

U

"U" - A debugger for z390 zcobol

U is written in ZCOBOL.

U is to T, what C++ is to C.

T can still be used as a debugger but U has extra functionality.

Your program should include the FILE-CONTROL and FILE SECTION statements.

You must get a clean compile of your code before using "U", as it accesses its PRN file.

You can enter in either lower or upper case and numerics do not require leading zeros

U comprises

USET.CBL which does an ACCEPT FROM CONSOLE of the name of the cobol you want to test, in single quotes,

e.g. 'ZCOBOL\DEMO\COPYFILE.CBL'.

It creates U4.CBL from U1.CBL inserting the quoted name.

U4.CBL (prototype U1.CBL) customises your quoted program and creates UPROGRAM.CBL, inserting sections from U2.CBL and generating extra code from prototypes in U6.CBL and U6B.CBL. These latter 2 files are to allow the display and monitoring of any field.

UPROGRAM.CBL then runs the program you identified with "U" embedded. It should be emphasised that UPROGRAM can be run on it's own, temporary changes can be inserted and UPROGRAM can be compiled and tested.

USET.CBL, U1.CBL, U2.CBL, U6.CBL and U6B.CBL should be put into the ZCOBOL\DEMO\ directory.

U.BAT should be put into the Z390 directory.

The file you are reading is U.TXT

U

To use,

Type U into the command line and press enter,

this runs U.BAT in the Z390 directory which comprises

```
CALL zc390clg zcobol\demo\uset notime guam
CALL zc390clg zcobol\demo\u4 notime
CALL zc390clg zcobol\demo\uprogram notime guam
```

This process may take 30 to 40 seconds before you enter another screen on which you should see

```
U - Debugger for ZCOBOL by John Hennesy
Enter - single step
H - Here
E - Erase - E nnnnnn or vvv...
M - Monitor - M vvv... (max 30 char)
                M List variables
B - Break - B nnnnnn
                B List lines
G - Go - G nnnnnn
                G vvv...
                G Go next break
W - Working storage - W Show w/s
P - Procedure division - P Show proc div
D - Display - D vvv... (max 30 char)
X - eXit - X Exit
+ - another screen - + of W or P
? - help
T = Trace
```

commands may be in either Case.

If you just

Hit Enter

a few times you'll see how it single steps through the program.

Hit X

U

to Exit the program.

Hit W

to see the file section and working-storage section fields that you are allowed to display or monitor.

Hit +

as the next command after W to scroll forward thru the working-storage fields.

Hit P

to see the procedure division lines in the program.

Hit P

followed by a line number to start the display of the procedure division at that line number.

Hit P

followed by a paragraph or section name to start the display of the procedure division at that para/section.

Hit +

as the next command to scroll forward thru the procedure division.

Hit H

to show where the prog is now.

Hit M

and a variable name to create a monitor for when that field changes

Maximum of 9 fields can be monitored. You can monitor subscripted fields using either 6 digit subscripts or field variable names, thus M FRED(TOM, DICK, 000002) or any combination of field names and literal values.

Hit M

by itself to list the current fields being monitored.

Hit E

and a variable name to erase that field from being monitored. You don't have to enter the whole name, just sufficient to make it unique.

U

Hit G

and a line number for U not to show code until that line number is reached.

Hit G

and a field variable name to likewise skip until the monitored field changes.

Hit B

and a line number to set a breakpoint on that line
Maximum of 9 lines can be breakpointed

Hit B

by itself to list the current breakpoints.

Hit E

and a line number to erase that breakpoint.

Hit G

by itself for U not to show code until the next breakpoint is reached.

Hit Enter

to single-step off of a breakpoint, before a solitary G will go to the next break.

Hit D

and a variable name to display the contents of that variable
Maximum field size displayable is 64000 bytes

(It will show a PIC X field which has non-displayable fields in char and then HEX)

You can monitor subscripted fields using either numeric subscripts

or field variable names, thus D FRED(1, 3, HARRY)

or any combination of field names and literal values.

If the field has no subscripts then "D field-name" will suffice.

If one subscript "D field-name(subscript-field-name or a number".

If two subscripts then "D field-name(sub1/literal1, sub2/literal2).

And 3 subscripts as above.

Hit ?

U

followed by a command letter will show help for that command

Hit T

shows the last 15 paragraphs/sections thru which execution has passed.

U shows you where you are in the program by showing a screenful of code with a pointer of '>' in column 7

You can always scroll back thru the screen to see previous monitors/displays or maximise the GUI screen.

Don't forget that you have to single step off the initial help screen, no other command will work here.

Have fun and let me know what you think,

Regards,

John Hennesy