

# Favicon.ico

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The little icon in a browser's address bar is called [favicon.ico](#) and was invented by Microsoft Corporation in 1999, according to Wikipedia. The favicon was standardized by the World Wide Web Consortium (W3C) in the HTML 4.01 recommendation. The icon is a small graphic file, and **ICO**, **PNG**, and **GIF** are widely supported formats. Besides Internet Explorer(tm), **SVG** is also supported by many browsers. In contrast to the other formats, an `.ico` file is a **container** for multiple icons of different sizes and formats ( `.bmp` , `.png` , ...).

## 1 Usage

Depending on the favicon type ( `.ico` or `.svg` ) the reference in HTML is different. In the case of an `.ico` , the icon is referenced by a `link` element in the `<head>` section of an HTML page with `rel="shortcut icon"` , as the `.ico` format is known.

```
<link rel="shortcut icon" href="https://example.com/name.ico">
```

In the case of a `.svg` file, a `type` statement must be added.

```
<link rel="icon" type="image/svg+xml" href="https://example.com/name.svg">
```

An alternative is to place an `.ico` file in the document root of the web server that can serve it, and let the browser decide if it wants a favicon or not.

Theoretically, the advantage of `.svg` is that this format scales to all sizes, depending on the target browser. The next best option is `.ico` as it can provide many pre-defined formats and sizes. In some cases `.ico` might be better if the target cannot handle `.svg`. However, unlike in the year 1999, the variety of targets is much greater today, and it is difficult to impossible to know all target capabilities.

## 2 Size

Favicons can come in many different sizes and are used for many different purposes: even as desktop icons on some operating systems. The [best practice](https://stackoverflow.com) according to <https://stackoverflow.com> is:

- ICO favicon.ico (32x32)
- PNG favicon.png (96x96)
- Tile Icon tileicon.png (144x144)
- Apple Touch Icon apple-touch-icon-precomposed.png (152x152)

More information can be found at <https://github.com> via the [favicon cheat sheet](#).

## 3 Creation

The **ImageMagick** command line tool `convert` can create an `.ico` file from existing image files that are not necessarily `.png` files, like this:

```
convert favicon-16.bmp favicon-32.bmp favicon.ico
```

If you prefer **SVG** over some static format as source format: create a **square** `.svg` file with `inkscape` and export it as `.png`. These steps can be skipped if you already have a master `.png` file or if you have icons of different sizes.

Resize a master `.png` file with **ImageMagick** and create one file for each size:

```
convert master.png -resize 16x16 16.png
convert master.png -resize 32x32 32.png
convert master.png -resize 48x48 48.png
```

This will create `16.png`, `32.png` and `48.png`. Convert the `.png` files to **ICO** (add the files as icons to the container):

```
convert 16.png 32.png 48.png icon.ico
```

Make sure the `.ico` container contains everything:

```
identify favicon.ico
icon.ico[1] ICO 16x16 16x16+0+0 32-bit sRGB 21.2KB 0.000u 0:00.000
icon.ico[0] ICO 32x32 32x32+0+0 32-bit sRGB 21.2KB 0.000u 0:00.000
icon.ico[0] ICO 48x48 48x48+0+0 32-bit sRGB 21.2KB 0.000u 0:00.000
```

It might get a little tricky, but **ImageMagick** could be used to do all these steps in one go (after the `.svg` file is created with `inkscape`).

```
convert -background none icon.svg -define icon:auto-resize favicon.ico
```

In some cases:

```
convert -density 256x256 -background transparent favicon.svg \
-define icon:auto-resize -colors 256 favicon.ico
```

If the density parameter is needed, it depends on the `.svg` file. For example:

```
identify favicon.ico
favicon.ico[0] PNG 256x256 256x256+0+0 8-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[1] ICO 192x192 192x192+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[2] ICO 128x128 128x128+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[3] ICO 96x96 96x96+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[4] ICO 64x64 64x64+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[5] ICO 48x48 48x48+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[6] ICO 40x40 40x40+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[7] ICO 32x32 32x32+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[8] ICO 24x24 24x24+0+0 32-bit sRGB 300KB 0.000u 0:00.000
favicon.ico[9] ICO 16x16 16x16+0+0 32-bit sRGB 300KB 0.000u 0:00.000
```

## 4 How to Create a Favicon on Command Line

If you are short on time and simply do not want to see the red error in the web console when developing a website, you need a `favicon.ico`. Instead of copying one and worrying about copyright and other legal implications, you can create one with just two commands in ImageMagick.

```
convert -size 32x32 canvas:'#0062FF' favicon.png
convert favicon.png -resize 32x32 favicon.ico
```

## 5 History

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Version	Date	Notes
0.1.3	2023-05-16	Add section about command line creation
0.1.2	2023-03-24	Improve writing, rewrite some parts, typos, fixes
0.1.1	2022-07-08	History, shell to bash, formatting
0.1.0	2020-05-11	Initial release

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## 6 Disclaimer of Warranty

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