

Modifications Included Since APL64 Production Version 2022.0.1

Table of Contents

Overview	3
Enhancements	3
APL64 now supports .NET release 6.0 (x64)	3
HttpClient Now Used	3
New <input type="checkbox"/> Path system function	3
New <input type="checkbox"/> Pathcase system variable	3
New Save As Xlxs option in)EDSS/ <input type="checkbox"/> EDSS	4
New APL64 System Highlights feature in the status bar	4
Use the Win10/11 Clipboard History in APL64	5
Insert/Replace keyboard mode supported in APL64 (case #5696)	7
Find in Functions in Workspace utility	8
'Last Fix Date' column added to the filtered list of functions	8
Copying a matched function line	9
New option is provided to "Show Function Definition(s) for Selected Row(s)" in the function list... ..	10
<input type="checkbox"/> devcap set to an empty vector	11
The Find/Replace Tool replaces the Find/Replace dialog	11
Rendering Large Output to History and <input type="checkbox"/> xso System Variable	13
Insert APL Idiom dialog is now not modal	14
The caption and hwndmain properties for the <input type="checkbox"/> wi System object (#) are deprecated	15
New menu: Objects Editors Pane Format Shrink Editor Area When All Editors Are Floated (case #5203)	15
New menu: Objects Debug Shrink Debug Area When Debug & SI Panes Are Both Floated (case #5203)	15
Bug Fixes	16
APL64 didn't suspend: <input type="checkbox"/> STOP set on line[1] of a function that is a comment line (case #5224)	16
APL64 didn't suspend: <input type="checkbox"/> STOP set in a subroutine that were commented lines (≥1) (case #5043)	16
The llink between APL64 and APLNow32 may become broken or display "Not responding" in the Form caption while the application was running (case #5774)	16
<input type="checkbox"/> it 'SymbolTable'/'AuditRefCount': "APLNow32 is closing due to an unrecoverable error." (case #5395)	16
:return <input type="checkbox"/> novalue: "NONCE ERROR: Exec XNonce : Code.Wae.XQDNOVALUE() not implemented" (case # 5730)	16

Double right clicking a function[line] in the APL History did not always open the function with the caret on the correct line (case #5637)	16
Under specific circumstances, the command ed object opened the object in a floated editor for a fraction of a second and then hid it behind the APL64 session (case #5660)	16
System functions <code>⎕a</code> , <code>⎕al</code> , <code>⎕d</code> were incorrectly documented as system variables (case #5729)	16
<code>⎕WEVENT</code> may have contained the wrong value and/or <code>⎕WARG</code> may be empty when something happened to change the focus from the GUI form to the APL64 session (case #5692)	16
<code>⊖~⊖</code> and <code>⊖ι⊖</code> : SYSTEM ERROR:Exception: Index was outside the bounds of the array (case #5761)...	17
The APL expression <code>?5ρ<10 6ρ1000</code> returned with a DOMAIN ERROR (case #5767)	17
<code>⎕MATRIFY "</code> incorrectly returned <code>1 0ρ"</code> when <code>0 0ρ"</code> was expected (case #5758)	17
<code>⎕edss</code> cited in warning dialog for <code>edss</code> with variable already being edited (case #5830)	17
Tooltips were not showing for the Debug Pane toolbar (case #5168)	17
Mousing over the APL64 icon in the Windows Taskbar didn't display the preview panes for the floating editors and Debug/SI panes (case #5205 and #5322)	18
Re-opening a function editor after it was maximized then restored (unmaximized) then closed did not correctly remember its size and location (case #5650)	18
Updates to the APL64 <code>⎕wi</code> system function should improve the display speed of APL GUI forms and controls	18
The command <code>'I512' ⎕FMT ι4192255</code> set <code>⎕wa</code> system function to 0 (case #5448)	18

Overview

This document describes the enhancements and bug fixes incorporated into this second production release of APL64, 2022.0.2.

Enhancements

APL64 now supports .NET release 6.0 (x64)

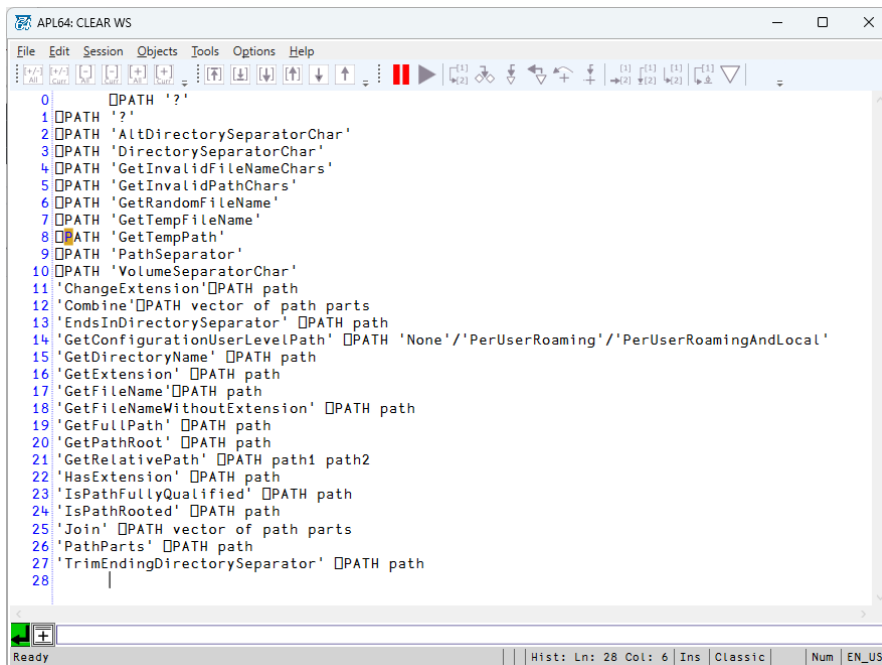
This update requires the installation of the Microsoft .NET SDK 6.0.402. The installer for this version of APL64 will prompt you to download and install it from [release 6.401 x64 for Windows](#).

HttpClient Now Used

The HttpClient technology replaces the Microsoft-deprecated WebClient technology used to display context-sensitive Help and System Highlights in APL64. In the APL64 developer version GUI the F1 shortcut and the Help menu will continue to operate as before.

New `⎕Path` system function

The `⎕Path` system function is an interface to the [.Net Path class methods](#) to perform file or directory path information operations. Refer to the [Help | APL Language | Using `⎕Path`](#) menu in the APL64 developer version for the documentation of this system function.



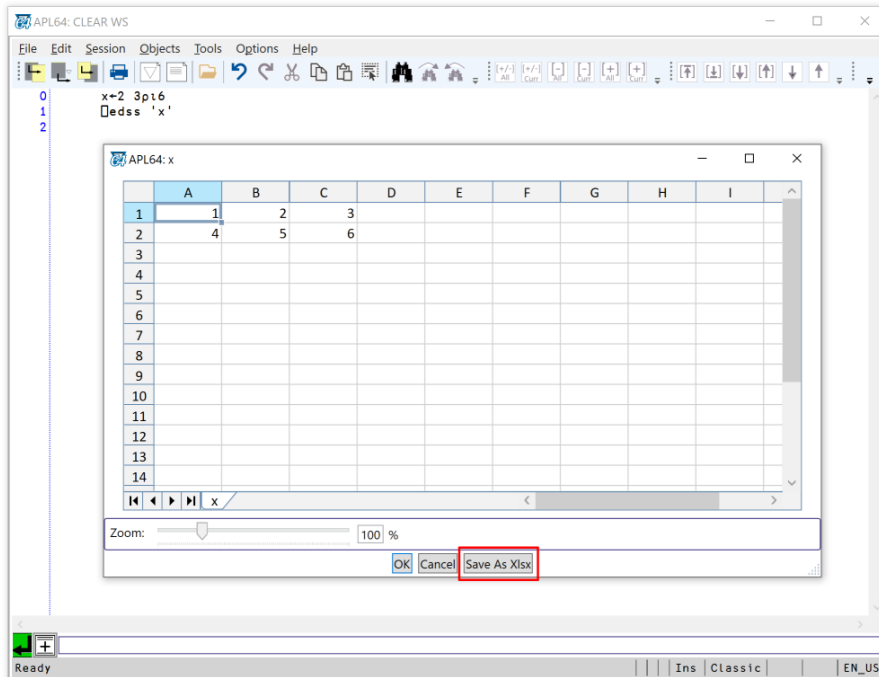
```
0  ⎕PATH '?'
1  ⎕PATH '?'
2  ⎕PATH 'AltDirectorySeparatorChar'
3  ⎕PATH 'DirectorySeparatorChar'
4  ⎕PATH 'GetInvalidFileNameChars'
5  ⎕PATH 'GetInvalidPathChars'
6  ⎕PATH 'GetRandomFileName'
7  ⎕PATH 'GetTempFileName'
8  ⎕PATH 'GetTempPath'
9  ⎕PATH 'PathSeparator'
10 ⎕PATH 'VolumeSeparatorChar'
11 'ChangeExtension' ⎕PATH path
12 'Combine' ⎕PATH vector of path parts
13 'EndsInDirectorySeparator' ⎕PATH path
14 'GetConfigurationUserLevelPath' ⎕PATH 'None'/'PerUserRoaming'/'PerUserRoamingAndLocal'
15 'GetDirectoryName' ⎕PATH path
16 'GetExtension' ⎕PATH path
17 'GetFileName' ⎕PATH path
18 'GetFileNameWithoutExtension' ⎕PATH path
19 'GetFullPath' ⎕PATH path
20 'GetPathRoot' ⎕PATH path
21 'GetRelativePath' ⎕PATH path1 path2
22 'HasExtension' ⎕PATH path
23 'IsPathFullyQualified' ⎕PATH path
24 'IsPathRooted' ⎕PATH path
25 'Join' ⎕PATH vector of path parts
26 'PathParts' ⎕PATH path
27 'TrimEndingDirectorySeparator' ⎕PATH path
28
```

New `⎕Pathcase` system variable

This workspace-related system variable specifies when the APL64 interpreter will compare file paths considering case. Refer to the [Help | APL Language | System Variables](#) for details.

New Save As Xlxs option in)EDSS/□EDSS

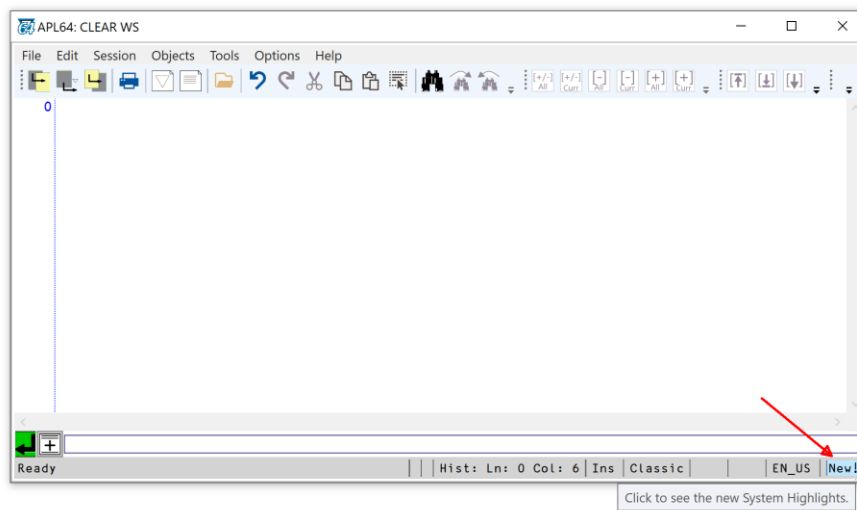
This option can be used to save the edit session information to a Microsoft Excel Open XML Spreadsheet (XLSX) file.



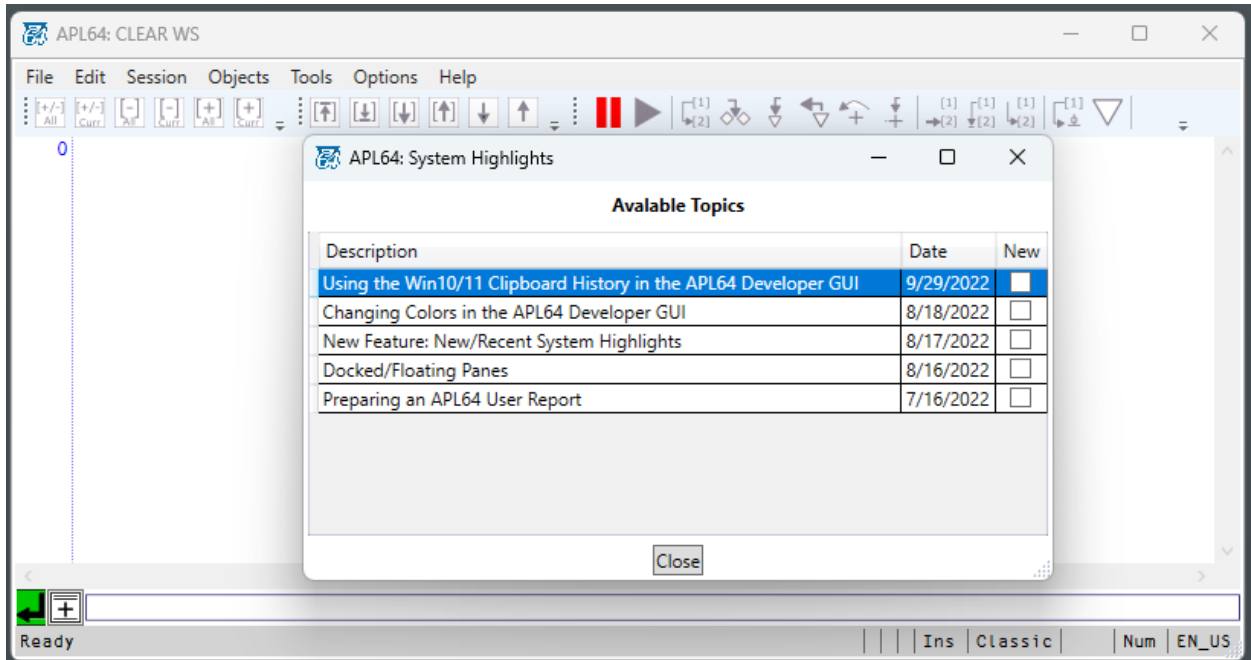
New APL64 System Highlights feature in the status bar

The System Highlights displays custom notifications to APL64 developer version users which can be published by the APL64 Team without creating a system update. Potential uses:

- Warn user's when the license refresh requirement approaches
- Push notifications to customers for new features, updates, and video tutorials



Clicking the notification area in the status bar or the **Help | System Highlights | Recent System Highlights** menu displays the **Available Topics** window shown below:

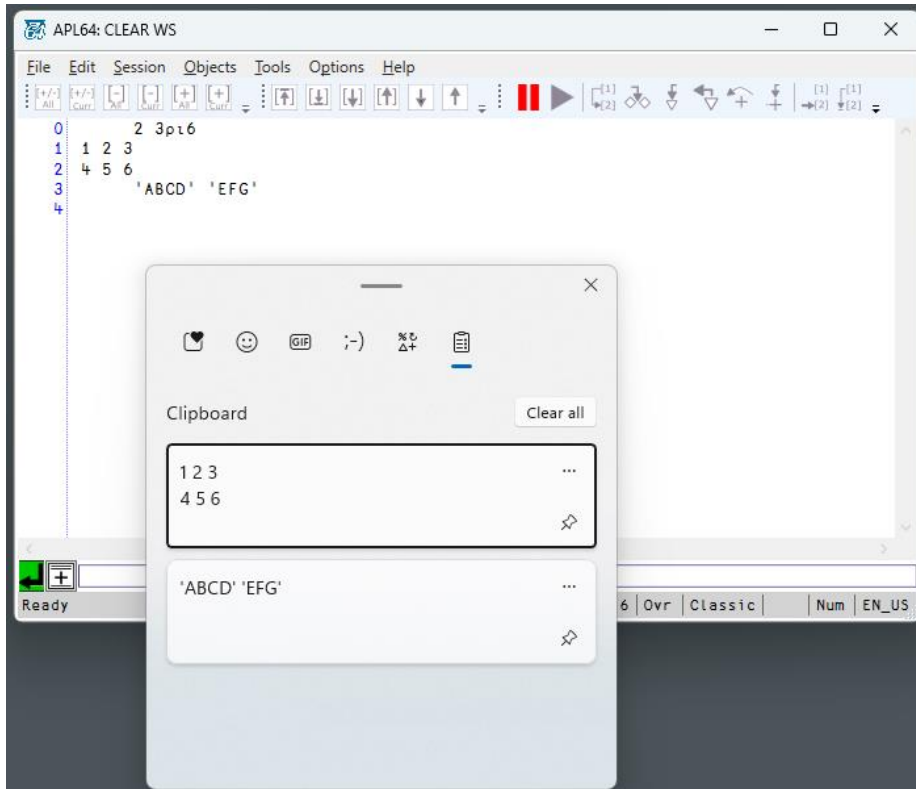


Note: Be sure to read the new System Highlights published in this APL64 version.

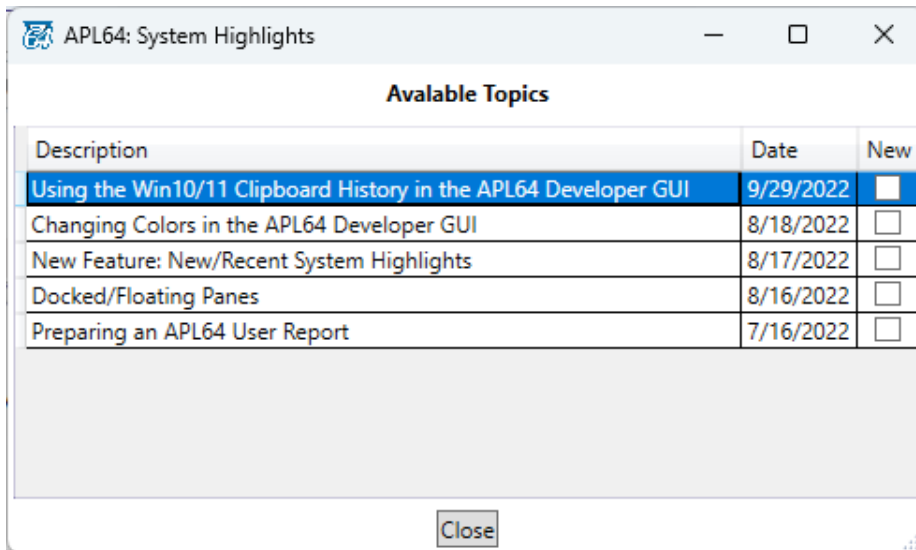
Note: This is an experimental feature in this release of APL64 and is subject to change or be removed in the future as we gain experience and feedback from users.

[Use the Win10/11 Clipboard History in APL64](#)

The Windows Clipboard History is enabled in the APL64 developer version:

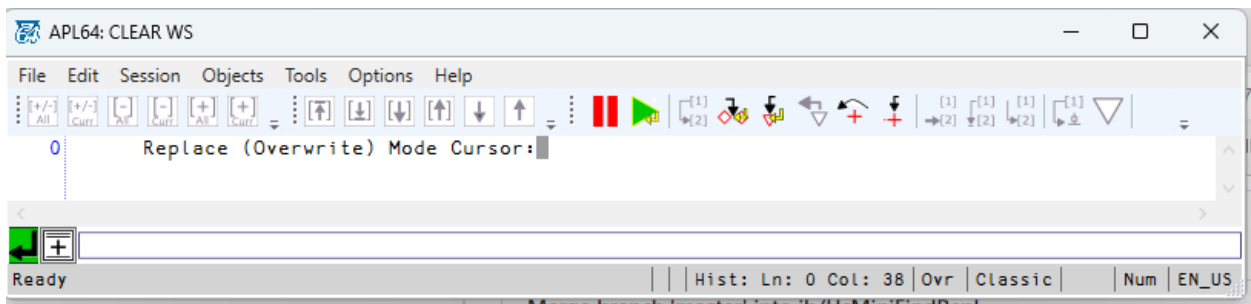
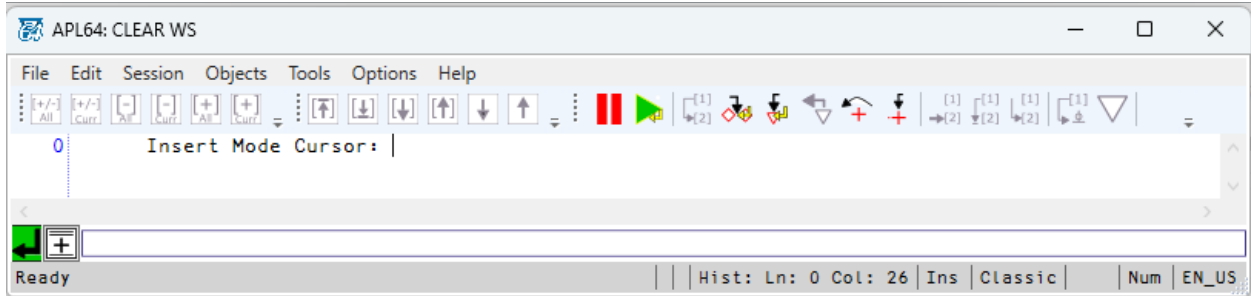


Review the documentation available at [Help](#) | [System Highlights](#) | [Recent System Highlights](#):



Insert/Replace keyboard mode supported in APL64 (case #5696)

Pressing the Insert key on the keyboard toggles between Insert and Replace mode. Each mode has a distinctive caret; thin in Insert mode and thick in Replace (Overwrite) mode. The status line displays "Ins" when APL64 is in Insert mode and "Ovr" when in Replace mode.



Find in Functions in Workspace utility

'Last Fix Date' column added to the filtered list of functions

This new column as well as the pre-existing columns can be sorted (ascending/descending) by double clicking the column header in the **Edit | Find in Functions** in Workspace:

Function Name	Last Fix Date	#Occurs
DATEBASE	1994-08-05T11:28:07.0000000Z	10
FnLine# Function Line Text		
0	R←DATEBASE A;B;C;□IO;□CT	
1	□CT←□IO←0 ◊ R←(3≠1↑pA)p" ◊ R← 1 0 0 /A ◊ B← 0 ˆ693961 ˆ693930 ˆ693902 ˆ693871 ˆ693840	
2	C←400 R←R+1900×R<100 ◊ R←(1↑pA)pB+A-(((100p 1 0 0 0),300p 0 0 0 0 ,96p 1 0 0 0)[C]^E	
DATECHECK	1994-08-05T11:28:07.0000000Z	8
DATEOFFSET	1994-08-05T11:28:07.0000000Z	26
DATEREP	1994-08-05T11:28:07.0000000Z	19
DATESPELL	1994-08-05T11:28:07.0000000Z	65
DAYOFWK	1994-08-05T11:28:07.0000000Z	10
DAYOFYR	1994-08-05T11:28:07.0000000Z	5
DAYSDIFF	1994-08-05T11:28:07.0000000Z	19
DSPELL	1994-08-05T11:28:07.0000000Z	8
FTIMEBASE	1994-08-05T11:28:07.0000000Z	11

#Functions: 25 #Occurs: 427

Find Text in Functions In Workspace

Include Functions Without Matches

Close

Click the Find Text In Functions In Workspace button after functions are added to / removed from the worksp...

Copying a matched function line

All or part of a matched function line may now be copied directly from a selected function in the list:

APL64: Find Text in C:\Users\johnw\AppData\Roaming\APLNowLLC\APL64\...

Scope: Ad SUB String Plain Text

Function Name	Last Fix Date	#Occurs
DATEBASE	1994-08-05T11:28:07.0000000Z	10
DATECHECK	1994-08-05T11:28:07.0000000Z	8
DATEOFFSET	1994-08-05T11:28:07.0000000Z	26
DATEREP	1994-08-05T11:28:07.0000000Z	19
DATESPELL	1994-08-05T11:28:07.0000000Z	65
DAYOFWK	1994-08-05T11:28:07.0000000Z	10
DAYOFYR	1994-08-05T11:28:07.0000000Z	5
DAYSDIFF	1994-08-05T11:28:07.0000000Z	19
DSPELL	1994-08-05T11:28:07.0000000Z	8
FTIMEBASE	1994-08-05T11:28:07.0000000Z	11
FTIMEFMT	1994-08-05T11:28:07.0000000Z	29

#Functions: 25 #Occurs: 427

Find Text in Functions In Workspace

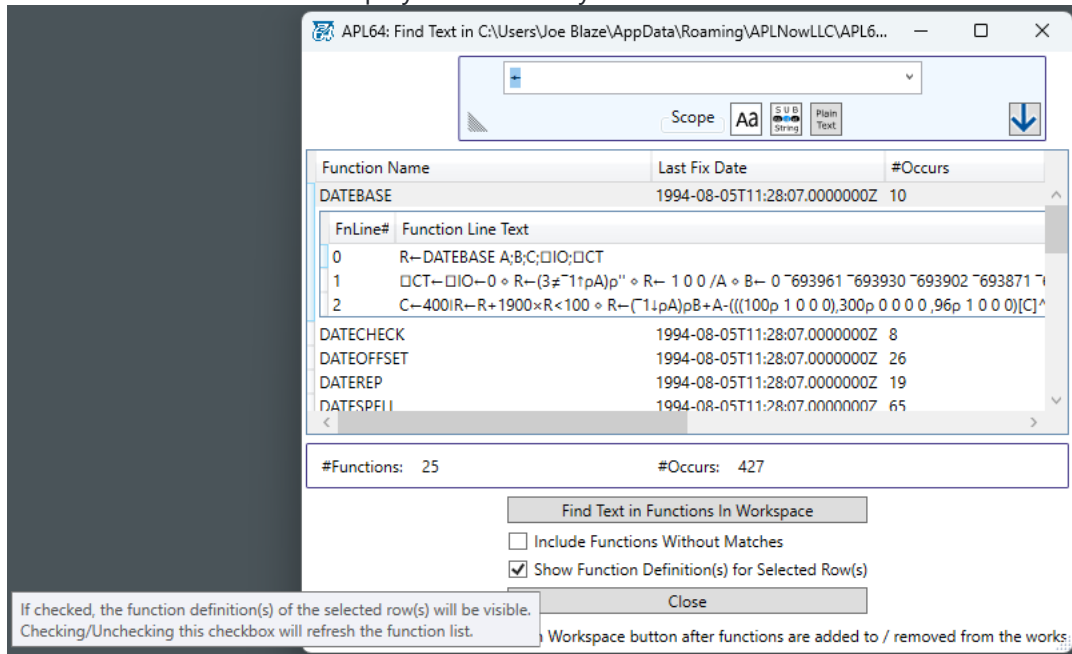
Include Functions Without Matches

Show Function Definition(s) for Selected Row(s)

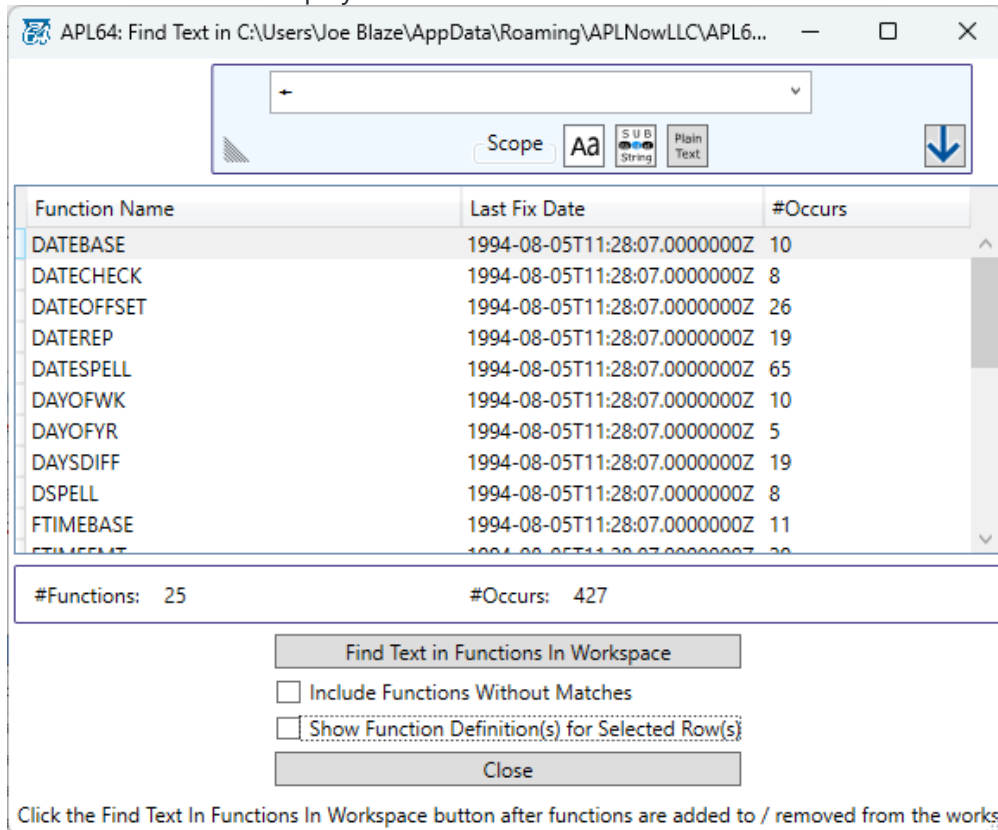
Close

Click the Find Text In Functions In Workspace button after functions are added to / removed from the workspace.

New option is provided to "Show Function Definition(s) for Selected Row(s)" in the function list. For example, when this option is checked and the "DATABASE" row is selected, the DATABASE function definition will be displayed in a line-by-line list below the selected row:

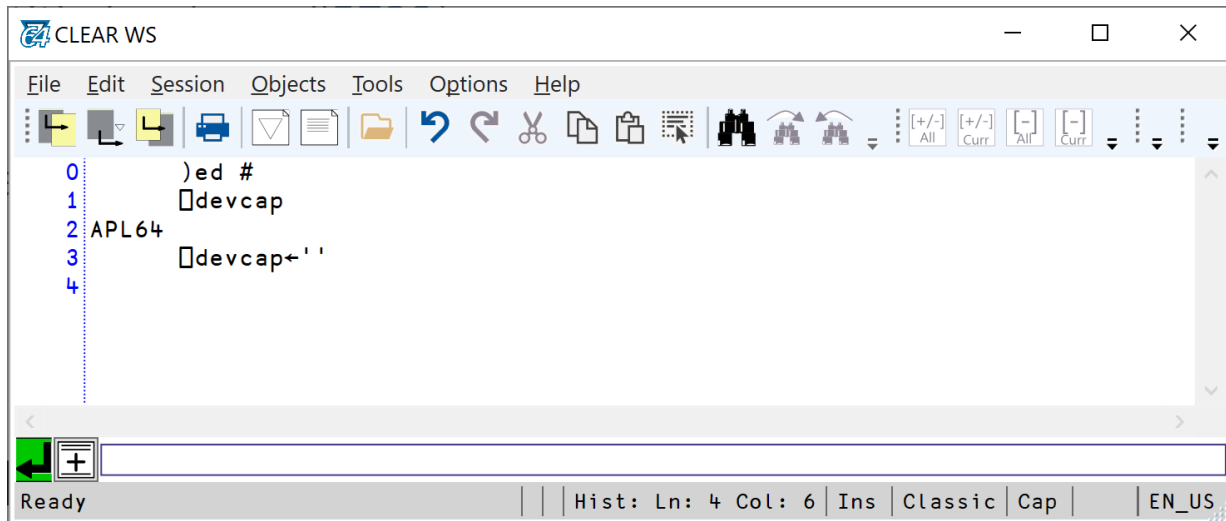


When this option is unchecked and the "DATABASE" row is selected, the DATABASE function definition will not be displayed:



□ devcap set to an empty vector

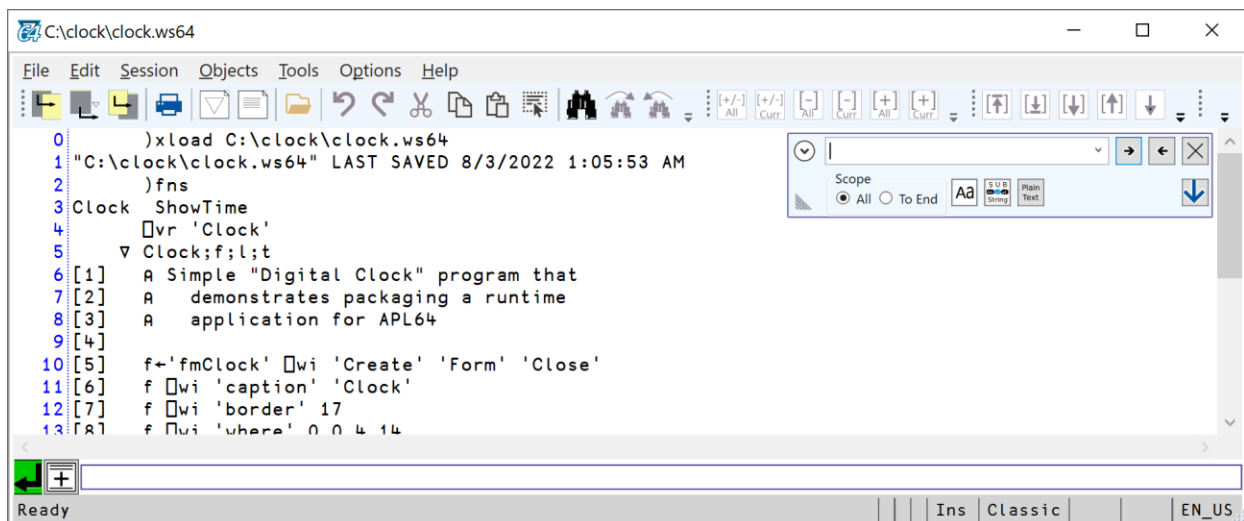
Assigning □ devcap to an empty vector now displays just the name of the workspace in the APL64 session title bar (case #5732)



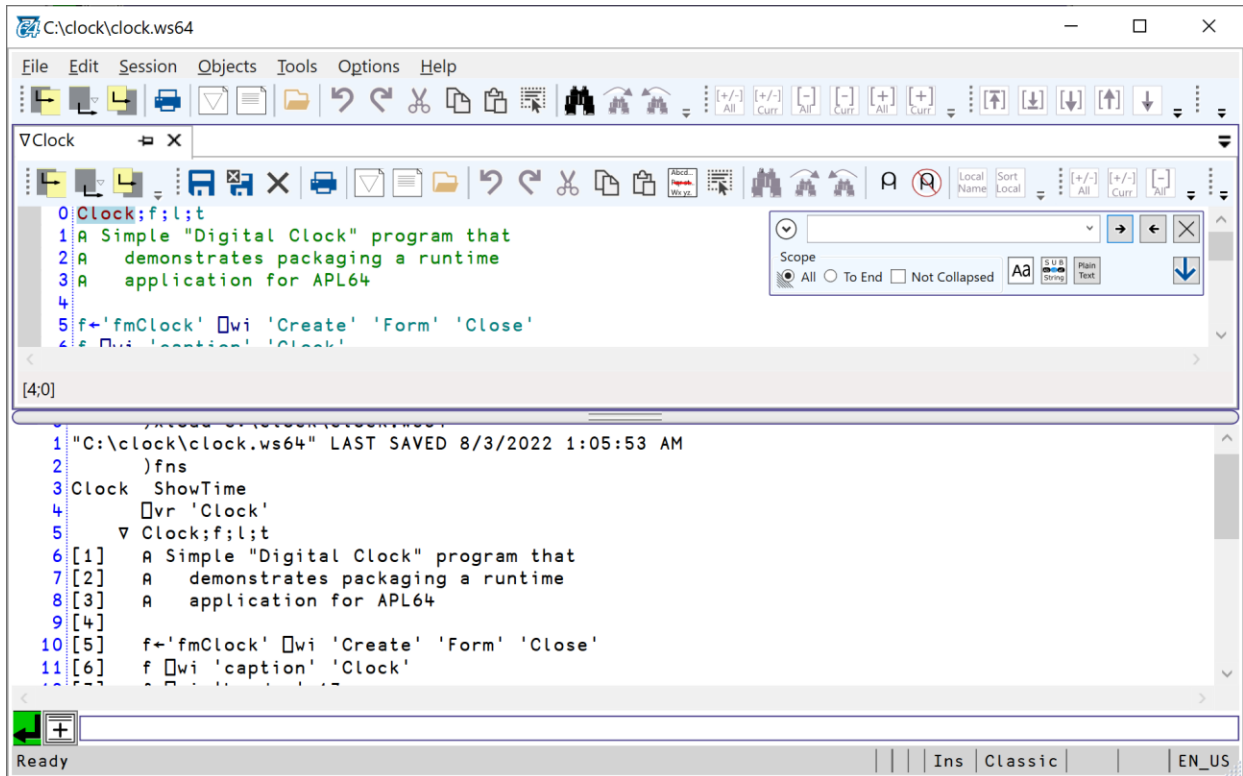
The Find/Replace Tool replaces the Find/Replace dialog

The Find/Replace tool is now embedded in the History/Editor pane and no longer a separate floating window as in the previous version of APL64. The arrow located in the bottom right corner of the Find/Replace tool optionally places the tool in the upper right or lower right corner of the History/Editor pane. This modification enables the simultaneous display of the Find/Replace tool and the content of any docked or floating pane.

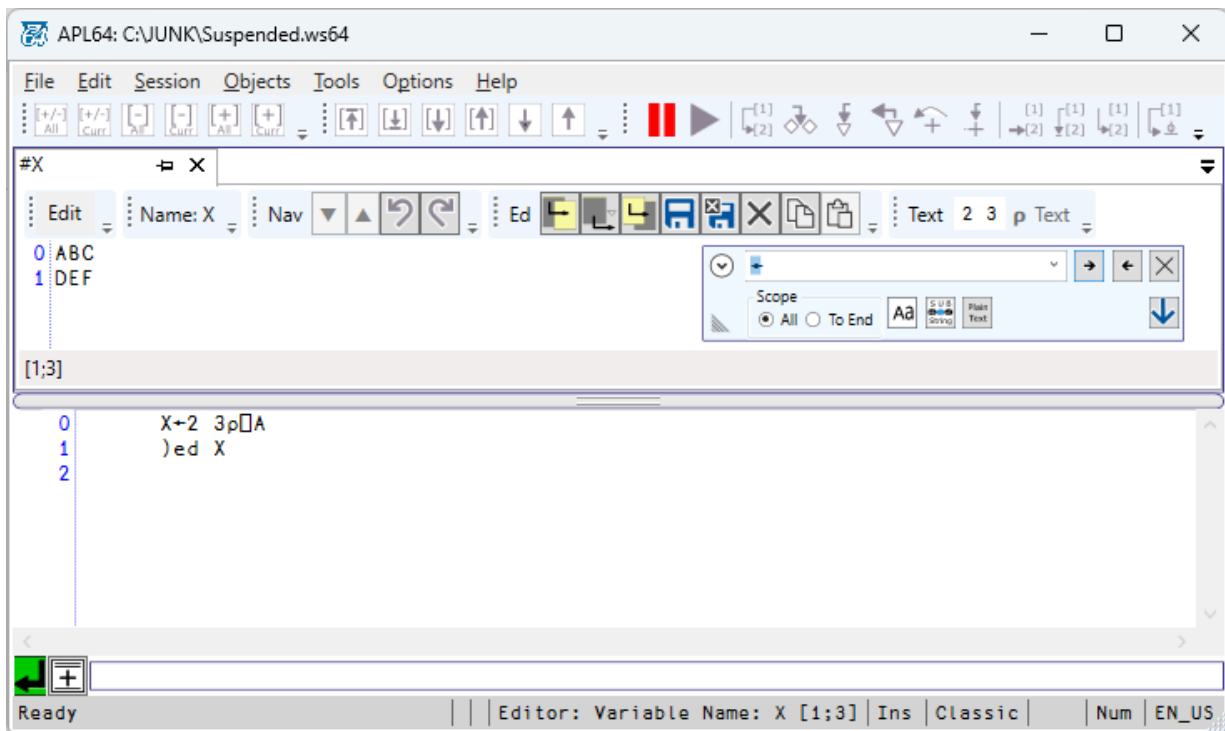
In the editable classic history:



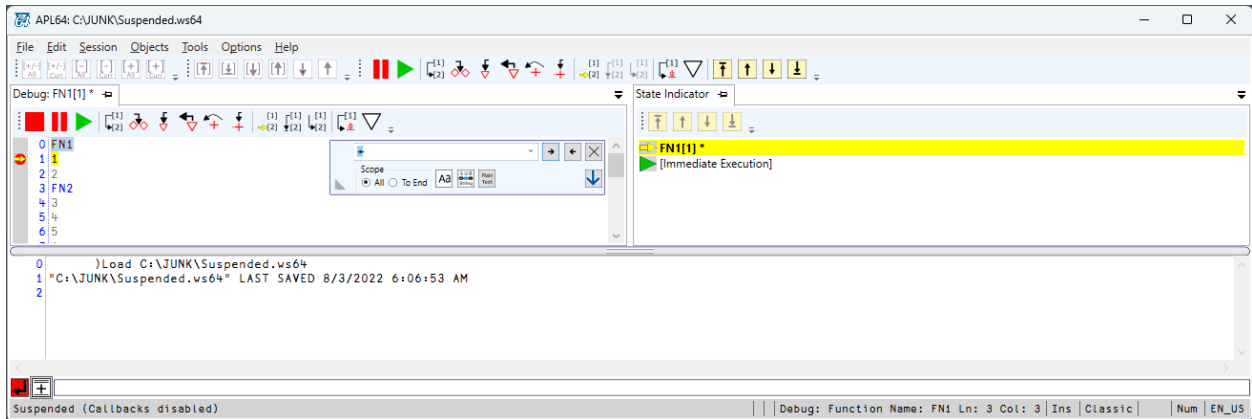
In the function editor:



In the pure text, rank < 3 editor:



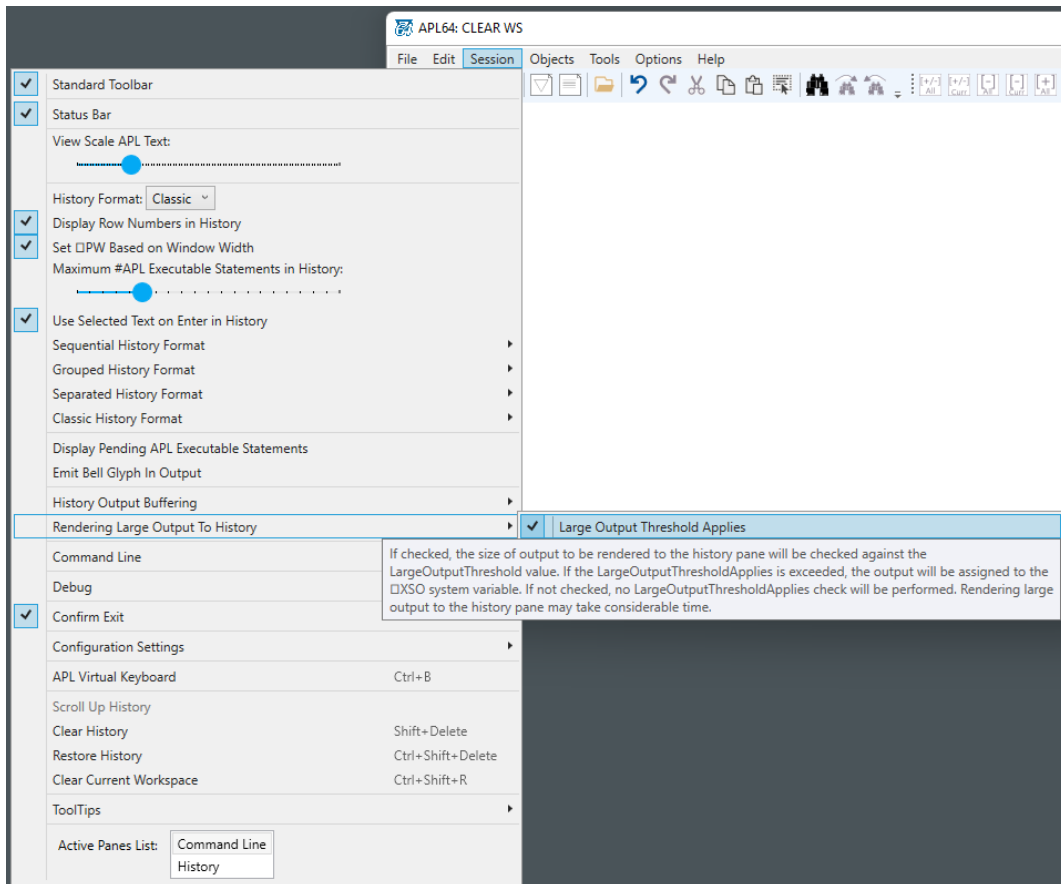
In the debugged code pane:



Rendering Large Output to History and xso System Variable

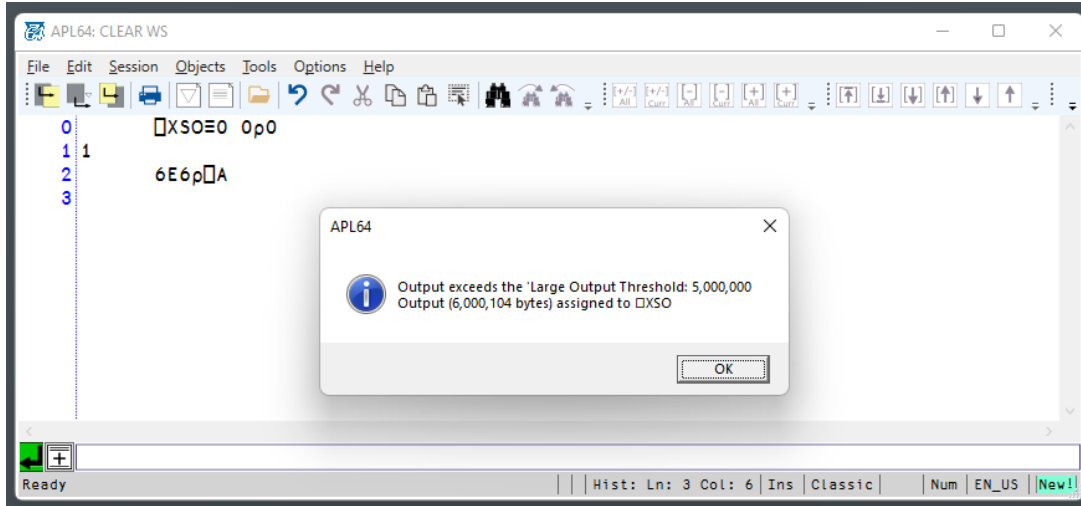
Very large variable sizes are possible in APL64 but formatting the values and rendering these values to the history pane may not be useful. A more practical approach is to assign the values to an APL64 variable and use the numerous APL features to reduce, format and render the data to the history pane in a form conducive to human analysis.

It is easy to forget that large data being prepared in APL64 would take considerable time to format and render to the history pane. If desired, to avoid such a delay, the APL64 Developer version user can take advantage of the **Session | Rendering Large Output to History** menu options:



When the **Session | Rendering Large Output To History | Large Output Threshold Applies** is checked, the **Session | Rendering Large Output To History | Large Output Threshold** in units of 1E6 bytes will be used. If the size of the output to be formatted and rendered to the history pane exceeds the Large Output Threshold:

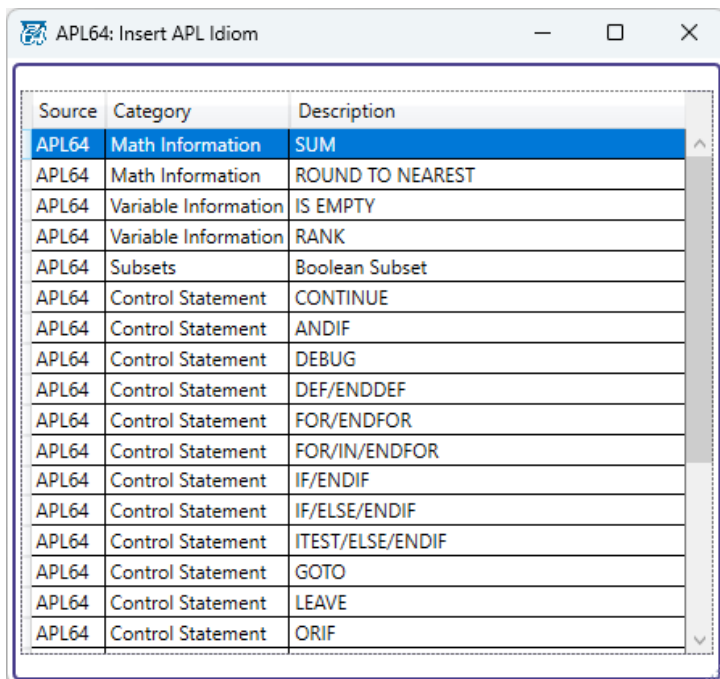
- A message will be presented indicating that the Large Output Threshold has been exceeded
- The output, prior to formatting, will be assigned to the `⊠XSO` system variable



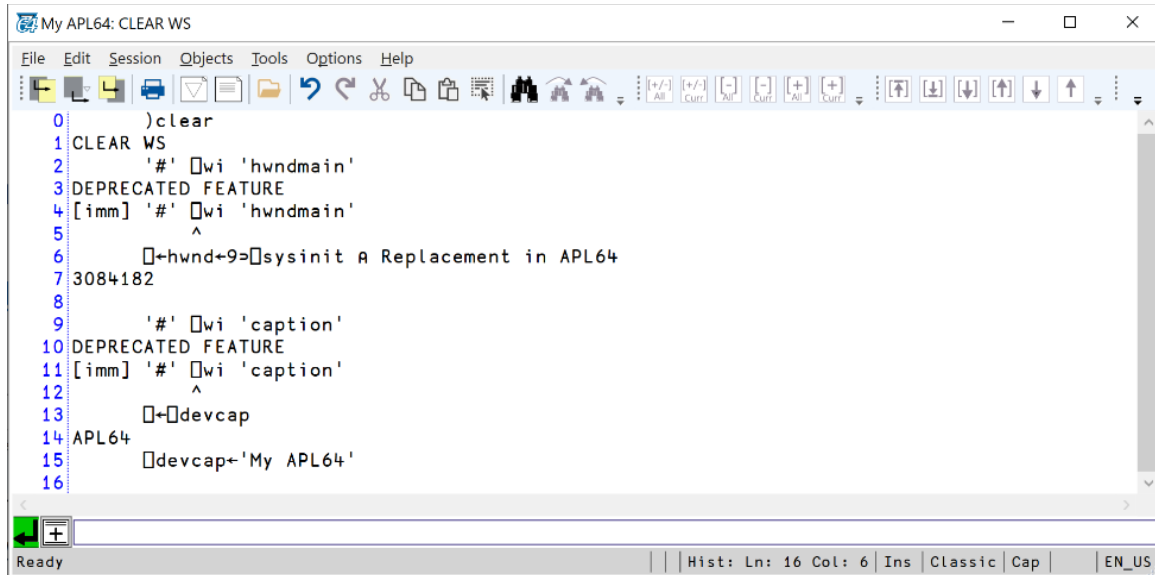
Review the detailed documentation of this feature at [Help | Developer Version GUI | Rendering Large Output to the History](#).

Insert APL Idiom dialog is now not modal

Use **Edit | APL Idioms | Insert an APL Idiom...** to present this dialog:



The caption and hwndmain properties for the `⎕wi` System object (#) are deprecated. The result is that they now return the message **DEPRECATED FEATURE**. Refer to the property names in the [Help | APL+Win Compatibility | Windows GUI Reference](#) menu for the recommended replacement system functions, `⎕devcap` and `9⇒⎕sysinit`.



```
0:      )clear
1: CLEAR WS
2:      '#' ⎕wi 'hwndmain'
3: DEPRECATED FEATURE
4: [imm] '#' ⎕wi 'hwndmain'
5:      ^
6:      ⎕←hwnd←9⇒⎕sysinit A Replacement in APL64
7: 3084182
8:
9:      '#' ⎕wi 'caption'
10: DEPRECATED FEATURE
11: [imm] '#' ⎕wi 'caption'
12:      ^
13:      ⎕←⎕devcap
14: APL64
15:      ⎕devcap←'My APL64'
16:
```

New menu: [Objects | Editors Pane Format | Shrink Editor Area When All Editors Are Floated \(case #5203\)](#)

When this option is checked, the editor's area will shrink to increase the main window area available to the history pane when all editors are floated.

New menu: [Objects | Debug | Shrink Debug Area When Debug & SI Panes Are Both Floated \(case #5203\)](#)

When this option is checked, the debug area will shrink to increase the main window area available to the history pane when both the Debug and SI Panes are floated.

Bug Fixes

APL64 didn't suspend: STOP set on line[1] of a function that is a comment line (case #5224)

APL64 didn't suspend: STOP set in a subroutine that were commented lines (≥ 1) (case #5043)

The link between APL64 and APLNow32 may become broken or display "Not responding" in the Form caption while the application was running (case #5774)

it 'SymbolTable'/'AuditRefcunts': "APLNow32 is closing due to an unrecoverable error." (case #5395)

:return novalue: "NONCE ERROR: Exec XNonce : Code.Wae.XQDNOVALUE() not implemented" (case # 5730)

novalue is implemented in this release of APL64.

Double right clicking a function[line] in the APL History did not always open the function with the caret on the correct line (case #5637)

Under specific circumstances, the command **jed object** opened the object in a floated editor for a fraction of a second and then hid it behind the APL64 session (case #5660)

This issue could have been duplicated only if:

(a) **Objects | Editors Pane Format | Layout** was user-selected as Editors Floated and

(b) The interpreter state was suspended and

(c) The Debug was set to Automatically Show/Hide Debug Pane

System functions a, al, d were incorrectly documented as system variables (case #5729)

WEVENT may have contained the wrong value and/or WARG may be empty when something happened to change the focus from the GUI form to the APL64 session (case #5692)

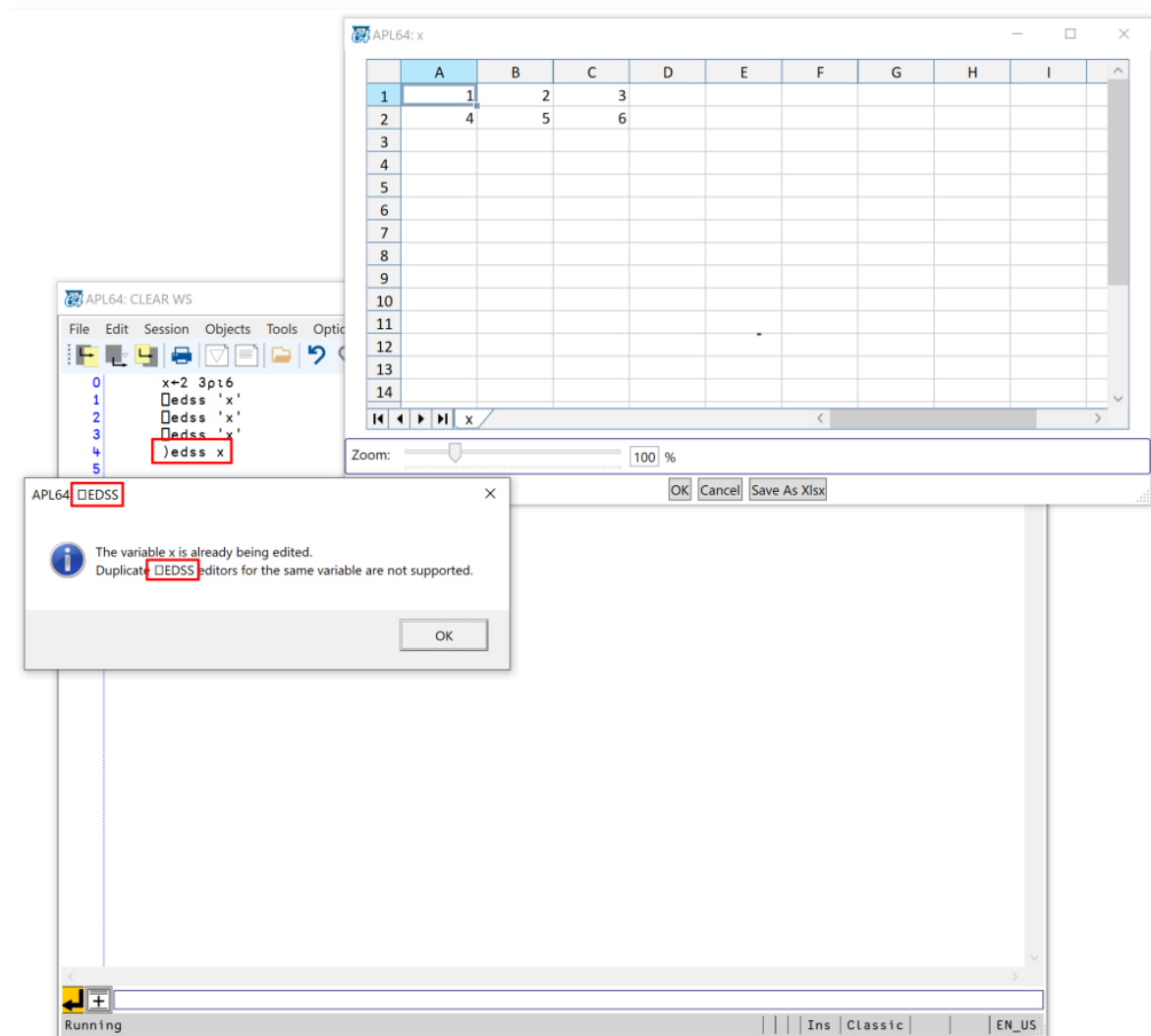
0~0 and 0i0: SYSTEM ERROR:Exception: Index was outside the bounds of the array (case #5761)

The APL expression ?5p<10 6p1000 returned with a DOMAIN ERROR (case #5767)

□MATRIFY " incorrectly returned 1 0p" when 0 0p" was expected (case #5758)

□edss cited in warning dialog for)edss with variable already being edited (case #5830)

Example,



Tooltips were not showing for the Debug Pane toolbar (case #5168)

The toolbar images in the Debug Pane are now enabled when debugging is started.

Mousing over the APL64 icon in the Windows Taskbar didn't display the preview panes for the floating editors and Debug/SI panes (case #5205 and #5322)

Re-opening a function editor after it was maximized then restored (unmaximized) then closed did not correctly remember its size and location (case #5650)

Updates to the APL64 `⎕wi` system function should improve the display speed of APL GUI forms and controls

The command `'I512' ⎕FMT 14192255` set `⎕wa` system function to 0 (case #5448)