DYALOG

Suomen APL-yhdistyksen syyskokous

The Return of Uncle Andy's Fireside Chat

Andy Shiers, COO
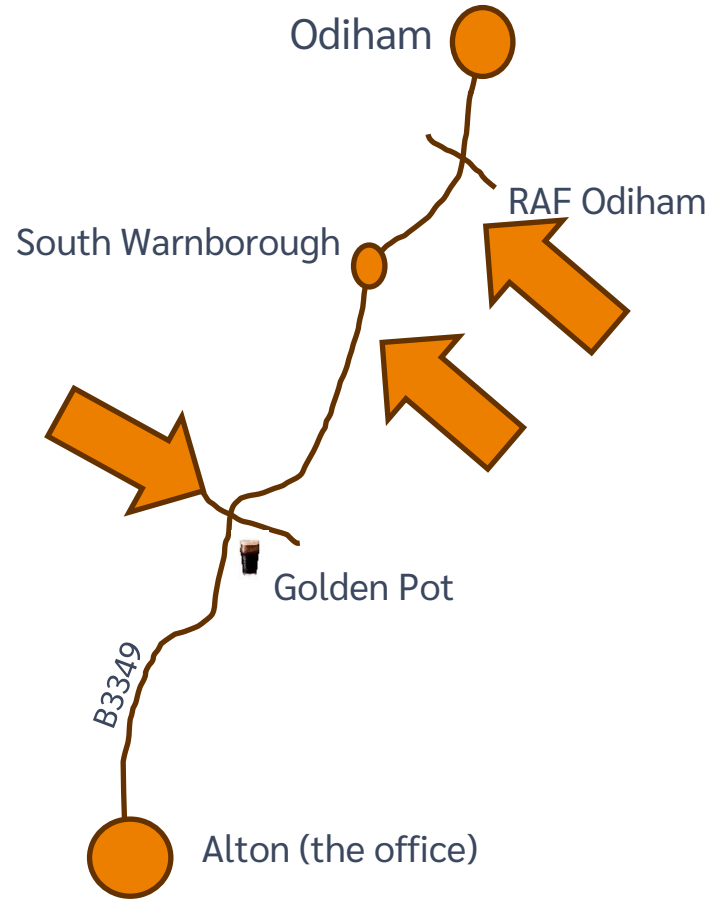
Agenda

Geoff

Testing

Announcements

Miscellaneous

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Geoff

Odiham

RAF Odiham

South Warnborough

Golden Pot

B3349

Alton (the office)

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Pete

Tell that #.(f←∘⊢)¨0 Streeter ..

.. to stop driving his company car like a #.{ω}.(# #).{ω} lunatic ! ..

.. <rant> .. </rant>

Geoff

- Without Geoff Streeter none of us would be here today

- Please raise a glass to him and wish him a long and happy retirement

[It depresses me that of the fulltime employees I started first. From now on it may be Gramps Andy's Fireside Chat]

(with blackcurrent cordial of course !)

Matters Arising

- Largest workspace I've seen ?

2T(erabytes)

- HttpCommand
  - 500000 times in single process

Docker Containers

- Ours are for demo/development purposes only
  - We can help but you/your IT department should set them up
    - Reduces security discussions
  - You can always strip bits out of our installation
    - eg help, ws, samples

Testing

- Standard QAs

- "Shuffle" QAs

- Code coverage

  - Aarush working on improving this and on new generation of QAs

- Fuzz testing

What do these do ?

What do these do ?

All killed the interpreter

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Fuzz Tests

- Runs continually with special interpreter

- Uses American Fuzzy Lop (not a rabbit)

- Generates expressions of interest

  - ~2E11 expressions run so far

  - Failures

  - Running for too long

  - Waiting on input

Fuzz Tests

- Try each expression with all standard interpreters

- Investigate all the errors
  - Eliminated many bugs
    - Peter and Silas leading the way

Fuzz Tests: ⎕ninfo on Windows

```
files←0 1(⎕NINFO ⎕OPT('Wildcard' 1)('Recurse' 2)) dir,'/*'

19.0.47734 Windows:     0 31125 149184 0
```

- On Windows (>18.2.47791) ⎕NINFO is now faster

  - Non-Windows were already "quick"

```
19.0.47853 Windows:     0 1109 5348 0
```

- Thank you Stefano for suggesting the improvement !

Announcements

- Withdrawals:

    - R-interface (19.0)

    - `819I` (20.0)

    - Array Editor (20.0)

    - Syncfusion (20.0)

- 19.0:

    - Release for user meeting

    - macOS and Intel/ARM support

    - New packaging on macOS

Withdrawal of the R-interface

- Has been withdrawn in 19.0

  - The code we relied on is no longer publicly available, and is out of date

- Use Kimmo Linna's Rserve

  - https://github.com/kimmolinna/rsconnect

Withdrawal of `819ɪ` in 20.0

- Use {X} `⎕c` Y instead

	`819ɪ`	`⎕c`
To upper case	1	1
To lower case	0	¯1
Folded	–	¯3 (default)

- Best used monadically when doing case-less comparisons

⬜wc and folding

'δυσσεύς' – Odysseus (Ulysses)

Both σ and ς are Sigma, ς is used at end of non-capital letters only words

⬜c　'δυσσεύς'

δυσσεύσ

Benefits of ⎕c

- It will exist in 20.0 onwards !

- Does not error if any elements are not character:

```
      ⎕c 'Andy' # (↑'Pete' 'Karen') 1.1
 andy  #  pete   1.1
          karen
```

Refs are not followed but just returned unaltered

Array Editor

- Has been removed from 19.0

  - David Liebtag sadly passed away last March

- Future plans based on Array Notation, but nothing else to say yet

Syncfusion

- Dyalog will stop including Syncfusion libraries in 20.0 onwards

- Dyalog's Syncfusion support agreement will terminate in September 2024

  - But we have always said that you should take out your own support contract directly with Syncfusion if you use it in production

- You may continue to use Syncfusion in conjunction with 19.0 and earlier of Dyalog

- Talk to sales@dyalog.com if you have questions or concerns

An aside: 32-bit, Classic

- 32-bit on Windows, AIX and Pi only

  - On Pi will remain until we feel 32-bit Raspberry Pi O/S has too few users

  - 32-bit Dyalog APL does NOT run on 64-bit Raspberry Pi O/S

- As of 01/01/2024 32-bit licences will be the same price as 64-bit licences

- Changes to licencing and thus to my.dyalog.com

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Classic

Find letter-pairs that occur at least 10 times in the set of common surnames:

```
]load [SALT]/tools/data/names.dyalog
```

```
(⊢⎕⍨∘⊂10⍳⍤⍨≤⊢/),⍤⊂∘≠⎕⎕C⊃⍪≠⊢⌷2¨'[^\w]'⎕R''⎕'UCP'1⊆names.Surnames
```

Classic equivalent:
```
(⊢⎕⍨∘⊂10⎕U2378⎕U2364≤⊢/),⎕U2365⊂∘≠⎕U2338⎕C⊃⍪≠⊢⎕U233A2¨
       '[^\w]'⎕R''⎕U2360'UCP'1⎕U2286 names.Surnames
```

Just move off Classic !

Mac support

- 19.0 is expected to be the last version to be built for Intel-based macs

- Intel-based versions of Dyalog for mac run (well) under Rosetta

- 19.0 will be available as a native ARM-based application

  - on or soon after release of 19.0

Additional mac packaging

- Similar to Linux

    - tty based version, separate RIDE

- Homebrew based

- Still Work In Progress

    - Let Stefan know if you're interested

        - stefan@dyalog.com

- Do you still want the existing packaging ?

RIDE User Guide etc.

- Is no more

  - use https://dyalog.github.io/ride

  - macOS User Guide will become very small

  - will start to review all the non-Windows User Guides

- Have you seen the cheat-sheets

  - anything you'd like one about ?

  - fiona@dyalog.com

Miscellaneous

-)ed foo[1]

- LOG_FILE & ⎕se.⎕wg'Logfile'

- DYALOG_GUTTER_ENABLE

- ⎕dr and Booleans (and squoze bit)

- New I-Beams

- ⎕se.Caption can be updated dynamically

)ed has more relaxed arguments

`)ed #.goo[1]*`

- Opens the editor on goo[1]

- Same as double clicking or hitting <ED>

```
⎕fx'foo' 'goo'
⎕fx 'goo' 'o'
 foo
 )si
#.goo[1]*
#.foo[1]
```

LOG_FILE & ☐se.LogFile

- Log_File can now contain "*"

  - Will use the first available (ie not locked) log file

  - Multiple instances of APL will use separate logfiles

  - ☐se.LogFile reports the log file used by this instance of Dyalog

]config LOG_FILE

… .\default_*.dlf

☐se.LogFile

… .\default_000.dlf

DYALOG_GUTTER_ENABLE

- Disabled by default in tty interface

  - Otherwise you have problems with copy and paste

Enabled

```
    :if 1
     [
    :endif
```

Do not try this with user meeting 19.0 !

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⎕dr and Booleans

- ⎕dr reports the type of the argument as it is held in the workspace after squeezing the argument[(*)]

- Singleton Booleans are held (effectively) as short ints

```
      ⎕dr ¨2=2 (2 3)
83 11
```

Dyadic ⎕dr and "sticky bit"

- It is assumed that if you change the type of an array, you want to preserve that type

  - "Sticky bit" is set

  - Subsequent calls to ⎕dr won't squeeze

    ```
        ⎕dr ⊃0 323 ⎕dr 2=2 2
    ```

    ```
     323
    ```

New I-Beams

- WARNING: Although documentation is provided for I-Beam functions, any service provided using I-Beam should be considered as "experimental" and subject to change – without notice - from one release to the next. Any use of I-Beams in applications should therefore be carefully isolated in cover-functions that can be adjusted if necessary.

New I-Beams: 2250⊥

- Report state of .NET Core

  - Results are cached

  - Use as early as you can in your code

    - We may already have done so !

- 2250⊥0

New I-Beams: 2250⌶0

- `AIX: ¯1 0  .NET interface is not supported by this interpreter`

- `Windows: 2 1  A Framework is available`

- `Linux: 1 1      A .NET is available`

- .NET Core is now known as .NET. WE may not be completely up to date about this!

New I-Beams: 2250⌶

Vince:

"*I have logged a low priority issue 20306 for the lack of a more helpful error message. There is also a bonus issue in there--that 2250⌶ returns loading bridge error information in Klingon.*"

```
2250⌶0

2 0  ┳└─ '┤├┼ ┌"┬┼─ '┬┌"┐ ") ∈Cðʊᴘ"┤"┐│ Ƒ┳'−#
∈(86ø∪D)┐'┤∪D)┐'┤ APL 18.2 C'┐##┬└∪┌"┬┼─182.┼ø ┳# ├┐ −"
&−"#┳ $┴┐  "−!%┳"─┴. ᴠ−"#┳  18.2.46299 '┐# ├% ┼ ┌%$ &−"#┳
18.2.46408 " ┤"┐ $−" ┳# ──┼┼.
```

New I-Beams

- **1302⌶**

  - Set/query AplCoreName and/or MaxAplCores

```
    1302⌶0

 c:\apl\aplcores\190U64_aplcore_*  10000

   {}1302⌶0            ⍝ Don't drop aplcores

   {}1302⌶'/aplcores/andys' ⍝ change name

   {}1302⌶'/tmp/andys' 10   ⍝ set both
```

⍝ in saved in output

- What about

- Same for)load,)xload,)copy &)pcopy

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⎕DMX

```
      'andys'⎕FTIE 1
             ∧
      ⎕dmx.(↑{ω (⍕ω)}¨↓⎕nl 2)
Category                                    Component file system
DM                      FILE NAME ERROR        'andys'⎕FTIE 1          ∧
EM                                                   FILE NAME ERROR
EN                                                               22
ENX                                                              11
HelpURL              https://help.dyalog.com/dmx/19.0/Componentfilesystem/11
InternalLocation                                         qfile1.c  4438
Message                                       andys: Unable to open file
OSError              1 2  The system cannot find the file specified.
Vendor                                                        Dyalog


      '.'⎕wg'APLVersion'
 Windows-64  19.0.47901.0  W  Development
```

⎕DMX

```
 ⎕json ⎕dmx
{"Category":"Component file system","DM":["FILE NAME ERROR","      'an
    dys'⎕FTIE 1","                ^"],"EM":"FILE NAME ERROR","EN":22,"E
    NX":11,"HelpURL":"https://help.dyalog.com/dmx/19.0/Componentfile
    system/11","InternalLocation":["qfile1.c",4438],"Message":"andys
    : Unable to open file","OSError":[1,2,"The system cannot find th
    e file specified."],"Vendor":"Dyalog"}
```

```
Andy wants ⎕dmx ⎕nv ¯2 !
```

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And that's that !

- Thank you for listening

andys@dyalog.com