

Debugger New Features

What's new with the Janus and Sirius Debuggers?

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Agenda

- UI Improvements
- Data viewing/editing
- Controlling execution
- Ease of Use
- Transitioning from SoftSpy
- Preferences Tour
- Simpler License Key Admin
- Installation Improvements

UI Improvements

- Customizable
 - Settable Buttons
 - Settable Hotkeys
- Source Window Sizing
- Enter key
- Visual Cues
- 3270 Screen Status
- Text viewer

UI Customizing

- ❑ UI.XML lets you change the function of the 10 buttons below the tab area (button0-9).
- ❑ You can add/change hotkeys too.
- ❑ Two modes:
 - Add to default mappings
 - “Clean slate” – start with no defaults
- ❑ Ctrl/Alt for button or key supported.

UI Customizing

- Commands mappable to buttons and hotkeys:
 - Step/Step Out/Step Over
 - Run/Run Without Daemons
 - Clear Breaks/Clear Watch
 - Next/Previous Compile Error
 - Trace
 - Cancel
 - many more (in manual on website)...

```
<mappings useDefaults="true">
```

```
  <mapping command="step"  
    button="button0" />
```

```
  <mapping command="run" button="button1"  
    key="F5" />
```

```
  <mapping command="runwithoutdaemons"  
    button="button2" key="F5"  
    keyModifier="ALT" />
```

```
  <mapping command="cancel" key="x"  
    keyModifier="ctrl" />
```

```
</mappings>
```

Source Window Sizing

- ❑ Drag the black bar between the source window and the buttons to make the source tabs area larger or smaller.

Drag this >>>>>>

```
UL> 32 1 30 for %i fr
UL> 33 1 31 %j =
UL> 34 1 32 %k =
UL> 35 1 33 print
UL> 36 1 34 end for
UL> 37 1 35 print 'Al
UL> 38 1 36 end
```

Step	Run	Skip Daem	Cancel
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Enter Key

- ❑ Hitting enter presses the default button for each window/dialog.
- ❑ When a program is loaded, Step is made the "enter" button, so you may step through the program by hitting enter repeatedly.

Visual Cues

- ❑ “Enter” button made more distinct (white).
- ❑ More tool tips added.
- ❑ Hotkeys listed from Help menu.

3270 Screen Status

- Status area reports need to interact with 3270 screen.
- Option to break after Read Screen in 7.0 Mods and up.

The Sirius/3270 Debugger (SCREEN)

File Help

Audit Trail | Source Code | Execution Trace | Proc Selection

```

UL> 10 1 8 menu oof
UL> 11 1 9 title 'Lunch'
UL> 12 1 10 prompt '1' at 10
UL> 13 1 11 prompt '2' at 10
UL> 14 1 12 prompt xxx at 10
UL> 15 1 13 end menu
UL> 16 1 14 %foo:name = 'Moe'
UL> 17 1 15 %oof:xxx = '333'
UL> 18 1 16 %titleThis = 'Oops'
UL> 19 1 17 read screen foo title %titleThis
UL> 20 1 18 %a is float
UL> 21 1 19 read menu oof
UL> 22 1 20 print %oof:selection
UL> 23 1 21 print screen foo
UL> 24 1 22 %a = 1
UL> 25 1 23 reread screen foo
UL> 26 1 24 %a = 2

```

Top Bottom Clear Audit Run Step Step Over Trace End Norun Clear Breaks Clear Watch Full Screen Read Pending

Search Search Next Variable or Field %foo:name Value Trace Changes Run to Change Add Watch

Most Recent Audit Trail MSIR.0915: Debugging is on: client is 198.242.244.234 port 808: I SCREEN M204.1168: IN FILE GWDEB INCLUDE SCREEN

Watch Window %foo:name= 'Moe'

If you enable the break after read screen feature, you will see the following after you hit enter in the 3270 session:

A screenshot of a 3270 terminal window. The window has a light beige background and a blue border. The text "READ SCREEN completed." is displayed in a monospaced font. The text is contained within a rectangular area that has a black border on top and a blue border on the bottom and right sides. The left side of the text area has a vertical line, suggesting a cursor or a specific field boundary.

READ SCREEN completed.

Text Viewing

- Map the command “viewText” to a button or hotkey.
- It then will operate on the top tab:
 - Audit
 - Source
 - Trace
- Here’s a sample...

The Sirius/3270 Debugger (PUPR-MENU)

File Help

Audit Trail	Source Code	Exec
UL> 1445	2 174	IF %HELP:COMMAND
UL> 1446	2 175	%MSG = %SIRMSG
UL> 1447	2 176	TAG %HELP:COMM
UL> 1448	2 177	JUMP TO RDH1
UL> 1449	2 178	END IF
UL> 1450	2 179	JUMP TO CHHLP
UL> 1451	2 180	END SUBROUTINE HELP.READ
UL> 1452	1 413	
UL> 1453	1 414	*-> Compile & move on if
UL> 1454	1 415	
UL> 1455	1 416	IF \$GETG('INIT.FL
UL> 1456	1 417	%DUMMY = %SETG
UL> 1457	1 418	STOP
UL> 1458	1 419	END IF
UL> 1459	1 420	
UL> 1460	1 421	%HP = %USRPRIV('S
UL> 1461	1 422	
UL> 1462	1 423	%TITLE.HOLD = ' '
UL> 1463	1 424	\$DE
UL> 1464	1 425	\$DE
UL> 1465	1 426	\$DE

Step Run Skip Daem Cancel Top View Text

Search

Text Viewer

File

```

TAG %HELP:COMMAND
%MSG = %SIRMSG(102)
END IF
H8A: CALL HELP.FILL
JUMP TO RDH1
H9: %HELP:COMMAND = %COMMAND.SAVE
IF %HELP:COMMAND EQ '' THEN
%MSG = %SIRMSG(15)
TAG %HELP:COMMAND
JUMP TO RDH1
END IF
JUMP TO CHHLP
END SUBROUTINE HELP.READ

*-> Compile & move on if this is system startup time.

IF $GETG('INIT.FLG') EQ 'Y' OR NOT %USER THEN
%DUMMY = %SETG('NEXT','PUPR-CCAGRP')
STOP
END IF

%HP = %USRPRIV('SYSTEM_MANAGER','NOLOG')

%TITLE.HOLD = ' ' WITH %SIRMSG(244) WITH '-----' WITH -
%DEBLANK(%VIEW('JOBNM')) WITH '/' WITH -
%DEBLANK(%VIEW('VERSION')) WITH '/' WITH -
%DEBLANK(%VIEW('SYSID')) WITH '-----'

```

Print Save Close

Text Viewing Window Features

- Print (preview/setup available via file menu).
- Save to file.
- Mouse based copy.

Data Viewing/Editing

- Right click variable viewing
- List display
- FEO loop information
- Object display – hot off the press!
- Setting variables

Right Click Viewing

- ❑ Right click on a source code line...
- ❑ The context menu will provide Display picks for each variable on the line.
- ❑ Select a Display pick from the context menu to see the variable's value...

Right click a line with variables...

```
call computeShipping
%total = %total + %shipping

print 'Your price is: ' and %total
end if

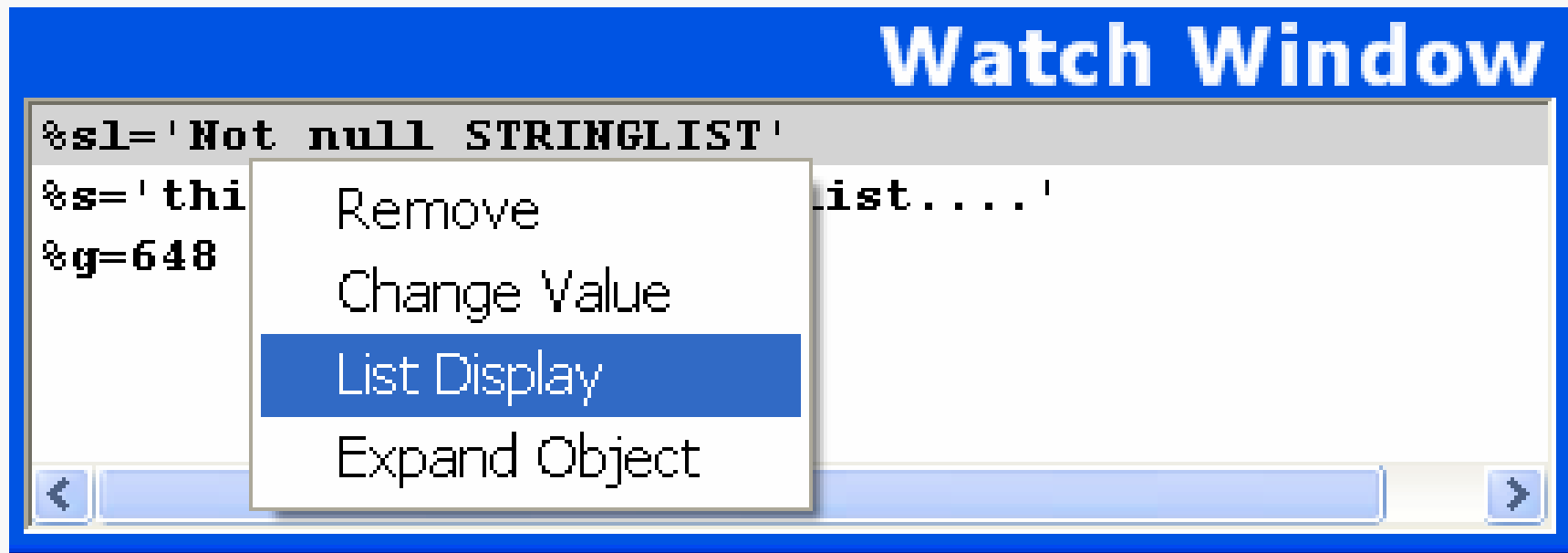
* finish the page
html
  </body>
</html>
end html
```

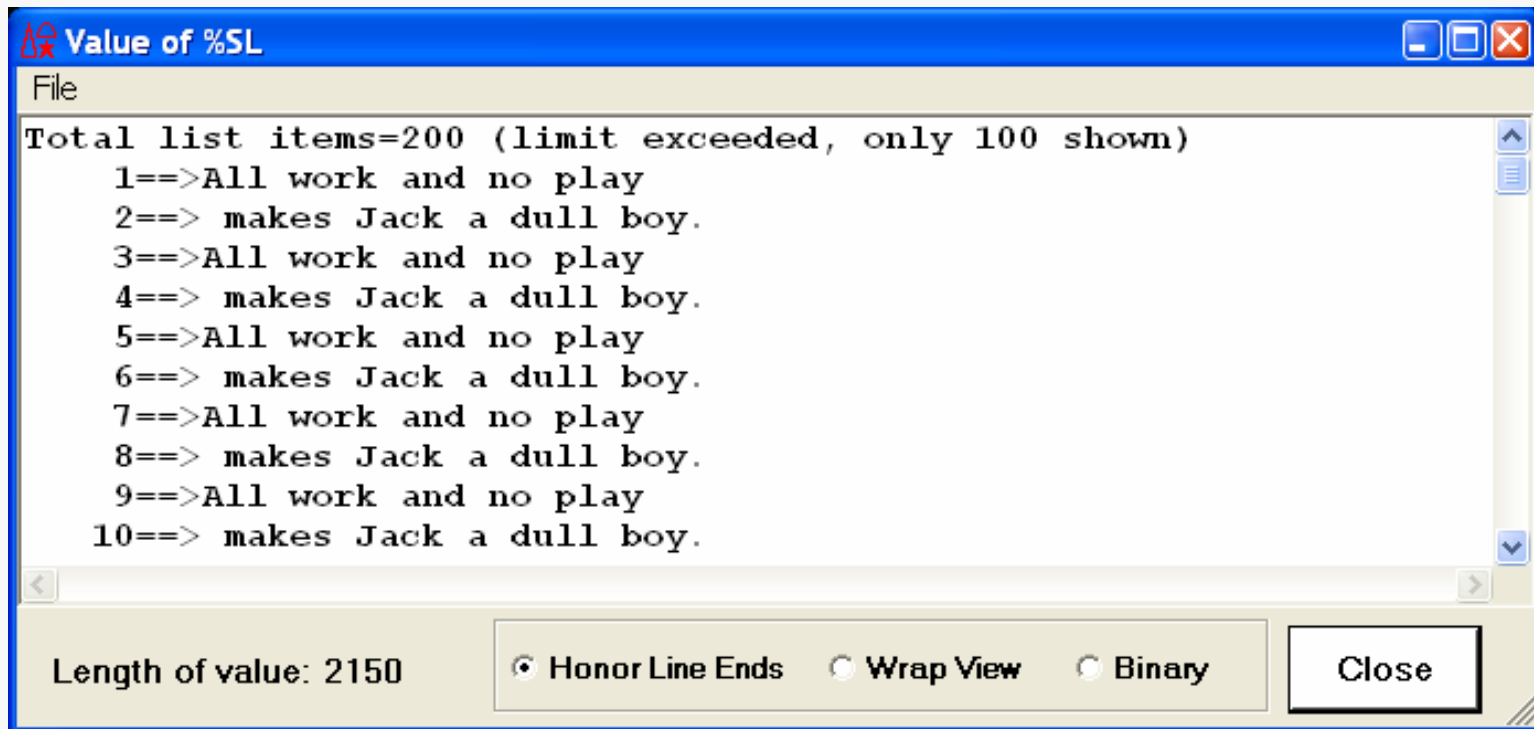
- Add Watch
- Toggle BreakPoint
- Procedure Information
- FEO OCC IN value
- Display %total
- Display %shipping

Expanding a StringList/\$list

- ❑ Add StringList object variable or \$list anchor to watch window.
- ❑ Right click provides a “List Display” option...
- ❑ Can limit number of items shown via Preferences.

Right click string list object variable or \$list anchor...





FEO Occurrence Numbers

- Right click an FEO source code line.
- Select "FEO OCC IN value".

```
for each record in %recs
  print '***'
  pai
  ff: feo name
    %a = occ in ff
    print %a
    print name(%a)
    %v = value in ff
    print %v
  end for
  print '*** End of record '
end for
sort records in %recs to %srecs by name
```

Add Watch
Toggle BreakPoint
Procedure Information
FEO OCC IN value

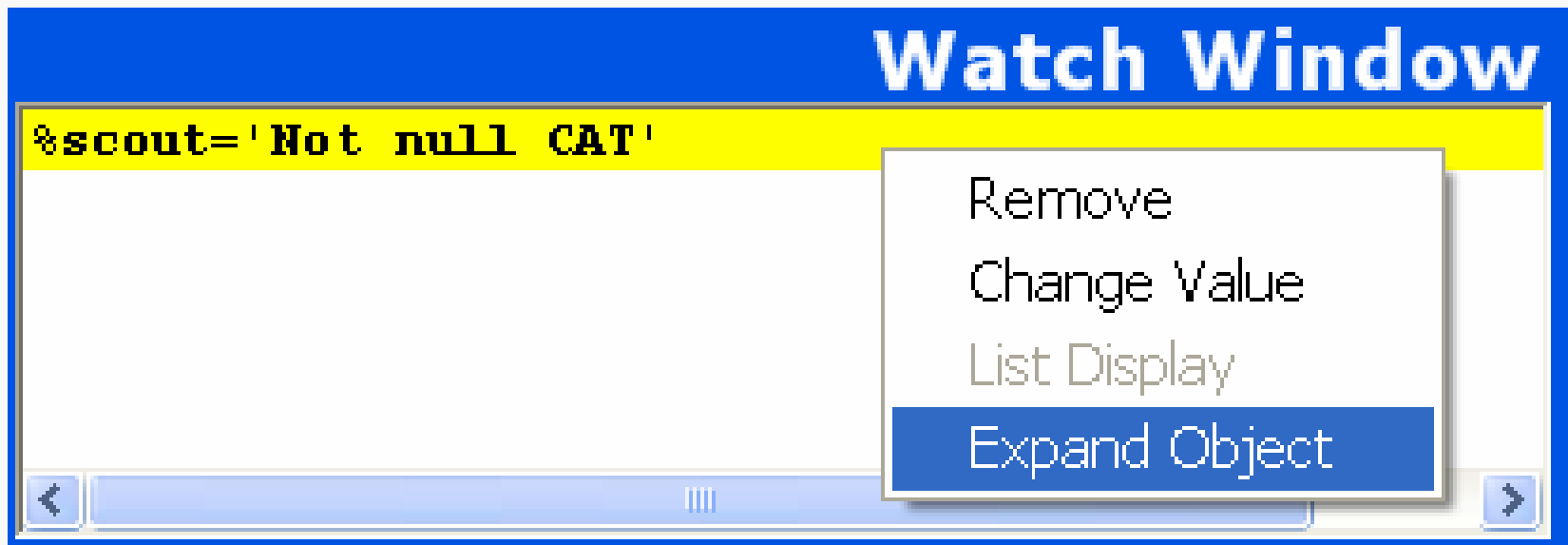
Object Viewing

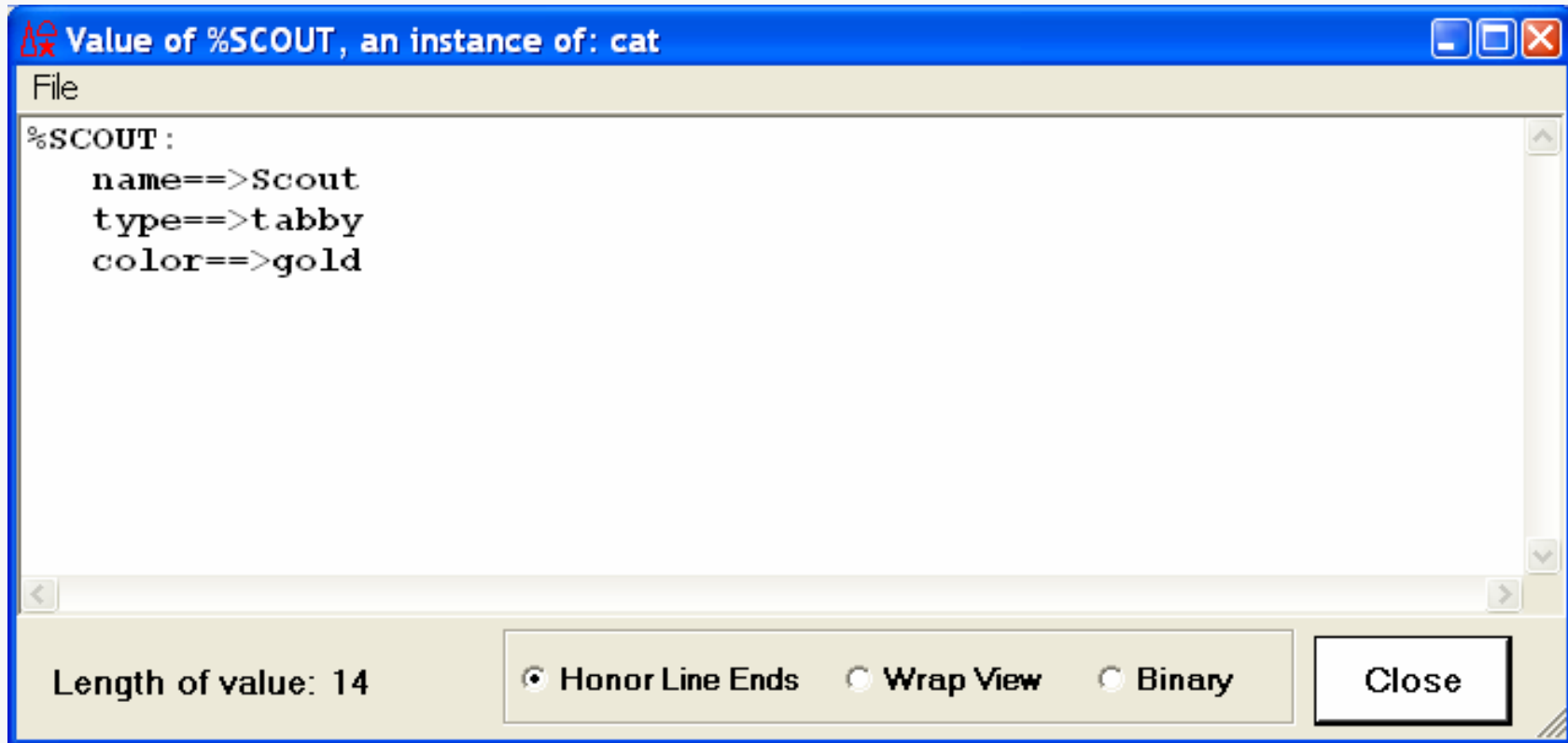
- ❑ For an object variable, see the names and values of its variables.
- ❑ User and system classes.
- ❑ Right click a non-null object variable in the watch window, and select "Expand Object".
- ❑ 7.1 Mods and up (7.0 zap too).

If we have an occurrence of this class...

```
class cat
  public
    variable name is longstring
    variable type is longstring
    variable color is longstring
    constructor new (%iName is longstring)
    subroutine talk
  end public
```

Note the value of the object variable: tells which class (%scout is a cat).





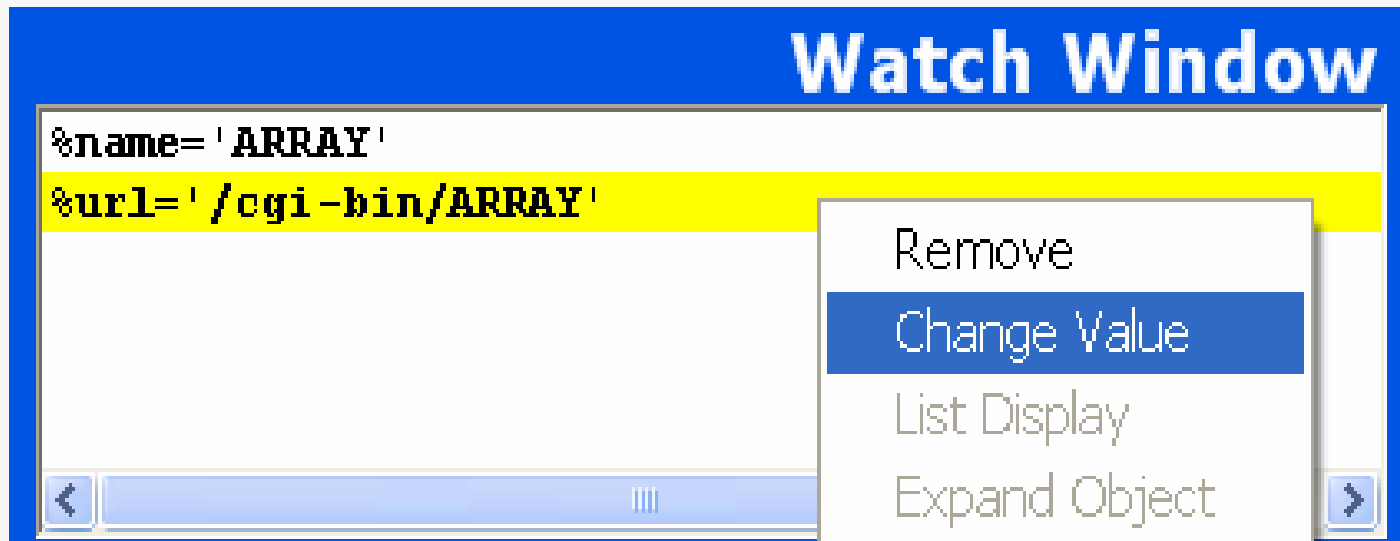
Viewable System Objects

- Daemon
- Email
- HTTPRequest
- HTTPResponse
- LDAP
- RecordSet
- RecordSetCursor
- Record
- Socket
- SortedRecordSet
- StringList
- XMLDoc
- XMLNode
- XMLNodeList

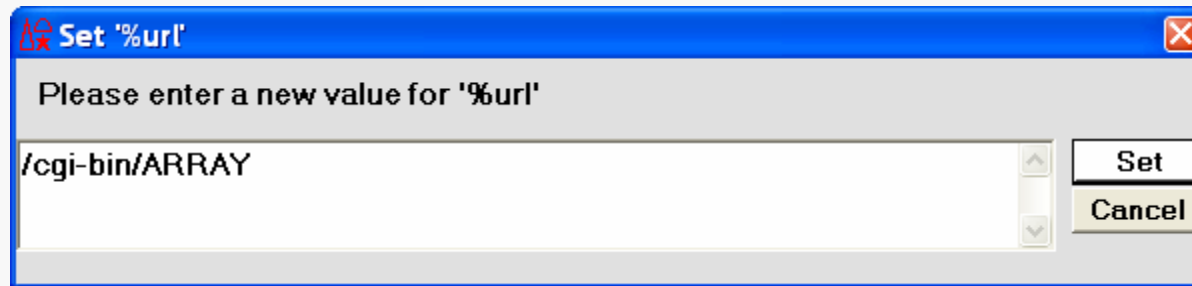
Setting Variables

- Set %variables – 6.9 Mods and up.
- Set image/screen items - 7.1 Mods and up.
- Place desired variable in watch window, and right click it.
- Select “Change Value” from popup.
- Enter new value in dialog.

Select a variable to set...



Dialog for setting a variable...



Controlling Execution

- Step Out
- Skipping Daemons
- Trace Until
- More breakpoints (1000)
- Automatic Breakpoints (2 ways)
- White List Improvements

Step Out

- “Step Out” of a routine, method or daemon:
 - Suspends debugging for the rest of its execution (it executes normally).
 - Breaks on the statement after the statement that invoked what was stepped out of.
- Default UI: Alt+Step Over

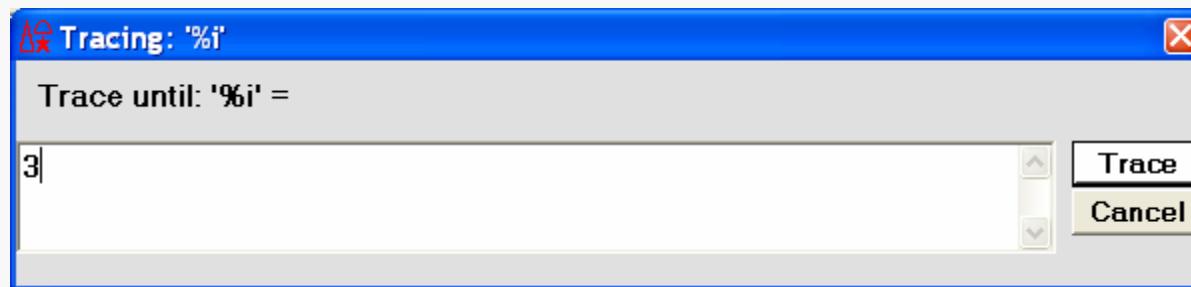
Skipping Daemons

- Using this option runs a request **WITHOUT** debugging any daemons it spawns.
- Useful if daemonic code is known to work.
- Default UI: Alt+Run.

Trace Until

- ❑ Trace values of a variable until it hits a particular value.
- ❑ Alt+ 'Run To Change'.
- ❑ A dialog for the value will open.

Alt-'Run To Change' opens this dialog...



The Sirius/3270 Debugger (HELLO)

File Help

Audit Trail | Source Code | **Execution Trace** | Proc Selection

%i = 1	%i=1
%i = %i + 1	%i=2
%i = %i + 1	%i=3

Top | Bottom | Clear Audit | Run | Step | Step Over | Trace | Cancel | Clear Breaks | Clear Watch | Until value satisfied.

Search | Search Next

Variable or Field | %i

Value	Trace Changes	Run to Change
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More Breakpoints

- ❑ Up to 1000 breakpoints may be set when the 7.0 Mods or later are used.
- ❑ Very Handy with the next feature...

Automatic Breakpoint Setting 1

- *BREAK emulation.
- Set a breakpoint on each line following a comment of form "`*break`".
- Help SoftSpy users convert.
- Default UI: Ctrl+B.

Automatic Breakpoint Setting 2

- Select lines on which to set breakpoints, by string match.
- Uses the Search input box for match string.
- Regular expressions allowed.
- Default UI: Alt+B.

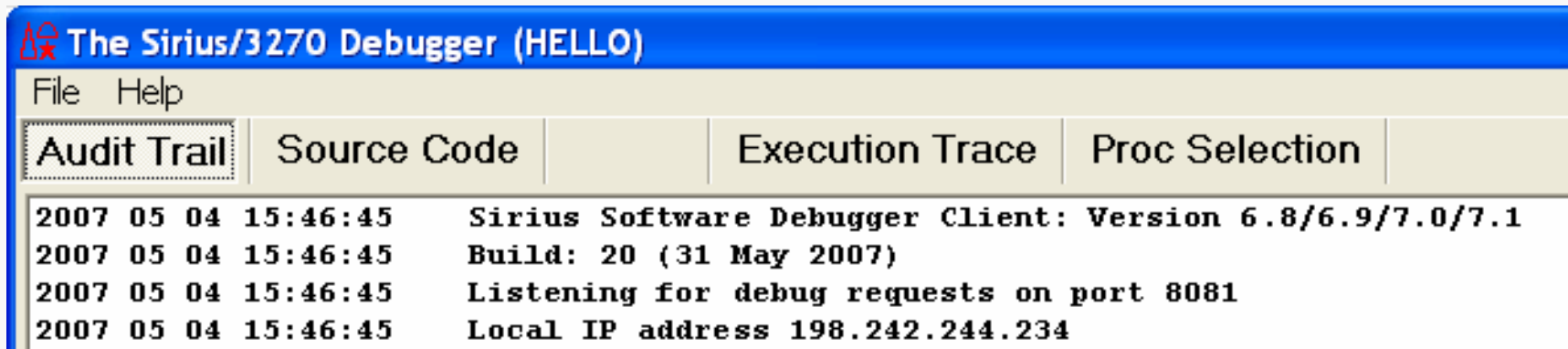
White List Improvements

- ❑ Run on mainframe side now for better performance.
- ❑ Trailing wildcards supported on white list entries, e.g., P.REPORT*.

Ease of Use

- Title Bar – shows procedure name
- IP Number Display – Useful with SIRIUS DEBUG ON
- Search Improvements
- Clipboard Copy
- SIRIUS DEBUG ON simplification
- Automatic Proxy Switching for IE

Note title bar and IP number...



Regular Expression Search

- ❑ Precede string in search box with ~ (like Perl operator).
- ❑ Uses the .NET regex engine.
- ❑ For example:
 - `~%\S+\s+IS` – finds a variable definition.

Search UP

- ❑ Backward search.
- ❑ Alt+Search – search from bottom.
- ❑ Alt+Search Next – find previous.

Clipboard Copy

- ❑ Copy visible contents of topmost tab to windows clipboard.
- ❑ Default UI: Ctrl+C

SIRIUS DEBUG ON Simplified

- System manager may set defaults for the workstation port and the worker port. (The last two parameters of the command).
- Shorter command syntax can then be used:
 - SIRIUS DEBUG ON CSOCK PCHOST

Automatic Proxy Switching for IE

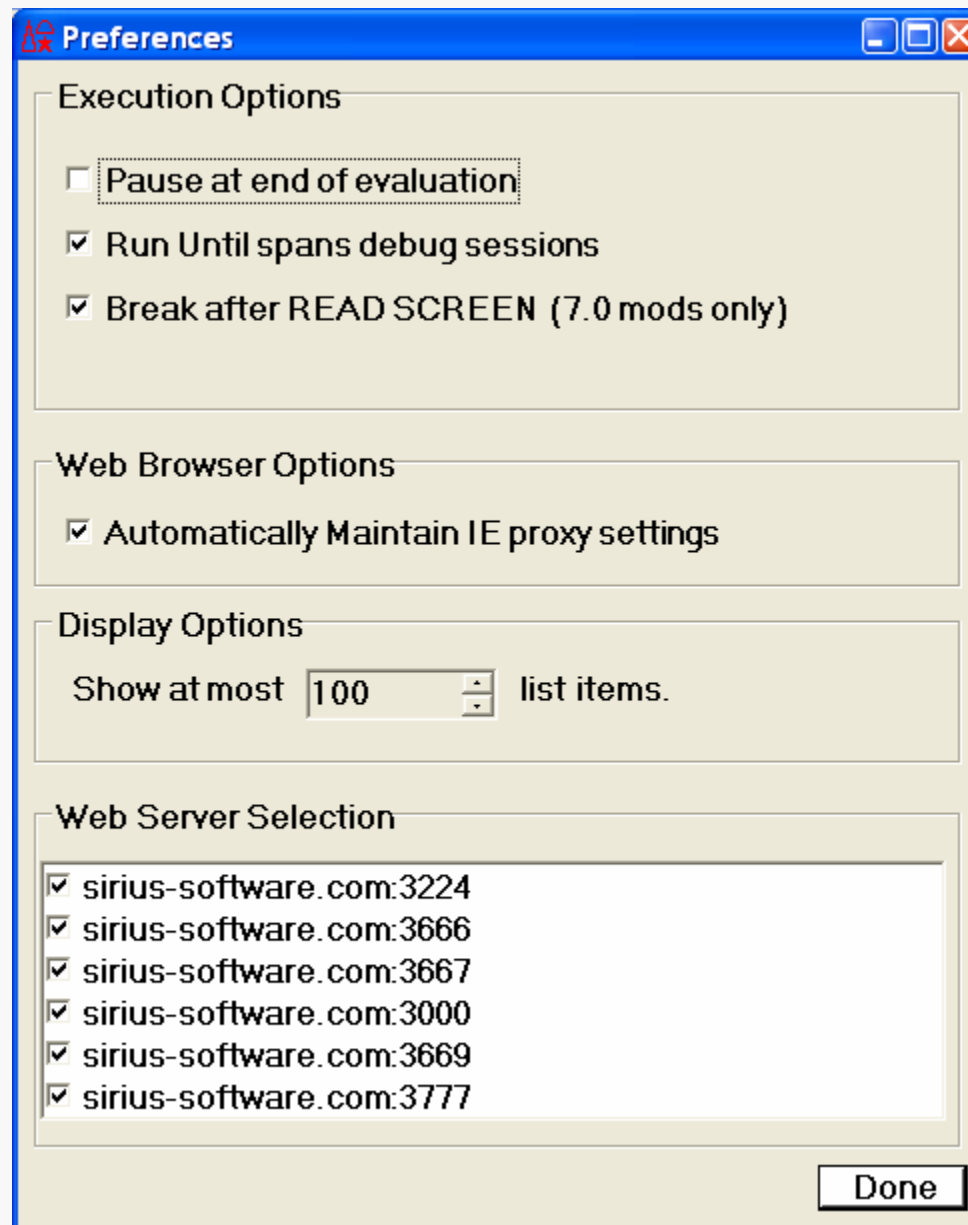
- ❑ You can set a preference that makes the client automatically maintain the IE Proxy server setting.
- ❑ Start Client – makes itself the IE proxy.
- ❑ Stop Client – restores original IE settings.

Transitioning From SoftSpy

- ❑ Breaks macro support.
- ❑ Next/Previous compile error lines, default UI of F10/F11.
- ❑ Settable Buttons – like PF Keys.
- ❑ Until option on “Run to Change”, like Go Until.
- ❑ Setting variables.

Preferences Tour

- ❑ Many options can be set...
- ❑ File->Preferences.
- ❑ Ctrl+P (with default hotkeys).



Sirius Software, May 2007

Simpler License Key Admin

- ❑ No longer need keys for Soap or Sockets to use the debuggers after the 6.9 Sirius Mods.
- ❑ Special socket types:
 - DEBUGGERSERVER
 - DEBUGGERCLIENT
- ❑ Only require appropriate debugger key.

Installation Improvements

- ❑ No more procedure file/UL in 7.0 Mods and up.
- ❑ Simply a Mods install, and getting the setup.exe kit from the website.