

DIALOG

Elsinore 2019



Uncle Andy's Fireside Chat V5

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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
  
```

```

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



Registry Editor window showing the path: Computer\HKEY_CURRENT_USER\Software\Dyalog\Dyalog APL/W-64 17.1 Unicode

Name	Type	Data
(Default)	REG_SZ	(value not set)
aplfscb	REG_SZ	
aplk	REG_SZ	uk.din
aplkeys	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
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_rt	REG_SZ	0
DMXOUTPUT...	REG_SZ	2
dyalog	REG_SZ	C:\Program Files\Dyalog\Dyalog APL-64 17.1 Unic...
DIALOG_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
edit_rows	REG_SZ	3



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

◆ 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

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

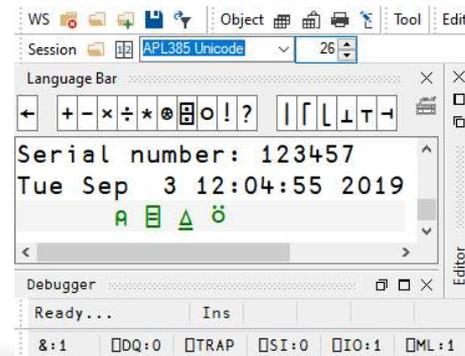
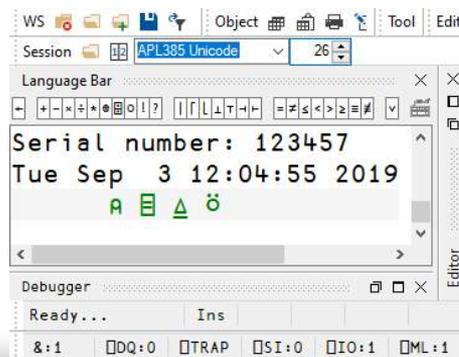
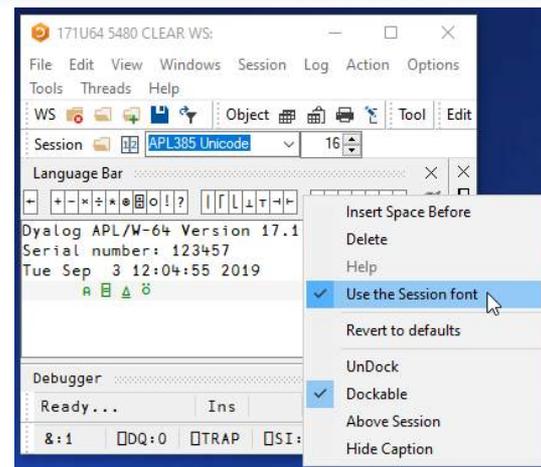
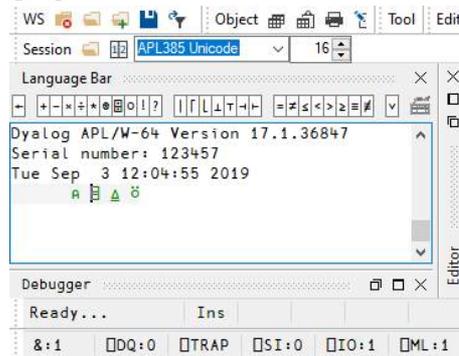
```
A Set serial number
se.Dyalog.Serial sn
```

```
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 1st 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
 - support@dialog.com
 - sales@dialog.com

