HOWTO: Manipulate Individual Frames in an ImageSource

When manipulating large files supporting different multipage file encodings become difficult while maintaining small memory use, for this, we have the ImageSource. It keeps as much data out of memory as it can. The difficulty with this is that in some implementations different modifications to different individual images is not simple. To remedy this, the FileSystemImagePipe was created, a class that performs operations on individual frames. Below is an example of setting up the FileSystemImagePipe to take a 3 frame image, replace its first frame with a red rectangle, performs a RotateCommand on the second frame, and deletes the third frame entirely:

C#

```
sing (OpenFileDialog open = new OpenFileDialog()) { if (open.ShowDialog() == DialogResult.OK)
{ FileSystemImagePipe pipe = new FileSystemImagePipe(open.FileNames, true); //Add Ops
pipe.AddOp(2, new DeleteOp(pipe)); pipe.AddOp(1, new CommandPipeOp(new RotateCommand(90)));
pipe.AddOp(0, new ReplaceOp(new AtalaImage(200,200,PixelFormat.Pixel24bppBgr, Color.Red)));
//Save TiffEncoder tif = new TiffEncoder(); using(FileStream outStream = new
FileStream("out.tif", FileMode.Create)) { tif.Save(outStream, pipe, null); } } }
```

VB.NET

```
Dim open As New OpenFileDialog() open.ShowDialog() Dim pipe As New
FileSystemImagePipe(open.FileNames, True) 'Add Ops pipe.AddOp(2, New DeleteOp(pipe))
pipe.AddOp(1, New CommandPipeOp(New RotateCommand(90))) pipe.AddOp(0, New ReplaceOp(New
AtalaImage(200, 200, PixelFormat.Pixel24bppBgr, Color.Red))) 'Save Dim tif As New
TiffEncoder() Using outStream As New FileStream("out.tif", FileMode.Create)
tif.Save(outStream, pipe, Nothing) End Using
```

In the attached project there are three PipeOps created:

ReplaceOp – This operation completely replaces one AtalaImage with another

CommandPipeOp – This operation allows use of any ImageCommand class

DeleteOp – This operation removes the frame entirely from the output image

To create a custom PipeOp, implement the PipeOp abstract class and modify the image in the Operate method.

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