



# Intel® Distribution for Python\* 2020 Update 4

---

*Release Notes*

19 October 2020

## Version History/Revision History

Date	Revision	Description
19 October 2020	1.0	Release Notes for the Intel® Distribution for Python* 2020 Update 4

## Intended Audience

The target audience for the release notes are software developers and end users of the Intel® Distribution for Python\* 2020 Update 4.

## Customer Support

For technical support, including answers to questions not addressed in this document, visit the technical support forum at <https://software.intel.com/en-us/forums/intel-distribution-for-python> or email Intel Corporation at [scripting@intel.com](mailto:scripting@intel.com).

# Contents

1	<a href="#">Introduction</a>	4
2	<a href="#">New in this Release</a>	4
3	<a href="#">System Requirements</a>	5
4	<a href="#">Installation</a>	6
5	<a href="#">Release Content</a>	8
6	<a href="#">Known Issues</a>	10
7	<a href="#">Related Documentation</a>	10
8	<a href="#">Legal Information</a>	12

## 1 Introduction

The Python\* programming language is an open source programming language with increasing adoption by developers across many application domains and a large ecosystem of available free packages. In particular, the packages commonly used for numerical and scientific computation, called the [SciPy](#) stack, are very popular and heavily used.

Intel® Distribution for Python\* is a binary distribution of Python interpreter and commonly used packages for computation and data intensive domains, such as scientific and engineering computing, big data, and data science. The product supports Python 3.7 for Windows, Linux, and macOS. The product simplifies Python installation by providing packages in a binary form so that everything is preconfigured and no compilation tools are needed, as well as contains all the dependences for running on popular OS platforms. Python packages have been accelerated with Intel® Performance Libraries, including [Intel® Math Kernel Library \(Intel® MKL\)](#), [Intel® Threading Building Blocks \(Intel® TBB\)](#), [Intel® Integrated Performance Primitives \(Intel® IPP\)](#), and [Intel® Data Analytics Acceleration Library \(Intel® DAAL\)](#). The packages have been optimized to take advantage of parallelism through the use of vectorization, multi-threading and multi-processing, as well as through the use of optimized communication across multiple nodes.

This document provides system requirements, installation instructions, and lists issues and limitations.

To learn more about this product, see:

- New features in the [New in this Release](#) section below, or in the product help.
- Reference documentation in the [Related Documentation](#) section below
- Installation instructions in the [Installing this Release](#) section below

## 2 New in this Release

### 2.1 Intel® Distribution for Python 2020 Update 4

The following are new features for the release:

- Releasing scikit-ipp 1.2.0 for image warping, image filtering and morphological operations with scikit-image like API. Support for multi-threading for transform functions and partial multi-threading for filters using OpenMP.
- Releasing mkl\_umath Python package for Intel® technologies-powered NumPy universal function.
- Added new features for accelerated KNeighborsClassifier, NearestNeighbors, RandomForestClassifier and RandomForestRegressor estimators, Sparse input support for KMeans and SVC, Probabilities prediction for SVC, Support of 'normalize' parameter for Lasso and ElasticNet in scikit-learn.

- Optimizations of train\_test\_split and Support Vector Classification (SVC) fit and prediction in scikit-learn.
- Conversion of trained XGBoost\* and LightGBM\* models into daal4py Gradient Boosted Trees model for fast prediction.
- Added new features for Brute Force method for k-Nearest Neighbors classification, new parameters support for k-Nearest Neighbors and Decision Forest in daal4py.
- Optimizations of Support Vector Machine training and prediction, Decision Forest classification training in daal4py.
- Latest CVE patches have been applied.

The full list of provided packages is in [Release Content](#).

### 3 System Requirements

The Intel® Distribution for Python\* supports the Intel® 64 architecture. For a complete explanation of this architecture name please read the following article:

[Intel® Architecture Platform Terminology for Development Tools](#).

The lists below pertain only to the system requirements necessary to support application development with Intel® Distribution for Python\*. If you are using Cython\*, please review the documentation for your compiler (GCC\*, Microsoft Visual Studio\*, or Intel® Compiler) to determine the minimum hardware and software requirements.

#### Minimum System Requirements

- A system based on an Intel® 64 architecture processor supporting the Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2) instructions (or compatible non-Intel® processor).

**NOTE:**

- Incompatible or proprietary instructions in non-Intel® processors may cause the analysis capabilities of this product to function incorrectly. Any attempt to analyze code not supported by Intel® processors may lead to failures in this product.
- For the best experience, a multi-core or multiprocessor system is recommended.
- 2GB free disk space for all product features and all architectures
- Supported operating systems:
  - Windows 10\*
  - Windows 8\*
  - Windows 8.1\*
  - Windows 7\*
    - **Note:** SP1 is required for use of Intel® Advanced Vector Extensions (Intel® AVX)
    - Windows Server\* 2008 R2 SP1 and SP2
    - Windows HPC Server 2008 R2

- Windows Server\* 2012
- Windows Server\* 2016
- Red Hat\* Enterprise Linux\* 7
- Fedora\* core 25
- Fedora\* core 26
- SUSE Linux Enterprise Server\* 11
- SUSE Linux Enterprise Server\* 12
- Debian\* GNU/Linux 8
- Debian\* GNU/Linux 9
- Ubuntu\* 16.04 LTS
- Ubuntu\* 17.04
- Ubuntu\* 17.10
- Ubuntu\* 18.04
- Ubuntu\* 20.04
- macOS\* 10.12
- macOS\* 10.13
- macOS\* 10.14
- macOS\* 10.15

**Note:** Intel® Distribution for Python\* is expected to work on many more Linux distributions as well. Let us know if you have trouble with the distribution you use.

## External Dependencies

For **Windows\***: None

For **Linux\***: glibc 2.14-2.29 supported

For **macOS\***: None

## 4 Installation

### Installing this Release

The Intel® Distribution for Python\* is compatible with the Conda\* package management tool. All modules included in the distribution are initially installed into the root Conda\* environment. A virtual environment is also created.

On **Windows\*** (if using the standalone installer):

1. Change directory to the installation path. Ensure **intelpython** does not exist
2. Download the zip file for Intel® Distribution for Python\* and unzip the file post-download.
3. Change directory to **intelpython**

4. Run from command prompt : **cmd /c setup\_intel\_python.bat**
5. When the installation completes, activate your root Intel® python conda environment:
  - To modify only your current command shell, use the following command:
    - **.\Scripts\activate**

On **Linux\*** or **macOS\*** (if using the standalone installer):

1. Change directory to the installation path. Ensure **intelpython** does not exist
2. Download the tarball for Intel® Distribution for Python\* and un-tar the file post-download.
3. Extract the contents using the following command:  
`tar -xvzf <filename>`
4. Change directory to **intelpython**
5. Run from shell: **bash setup\_intel\_python.sh**
6. When the installation completes, activate your root Intel® python conda environment:
  - To modify only your current shell, use the following commands:
    - **source ./bin/activate root**
  - To modify all future logins, do one of the following:
    - Add “source <install>/bin/activate root” to your .bashrc (bash) or other logon script.
    - Manually add the <install>/bin directory to your PATH.
  - Use the following command to ensure your environment points to the Intel® Distribution for Python\*:  
run “**which python**”

## Default Installation Folders

Intel Distribution for Python\* standalone installer uses the current directory as the installation root. Intel Distribution for Python\* is installed under the installation root in **intelpython3**. Installation into a directory containing files is not supported.

## Changing, Updating, or Removing the Product

**Intel® Parallel Studio XE updates:** If there is a prior installation of Intel Distribution for Python\*, the installer will add new conda packages to the conda\_channel directory included in Parallel Studio. That directory will be in your conda configuration file unless you have removed it. ***The installer will NOT modify any python environments.*** To update your python environments, use the conda commands listed following the next paragraph.

**Intel Distribution for Python\* standalone updates:** On **Windows\***, **Linux\*** or **macOS\***: Delete the installation directory and remove additions to your PATH.

You can also use the Conda\* package management tool to update individual modules. You can find the Conda\* tool in the bin directory on Linux\* / macOS\* or in the Scripts directory on Windows\*. Use these commands to do the following with the Conda\* tool:

- To install a new module: `conda install <module name>`
- To update an existing module: `conda update <module name>`
- To remove an existing module: `conda remove <module name>`

## 5 Release Content

Intel® Distribution for Python\* packages (New\*, Updated\*\*)

Name	Version	Platform
asn1crypto	1.4.0**	Linux,Windows,macOS
bzip2	1.0.8	Linux,Windows,macOS
certifi	2020.6.20**	Linux,Windows,macOS
cffi	1.14.2**	Linux,Windows,macOS
chardet	3.0.4	Linux,Windows,macOS
conda	4.8.4**	Linux,Windows,macOS
conda-package-handling	1.4.1	Linux,Windows,macOS
cryptography	2.9.2	Linux,Windows,macOS
cycler	0.10.0	Linux,Windows,macOS
cython	0.29.21**	Linux,Windows,macOS
daal	2020.3**	Linux,Windows,macOS
daal4py	2020.3**	Linux,Windows,macOS
freetype	2.10.2	Linux,Windows,macOS
funcsigs	1.0.2	Linux,Windows,macOS
icc_rt	2020.4**	Linux,Windows,macOS
idna	2.10**	Linux,Windows,macOS
impi_rt	2019.9**	Linux,Windows
intel-openmp	2020.4**	Linux,Windows,macOS
intelpython	2020.4**	Linux,Windows,macOS
ipp	2020.3**	Linux,Windows, macOS
joblib	0.16.0**	Linux,Windows,macOS
kiwisolver	1.2.0	Linux,Windows,macOS
libarchive	3.4.2	Linux,Windows,macOS
libffi	3.3.1	Linux,macOS
libgcc-ng	9.1.0	Linux
libiconv	1.15	Windows,macOS
libpng	1.6.37	Linux,Windows
libstdcxx-ng	9.1.0	Linux
libxml2	2.9.10	Linux,Windows,macOS
llvmlite	0.34.0**	Linux,Windows,macOS



llvm	10.0.1*	Linux,Windows,macOS
libllvm10	10.0.1*	Linux,Windows,macOS
llvm-tools	10.0.1*	Linux,Windows,macOS
llvmdcv	10.0.1*	Linux,Windows,macOS
lz4-c	1.9.2**	Linux,Windows,macOS
lzo	2.10	Linux,Windows,macOS
matplotlib	3.1.2	Linux,Windows,macOS
menuinst	1.4.16	Windows
mkl	2020.4**	Linux,Windows,macOS
mkl-service	2.3.0	Linux,Windows,macOS
mkl_fft	1.2.0**	Linux,Windows,macOS
mkl_random	1.2.0**	Linux,Windows,macOS
mpi4py	3.0.3	Linux,Windows
numba	0.51.2**	Linux,Windows,macOS
numexpr	2.7.0	Linux,Windows,macOS
numpy	1.18.5	Linux,Windows,macOS
numpy-base	1.18.5	Linux,Windows,macOS
openssl	1.1.1g	Linux,Windows,macOS
pandas	1.1.2**	Linux,Windows,macOS
pip	20.2.2**	Linux,Windows,macOS
pycosat	0.6.3	Linux,Windows,macOS
pycparser	2.20	Linux,Windows,macOS
pyeditline	2.0.1	Linux
pyopenssl	19.1.0	Linux,Windows,macOS
pyparsing	2.4.7	Linux,Windows,macOS
pysocks	1.7.0	Linux,Windows,macOS
python	3.7.7	Linux,Windows,macOS
python-dateutil	2.8.1	Linux,Windows,macOS
python-libarchive-c	2.8	Linux,Windows,macOS
pytz	2020.1	Linux,Windows,macOS
pywin32	227	Windows
pyyaml	5.3	Linux,Windows,macOS
requests	2.23.0	Linux,Windows,macOS
ruamel_yaml	0.15.99	Linux,Windows,macOS
scikit-learn	0.23.2**	Linux,Windows,macOS
scipy	1.4.1**	Linux,Windows,macOS
setuptools	49.6.0**	Linux,Windows,macOS
six	1.15.0	Linux,Windows,macOS
smp	0.1.4	Linux
sqlite	3.33.0**	Linux,Windows,macOS
tbb	2020.3**	Linux,Windows,macOS
tbb4py	2020.3**	Linux,Windows,macOS
tcl	8.6.9	Linux,Windows,macOS
tk	8.6.9	Linux,Windows,macOS

tqdm	4.39.0	Linux,Windows,macOS
urllib3	1.25.10**	Linux,Windows
vc	14.1	Windows
vs2015_runtime	14.16.27012	Windows
wheel	0.35.1**	Linux,Windows,macOS
win_inet_pton	1.1.0	Windows
wincertstore	0.2	Windows
xz	5.2.5**	Linux,Windows,macOS
yaml	0.1.7	Linux,macOS
zlib	1.2.11.1	Linux,Windows,macOS
zstd	1.4.4	Linux,macOS

The installation package contains all the necessary native libraries required by the packages.

## 6 Known Issues

Please refer to the **Known Issues** in the **Resources** section of the document that is available online:

<https://software.intel.com/en-us/articles/intel-distribution-for-python-support-and-documentation>

## 7 Related Documentation

Name	Documentation
asn1crypto	<a href="https://github.com/wbond/asn1crypto">https://github.com/wbond/asn1crypto</a>
bzip2	<a href="http://www.bzip.org/docs.html">http://www.bzip.org/docs.html</a>
certifi	<a href="https://certifi.io">https://certifi.io</a>
cfffi	<a href="http://cfffi.readthedocs.org">http://cfffi.readthedocs.org</a>
chardet	<a href="https://github.com/chardet/chardet">https://github.com/chardet/chardet</a>
conda	<a href="http://conda.pydata.org/docs/">http://conda.pydata.org/docs/</a>
conda-package-handling	<a href="https://github.com/conda/conda-package-handling">https://github.com/conda/conda-package-handling</a>
cryptography	<a href="https://cryptography.io">https://cryptography.io</a>
cycler	<a href="http://matplotlib.org/cycler/">http://matplotlib.org/cycler/</a>
cython	<a href="http://cython.org/#documentation">http://cython.org/#documentation</a>
freetype	<a href="http://freetype.sourceforge.net/freetype2/documentation.html">http://freetype.sourceforge.net/freetype2/documentation.html</a>
funcsigs	<a href="http://funcsigs.readthedocs.org/en/latest/">http://funcsigs.readthedocs.org/en/latest/</a>
idna	<a href="https://github.com/kjd/idna">https://github.com/kjd/idna</a>
intel-openmp	<a href="http://software.intel.com">http://software.intel.com</a>
ipp	<a href="http://software.intel.com/en-us/articles/intel-ipp/">http://software.intel.com/en-us/articles/intel-ipp/</a>
joblib	<a href="https://joblib.readthedocs.io/en/latest/">https://joblib.readthedocs.io/en/latest/</a>
kiwisolver	<a href="https://kiwisolver.readthedocs.io/en/latest/">https://kiwisolver.readthedocs.io/en/latest/</a>
libarchive	<a href="http://www.libarchive.org/">http://www.libarchive.org/</a>

libffi	<a href="http://sourceware.org/libffi/">http://sourceware.org/libffi/</a>
libiconv	<a href="https://www.gnu.org/software/libiconv/">https://www.gnu.org/software/libiconv/</a>
libpng	<a href="http://www.libpng.org/pub/png/libpng.html">http://www.libpng.org/pub/png/libpng.html</a>
llvmlite	<a href="https://github.com/numba/llvmlite">https://github.com/numba/llvmlite</a>
lz4-c	<a href="https://www.lz4.org">https://www.lz4.org</a>
lzo	<a href="http://www.oberhumer.com/opensource/lzo/">http://www.oberhumer.com/opensource/lzo/</a>
matplotlib	<a href="http://matplotlib.org/contents.html#">http://matplotlib.org/contents.html#</a>
menuinst	<a href="https://pypi.python.org/pypi/menuinst/">https://pypi.python.org/pypi/menuinst/</a>
mkl	<a href="http://software.intel.com/en-us/articles/intel-mkl/">http://software.intel.com/en-us/articles/intel-mkl/</a>
mkl_fft	<a href="http://github.com/IntelPython/mkl_fft">http://github.com/IntelPython/mkl_fft</a>
mkl_random	<a href="http://github.com/IntelPython/mkl_random">http://github.com/IntelPython/mkl_random</a>
mpi4py	<a href="http://mpi4py.readthedocs.org/">http://mpi4py.readthedocs.org/</a>
numba	<a href="http://numba.pydata.org/">http://numba.pydata.org/</a>
numexpr	<a href="https://github.com/pydata/numexpr/wiki/Numexpr-Users-Guide">https://github.com/pydata/numexpr/wiki/Numexpr-Users-Guide</a>
numpy	<a href="http://numpy.scipy.org/">http://numpy.scipy.org/</a>
openssl	<a href="http://www.openssl.org/">http://www.openssl.org/</a>
pandas	<a href="http://pandas.pydata.org/pandas-docs/stable/">http://pandas.pydata.org/pandas-docs/stable/</a>
pip	<a href="https://pip.pypa.io/en/stable/">https://pip.pypa.io/en/stable/</a>
pycosat	<a href="https://github.com/ContinuumIO/pycosat">https://github.com/ContinuumIO/pycosat</a>
pycparser	<a href="https://github.com/eliben/pycparser">https://github.com/eliben/pycparser</a>
pyopenssl	<a href="https://pyopenssl.readthedocs.org/en/stable/">https://pyopenssl.readthedocs.org/en/stable/</a>
pyparsing	<a href="http://pyparsing.wikispaces.com/Documentation">http://pyparsing.wikispaces.com/Documentation</a>
pysocks	<a href="https://github.com/Anorov/PySocks">https://github.com/Anorov/PySocks</a>
python	<a href="https://www.python.org/doc/versions/">https://www.python.org/doc/versions/</a>
python-dateutil	<a href="https://dateutil.readthedocs.org/en/latest/">https://dateutil.readthedocs.org/en/latest/</a>
python-libarchive-c	<a href="https://github.com/Changaco/python-libarchive-c">https://github.com/Changaco/python-libarchive-c</a>
pytz	<a href="http://pytz.sourceforge.net/">http://pytz.sourceforge.net/</a>
pywin32	<a href="https://github.com/mhammond/pywin32">https://github.com/mhammond/pywin32</a>
pyyaml	<a href="http://pyyaml.org/">http://pyyaml.org/</a>
requests	<a href="http://docs.python-requests.org/">http://docs.python-requests.org/</a>
ruamel_yaml	<a href="https://bitbucket.org/ruamel/yaml">https://bitbucket.org/ruamel/yaml</a>
scikit-learn	<a href="http://scikit-learn.org/stable/">http://scikit-learn.org/stable/</a>
scipy	<a href="http://www.scipy.org/docs.html">http://www.scipy.org/docs.html</a>
setuptools	<a href="http://pythonhosted.org/setuptools/">http://pythonhosted.org/setuptools/</a>
six	<a href="http://pythonhosted.org/six/">http://pythonhosted.org/six/</a>
smp	<a href="https://github.com/IntelPython/smp">https://github.com/IntelPython/smp</a>
sqlite	<a href="http://www.sqlite.org/docs.html">http://www.sqlite.org/docs.html</a>
tbb	<a href="http://www.threadingbuildingblocks.org">http://www.threadingbuildingblocks.org</a>
tcl	<a href="http://www.tcl.tk/doc/">http://www.tcl.tk/doc/</a>
tk	<a href="http://www.tcl.tk/doc/">http://www.tcl.tk/doc/</a>
tqdm	<a href="https://pypi.python.org/pypi/tqdm">https://pypi.python.org/pypi/tqdm</a>

urllib3	<a href="https://urllib3.readthedocs.io/">https://urllib3.readthedocs.io/</a>
vc	<a href="https://github.com/conda/conda/wiki/VC-features">https://github.com/conda/conda/wiki/VC-features</a>
vs2015_runtime	<a href="http://www.microsoft.com">http://www.microsoft.com</a>
wheel	<a href="http://wheel.readthedocs.org/en/latest/">http://wheel.readthedocs.org/en/latest/</a>
win_inet_pton	<a href="https://github.com/hickeroar/win_inet_pton">https://github.com/hickeroar/win_inet_pton</a>
wincertstore	<a href="https://bitbucket.org/tiran/wincertstore">https://bitbucket.org/tiran/wincertstore</a>
xz	<a href="http://tukaani.org/xz/">http://tukaani.org/xz/</a>
yaml	<a href="http://yaml.org/">http://yaml.org/</a>
zlib	<a href="http://zlib.net/manual.html">http://zlib.net/manual.html</a>

## 8 Legal Information

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

This document contains information on products, services and/or processes in development. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest forecast, schedule, specifications and roadmaps.

The products and services described may contain defects or errors known as errata which may cause deviations from published specifications. Current characterized errata are available on request.

Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting [www.intel.com/design/literature.htm](http://www.intel.com/design/literature.htm).

Intel, the Intel logo, and Intel Core are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

Microsoft, Windows, Visual Studio, Visual C++, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

© 2019 Intel Corporation.

## Optimization Notice

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Notice Revision #20110804