# HOWTO: Resample a TIFF with Embedded XMP Annotations

This example resamples every page of a tiff file by fitting it to the destination size, and resizes the annotations included in each page to the same scale. It does not handle font scaling for text based annotations. (Uses DotImage 5.0 or newer)

## C#

```
rivate void ResampleTiffWithAnnotations(string origPath, string destPath, Size destSize) {
using (Stream fs = new FileStream(origPath, FileMode.Open, FileAccess.Read, FileShare.Read))
{ TiffDecoder tDecoder = new TiffDecoder(); TiffFile tFile = new TiffFile(); tFile.Read(fs);
for (int frame = 0; frame < tFile.Images.Count; frame++) { fs.Seek(0, SeekOrigin.Begin);
ImageInfo info = RegisteredDecoders.GetImageInfo(fs, frame); TiffTag xmpTag =
tFile.Images[frame].Tags.LookupTag(TiffTagID.XmpData); float scale =
CalculateBestFitScale((SizeF)info.Size, (SizeF)destSize); fs.Seek(0, SeekOrigin.Begin); using
(AtalaImage image = tDecoder.ReadScaled(fs, frame, scale, null)) { TiffDirectory tImage = new
TiffDirectory(image); TiffTagCollection tags = tImage.Tags; if (xmpTag != null)
tags.Add(ResizeXmpAnnotations(xmpTag, scale)); tFile.Images.RemoveAt(frame);
tFile.Images.Insert(frame, tImage); } } tFile.Save(destPath); } } // Loads annotations into
an AnnotationController, resizes them all // using the provided scaling, and returns a
TiffTag that contains // the serialized annotation data private TiffTag
ResizeXmpAnnotations(TiffTag tag, float scale) { TiffTag retTag = null; if (tag.Data != null
&& tag.Type == TiffTagDataType.Byte) { XmpFormatter xmp = new XmpFormatter(); byte[] data =
(byte[])tag.Data; using (AnnotationController controller = new AnnotationController()) {
controller.Load(data, AnnotationDataFormat.Xmp); foreach (LayerAnnotation layer in
controller.Layers) { foreach (AnnotationUI ann in layer.Items) { PointF loc = ann.Location;
SizeF size = ann.Size; ann.Location = new PointF(loc.X * scale, loc.Y * scale); ann.Size =
new SizeF(size.Width * scale, size.Height * scale); } } using (MemoryStream mem = new
MemoryStream()) { xmp.Serialize(mem, controller.Layers); retTag = new
TiffTag(TiffTagID.XmpData, mem.ToArray(), TiffTagDataType.Byte); } } } return retTag; } //
Returns the scale corresponding to the best fitting of origSize in maxSize private float
CalculateBestFitScale(SizeF origSize, SizeF maxSize) { float zoom = 1; if (origSize.Width /
maxSize.Width == origSize.Height / maxSize.Height) { // the ratio of the original size is the
same as the max size, need to use the minimum due to round off error zoom =
Math.Min(maxSize.Width / origSize.Width, maxSize.Height / origSize.Height); } else if
(origSize.Width / maxSize.Width > origSize.Height / maxSize.Height) { //size to the width
zoom = maxSize.Width / origSize.Width; } else { //size to the height zoom = maxSize.Height /
origSize.Height; } return zoom; }
```

Original Article:

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