

Presenting eti

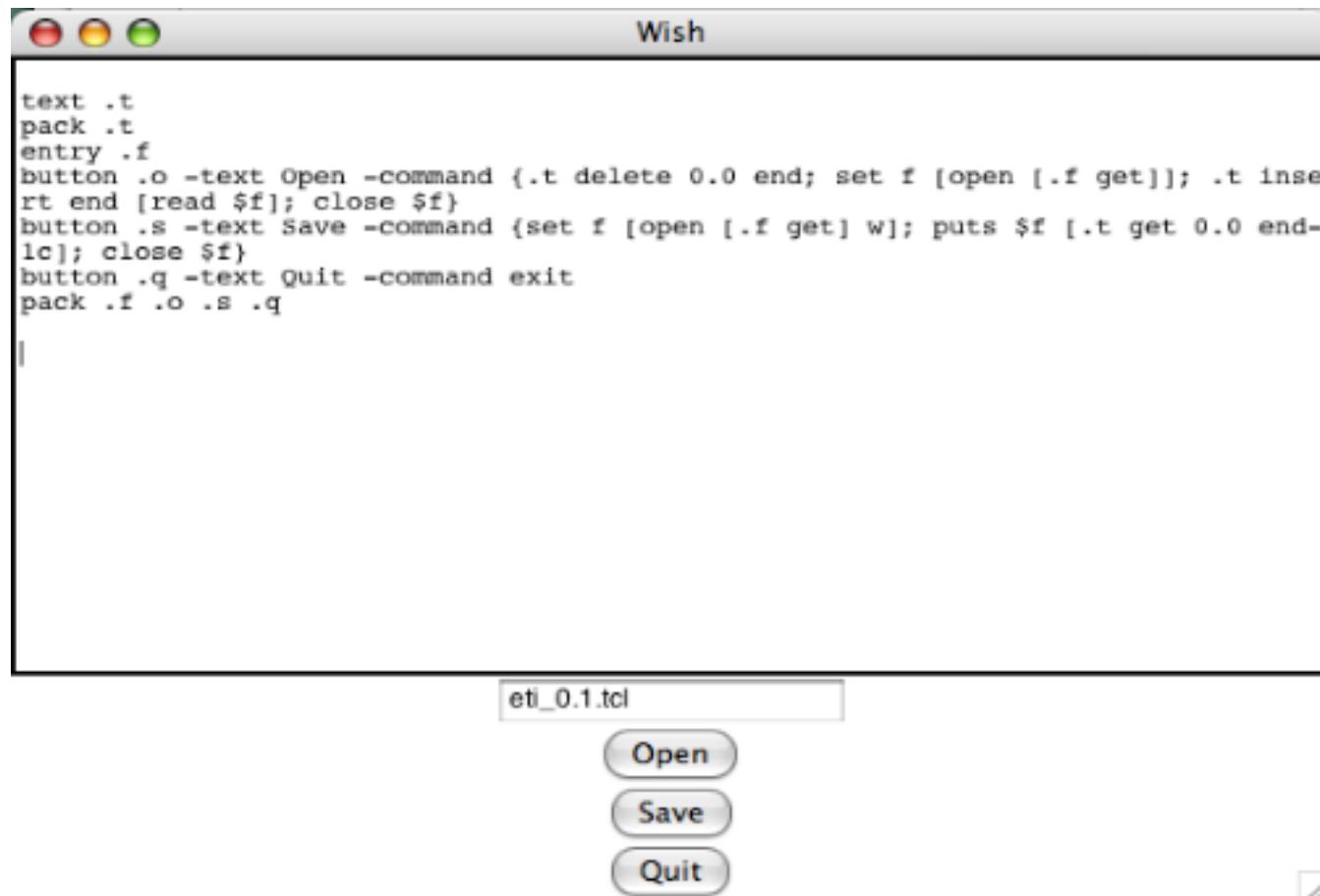
- How i learned to stop worrying and created megawidgets -



Axel Nagelschmidt <http://axn.atspace.org/tcl.html>

Writing a complete editor is possible after one month of learning TCL!

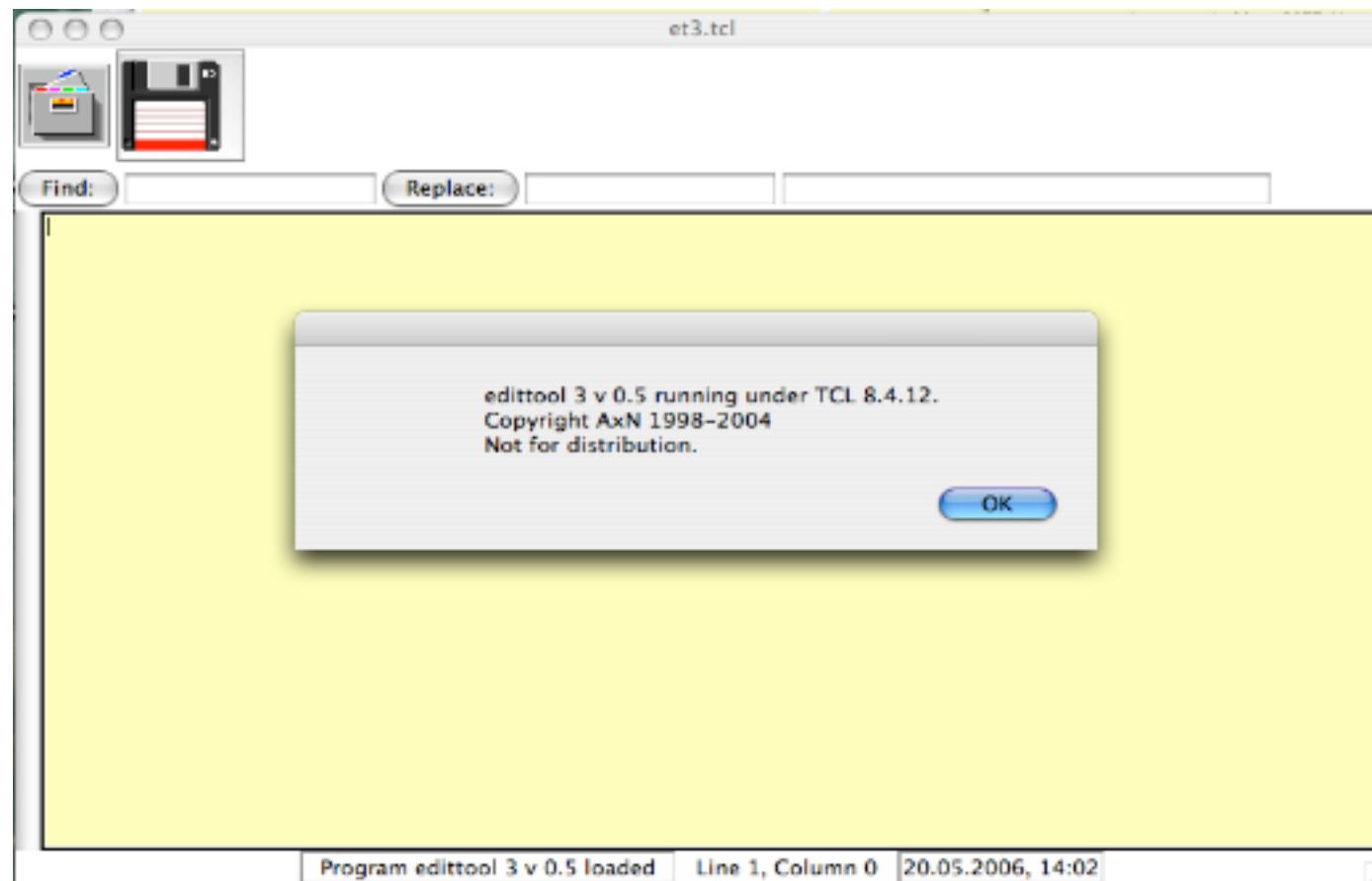
I wrote something like this around the year 1997:



eti 0.1, nearly feature complete

Even better version 0.3:

Has menubar (not shown here, screenshot from Mac)
Options to save / save as / open / close file, toolbar, find and replace
Options to change font family / size / background colour
Status bar with status info, cursor position and clock
Can mail it's content
Ported to Solaris (because no change necessary)
No widespread use, probably because never deployed



Usage of object orientation seemed to be a good idea:

- ◊ Have a mini editor for any kind of text. Derive HTML editor, TCL editor etc. from this.
- ◊ Have a set of classes needed for graphic programs, derive different graphical drawings / simulations from this.
- ◊ Specify a set of common used actions to include into the menu or a toolbar
- ◊ Have multiple instances of the same type, so can use a notebook with several tabs
- ◊ incr TCI offering classes and incr TK offering megawidgets like notebook seemed natural

But (1) ...

- ◊ incr TK seemed to be more complicated than necessary
- ◊ incr TK seemed to be slow because of code overhead

Solution I:

- ◊ create one superclass drawing the toolbar, the notebook and the status bar
- ◊ create one superclass in incr TCL (not TK!) for all instances (called etimodules)
- ◊ have each etimodul draw it's own frame
- ◊ inherit superclass etimodul to take care of common needed methods

But (2) ...

- ◊ creating multiple windows with notebooks needed another superclass
- ◆ inheritance for widgets was not really used
 - ◊ tcledit or diffedit could not really inherit the class miniedit, different count and layout of widgets
- ◊ learned about tile and increasing / ongoing support for Mac OS X

Solution II:

- ◊ recreated some widgets using tile components
- ◊ added menu to change style to any existing tile theme
- ◊ some usage of mkWidgets, because better creation of megawidgets was anticipated

But (3) ...

- ◊ mixing iwidgets with tile widgets was no good idea
- ◊ mkWidgets usable for megawidgets, but not really an OO system
- ◊ mkWidgets not being supported any longer?
- ◊ not much time to try something new

Then ...

- ◊ visited the 5th european TCL User meeting (Thanks to Michael and Holger!)
- ◊ got more involved using tequila, thus making shared apps an easy possibility (Thanks Jean-Claude!)
- ◊ learned about integrating OpenGL to create apps using 3D graphics (Thanks Paul!)
- ◊ learned more about tile (Thanks Rolf!)
- ◊ learned more on creating fullfeatured apps (Thanks Detlef!)
- ◊ learned more on mixing text and graphics to create integrated learning experiences (Thanks Jos!)
- ◊ learned more on tablelist and its integration into tile (Thanks Csaba!)

Other influences happening in this time:

- ◊ More usage of Java and especially Eclipse at work
- ◊ Our company introducing Lotus Notes, me visiting a developers course
- ◊ Seeing that TCL can control much of windows through twapi
- ◊ .NET and mono appearing in widespread use, new IDEs anjuta and monodevelop
- ◊ Applications becoming more complex, each one developing their (own) makro language
- ◊ Seeing that TCL can integrate calls to graphic libraries like ImageMagic or OpenGL
- ◊ Understanding that integration in big consistent frameworks like Oberon or Squeak makes usage much easier
- ◊ Anticipating to learn that TCL can integrate calls to control OpenOffice.org
- ◊ Learning about snit and it's ongoing support and integration with TCL 8.5
- ◊ Writing more applications as helpers or for database access, needing a usable and robust framework to do so
- ◊ Expecting user interfaces to allow users much more choice and flexibility - "graphical programming"
- ◊ Not wanting to learn a new P*-language every year
- ◊ Seeing that TCL is here to stay, easy to use, easy to teach or use as description language, cross platform

=> Decided to base framework and apps on TCL, integrating good usage examples into an usable IDE

(OK, did so before with Pascal, Oberon and Delphi ...)

Moving from incr TCL to snit

Topic	incr TCL	snit
Header	itcl::class <name>	snit::widget <name>
Inheritance vs. Delegation	inherit <upperclass>	delegate <method> to <otherclass>
Building widgets	frame \$w, delivered as argument	set w \$win, frame already created
Reference to instance	\$this	\$self
Calling own methods	<method>	\$self <method>
declaring method	method <name> <args> <body>	method <name> <args> <body>
Destroying instance	itcl::class delete object \$this	destroy \$self
Overwrite class definition	no, only after deletion of class	yes, like the TCL way
Inherit methods	yes	no, but delegation helps

Rewrote about 5 major classes and the core of the framework in about 3 days.

Need to rewrite toolbar, and some handy megawidgets used from mkWidgets to snit.

First results seem to be very promising.

Skeleton of an etimodule:

```
# _____ note _____  
# lib-skeleton here  
# _____ pack _____  
package require date3  
# _____ proc _____  
snit::widget skel {  
    # delegate unknown method calls to my notebook  
    delegate method * using {redirect %m %s}  
  
    variable w  
    variable title ""  
    variable file ""  
  
    constructor {} {  
        set w $win.t  
        set type skel  
        set file "Untitled [alloc3::uniq_id]"  
        pack [text $w -background #ffffbb] -fill both -expand yes  
        focus $w  
        ....  
        $w insert end "This skel was created at [date3::timestamp].\n"  
        $self timer  
    }  
}
```

```
destructor {
    debugsay "destructor skel"
}

method getfile {} {return $file}
method gettitle {} {return $title}

method timer {} {
    incr counter
    $f.t configure -text [format %8d $counter]
    $f.tt configure -text [date3::timestamp]
    after 1000 $self timer
}

method onshow {} {
    $w insert end "This skel was shown at [date3::timestamp].\n"
}

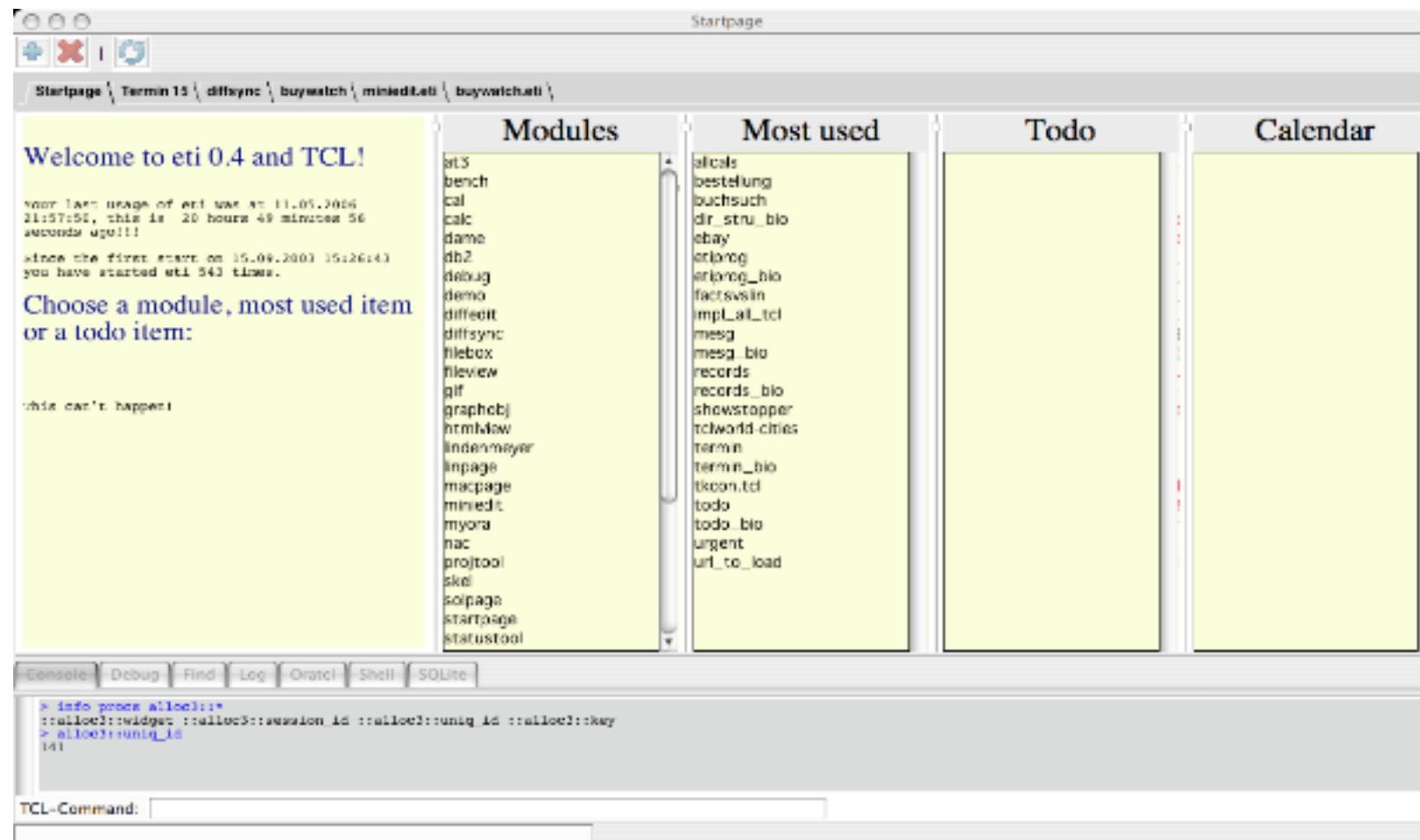
method toolbar {} {
    # use default toolbar or examples below!!!
    $self toolbar_default
    $self toolbar pic $icon3::close {etimodul::call closefile} Tooltiptext
    $self toolbar delim
}

method onhide {} {
    set lasthide [date3::timestamp]
    $w insert end "This skel was hidden at $lasthide.\n"
}

# end of class skel
}
```

Examples of etimodules:

Startpage, allowing to start other modules, showing most used documents, todo and calendar
Older framework for helper applications (terminal, consoles for sqlite and oratcl) shown below



tcledit, editor with syntax colouring based on ctext
Allows working in projects and libraries, highlights requirements and proc / method headers

The screenshot shows the tcledit application interface. At the top, there's a toolbar with icons for file operations like new, open, save, and cut/paste. The title bar says "tcledit: /Users/axn/tcl/etilib/buywatch.tcl". Below the toolbar is a status bar with tabs for "Startpage", "Termin 15", "diffsync", "buywatch", "minieditor", and "buywatch.edt".

The main area contains two panes. The left pane displays the source code of a Tcl script named "buywatch.tcl". The right pane shows a sidebar with a list of requirements and methods, each preceded by a color-coded number (e.g., 33, 34, 35, etc.) and a brief description. The requirements are color-coded in blue, while the methods are in red.

Below the code editor is a terminal window showing the output of a command:

```
> info proc alloc3::  
alloc3::widget alloc3::session_id alloc3::uniq_id alloc3::key  
> alloc3::uniq_id  
141
```

At the bottom, there's a "TCL-Command:" input field and a scrollable terminal output area.

```
33: set type buywatch  
34: set file "Untitled [alloc3::uniq_id]"  
35: pack [frame $w] -fill both -expand yes  
36: pack [text $w -background #ffffbb]  
37: $w::text insert end "buywatch, add auction number or URL to watch"  
38: set the_list $::env(HOME)/doc/buywatch  
39: load_list  
40: tab_select  
41:  
42: destructor {  
43:     debugsay "destructor buywatch"  
44: }  
45:  
46: method loadlist {}  
47:     foreach line [split [file::textfromfile $the_list]] {\n        if {\n            $line is number, URL or record!!!\n        }\n        set r [alloc3::uniq_id]\n        frame $w.$r\n        pack $w.$r -side bottom\n    }\n48:  
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56: method saveList {}  
57:     # save array to file!!!  
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61: method onhide {}  
62:     # stop refreshing!!!  
63:  
64:  
65: method onshow {}  
66:     # use default toolbar or examples below!!!
```

```
3: # note  
7: # legal  
13: # requirement  
16: # paste-button!!!  
17: # h und min show!!!  
18: # entry for old, button for refresh, remove!!!  
19: # show #, seller, sofort-kauf tool!!!  
21: # pack  
24: # init  
27: # proc  
27: # proc  
29: itcl::class buywatch {  
46:     method loadlist {}  
48:     # is number, URL or record!!!  
56:     method saveList {}  
57:     # save array to file!!!  
61:     method onhide {}  
62:     # stop refreshing!!!  
65:     method onshow {}  
66:     # use default toolbar or examples below!!!  
71:     # start refreshing!!!  
72:     # set focus if wanted!!!  
75:     method closefile {}  
76:     # no questions asked, unsafe !!!  
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```

nac, (not another commander), because this is my main productivity tool
 Using tablelist, but need more intelligent bindings for keyboard operation and cleaning of layout

Nac

Startpage \ Termin 15 \ diffsync \ buywatch \ miniedit \ buywatch.eti \ Nac \

Name	Size	Date	Attr
Applications	<DIR>	13.05.2006 17:05:50	Attributes
Applications (Mac OS X)	<DIR>	18.10.2006 14:07:09	Attributes
autowatch	<DIR>	25.11.2006 18:04:46	Attributes
bin	<DIR>	15.04.2006 12:45:10	Attributes
cores	<DIR>	12.05.2006 22:41:58	Attributes
Desktop Folder	<DIR>	01.08.2006 19:30:14	Attributes
Dev	<DIR>	12.05.2006 18:45:25	Attributes
Developer	<DIR>	12.11.2006 16:12:52	Attributes
Documents	<DIR>	18.08.2006 20:39:20	Attributes
etc	<DIR>	15.04.2006 10:40:54	Attributes
Library	<DIR>	22.01.2006 23:20:13	Attributes
net	<DIR>	01.01.2006 16:43:55	Attributes
Network	<DIR>	14.05.2006 19:28:48	Attributes
private	<DIR>	12.05.2006 18:49:57	Attributes
sbin	<DIR>	15.04.2006 12:40:07	Attributes
System	<DIR>	16.04.2006 10:40:54	Attributes
System-wide	<DIR>	18.10.2006 19:16:19	Attributes
Temporary Items	<DIR>	09.05.2006 20:39:00	Attributes
TheVolumeSettingsFolder	<DIR>	20.12.2003 17:26:53	Attributes
tmp	<DIR>	14.05.2006 09:51:06	Attributes
Trash	<DIR>	01.05.2006 20:19:28	Attributes
Utilities	<DIR>	13.04.2006 17:43:20	Attributes
Users	<DIR>	29.10.2005 10:45:56	Attributes
var	<DIR>	01.05.2006 22:19:28	Attributes
var	<DIR>	12.05.2006 18:49:57	Attributes
Volume	<DIR>	13.05.2006 10:55:00	Attributes
allfiles_11.1.2006	62072203	11.01.2006 14:46:25	Attributes
Desktop IP	1594610	15.04.2006 10:42:08	Attributes
Desktop IP	17599710	14.03.2006 19:27:57	Attributes
mach	5529951	12.05.2006 10:45:57	Attributes
mach	6020964	12.05.2006 10:46:00	Attributes

32 files in dir /

(change dir) (info) (show) (miniedit) (copy) (mv/mv) (mkdir) (delete)

leftdir/rightdir Command:

Console | Debug | Find | Log | Oracle | Shell | SQLite

```
> info proc alloc3::*
::alloc3::widget ::alloc3::session_id ::alloc3::uniq_id ::alloc3::key
> alloc3::uniq_id
141
```

TCL-Command:

info, to show information about the application

Thanks again, this is really a tool made possible by the community!

