

Image -metadata: Usage and Discussion

- Company Elmicron
- Image metadata
- -format solution
- Image format handler
- -metadata proposition
- Handler implementation
- TCL Activities & Wish List

From

```
i write -file out.bmp\  
-format {bmp\  
  -resolution {100 I}}
```

to

```
i write -file out.png\  
-metadata {DPI 100}
```

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Company Elmicron

Auto ID
→ Barcode and RFID
→ ISO Standards

5 Employees

TclDevKit Licence



What is image format metadata?

Image metadata is any information contained in an image file except the bitmap.

Use-cases:

- resolution field controls the size when inserted in Latex, LibreOffice,...
- A text comment in a gif file is used to automate a barcode reader algorithm test
- Animated gifs have data to display the film like update region and time delay

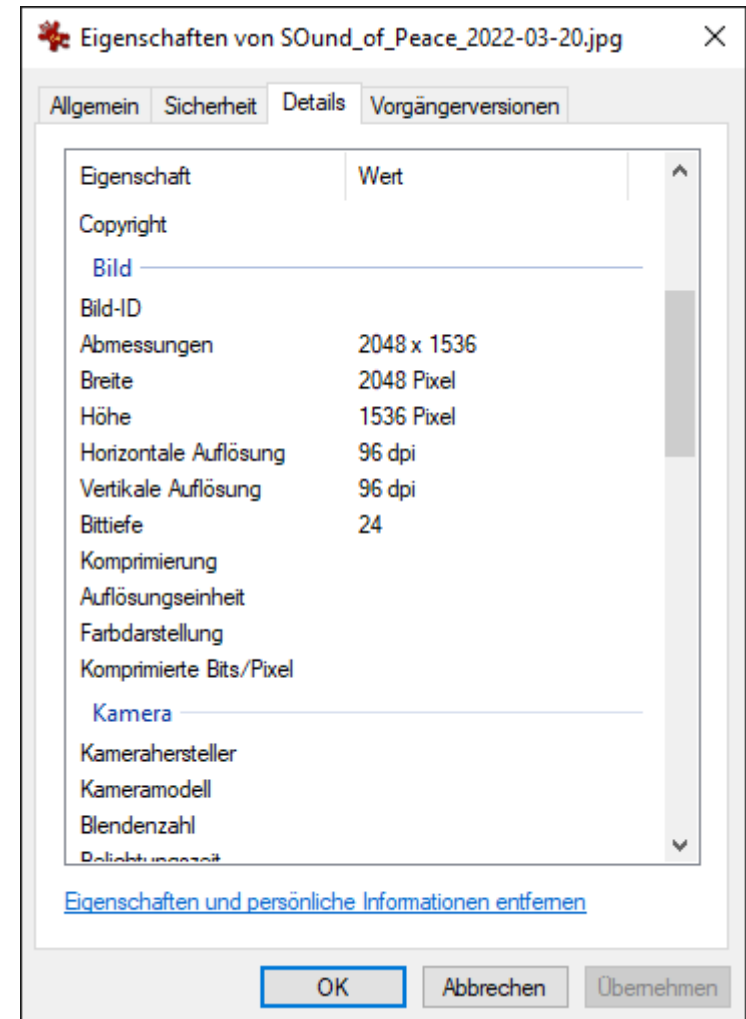


Image photo command metadata

- 2010-09-30, Tking-devel mailing list:
Write bmp format with specific resolution meta-field value:

```
i write t100dpi.bmp -format {bmp -resolution {100 i}}
```

- Interface was proposed by Jeffrey Hobbs. I called it a bug, not an interface.
- But the -format string was the only possibility to communicate with the image handler. So, this style also entered the Tk core distribution:

```
image create photo i -file "test.gif"\  
    -format {gif -index 2}
```

- This solution only works from the script to the image format handler. There is no way of feed-back from the handler to the script level.

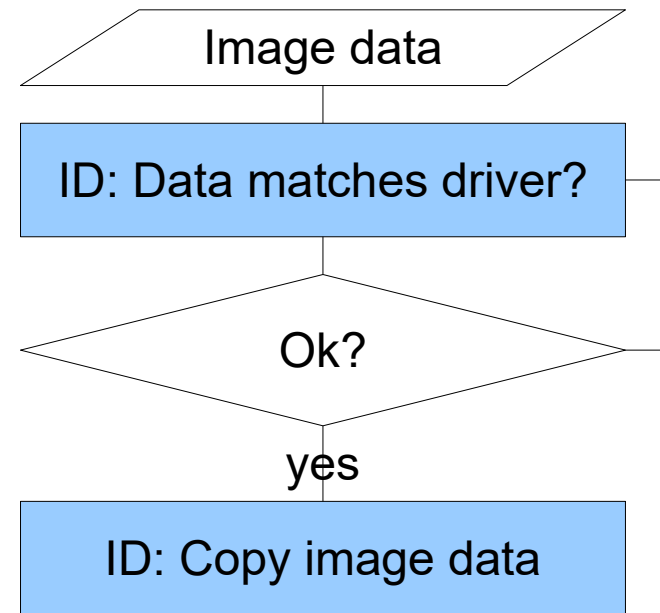
Image file format handler

- Tk contains a C interface for image format handlers:

```
Tk_CreatePhotoImageFormat
```

- When an image file/data is read, all driver match functions are called, if they accept the data. File extension is ignored, use -format option.
- If data is accepted, the corresponding driver read function is called.
- The write call calls the write driver by -format or by extension.
- Each function for stream and string.
- The core contains drivers for gif, png, svg (8.7+), rgbargba.
- Driver only sees -format string.
- There is a Tk8.2- legacy interface.

```
Image create photo\  
-file t.gif
```



```
i write t100dpi.bmp
```



TIP529: add -metadata

New multi-purpose input/output dict from and to the image handler:

- File read updates the metadata dictionary

```
% image create photo i -file "in.png"  
% i cget -metadata  
DPI 99.9998 aspect 2.0
```

- File write may recognize metadata

```
% i write -file "out.png" -metadata {DPI 100}
```

- Metadata dicts are joined if two sources

```
% i configure -file "in.png"
```

Image Handler Implementation

Tk ticket [f285ddcd](#) to return animated gif metadata for rendering (delay time, update region, disposal method). Handler implementation starting with [e81e3493](#):

- Just put in the provided metadata dict. Don't care about shared object etc, Tk will care. Different read and write dicts on driver level.

```
// Test, if metadata information is wanted by driver
if (metadataOutObj != NULL) {
    // put key in metadata dictionary
    if (TCL_OK != Tcl_DictObjPut(interp,
        metadataOutObj,
        Tcl_NewStringObj("delay time",-1),
        Tcl_NewIntObj(delayTime))) {
        result = TCL_ERROR;
        goto error;
    }
}
```

- IMHO, error check for dictionary put is not necessary, as it is a clean unshared dict. It may not contain non-dict data.

Encoding convertfrom/to

- "convertfrom" adds incomplete multi-byte sequences as verbatim byte values.
- "convertto" converts to "?" when the character is not representable.
- **TIP607** -failindex option allows to detect this and get position information.

```
% encoding convertfrom utf-8 -failindex i\  
    [string range [encoding convertto utf-8 ÄÖ] 0 end-1]  
Ä  
% set i  
2
```

- **TIP601** did this in the channel subsystem. TCL9 will run in errors on channel encoding errors.
Use "-nocomplain" for old behaviour (available in 8.7, but no consequence)

Androwish news

- Using Android 11: no serial number, but ANDROID_ID
- size tk_messagebox to horizontal screen

```
option add *Dialog.msg.wrapLength\  
[expr {int(0.6*[wininfo screenwidth .])}]
```

- AWDark theme is beautiful

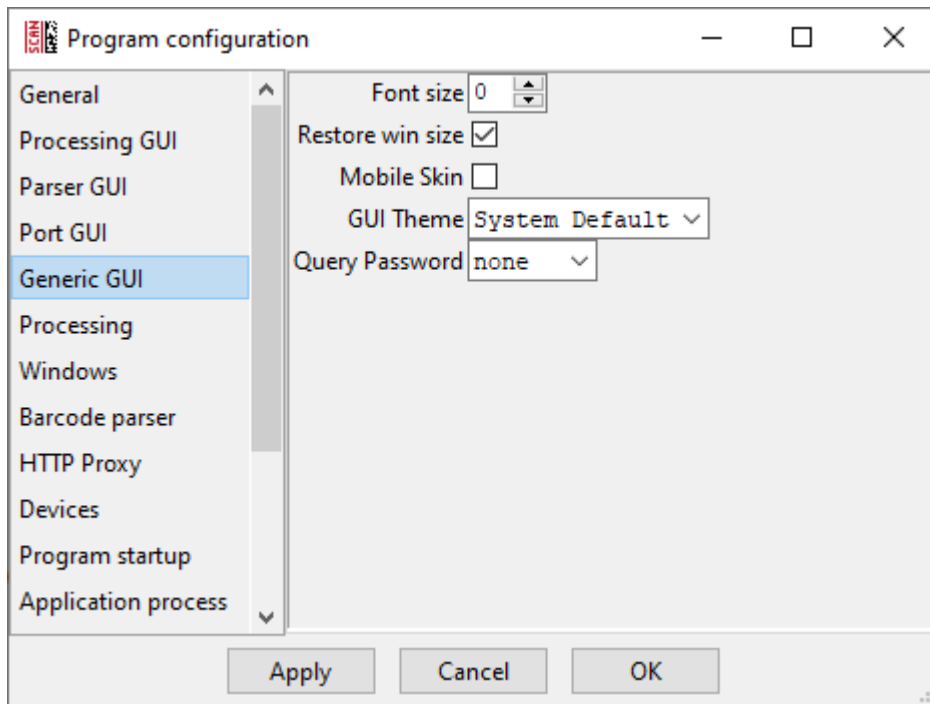
```
set dFS [font actual TkDefaultFont]  
set ScaleCur [expr {  
    double([font metrics $dFS -ascent])  
    / [font metrics TkDefaultFont\  
        -ascent]}]
```

- No real solution for file dialog
- LUCK application build service for standard demo:
<https://www.e-d-c.info/projekte/decoderinterface.html>

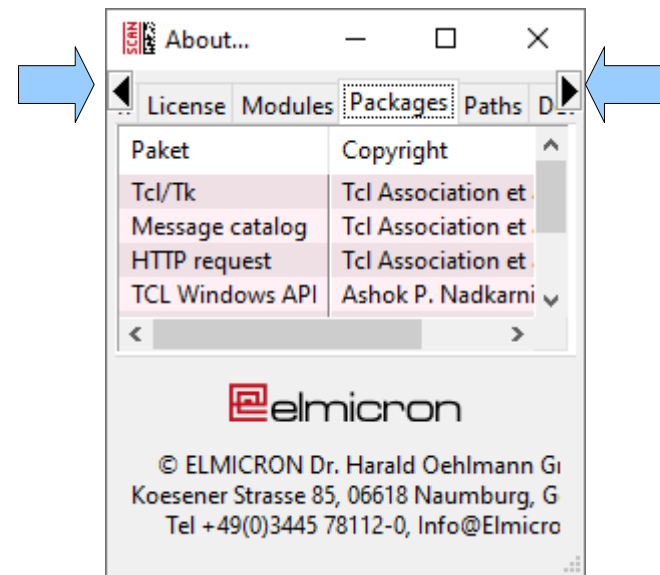


Scrollutil news

Plainnotebook:
page scroll list



Scrollednotebook:
scrolling arrows



And thanks to Csaba to find all those complicated bugs with incomplete descriptions!

TWAPI 4.7.2 fixes TLS error reporting

TWAPI Bug 206: TLS client with expired certificate:

- Did not fire fileevent, when event loop ran.
- Did not report error by "fconfigure \$h -error".
- Is now fixed:

```
% proc pargs {args} {puts "<[join $args ,]>"}
% set h [twapi::tls_socket -async expired.badssl.com\
    443]
% fileevent $h writable [list pargs $so]
<rc0>
```
- Maybe, TCLTLS users may look to the examples in the ticket, if TCLTLS is clean. But probably, the error is not detected due to mostly missing root certificates and no error handling.
Note the great TLS blog by Ashok: "[Using TLS connection with TCL](#)".

Thanks to Ashok for the great bug fixing sessions !!!

TCL/Tk activities

- Bwidget (from Eric Boudallier)
- TCLWS (from Gerald Lester et al)
- Msgcat (from Marc Harrisson)
- TCL win socket driver: hope for Ashoks iopc
- Rivet (only support)
- TkSVG (from Christian Gollwitzer)
- MS-VC6++ PSDK2003SP1 TCL/Tk make (will die)
- Zint Bar code generator TCL interface
- TkSVG (Tk8.7 feature for Tk8.6)



Yea !

TCL Wishlist

How to get TCL 8.7, TCL 9.0 and Tk8.7 out of the door?

Blockers: New text widget – should we forget about it?

How to motivate Donald to make releases?

See 12 parts of Ashoks blog on TCL8.7:
<https://www.magicsplat.com/blog>