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## RPG IV and the Floating-Point Data Type

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With V3R7, RPG IV now supports the floating-point data type, bringing the Integrated Language Environment's (ILE's) CEE Math APIs within reach of RPG IV programs. The program in [Figure 2](#) calls the math bindable API CEERANO (Basic Random Number Generation) to show you how to use this data type.

(You can download **NEWS/400** code from [www.as40onetwork.com/code](http://www.as40onetwork.com/code) as an AS/400 save file, as separate PC files, as as a PC source code "bundle" file.)

The input parameter CoSeed has a valid range of 0 to 2,147,483,646; when the value is 0, the API generates a seed from the system's current Greenwich mean time. On return, CEERANO changes the value so it can be used as the new seed in a subsequent call.

Output parameter CoRndNbr is a 64-bit double floating-point number with a value between 0 and 1. If an invalid seed is used, -1 is returned.

The program logic is based on the minimum and maximum values for the random number generation. These values are initialized in the D-specs. The program uses the %DecH built-in function to convert the floating-point random number into a packed decimal with a length of 30 digits and 29 decimal positions. It then multiplies this value by the maximum value: Because 1 is the highest possible random number, the result will never be greater than the maximum value. The program's Do loop ensures that the random number generation is repeated until the result is higher than or equal to the minimum value.

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