

Chapter 1

Compiler and Runtime

Overview

The isCOBOL Compiler is a platform agnostic, ANSI-compliant COBOL compiler that generates object-orientated code which efficiently runs on any platform that supports a Java Runtime Environment (JRE) version 1.6 or greater. Because the isCOBOL Compiler is written 100% in Java, one COBOL compiler can be used to develop, deploy and test on a wealth of platforms including AIX, HP-UX, Linux, Solaris, Windows and mainframe systems.

Written 100% in Java, the isCOBOL Runtime Environment enables applications to be able to run on any device supporting a Java Virtual Machine (JVM) -- from mainframes to mobile phones -- and this includes application logic, user interface, and data access.

Getting Started

The setup of a Compiler and Runtime environment requires the following steps:

1. [Download and install the Java Development Kit \(JDK\)](#)
2. [Download and install isCOBOL Evolve](#)
3. [Activate the License](#)

In order to activate your isCOBOL Evolve products, you will need the e-mail you received from Veryant containing your license key. Contact your Veryant representative for details.

Download and install the Java Development Kit (JDK)

A JDK must be installed on your machine in order to use isCOBOL Compiler and Runtime. For best results and performance, install the latest JDK version available for your platform. isCOBOL is certified to work correctly with both Oracle JDK and OpenJDK from version 7 to version 11.

Self-extracting setups are provided for the Windows platform.

On Unix/Linux platforms Java may be already installed. If it's not the case, you can install it using the appropriate system commands (e.g. yum, or apt-get).

Download and install isCOBOL Evolve

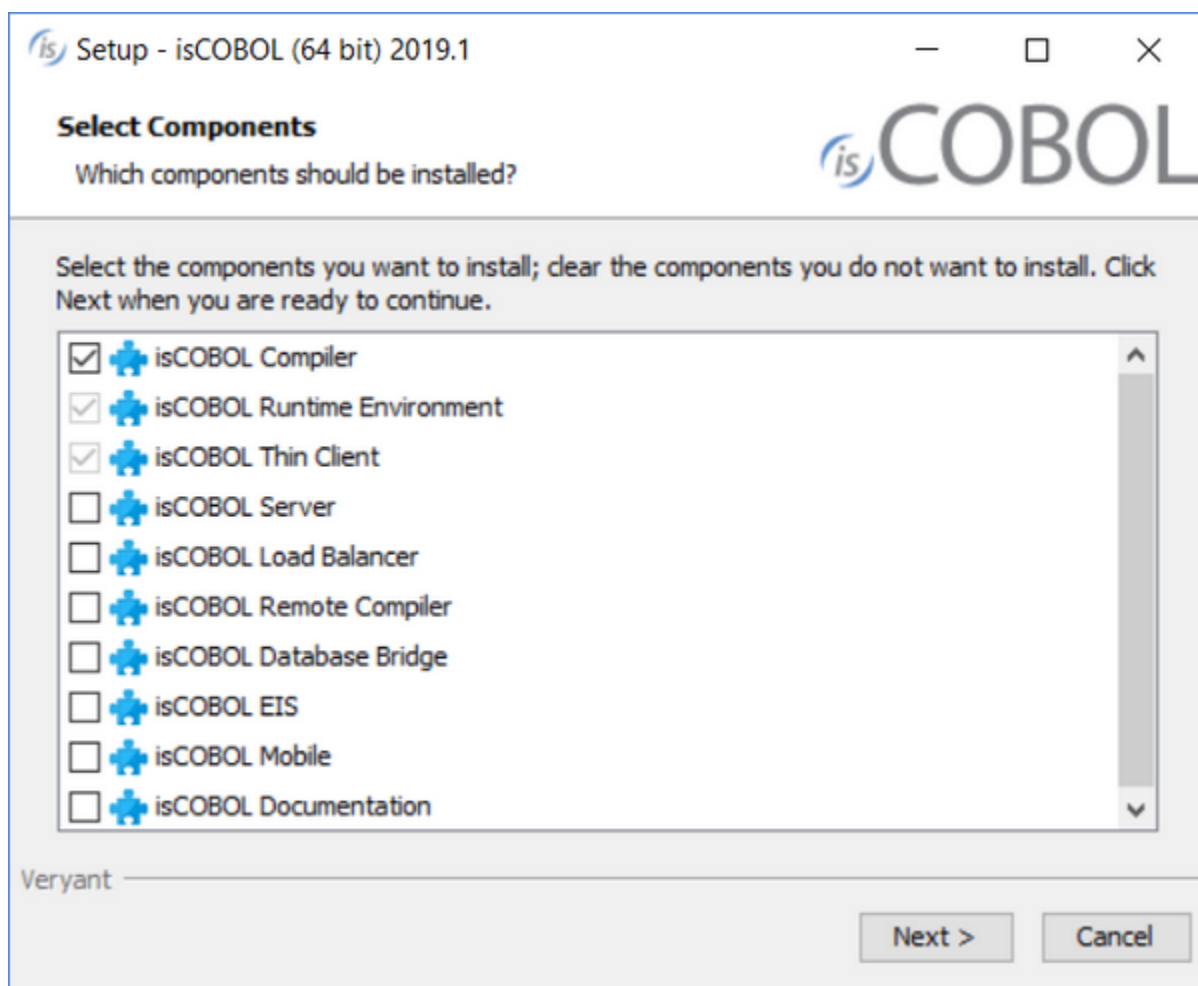
Windows

1. If you haven't already done so, [Download and install the Java Development Kit \(JDK\)](#).

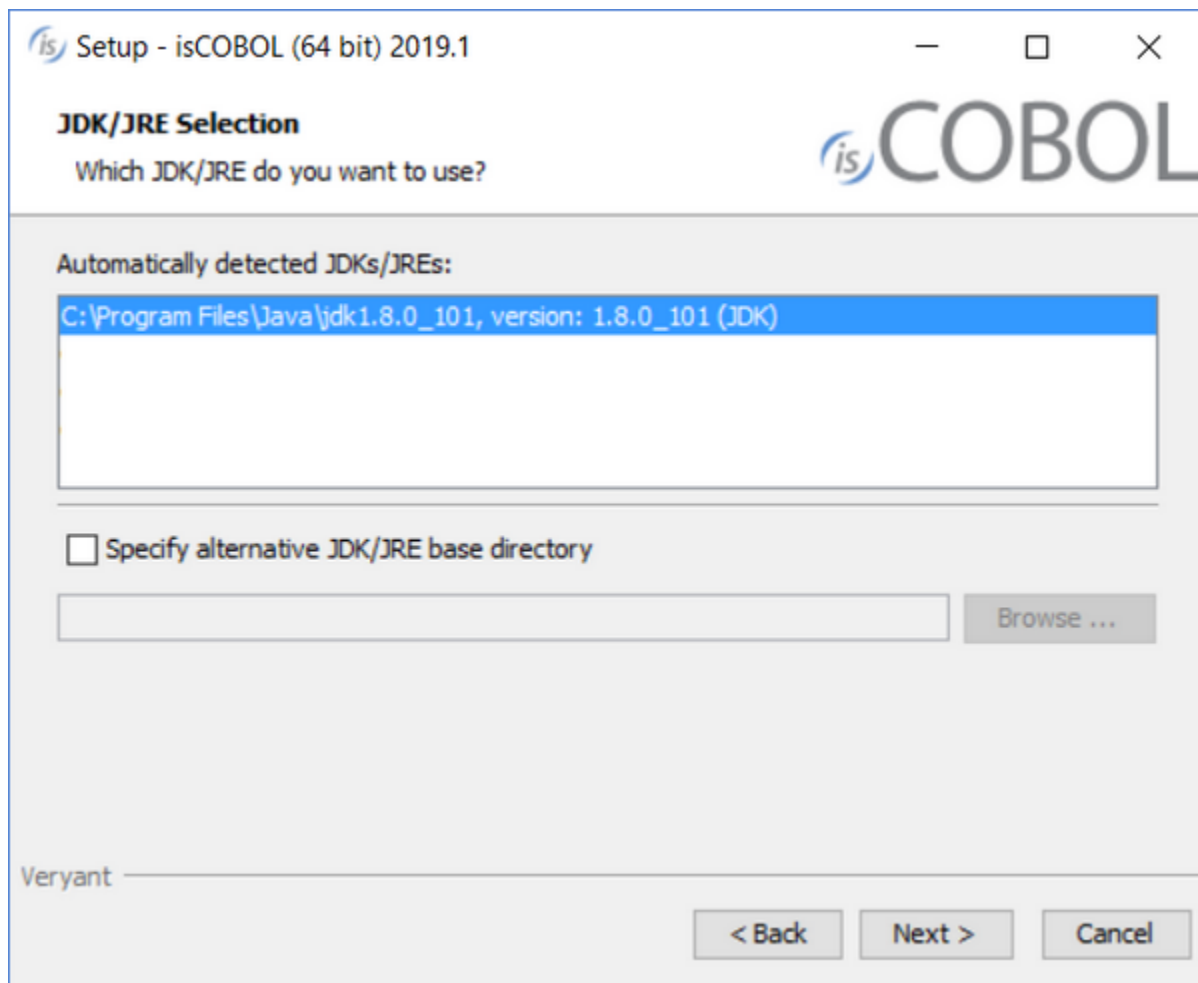
2. Go to "<http://www.veryant.com/support>".
3. Sign in with your User ID and Password.
4. Click on the "Download Software" link.
5. Scroll down to the list of files for Windows x64 64-bit or Windows x86 32-bit. Select isCOBOLyyyR_n_Windowsarc.exe, where yyy is the year, *r* is the release number, *n* is the build number and *arc* is the system architecture.
6. Run the downloaded installer to install the files.

Note - If your Windows has the option "Run as Administrator", you should run the setup with that option, otherwise the setting of environment variables might silently fail. Environment variables setting is not necessary if you work from the isCOBOL Shell (explained later).

7. Select "isCOBOL Compiler and Runtime Environment" from the list of products when prompted.



8. Select your JDK when prompted



9. Follow the wizard procedure to the end. In the process you will be asked to provide the installation path ("C:\Program Files\Veryant" by default) and license keys. You can skip license activation and perform it later, as explained in [Activate the License](#).

Linux, Mac OSX and OpenServer

1. If you haven't already done so, [Download and install the Java Development Kit \(JDK\)](#).
2. Go to "<http://www.veryant.com/support>".
3. Sign in with your User ID and Password.
4. Click on the "Download Software" link.
5. Scroll down, and select the appropriate .tar.gz file for the product and platform you require.
6. Extract all contents of the archive. For example,
on Linux 32 bit:

```
gunzip isCOBOL_2019_R1_*_Linux.32.i586.tar.gz
tar -xvf isCOBOL_2019_R1_*_Linux.32.i586.tar
```

on Linux 64 bit:

```
gunzip isCOBOL_2019_R1_*_Linux.64.x86_64.tar.gz
tar -xvf isCOBOL_2019_R1_*_Linux.64.x86_64.tar
```

on Mac OSX:

```
gunzip isCOBOL_2019_R1_*_MacOSX.64.x86_64.tar.gz
tar -xvf isCOBOL_2019_R1_*_MacOSX.64.x86_64.tar
```

on OpenServer:

```
gunzip isCOBOL_2019_R1_*_FreeBSD.64.tar.gz
tar -xvf isCOBOL_2019_R1_*_FreeBSD.64.tar
```

7. Change to the "isCOBOL2019R1" folder and run "./setup", you will obtain the following output:

```
=====
                                isCOBOL EVOLVE Installation
                                For isCOBOL Release 2019R1
                                Copyright (c) 2005 - 2019 Veryant
=====

Install Components:

  [0] All products..... (no)
  [1] isCOBOL Compiler (includes [2] & [3])..... (yes)
  [2] isCOBOL Runtime Environment (includes [3])..... (no)
  [3] isCOBOL Thin Client..... (no)
  [4] isCOBOL Server..... (no)
  [5] isCOBOL Load Balancer..... (no)
  [6] isCOBOL Remote Compiler..... (no)
  [7] isCOBOL Database Bridge..... (no)
  [8] isCOBOL EIS..... (no)
  [9] isCOBOL Mobile..... (no)

Install Path:
  [P] isCOBOL parent directory: UserHome

JDK Path:
  [J] JDK install directory: JavaHome

[S] Start Install      [Q] Quit

=====
Please press [ 1 2 3 4 5 6 7 8 P J S Q ]
```

The following text depends on the current environment:

<i>UserHome</i>	current user home directory
<i>JavaHome</i>	current JDK/JRE directory detected by the setup script

8. (optional) Type "P", then press Enter to provide a custom installation path, if you don't want to keep the default one.
9. Type "S", then press Enter to start the installation.

The setup script might not be available for your Unix platform or you might want to avoid it. In this case you can just extract the tgz in the destination folder. If you do in this way, then the following environment variables must be set in the system in order to compile, run and debug: ISCOBOL_JDK_ROOT (or ISCOBOL_JRE_ROOT), ISCOBOL, LD_LIBRARY_PATH and PATH.

ISCOBOL_JDK_ROOT	root directory of a Java JDK. It's required to compile, run and debug
ISCOBOL_JRE_ROOT	root directory of a Java JRE. Can be used instead of JDK if you don't need to compile
ISCOBOL	root directory of isCOBOL. The directory where you extracted the tgz
LD_LIBRARY_PATH	the isCOBOL native/lib directory must be added here
PATH	The isCOBOL bin directory must be added here

For example, if you install isCOBOL in "/opt/isCOBOL" and your JDK is in "/opt/java/jdk1.8.0":

```
export ISCOBOL=/opt/isCOBOL
export ISCOBOL_JDK_ROOT=/opt/java/jdk1.8.0
export LD_LIBRARY_PATH=$ISCOBOL/native/lib
export PATH=$ISCOBOL/bin:$PATH
```

Other Unix

A dedicated setup is provided for the following Unix platforms:

- Linux 32 bit
- Linux 64 bit
- Mac OSX 64 bit
- OpenServer

For any other UNIX platform, the MULTI setup can be used.

Extract the tar with the following command

```
gunzip isCOBOL_Version_multi.tar.gz
tar -xvf isCOBOL_Version_multi.tar
```

These two files are extracted:

- o isCOBOL_Version.tar
- o setup

Run the setup

```
./setup
```

The setup script produces an output like:

```
=====
                                isCOBOL EVOLVE Installation
                                For isCOBOL Release Version
                                Copyright (c) 2005 - 2019 Veryant
                                =====

Install Components:

    [1] isCOBOL Evolve platform independent files..... (yes)
    [2] isCOBOL ISAM Client component..... (yes)

Generate Components:

    [3] isCOBOL native libraries..... (no)
    [4] isCOBOL support for dummy terminal..... (no)
    [5] isCOBOL File Connectors..... (no)

Platform:

    [6] Operating System to generate..... (Platform)

Install Path:

    [7] isCOBOL parent directory: UserHome

JDK Path:

    [8] JDK install directory: JavaHome

[S] Start Install      [Q] Quit

=====

Please press [ 1 2 3 4 5 6 7 8 S Q ]
```

The following text depends on the current environment:

<i>Version</i>	version of the isCOBOL components installed by the setup
<i>Platform</i>	current operating system detected by the setup script
<i>UserHome</i>	current user home directory
<i>JavaHome</i>	current JDK/JRE directory detected by the setup script

If points 1 to 8 contain accurate information, you can start the installation process by typing “S” and pressing Enter.

If you want to change any of the points, type the corresponding number and press Enter, then answer to the question. The output shown in the above snippet will be updated to reflect the change you made.

For example, if you want to avoid the generation of isCOBOL ISAM Client component

1. type "2"
2. press Enter
3. type "N"
4. press Enter

When every setting reflect your needs, type "S" and press Enter to start the installation process.

Point 1 can't be changed while point 6 shouldn't be set to an operating system different than the one where we're running the script.

A C compiler is required for generating components (points 3 to 5).

If the MULTI setup completes without error, the following folder is generated:

```
isCOBOLVersion
  bin
  etc
  include
  javadoc
  lib
  native
  sample
```

The content of the folders varies depending on the choices you made before issuing the "S" command.

Distribution Files

For information on a specific distribution file, please see the README file installed with the product.

Activate the License

If you provided license keys during the installation, on Windows, you should skip reading this chapter.

The isCOBOL Compiler looks for the following configuration properties for license keys:

```
iscobol.compiler.license.2019=<license_key>
iscobol.license.2019=<license_key>
```

The isCOBOL Runtime looks for the following configuration property for license keys:

```
iscobol.license.2019=<license_key>
```

The keys should be stored in one of the following files (if they exist):

Windows

1. \etc\iscobol.properties in the drive where the working directory is
2. C:\Users\<username>\iscobol.properties (the setup wizard saves licenses here, if you don't skip activation)
3. iscobol.properties found in the Java Classpath
4. %ISCOBOL%\iscobol.properties
5. a custom configuration file passed on the command line

Unix/Linux

1. `/etc/iscobol.properties`
2. `$HOME/iscobol.properties`
3. `iscobol.properties` found in the Java Classpath
4. `$ISCOBOL/iscobol.properties`
5. a custom configuration file passed on the command line

NOTE - Files are listed in the order they're processed. If the license key appears in more than one of the above files, then the last occurrence is considered.