State of TCL

- Highlights in 9
- Releases
- New work since last meeting
- TCL
- Future

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Why do you want TCL9?

- Full unicode support – no more surrogates -> string length 🤝 = 1

- Larger strings, lists, file sizes due to 63bit size instead 31

- Buildin Starkit functionality: TCL/Tk Library is now appended to libtcl/libtk as zip

- Anoying pitfalls removed: `expr {08+09}` is ok, `-eof` default

- Calculated pattern replacement: `regsub -command`

- Abstract lists+sequence data type: `lseq 3 -> 0 1 2`
  No memory consumtion if not shimmered to other types

- OO refinements

- Encoding profiles allow to replace or break on encoding issues

- Performance: `lrange, linsert` without copy, clock

Releases

Release cycle:

- 8.5: 2 releases /year (2007-2016)

- 8.6: 1 release / year (2012-2023)

- 8.7: 1 alpha release / 2 years (2017-2021)

- 9.0: 1 beta release / 1-2 months

Last releases:

- 8.6.14: 2024-02-28 (current)

- 8.7a5: 2021-06-18 (postponed)

- 9.0b2: 2024-05-20 (current)

Bundled packages

-> Released with Tcl/Tk releases

-> Current versions in 8.6.14 / 9.0b2

- Itcl 4.2.4 / 4.2.5

- Sqlite3 3.44.2 / 3.45.3

- Tdbc 1.1.7 / 1.1.8

- Thread: 2.8.9 / 3.0b2

TCLTLS package got great improvements by Brian O'Hagan et al

Ashok wrote great TCL/Tk 9.0 migration tool

New work since last year

Behind each item is an effort of individuals or groups which are often months of work.

-> Thank you all, you are awesome !

Changed commands

- `const` for constant values

- Remove superseeded trace subcommands: `variable, vdelete, vinfo`

- scan/format platform unification: "%d": 32 bit, "%ld": 64 bit, "%lld": unbound

- Not included "`string is unicode`"

- Reserve range of return codes for Tcl's own use: `return -code 22`

Clock speedup

- Speed-up by factor 10 by a C implementation by Sergey

- New flags:

  - %E2: local seconds

  - %EJ: julian calender day +time as float fraction

  - %Ej: julian astronomical day + time as float fcation (SQLite compat)

- Free form scan priority changes

- New option "`-now`" to replace "`[clock seconds]`"

- New option "`-validate 0/1`" to activate wrong input failure. The default is 1, so validation is done. "30th of February" is not a valid date any more

I/O

- Simple procedures for file access: `readFile, writeFile, foreachLine`

- New command: `chan isbinary`

- Remove encoding aliases to `iso8859-1: binary, ""`

- Strict encoding error reporting of channels: already decoded data is reported in error dictionary key `-data`

```
% set f [open test_A_195_B.txt r]
file35a65a0
% fconfigure $f -encoding utf-8 -profile strict -blocking 1
% catch {read $f} e d
1
% set d
-data A -code 1 -level 0
-errorstack {INNER {invokeStk1 read file35a65a0}}
-errorcode {POSIX EILSEQ {invalid or incomplete multibyte or wide character}}
-errorinfo {...} -errorline 1
% tell $f
1
```

C API

- Former changes popped up with TkInter:

  - Remove Obj-type "`int`" registration
    `Tcl_GetObjType("int")->NULL`

  - New object access interface "`Tcl_GetNumberFromObj()`" to replace direct access and type registration

- `TCL_UTF_MAX=4`: A character is internally represented by 32 bits

  - Strings are normally represented by UTF-8 with variable bytes/character count and converted to fix 32 bit/character representation on demand

  - There is a limited compatibility layer, if extensions are compiled with `TCL_UTF_MAX=3`

- Compatibility macros, which auto-detect the size of arguments are only optional. Only "`Tcl_GetBoolean(FromObj)`" has it.

- New functions `Tcl_NewWideUIntObj()` / `Tcl_SetWideUIntObj()`

- Make `Tcl_GetAliasObj` 64bit, remove `Tcl_GetAlias()`

TCT

- Current TCT: Marc Culler, Jos Decoster , Mo Dejong, Donal Fellows, Alexandre Ferrieux, Brian Griffin, Jeffrey Hobbs, Andreas Kupries, Steve Landers, Jan Nijtmans, Donald Porter, François Vogel, Kevin Walzer
-> Thank you all !

- Following people were added: Ashok P. Nadkarni, Rolf Ade, Harald Oehlmann

Future

- Tcl 9.0 b3 is just starting and likely to be the release if no show-stoppers

  - one way to get people porting is a new release

  - expect the need for point releases to address issues

- Interim Tk releases - e.g. themes

- More formal core procedures - e.g. edit on branch, only merge after review

- Increase size of TCT

- The need for 8.7 to replace 8.6.15 (basically compatible without 32 bit)

Future

- new documentation project is progressing

- nroff -> markdown mostly working

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- parallel with Tcl/Tk development

- will update online documentation first

- will be in next Tcl and/or Tk release when ready

- we may do a point release of Tcl/Tk just for documentation

- will switch to markdown for maintaining docs

- subsequent step is to look at content of documentation