isCOBOL™ Evolve

isCOBOL Evolve 2016 Release 2 Overview

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Introduction

Veryant is pleased to announce to selected users, the latest release of isCOBOL™ Evolve, isCOBOL Evolve 2016 R2.

isCOBOL Evolve provides a complete environment for the development, deployment, maintenance, and modernization of COBOL applications.

To allow the "outside world" to interact with an isCOBOL program, isCOBOL 2016 R2 includes a new feature called isCOBOL Service Bridge, integrated in the isCOBOL IDE and also available from the isCOBOL Compiler command line, which allows developers to easily create SOAP and REST Web Services starting from an existing legacy COBOL program.

isCOBOL 2016R2 includes many enhancements and new UI features. For example, grids content can now be effortlessly exported in Microsoft Excel format (both .xls and .xlsx formats).

The Xinuos OpenServer 10 64-bit operating system is now supported as a target platform with pre-built setups.

Details on these enhancements and updates are included below.

isCOBOL Service Bridge facility

To allow other software to communicate with an isCOBOL program, isCOBOL 2016R2 now provides easy server-side SOAP and REST Web Services development using the isCOBOL Server Bridge feature, available in the EIS framework. With Server Bridge, every time the isCOBOL Compiler compiles a legacy COBOL program with Linkage Section, a bridge class that allows the program to be used as a Web Service is automatically generated.

This feature is enabled by setting the property `iscobol.compiler.servicebridge` to true, and can be customized through the Service Bridge configuration described as follows:

```
iscobol.compiler.servicebridge=true
iscobol.compiler.servicebridge.type=SOAP|REST
iscobol.compiler.servicebridge.package=...
iscobol.compiler.servicebridge.rest.prefix=...
iscobol.compiler.servicebridge.rest.response=JSON|XML
iscobol.compiler.servicebridge.soap.prefix=...
iscobol.compiler.servicebridge.soap.url=...
iscobol.compiler.servicebridge.soap.style=RPC|Document
iscobol.compiler.servicebridge.soap.namespace=...
```

To generate a REST web service with JSON responses, for example, the following configuration should be used when compiling:

```
iscobol.compiler.servicebridge=true
iscobol.compiler.servicebridge.type=REST
iscobol.compiler.servicebridge.rest.response=JSON
```

In addition, the generation of the Service Bridge class can be customized using $ELK directives that need to be set before each data item in Linkage section. For example, using the code sample below, the web service will have an input/output parameter called `code`, an input parameter called `name` and an output parameter called `description`.
When the web service is called, the corresponding linkage data items (`p1`, `p2` and `p3`) will be assigned the corresponding values.

```
 Linkage Section.
 01 params.
$ELK NAME=code
    03 p1 pic 9(9).
$ELK INPUT, NAME=name
    03 p2 pic x(20).
$ELK OUTPUT, NAME=description
    03 p3 pic x(100).
```

isCOBOL IDE users can rely on the isCOBOL Service Editor to automatically and graphically generate the needed configuration and directives. Using this editor, developers can map the Linkage Section data items to the Web Service parameters, as well as configure other Web Service specific parameters. As soon as changes are saved, the configuration and original source code is updated with the proper compiler directives. As depicted in Figure 1, Opening isCOBOL Service Editor, in the isCOBOL Editor you can access the new isCOBOL Service Editor, and graphically customize the Web Service generation, as shown in Figure 2, Using isCOBOL Service Editor.

Figure 1. Opening isCOBOL Service Editor

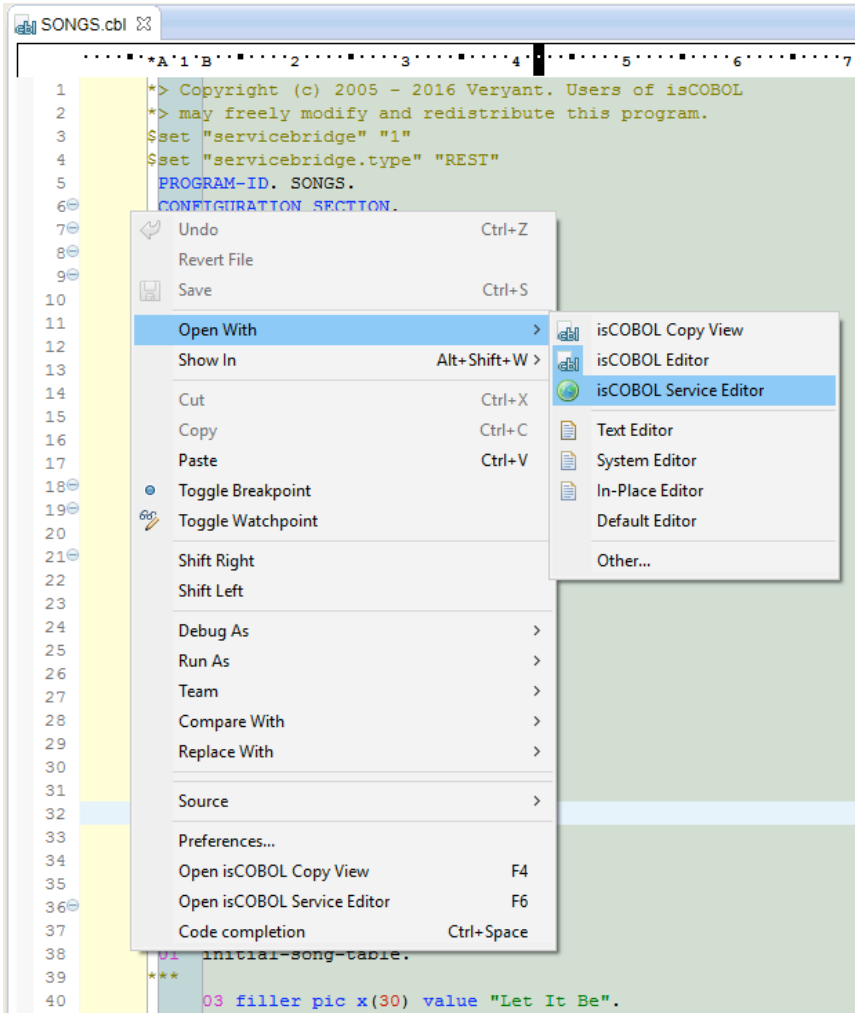
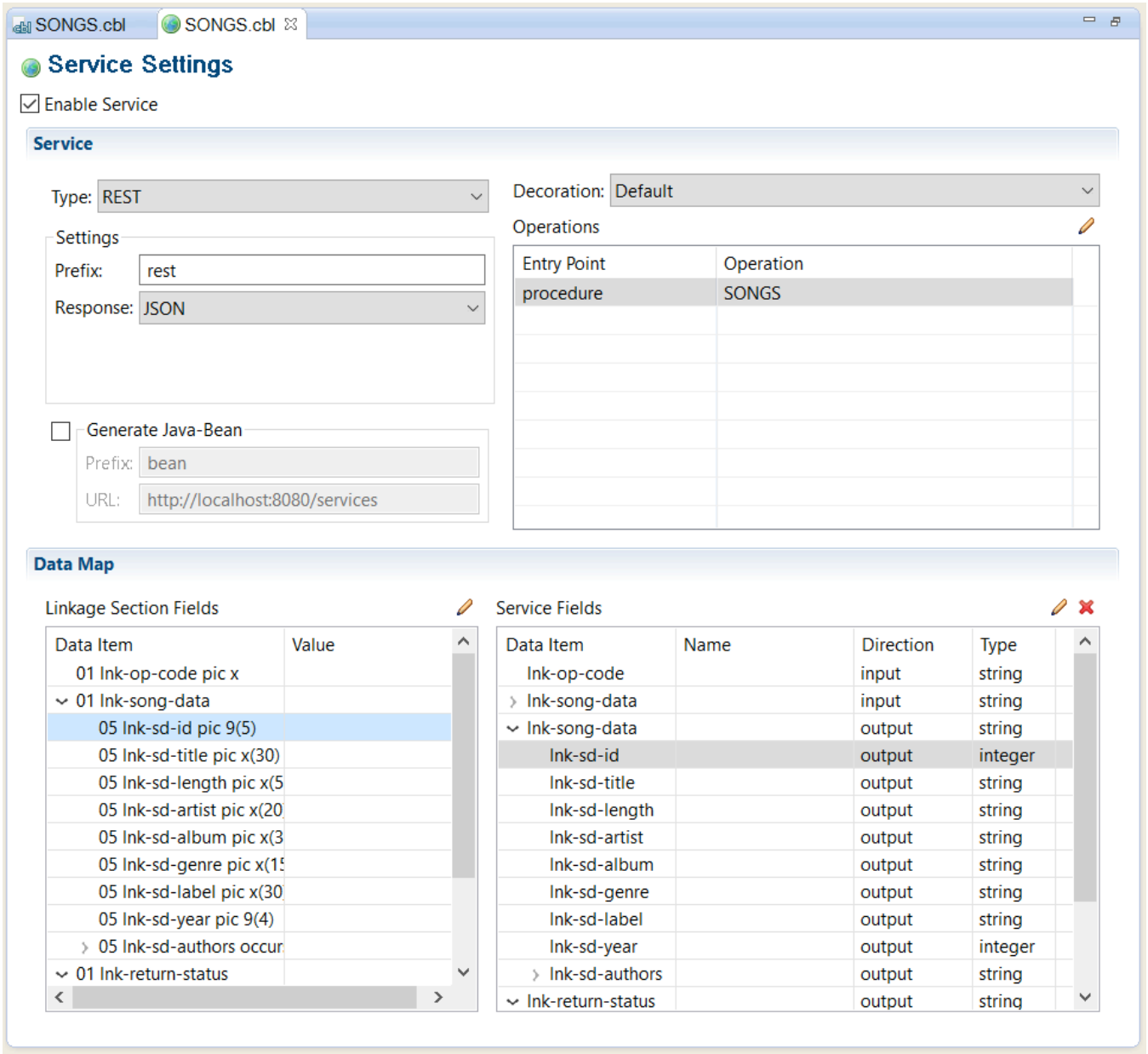


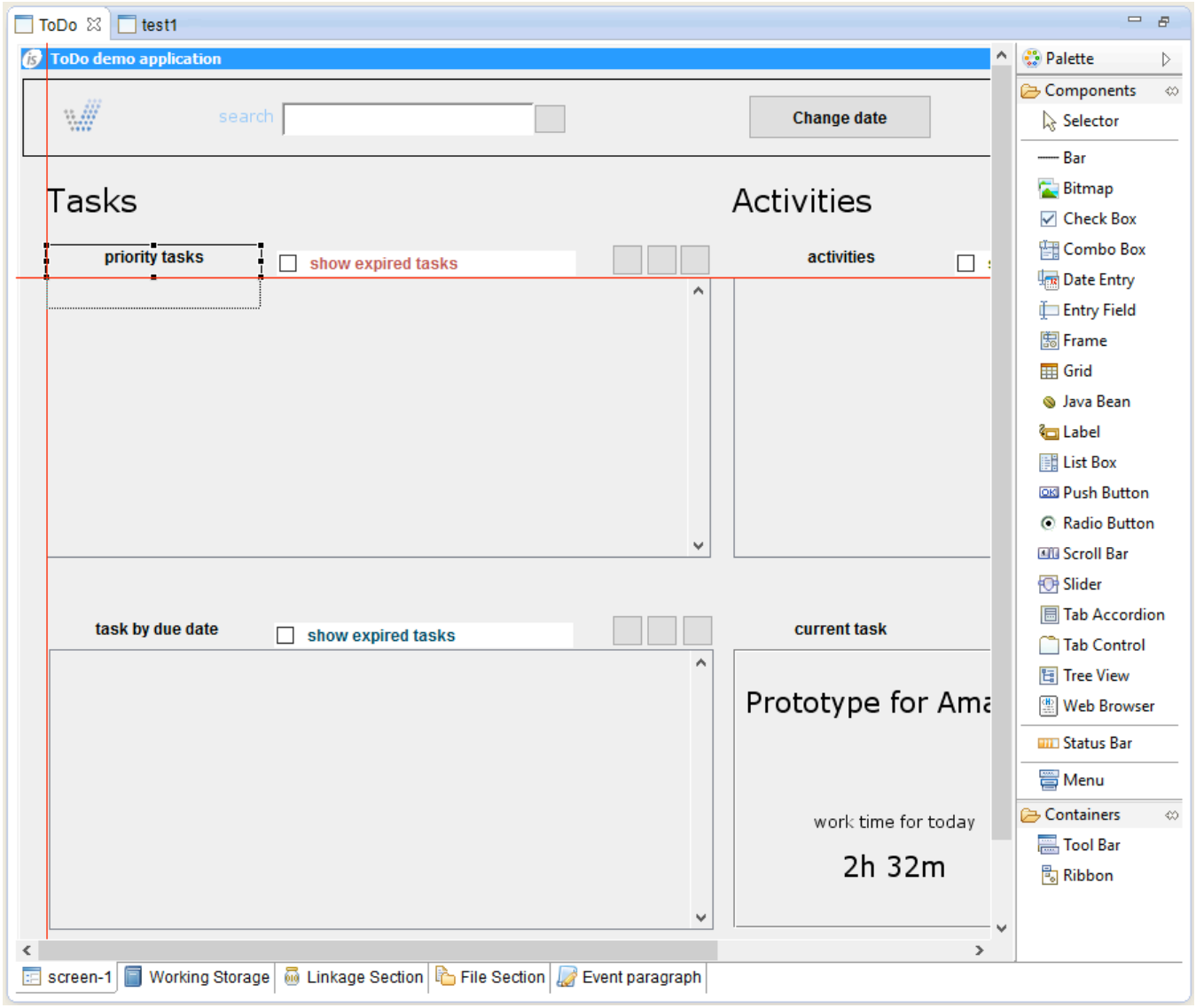
Figure 2. Using isCOBOL Service Editor



isCOBOL IDE Enhancements

The isCOBOL Evolve 2016 R2's IDE includes the new feature "Snap to Guides", which improves productivity by simplifying the alignment of components when designing a screen or report, as shown in Figure 3, *Snap to Guides*.

Figure 3. Snap to Guides



New User Interface Features

The Grid control has been greatly enhanced with new features, and push buttons have been upgraded as well.

Grid control

Grid content can now be copied to the clipboard and exported in Microsoft Excel XLS and XLSX formats. Those features can be added automatically or controlled by code.

The HEADING-MENU-POPUP property has new values defined in the isgui.def, or automatically generated by the Screen Painter, to allow adding the Copy and Export popup menu items.

Using COBOL code, the new ACTION property value ACTION-EXPORT will trigger the grid data export feature. Exported data file name and format can be customized using the EXPORT-FILE-NAME and EXPORT-FILE-FORMAT properties.

Using the ACTION-COPY value of the ACTION property will copy the grid contents to the clipboard.

Figure 4, *Export to Excel* shows how the user can access the new grid export feature. This can be achieved by properly setting the HEADING-MENU-POPUP property of the grid, as shown below, no coding needed!

```
05 my-grid grid
     heading-menu-popup 63
     export-file-name w-path-filename
     export-file-format "xlsx"
```

The content of exported data into Excel will look like Figure 5, *Excel exported file*:

Figure 4. Export to Excel

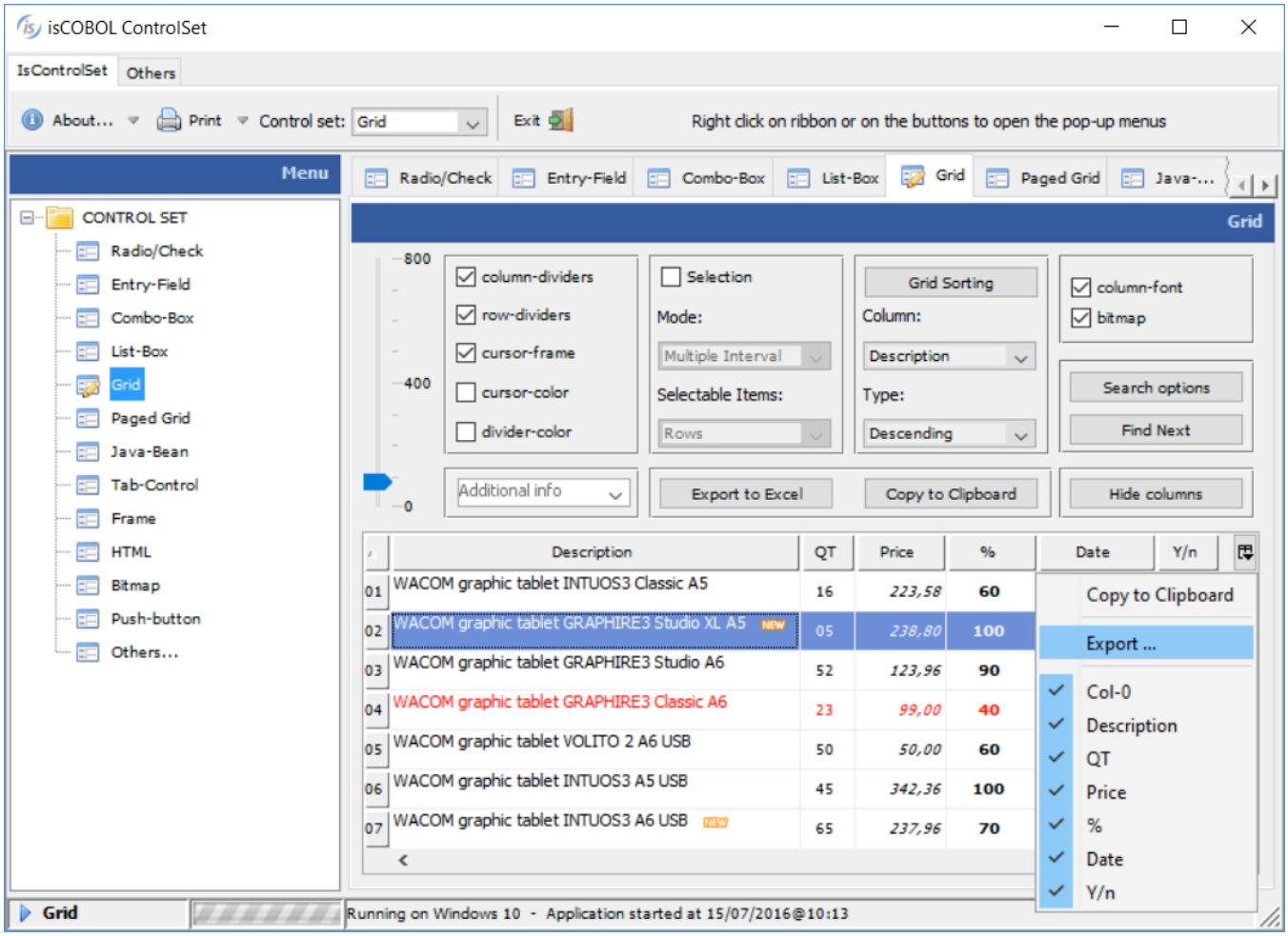


Figure 5. Excel exported file

	A	B	C	D	E	F	G
1		Description	QT	Price	%	Date	Y/n
2	1	WACOM graphic tablet INTUOS3 Classic A5	16	*223,58*	**60**	01/01/2013	0
3	2	WACOM graphic tablet GRAPHIRE3 Studio XL A5	5	*238,80*	**100**	01/02/2013	1
4	3	WACOM graphic tablet GRAPHIRE3 Studio A6	52	*123,96*	**90**	01/03/2012	0
5	4	WACOM graphic tablet GRAPHIRE3 Classic A6	23	*99,00*	**40**	01/04/2013	1
6	5	WACOM graphic tablet VOLITO 2 A6 USB	50	*50,00*	**60**	01/05/2013	0
7	6	WACOM graphic tablet INTUOS3 A5 USB	45	*342,36*	**100**	01/06/2011	1
8	7	WACOM graphic tablet INTUOS3 A6 USB	65	*237,96*	**70**	01/07/2013	1
9	8	WACOM graphic tablet INTUOS3 A4 USB	3	*490,68*	**100**	01/08/2013	0
10	9	WACOM CintiQ graphic tablet 17 TFT Vga+DVI	15	*2632,56*	**100**	01/09/2013	1
11	10	NGS graphic tablet Draw Master 20x15cm USB	63	*59,00*	**80**	01/10/2013	1
12	11	NGS graphic tablet Cadboy 14x10cm USB	14	*38,00*	**10**	01/11/2013	0
13	12	WACOM CintiQ graphic tablet 18 TFT Vga+DVI	0	*3373,44*	**100**	01/12/2010	1
14	13	WACOM CintiQ graphic tablet 15 TFT Vga+DVI	87	*1910,28*	**50**	01/01/2013	0
15	14	WACOM graphic tablet x Notebook PEN PARTNER	14	*39,00*	**100**	01/02/2013	1
16	15	COREL CorelDraw Graphic Suite 12 (Upgrade)	63	*292,00*	**100**	01/03/2013	1
17	16	COREL CorelDraw Graphic Suite 12 (Full)	55	*565,00*	**90**	01/04/2013	0
18	17	COREL CorelDraw Graphic Suite 11 (Full)	23	*99,00*	**40**	01/05/2009	1
19	18	PINNACLE Cubasis VST 5.0	45	*76,80*	**60**	01/06/2013	1
20	19	ACD SYSTEMS AcdSee 7.0	75	*99,90*	**30**	25/07/2013	0
21	20	SONY T2XP/S Centr1.2G 512M 60G DVD±RW 10.6 XP	21	*2868,00*	**50**	01/08/2013	1

Multiple selection modes are now supported in the grid control, to allow users to more conveniently select rows or columns.

New properties in the GRID control:

- SELECTION-MODE to specify the selection type
- CELL-SELECTED-COLOR to set the selected cell color, expressed as COBOL value
- CELL-SELECTED-BACKGROUND-COLOR to set the selected cell background color, in RGB format
- CELL-SELECTED-FOREGROUND-COLOR to set the selected cell foreground color, in RGB format
- COLUMN-SELECTED-COLOR to set the selected column color, expressed as COBOL value
- COLUMN-SELECTED-BACKGROUND-COLOR to set the selected column background color, in RGB format
- COLUMN-SELECTED-FOREGROUND-COLOR to set the selected column foreground color, in RGB format
- ROW-SELECTED-COLOR to set the selected row color, expressed as COBOL value
- ROW-SELECTED-BACKGROUND-COLOR to set the selected row background color, in RGB format
- ROW-SELECTED-FOREGROUND-COLOR to set the selected row foreground color, in RGB format
- CELLS-SELECTED to retrieve the selected cells list
- COLUMNS-SELECTED to retrieve the selected columns list
- ROWS-SELECTED to retrieve the selected rows list

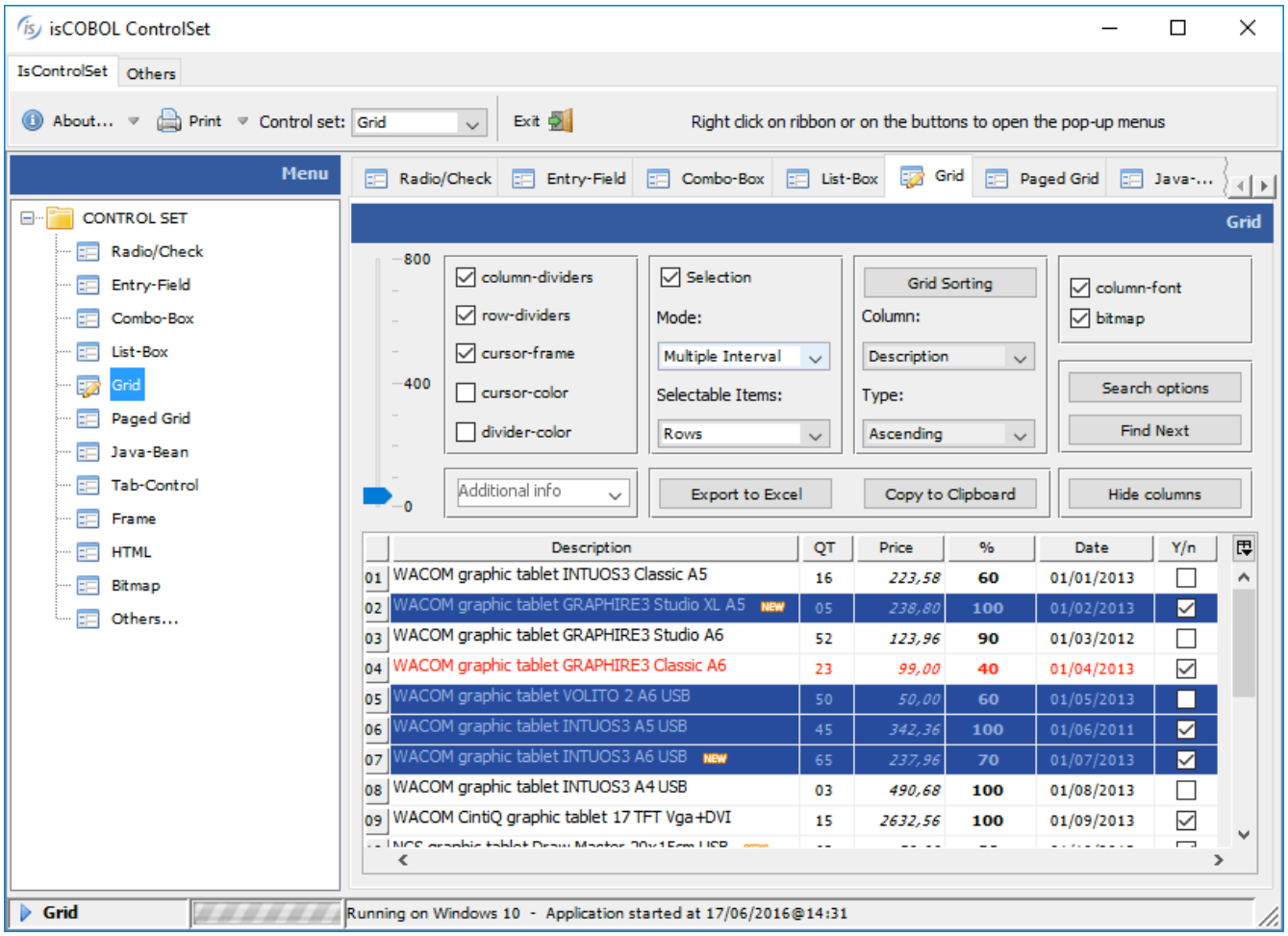
With the code shown below multiple row selections can be easily added in the grid:

```
05 my-grid grid
   selection-mode 12
   row-selected-foreground-color rgb x#9CB0E3
   row-selected-background-color rgb x#2D4D9F

   ...
```

Grid selections are shown in Figure 6, *Multiple selections in grid*.

Figure 6. Multiple selections in grid



To provide better looking and easier to read grids, when multiple header rows are used, heading cells can now span horizontally or vertically

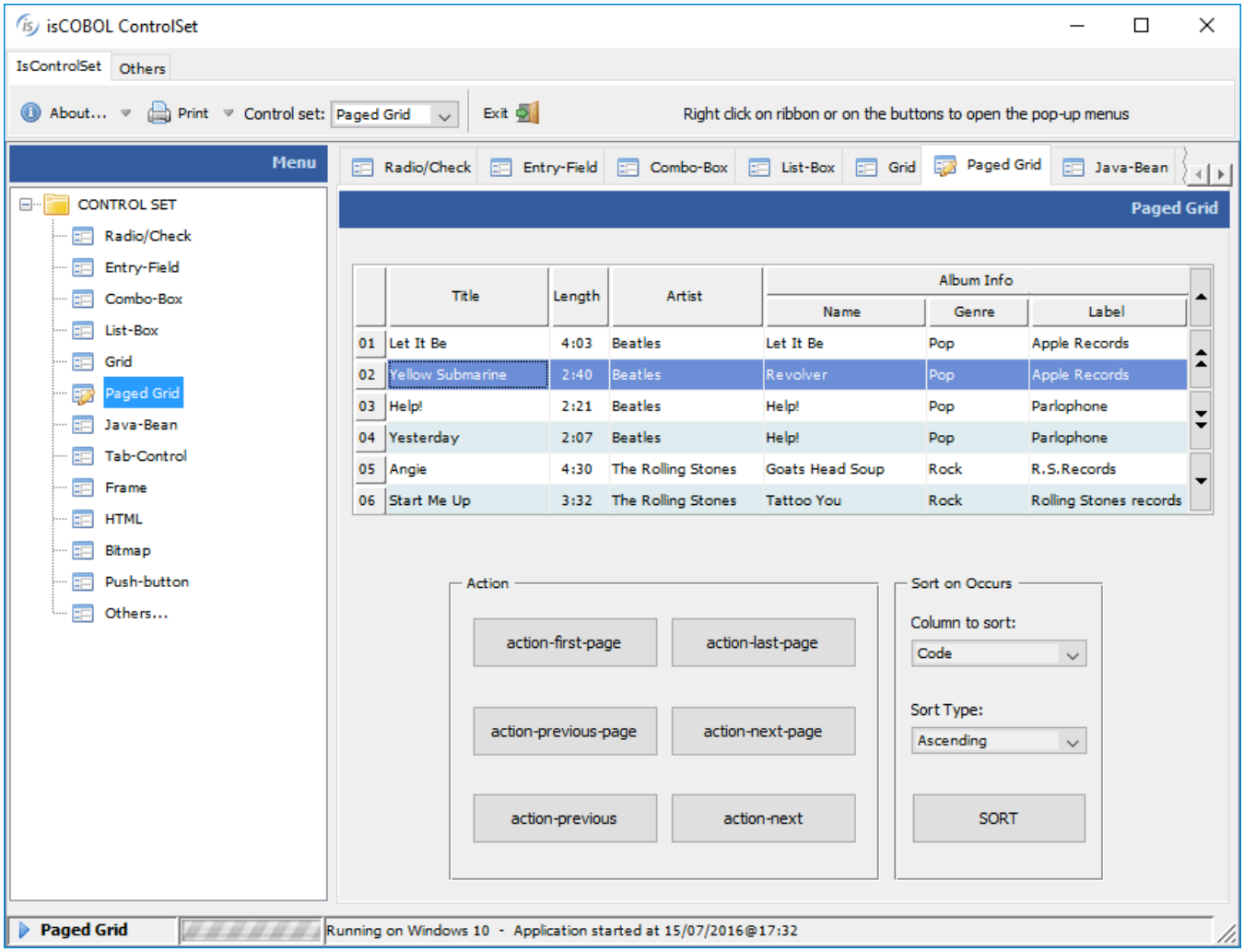
- CELL-ROWS-SPAN spans a header cell vertically on multiple rows
- CELL-COLUMNS-SPAN spans a header cell horizontally on multiple columns

In Figure 7, *Heading cells spanning*, the SPAN CELLS feature is used to vertically span the first 4 columns and to horizontally span the Album Info cell, using the code below

```
05 my-grid grid
   column-headings
   num-col-headings 2
   ...

  modify my-grid(1, 1) cell-rows-span 2
  modify my-grid(1, 2) cell-rows-span 2
  modify my-grid(1, 3) cell-rows-span 2
  modify my-grid(1, 4) cell-rows-span 2
  modify my-grid(1, 5) cell-columns-span 3
```

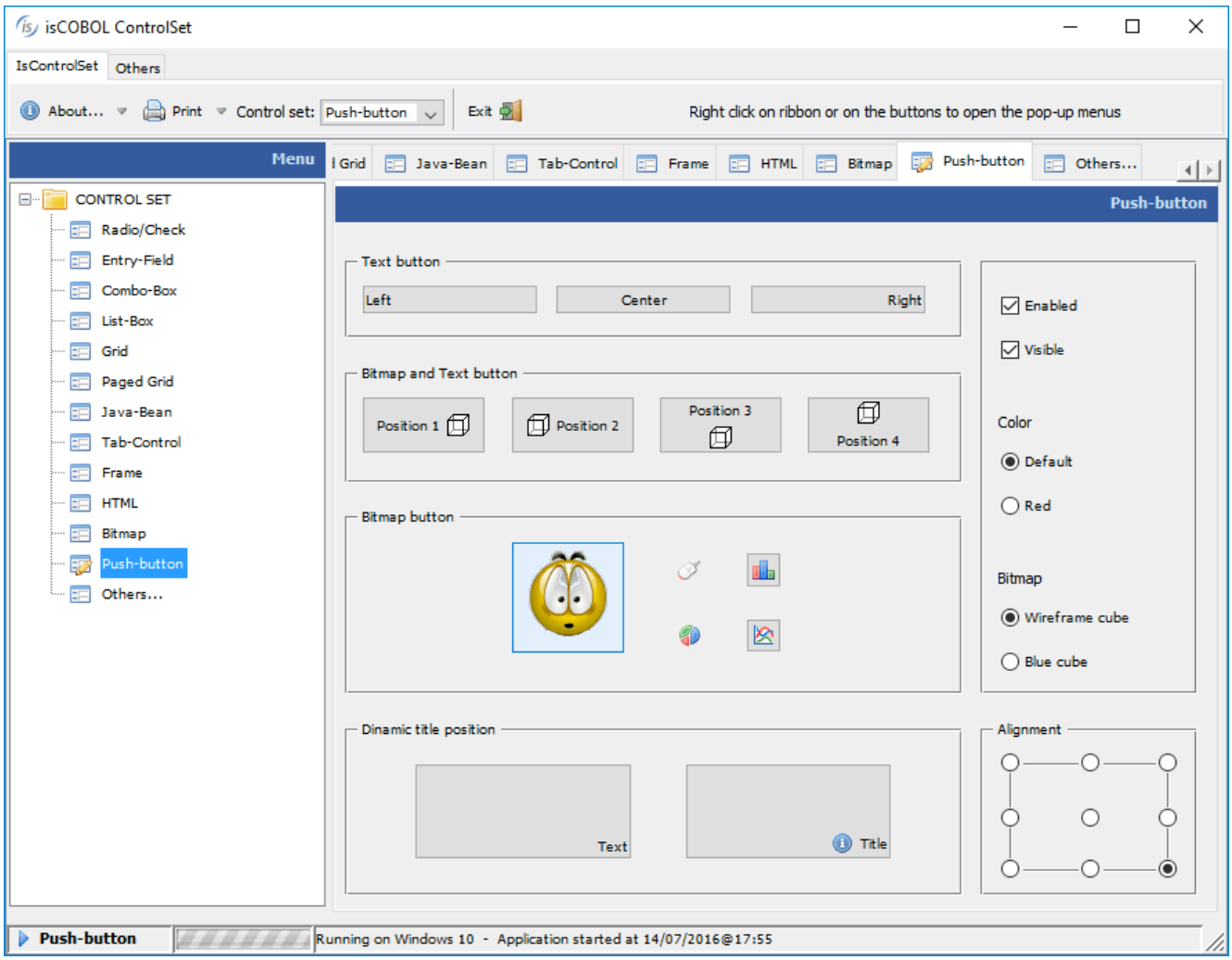
Figure 7. Heading cells spanning



Push buttons

Alignment styles LEFT, RIGHT, TOP, BOTTOM, CENTER are now supported in push-buttons and can be set dynamically, as shown in the Dynamic title position of Figure 8, *Push-button alignment*

Figure 8. Push-button alignment



Framework Improvements

The isCOBOL framework has yet again been improved to aid developers gain productivity while debugging and increase performance of running applications.

C$WRITELOG

Multiple parameters are now supported in C$WRITELOG, to output several items at once, as shown below.

```
CALL "C$WRITELOG" using "value of var1:" var1 ", var2=" var2
```

W$FLUSH

The W$FLUSH library routine has two new op-codes:

- WFLUSH-DISABLE-UI to disable the user interface updates
- WFLUSH-ENABLE-UI to restore the user interface updates

The new opcodes can improve performance in scenarios where a long computation contains several unnecessary DISPLAY or MODIFY statements. Disabling the UI drawing will speed up performance and, at the end of the computation, UI drawing can be re-enabled to update the user interface. It can be used as show below.

```
CALL "W$FLUSH" using WFLUSH-DISABLE-UI
PERFORM DO-LONG-OPERATION-WITH-UNNECESSARY-UI-UPDATES
CALL "W$FLUSH" using WFLUSH-ENABLE-UI
```

External logging

External logging can now be configured using the new configuration property:

```
iscobol.logclass=com.iscobol.logger.Slf4jLogger
```

This allows the use of external logging libraries, such as Log4J, and take advantage of their advanced features, like rolling and zipping.

isUPDATER

isUPDATER can now automatically check for software updates by adding the `-update` option in the command line used to run an isCOBOL application, such as

```
iscrun -update MYPROG
```

isUPDATER loads from CLASSPATH the `isupdater.properties` configuration file, containing information on the update server, such as

```
swupdater.site=http://192.168.0.123:10996
```

using this configuration, isUPDATER is leveraging the `-hs` option of `iscserver`, which starts an HTTP server on the default 10996 port, where updates might have been stored.

isCOBOL Compiler Enhancements

isCOBOL Evolve 2016 R2 includes several changes to the isCOBOL Compiler that improve productivity and simplify migration from other COBOLs.

$SET to set compiler properties on each program

$SET directive can now be used to set compiler properties for each program, to allow customization of compiler properties inside the source code, without the need for additional configuration files, such as:

```
$set "easylinkage" "1"
$set "easylinkage.package" "com.veryant"
PROGRAM-ID. GETCUSTID.
```

Enhanced compatibility with other COBOLs

New library routines have been implemented: CBL_EQ and CBL_IMP for logical operator, CBL_SPLIT_FILENAME to split a filename. New intrinsic functions have been added: E, EXP, EXP10, FRACTION-PART, PI, SIGN to simplify migration from Micro Focus COBOL.

Vision version 6 indexed files are now supported in the com.iscobol.io.ScanVision file handler – used in ISMIGRATE - to allow data migration from ACUCOBOL-GT Extend 10.

A new configuration property, iscobol.gui.screen_col_zero=1, has been added to emulate the RM/COBOL behavior of the DISPLAY statement with the COLUMN 0 phrase.

ESQL TRUNCATE statement is now supported to simplify migration from Pro*COBOL to isCOBOL with JDBC database access.

IsCOBOL Server Improvements

isCOBOL Thin Client can now be updated without needing any client configuration changes. By properly configuring isCOBOL Server, isUPDATER automatically updates client components.

Client updates can now be configured on isCOBOL Server, using the new iscobol.as.clientupdate.site property, by declaring the HTTP server location where updates are located, such as

```
iscobol.as.clientupdate.site=http://192.168.0.123:10996
```

The above configuration takes advantage of the -hs option of isCOBOL Server which starts an http server on port 10996. Client components are then guaranteed to match the server version.

If minor server updates are not wanted on the clients, these can be skipped by setting the client runtime version to the desired value using the new server configuration property iscobol.as.clientupdate.version, i.e.

```
iscobol.as.clientupdate.version=875.2
```

Single clients can be configured to skip updates with the new client option:

–noupdate

```
iscclient –hostname ipserver –port 10999 –noupdate MYPROG
```

isCOBOL EIS improvements

Servlet prefix

You can now customize the prefix used by the servlet to map the web service operation to the program generated by Service Bridge, by setting the iscobol.http.servlet.prefix configuration property.

For example, if the Service Bridge was used to generate a Rest web service, the prefix must be configured as

```
iscobol.http.servlet.prefix=rest
```

while if a SOAP web service was generated, then the prefix should be

```
iscobol.http.servlet.prefix=soap
```

If Service Bridge was configured with custom prefixes when the program was generated, then you need to specify the same prefix

```
iscobol.http.servlet.prefix=custom
```

Utility improvements

isUPDATER enhancements

isUPDATER has been enhanced to supports folder names for updates in addition to zip files. Native, OS specific updates, can be downloaded as needed by appropriately setting the isUPDATER configuration file. This will save time and bandwidth, by allowing the download of only necessary components.

An example of multiple OS configuration settings:

```
swupdater.version.iscobol=875.2
swupdater.lib.iscobol=lib
swupdater.version.iscobolNative=875.2
swupdater.lib.linux.32.iscobolNative=native/linux32_libs
swupdater.lib.linux.64.iscobolNative=native/linux64_libs
swupdater.lib.win.32.iscobolNative=win32_libs
swupdater.lib.win.64.iscobolNative=win64_libs
```

New supported platform

OpenServer 10

Starting from this version, a new platform is available for download: Xinuos OpenServer 10 64-bit, an operating system based on the popular FreeBSD and designed to support business applications within an enterprise environment. OpenServer 10 supports the latest hardware and peripherals and gives you more choices for business applications. New support, security, and management tools boost performance, scalability, and reliability, allowing businesses to runs more smoothly.

Veryant supports OpenServer 10 by providing dedicated .tar setups, including native components, in order to simplify the installation process.

c-treeRTG is also available on OpenServer 10, allowing easy porting of an entire isCOBOL application to this operating system, and increasing the total number of target platforms and increase the potential customer base.

More information about Xinuos OpenServer 10 is available on http://www.xinuos.com