Installing and loading packages for *Essentials of Programming in Mathematica* (EPM)

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Author: Paul R. Wellin
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Author website: www.programmingmathematica.com (link above)

Functionality: instructions to install and load EPM packages

What is included

The EPM archive includes notebooks, packages, and data files all in support of the material in the book proper. The following is a listing showing the directory structure and contents of the archive. The two columns give the name of the file and its size (in bytes).

```
$BookDirectory = FileNameJoin[{$UserBaseDirectory, "Applications", "EPM"}]
```

Packages

```
Collatz.m          2472
EPM.m              1050
Functions.m       15071
Graphics.m        17098
Introduction.m     3970
Language.m         4464
Lists.m            4129
Optimization.m     3471
Patterns.m         5043
Programs.m        13010
RandomWalks.m      7032
StemPlots.m        2196
Strings.m         14850
```

Notebooks

Collatz.nb	9936
EPMPackagesReadMe.nb	2 357 338
Functions.nb	66 787
Graphics.nb	86 645
Introduction.nb	15 610
Language.nb	19 423
Lists.nb	17 125
LoadingPackages.nb	8707
Optimization.nb	16 554
Patterns.nb	24 063
Programs.nb	91 973
RandomWalks.nb	31 373
StemPlots.nb	9414
Strings.nb	59 640

Data

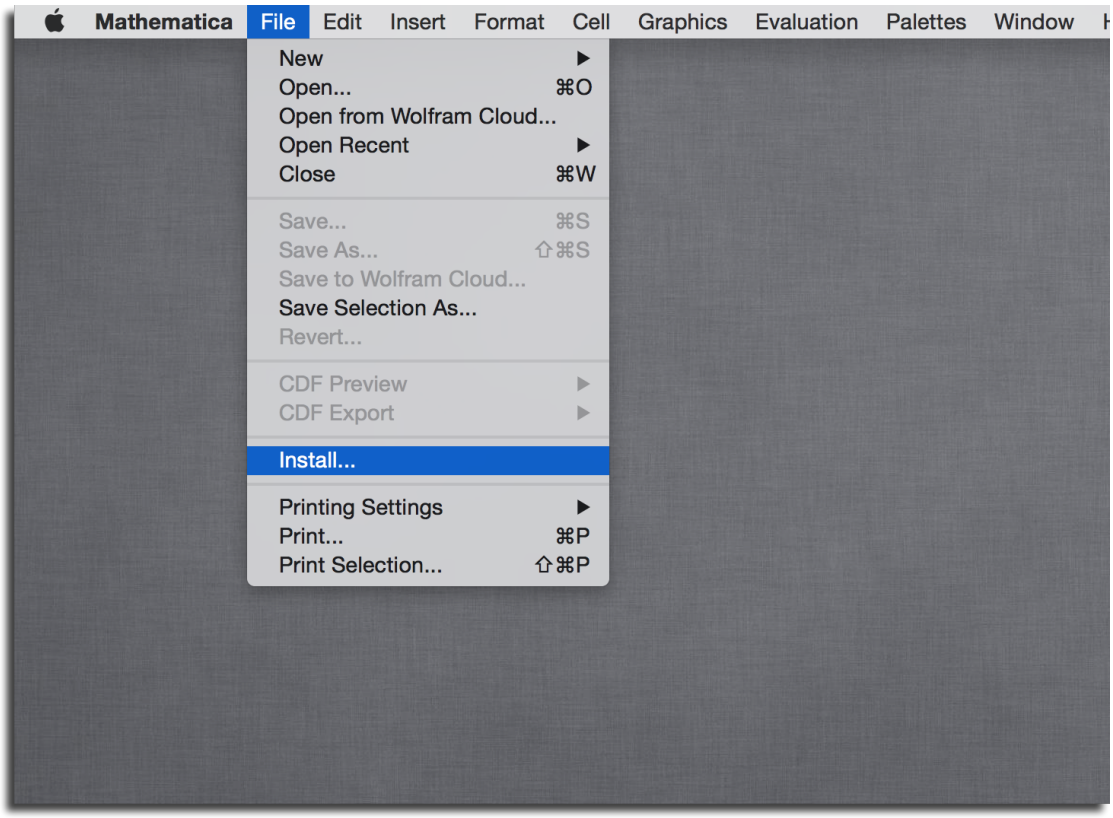
5hydroxytryptamine.sdf	4446
bivariatedata.xlsx	3905
CAresevoir.csv	387
collectorData.dat	174 805
gistempland.csv	1473
H5N1ChickenDQ023146.1.fasta	1644
H5N1DuckDQ232610.1.fasta	1681
lew.dat	1398
ltryptophan.sdf	4776
signal.dat	22 376
spikedata.csv	3743
StopWords.dat	4224

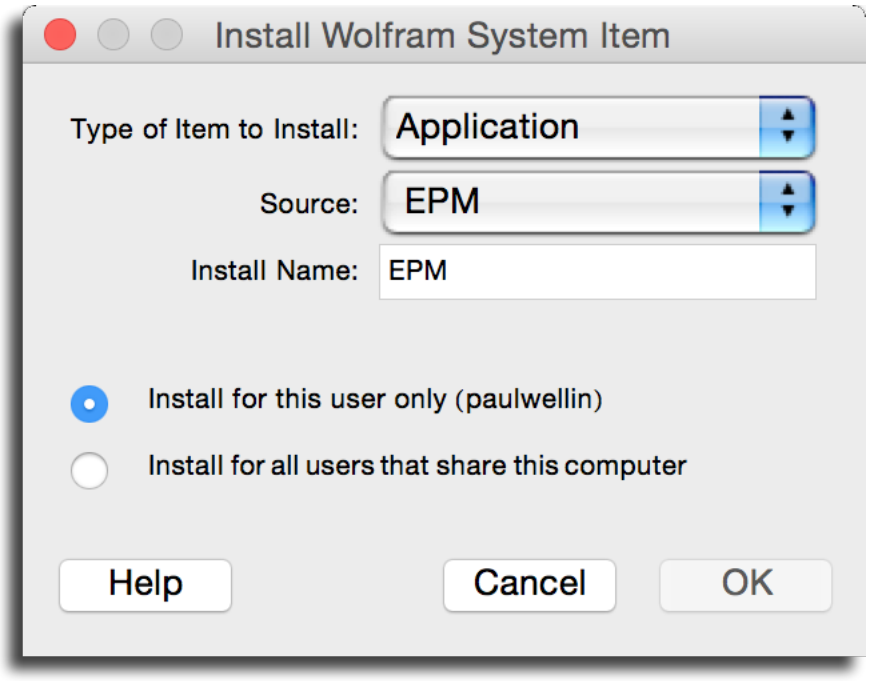
Installing packages

Package location

The packages and other files that come the EPM archive should be placed in one of several special locations on your computer. It is important not to change the structure of the files and directories inside of the EPM directory as package loading, access to data files, stylesheets, and other functionality will be affected.

You can install the packages manually or using the *Mathematica* front end interface. To do the latter, first unpack the .zip archive that you downloaded and note the location of the resulting EPM folder/directory. Then, in *Mathematica*, go to File ▸ Install… and in the resulting dialog, select Package as the type of item to install; the Source will be From File after which you will need to use your system's finder to locate it; finally, the Install Name should be EPM.





Alternatively, you can drag and drop the EPM archive. Instructions follow and depend upon whether you have administrative rights to your entire computer or not.

Here is where you should drop the EPM directory/folder if you have administrative privileges on your computer and wish to make the packages available to any user on your computer.

```
FileNameJoin[{$BaseDirectory, "Applications"}]
```

```
/Library/Mathematica/Applications
```

To install the package in a user-specific directory, locate it here (where "wellin" will be replaced with *your* login name):

```
FileNameJoin[{$UserBaseDirectory, "Applications"}]
```

```
/Users/wellin/Library/Mathematica/Applications
```

Once you have installed the packages, you can check that they are in the correct location by evaluating `FindFile`. Actually, this shows the location of the Kernel/init.m file inside the PwM archive, but that should be sufficient.

```
FindFile["EPM`"]
```

```
/Users/paulwellin/Library/Mathematica/Applications/EPM/Kernel/init.m
```

Loading packages

This loads all packages associated with EPM.

In[1]:=
```
<< EPM`
```

This lists all the currently loaded packages:

In[2]:=
```
$Packages
```

Out[2]=
```
{EPM`, GetFEKernelInit`, CloudObjectLoader`,
 ResourceLocator`, PacletManager`, System`, Global`}
```

Here is a list of the functions defined in the packages that begin with the letter F:

In[3]:=
```
Names["EPM`F*"]
```

Out[3]=
```
{FibonacciWord, FilterText, FindPercolationPath, FindSubsequence,
 FindWordsContaining, FixArray, FunctionsWithAttribute, FunctionsWithOption}
```

In[5]:=
```
? EPM`F*
```

▼ EPM`

FibonacciWord	FindSubsequence	FunctionsWithAttribute
FilterText	FindWordsContaining	FunctionsWithOption
FindPercolationPath	FixArray	

This gives the usage message for one of the above functions.

In[4]:=
```
? FunctionsWithAttribute
```

FunctionsWithAttribute[*attr*] returns a list of all symbols in the System` context that have the attribute *attr*.

And this evaluates the function.

```
FunctionsWithAttribute[Constant]
```

```
{Catalan, ChampernowneNumber, Degree, E, EulerGamma,
 Glaisher, GoldenRatio, Khinchin, MachinePrecision, Pi}
```