veryant

Evolution, without revolution

Quick Reference Guide

Migrating from RM/COBOL to isCOBOL Evolve

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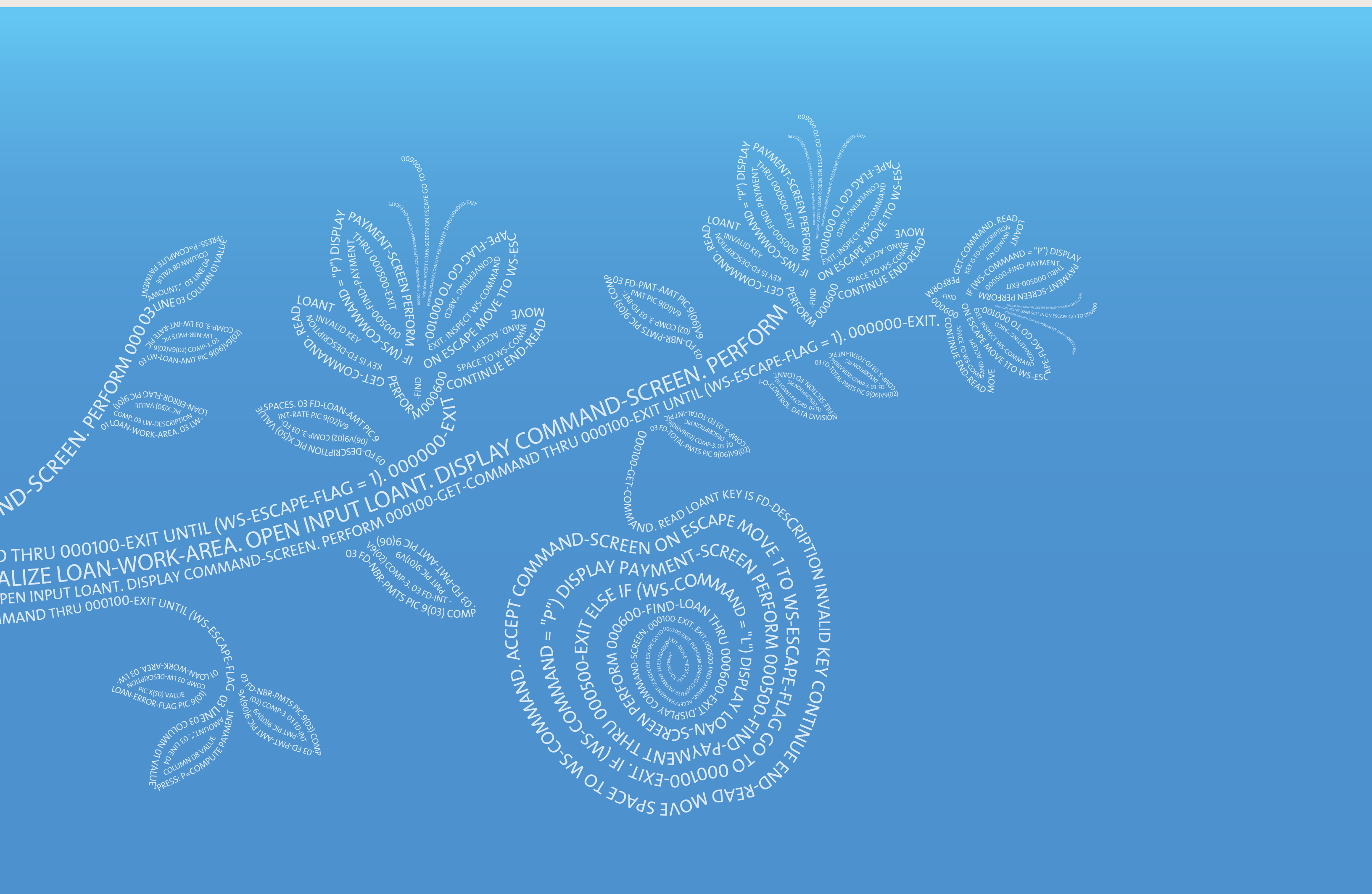

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Modernize and maintain COBOL applications Clear future

With isCOBOL technology from Veryant, you can move to an innovative COBOL platform with lower TCO, a solid roadmap, and numerous options for GUI maintenance and modernizaton, all backed by a dedicated global support team.

INTRODUCTION

RM/COBOL is a COBOL platform that was originally designed to provide developers with a suite of software solutions to maintain and modernize COBOL applications. With a complete line of RM/COBOL replacement products, extensive compatibility, and 'friendly' migration and modernization features, isCOBOL Evolve from Veryant offers a seamless transition plan and a stable path forward for RM/COBOL-GT users.

Backed by a dedicated team of COBOL experts and over 100,000 production installations, isCOBOL protects existing COBOL investments and offers the perfect blend of COBOL and Java for comprehensive, cost-effective development, deployment and modernization of COBOL applications.

This quick reference guide highlights the benefits of the isCOBOL platform, gives you advice on planning for the move to isCOBOL, and helps you understand similarities and differences between isCOBOL and ACUCOBOL.

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Multi Platform

Compelling cost-effective alternative

Web Enablement

Java Integration

The guide includes:

- **An introduction to the isCOBOL Evolve platform**
- **An RM/COBOL to Veryant product compatibility table Feature and functionality comparison details Information on additional isCOBOL advancements Details on how to get started with a move to isCOBOL**

INTRODUCTION TO ISCOBOL EVOLVE

isCOBOL Evolve offers a compelling and cost-effective alternative to distributed COBOL platforms such as ACUCOBOL-GT and RM/COBOL. isCOBOL technology enables customers to retain and enhance valuable COBOL application and development assets, while taking full advantage of the flexible Java platform in deployment.

Core components of the isCOBOL suite include a 100% portable COBOL compiler and runtime environment; an Eclipse-based Integrated Development Environment (IDE) with a real-time syntax checker; and a 100% portable, graphical debugger that facilitates remote debugging.

With isCOBOL technology, all development and debugging tasks are performed in a familiar, flexible and user-friendly COBOL environment -- no retraining or rewriting code required. The isCOBOL Compiler translates COBOL source code into Java classes that are then executed with the Java Virtual Machine (JVM). Because the isCOBOL Runtime Environment is implemented entirely in Java, the result is an extremely portable, robust solution that simplifies development, administration and implementation tasks. Thin Client and distributed processing capabilities are included in the isCOBOL Runtime Environment, enabling developers to maintain one graphical user interface (GUI), regardless of platform choice or deployment model. Application modernization efforts, such as improved integration and interoperability are also made easier.

The modular design of isCOBOL Evolve supports a wide range of data access options. All common COBOL file organizations and record types are supported, including Indexed, Relative, Binary Sequential, and Line Sequential file organizations, with fixed and variable length records. isCOBOL has a built-in ESQL compiler that translates embedded SQL (EXEC SQL) statements to JDBC calls, and also supports Pro*COBOL and DB2 Precompilers.

isCOBOL Evolve supports ANSI standards and legacy COBOL dialects, so application code can quickly be replatformed to an isCOBOL environment with typically little or no change. With isCOBOL Evolve, ‘compile once, run anywhere’ is truly delivered and new application modernization features and data options can be rapidly introduced.

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RM/COBOL TO VERYANT PRODUCT COMPATIBILITY TABLE

Many customers who deployed RM/COBOL-based solutions incorporated a wide-range of software products and utilities. In addition to Web 2.0 and other modernization features that go above and beyond where RM/COBOL left off, isCOBOL Evolve includes an extensive array of RM/COBOL replacement products, including alternatives for products such as RM/INFOEXPRESS and Instant SQL. As detailed in Table 1, Product Family Comparison Table, isCOBOL provides a seamless path forward for valuable business assets implemented originally in isCOBOL.

Table 1. Product Family Comparison Table

	RM/COBOL Product	Veryant Equivalent
Product Family	RM/COBOL suite	isCOBOL Evolve
Development Environment	RM/COBOL Compiler	isCOBOL Compiler
	COBOL-WOW IDE	isCOBOL IDE
	Instant SQL	isCOBOL ESQL
	Recover2 utility	jutil ctutil utilities
Runtime Environment	RM/COBOL Runtime	isCOBOL Runtime Framework
	WOW Thin Client	isCOBOL Application Server isCOBOL Thin Client (included in standard Runtime fee)

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	RM/COBOL Product	Veryant Equivalent
Product Family	RM/COBOL suite	isCOBOL Evolve
Runtime Environment	RM indexed files	J-ISAM c-treeRTG Evolve
	RM/INFOEXPRESS	isCOBOL File Server (included in standard Runtime fee)
	Xcentrisity Business Information Server	isCOBOL EIS (*)
Add-on Products	Relativity	isCOBOL UDBC c-treeRTG Enterprise
	Database connector	isCOBOL Database Bridge (*)
	Xcentrisity Business Information Server	isCOBOL EIS (*)

(*) isCOBOL Database Bridge and isCOBOL EIS are Development system's Add-on, so there are no additional fee for deployment.

In addition to a long list of similarities, isCOBOL picks up where RM/COBOL left off by delivering "next generation" features such as a Web-enabled, Java Thin Client, the ability to call COBOL programs on the client, a multi-threaded Java Application Server, a Load Balancer, and no user interface limitations.

With the isCOBOL EIS Web Direct feature, organizations can leverage existing COBOL syntax to develop and deploy a universally accessible, zero client rich Internet application (RIA) using standard COBOL screen sections and existing program procedure division and flow. No knowledge of object-oriented programming, JavaScript, HTML, or other Web languages is required.

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For companies with numerous thin client end-users or specialized computing requirements, the isCOBOL Load Balancer is available as an add-on product to isCOBOL Application Server. The isCOBOL Load Balancer distributes workloads among clusters of server processes running on the same or different machines for enhanced horizontal scalability or workload separation.

To take COBOL mobile, Veryant provides a COBOL solution for application development on Android mobile devices natively integrate HTML5/CSS3 technologies.

Veryant offers JISAM and c-treeRTG with isCOBOL Evolve. Veryant JISAM is a 100% Java-based indexed sequential access (ISAM) file system that runs on a wide range of platforms. c-treeRTG is a robust technology that delivers performance, scalability, and data integrity without re-rewriting your existing applications.

Veryant has also developed a number of useful tools and utilities, including:

COBFILEIO - The COBFILEIO utility works together with the isCOBOL Compiler to read COBOL source code and generate Java classes that can be used to access COBOL files and records.

ISCONFIG – , The ISCONFIG utility converts an ACUCOBOL-GT configuration file to an isCOBOL configuration file.

ISMIGRATE – The ISMIGRATE utility can migrate files from and to any of the following file systems: isCOBOL JISAM, c-tree, isCOBOL Database Bridge, RM/COBOL Index files and others that provide an EXTFH interface.

STREAM2WRK – The STREAM2WRK utility creates a COBOL record description that can be used to read and write XML files also it takes a WSDL file and generates a COBOL description of the ‘SOAP Envelopes’ used by the service. Two envelopes are generated for each service: an envelope for date request and an envelope for data response.

EASYLINKAGE - that makes calling isCOBOL programs from Java easier than ever. By setting a property value, the isCOBOL compiler will generate a Java class wrapping the linkage section, providing getters and setters for COBOL variables, and will generate methods to run legacy programs or entry points. Just include the Java class source code in your Java project and you’re good to go.

SERVICEBRIDGE - provides easy SOAP and REST Web Services development generated automatically from any legacy COBOL program with Linkage Section. It maintain you COBOL investment relevant in a world where Software as a Service (SaaS) is becoming mainstream.

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REST,SOAP
Services

JSON,XML
HTML
Integration

FEATURE AND FUNCTIONALITY COMPARISON LIST

By providing nearly 100% compatibility with RM/COBOL, isCOBOL offers seamless transitions from the RM/COBOL platform. Some of key areas where isCOBOL supports RM/COBOL functionality have been highlighted below:

Complete support for RM/COBOL character user interface programming including ACCEPT and DISPLAY with CONTROL clause.

Extensions to the ANSI standard like:

- **exponentiation syntax in data division**
- **binary variable declaration specifying the size in bytes**
- **accept var from DATE-AND-TIME**
- **IF var IS LIKE “regular-expression”**
- **START filename KEY [IS] FIRST / LAST keyname**
- **RM/COBOL numeric storage enabled with the –dcii compiler option**
- **RM/COBOL default copy extension enabled with the –ce=cbl compiler option**
- **RM/COBOL style lock mode enabled with the –crlk compiler option**
- **START WHILE KEY LIKE “regular-expression”**
- **Many commonly used C$ and P$ library routines (platform independent)**

100% compatible formats for sequential and relative files and automatic conversion from RM/COBOL ISAM files to JISAM or c-treeRTG file formats.

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ADDITIONAL ISCOBOL ADVANCEMENTS

As previously mentioned, isCOBOL picks up where RM/COBOL left off by delivering innovative features such as a Web-enabled Java Thin Client, the ability to call COBOL programs on the client, a multi-threaded Java Application Server, a Load Balancer, and no user interface limitations. As highlighted in Table 2, isCOBOL Advancements, Veryant continues to add new features and further refine the isCOBOL offering. These features are implemented in the same style as other COBOL features, so they are very easy to learn and already familiar to the RM/COBOL programmer.

Table 2. isCOBOL Advancements

Feature	isCOBOL	RM/COBOL
Portable Java-based Thin Client supporting all GUI controls, properties, and styles	Yes	No
Web Launch of Thin Client including all GUI features	Yes	No
Zero-client web-browser deployment of COBOL screens	Yes	No
Create and use COBOL and Java objects using Object-oriented COBOL syntax	Yes	No
Access COBOL indexed files and records as Java classes	Yes	No
Full Unicode Support	Yes	No
Online live data backup, recovery and restore to point in time	Yes	No
Text resources **03 LABEL LINE 2 COL 2 SIZE 12** **TITLE R"username".** **(Set username=Username, username=Usuario, username=Benutzer, etc in language specific resource files)**	Yes	No
Variable length alphanumeric items **77 my-var PIC X ANY LENGTH**	Yes	No

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Feature	isCOBOL	extend
Dynamic tables **01 my-table OCCURS DYNAMIC CAPACITY num-items.** **03 my-item1 PIC X(10).** **03 my-item2 PIC 9(5).**	Yes	No
Complete THREAD support for multi-thread programming with special statements to comunicate between threads: SEND, RECEIVE, WAIT	Yes	No
Print to PDFs and print preview: **SELECT pdf-file** **ASSIGN TO PRINT "-P PDF /docs/print.pdf"** **SELECT ptr-prev** **ASSIGN TO PRINT "-P PREVIEW"**	Yes	No
Complete GUI interface implemented in LEGACY mode through screen section with full HTML and RGB color support **01 screen1.** **03 label line 2 col 2 size 10 title "Label".** **03 entry-field line 4 col 2 size 10 value var1.** **03 grid line 6 col 2 size 50 lines 5.** **03 push-button line 6 col 2 size 10 title "Push".** **…** **DISPLAY screen1** **ACCEPT screen1**	Yes	No
Different types of WINDOWS created by DISPLAY STATEMENT **DISPLAY STANDARD WINDOW** **DISPLAY INDEPENDENT WINDOW** **DISPLAY FLOATING WINDOW** **DISPLAY MDI-PARENT WINDOW** **DISPLAY MDI-CHILD WINDOW** **DISPLAY DOCKING WINDOW** **DISPLAY DOCKABLE WINDOW**	Yes	No
Call COBOL programs on the thin client **CALL CLIENT "myclientprog" USING …**	Yes	No

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Feature	isCOBOL	extend
Render HTML in graphical controls that display text For example, to show an animated GIF in a LABEL: 03 LABEL line 2 col 25 lines 5 cells size 9 cells title '<html><img src="file:Files/lb.gif"></img></html>'	Yes	No
Add tooltips on ALL controls with the HINT property 03 ENTRY-FIELD line 2 col 25 size 9 cells value w-name hint "Enter your name here"	Yes	No
Use RGB values to set colors of any controls: 03 LABEL line 2 col 25 size 9 cells title "gray label" color rgb x#c0c0c0.	Yes	No
Entry field format masks to assist user data entry: 03 ENTRY-FIELD line 2 col 25 size 9 cells value w-date format-string "##/##/####"	Yes	No
W$BITMAP, W$CAPTURE, W$SCALE, W$ROTATE, W$IMAGESIZE	Yes	No
Export the GRID content in .xls and .xlsx formats MODIFY GD-Handle EXPORT-FILE-NAME "myfile.xlsx" EXPORT-FILE-FORMAT ".xlsx" ACTION ACTION-EXPORT	Yes	No
Allow user to edit TREE-VIEW items	Yes	No
SLIDER and RIBBON controls	Yes	No

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Feature	isCOBOL	extend
Add icons to COMBO-BOX items and TAB-CONTROL labels **MODIFY ComboBoxHandle, ITEM = 1,** **BITMAP-NUMBER = 20** **MODIFY TabControlHandle, TAB-INDEX = 1** **BITMAP- NUMBER = 1**	Yes	No
Tab-Control as an ACCORDION container	Yes	No
Interface with JAVABEAN controls	Yes	No
Unlock TOOL-BAR using the MOVEABLE style **DISPLAY TOOL-BAR MOVEABLE HANDLE toolbar-handle**	Yes	No
Docking windows **DISPLAY DOCKING WINDOW LAYOUT W-LAYOUT** **HANDLE h-main** **DISPLAY DOCKABLE WINDOW UPON h-main**	Yes	No
MDI Windows **DISPLAY MDI-PARENT WINDOW HANDLE h-mdi** **DISPLAY MDI-CHILD WINDOW upon h-mdi**	Yes	No
Placeholder functionality on ENTRY-FIELD and COMBO-BOX while the field is empty	Yes	No
Debugger source code colorization, background color for copybooks, show results of REPLACING, set and inquire graphical control properties, display group variables a tree, copy/paste selected lines, edit and continue debugging (in IDE), quick watch data-items and control properties, remote debugging.	Yes	No

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Mobile solution

Logging Transaction and SQL

OOP

GETTING STARTED WITH A MOVE TO ISCOBOL

Veryant's innovative isCOBOL technology is highly compatible with today's common COBOL dialects, enabling quick and efficient migration from RM/COBOL to the isCOBOL platform.

As with other COBOL-to-COBOL transitions, the key steps involved in a conversion to isCOBOL are:

- **Set up the isCOBOL Evolve Software Development Kit (SDK)**
- **Recompile the application with the isCOBOL Compiler; review the compiler output and make minor syntax modifications where necessary**
- **Migrate data using conversion utilities included with isCOBOL (if necessary)**
- **Set up the isCOBOL Runtime Environment, including environment variables and data connections**
- **Integrate with external software libraries and routines such as those written in the C**
- **programming language**

With isCOBOL, organizations have the choice of either migrating an entire application codebase at once, or of taking a phased approach which sets the pace of a conversion according to resource availability and desired timeframe. During a phased migration, an organization's developers continue to maintain an application with the ACUCOBOL compiler, while simultaneously working on the same set of source code to compile and execute with isCOBOL. With isCOBOL software's compiler and runtime compatibility settings, the overall level of effort required for conversion can be kept to a minimum.

When considering a move to isCOBOL, the Veryant support team can help assess the level of effort required. If desired, Veryant also offers services to build a limited representative prototype of an application running in an isCOBOL environment. This exercise includes a thorough analysis process that helps determine how straightforward the transition to Veryant will be for an organization.
With assistance from Veryant, it typically takes customers less than two days to get a clean compile of their application source code with isCOBOL. With an additional two days, a working prototype of an application running with isCOBOL can be produced.

The isCOBOL documentation set also includes a reference guide for transitioning from RM/COBOL.

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Evolution not Revolution

Application Modernization

ROI Improvement

CONCLUSION

Organizations are converting applications from ACUCOBOL-GT to the isCOBOL platform for many reasons:

- **to gain the advantage of a COBOL development and Java deployment model without rewriting or retraining**
- **to improve ROI and dramatically lower COBOL licensing fees**
- **to deploy to multiple platforms using a single set of source code**
- **to modernize applications with graphical thin client and web client options**
- **to natively integrate with leading Web and application server technologies**
- **to support a wide range of data access options and capabilities**
- **to implement mobile application**

With over 100,000 production installations worldwide, isCOBOL protects existing COBOL investments and offers the perfect blend of COBOL and Java for comprehensive, cost-effective development, deployment and modernization of COBOL applications.

Veryant welcomes the opportunity to work together with you to develop a plan to protect and enhance your valuable COBOL-based assets.

For more information on migrating to isCOBOL Evolve, visit us online at www.veryant.com or email info@veryant.com.

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