guidelines for improving the interoperability of emoji characters across platforms and implementations. It also provides data that designates which characters are considered to be emoji, which emoji should be displayed by default with a text style versus an emoji style, and which can be displayed with a variety of skin tones.

Status

Contents

1 Introduction
Table: Emoji Proposals
Table: Major Sources

Table: Selected Products
1.1 Emoticons and Emoji
1.2 Encoding Considerations
1.3 Goals
1.4 Definitions
1.4.1 Emoji Characters
1.4.2 Emoji Presentation
1.4.3 Emoji Variation Sequences
1.4.4 Emoji Modifiers
1.4.5 Emoji Sequences
2 Design Guidelines
2.1 Gender
2.2 Diversity
Table: Emoji Modifiers
2.2.1 Multi-Person Groupings
2.2.2 Implementations
Table: Emoji Modifier Bases
Table: Expected Emoji Modifiers Display
Table: Emoji Modifiers and Variation Selectors
2.2.3 Emoji Modifiers in Text
Table: Minipalettes
2.3 Emoji ZWJ Sequences
Table: ZWJ Sequence Display
3 Which Characters are Emoji
Table: Japanese Carrier Emoji
Table: Common Additions
Table: Other Flags
Table: Standard Additions
4 Presentation Style
Table: Emoji vs Text Display
4.1 Emoji Variation Selectors
4.2 Emoji Script
4.3 Emoji Locale Extension
4.4 Other Approaches for Control of Emoji Presentation
5 Ordering and Grouping
6 Input
Table: Palette Input
7 Searching
8 Longer Term Solutions
Annex A: Emoji Properties and Data Files
Table: Emoji Properties
Annex B: Flags
Annex C: Regular Expressions
Acknowledgments
Rights to Emoji Images
References
Modifications

1 Introduction

Emoji are pictographs (pictorial symbols) that are typically presented in a colorful cartoon form and used inline in text. They represent things such as faces, weather, vehicles and buildings, food and drink, animals and plants, or icons that represent emotions, feelings, or activities.

Emoji on smartphones and in chat and email applications have become extremely popular worldwide. As of 2015, for example, Instagram reported that “in March of this year, nearly half of text [on Instagram] contained emoji.” Individual emoji also vary greatly in popularity (and even by country), as described in the SwiftKey Emoji Report. See emoji press page for details about these reports and others.

Emoji are most often used in social media—in quick, short messages where they connect with the reader and add flavor, color, and emotion. Emoji do not have the grammar or vocabulary to substitute for written language. In social media, emoji make up for the lack of gestures, facial expressions, and intonation that are found in speech. They also add useful ambiguity to messages, allowing the writer to convey many different possible concepts at the same time. Many people are also attracted by the challenge of composing messages in emoji, and puzzling out emoji messages.

The word *emoji* comes from the Japanese:

絵 (e picture) 文 (mo writing) 字 (ji character).

Emoji may be represented internally as graphics or they may be represented by normal glyphs encoded in fonts like other characters. These latter are called *emoji characters* for clarity. Some Unicode characters are normally displayed as emoji; some are normally displayed as ordinary text, and some can be displayed both ways.

There’s been considerable media attention to emoji since they appeared in the Unicode Standard, with increased attention starting in late 2013. For example, there were some 6,000 articles on the emoji appearing in Unicode 7.0, according to Google News. See the emoji press page for many samples of such articles, and also the Keynote from the 38th Internationalization & Unicode Conference.

Emoji became available in 1999 on Japanese mobile phones. There was an early proposal in 2000 to encode DoCoMo emoji in Unicode. At that time, it was unclear whether these characters would come into widespread use—and there was not support from the Japanese mobile phone carriers to add them to Unicode—so no action was taken.

The emoji turned out to be quite popular in Japan, but each mobile phone carrier developed different (but partially overlapping) sets, and each mobile phone vendor used their own text encoding extensions, which were incompatible with one another. The vendors developed cross-mapping tables to allow limited interchange of emoji characters with phones from other vendors, including email. Characters from other platforms that could not be displayed were represented with 〓 (U+3013 GETA MARK), but it was all too easy for the characters to get corrupted or dropped.

When non-Japanese email and mobile phone vendors started to support email exchange with the Japanese carriers, they ran into those problems. Moreover, there was no way to represent these characters in Unicode, which was the basis for text in all modern programs. In 2006, Google started work on converting Japanese emoji to Unicode private-use codes, leading to the development of internal mapping tables for supporting the carrier emoji via Unicode characters in 2007.

There are, however, many problems with a private-use approach, and thus a proposal was made to the Unicode Consortium to expand the scope of symbols to encompass emoji. This proposal was approved in May 2007, leading to the formation of a symbols subcommittee, and in August 2007 the technical committee agreed to support the encoding of emoji in Unicode based on a set of principles developed by the subcommittee. The following are a few of the documents tracking the progression of Unicode emoji characters.

Emoji Proposals

Date	Doc No.	Title	Authors
2000-04-26	L2/00-152	NTT DoCoMo Pictographs	Graham Asher (Symbian)
2006-11-01	L2/06-369	Symbols (scope extension)	Mark Davis (Google)
2007-08-03	L2/07-257	Working Draft Proposal for Encoding Emoji Symbols	Kat Momoi, Mark Davis, Markus Scherer (Google)
2007-08-09	L2/07-274R	Symbols draft resolution	Mark Davis (Google)
2007-09-18	L2/07-391	Japanese TV Symbols (ARIB)	Michel Suignard (Microsoft)
2009-01-30	L2/09-026	Emoji Symbols Proposed for New Encoding	Markus Scherer, Mark Davis, Kat Momoi, Darick Tong (Google); Yasuo Kida, Peter Edberg (Apple)
2009-03-05	L2/09-025R2	Proposal for Encoding Emoji Symbols	
2010-04-27	L2/10-132	Emoji Symbols: Background Data	
2011-02-15	L2/11-052R	Wingdings and Webdings Symbols	Michel Suignard

To find the documents in this table, see UTC Documents.

In 2009, the first Unicode characters explicitly intended as emoji were added to Unicode 5.2 for interoperability with the ARIB (Association of Radio Industries and Businesses) set. A set of 722 characters was defined as the union of emoji characters used by Japanese mobile phone carriers: 114 of these characters were already in Unicode 5.2. In 2010, the remaining 608 emoji characters were added to Unicode 6.0, along with some other emoji characters. In 2012, a few more emoji were added to Unicode 6.1, and in 2014 a larger number were added to Unicode 7.0. Additional characters have been added since then, based on the *Selection Factors* found in Submitting Emoji Character Proposals.

Here is a summary of when some of the major sources of pictographs used as emoji were encoded in Unicode. These sources include other characters in addition to emoji.

Major Sources

Source	Abbr	L	Dev. Starts	Released	Unicode Version	Sample Character			
						B&W	Color	Code	Name
Zapf Dingbats	ZDings	z	1989	1991-10	1.0	✏︎	✏️	U+270F	*pencil*
ARIB	ARIB	a	2007	2008-10-01	5.2	☔︎	☔	U+2614	*umbrella with rain drops*
Japanese carriers	JCarrier	j	2007	2010-10-11	6.0	😎︎	😎	U+1F60E	*smiling face with*

									sunglasses
Wingdings & Webdings	WDings	w	2010	2014-06-16	7.0	🌶	🌶	U+1F336	*hot pepper*

Unicode characters can correspond to multiple sources. The L column contains single-letter abbreviations for use in charts [emoji-charts] and data files [emoji-data]. Characters that do not correspond to any of these sources can be marked with Other (x).

For a detailed view of when various source sets of emoji were added to Unicode, see *emoji-versions-sources* [emoji-charts]. The data file [JSources] shows the correspondence to the original Japanese carrier symbols.

The Selected Products table lists when Unicode emoji characters were incorporated into selected products. (The Private Use characters PUA were a temporary solution.)

Selected Products

Date	Product	Version	Emoji Support	Display	Input	Notes, Links
2008-01	GMail mobile		PUA	color	palette	モバイル Gmail が携帯絵文字に対応しました
2008-10	GMail web		PUA	color	palette	Gmail で絵文字が使えるようになりました
2008-11	iPhone	iPhone OS 2.2	PUA	color	palette	Softbank users, others via 3rd party apps. CNET Japan article on Nov. 21, 2008.
2011-07	Mac	OSX 10.7	Unicode 6.0	color	Character Viewer	
2011-11	iPhone, iPad	iOS 5	Unicode 6.0	color	+emoji keyboard	
2012-06	Android	Jelly Bean		B&W	3rd party input	...Quick List of Jelly Bean Emoji...
2012-09	iPhone, iPad	iOS 6	+ variation selectors			
2012-08	Windows	8	Unicode only; no emoji variation sequences	desktop/tablet: b&w; phone: color	integrated in touch keyboards	
2013-08	Windows	8.1	Unicode only; emoji variation sequences	all: color	touch keyboards; phone: text prediction features (e.g. “love” –>)	Color using scalable glyphs (OpenType extension)

2013-11	Android	Kitkat		color	native keyboard	...new, colorful Emoji in Android KitKat
2015-04	iPhone, iPad, Mac	iOS 8.3, OSX 10.10.3	+ emoji modifiers, ZWJ sequences for people groupings			

People often ask how many emoji are in the Unicode Standard. This question does not have a simple answer, because there is no clear line separating which pictographic characters should be displayed with a typical emoji style. For a complete picture, see Which Characters are Emoji.

The colored images used in this document and associated charts [emoji-charts] are for illustration only. They do not appear in the Unicode Standard, which has only black and white images. They are either made available by the respective vendors for use in this document, or are believed to be available for non-commercial reuse. Inquiries for permission to use vendor images should be directed to those vendors, not to the Unicode Consortium. For more information, see *Rights to Emoji Images*.

1.1 Emoticons and Emoji

The term *emoticon* refers to a series of text characters (typically punctuation or symbols) that is meant to represent a facial expression or gesture (sometimes when viewed sideways), such as the following.

;-)

Emoticons predate Unicode and emoji, but were later adapted to include Unicode characters. The following examples use not only ASCII characters, but also U+203F ( ), U+FE35 ( ), U+25C9 ( ), and U+0CA0 ( ).

^ ^

–

Often implementations allow emoticons to be used to input emoji. For example, the emoticon ;-) can be mapped to 😉 in a chat window. The term *emoticon* is sometimes used in a broader sense, to also include the emoji for facial expressions and gestures. That broad sense is used in the Unicode block name *Emoticons*, covering the code points from U+1F600 to U+1F64F.

1.2 Encoding Considerations

Unicode is the foundation for text in all modern software: it's how all mobile phones, desktops, and other computers represent the text of every language. People are using Unicode every time they type a key on their phone or desktop computer, and every time they look at a web page or text in an application. It is very important that the standard be stable, and that every character that goes into it be scrutinized carefully. This requires a formal process with a long development cycle. For example, the 🕶 *dark sunglasses* character was first proposed years before it was released in Unicode 7.0.

Characters considered for encoding must normally be in widespread use as elements of text. The emoji and various symbols were added to Unicode because of their use as characters for text-messaging in a number of Japanese manufacturers' corporate standards, and other places, or in long-standing use in widely distributed fonts such as Wingdings and Webdings. In many cases, the characters were added for complete round-tripping to and from a source set, *not* because they were inherently of more importance than other characters. For example, the 🖁 *clamshell phone* character was included because it was in Wingdings and Webdings, not because it is more important than, say, a "skunk" character.

In some cases, a character was added to complete a set: for example, a 🏉 *rugby football* character was added to Unicode 6.0 to complement the 🏈 *american football* character (the ⚽ *soccer ball* had been added back in Unicode 5.2). Similarly, a mechanism was added that could be used to represent all country flags (those corresponding to a two-letter unicode_region_subtag), such as the *flag for Canada*, even though the Japanese carrier set only had 10 country flags.

The data does not include non-pictographs, except for those in Unicode that are used to represent characters from emoji sources, for compatibility, such as:

🈹 or 🆔

Game pieces, such as the dominos (...), are currently not included as emoji, with the exceptions of U+1F0CF (🃏) PLAYING CARD BLACK JOKER and U+1F004 (🀄) MAHJONG TILE RED DRAGON. These are included because they correspond each to an emoji character from one of the carrier sets.

The selection factors used to weigh the encoding of prospective candidates are found in *Selection Factors* in Submitting Emoji Character Proposals. That document also provides instructions for submitting proposals for new emoji.

For a list of frequently asked questions on emoji, see the Unicode Emoji FAQ.

1.3 Goals

This document provides:

- design guidelines for improving interoperability across platforms and implementations
- background information about emoji characters, and long-term alternatives
- data for
  - which characters normally can be considered to be emoji
  - which of those should be displayed by default with a text-style versus an emoji-style
  - displaying emoji with a variety of skin tones
- pointers to [CLDR] data for
  - sorting emoji characters more naturally
  - annotations for searching and grouping emoji characters

It also provides background information about emoji, and discusses longer-term approaches to emoji.

As new Unicode characters are added or the "common practice" for emoji usage changes, the data and recommendations supplied by this document may change in accordance. Thus the recommendations and data will change across versions of this document.

Additions beyond Unicode 7.0 are being addressed by the Unicode Technical Committee: as any new characters are approved, this document will be updated as appropriate.

1.4 Definitions

The following provide more formal definitions of some of the terms used in this document. Readers who are more interested in other features of the document may choose to continue from *Section 2* Design Guidelines .

ED-1. emoji — A colorful pictograph that can be used inline in text. Internally the representation is either (a) an image or (b) an encoded character. The term *emoji character* can be used for (b) where not clear from context.

ED-2. emoticon — (1) A series of text characters (typically punctuation or symbols) that is meant to represent a facial expression or gesture such as ;-) (2) a broader sense, also including emoji for facial expressions and gestures.

1.4.1 Emoji Characters

ED-3. emoji character — A character that is recommended for use as emoji.

- These are the characters with the **Emoji** property. See Annex A: Emoji Properties and Data Files.

Note: the definitions ***ED-4. level 1 emoji character*** and ***ED-5. level 2 emoji character*** have been removed.

For more information, see *Section 3 Which Characters are Emoji*.

1.4.2 Emoji Presentation

ED-6. default emoji presentation character — A character that, by default, should appear with an emoji presentation, rather than a text presentation.

- These are the characters with the **Emoji_Presentation** property. See Annex A: Emoji Properties and Data Files.

ED-7. default text presentation character — A character that, by default, should appear with a text presentation, rather than an emoji presentation.

- These are the characters that do not have the **Emoji_Presentation** property. That is, their **Emoji_Presentation** property value is **No**. See Annex A: Emoji Properties and Data Files.

For more details about emoji and text presentation, see *Section 2* Design Guidelines and *Section 4* Presentation Style .

1.4.3 Emoji Variation Sequences

ED-8. emoji variation selector — Either of the two variation selectors used to request a text or emoji presentation for an emoji character:

- U+FE0E VARIATION SELECTOR-15 (VS15) for a text presentation
- U+FE0F VARIATION SELECTOR-16 (VS16) for an emoji presentation

ED-9. emoji variation sequence — A variation sequence listed in [VSData] that contains an emoji variation selector.

Review Note: We are planning to remove definition ED-10 below.

ED-10. emoji base variation sequence — An emoji variation sequence that starts with an *emoji modifier base*.

1.4.4 Emoji Modifiers

ED-11. emoji modifier — A character that can be used to modify the appearance of a preceding emoji in an *emoji modifier sequence*.

- These are the characters with the **Emoji_Modifier** property. See Annex A: Emoji Properties and Data Files.

ED-12. emoji modifier base — A character whose appearance can be modified by a subsequent emoji modifier in an *emoji modifier sequence*.

- These are the characters with the **Emoji_Modifier_Base** property. See Annex A: Emoji Properties and Data Files.
- They are also listed in Characters Subject to Emoji Modifiers.

ED-13. emoji modifier sequence — A sequence of the following form:

```
emoji_modifier_sequence :=
  (emoji_modifier_base | emoji_base_variation_sequence)
  emoji_modifier
```

Review Note: With the removal of ED-10, the above would change to just `emoji_modifier_sequence := emoji_modifier_base emoji_modifier`.

For more details about emoji modifiers, see *Section 2.2 Diversity*.

1.4.5 Emoji Sequences

ED-14. emoji flag sequence — A sequence of two Regional Indicator characters, where the corresponding ASCII characters are valid region sequences as specified by Unicode region subtags in [CLDR], with idStatus="regular" or "deprecated". See also Annex B: Flags.

```
emoji_flag_sequence :=
  regional_indicator regional_indicator
```

***ED-15*. emoji core sequence** — A sequence of the following form:

```
emoji_core_sequence :=
  emoji_character non_spacing_mark*
| emoji_variation_sequence non_spacing_mark*
| emoji_modifier_sequence
| emoji_flag_sequence
```

***ED-16*. emoji zwj sequence** — An emoji sequence with at least one joiner character.

```
emoji_zwj_sequence :=
  emoji_core_sequence ( ZWJ emoji_core_sequence )+
```

Review Note: We are planning to narrow (and simplify) the definition of emoji zwj sequence to not allow non_spacing_marks or emoji_flag_sequences. This would require defining a replacement to `emoji_core_sequence` for use in the definition of `emoji_zwj_sequence`:

```
emoji_zwj_element :=
   emoji_character
 | emoji_variation_sequence
 | emoji_modifier_sequence
```

Feedback on this issue is welcome.

***ED-17*. emoji sequence** — A sequence of the following form:

```
emoji_zwj_sequence :=
  emoji_core_sequence
| ~~ZWJ~~ emoji_zwj_sequence
```

Review Note: We are planning to add a note or subsection here with the following information on the use of emoji variation selectors in sequences:

- Emoji variation selectors should *not* be used in an emoji_modifier_sequence or an emoji_flag_sequence.
- To ensure correct presentation across platforms, emoji variation selectors *should* be used in emoji combining sequences or emoji_zwj_sequence after any emoji character with Emoji_Presentation:No.
- Do we need a more formal definition for emoji combining sequence?

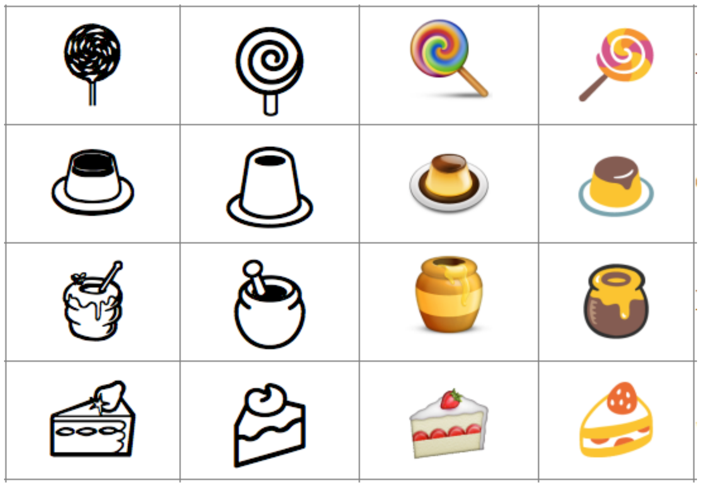
2 Design Guidelines

Unicode characters can have many different presentations as text. An "a" for example, can look quite different depending on the font. Emoji characters can have two main kinds of presentation:

- an *emoji presentation,* with colorful and perhaps whimsical shapes, even animated
- a *text presentation,* such as black & white

More precisely, a text presentation is a simple foreground shape whose color which is determined by other information, such as setting a color on the text, while an emoji presentation determines the color(s) of the character, and is typically multicolored. In other words, when someone changes the text color in a word processor, a character with an emoji presentation will not change color.

Any Unicode character can be presented with a text presentation, as in the Unicode charts. For the emoji presentation, both the name and the representative glyph in the Unicode chart should be taken into account when designing the appearance of the emoji, along with the images used by other vendors. The shape of the character can vary significantly. For example, here are just some of the possible images for U+1F36D LOLLIPOP, U+1F36E CUSTARD, U+1F36F HONEY POT, and U+1F370 SHORTCAKE:



While the shape of the character can vary significantly, designers should maintain the same “core” shape, based on the shapes used mostly commonly in industry practice. For example, a U+1F36F HONEY POT encodes for a pictorial representation of a pot of honey, not for some semantic like "sweet". It would be unexpected to represent U+1F36F HONEY POT as a sugar cube, for example. Deviating too far from that core shape can cause interoperability problems: see accidentally-sending-friends-a-hairy-heart-emoji. Direction (whether a person or object faces to the right or left, up or down) should also be maintained where possible, because a change in direction can change the meaning: when sending “crocodile shot by police”, people expect any recipient to see the pistol pointing in the same direction as when they composed it. Similarly, the U+1F6B6 *pedestrian* should face to the left, not to the right.

General-purpose emoji for people and body parts should also not be given overly specific images: the general recommendation is to be as neutral as possible regarding race, ethnicity, and gender. Thus for the character U+1F64B *happy person raising one hand*, the recommendation is to use a neutral graphic like instead of an overly-specific image like . This includes the emoji modifier base characters listed in Characters Subject to Emoji Modifiers. The representative glyph used in the Unicode charts, or images from other vendors may be misleading: for example, the construction worker may be male or female. For more information, see the Unicode Emoji FAQ.

Names of symbols such as BLACK MEDIUM SQUARE or WHITE MEDIUM SQUARE are not meant to indicate that the corresponding character must be presented in black or white, respectively; rather, the use of “black” and “white” in the names is generally just to contrast **filled** versus **outline** shapes, or a darker color fill versus a lighter color fill. Similarly, in other symbols such as the hands U+261A BLACK LEFT POINTING INDEX and U+261C WHITE LEFT POINTING INDEX, the words “white” and “black” also refer to outlined versus filled, and do not indicate skin color.

However, other color words in the name, such as YELLOW, typically provide a recommendation as to the emoji presentation, which should be followed to avoid interoperability problems.

Emoji characters may not always be displayed on a white background. They are often best given a faint, narrow contrasting border to keep the character visually distinct from a similarly colored background. Thus a Japanese flag would have a border so that it would be visible on a white background, and a Swiss flag have a border so that it is visible on a red background.

Current practice is for emoji to have a square aspect ratio, deriving from their origin in Japanese. For interoperability, it is recommended that this practice be continued with current and future emoji.

Flag emoji characters are discussed in Annex B: Flags.

Combining marks may be applied to emoji, just like they can be applied to other characters. When that is done, the combination should take on an emoji presentation. For example, a 1️⃣ is represented as the sequence "1" plus an emoji variation selector plus U+20E3 COMBINING ENCLOSING KEYCAP. Systems are unlikely, however, to support arbitrary combining marks with arbitrary emoji. Aside from U+20E3, the most likely to be supported is:

- U+20E0 COMBINING ENCLOSING CIRCLE BACKSLASH, as an overlaid 🚫, to indicate a prohibition or “NO”

For example:

- 🎙⃠ <U+1F399 U+20E0> *no microphones*
- 📸⃠ <U+1F4F8 U+20E0> *no flashes*
- 🔫⃠ <U+1F52B U+20E0> *no guns*

No combining marks other than U+20E0 and U+20E3, however, are recommended for usage.

2.1 Gender

The following emoji have explicit gender, based on the name and explicit, intentional contrasts with other characters.

U+1F466 boy
U+1F467 girl
U+1F468 man
U+1F469 woman
U+1F474 older man
U+1F475 older woman
U+1F46B man and woman holding hands
U+1F46C two men holding hands
U+1F46D two women holding hands
U+1F6B9 mens symbol
U+1F6BA womens symbol

U+1F478 princess
U+1F46F woman with bunny ears

U+1F470 bride with veil
U+1F472 man with gua pi mao
U+1F473 man with turban
U+1F574 man in business suit levitating
U+1F385 father christmas

All others should be depicted in a gender-neutral way.

2.2 Diversity

People all over the world want to have emoji that reflect more human diversity, especially for skin tone. The Unicode emoji characters for people and body parts are meant to be generic, yet following the precedents set by the original Japanese carrier images, they are often shown with a light skin tone instead of a more generic (nonhuman) appearance, such as a yellow/orange color or a silhouette.

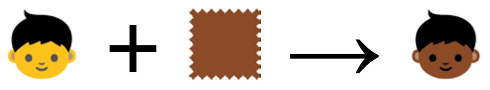
Five symbol modifier characters that provide for a range of skin tones for human emoji were released in Unicode Version 8.0 (mid-2015). These characters are based on the six tones of the Fitzpatrick scale, a recognized standard for dermatology (there are many examples of this scale online, such as FitzpatrickSkinType.pdf). The exact shades may vary between implementations.

Emoji Modifiers

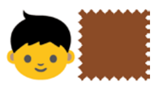
Code	Name	Samples	
U+1F3FB	EMOJI MODIFIER FITZPATRICK TYPE-1-2	■	▨
U+1F3FC	EMOJI MODIFIER FITZPATRICK TYPE-3	■	▨
U+1F3FD	EMOJI MODIFIER FITZPATRICK TYPE-4	■	▨
U+1F3FE	EMOJI MODIFIER FITZPATRICK TYPE-5	■	▨
U+1F3FF	EMOJI MODIFIER FITZPATRICK TYPE-6	■	▨

These characters have been designed so that even where diverse color images for human emoji are not available, readers can see what the intended meaning was.

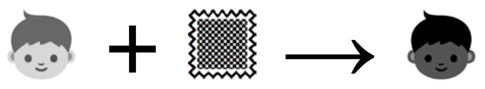
The default representation of these modifier characters when used alone is as a color swatch. Whenever one of these characters *immediately* follows certain characters (such as WOMAN), then a font should show the sequence as a single glyph corresponding to the image for the person(s) or body part with the specified skin tone, such as the following:



However, even if the font doesn't show the combined character, the user can still see that a skin tone was intended:



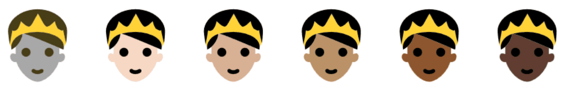
This may fall back to a black and white stippled or hatched image such as when colorful emoji are not supported.



When a human emoji is not *immediately* followed by a emoji modifier character, it should use a generic, *non-realistic* skin tone, such as:

- 🟨 `RGB #FFCC22` (one of the colors typically used for the smiley faces)
- 🟦 `RGB #3399CC`
- ⬜ `RGB #CCCCCC`

For example, the following set uses gray as the generic skin tone:

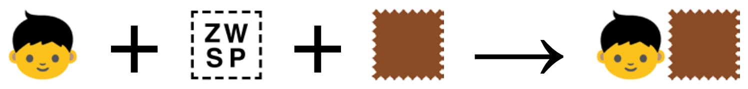


As to hair color, dark hair tends to be more neutral, because people of every skin tone can have black (or very dark brown) hair—however, there is no requirement for any particular hair color. One exception is PERSON WITH BLOND HAIR, which needs to have blond hair regardless of skin tone.

To have an effect on an emoji, an emoji modifier must immediately follow that emoji. There is only one exception: there may be an emoji variation selector between them. The emoji modifier automatically implies the emoji presentation style, so the variation selector is not needed. However, if the emoji modifier is present it must come immediately after the modified emoji character, such as in:

<U+270C VICTORY HAND, FE0F, TYPE-3>

Any other intervening character causes the emoji modifier to appear as a free-standing character. Thus



2.2.1 Multi-Person Groupings

Emoji for multi-person groupings present some special challenges:

- **Gender combinations.** Some multi-person groupings explicitly indicate gender: MAN AND WOMAN HOLDING HANDS, TWO MEN HOLDING HANDS, TWO WOMEN HOLDING HANDS. Others do not: KISS, COUPLE WITH HEART, FAMILY (the latter is also non-specific as to the number of adult and child members). While the *default* representation for the characters in the latter group should be gender-neutral, implementations may desire to provide (and users may desire to have available) multiple representations of each of these with a variety of more-specific gender combinations.
- **Skin tones.** In real multi-person groupings, the members may have a variety of skin tones. However, this cannot be indicated using an emoji modifier with any *single* character for a

multi-person grouping.

The basic solution for each of these cases is to represent the multi-person grouping as a sequence of characters—a separate character for each person intended to be part of the grouping, along with characters for any other symbols that are part of the grouping. Each person in the grouping could optionally be followed by an emoji modifier. For example, conveying the notion of COUPLE WITH HEART for a couple involving two women can use a sequence with WOMAN followed by an emoji-style HEAVY BLACK HEART followed by another WOMAN character; each of the WOMAN characters could have an emoji modifier if desired.

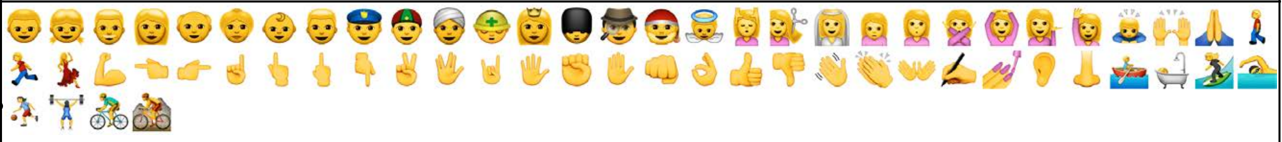
This makes use of conventions already found in current emoji usage, in which certain sequences of characters are intended to be displayed as a single unit.

2.2.2 Implementations

Implementations can present the emoji modifiers as separate characters in an input palette, or present the combined characters using mechanisms such as long press.

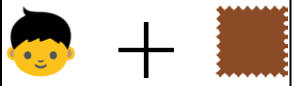
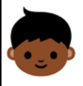
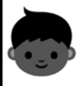
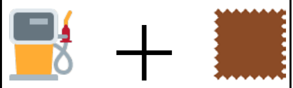
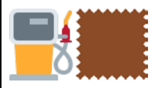
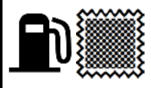
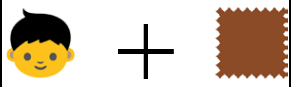
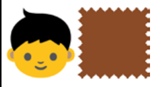
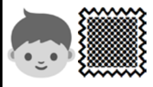
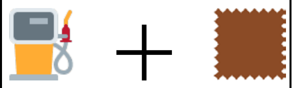
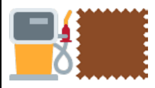
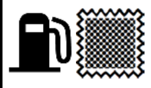
The emoji modifiers are not intended for combination with arbitrary emoji characters. Instead, they are restricted to the following characters: no other characters are to be combined with emoji modifiers. This set may change over time, with successive versions of this document.

Emoji Modifier Bases

Type	Images
64 code points	

The following chart shows the expected display with emoji modifiers, depending on the preceding character and the level of support for the emoji modifier. The “Unsupported” rows show how the character would typically appear on a system that does not have a font with that character in it: with a missing glyph indicator.

Expected Emoji Modifiers Display

Support Level	Emoji Modifier Base	Sequence	Display Color	Display B&W
Fully supported	Yes			
	No			
Fallback	Yes			
	No			

Unsupported	Yes	👦 + 🟫	👦□	👦□
	No	⛽ + 🟫	⛽□	⛽□

The interaction between variation selectors and emoji modifiers is specified as follows:

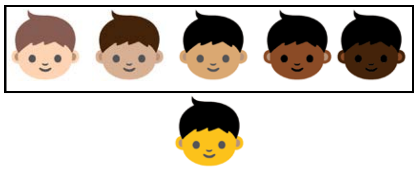
Emoji Modifiers and Variation Selectors

Variation Selector	Emoji Modifier	Result	Comment
None	Yes	Emoji Presentation	In the absence of other information, the emoji modifier implies emoji appearance.
Emoji (U+FE0F)			The emoji modifier base and emoji variation selector must form a valid variation sequence, and the order must as specified in emoji modifier sequence—otherwise support of the variation selector would be non-conformant.
Text (U+FE0E)		Text Presentation	

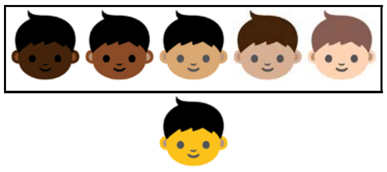
2.2.3 Emoji Modifiers in Text

A supported emoji modifier sequence should be treated as a single grapheme cluster for editing purposes (cursor moment, deletion, etc.); word break, line break, etc. For input, the composition of that cluster does not need to be apparent to the user: it appears on the screen as a single image. On a phone, for example, a long-press on a human figure can bring up a minipalette of different skin tones, without the user having to separately find the human figure and then the modifier. The following shows some possible appearances:

Minipalettes



or



Of course, there are many other types of diversity in human appearance besides different skin tones: Different hair styles and color, use of eyeglasses, various kinds of facial hair, different body shapes, different headwear, and so on. It is beyond the scope of Unicode to provide an encoding-based mechanism for representing every aspect of human appearance diversity that emoji users might want to indicate. The best approach for communicating very specific human images—or any type of image in which preservation of specific appearance is very important—is the use of embedded graphics, as described in Longer Term Solutions.

2.3 Emoji ZWJ Sequences

The U+200D ZERO WIDTH JOINER (ZWJ) can be used between the elements of a sequence of characters to indicate that a single glyph should be presented if available. An implementation may use this mechanism to handle such an emoji zwj sequence as a single glyph, with a palette or keyboard that generates the appropriate sequences for the glyphs shown. So to the user of such a system, these ~~would~~ behave like single emoji characters, even though internally they are sequences.

When an emoji zwj sequence is sent to a system that does not have a corresponding single glyph, the ZWJ characters ~~would be~~are ignored and a fallback sequence of separate emoji ~~would be~~is displayed. Thus an emoji zwj sequence should only be defined and supported by implementations where the fallback sequence would also make sense to a recipient.

For example, the following are possible displays:

ZWJ Sequence Display

Sequence	Display	Combined glyph?
👩 ZWJ ❤️ ZWJ 👩	👩‍❤️‍👩	Yes
	👩❤️👩	No

See also the chart containing Emoji ZWJ Sequences Catalog.

In a sequence of characters connected using ZWJ, it is recommended that the entire sequence have an emoji presentation if any character in the sequence has explicit or default emoji presentation.

Review Note: We are planning to change this guidance in order to improve interoperability and simplify implementation. There are two disadvantages to the current approach. First, if the sequence contains a character with Emoji_Presentation=false, then the fallback display may display as not all emoji. Second, implementations may end up needing to support two (or more) different sequences for the same visible entity. So the guidance would be changed to: “it is recommended that each character in the sequence with Emoji_Presentation=false be followed by an emoji variation selector”. Feedback on this issue is welcome.

The use of ZWJ sequences may be difficult in some implementations, so caution should taken before adding new sequences.

3 Which Characters are Emoji

There are different ways to count the emoji in Unicode, especially since sequences of emoji may appear as single emoji image. The following provides an overview of the ways to count emoji. There is no single number; it can be (for example):

- The count of code points that can be used in emoji, though this includes some code points that are only used as part of sequences and don’t have emoji appearance by themselves;
- All sequences of one or more characters that can appear as a single glyph (which is probably closer to what users think of as the number of emoji), though typically only a subset of possible sequences are displayed as a single glyph on any platform, and some sequences may be platform-specific extensions.

For example, there are only 26 Regional Indicator (RI) code points, which are used in pairs. Some of these pairs may be displayed as emoji flags, and others may not. There are 257 valid pairs that can be used.represent 257 regions. Single Regional Indicators are not used as emoji by themselves, so they are listed as "incomplete singletons" in the table below.

The following table provides more detail about the various counts as of Unicode 9.0:

Emoji Counts

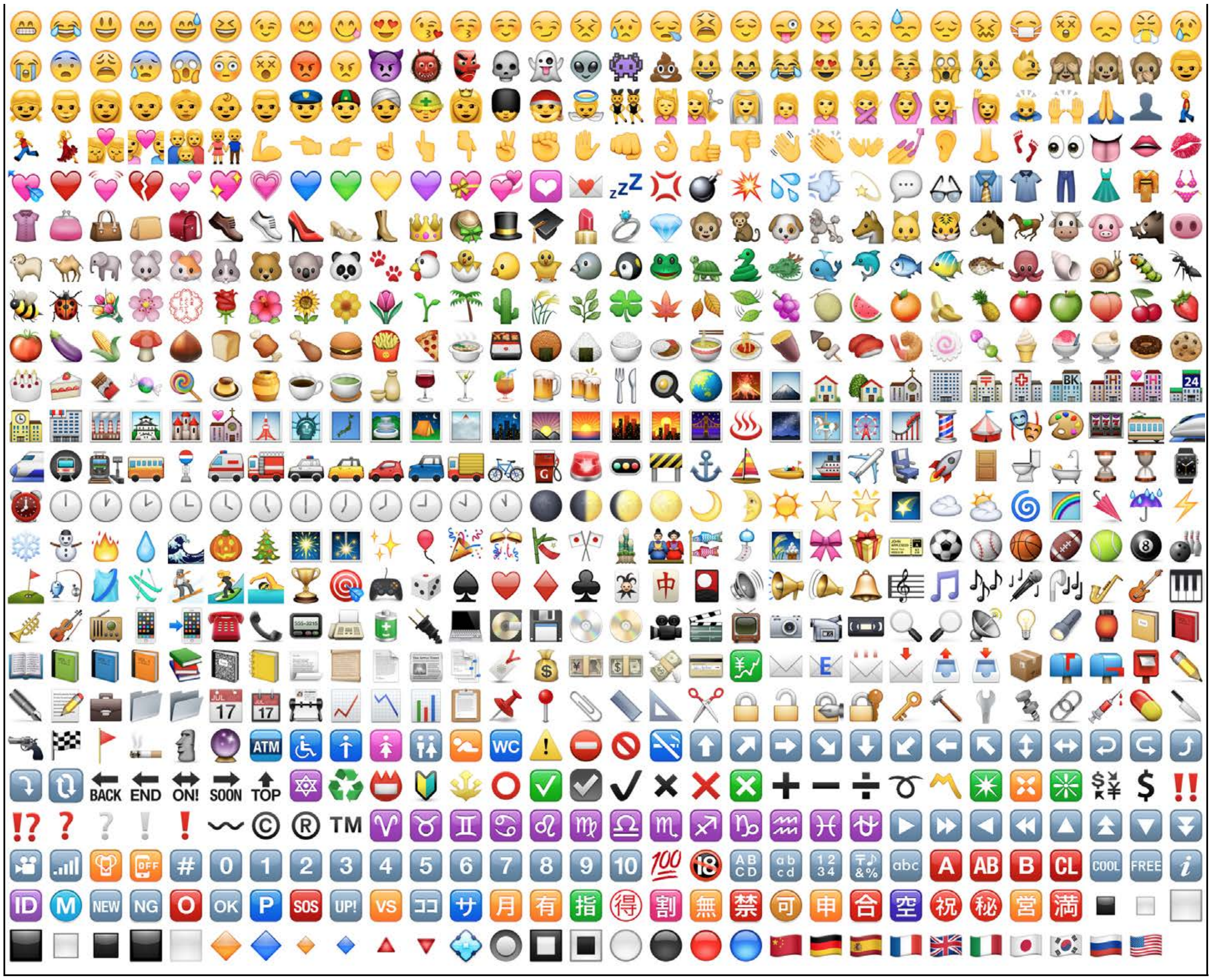
Type	Count	Subtotal
singletons	1,125	1,125
incomplete singletons (12 keycap base characters, 26 RI characters)	-38	1,087
keycaps (sequences)	12	1,099
regional indicator sequences (a subset of these may be displayed as flags)	257	1,356
modifier sequences (skin tones)	420	1,776
ZWJ sequences, e.g. for family combinations (platform-specific extensions)	22	1,798

Separate Emoji Charts provide more information on many of these subsets and others, for example:

- Keycap sequences, regional indicator sequence, and modifier sequences are listed in seaparate sections of Emoji Sequences.
- Common ZWJ sequences are listed in Emoji ZWJ Sequences.
- Emoji characters that were released most recently are listed in Emoji Recently Added.
- Emoji candidates for a future version of Unicode are found in Emoji Candidates.

Historically, 722 Unicode emoji correspond to the Japanese carrier sets. Three of these are space characters in Unicode, which cannot have an emoji presentation. This leaves 719 emoji, shown below. The 10 emoji flags require 15 unique Regional Indicator characters (in 10 different pairs) for their representation. Most of the keycap emoji require use of COMBINING ENCLOSING KEYCAP in addition to the base character. Thus a total of 725 unique code points are used to represent these emoji.

Japanese Carrier Emoji



~~When most vendors initially supported emoji, they included another 126 characters from Unicode 6.0 and 6.1:~~

~~Common Additions~~

~~[images for common additions]~~

There are another 247 flags (aside from the 10 from the Japanese carrier sets) that can be supported with Unicode 6.0 characters. No additional code points are needed for these, since they are combinations of Regional Indicator characters already encoded for the Japanese Carrier Emoji.

Other Flags

Some of these flags use the same glyphs. For more about flags, see Annex B: Flags.

~~The following set of 190 emoji are called the Standard Additions. Most, but not all, of these are new in Unicode 7.0 or in Unicode 8.0. The keycap emoji showing an asterisk (*) is represented as a sequence of two code points.~~

~~**Standard Additions**~~

~~[images for standard additions]~~

~~In Unicode 8.0, there is a total of 1,282 emoji, which are represented using 1,051 code points. This does not include any Emoji ZWJ Sequences. The characters that were released most recently are listed in Emoji Recently Added . Candidate emoji for a future version of Unicode are found in Emoji Candidates.~~

4 Presentation Style

Certain emoji have defined variation sequences, where an emoji character can be followed by one of two invisible emoji variation selectors:

- U+FE0E for a text presentation
- U+FE0F for an emoji presentation

This capability was added in Unicode 6.1. Some systems may also provide this distinction with higher-level markup, rather than variation sequences. For more information on these selectors, see Emoji Variation Sequences.

Implementations should support both styles of presentation for the characters with variation sequences, if possible. Most of these characters are emoji that were unified with preexisting characters. Because people are now using emoji presentation for a broader set of characters, Unicode 9.0 ~~will be adding~~adds variation sequences for all emoji with default text presentation (see discussion below). These are the characters shown in the column labeled “Default Text Style; no VS in U8.0” in the Text vs Emoji chart.

However, even where the variation selectors exist, it had not been clear for implementers whether the *default* presentation for pictographs should be emoji or text. That means that a piece of text may show up in a different style than intended when shared across platforms. While this is all a perfectly legitimate for Unicode characters—*presentation style is never guaranteed*—a shared sense among developers of when to use emoji presentation by default is important, so that there are fewer unexpected and "jarring" presentations. Implementations need to know what the generally expected default presentation is, to promote interoperability across platforms and applications.

There had been no clear line for implementers between three categories of Unicode characters:

1. **emoji-default:** those expected to have an emoji presentation by default, but can also have a text presentation
2. **text-default:** those expected to have a text presentation by default, but could also have an emoji presentation
3. **text-only:** those that should only have a text presentation

These categories can be distinguished using properties listed in Annex A: Emoji Properties and Data Files. The first category are characters with **Emoji=Yes** and **Emoji_Presentation=Yes**. The second category are characters with **Emoji=Yes** and **Emoji_Presentation=No**. The third category are characters with **Emoji=No**.

The presentation of a given emoji character depends on the environment, whether or not there is an emoji or text variation selector, and the default presentation style (emoji vs text). In informal environments like texting and chats, it is more appropriate for most emoji characters to appear with a colorful emoji presentation, and only get a text presentation with a text variation selector. Conversely, in formal environments such as word processing, it is generally better for emoji characters to appear with a text presentation, and only get the colorful emoji presentation with the emoji variation selector.

Based on those factors, here is typical presentation behavior. However, these guidelines may change with changing user expectations.

Emoji vs Text Display

Example Environment	with Emoji VS	with Text VS	with no VS	
			text-default	emoji-default
word processing	☕️	☕︎	☕︎	☕︎
plain web pages	☕️	☕︎	☕︎	☕️
texting, chats	☕️	☕︎	☕️	☕️

4.1 Emoji Variation Selectors

As of Unicode 9.0, every emoji character with a default text presentation allows for an emoji variation selector. Thus the presentation of these characters can be controlled on a character-by-character basis. The characters that can have emoji variation selectors applied to them are listed in Emoji Variation Sequences.

In addition, the next two sections describe two other mechanisms for globally controlling the emoji presentation using language tags with special script code or locale extensions. Though these are new mechanisms and not yet widely supported, browser vendors are strongly encouraged to support both of these mechanisms for control of emoji presentation (with implementation priority to the locale extension mechanism). For more information, see [CLDR].

4.2 Emoji Script

Review Note: the CLDR discussion of Zsye and Zsym referenced below is part of the specification of CLDR 29 to be released in March 2016. The spec can be previewed at CLDR v29; the current CLDR 28 discussion of unicode_script_subtag at the link cited below does not yet mention Zsye and Zsym.

There are two script subtags that can be used to control the presentation of characters that may have both text-style and emoji-style presentations available. These use script codes defined by ISO 15924 but given more specific semantics by CLDR, see unicode_script_subtag:

- "Zsye" — prefer emoji style for characters that have both text and emoji styles available.
- "Zsym" — prefer text style for characters that have both text and emoji styles available.

For example instead of using the language tag “en” for English, one can use the language tag “en-Zsye” to specify that not only is the language English, but that the emoji presentation is to be used for valid emoji characters (or sequences). This can be used in HTML, for example, with `<html lang="en-Zsye">`.

There are some disadvantages of this approach:

- It cannot be used with a language-script combination. For example, if the language is “sr-Latn” (Serbian in Latin script), then Zsye can't be used.
- It may confuse processes that depend on language tags, such as spell checkers.

4.3 Emoji Locale Extension

Review Note: the locale extension described below will be available as of CLDR v29, scheduled for release in March 2016. The spec can be previewed at CLDR v29.

There is also a locale extension “-em” that can be used instead of the script subtag. There are three values that can be used, here illustrated with “sr-Latn”:

Locale Code	Description
sr-Latn-u-em-emoji	use an emoji presentation for emoji characters where possible
sr-Latn-u-em-text	use a text presentation for emoji characters where possible
sr-Latn-u-em-default	use the default presentation (only needed to reset an inherited -em setting).

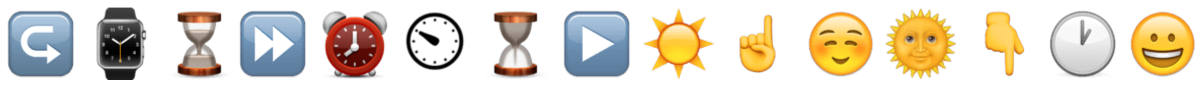
This can be used in HTML, for example, with `<html lang="sr-Latn-u-em-emoji">`. Note that this approach does not have the disadvantages listed for the script-tag approach.

4.4 Other Approaches for Control of Emoji Presentation

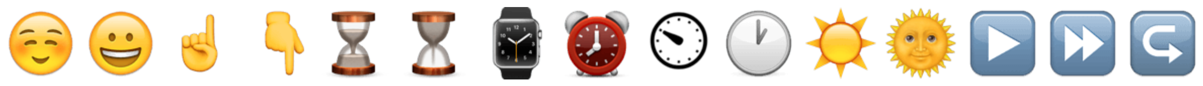
Other approaches for control of emoji presentation are also in use. For example, in some CSS implementations, if any font in the lookup list is an emoji font, then emoji presentation is used whenever possible.

5 Ordering and Grouping

Neither the Unicode code point order, nor the standard Unicode Collation ordering (DUCET), are currently well suited for emoji, since they separate conceptually-related characters. From the user's perspective, the ordering in the following selection of characters sorted by DUCET appears quite random, as illustrated by the following example:



The emoji-ordering chart file shows an ordering for emoji characters that groups them together in a more natural fashion. This data has been incorporated into [CLDR].

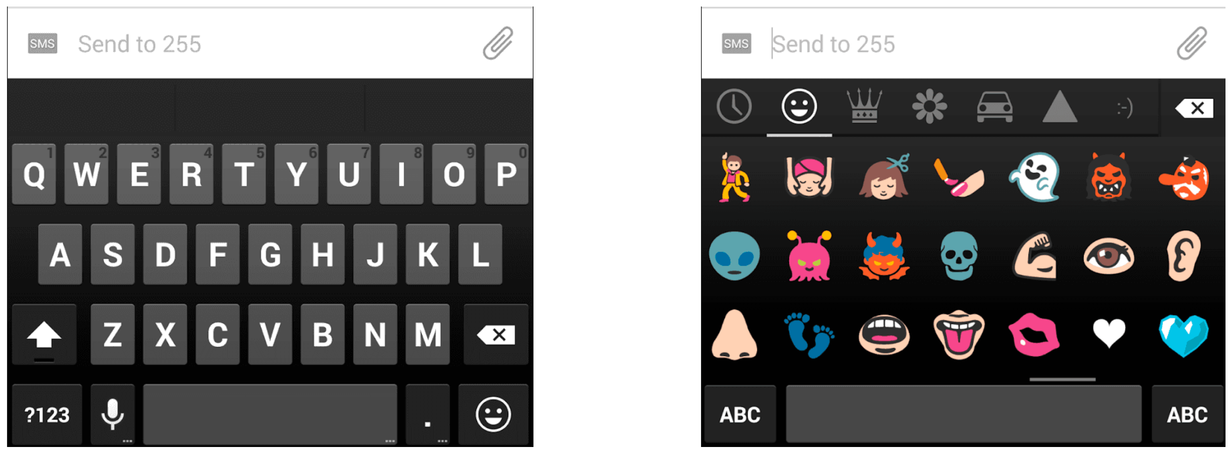


This ordering groups characters presents a cleaner and more expected ordering for sorted lists of characters. The groupings include: faces, people, body-parts, emotion, clothing, animals, plants, food, places, transport, and so on. The ordering also groups more naturally for the purpose of selection in input palettes. However, for sorting, each character must occur in only one position, which is not a restriction for input palettes. See *Section 6 Input*.

6 Input

Emoji are not typically typed on a keyboard. Instead, they are generally picked from a palette, or recognized via a dictionary. The mobile keyboards typically have a ☺ button to select a palette of emoji, such as in the left image below. Clicking on the ☺ button reveals a palette, as in the right image.

Palette Input



The palettes need to be organized in a meaningful way for users. They typically provide a small number of broad categories, such as People, Nature, and so on. These categories typically have 100-200 emoji.

Many characters can be categorized in multiple ways: an orange is both a plant and a food. Unlike a sort order, an input palette can have multiple instances of a single character. It can thus extend the sort ordering to add characters in any groupings where people might reasonably be expected to look for them.

More advanced palettes will have long-press enabled, so that people can press-and-hold on an emoji and have a set of related emoji pop up. This allows for faster navigation, with less scrolling through the palette.

Annotations for emoji characters are much more finely grained keywords. They can be used for searching characters, and are often easier than palettes for entering emoji characters. For example, when someone types “hourglass” on their mobile phone, they could see and pick from either of the matching emoji characters ⌛ or ⏳. That is often much easier than scrolling through the palette and visually inspecting the screen. Input mechanisms may also map *emoticons* to emoji as keyboard shortcuts: typing :-) can result in 😄.

In some input systems, a word or phrase bracketed by colons is used to explicitly pick emoji characters. Thus typing in “I saw an *:ambulance:*” is converted to “I saw an 🚑”. For completeness, such systems might support all of the full Unicode names, such as *:first quarter moon with face:* for 🌛. Spaces within the phrase may be represented by _, as in the following:

“my *:alarm_clock:* didn’t work”

→

“my ⏰ didn’t work”.

However, in general the full Unicode names are not especially suitable for that sort of use; they were designed to be unique identifiers, and tend to be overly long or confusing.

7 Searching

Searching includes both searching for emoji characters in queries, and finding emoji characters in the target. These are most useful when they include the annotations as synonyms or hints. For example, when someone searches for ⛽ on yelp.com, they see matches for “gas station”. Conversely, searching for “gas pump” in a search engine could find pages containing ⛽. Similarly, searching for “gas pump” in an email program can bring up all the emails containing ⛽.

There is no requirement for uniqueness in both palette categories and annotations: an emoji should show up wherever users would expect it. A gas pump ⛽ might show up under “object” and “travel”; a heart 💔 under “heart” and “emotion”, a 😻 under “animal”, “cat”, and “heart”.

Annotations are language-specific: searching on yelp.de, someone would expect a search for ⛽ to result in matches for “Tankstelle”. Thus annotations need to be in multiple languages to be useful across languages. They should also include regional annotations within a given language, like “petrol station”, which people would expect search for ⛽ to result in on yelp.co.uk. An English annotation cannot simply be translated into different languages, since different words may have different associations in different languages. The emoji 🌵 may be associated with Mexican or Southwestern restaurants in the US, but not be associated with them in, say, Greece.

There is one further kind of annotation, called a *TTS name*, for text-to-speech processing. For accessibility when reading text, it is useful to have a short, descriptive name for an emoji character. A Unicode character name can often serve as a basis for this, but its requirements for name uniqueness often ends up with names that are overly long, such as *black right-pointing double triangle with vertical bar* for ⏯. TTS names are also outside the current scope of this document.

8 Longer Term Solutions

The longer-term goal for implementations should be to support embedded graphics, in addition to the emoji characters. Embedded graphics allow arbitrary emoji symbols, and are not dependent on additional Unicode encoding. Some examples of this are found in Skype and LINE—see the emoji press page for more examples.

However, to be as effective and simple to use as emoji characters, a full solution requires significant infrastructure changes to allow simple, reliable input and transport of images (stickers) in texting, chat, mobile phones, email programs, virtual and mobile keyboards, and so on. (Even so, such images will never interchange in environments that only support plain text, such as email addresses.) Until that time, many implementations will need to use Unicode emoji instead.

For example, mobile keyboards need to be enhanced. Enabling embedded graphics would involve adding an additional custom mechanism for users to add in their own graphics or purchase additional sets, such as a + sign to add an image to the palette above. This would prompt the user to paste or otherwise select a graphic, and add annotations for dictionary selection.

With such an enhanced mobile keyboard, the user could then select those graphics in the same way as selecting the Unicode emoji. If users started adding many custom graphics, the mobile keyboard might even be enhanced to allow ordering or organization of those graphics so that they can be quickly accessed. The extra graphics would need to be disabled if the target of the mobile keyboard (such as an email header line) would only accept text.

Other features required to make embedded graphics work well include the ability of images to scale with font size, inclusion of embedded images in more transport protocols, switching services and applications to use protocols that do permit inclusion of embedded images (eg, MMS versus SMS for text messages). There will always, however, be places where embedded graphics can’t be used—such as email headers, SMS messages, or file names. There are also privacy aspects to implementations of embedded graphics: if the graphic itself is not packaged with the text, but instead is just a reference to an image on a server, then that server could track usage.

Annex A: Emoji Properties and Data Files

The following four binary character properties are available for emoji characters. These are not formally part of the Unicode Character Database (UCD), but share the same namespace and structure.

Emoji Properties

Property	Property Values
Emoji	=Yes for characters that are emoji =No otherwise
Emoji_Presentation	=Yes for characters that have emoji presentation by default =No otherwise
Emoji_Modifier	=Yes for characters that are emoji modifiers =No otherwise
Emoji_Modifier_Base	=Yes for characters that can serve as a base for emoji modifiers =No otherwise

If **Emoji=No**, then **Emoji_Presentation=No**, **Emoji_Modifier=No**, and **Emoji_Modifier_Base=No**.

The property values are specified in the main data file; see [emoji-data]. The format for that file is described in its header. There are two other data files listing sequences used to represent emoji.

See [emoji-charts] for a collection of charts that have been generated from the emoji data file that may be useful in helping to understand it and the related [CLDR] emoji data (annotations and ordering). These charts are not versioned, and are purely illustrative; the data to use for implementation is in [emoji-data].

Annex B: Flags

26 REGIONAL INDICATOR symbols are used in pairs to represent country flags. Only valid sequences should be used, where:

- The valid region sequences are specified by Unicode region subtags as defined in [CLDR], with idStatus="regular" or "deprecated". (An overseas territory of a country may share the same flag as for the country itself.) Deprecated region sequences should not be generated, but may be supported for backward compatibility.

Emoji are generally presented with a square aspect ratio, which presents a problem for flags. The flag for Qatar is over 150% wider than tall; for Switzerland it is square; for Nepal it is over 20% taller than wide. To avoid a ransom-note effect, implementations may want to use a fixed ratio across all flags, such as 150%, with a blank band on the top and bottom. (The average width for flags is between 150% and 165%.) Narrower flags, such as the Swiss flag, may also have white bands on the side.

Flags should have a visible edge. One option is to use a 1 pixel gray line chosen to be contrasting with the adjacent field color.

The code point order of flags is by region code, which will not be intuitive for viewers, since that rarely matches the order of countries in the viewer's language. English speakers are surprised that the flag for Germany comes before the flag for Djibouti. An alternative is to present the sorted order according to the localized country name, using [CLDR] data.

For an open-source set of flag images (png and svg), see region-flags.

Annex C: Regular Expressions

It is often useful to be able to recognize emoji using regular expressions. In environments that don't have good Unicode property support, that may be the *only* way to recognize them. A data file provides expressions that can be used to distinguish the currently valid emoji, plus the cataloged emoji zwj sequences. See [emoji-data] for the file and formats.

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Rights to Emoji Images

The content for this section has been moved to Emoji Images and Rights.

References

[CLDR] CLDR - Unicode Common Locale Data Repository
http://cldr.unicode.org/
For the latest version of the associated specification (LDML), see:
http://www.unicode.org/reports/tr35/

[emoji-charts] The illustrative charts of emoji
http://unicode.org/emoji/charts/index.html

[emoji-data] The associated data files for emoji characters
For the draft 3.0 versions, see
http://unicode.org/Public/emoji/3.0/emoji-data.txt
http://unicode.org/Public/emoji/3.0/emoji-regex.txt
http://unicode.org/Public/emoji/3.0/emoji-sequences.txt
http://unicode.org/Public/emoji/3.0/emoji-zwj-sequences.txt
For the latest released version, see:
http://unicode.org/Public/emoji/latest/emoji-data.txt
http://unicode.org/Public/emoji/latest/emoji-sequences.txt
http://unicode.org/Public/emoji/latest/emoji-zwj-sequences.txt

[JSources] The UCD sources for the JCarrier symbols
For the latest version, see:
http://unicode.org/Public/UCD/latest/ucd/EmojiSources.txt
For the 9.0 version, see:
http://unicode.org/Public/9.0.0/ucd/EmojiSources.txt
Review Note: this link will not work until Unicode 9.0 is final. During the Unicode 9.0 beta period, go to http://unicode.org/Public/9.0.0/ucd.

[Unicode] The Unicode Standard
For the latest version, see:
http://unicode.org/versions/latest/

[VSData] A data file listing permissible variation sequences
For the latest version, see:
http://unicode.org/Public/UCD/latest/ucd/StandardizedVariants.txt
For the 9.0 version, see:
http://unicode.org/Public/9.0.0/ucd/StandardizedVariants.txt
Review Note: this link will not work until Unicode 9.0 is final. During the Unicode 9.0 beta period, go to http://unicode.org/Public/9.0.0/ucd.

Modifications

The following summarizes modifications from the previous revisions of this document.

Revision 6

- General
  - Updated to assume Unicode 9.0 as current version.
- Section 1.4.5 Emoji Sequences
  - Added a review note requesting feedback on whether to change the recommended use of variation selectors in emoji zwj sequences.
- Section 2.3 Emoji ZWJ Sequences
  - Added a review note for EDF-16 requesting feedback on whether to narrow the definition of emoji zwj sequence to disallow non_spacing_marks and emoji_flag_sequences.
- Section 3 Which Characters are Emoji
  - Added a table of counts of different types of emoji and emoji sequences, and expanded the discussion on how to count emoji.
  - Removed the tables of common and standard additions.
- Sections 4.1 Emoji Variation Selectors, 4.2 Emoji Script, 4.3 Emoji Locale Extension, 4.4 Other Approaches for Control of Emoji Presentation
  - Added descriptions of the new script subtag and locale extension that can be used to control emoji presentation, and a description of other mechanisms in use.
- Annex C: Regular Expressions
  - Added new section about regular expressions for detecting emoji characters and sequences. A new data files contains those expressions.

Revision 5

- Section 1.4 Definitions
  - Removed definitions for levels, here and elsewhere in the text.
  - 1.4.5 Emoji Sequences Added subsection with definitions for:
    - ***ED-14*. emoji flag sequence**
    - ***ED-15*. emoji core sequence**
    - ***ED-16*. emoji zwj sequence**
    - ***ED-17*. emoji sequence**
- Section 2 Design Guidelines
  - Updated the text about combining marks
  - Section 2.2.2 Implementations
    - Merged primary and secondary sets, and removed the notation.
    - Removed faces and a few others from the Modifier Bases (Emoji Modifier Bases) and added a few other characters.
  - Section 2.3 Emoji ZWJ Sequences
    - Moved from Multi-Person Groupings to its own section.
- Section 3 Which Characters are Emoji

    - Dropped the section heads 3.1 Level 1 Emoji and 3.2 Level 2 Emoji
    - Merged Standard Additions 8.0 into Standard Additions
    - Dropped Section 3.3 Methodology and its contents, except for a couple of paragraphs moved to Section 1.2 Encoding Considerations.
- Section 4 Presentation Style
    - Added information on variation sequences planned for Unicode 9.0.
- Annex A: Emoji Properties and Data Files
    - Added a description of the 4 new properties, and how they relate to the data files.
    - Indicated that the sequences are separated out into two other files.
    - The data files are listed under [emoji-data].
- Annex C, D, E are removed; their content is updated and moved to separate pages:
    - Emoji Selection Factors
    - Emoji Recently Added
    - Emoji ZWJ Sequences
- Rights to Emoji Images
    - Moved content to external page.
- Acknowledgments
    - Added more contributors

Revision 4 being a proposed update, only changes between revisions 5 and 3 are noted here.

Modifications for previous revisions are listed in the previous version of this document.
