Icons

Which image format is the best one for icons and logos ? SVG format has great icon size characteristics, and what's more important, it doesn't lose quality at image resize.
This makes it perfect for creating social and interface icons and website logos. Then comes PNG, with its transparency, availability and processing ease make it a ***good choice***
for adding icons or logos to a website. [Ref. elfsight]

There are two types of graphic images: raster and vector.

Raster : Raster file formats store data related to each individual pixel e.g. JPEG, PNG.
Vector : Vector images store data as a geometric description.

/********** SVG format **********/

SVG (Scalable Vector Graphics) : This is a graphics markup language that is used to depict 2D graphics and combined vector and bit image graphics in XML format.

Advantages:	Disadvantages:
• You can make any part of the image larger without losing in image quality;	• The more small details there are, the faster grows the SVG data volume;
• Text in SVG graphics is actually text, and not an image, so it can be copied and indexed by search engines;	• You can only create simple objects that can be described with simple figures;
• You can manage element display (color, size, proportions, etc.) with the help of CSS; elements can be managed with JavaScript, creating dynamic and interactive graphics.	• Older browsers might not support the SVG format.

Conclusion: Due to its properties, this format has ***become popular for icons and logos***: the images in SVG format ***can be compressed and stretched without the loss of quality***,
so it would be enough to ***create one set of icons for different size devices***. However, these advantages ***limit the opportunity of creating large and complicated images*** in this format.

/********** PNG format **********/

PNG (portable network graphics) : Bitmap format of storing graphic data that uses the Deflate algorithm for lossless contraction.

Advantages:	Disadvantages:
• Minimal loss of quality during compression;	• Not meant to effectively compress large-area images.
• Virtually unlimited number of colors in an image;	• Doesn't support animation;
• Relatively small file size; and Compatible with all browsers.	
• It supports alpha-transparency, can overlay an image on a background.	

Conclusion: PNG is a good format for ***image editing and for storing mid-stage edits***, as the recovery and re-saving of images are performed without the loss of quality.
Its transparency, availability and processing ease make it a ***good choice for adding icons or logos to a website.***

/********** JPEG format **********/

JPEG (Joint Photographic Experts Group): The popular raster graphic formats that is used to store photos and similar images. The following extensions also belong to JPEG format: **jpg**, **jfif**, **jpe**.

Advantages:	Disadvantages:
• High compression ratio; can choose the quality/size ratio;	• Artifacts appear after compression; not scalable.
• Small file size.	• Doesn't support transparency;
• Compatible with all browsers;	• Each re-saving diminishes the image quality.

Conclusion: JPEG is ***perfect for processing and storing full color pictures with large*** or realistic images (background images, photos) that have frequent color and brightness gradients.
The lack of transparency makes it practically ***useless for logos and icons***.

Example

1. JPG: size – 5,38 KB, resolution – 40×40;
2. PNG: size – 6,22 KB, resolution – 40×40;
3. SVG: size – 9,77 KB, resolution – 40×40.

Comment:

With the default sizes we can see that the difference in quality is insignificant, the main difference is the image size.

100% icon scaling up

1. JPG: size – 10,8 KB, resolution – 80×80;
2. PNG: size – 13,9 KB, resolution – 80×80;
3. SVG: size – 9,77 KB, resolution – 80×80.

Comment:

Sizing up the image by 100% leads to a rapid quality decrease for PNG and JPG icons.

300% icon scaling up

1. JPG: size – 17,4 KB, resolution – 160×160;
2. PNG: size – 24,5 KB, resolution – 160×160;
3. SVG: size – 9,77 KB, resolution – 160×160.

Comment:

Sizing up the icon size by 4 times further decreases the image quality in PNG and JPG format. Also, due to PNG format algorithms, we see the most significant increase in size.