

# Aperio Image File Types

When scanning or creating images, you specify a *type code*. The type code determines the **file format** and the **compression type**.

SVS, TIFF, JP2, and JFIF are file formats. (SVS files are really TIFF files.)

JPEG, JPEG2000, and LZW are compression types.

Some file formats only support one compression type. JP2 files always use JPEG2000 compression, and JFIF files always use JPEG compression. (For this reason, JP2 files are sometimes called “JPEG2000 files”, and JFIF files are often called “JPEG files”.) The SVS/TIFF file format supports multiple compression types, including JPEG, JPEG2000, and LZW, as well as “none” (no compression).

Here’s the full range of type codes supported by Aperio’s software:

type code	file format	file extension	compression type	compression ratio	tilled?	quality?	output?	comment
0	TIFF	.tif	none	1:1	optional	lossless	yes	
1	TIFF	.tif	LZW	2-3:1	optional	lossless	yes	
2 (default)	TIFF	.svs	JPEG	15-20:1	yes	good	yes	fastest to process
3	TIFF	.svs	JPEG2000 / MIL	20-25:1	yes	excellent	yes	best image quality, required for FDA cleared analysis applications. 32-bit Windows only.
4	TIFF	.svs	JPEG / YCC	15-20:1	yes	slightly > 2	icomp only	hardly ever used; a variation on type 2
5	TIFF	.svs	JPEG2000 / Kakadu	20-25:1	yes	excellent, same as 3	yes	best image quality, supported on Linux and 64-bit systems
7	TIFF	.svs	YUYV	3:2	yes	lossless	icomp only	just for testing
8	JFIF	.jpg	JPEG	15-20:1	never	good	DSS and icomp, cannot scan to this	for interchange, not suitable for BIG files. Cannot scan to this!
9	PPM	.ppm	none	< 1:1	never	lossless	no, read-only	interchange format, no compression!
10	CWS	<directory>	JPEG	15-20:1	yes	good	yes	klunky to manage, used for education and interchange with Bacus
11	PFF	.pff	JPEG	15-20:1	yes	good	no, read-only	for interchange, not supported yet
12	JP2	.jp2	JPEG2000 / Kakadu	20-25:1	always power of 2	excellent	yes	for interchange, best quality, supported on Linux and 64-bit systems
13	NDPI	.ndpi	JPEG	15-20:1	yes	good	no, read-only	Olympus / Hamamatsu Nanozoomer
14	VMS	.vms	JPEG	15-20:1	yes	good	no, read-only	older Hamamatsu Nanozoomer type
15	VMU	.vmu	none	1:1	yes	lossless	no, read-only	older Hamamatsu Nanozoomer type
16	MRXS	.mrxs	JPEG	15-20:1	yes	good	no, read-only	Zeiss / 3DHistech Mirax

The most common types are type 2, which is JPEG compression in a TIFF/SVS file, and type 3, which is JPEG2000 compression in a TIFF/SVS file.