

The background of the slide features a subtle, abstract pattern of overlapping circles. These circles are primarily light green and yellowish-green, creating a soft, bokeh-like effect against a darker green gradient background.

WEB IMAGES BEST PRACTICES

IMAGE BEST PRACTICES

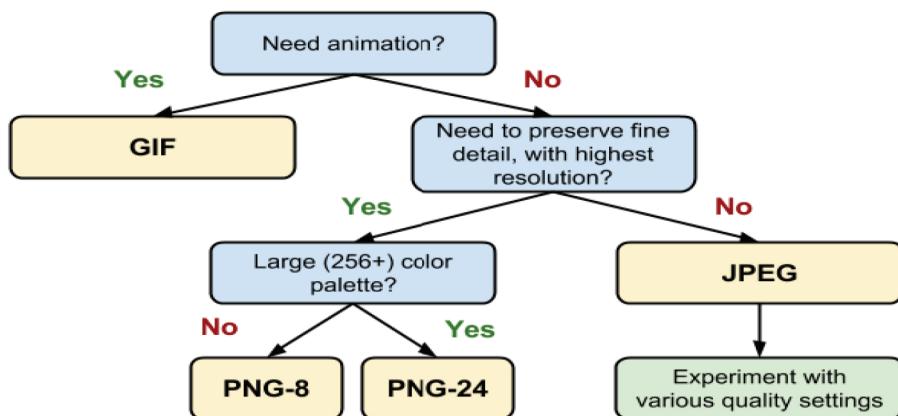
IMPORTANCE OF IMAGES:

“A picture is worth a thousand words”. Strong imagery with good design is a great component of high quality content. Utilizing images within articles can give a boost to page views, with articles with images, on average, containing **94%** more total views than articles without images. Images provide a visual stimuli which can increase the user engagement within pages.

Images often account for most of the downloaded bytes on a page when rendering. This document aims to outline best practices for image optimization and implementation while ensuring that page load speed is not negatively affected.

BEST PRACTICES

- 1. Use Commonly Supported File Types:** There are three universally supported image formats: GIF, PNG, and JPEG. In addition to these formats, some browsers also support newer formats such as WebP and JPEG XR, which offer better overall compression and more features. It is recommended to use JPEG as a first choice, and PNG as a second choice. Ensure the extension of your filename matches with the file type (i.e. *.jpeg* or *.png*).



Format	Transparency	Animation	Browser
GIF	YES	YES	ALL
PNG	YES	NO	ALL
JPEG	NO	NO	ALL
JPEG XR	YES	YES	IE
Webp	YES	YES	Chrome, Opera, Android

i. **Do you need animation? If so, GIF is the only universal choice.**

- GIF limits the colour palette to at most 256 colors, which makes it a poor choice for most images. Further, PNG-8 delivers better compression for images with a small palette. As a result, GIF is the right answer only when animation is required.

ii. **Do you need to preserve fine detail with highest resolution? Use PNG.**

- PNG does not apply any lossy compression algorithms beyond the choice of the size of the colour palette. As a result, it will produce the highest quality image, but at a cost of significantly higher file size than other formats. Lossy compression refers to files that permanently lose information from the original file when compressed. Lossless compression refers to files that when uncompressed, contain all the original information of the file.

- If the image asset contains imagery composed of geometric shapes, consider converting it to a vector (SVG) format.

- If the image asset contains text, stop and reconsider. Text in images is not selectable, searchable, or “zoomable”. If you need to convey a custom look (for branding or other reasons), use a web font instead.

iii. **Are you optimizing a photo, screenshot, or a similar image asset? Use JPEG.**

- JPEG uses a combination of lossy and lossless optimization to reduce file size of the image asset. Try several JPEG quality levels to find the best quality vs. file size tradeoff for your asset.

2. **Embed Text Within Images in HTML :** Good design is simple and will always yield the best performance. If you can eliminate an image resource by utilizing alternative technology to deliver the desired results, then that is the best optimization strategy. For example, the image below has text embedded into the image (i.e. “Healthy Lifestyle”), which ultimately increases the file size of the image, and the number of bytes that need to be downloaded before the image is loaded. Consider embedding the text within the HTML to encode the text as part of the page as opposed to having it encoded as part of the image.



Title=“Exercise, Diet, Fluids, Healthy Lifestyle.”

Alt= “Four differently-coloured bubbles containing the words exercise, diet, fluids, and healthy lifestyle.”

- 3. Choose Appropriate Graphics Format:** Each format has its own set of pros and cons. Vector formats are ideally suited for images that consist of simple geometric shapes (e.g. logos, text, icons, and so on), and deliver sharp results at every resolution and zoom setting, which makes them an ideal format for high-resolution screens and assets that need to be displayed at varying sizes.

However, vector formats fall short when the scene is complicated (e.g. a photo): the amount of SVG (scalable vector graphics) markup to describe all the shapes can be prohibitively high and the output may still not look “photorealistic”. When that’s the case, that’s when you should be using a raster image format such as GIF, PNG, JPEG, or one of the newer formats such as JPEG-XR and WebP.

Raster images do not have the same nice properties of being resolution or zoom independent - when you scale up a raster image you’ll see jagged and blurry graphics. As a result, you may need to save multiple versions of a raster image at various resolutions to deliver the optimal experience to your users.



- 4. Utilize Tools For Parameter Tuning:** There is no one perfect image format, tool, or a set of optimization parameters that apply to all images. For best results you will have to pick the format and its settings depending on the contents of the image, and its visual and other technical requirements.

Tool	Description
Gifsicle	Create and optimize GIF images
Jpegtran	Optimize JPEG images
Optipng	Lossless PNG optimization
Pngquant	Lossy PNG optimization

5. **Scale Images to Reduce File Size:** Loading times are an important factor in UX. Images can have a huge impact on loading times; typically, the bigger the image, the longer it takes for the page to render. Scale images to the size you want to show it on the page. For example, a 2500 x 1500 pixel image has to be fully loaded even though the image is being shown at 250 x 150 pixel size on the page. Ensure that images are served in the smallest file size possible for the desired size. Properly formatting and compressing images can save many bytes of data. Tools such as Adobe Photoshop can help you achieve this. It is important to ensure that picture quality is not affected when scaling down images.
6. **Remove Unnecessary Meta-Data:** Pictures taken from modern digital cameras include unnecessary data such as time, date, location etc. This is unnecessary metadata that can be removed from the images to decrease the file size and ultimately decrease the amount of data that needs to be downloaded before a page is rendered. Tools such as Adobe Photoshop can strip images of unnecessary meta-data.
7. **Choose the Right File Name:** Image SEO starts with the right file name. This is the first location to utilize keywords. Without even looking at the actual image, Google should be able to know what the image is about by looking at the filename. Descriptive, keyword-rich file names that are easy to understand is essential for image optimization. Optimized filenames can increase on-page SEO and help your website and images rank highly.

Current Filename:

```
<?xml version="1.0" encoding="UTF-8"?>
<urlset xmlns="http://www.sitemaps.org/schemas/sitemap/0.9"
         xmlns:image="http://www.google.com/schemas/sitemap-image/1.1">
    <url>
        <loc>http://example.com/sample.html</loc>
        <image:image>
            <image:loc>http://example.com/image.jpg</image:loc>
        </image:image>
        <image:image>
            <image:loc>http://example.com/photo.jpg</image:loc>
        </image:image>
    </url>
</urlset>
```

10. Image Optimization Checklist:

- **Prefer vector formats:** vector images are resolution and scale independent, which makes them a perfect fit for the multi-device and high-resolution world.
- **Minify and compress SVG assets:** XML markup produced by most drawing applications often contains unnecessary metadata which can be removed; ensure that your servers are configured to apply GZIP compression for SVG assets.
- **Pick best raster image format:** determine your functional requirements and select the one that suits each particular asset.
- **Experiment with optimal quality settings for raster formats:** don't be afraid to dial down the "quality" settings, the results are often very good and byte savings are significant.
- **Remove unnecessary image metadata:** many raster images contain unnecessary metadata about the asset: geo information, camera information, and so on. Use appropriate tools to strip this data.
- **Serve scaled images:** resize images on the server and ensure that the "display" size is as close as possible to the "natural" size of the image. Pay close attention to large images in particular, as they account for largest overhead when resized.
- **Automate, automate, automate:** invest into automated tools and infrastructure that will ensure that all of your image assets are always optimized.
- **Optimize filenames:** utilize keywords within the image filenames so that search engine crawlers are able to understand the image without looking at it.
- **Optimize Alt-tags:** utilize keywords within the alt-tag to provide further information to search engine crawlers.

Additional information can be found on the following google developers link:

<https://developers.google.com/web/fundamentals/performance/optimizing-content-efficiency/image-optimization?hl=en>