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

Registered
Linux
Classic

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
Uncle Andy’s Fireside Chat V5
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]

- Needs 17.1 containers which will be available from dockerhub.com
- Starting a Docker container
  - vanilla Dyalog
    
    ```bash
    docker run -it -e DYALOG_SERIAL=<sn> dyalog/dyalog
    ```
  - Dyalog+MiServer
    
    ```bash
    docker run -it -e DYALOG_SERIAL=<sn> dyalog/miserver
    ```

-it: interactive
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
```

<table>
<thead>
<tr>
<th>Selection</th>
<th>Path</th>
<th>Priority</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 0</td>
<td>/opt/mdyalog/18.0/64/unicode/mapl</td>
<td>1801</td>
<td>auto mode</td>
</tr>
<tr>
<td>1</td>
<td>/opt/mdyalog/17.1/64/classic/mapl</td>
<td>1710</td>
<td>manual mode</td>
</tr>
<tr>
<td>2</td>
<td>/opt/mdyalog/17.1/64/unicode/mapl</td>
<td>1711</td>
<td>manual mode</td>
</tr>
<tr>
<td>3</td>
<td>/opt/mdyalog/18.0/64/classic/mapl</td>
<td>1800</td>
<td>manual mode</td>
</tr>
<tr>
<td>4</td>
<td>/opt/mdyalog/18.0/64/unicode/mapl</td>
<td>1801</td>
<td>manual mode</td>
</tr>
</tbody>
</table>

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

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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
- 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

- **200019**
  - Count of number of calls to ⎕wa
  - cf 200012: number of compactions
Native and text file functions: ninfo

- `ninfo ː 'Recurse' 2`
  - Ignore errors .. just skip unreadable files and directories

  ```dva```
  ≢⊃(⎕ninfo ⍠ (('Wildcard' 1)('Recurse' 1))'/var/*')
  ```dva```

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

  ```dva```
  ≢⊃(⎕ninfo ⍠ (('Wildcard' 1)('Recurse' 2))'/var/*')
  ```dva```

- `11 12 ninfo`
  - Readable (11) works on all platforms; 12 (writeable) always
  -1 on Windows (cannot always guarantee correct result)
rlist←{⍺=,'/''0 1 11 12(⊢NINFO⍠('Wildcard' 1)('Recurse' 2)),⍵ '/*'}

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

⍝ Unreadable directories
(ls[;2 3]∧.=1 0)∩ls A 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
^
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'\nNTIE 0

^

Where would you like us to concentrate on extending ≪DMX coverage ?
Comments in General

- Let us know!
  - andys@dyalog.com
  - support@dyalog.com
  - sales@dyalog.com