Subject: How to set the dpi (dots per inch) of an image
Posted by koldo on Thu, 15 Jul 2010 09:07:59 GMT
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Hello all

I have loaded a scanned image, processed it and saved it. The original image had 300 x 300 dpi, but saved image has 96 x 96 dpi.

Is it possible to set the saved image to 300 x 300 dpi?

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Sat, 17 Jul 2010 07:58:00 GMT
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koldo wrote on Thu, 15 July 2010 05:07Hello all

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RasterEncoder::SetDots - you set the "physical" dimensions of Image there.

The only problem is that real encoder has to use this value. I did now a quick review, looks like bmp and png do, jpg has it commented out for whatever reason, gif ignores the value. But all seems to provide it for Raster::GetInfo.

Mirek

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Mon, 19 Jul 2010 08:03:44 GMT
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luzr wrote on Sat, 17 July 2010 09:58koldo wrote on Thu, 15 July 2010 05:07Hello all

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Mirek
Hello Mirek

I have tested it only with .png files using different SetDots values and the result is always the same:

- In Microsoft Paint it always appears 96 dpi hor. and 96 dpi vert.
- In XnView, it is like there is no resolution info (while original unprocessed .png file has dpi info).

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Fri, 23 Jul 2010 09:37:18 GMT

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koldo wrote on Mon, 19 July 2010 04:03luzr wrote on Sat, 17 July 2010 09:58koldo wrote on Thu, 15 July 2010 05:07Hello all

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Do you think you can look into the issue?

I believe that what is missing is just one call to

http://refspecs.freestandards.org/LSB_3.1.0/LSB-Desktop-gene
ric/LSB-Desktop-generic/libpng12.png.set.phys.1.html

in

void PNGEncoder::Data::Start(Stream& stream, Size size_, int bpp, ImageKind kind_, bool interlace_,

Mirek

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Sat, 24 Jul 2010 09:08:53 GMT
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luzr wrote on Fri, 23 July 2010 11:37koldo wrote on Mon, 19 July 2010 04:03luzr wrote on Sat, 17 July 2010 09:58koldo wrote on Thu, 15 July 2010 05:07Hello all

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in

void PNGEncoder::Data::Start(Stream& stream, Size size_, int bpp, ImageKind kind_, bool interlace_,

Mirek
Hello Mirek

You have do it all. Adding this in Start function it works:

```
unsigned xdpi = 300;
unsigned ydpi = 300;
unsigned xres = unsigned(xdpi / 0.0254 + 0.5);
unsigned yres = unsigned(ydpi / 0.0254 + 0.5);

png_set_pHYs(png_ptr, info_ptr, xres, yres, PNG_RESOLUTION_METER);
```

The question is how to set xdpy and ydpi in U++ code.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Mon, 26 Jul 2010 07:50:33 GMT

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Likewise, the same dpi detection would have to be added when reading a png file in bool PNGRaster::Init(), after png_read_info():

```
 png_read_info(data->png_ptr, data->info_ptr);
/// Begin
 png_uint_32 xres, yres;
 int unitType = PNG_RESOLUTION_METER;
 png_get_pHYs(data->png_ptr, data->info_ptr, &xres, &yres, &unitType);
 unsigned xdpi = unsigned(xres*0.0254);
 unsigned ydpi = unsigned(yres*0.0254);
/// End
 return true;
```

Here the question is where to put readed xdpy and ydpi in U++ code.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Fri, 13 Aug 2010 09:13:05 GMT

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koldo wrote on Mon, 26 July 2010 03:50Likewise, the same dpi detection would have to be added when reading a png file in bool PNGRaster::Init(), after png_read_info():

```
 png_read_info(data->png_ptr, data->info_ptr);
/// Begin
 png_uint_32 xres, yres;
 int unitType = PNG_RESOLUTION_METER;
 png_get_pHYs(data->png_ptr, data->info_ptr, &xres, &yres, &unitType);
 unsigned xdpi = unsigned(xres*0.0254);
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/// End
 return true;
```

Here the question is where to put readed xdpy and ydpi in U++ code.

If you have this tested and working, please submit files as patch...

Mirek

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 13 Aug 2010 11:46:20 GMT
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luzr wrote on Fri, 13 August 2010 11:13koldo wrote on Mon, 26 July 2010 03:50Likewise, the same dpi detection would have to be added when reading a png file in bool PNGRaster::Init(), after png_read_info():

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 png_read_info(data->png_ptr, data->info_ptr);
/// Begin
 png_uint_32 xres, yres;
 int unitType = PNG_RESOLUTION_METER;
 png_get_pHYs(data->png_ptr, data->info_ptr, &xres, &yres, &unitType);
 unsigned xdpi = unsigned(xres*0.0254);
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/// End
 return true;
```

Here the question is where to put readed xdpy and ydpi in U++ code.

If you have this tested and working, please submit files as patch...

Mirek

Hello Mirek

Now xdpy and ydpi do not exist internally. It would be necessary to define how to get/set them, prior to adding the code.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Sun, 22 Aug 2010 21:51:37 GMT
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Hello Mirek

I mean now there are no methods to set or get the vertical or horizontal dpi of an image.

Can I propose new functions for PNG only or to be used for all Raster types?

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Wed, 08 Sep 2010 07:17:18 GMT
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koldo wrote on Sun, 22 August 2010 17:51Hello Mirek

I mean now there are no methods to set or get the vertical or horizontal dpi of an image.

But there are are!

Raster::GetInfo returns Info, which in turn has "dots" member, which is physical size of image (in dots).

Combine with "GetSize" and you get dpi information.

The other way is RasterEncoder::SetDots. (Again, combined with SetSize, you have dpi info).

The only issue is that plugins might be lacking the support of this information.

Well, now thinking, perhaps we could add Raster::GetDpi a RasterEncoder::SetDpi methods, but that would only be very oneliners/helpers. Plus, SetDpi would need Create to be called first. Hm, perhaps there should be alternate Create with dpi info.

Anyway, these would really be just helpers. The basic info and interface is already there!

Mirek

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 10 Sep 2010 09:41:40 GMT
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Hello Mirek

Quote:Raster::GetInfo returns Info, which in turn has "dots" member, which is physical size of image (in dots).

Perhaps instead of in "dots" do you mean in meters?. This way info.dots would be the physical image Size in meters.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 10 Sep 2010 11:42:32 GMT
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koldo wrote on Fri, 10 September 2010 11:41Hello Mirek

Quote:Raster::GetInfo returns Info, which in turn has "dots" member, which is physical size of image (in dots).

Perhaps instead of in "dots" do you mean in meters?. This way info.dots would be the physical image Size in meters.

Hello Mirek

I have seen that in U++ a dot is 1/600 of a pixel.

Now U++ stores for an image the Size in pixels and in dots.

This cause problems as if I rescale an image or set a new image with part of other, the Size in dots is lost or remains the same, so the image really has badly changed its resolution .

Really if an image is scanned, the size in dots and in pixels is the same... The only thing that is different is the size of the dot in inches or meters.

Would not be better to store image Size in pixels and resolution in dpi or dpm?. This way if we process an ImageBuffer, the size will change but the resolution will remain (but if we explicitly want to change it)

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Mon, 13 Sep 2010 15:33:08 GMT
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koldo wrote on Fri, 10 September 2010 07:42koldo wrote on Fri, 10 September 2010 11:41Hello Mirek

Quote:Raster::GetInfo returns Info, which in turn has "dots" member, which is physical size of image (in dots).

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Everything has some tradeoff. It is true that if it gets stored as dpi, it holds after scaling.

OTOH, if you ever are going to scale the image, usually the original size either does not matter, or you just use dots as basis for scaling. In fact, any true WYSIWIG works in dots and effectively in dot = pixel mode, you tend to place images in target dots coordinates (which, for screen, are somewhat rescaled), so it is not a big deal.

In any case, it is a bit too late to change this now, even if dpi info might be somewhat better.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Mon, 13 Sep 2010 19:56:58 GMT

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luzr wrote on Mon, 13 September 2010 17:33koldo wrote on Fri, 10 September 2010 07:42koldo wrote on Fri, 10 September 2010 11:41Hello Mirek

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In any case, it is a bit too late to change this now, even if dpi info might be somewhat better.
Hello Mirek

No problem .

Do you let me include a GetDPI() and SetDPI functions applicable to Raster, ImageBuffer and Image (in this case, only GetDPI) ?

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Tue, 14 Sep 2010 07:51:47 GMT

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Hello Mirek

It is done. Here a sample code using GetDPI() and SetDPI():

```
include <Core/Core.h>
#include <plugin/png/png.h>

using namespace Upp;

CONSOLE_APP_MAIN
{
 Image img = StreamRaster::LoadFileAny(AppendFileName(GetDesktopFolder(), "demo.png"));
 if (!img)
  puts("No image");
 else {
  ImageBuffer image(img);

  Size dpi = image.GetDPI();
  puts(Format("Image DPI are %d/%d", dpi.cx, dpi.cy));
  image.SetDPI(Size(600, 600));
  puts("New DPI values will be 600/600");

  PNGEncoder png;
  png.SaveFile(AppendFileName(GetDesktopFolder(), "demo2.png"), image);
  puts("Done");
 }
 getchar();
}
```

The DPI is only effectively set in "PNG" format files.

I will include the changed files today. They are a few.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Wed, 15 Sep 2010 07:17:18 GMT

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Hello Mirek

Here I enclose you the changed files and changes list:

In Draw
Image.cpp and Image.h
Added

```
void ImageBuffer::SetDPI(Size dpi)
Size ImageBuffer::GetDPI()
Size Image::GetDPI()
```

RasterEncoder.cpp and Raster.h
Added in RasterEncoder

```
void  SetDPI(Size sz);
Size  GetDPI();
```

Modified in RasterEncoder

```
virtual void Start(Size sz, Size dots) = 0;
void Create(Size sz, Size dots);
void Create(int cx, int cy, Size dots)
void Create(Size sz, Size dots, const RGBA *palette);
void Create(int cx, int cy, Size dots, const RGBA *palette);
void Create(Size sz, Size dots, Raster& pal_raster);
void Create(int cx, int cy, Size dots, Raster& pal_raster);
virtual void Start(Size sz, Size dots);
```

In plugin/png
pngupp.cpp and png.h
Added

```
static void SetDotSize(Size pixel_size, Size dots_size, png_uint_32 &x_ppm, png_uint_32
```

&y_ppm, int unit_type)

Modified
bool PNGRaster::Create()
class PNGEncoder::Data
void PNGEncoder::Data::Start(Stream& stream, Size size_, Size dots_, int bpp, ImageKind kind_, bool interlace_, const RGBA *imgpal)
void PNGEncoder::Start(Size sz, Size dots)

File Attachments

1) changes.7z, downloaded 336 times

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Wed, 15 Sep 2010 11:38:42 GMT
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Hello Mirek

Now there is dpi support for all main image formats. Here it is a demo to test file write and read.

The demo output is:

```
Image DPI are 0/0
New DPI values will be 1200/1200
Saved .png image DPI are 1200/1200
Saved .jpg image DPI are 1200/1200
Saved .tif image DPI are 1200/1200
Saved .bmp image DPI are 1200/1200
Saved .gif image DPI are 72/72
Done
```

(GIF is only 72x72)

The demo code is:

```
#include <Core/Core.h>
#include <plugin/png/png.h>
#include <plugin/jpg/jpg.h>
#include <plugin/tif/tif.h>
#include <plugin/bmp/bmp.h>
#include <plugin/gif/gif.h>

using namespace Upp;

void PrintDPI(String fileName, String format) {
 Image img = StreamRaster::LoadFileAny(fileName + format);
 Size dpi = img.GetDPI();
 puts(Format("Saved " + format + " image DPI are %d/%d", dpi.cx, dpi.cy));
}

CONSOLE_APP_MAIN
{
 Image img = StreamRaster::LoadFileAny(AppendFileName(GetDesktopFolder(), "demo.png"));
 if (!img)
  puts("No image");
 else {
  ImageBuffer image(img);

  Size dpi = image.GetDPI();
  puts(Format("Image DPI are %d/%d", dpi.cx, dpi.cy));
  image.SetDPI(Size(1200, 1200));
  puts("New DPI values will be 1200/1200");

  img = image;
  String fileName = AppendFileName(GetDesktopFolder(), "demo2");

  PNGEncoder png;
  png.SaveFile(fileName + ".png", img);
  PrintDPI(fileName, ".png");

  JPGEncoder jpeg;
  jpeg.SaveFile(fileName + ".jpg", img);
  PrintDPI(fileName, ".jpg");

  TIFEncoder tiff;
  tiff.SaveFile(fileName + ".tif", img);
  PrintDPI(fileName, ".tif");

  BMPEncoder bmp;
  bmp.SaveFile(fileName + ".bmp", img);
  PrintDPI(fileName, ".bmp");

  GIFEncoder gif;
  gif.SaveFile(fileName + ".gif", img);
  PrintDPI(fileName, ".gif");

  puts("Done");
 }
 getchar();
}
```

In few hours I will include additional changed files.

Subject: Re: How to set the dpi (dots per inch) of an image

Posted by koldo on Wed, 15 Sep 2010 13:02:41 GMT

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Hello Mirek

In addition to the previous changes, these files have also been changed.

In plugin/bmp
bmpwrite.cpp and bmp.h
void PNGEncoder::Start(Size sz, Size dots)

In plugin/gif
gifupp.cpp and gif.h
class GifEncode::Data
bool GIFRaster::Data::Create()
void GifEncode::Data::Start(Size sz, Size dots, bool ignore_alpha, String comment, const RGBA *palette);
void GIFEncoder::Start(Size sz, Size dots)

In plugin/jpg
jpgupp.cpp and jpg.h
class JPGEncoder::Data
void JPGEncoder::Data::Start(Stream& stream, Size size, Size dots, int quality);
void JPGEncoder::Start(Size sz, Size dots)

In plugin/tif
tifupp.cpp and tif.h
class TIFEncoder::Data
void TIFEncoder::Data::Start(Size size, Size dots, int bpp, const RGBA *palette);
void TIFEncoder::Start(Size sz, Size dots)

It is enclosed a file with all changes.

File Attachments

1) changes.7z, downloaded 353 times

Subject: Re: How to set the dpi (dots per inch) of an image

Posted by mirek on Thu, 16 Sep 2010 21:49:37 GMT

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Well, this is a great job, but I really dislike the idea of adding 'dots' parameter to RasterEncoder methods.

First, doing so we would break all existing code. Second, I believe that the interface already has means how to handle with this - it is not necessarry to change the interface here. Setting dpi is no different from setting palette or hotspot IMO...

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 17 Sep 2010 07:58:50 GMT
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Hello Mirek

Done!. I will post it today.

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 17 Sep 2010 08:39:34 GMT
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Hello Mirek

Here I enclose you the pending changes taking into account:
- your last svn (with new GetDPI() and SetDPI)
- your comments in previous post

The demo posted before is fully valid as changes have been internal.

File Attachments

1) lastChanges.7z, downloaded 289 times

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by mirek on Fri, 17 Sep 2010 18:17:28 GMT
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koldo wrote on Fri, 17 September 2010 04:39Hello Mirek

Here I enclose you the pending changes taking into account:
- your last svn (with new GetDPI() and SetDPI)
- your comments in previous post

The demo posted before is fully valid as changes have been internal.

Much better now, thank you, commited.

(I guess the reduced number of submitted files is a good indication of the validity of my complaint

Subject: Re: How to set the dpi (dots per inch) of an image
Posted by koldo on Fri, 17 Sep 2010 20:29:56 GMT
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Thank you Mirek

I guess the reduced number of submitted files is a good indication of the validity of my complaint

In fact in the last version I knew better how these functions work than in the first one.

The DPI handling code was many times there, it has been a matter of making it visible.

There are many undiscovered gems inside original code. I have discovered more that I will post soon.