

# isCOBOL implementation of CALL SYSTEM and the iscobol.system.exec property

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The SYSTEM library routine is used in a program to run an operating system command line as if it was executed from a command prompt, shell, script, batch file, or shortcut.

By default, the isCOBOL implementation of SYSTEM uses the `java.lang.Runtime.exec()` Java API (mainly for its portability because it's supported and functions the same on all platforms).

For more information about this API, see this [link](#).

However, this Java API has some limitations. For example, it does not support redirection of stdin, stdout, or stderr using the `';`, and `;'` symbols within the command parameter string.

To address these limitations isCOBOL provides a framework property, `iscobol.system.exec`, that can be used to customize the behavior of the SYSTEM routine.

## Setting iscobol.system.exec to a system command

The `iscobol.system.exec` property specifies the name of a command to be executed when the SYSTEM routine is called.

The SYSTEM routine constructs a command line using the value of the `iscobol.system.exec` property followed by the SYSTEM routine's parameter within double-quotes.

For example, setting:

```
iscobol.system.exec=sh -c
```

on UNIX/Linux and executing:

```
call "SYSTEM" using "ls > out"
```

will cause the following command to be executed:

```
sh -c "ls > out"
```

For another example, setting:

```
iscobol.system.exec=cmd /c
```

on Windows and executing:

```
call "SYSTEM" using "dir > out"
```

will cause the following command to be executed:

```
cmd /c "dir > out"
```

## Setting iscobol.system.exec to access the C library system

Setting the `iscobol.system.exec` property to the special value `"c"` will cause isCOBOL to use the C library `system()` function instead of the Java API.

This setting is provided for compatibility with other COBOLs.

For example, Micro Focus COBOL and ACUCOBOL-GT implement SYSTEM using the C library `system()` function.

Set `iscobol.system.exec=c` to match Micro Focus COBOL and ACUCOBOL-GT behavior of CALL "SYSTEM".

### Note:

**On Windows the C library `system()` function is located in the MSVCRT.DLL.**

**In order to load that DLL add the following property setting:**

```
iscobol.shared_library_list=msvcrt.dll
```

or add the following call to your program:

```
call "msvcrt.dll"
```

**Note:**

**With** `iscobol.system.exec=c` programs compiled with `-cp` option require the `SYSTEM` parameter to be null terminated (i.e. end with a low-value).

(Note that Micro Focus COBOL programs have the same requirement. So if the program functioned correctly with Micro Focus COBOL then the code probably already null terminates the parameter.)

**C\$RUN and C\$SYSTEM compatibility**