

DIALOG

Elsinore 2023

The Return of Uncle Andy's Fireside Chat

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Agenda

Geoff

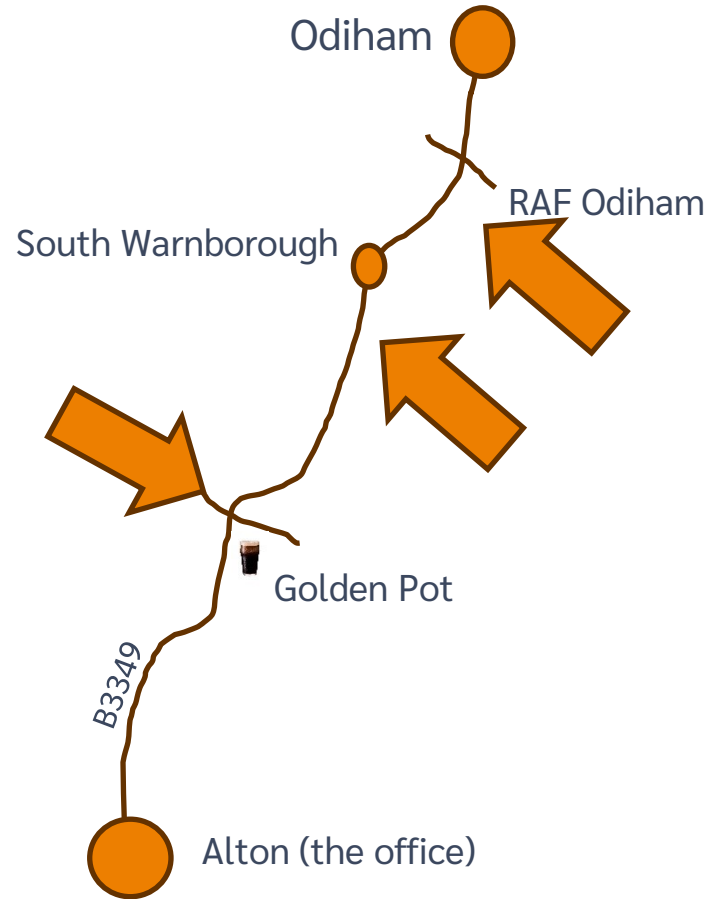
Testing

Announcements

Miscellaneous



Geoff



Pete

Tell that #.(f←o┐)“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

#.(f←o+)"0

3 1 {=

"R((")R"φ)"

∑α+ω}00

#.{ω,α}#. {ω}

(,#).(@0)0+0



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- Has been withdrawn in 19.0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 819I in 20.0

- Use {X} I c Y instead

	819I	I 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

□ ς '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 Liebttag 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



Classic

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

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

```
(⌈⌊~◦c10⌊ö≤⌈/),ö◦≠⊖⊖C>,⌈⊖2'' [^\w]'⊖R' '⊖'UCP'1⊖names.Surnames
```

Classic equivalent:

```
(⌈⌊~◦c10⊖U2378⊖U2364≤⌈/),⊖U2365◦≠⊖U2338⊖C>,⌈⊖U233A2''  
' [^\w]'⊖R' '⊖U2360'UCP'1⊖U2286 names.Surnames
```

Just move off Classic !



19.0 User Meeting release

- Is an early revision of what 19.0 will be
 - Not everything I mention is quite there yet
 - Any workspace saved in it will be)LOADable in the released 19.0
 - But not necessarily vice-versa
 - You will have to uninstall and reinstall the GA release



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 squeeze 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 !



□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 I

- Report state of .NET Core
 - Results are cached
 - Use as early as you can in your code
 - We may already have done so !
- 2250 I \emptyset



New I-Beams: 2250 I 0

- AIX: 1 0 .NET interface is not supported by this interpreter
- Windows: 2 1 A Framework is available
- Linux: 1 1 A .NET Core is available



New I-Beams

- 1302I
- Set/query AplCoreName and/or MaxAplCores

```
1302I0
```

```
c:\apl\aplccores\190U64_aplcore_* 10000
```

```
{}1302I0          A Don't drop aplccores
```

```
{}1302I'/aplccores/andys' A change name
```

```
{}1302I'/tmp/andys' 10  A set both
```



Windows: □se.Caption

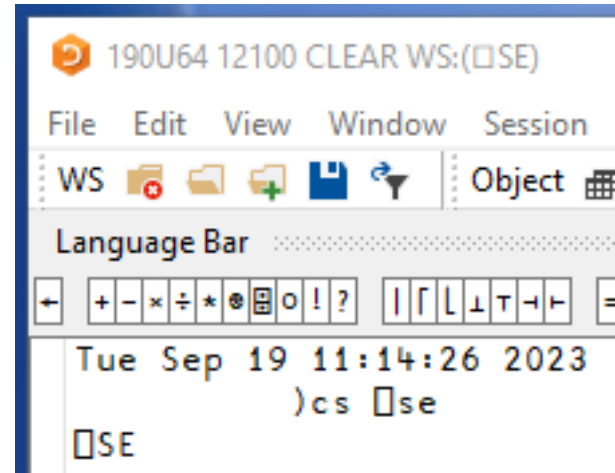
Can already set in registry

[HKEY_CURRENT_USER\Software\Dyalog\Dyalog APL/W-64 19.0 Unicode\Captions]

"Session"="{VER_A}{VER_B}{SCHARS}{BITS} {PID} {WSID};{SNSID}"

□se.Caption

190U64 12100 CLEAR WS:(□SE)



Windows: `se.Caption`

- Now can set dynamically

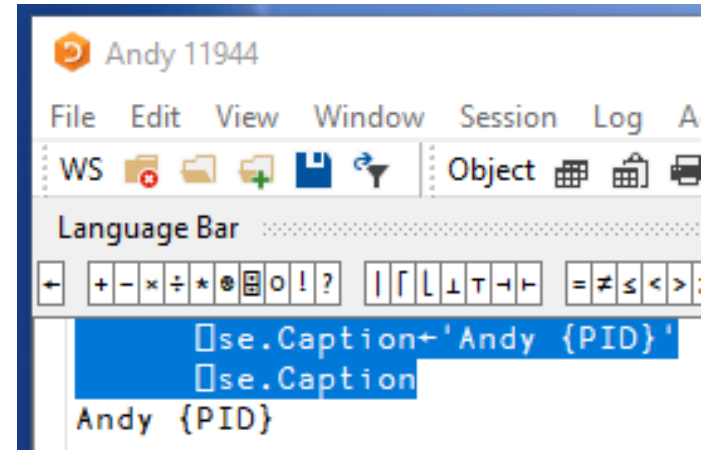
```
se.Caption←'Andy {PID}'
```

```
se.Caption
```

```
Andy {PID}
```

- To always get the current value:

```
NA 'I user32|GetWindowText* P >OT I'  
GetWindowText SE.Handle 255 255
```



(Maybe) ␣ in saved in output

- What about

```
p9-72qa.dyalog.bramley - PuTTY  
Dyalog APL/S-64 Version 19.0.47997  
Classic Edition  
Tue Oct 10 11:03:17 2023  
      )save andysws  
andysws.dws ␣ saved Tue Oct 10 11:03:24 2023
```

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



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" }
```

□ dmx □ nv -2

Wouldn't this be nice ?



And that's that !

- ◆ Thank you for listening

andys@dyalog.com

