Emojis in Domain Names:
A Security Risk for Everyone

Emojis have taken over every form of digital conversation, but they create a serious security risk when used in domain names. The ambiguity and confusion they cause in domains can lead to a denial of service or misconnections, and expose users to phishing and other social engineering attacks.

Why Do Emojis in Domain Names Create a Security Risk?

IDNA 2008, the current standard for internationalized domain names, prohibits emojis in domain names (see RFC 5892). Therefore, applications that follow the standard strictly do not support emojis at all; others process them inconsistently.

As discussed by the Security and Stability Advisory Committee of ICANN (see SAC095) and approved by the ICANN Board, the use of emojis in domain names also creates a number of problems from an end user standpoint:

Emojis can be too visually similar to distinguish
especially when displayed in smaller fonts or by different applications.

https:// 😀 .example   https:// 😄 .example

Users could easily confuse the "Grinning face" emoji (left) and "Grinning face with smiling eyes" emoji (right).

Combining emojis is unreliable
Some emojis can be combined (or "glued") using a joining character to display them as a single symbol, but:

- Systems that do not support combining will render "glued together" emojis as a sequence of separate emojis.

- To the user, a single unmodified emoji may appear to be "glued together" when it is not.

Single: 👪
Unicode: 1F46A

Combined: 👩 + 👨 + 👦
Unicode: 1F468$_{200D}$1F469$_{200D}$1F466

Both displayed as: https:// 👪 .example

Emojis are not displayed uniformly across all platforms
because there is currently no standard specifying how they should look.

"Dizzy face" emoji (Unicode: 1F635) as displayed by:

Apple   https:// 😵 .example

Google   https:// 😵 .example

Windows   https:// 😵 .example

Emoji skin tone modifications are ambiguous
Some emojis allow users to apply one of five skin tone modifiers. These can make emojis difficult to distinguish and are subject to interpretation.

https:// 🕵 .example   https:// 🕵 .example

Users could easily confuse the "Detective-medium light skin" emoji (left) with the "Detective-medium skin" emoji (right).