

# DIALOG

Elsinore 2019



## Uncle Andy's Fireside Chat V5

*Andy Shiers, COO*

# Topics

- A tour around serial numbers
- Things you may have missed
- A Request For Comment



# Serial Numbers

- ◆ Changes to allow
  - ◆ Unregistered version on all platforms
  - ◆ Simplified downloads
  - ◆ Easier access to Dyalog on multiple platforms
  - ◆ Easier deployment of Docker images in commercial production
  - ◆ Makes Dyalog's lives easier 😊



# Serial numbers by platform

- 🟠 Windows
- 🟠 Linux/macOS/Pi
- 🟠 Docker containers, sudo



# Serial Number: what is it

- ◆ DYALOG\_SERIAL
  - ◆ It's just another configuration parameter (environment variable)
  - ◆ Technically it affects the start up banner only
    - ◆ You need the appropriate licence for your usage
    - ◆ If not set, or invalid, interpreter thinks it's unregistered



# Serial number: banners

Unregistered  
Windows  
Unicode

171U64 15144 CLEAR WS:

```
File Edit View Windows Session Log Action Options Tools Threads Help
WS [Icons] Object [Icons] Tool [Icons] Edit [Icons] Session
Language Bar
[Icons]
Mon Aug 19 11:47:45 2019
Dyalog APL/W-64 Version 17.1.36847
Serial number: UNREGISTERED - not for commercial use
-----
| Dyalog is free for non-commercial use but is not free software. |
| A non-commercial licence can be used for experiments and |
| proof of concept until the point in time that it is of value. |
| For further information visit |
| https://www.dyalog.com/prices-and-licences.htm |
-----
Mon Aug 19 11:48:09 2019
```

Debugger  
Ready... Ins  
CurObj: &:1 □□Q:0 □TRAP □SI:0 □IO:1 □ML:1

```
andys@debian8dev: ~
Dyalog APL/S-64 Version 17.1.36845
Serial number: 584571 - not for commercial use
-----
| Dyalog is free for non-commercial use but is not free software. |
| A non-commercial licence can be used for experiments and |
| proof of concept until the point in time that it is of value. |
| For further information visit |
| https://www.dyalog.com/prices-and-licences.htm |
-----
Classic Edition
Mon Aug 19 14:53:16 2019
```

Registered  
Linux  
Classic

```
andys@debian8dev: ~
Dyalog APL/S-64 Version 17.1.36845
Serial number: 481434
Mon Aug 19 14:55:24 2019
Rebuilding user command cache... done
```

Commercial  
Linux  
Unicode



# Serial Number: Windows

- ◆ Registry entry (by default)
- ◆ Installation: configuration parameters
  - ◆ If run as Administrator
    - ◆ adds entries to HKLM
    - ◆ new users copy from HKLM to their HKCU if key does not already exist
  - ◆ All installations
    - ◆ adds entries to HKCU for user who performs the install



W10 (Snapshot 1) [Running] - Oracle VM VirtualBox

Registry Editor

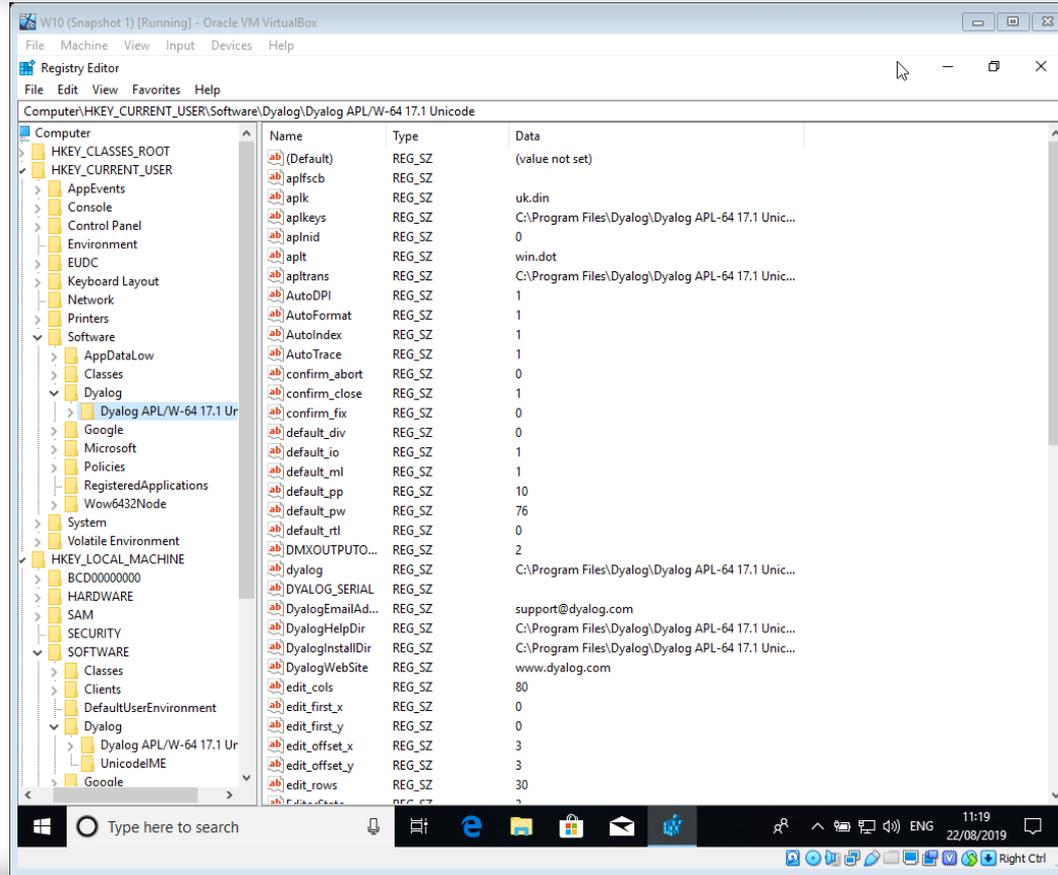
Computer\HKEY\_LOCAL\_MACHINE\SOFTWARE\Dyalog\Dyalog APL/W-64 17.1 Unicode

Name	Type	Data
aplnid	REG_SZ	0
aplt	REG_SZ	win.dot
apltrans	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
AutoDPI	REG_SZ	1
AutoFormat	REG_SZ	1
AutoIndex	REG_SZ	1
AutoTrace	REG_SZ	1
confirm_abort	REG_SZ	0
confirm_close	REG_SZ	1
confirm_fix	REG_SZ	0
default_div	REG_SZ	0
default_io	REG_SZ	1
default_ml	REG_SZ	1
default_pp	REG_SZ	10
default_pw	REG_SZ	76
default_rtl	REG_SZ	0
DMXOUTPUTO...	REG_SZ	2
dyalog	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
DYALOG_SERIAL	REG_SZ	
DyalogEmailAd...	REG_SZ	support@dyalog.com
DyalogHelpDir	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
DyalogInstallDir	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
DyalogWebSite	REG_SZ	www.dyalog.com
edit_cols	REG_SZ	80
edit_first_x	REG_SZ	0
edit_first_y	REG_SZ	0
edit_offset_x	REG_SZ	3
edit_offset_y	REG_SZ	3
edit_rows	REG_SZ	30
EditorState	REG_SZ	3
ExternalHelpURL	REG_SZ	http://social.msdn.microsoft.com/Search/en-US?...
File_Control	REG_SZ	2
history_size	REG_SZ	4K
...	...	...

Type here to search

11:16 22/08/2019





## Serial Number: Windows (2)

- Best to enter on install
  - Installer searches for existing serial number to populate serial number field
  - If not, you'll have to enter it for each user on the Windows machine

`SE.Dyalog.Serial`

to check or enter serial number.

- Updates/shows value of

`HKCU\Software\Dyalog\Dyalog APL/W-64 17.1 Unicode\DYALOG_SERIAL`



# Serial Number: Linux/macOS

- An environment variable
  - Could define in
    - Your apl startup script
    - Your `.profile/.bash_profile`
    - Your `/etc/profile` or `/etc/environment`
  - `SE.Dyalog.Serial`
    - to check or enter serial number saved in `$HOME/.dyalog/serial`
      - or set `DYALOG_SERIALFILE`



# Serial Number: Docker Containers

## ◆ [This is how it will work]

-it: interactive

- ◆ Needs 17.1 containers which will be available from [dockerhub.com](https://dockerhub.com)

## ◆ Starting a Docker container

- ◆ vanilla Dyalog

```
docker run -it -e DYALOG_SERIAL=<sn> dyalog/dyalog
```

- ◆ Dyalog+MiServer

```
docker run -it -e DYALOG_SERIAL=<sn> dyalog/miserver
```



# UNIX and sudo

- In Dyalog started via sudo
  - must add environment variables to /etc/sudoers file

```
Defaults env_keep += "DYALOG_SERIAL"  
sudo DYALOG_SERIAL=<sn> dyalog
```

- Use `4001` to change to non-elevated user

|



# Linux: /usr/bin/dyalog

- ◆ /usr/bin/dyalog
  - ◆ is controlled by alternatives
  - ◆ do NOT edit /usr/bin/dyalog

```
sudo update-alternatives --config dyalog
```

Selection	Path	Priority	Status
* 0	/opt/mdyalog/18.0/64/unicode/mapl	1801	auto mode
1	/opt/mdyalog/17.1/64/classic/mapl	1710	manual mode
2	/opt/mdyalog/17.1/64/unicode/mapl	1711	manual mode
3	/opt/mdyalog/18.0/64/classic/mapl	1800	manual mode
4	/opt/mdyalog/18.0/64/unicode/mapl	1801	manual mode

Press enter to keep the current choice[\*], or type selection number:



# Serial numbers: it's a wrap

- ◆ DYALOG\_SERIAL
  - ◆ Set and check using `se.Dyalog.Serial`
    - ◆ Windows: don't use regedit
    - ◆ others: single users use `~/.dyalog/serial`
      - ◆ it's a simple text file
  - ◆ Effective in all Dyalog processes started after update
- ◆ No functional difference other than the banner
- ◆ Changes on the way to [www.dyalog.com](http://www.dyalog.com)

```
A Check serial number
se.Dyalog.Serial''
```

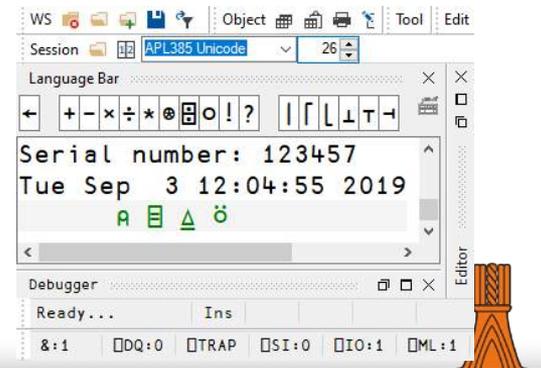
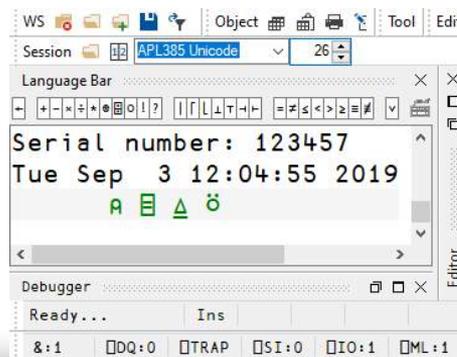
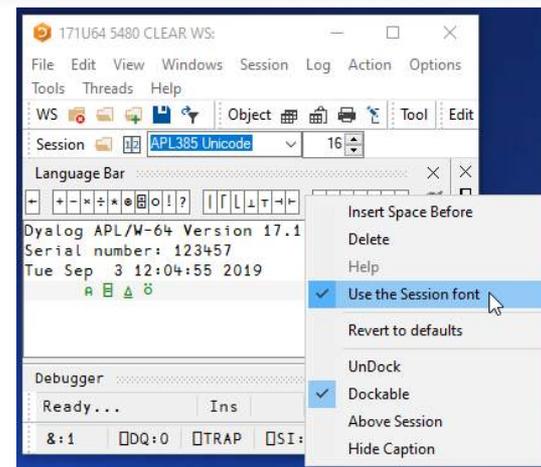
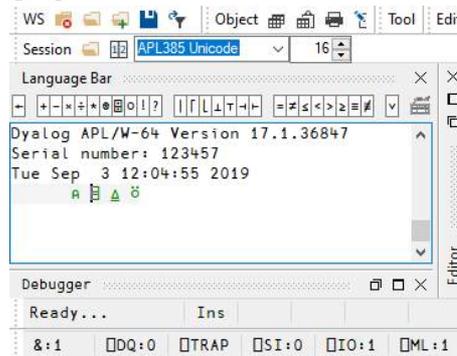
```
A Set serial number
se.Dyalog.Serial sn
```

```
A sn can be numeric or a
character vector
```



# Windows featurettes

- Language bar:
  - Use the Session font



# Windows featurettes

- Backtick keyboard added to IME
  - Not therefore in Classic
    - But could use RIDE as front end
  - Can be used in Word etc



# Locals Lines

- Define local variable across multiple lines rather than a very long line[0]
- First non-whitespace must be “;”
- Must precede all executable statements
  - Can be preceded by blank lines and comment lines

```
r←foo y;a;b A locals
      ;c;d A and more
(a b c d)←y
r←a+b-c×d
```



# Locals lines

- ◆ TL (toggle localisation)
  - ◆ adds only to line 0
  - ◆ removes from whichever locals line name is first defined on
- ◆ Tracer Option: Skip locals lines when tracing
- ◆ Added in 17.0
- ◆ More efficient than multiple calls to `□shadow`
  - ◆ much, much more efficient than `□shadow`



# What you may have missed

- 17.0: left argument to `□CY`
  - Can be a vector of character vectors
  - Now error if spaces appear between names
    - Earlier versions simply ignored all but 1<sup>st</sup> name
  
- 2000±19
  - Count of number of calls to `□wa`
    - cf 2000±2: number of compactions

```
'hex' 'dec'□CY'dfns'
↓□nl 3
    dec  hex
```

```
'hex dec'□CY'dfns'
DOMAIN ERROR
    'hex dec'□CY'dfns'
```

Just how many times have I  
called `□wa` !!!!



# Native and text file functions: `□ninfo`

## ◆ `□ninfo □: 'Recurse' 2`

- ◆ Ignore errors .. just skip unreadable files and directories

```
≠>(□ninfo □ (('Wildcard' 1)('Recurse' 1)))/var/*'
```

```
FILE ACCESS ERROR: /var/lib/sudo/ts: Unable to scan directory
("Permission denied")
```

```
≠>(□ninfo □ (('Wildcard' 1)('Recurse' 2)))/var/*'
```

```
7181
```

## ◆ 11 12 `□ninfo`

- ◆ Readable (11) works on all platforms; 12 (writeable) always `¬1` on Windows (cannot always guarantee correct result)



Dyalog APL/S-64 Version 18.0.36901

⎕an ⎕ai

andys 0 460 4774 4286

rlist←{⊆,/'0 1 11 12(⎕NINFO⎕('Wildcard' 1)('Recurse' 2)) ,\ω '/\*'}

rlist './dyalog19'

```
./dyalog19          1 1 1
./dyalog19/mine    1 1 1
./dyalog19/mine/readable 1 1 1
./dyalog19/mine/readable/f1 2 1 1
./dyalog19/mine/unreadable 1 1 1
./dyalog19/mine/unreadable/f2 2 1 1
```

{}4001⊖'andys' ⋄ ⎕an ⎕ai

andys 6179 524 12623 12055

⎕←ls←rlist './dyalog19'

```
./dyalog19          1 1 1
./dyalog19/mine    1 1 1
./dyalog19/mine/readable 1 1 1
./dyalog19/mine/readable/f1 2 1 1
./dyalog19/mine/unreadable 1 0 0
```

(ls[;2 3]∧.=1 0)/ls ⌘ Unreadable directories

```
./dyalog19/mine/unreadable 1 0 0
```



# Support for small-span files

- 17.0 cannot write to small-span files
- Watch out for unexpected FILE ACCESS ERRORS !

```
'u:/tmp/andys/32'␣ftie 1
```

```
1 ␣fappend 1
```

```
FILE ACCESS ERROR: Small-span files are read-only;  
␣FCOPY can create a writable large-span copy
```

```
1 ␣FAPPEND 1
```

```
^
```



# □DMX

- Native file functions include file name in error message

```
'not_here'□ntie 0
```

```
FILE NAME ERROR: not_here: Unable to open file ("The system  
cannot find the file specified.")
```

```
'not_here'□NTIE 0
```

```
^
```

- Where would you like us to concentrate on extending □DMX coverage ?



# Comments in General

- Let us know !
  - [andys@dialog.com](mailto:andys@dialog.com)
  - [support@dialog.com](mailto:support@dialog.com)
  - [sales@dialog.com](mailto:sales@dialog.com)

