

isCOBOL[™] Evolve

isCOBOL Evolve 2013 Release 2 Overview

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isCOBOL Evolve 2013 Release 2 Overview

Introduction

Veryant is pleased to announce the latest release of isCOBOL[™] Evolve, isCOBOL Evolve 2013 R2. isCOBOL Evolve provides a complete environment for the development, deployment, maintenance, and modernization of COBOL applications. isCOBOL 2013 R2 includes several enhancements to isCOBOL IDE, to the Utilities and several optimizations in the isCOBOL Server product; isCOBOL 2013 R2 also includes many Debugger improvements, and other new features.

Details on these enhancements and updates are included below.

isCOBOL IDE Enhancements

In isCOBOL Evolve 2013 R2, the isCOBOL IDE has been updated to offer several new productivity enhancements including:

Cobol Source import wizard

isCOBOL IDE users can import a legacy COBOL program into an isCOBOL IDE project. As depicted in Figure 1, *Cobol Source to Screen Program*, this new import facility allows to migrate screen section manually written into isCOBOL IDE Screen Designer without any effort.



(B)	_ □ ×
Import gener	ic COBOL Screen Program
Select Destinat	ion Project
😥 example	
From directory	C:\Program Files\Veryant\isCOBOL IDE2013R2\sample\demo\issamples\s- Browse
i ⊘ s-gui	(Press F2 to rename the selected item)
3	< <u>Back</u> <u>N</u> ext > <u>Finish</u> Cancel

Once screens are migrated, the isCOBOL IDE users can take advantage of WYSIWYG Screen Designer to add new controls or change properties of existing controls. For example, as depicted in Figure 2, *Imported generic COBOL Screen Program*, this new capability simplify the adoption of isCOBOL IDE Screen Designer for legacy COBOL applications.

ile <u>E</u> dit <u>N</u> avigate Se <u>a</u> rch	Project isCOBOL Tools	Generate <u>R</u> un <u>W</u> indow	<u>H</u> elp					
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BITMAP				1111111111	Selector	8	(Frame)	
CHECK-BOX		· · · · · · · · · · · · · · · · · · ·			- Bar		CB1 (Check-Box)	
Screen section	option 1	bitmap only			🚘 Bitmap		CB2 (Check-Box)	
MASK	option 2				Check Box		CB3 (Check-Box)	
Working Storage		option 2			Combo Box	腰	(Frame)	
Linkage section	option 3						CBA (Check-Box)	
File section					🔤 Date Entry		CBB (Check-Box)	
📓 Event paragraph			<u></u> :::::::	111111111111	Entry Field	00	PB1 (Push-Button)	
COMBO-BOX					圆 Frame	[213]	PB2 (Push-Button)	
DATE-ENTRY	Confirm				III Grid	Propertie	es 🛙	6 🔅 🖬 🛃 🗸 🖓
FRAME	Contirm				Java Bean Control	Property	Value	
GRID					alabel	Troperty	Fundo	
LABEL	Exit							
LIST-BOX					List Box			
PAGEDGRID			55515551		E Push Button			
PUSH-BUTTON					Radio Button	-		
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SLIDER	10121010101010101				🖾 Slider			
STATUS-BAR		a		2001111111111	Tab Control			
TAB-CONTROL								
TOOL-BAR		-	IN STA		🛅 Tree View			
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WBROWSER	🛃 Problems 📮 Consc	ole 🔗 Search 💷 Bookmark	s 🖉 Tasks					
WINDOW	Workspace Log				,0 0, - Q 🖡 🗶 🗋 🧬 💙			
	1							
	Message	Pluc	g-in	Date				

Figure 2. Imported generic COBOL Screen Program

Also legacy characters-based screens can take advantage of this import facility that should be considered as first step of characters to GUI migrations. For example, a legacy text screen as depicted in Figure 3, *legacy character COBOL Screen Program*, will be imported using label and entry-field GUI controls as depicted in Figure 4, *Imported legacy character COBOL Screen Program*.

<u>ه</u>	CHPROG	- 🗆 🗙
Customer code: 0		
First name:		
Last name:		
Address:		
Street:		
State:		
Gender:		
Phone number:		
Cell Phone number:		
	st F6=Prev F7=Next F8=Last F9=Save	nace number of the
r 1-Lookup r S=Delete FS=F11	stro-Frever/-next P8=Last P9=Save	ESC-EXEC

Figure 3. legacy character COBOL Screen Program



isCOBOL Resource				
fi SiscoBoL fin. 82 fin. 92 fin. 92		Palette Components Selector Bar Bitmap Check Box Combo Box Check Box Combo Box Check Box Combo Box Date Entry Entry Field Frame Grid Java Bean Control List Box	Coutline Could and the set of t	ुः ♥ ० ट्रा ♥ ० ocedures "1
LIST-BOX PAGEDGRID PUSH-BUTTON SLIDER STATUS-BAR TAB-CONTROL TOOL-BAR TREE-VIEW WBROWSER WINDOW program1	S1 S-FUNC S-LOOKUP Working Storage Linkage Section File Section Problems Console Search Bookmarks Tasks History Fror Log Workspace Log Vype filter text Message Search Search	Procedure	After Program Before Program	

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HTML project wizard

The addition of a new project wizard, as depicted on Figure 5, *HTML project wizard*, allows isCOBOL IDE users to simplify the work to develop an HTML5/CSS3 application. This kind of application can be executed as a java Servlet or with isCOBOL Mobile.

is												
<u>F</u> ile	<u>E</u> dit	<u>N</u> avigate	Se <u>a</u> rch	<u>P</u> roject	isCOBOL T	ools	Genera	te	<u>R</u> un <u>N</u>	<u>W</u> indow	<u>H</u> elp	
	New				A	lt+Shi	ft+N ►	6\$	isCOE	BOL Proje	ct	
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	Close					Ct	rl+W	Ľ	Proje	ct		
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	3 ex-c	occurs.cbl [C:/isCOB(DL]				etail	<u></u>	<u></u> .	<u> </u>	· · · · · · · · · ·
	4 efdF	Parser.cbl [i	isCOBOL/	all/client	i/]			111		· · · · · · · ·		
	Exit							Ger	nder			*

Figure 5. HTML project wizard

Copy Replacing Import capabilities

Added the ability to set a REPLACING phrase when importing or linking a copy file. This allows to generate in the Data Division "COPY filename REPLACING ...". As shown in Figure 6, *New REPLACING phrase when importing or linking a copy file*, isCOBOL IDE users can define the replacing phrases according with imported COBOL sources.

ß	Select Co	py File	x
Select from filesyste	Select from project's source	e path	
Copy File:	C:\isCOBOL\FG4AU00MAS.CPY =='PREFIX'== BY ==WRK==		^
REPLACING phrase:			~
Compatibility Opt	tions	Keyword Options -rc= -rm= -rw=	
Source Format Op -sa -st -sf -smat	ptions		
		OK Cancel	

Figure 6. New REPLACING phrase when importing or linking a copy file

Compile option on isp program

To easily compile an isp program, users can access to contextual menu in Structural View to quickly compile the generated code. As shown in Figure 7, *Compile option on isp program*, on contextual menu a new item is available to directly compile.

Figure 7. Compile option on isp program

ile Edit Navigate	Search Project isCOBOL To	ools Generate <u>R</u> un <u>W</u> indo	w Help
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isCOBOL C Re			
S 🖾 🔑 F 🥹 D			
🗢 🗢 🗟 🖻 • 😚 Project	Screen		
GraphProg	Customer		
A Creer	New	¥.	
Screen	Сору		· · · · · · · ·
MA n	Paste		
zo 🗙	Delete		
🗐 Worki	Rename		
👼 Linkag 🛺	Import		
🔓 File se 🎽	Export		
Proce 👔			
🔺 🛄 PCustom 🦳	Refresh		
🔺 🔄 Screet 🔤	Open with Hex Editor		
scr 🔄	View GraphProg.cbl		
🔲 Worki 🧎	Repository		
🐱 Linkag 🏅	External Settings		
File se	Generate Program Compile		1
HI FIOCE	Consistency Check		
A D ZProg	Find in Object		
A Screer	Run As	*	
🔄 S1	Debug As	*	
💽 S-F	Profile As	*	
Worki	Validate		
Linkag	Team	*	
File se	Compare With	*	
Proce	Replace With	*	
	Properties		
2	Remove from Context	Ctrl+Alt+Shift+Down	

Screen Designer Default setting

In isCOBOL IDE 2013R2, as showed in Figure 8, Screen Designer Default, a new setup form is available to define default font, colors and cell properties globally in the project.

These settings are applied, if desired, also for all screens within the project. In that way with a simple action, isCOBOL IDE users can change some properties globally in the project.

Figure 8. Screen Designer Default	igure 8.	Screen	Designer	Default
-----------------------------------	----------	--------	----------	---------

ß	Properties for	_ 🗆 🗙
type filter text	Screen Designer	<p td="" ⇒="" ▼="" ▼<=""></p>
Builders Class Path	Screen Font/Color/Cell settin	ngs
Linked Resources	Property	Value
Project Facets	cell	true
Project References	cell measure	PIXELS
Refactoring History	cell measuring control	LABEL
Resource Filters	cell measuring font	Default-Font
Run/Debug Settings	cell measuring style	NONE
Screen Designer	cell-height	10
Server	cell-width	10
> Settings	color	{257}
> Task Repository	control font	Default-Font
Task Tags	height-in-cells	false
> Validation	unit	CELLS
WikiText	width-in-cells	false
		Restore <u>D</u> efaults <u>Apply</u>
?		OK Cancel

Compiler Enhancements

Improvements to the isCOBOL Compiler in 2013 R2 include:

Unicode definition on EFD data dictionary

National info is now stored for PIC N fields in xml file created when compiling with -efd option. This allows to correctly manage National fields in external File Handlers that require the Efd file and in GIFE utility. Also a Cobol program can inquire this information using the object com.iscobol.lib.efdParser.

Code Example generated in the .xml file:

<field name='ARC_D' offset='1' size='40' type='National'/>

Support for Microsoft COBOL syntax

The isCOBOL compiler is now able to support Microsoft COBOL syntax.

Compiler option -cms should be provided to turn on Microsoft COBOL syntax support to compile source code like:

01 WS-VAR1 PIC 9(4) COMP-0. ... DISPLAY (25, 44) " Select ? ". ACCEPT (25, 55) WVAR.

New class provided to return Microsoft COBOL file status codes named (iscobol.file.status=com.iscobol.io.FileStatusMicrosoft)

Improved supported syntax

In terms of compatibility with AcuCOBOL-GT, Micro Focus and RM/COBOL, isCOBOL 2013 R2 includes these features:

- VALUE NEXT syntax with expression is now supported. Code example: 78 CONST2 VALUE NEXT / CONST1.
- "Paragraph-name of section-name" is now supported in the embedded procedures. Code example:

```
03 ENTRY-FIELD
LINE 2 COL 2 SIZE 10
AFTER P-AFT OF SECTION1
BEFORE P-BEF OF SECTION2.
```

- ALTER statement is now supported. Code example:
 ALTER PARA1 PROCEED TO PARA2
- Collate is now supported on printer jobs:

WINPRINT-CURR-COLLATE in WINPRINT-SET-PRINTER op-code of WIN\$PRINTER routine is now considered and field "Collate Flag" in P\$SETDIALOG is now considered

Debugger Improvements

Go to declaration

In isCOBOL 2013 R2, developers have the ability to go to declaration in isCOBOL Debugger with new menu items and commands . As shown in Figure 9, *Go to declaration feature*, Back (Alt+Left), Forward (Alt+Right) and Go to declaration (F12) options allow to easily see the declaration of selected variable or control name.

Figure 9. Go to declaration feature

₩.			isCC	BOL Graphic Deb	ugger		- 🗆 💌
File	Edit	Run Data Breakpoints	Settings He	elp			
2.		First line [wt] First executable line [w0] Last line [wb] Current line [w@]		elimited by size elimited by size elimited by size elimited by size	9. 0 . E	<u>ो च</u> र	î= £ 9. € ^
	đđ C	Find Repeat find [f] Find forwards [ff] Find backwards [fb] Find from top [ft]	Ctrl+F	elimited by size elimited by size elimited by size elimited by size elimited by size elimited by size elimited by size			
		Go to	Ctrl+G	I+G			
0		Go to declaration	F12				
		Back Forward	Alt+Left Alt+Right				_
		Clear output Last command	F3 Ctrl+F8				
	105 106 107 108	screen line wi screen col win control font h background-low	-col -font	_			
<	109	handle <mark>h-sta</mark>					>
d + H-	isplay STA =	e=ISCONTROLSET.cbl / standard graphical window 538976288 538976288		^	Perform stac	Location	Program
				*			

Enhanced Find feature

To speed-up day by day code debugging, in 2013 R2 was added *Find* and *Repeat Find* buttons in the Debugger toolbar. Also Find settings are now stored in isdebugger.properties file to be reloaded when isCOBOL Debugger is started again.

isCOBOL DataBase Bridge Improvements

isCOBOL Database Bridge, the tool that Enables COBOL programs to interact with a RDBMS without changing COBOL source code or learning ESQL was enhanced to better satisfy user's requests.

Pagination support for MySQL Enterprise Edition

New options -dmld and -dmlu to generate additional code that manages record pagination.

The feature allows to read a specific number of records (configurable through the new iscobol.easydb.mysql_row_limit property, the default is 100 records) at a time, saving memory and providing better performance for START statements on huge tables.

Option –maxCHARlen supported for all DBMS

The option -maxCHARlen has been extended to all supported databases. In previous releases it was supported only for Oracle. This option allows to set a field size limit that will generate VARCHAR when it is exceeded, otherwise it generates CHAR. For example, if your FD contains field1 pic x(10) and field2 pic x(20) and you use -maxCHARlen=15 while generating the EDBI routine, field1 will become CHAR(10) on the database, while field2 will become VARCHAR(20).

New User Interface Features

Regular expression support on entry-field

The power of regular expressions is now available also during entry-field accept. The following example shows how to declare regular expressions on a screen section entry-field:

```
03 my-ef entry-field
line 2 col 2 size 50 value varl
validation-regexp "\bt[a-z]+\b"
validation-errmsg "my invalid input!"
validation-opts 7
```

Single item hint support on tree-view

New property ITEM-HINT, designed to specify in the tree-view control a hint on single item. ITEM-HINT can be used in a MODIFY statement:

```
MODIFY TVI PARENT NULL
ITEM-TO-ADD "Parent1" GIVING WITEM
ITEM-HINT "Hint Parent1"
MODIFY TVI PARENT WITEM
ITEM-TO-ADD "Child1"
ITEM-HINT "Hint Child1"
ITEM-HINT "Hint Child2"
```

New features on DATE-ENTRY control

New value-format DAVF-HHMM is supported to avoid the seconds in the date-entry with TIME style set. Date-Entry without DISPLAY-FORMAT set now displays dates according to the current locale without the need to set additional configuration properties. This simplify the management of Multilanguage applications running in different countries.

New configuration properties to validate date-entry controls

(iscobol.gui.date_entry.validate=1 and iscobol.gui.date_entry.errormessage=Invalid Date). This allow to have an automatic validation on date fields.

Framework Improvements

Performance improvement

Performance improvements on some statements: MOVE, INSPECT, comparisons (IF, EVALUATE, PERFORM UNTIL...), PERFORM used in class-id objects. This allows to have better performance when running an isCOBOL application, (due to the fact that most improvements are doing in java generated code, a recompilation of COBOL code is suggested to fully take advantage of all optimizations).

As depicted in Figure 10, *Performance Comparison*, isCOBOL 2013 R2 provides several performance improvement on many COBOL statements. The performances test was executed on Windows Vista Business SP2 32 bit (CPU: AMD Athlon X2 Core Processor 6000+, 3.10 Ghz / RAM: 4,00 GB / isCOBOL compiler options -dz –b / java used: Oracle JDK1.7.0_25 with option –server, time in seconds).

Statements	isCOBOL 2013 R1	isCOBOL 2013 R2
perform-test-varying-idx	2,11	1,50
move-x1-to-x1	0,84	0,06
move-x32-to-x32	1,90	1,45
move-9-9-to-9-9	4,32	0,69
add-1-to-9-9	0,34	0,30
if-9-9-eq-9-9	0,96	0,00
if-x-1-eq-lit-1	1,38	0,54
if-x-1-gt-lit-1	1,37	0,55
if-x-1-eq-x-1	1,78	0,70
if-x-32-eq-x-32	9,28	3,21
if-x-32-eq-x-16	7,08	4,50
move-x1-to-x1(4)	1,29	1,20
move-x1(2)-to-x1(4)	3,24	0,86
if-x1-eq-x1(4)	4,04	1,21
if-x1(2)-eq-x1(4)	7,42	1,01
if-x16(2)-eq-x16(4)	10,54	1,15
if-t-9-9-eq-t-9-9	10,06	6,75
if-expr-eq-9-lit	9,41	8,07
compute-int	2,47	2,29
set-int	2,12	2,02
inspect-replac/convert/tall	8,82	4,82
Total	90,77	42,88

Figure 10. Performance Comparison

AJAX/JSON support on HTTPHandle

Enhanced HTTPHandler class to communicate with HTML pages with JSON format as well. In previous versions only XML format was supported.

Session Listener Support

New class com.iscobol.web.lscobolSessionListener to correctly handle file connectors on servlets. To turn on the Session Listener feature the following entries on web.xml should be used:

```
<listener>
<listener-class>
com.iscobol.web.IscobolSessionListener
</listener-class>
</listener>
```

enhanced C\$OPENSAVEBOX

New op-codes in C\$OPENSAVEBOX library routine to automatically check if a file already exists (opensave-save-box-checked) and to support multiple selection (opensave-openbox-multi, opensave-browse-folder-multi, opensave-next) as shown in Figure 11, *enhanced C\$OPENSAVEBOX*.

Figure 11. enhanced C\$OPENSAVEBOX

		Choose a file		×
Look in:	🗼 isapplicati	on 🗸	🔊 📂 🛄 -	
Recent Items	 copylib fonts prg resource 			
Desktop	source			
My Documents	RES_de.p	roperties roperties		
Computer	RES_es.pr RES_fr.pro RES_it.pro	operties		
	File name: Files of type:	"iscobol.properties" "RES_en.properties" "RES_es.properties"		Open Cancel

Other enhancements in isCOBOL 2013R2:

- to specify only one configuration file to be used (iscobol.conf.only=filename)
- to count bytes in text accept instead of chars
 (iscobol.terminal.double_byte_compat=1). This is important on character based applications running with double byte encoding (example Big5 for Chinese)
- to enable check on keys definition (iscobol.file.index.check_all_keys=1)
- to retrieve only the classname with C\$MYFILE routine (iscobol.cmyfile.classname_only=1)
- Additional info traced on logfile when loading programs from code_prefix and during OPEN statement. This enhance the information stored in the logfile and allows to better understand the program flow.

isCOBOL Server Improvements

Starting from isCOBOL 2013R2, the RPC client server protocol was improved to minimize client/server communications on TREE-VIEW control and W\$MENU routine. Also DISPLAY and MODIFY WINDOW take advantage of this optimization.

isCOBOL utilities Enhancements

Relative file support on GIFE editor as well the Unicode field type (PIC N) as shown in Figure 12, *Graphical Indexed and relative File Editor*. Now GIFE users can use this tool also on UNICODE system.

🐵 Graphical Indexed and relative File Editor - c:\Program Files\Veryant\isCOBOL2013R2\sample\unicode\ARC 🗕 🗖				×
<u>File Record Search View H</u> elp				
Field list Byte view Field view				
	Name	Туре	Value	
ARC_K	ARC_K 🌽	NumUnsigned (1, 0)	1	^
	ARC_D	National (20)	βαψ	

Figure 12. Graphical Indexed and relative File Editor

Web Direct 2.0 Improvements

Web Direct 2.0 has been improved and now it offers:

- NUMERIC style in Entry-Field controls is now fully supported
- MIN-VAL and MAX-VAL properties in Entry-Field are now supported
- These improvements allow to deploy a web application running with isCOBOL Web Direct 2.0 with less limitations.