

Function Editor: Compare Format

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APL64 Function Editor

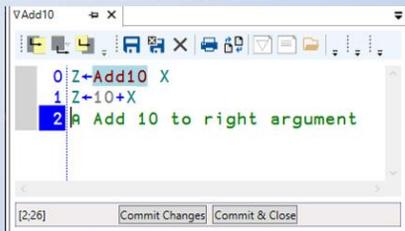


Function Editing History Retained:

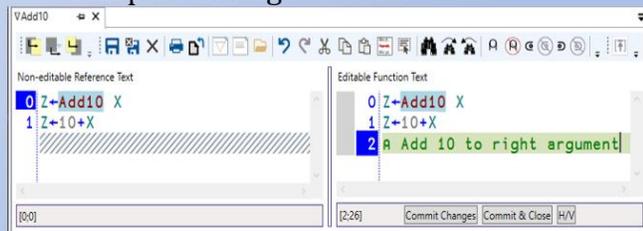
- Prior & current edits retained when function is saved
- Prior function edits available in subsequent editor instances
- Prior function edits retained across APL64 'sessions'
- Prior function edits accessible using Undo/Redo actions

Two available function editor formats:

Traditional Format



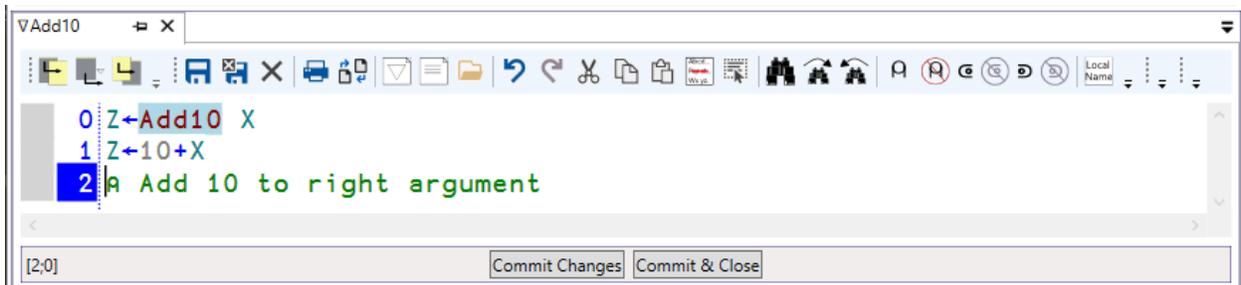
Compare Changes Format



Traditional and Comparison Formats of the Function Editor

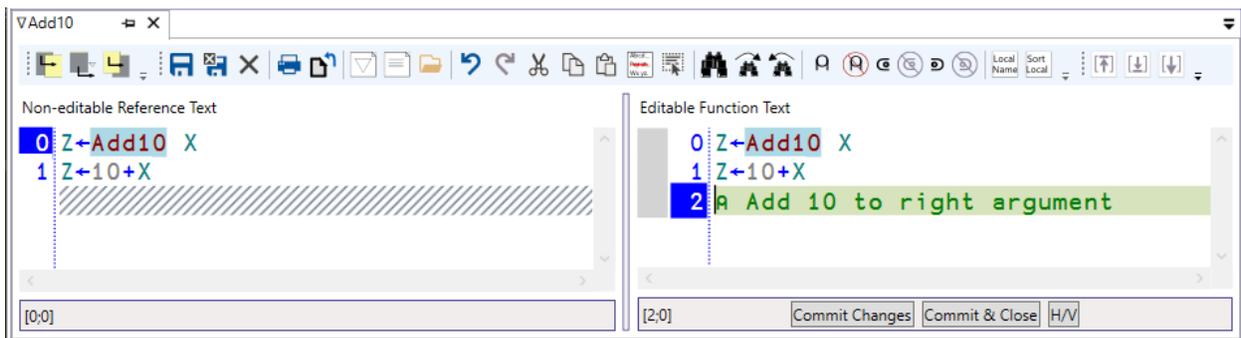
When editing an APL64 programmer-defined function, there are two editor formats available:

- Traditional format illustrates the current edited text of the function:



- Compare Format illustrates:

- The reference text of the function since the most recent 'Commit Editing Changes' action
- The current edited text of the function



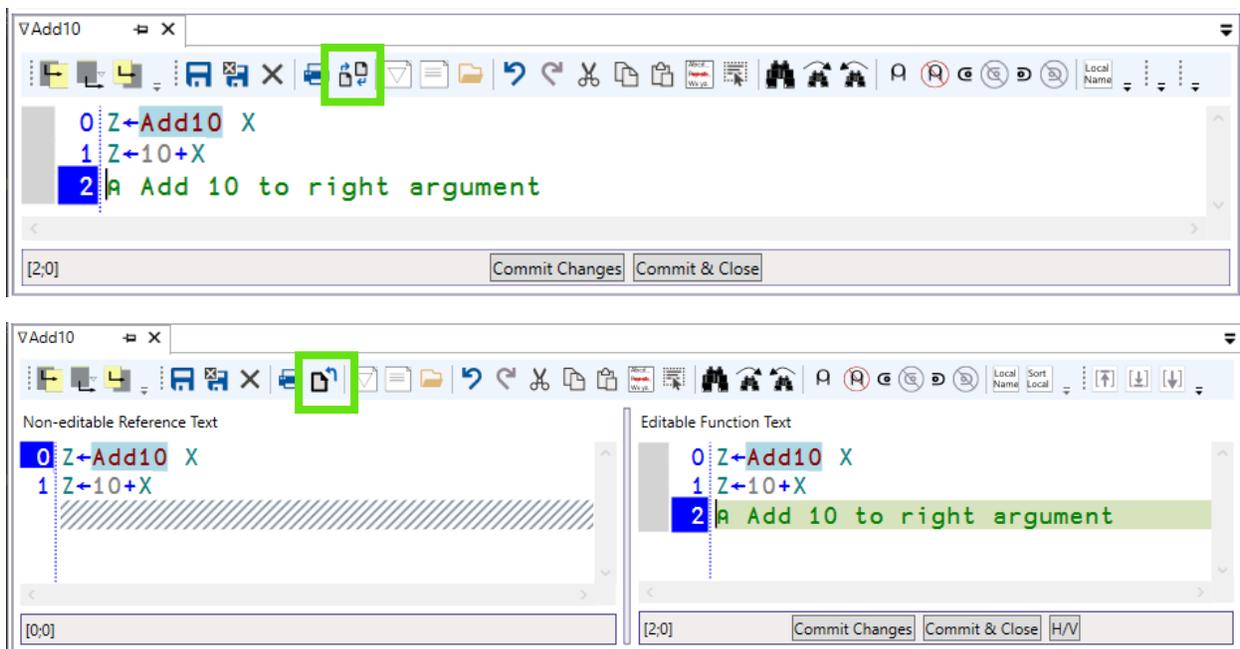
Function Editing Change Records

The function editing changes made by an APL64 programmer to an APL64 programmer-defined function are retained within the function definition when the function is saved in the workspace:

- The prior function editing change records are available via the Undo/Redo action when the function is subsequently edited using the traditional or comparison format of the APL64 function editor.
- Function editing change records are retained from the initial function definition or the most recent 'Commit Editing Changes' action.
- Function editing change records are retained for subsequent APL64 developer version instances.

Selecting the Function Editor Format

The comparison and traditional function editor formats are selected when an APL64 programmer-defined function is edited in an APL64 developer version instance by clicking the editor format toggle button:



Traditional Function Editor Format

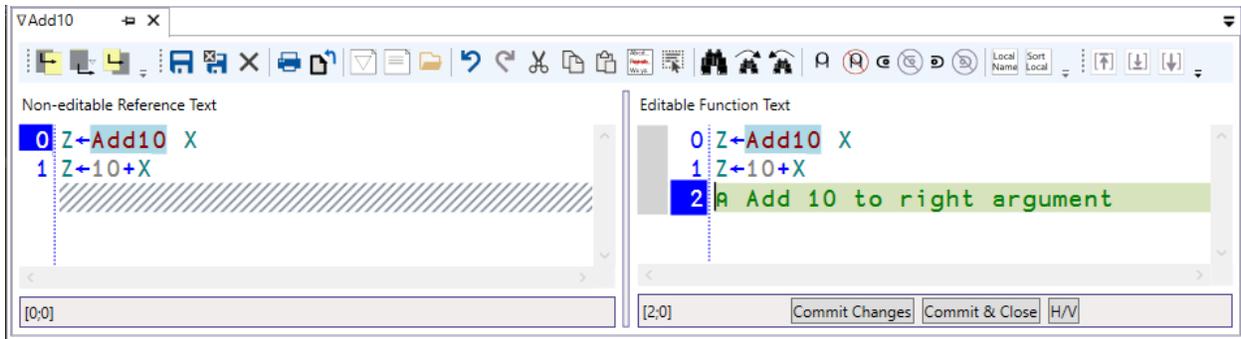
The traditional function editor format provides all the editing features familiar to APL64 programmers.

Previously retained function editing change records are available in the traditional function editor format using the Undo/Redo actions.

Compare Function Editor Format

The 'Editable Text' pane of the compare function editor format is identical to the traditional function editor format.

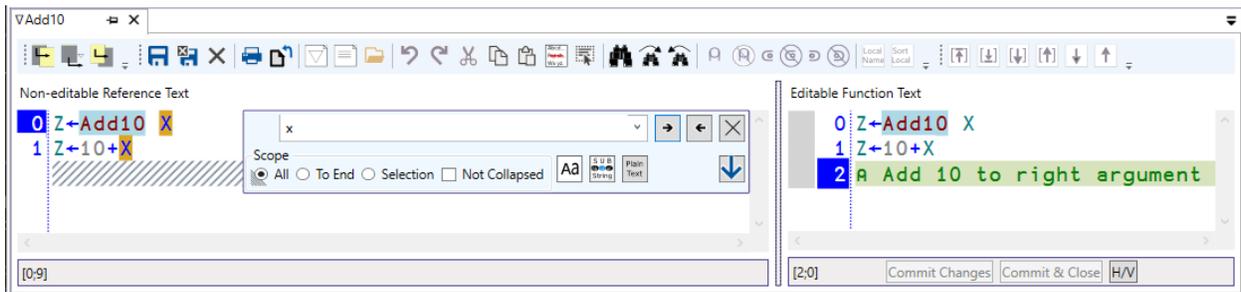
Features, such as menu and toolbar button actions, are selectively available for both panes of the compare function editor format. The enabled function editor actions depend on the placement of the keyboard focus in the reference text or editable text panes of the compare format of the function editor.



Reference Text

The non-editable reference text is the function text before the function editing changes in the [Function Editing Changes Record](#) are applied. This text can be selected and copied to the Windows Clipboard.

This text can be searched using find dialog, when the keyboard focus is in the reference text pane. For example, with the keyboard focus in the 'Non-editable Reference Text' pane, use the Ctrl+F keyboard short-cut to display the Find dialog:



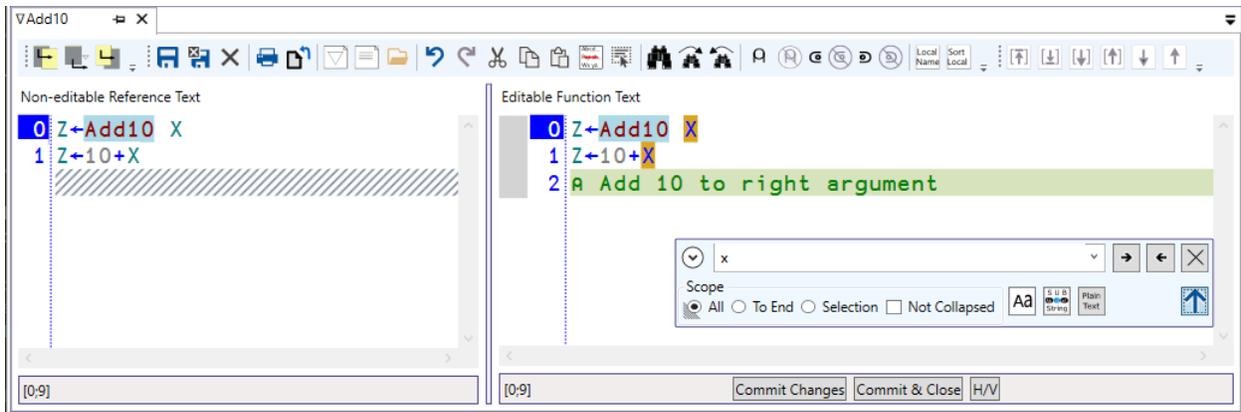
When editing a function which has no saved prior editing changes, the Reference Text will be the same as the Editable Text.

Editable Text

The 'Editable Text' pane of the compare format of the function editor provides the same design and features of the traditional format of the function editor.

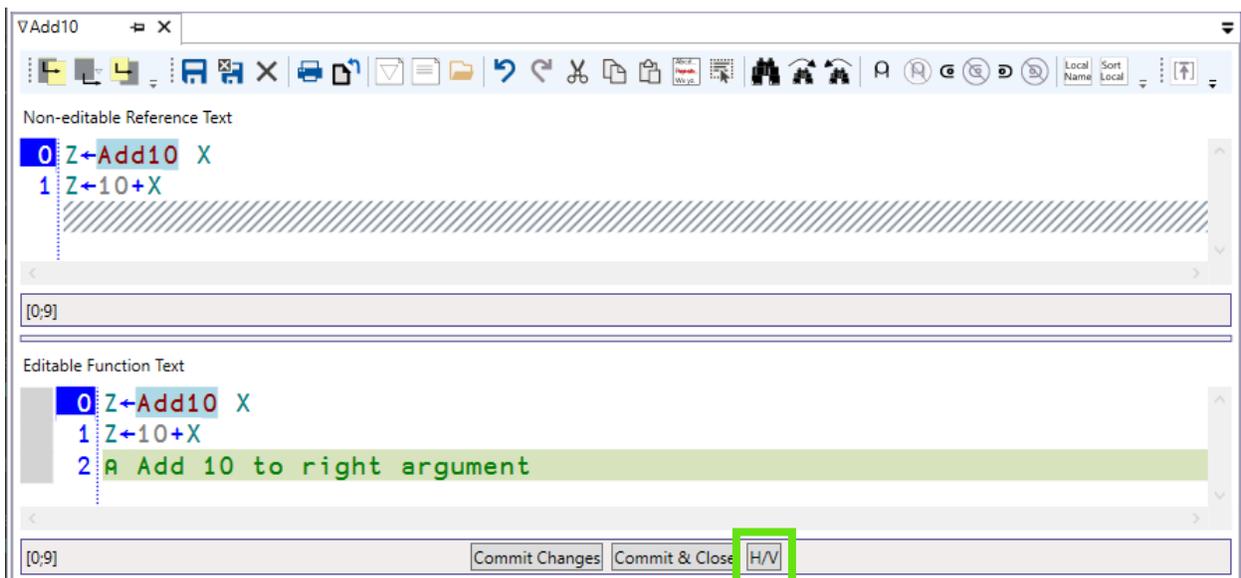
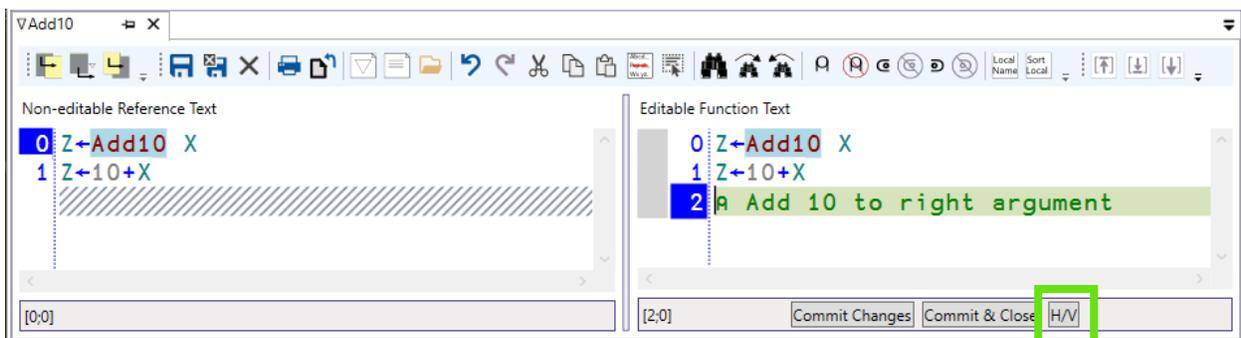
The editable text is the text of the current function state in the editor. This function state incorporates all prior function editing changes in the Function Editing Changes Record for the function, plus any additional APL64 programmer editing changes made while the function editor is displayed.

This text can be searched using find dialog, when the keyboard focus is in the editable text. For example, with the keyboard focus in the 'Editable Text' pane, use the Ctrl+F keyboard short-cut to display the Find dialog:



Horizontal or Vertical Pane Orientation

Click the horizontal/vertical toggle button to switch the pane orientation in the compare format of the function editor. Vertical and horizontal splitter bars are available.

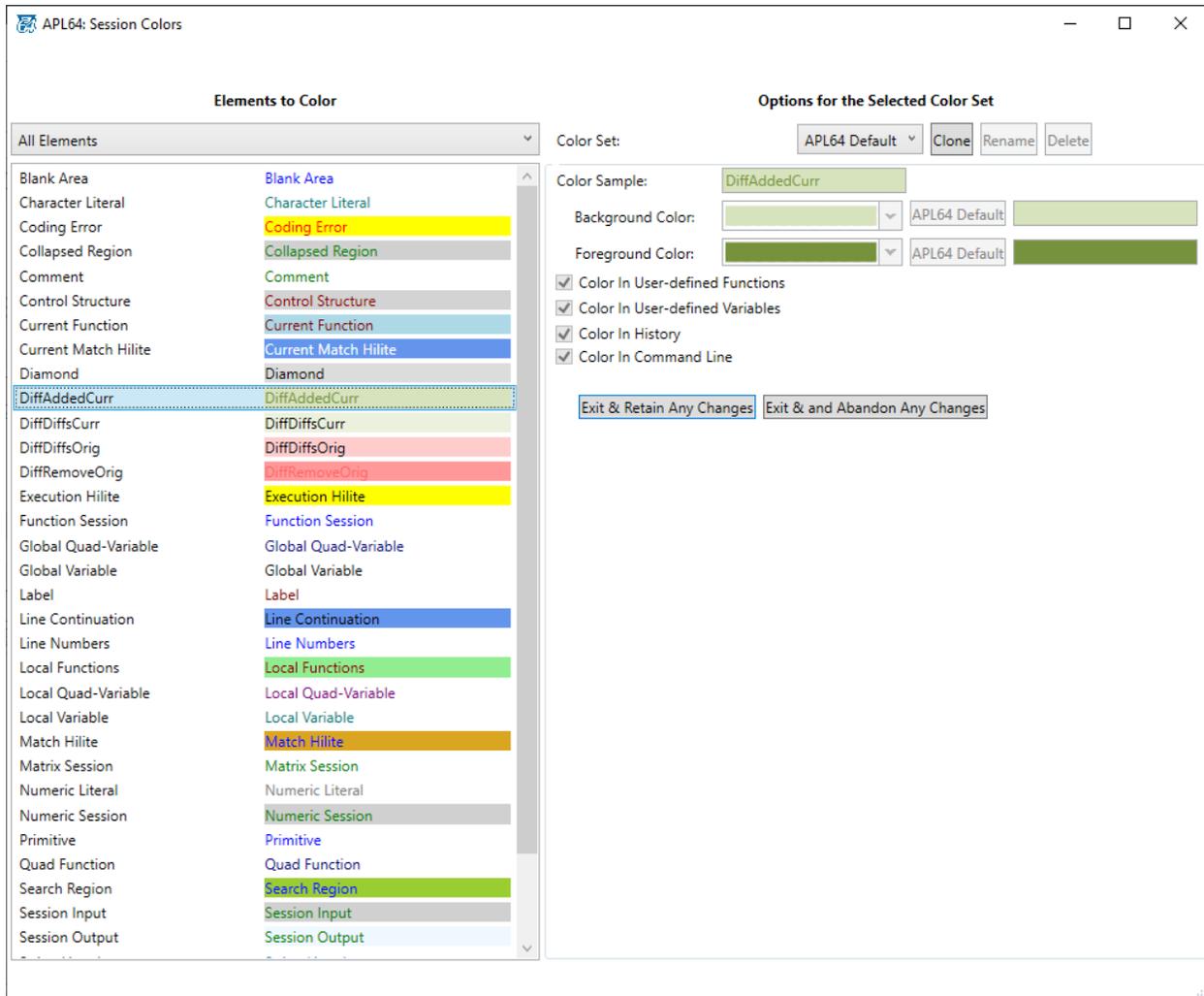


Color Highlighting of Editing Changes

The compare format of the APL64 function editor uses background highlighting, foreground text color, and graphic effects to indicate user editing changes to the editable text pane.

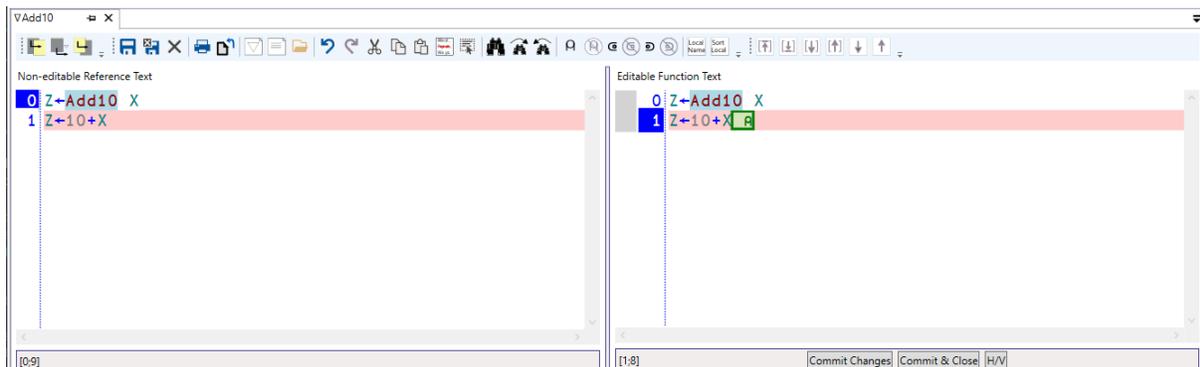
Highlighting Colors

Highlighting colors for editing changes in the compare format of the APL64 function editor are maintained in the **Diff*** color elements in the Session Colors window using the **Options | Colors** menu item:



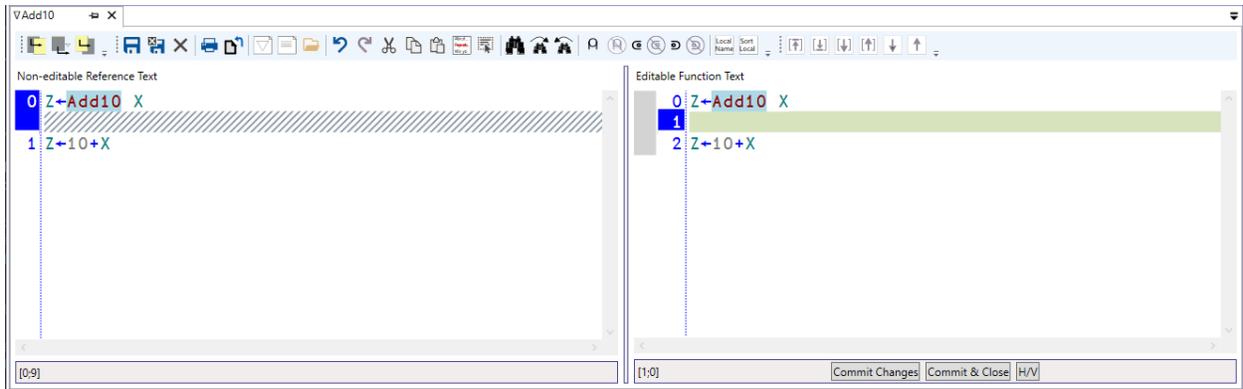
Character(s) Inserted into an Existing Line

The reference text line and the editable text lines containing the inserted characters are background highlighted and the inserted characters in the editable text are 'boxed' and contrastingly colored.



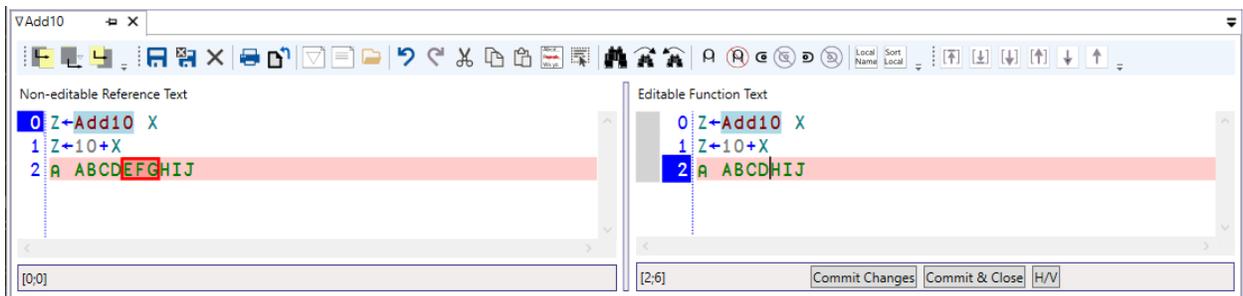
New Line(s) Inserted

'Imaginary' lines are inserted into the reference text and the inserted lines are background highlighted in the editable text.



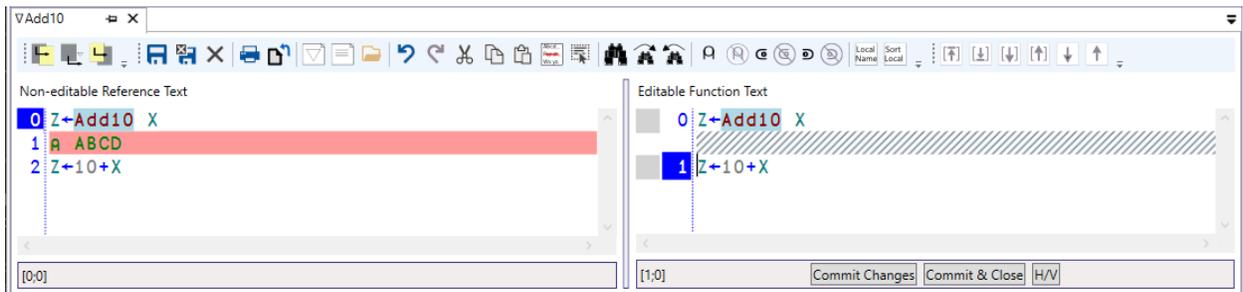
Deleting Character(s) from an Existing Line

The reference text line and the editable text lines containing the deleted characters are background highlighted and the inserted characters in the reference text are 'boxed' and contrastingly colored.



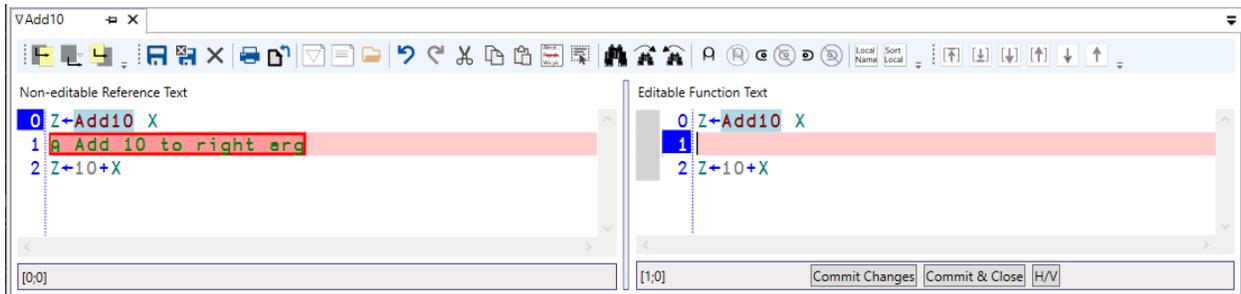
Deleting Existing Line(s)

The deleted line(s) in the reference text are background highlighted and the deleted line(s) in the editable text are replaced with 'imaginary' lines.



Deleting all Text on a Line

The reference text line where all text was removed is background highlighted and the deleted text is contrastingly colored. The editable text line where all text was removed is background highlighted and the deleted text is 'boxed'.



Commit Editing Changes

When the 'Commit Changes' or 'Commit & Close' button is clicked, prior and current function editing change records will be consolidated into a single record.

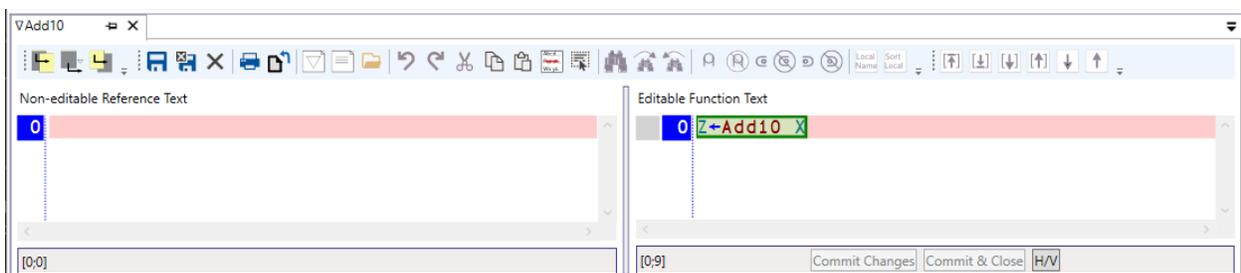
- Function editing change records for edits prior to the current function text state are no longer retained.
- The commit action does not modify the editable function text.
- The commit action sets the non-editable reference text to the editable function text.
- Function editing changes made prior to the most recent commit changes action are no longer saved in the Function Editing Changes Record for the function
- The reference text is set to the editable text
- The undo action in the editable pane will apply only to subsequent programmer edits made after the commit action is used.
- These commit actions save the function to the workspace.
- These commit actions cannot be undone.

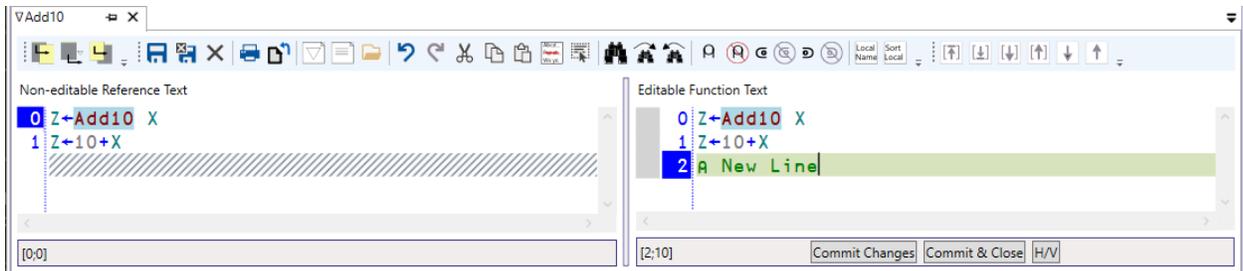
By using the commit action, the programmer has decided that all current and prior edits are to be considered final.

Programmer edits made in a function editor instance after the commit action is used will be saved as function editing change records in the function definition.

Commit Editing Changes example

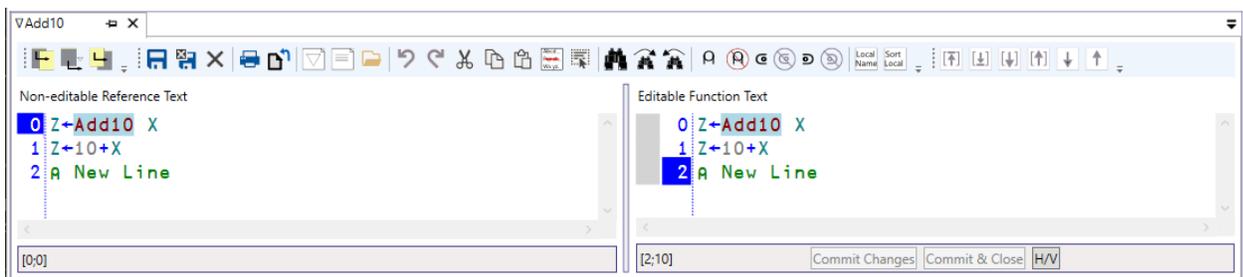
Create a new function and observe that the Non-editable Reference Text is empty:





If this function is saved, a Function Editing Changes Record will be created and saved. This record will contain all the changes necessary to modify the empty 'basis' function text to the Editable Text. When this function is edited, in the current or a subsequent APL64 developer version instance, these changes will be available using the Undo/Redo actions.

Now click the 'Commit Changes' button, and observe that the reference text matches the editable text and the 'Commit Changes' and 'Commit & Close' buttons are disabled:



The Commit Editing Changes action replaces the previous Function Editing Changes Record for the function with a new record which indicates that the basis for further function editing changes will be the Editable Text of the function rather than the empty function text. This new record contains the 'basis' function text, but no function editing changes because the basis function text is the current function text.

Function Editing Change Records

Function editing change records for an APL64 programmer-defined function contain changes made to the function. Function editing change records are retained in the function definition saved in the workspace.

The scope of the function editing change records includes all function editing changes made using the APL64 function editor since the most recent 'Commit Editing Changes' action. If no 'Commit Editing Changes' action has been invoked, the function editing change records extend backwards to the creation of the function.

Function Editing Changes Records persist between instances of the APL64 Developer version.

Function editing change records for a function are updated when:

- The function is saved to the workspace in the function editor
- The 'Commit Editing Changes' action is used in the function editor
- The APL64 `DEF`, `DEFL`, `FX` and `EDITEVENTS` system functions modify the function in the workspace
- A function is 'auto-saved' while the function is being edited in the editor

- A function is restored from an 'auto-saved' function definition
- A selected version of the function is edited from the Function Editing Change Records dialog
- APL64 load, save, and copy

The APL64 VR and CR system functions return only the current text of the function in the workspace.

Function editing change records may be retained in a saved function definition as long as desired by the APL64 programmer. The 'Commit Editing Changes' action in the comparison format of the function editor, clears the prior function editing change records and creates a single new function editing change record indicating the current function text in the editor.

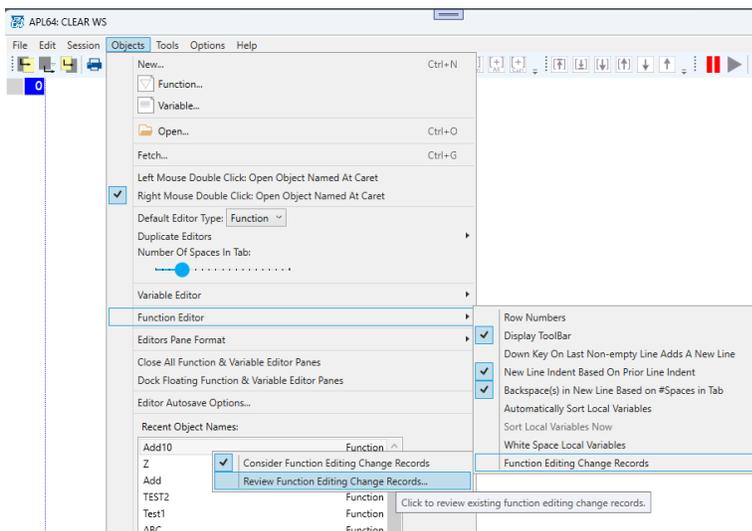
Retained function editing change records can increase the size of an APL64 programmer defined function saved in an APL64 workspace. Use the 'Commit Editing Changes' action of the APL64 function editor to retain editing history only as long as necessary to maintain minimum function definition size.

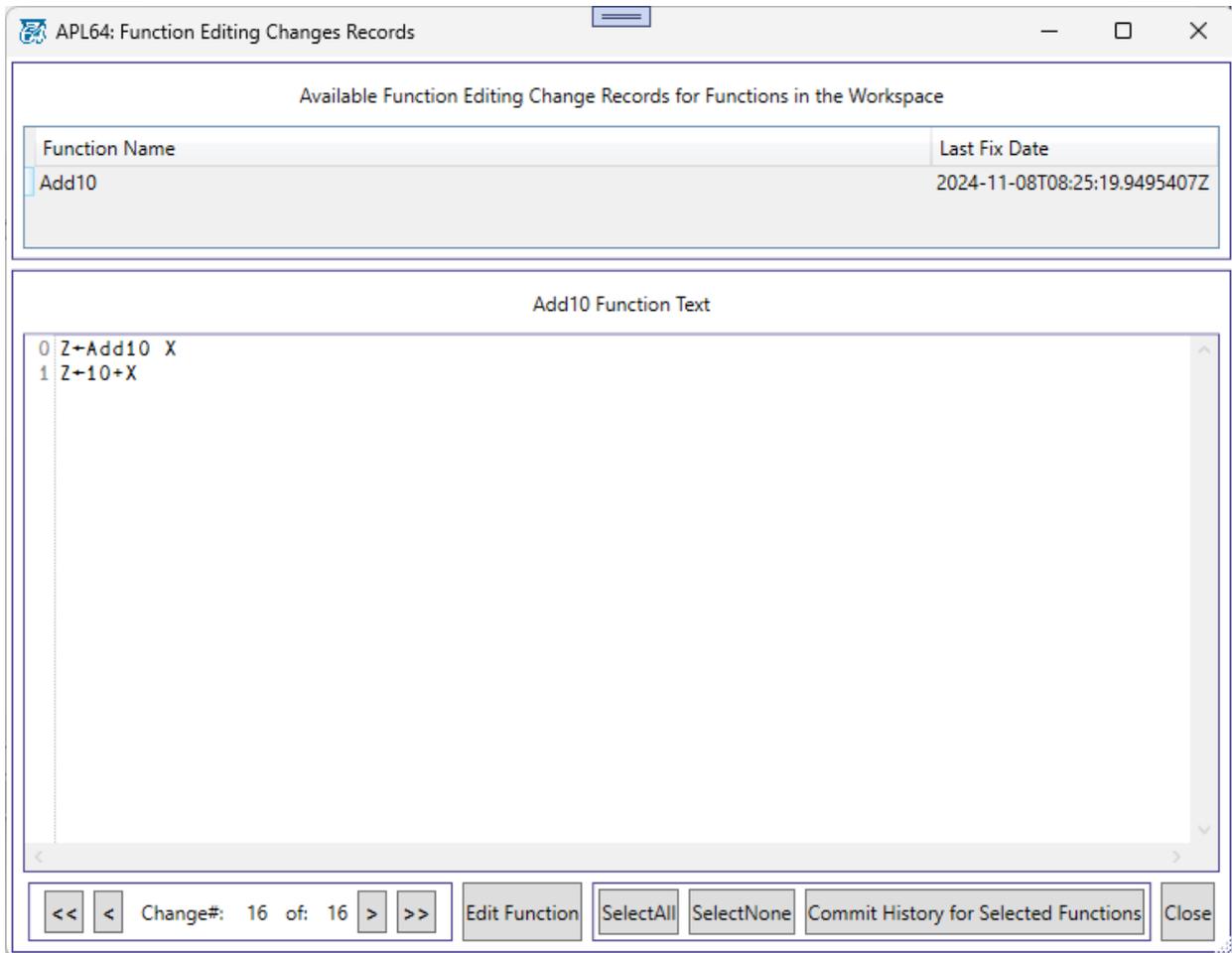
The execution performance of an APL64 programmer defined function is not materially affected by retained function editing history in the function definition.

Review Function Editing Change Records

Function Editing Changes Record Dialog

The Function Editing Change Records for a function in the workspace may be reviewed using the **Objects | Function Editor | Function Editing Change Records** menu item:





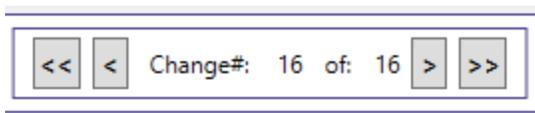
The function editing change records dialog presents a list of functions in the workspace with existing function editing change records. When a function name in the list is selected, the current function text from the associated function in the workspace is presented in the function text box.

This function text in the function text box is not editable. The function text may be copied to the Clipboard.

Functions in the workspace which do not have function editing change records are not listed in this dialog. For example, functions with committed editing changes and no subsequent editing changes are not listed.

Editing a Selected Function Editing State

Since function editing change records have been saved in the function's definition, the APL64 programmer can display the effects of those changes in the function text box, by clicking the remove or apply change buttons. The desired function state may be selected using the remove or apply change buttons.



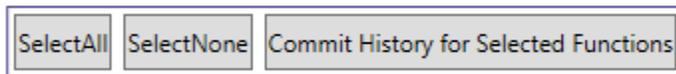
The '<<' button action reverts all the changes back to earliest saved function text state. The '<' button action reverts the current change. The '>' button action applies the next change. The '>>' button action applies all available changes.

Clicking the Edit Function button after selecting the desired function state will:

- Present an appropriate prompt with APL64 programmer options if an APL64 object with the same name is already being edited
- Close the Function Editing Changes Records dialog
- Open an APL64 function editor using the desired function state text
- Put the keyboard focus in that function editor

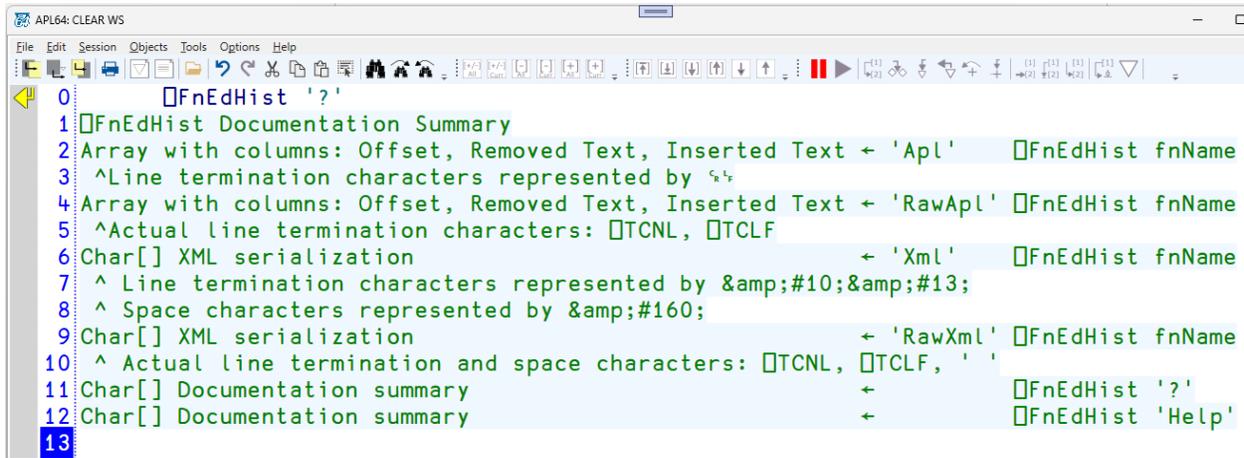
Commit the Editing History for Multiple Functions

Multiple items in the list of functions may be selected using Ctrl+Click, Ctrl+Shift+Up/Down, and the Select All and Select None options. Clicking the Commit History for Selected Functions will perform the Commit Changes action for the selected functions. After the history is committed for a function, it will be saved to the workspace without the editing change records and the function will no longer be listed in this dialog.



FnEdHist System Function

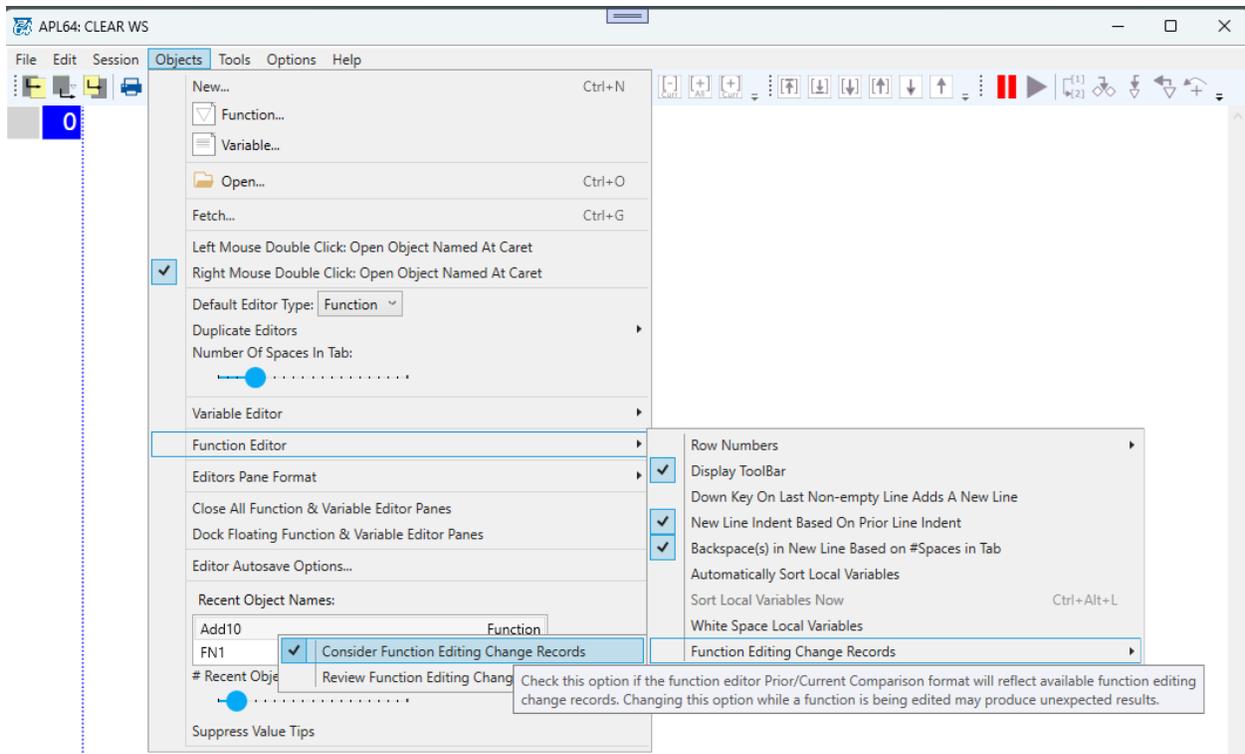
Function editing history can be captured as an APL nested array or an XML document using the FnEdHist system function. Refer to the APL64 [system functions documentation](#) for details.

A screenshot of the APL64 CLEAR WS editor window. The window title is 'APL64: CLEAR WS'. The menu bar includes 'File', 'Edit', 'Session', 'Objects', 'Tools', 'Options', and 'Help'. The toolbar contains various icons for file operations, editing, and execution. The main text area shows the output of the FnEdHist '?' system function. The output is a nested array with 13 elements. The first element is the function name. The second element is a documentation summary. The third element is an array with columns: Offset, Removed Text, Inserted Text, and the function name. The fourth element is a line termination character. The fifth element is an array with columns: Offset, Removed Text, Inserted Text, and the function name. The sixth element is a line termination character. The seventh element is an array with columns: Offset, Removed Text, Inserted Text, and the function name. The eighth element is a line termination character. The ninth element is an array with columns: Offset, Removed Text, Inserted Text, and the function name. The tenth element is a line termination character. The eleventh element is a line termination character. The twelfth element is a line termination character. The thirteenth element is a line termination character. The cursor is at the end of the thirteenth element.

```
0  FnEdHist '?'
1  FnEdHist Documentation Summary
2 Array with columns: Offset, Removed Text, Inserted Text ← 'Apl'  FnEdHist fnName
3 ^Line termination characters represented by ^\r
4 Array with columns: Offset, Removed Text, Inserted Text ← 'RawApl'  FnEdHist fnName
5 ^Actual line termination characters:  TCNL,  TCLF
6 Char[] XML serialization ← 'Xml'  FnEdHist fnName
7 ^ Line termination characters represented by &#10;&#13;
8 ^ Space characters represented by &#160;
9 Char[] XML serialization ← 'RawXml'  FnEdHist fnName
10 ^ Actual line termination and space characters:  TCNL,  TCLF, ' '
11 Char[] Documentation summary ←  FnEdHist '?'
12 Char[] Documentation summary ←  FnEdHist 'Help'
13
```

Opt Out of Function Editing Change Records

If the APL64 programmer does not want to retain function editing change records prior to or after the current function editor instance, use the **Objects | Function Editor | Function Editor Change Records** menu item and un-check the 'Consider Function Editing Change Records' option.



When this option is un-checked, and if function editing change records have been previously recorded, those records will be deleted the next time the function is edited and saved to the workspace.