DYNA26

Enhancements in Dyalog v20.0

Asher Harvey-Smith

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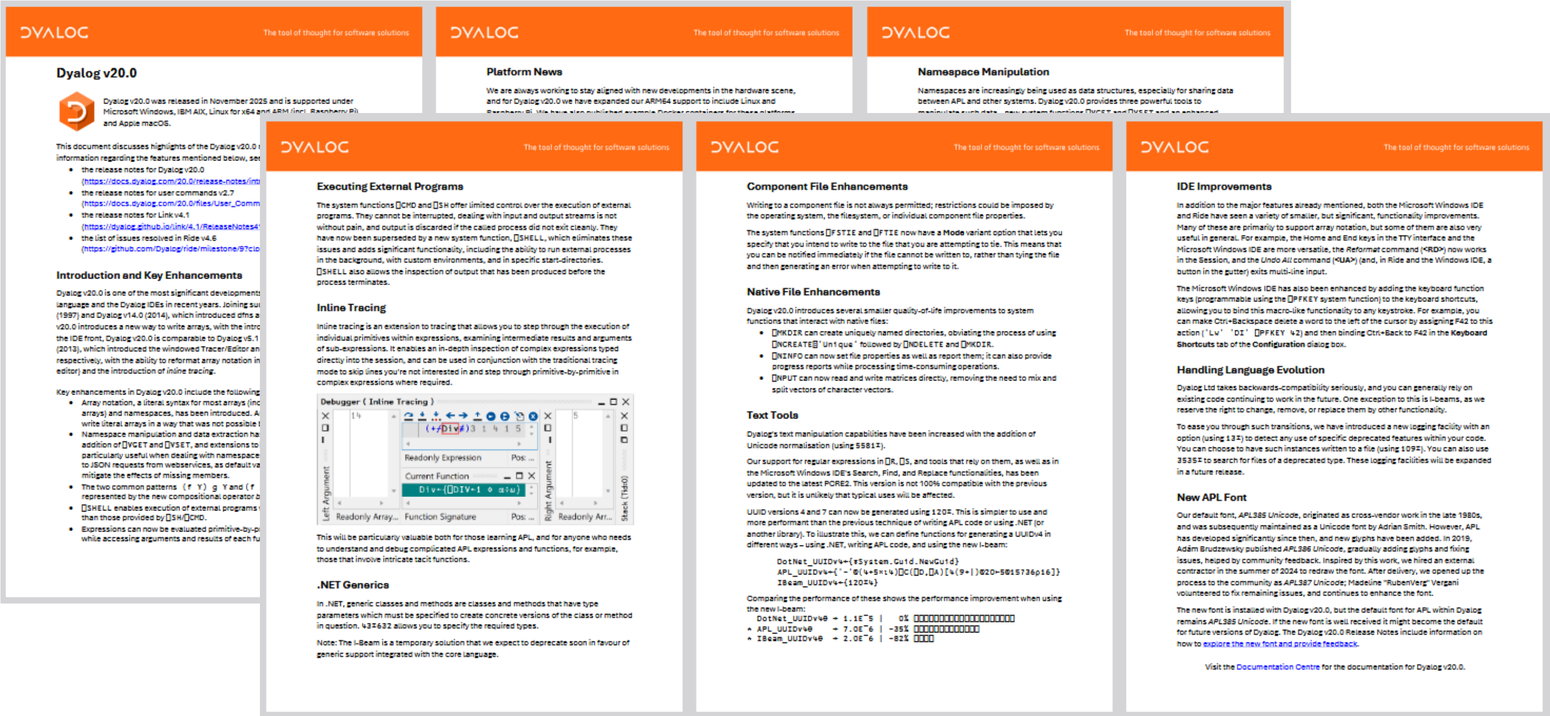
v20.0 has lots of stuff



v20.0 has lots of stuff

- Array notation
- Inline tracing
- Behind (o_)
- □VSET and □VGET
- □SHELL

Writing Big Arrays

```
v←⍬
v,←⊂'Alice' 12
v,←⊂'Bob'   34
v,←⊂'Claus' 56
```

```
m←⍪⍨'Name  Age'
m⍪←'Alice 12 '
m⍪←'Bob   34 '
m⍪←'Claus 56 '
```

Vector Notation

```
('APL' 'Germany' ◇ 2025+1)
```

Matrix Notation

```
      [⍳3 ◇ 4 5 6 ◇ 7 8 9]
1 2 3
4 5 6
7 8 9
```

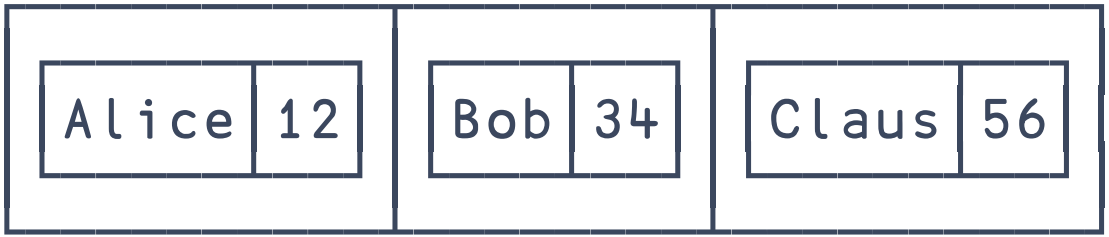
Writing Big Arrays

```
v←⍬
v,←⊂'Alice' 12
v,←⊂'Bob'   34
v,←⊂'Claus' 56
```

```
m←⍪⍪'Name  Age'
m⍪←'Alice 12 '
m⍪←'Bob   34 '
m⍪←'Claus 56 '
```

Writing Big Arrays

```
      v←(
           'Alice' 12
           'Bob'   34
           'Claus' 56
      )
      v
```



Writing Big Arrays

```
      m←[
          'Name  Age'
          'Alice 12'
          'Bob   34'
          'Claus 56'
      ]
      m
Name  Age
Alice 12
Bob   34
Claus 56
```

In the IDE

Writing Namespaces

```
'ns'⎕NS''
ns.foo←1 2 3
ns.bar←4 5 6
```

```
(foo: 1 2 3 ⋄ bar: 4 5 6)

(
      foo: 1 2 3
      bar: 4 5 6
)
```

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Explain this expression

```
{↑'⍞'/⍨⌊0.5+⍵÷(⌈/⍵)÷⍺}
```

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Compose (∘)

Compose (∘)

```
NegRecip ← -∘÷
```

Compose (∘)

```
      NegRecip ← -∘÷
      NegRecip 1 2 3
¯1 ¯0.5 ¯0.3333333333
```

Compose (∘)

```
      NegRecip ← -∘÷
      NegRecip 1 2 3
¯1 ¯0.5 ¯0.3333333333
      IsReflection ← ≡∘ϕ
```

Compose (∘)

```
      NegRecip ← -∘÷
      NegRecip 1 2 3
¯1 ¯0.5 ¯0.3333333333
      IsReflection ← ≡∘⌽
      'foo' IsReflection 'oof'
1
```

Compose (∘)

```
   f∘g y ↔    f g y
x  f∘g y ↔ x  f g y
```

Behind (∘)

```
   f∘g y ↔    f g y
x  f∘g y ↔ x  f g y

   f∘g y ↔ (f y) g y
x  f∘g y ↔ (f x) g y
```

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- ~~Array notation~~
- ~~Inline tracing~~
- ~~Behind (ಠ_ಠ)~~
- □VSET and □VGET
- □SHELL

□VSET and □VGET

- To the session!

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- ~~Array notation~~
- ~~Inline tracing~~
- ~~Behind (⍛)~~
- ~~⎕VSET and ⎕VGET~~
- ⎕SHELL

□SH and □CMD

- Give a string to the OS
- Wait

SHELL

- SHELL can...
  - use a specified shell (eg cmd vs powershell)
  - bypass the shell,
  - specify environment variables,
  - set a timeout,
  - and more!

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- ~~Array notation~~
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- ~~□VSET and □VGET~~
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