# How to install pydicom

**Note**

We recommend installing into a virtual environment, which is an isolated Python environment that allows you to install packages without admin privileges. See the virtual environments tutorial on how to create and manage virtual environments.

## Install the official release

*pydicom*, being a Python library, requires Python. If you're not sure whether or not your version of Python is supported, check this table.

### Install using pip

*pydicom* is available on PyPI, the official third-party Python software repository. The simplest way to install from PyPI is using pip with the command:

```
pip install pydicom
```

You may need to use this instead, depending on your operating system:

```
python -m pip install pydicom
```

You can also perform an offline installation by downloading and installing one of the release `*.whl` files. For example, with the v2.0 release:

```
pip install pydicom-2.0.0-py3-none-any.whl
```

### Install using conda

*pydicom* is also available for conda at conda-forge:

```
conda install -c conda-forge pydicom
```

### Downloading example/test DICOM files

To keep the package size small, a number of the larger DICOM files are not distributed with *pydicom* and are instead kept in the pydicom-data repository. To get the complete set of testing and example files you can either install the *pydicom-data* repository:

```
pip install git+https://github.com/pydicom/pydicom-data
```

Or download the missing files to the local cache (after installing *pydicom*):

```
python -c "import pydicom; pydicom.data.fetch_data_files()"
```

## Install the optional libraries

If you're going to be manipulating pixel data then NumPy is required.

Using pip:

```
pip install numpy
```

Through conda:

```
conda install numpy
```

To decode JPEG compressed pixel data one or more additional libraries will need to be installed. See this page for a list of which library is needed to handle a given JPEG format, as specified by the dataset's (0002,0010) *Transfer Syntax UID* value.

### Installing Pillow

Pillow is a popular Python imaging library that can handle the decompression of some JPEG and JPEG 2000 images.

Using pip; you may need to make sure that the libjpeg (for JPEG) and openjpeg (for JPEG 2000) libraries are installed beforehand:

```
pip install pillow
```

Through conda:

```
conda install -c conda-forge openjpeg jpeg
conda install pillow
```

### Installing CharPyLS

CharPyLS is a Python interface to the CharLS C++ library and can decompress JPEG-LS images.

Using pip:

```
pip install cython
pip install git+https://github.com/Who8MyLunch/CharPyLS
```

Through conda:

```
conda install cython
pip install git+https://github.com/Who8MyLunch/CharPyLS
```

### Installing GDCM

GDCM is a C++ library for working with DICOM datasets that can decompress JPEG, JPEG-LS and JPEG 2000 images.

The wheels on PyPI are built by the python-gdcm project for current versions of Python on Windows, MacOS and Linux, and can be installed using pip:

```
pip install python-gdcm
```

The wheels available through conda-forge tend to be older versions and not as well supported. They're available on conda using:

```
conda install gdcm -c conda-forge
```

### Installing pylibjpeg

pylibjpeg is a Python framework for decompressing JPEG, JPEG-LS, JPEG 2000 images and compressing or decompressing RLE images provided a suitable plugin is installed.

Using pip:

```
pip install -U pylibjpeg[all]
```

## Install the development version

To install a snapshot of the latest code (the `master` branch) from GitHub:

```
pip install git+https://github.com/pydicom/pydicom
```

The `master` branch is under active development and while it is usually stable, it may have undocumented changes or bugs.

If you want to keep up-to-date with the latest code, make sure you have Git installed and then clone the `master` branch (this will create a `pydicom` directory in your current directory):

```
git clone --depth=1 https://github.com/pydicom/pydicom.git
```

Then install using pip in editable (`-e`) mode:

```
pip install -e pydicom/
```

When you want to update your copy of the source code, run `git pull` from within the `pydicom` directory and Git will download and apply any changes.