

Calling Python from MATLAB

This reference shows common use cases but is by no means comprehensive. The [»](#) icon provides links to relevant sections of the MATLAB® documentation. For general information, see <https://www.mathworks.com/products/matlab/matlab-and-python.html>.

Setup

Requirements »

To call Python® from MATLAB, you need to have both installed on your system.

Configuration

Access settings and the status of the Python interpreter:

```
>> pe = pyenv
```

Specify which version to use:

```
>> pe = pyenv("Version","3.9")
```

Ensure the `PYTHONHOME` environment variable aligns with your Python version. To view its value in MATLAB:

```
>> getenv("PYTHONHOME")
```

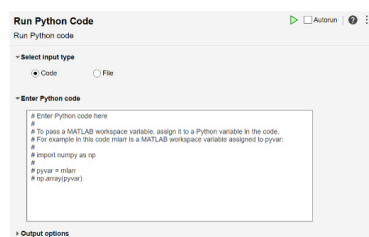
Ensure the appropriate versions are on the system path:

```
>> getenv("PATH")
```

Run Python Code in MATLAB

Live Editor Task

The **Run Python Code** task lets you interactively run Python code or files, then generate the code.



Call Python Statements

To execute a few lines of code:

```
>> outvars = pyrun(code,outputs)
>> x = pyrun("a = b*c","a", b = 5, c = 10)
```

Call Python Script »

To execute code organized in a script:

```
>> outvars =
pyrunfile(file,outputs)
```

Call Python Modules and Functions

```
>> py.module_
name.function_name
>> x = py.math.sqrt(42)
```

Pass Keyword Arguments

Either call directly or use `pyargs`:

```
>>> foo(5,bar=42)
>> py.foo(5,bar=42)
>> py.foo(5,pyargs('bar',42))
```

Reload Modules

Reload the module after making updates:

```
>> py.importlib.reload(module)
```

Data Type Conversions

Data types will be automatically converted where possible. »

MATLAB	Python
Double, single	Float
complex single Complex double	Complex
(u)int8, (u)int16, (u)int32, (u)int64	int
NaN	Float(nan)
Inf	Float(inf)
String, char	Str
Logical	Bool
Dictionary	dict
Struct	dict
Table	Py.pandas. dataframe
Datetime	Py.datetime. datetime
Duration	Py.datetime. timedelta

Note: The default numeric type is integer in Python and double in MATLAB.

Data Science Libraries

Apache Parquet »



Use Apache® Parquet to efficiently transfer data.

From MATLAB:

```
>>tbl = parquetread(fname)
>>parquetwrite(fname,tbl)
```

From Python:

```
>>> df = pandas.read_parquet(fname)
>>> pandas.DataFrame.to_parquet(df)
```

Deep Learning »

Access models in MATLAB with importers for TensorFlow™, PyTorch®, and ONNX™.

```
>> net = importKerasNetwork(model)
```

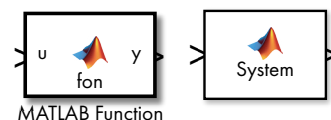
Integrate Python and Simulink

Python Importer »

You can use the Python Importer to import Python modules and packages to Simulink®. Open the importer:

```
>> obj = Simulink.
PythonImporter();
>> obj.view();
```

MATLAB Function Block and MATLAB System Block »



Implement Python modules in Simulink using MATLAB Function block or MATLAB System block.