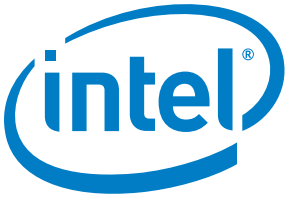

Intel® Distribution for Python* 2019 Update 1

Release Notes

7 November 2018

Version History/Revision History

Date	Revision	Description
7 November 2018	1.0	Release Notes for the Intel® Distribution for Python* 2019 Update 1

Intended Audience

The target audience for the release notes are software developers and end users of the Intel Distribution for Python* 2019 Update 1.

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.

Contents

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 2 and 3 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 2019 Update 1

This release introduces a number of optimizations, bug fixes and enhancements. Some highlights:

- New machine learning library package daal4py with an easy to use API and superior performance accelerated by Intel® Data Analytics Acceleration Library.
- Introducing Numba* threading layer abstraction that allows to switch between Intel® TBB threading layer (default) and OpenMP* threading layer.
- Introducing support for Intel® VTune™ Amplifier profiling for Numba*.
- Mkl-service package to control Intel® MKL runtime settings. Read the blogpost for details.
- Scikit-learn optimizations for Logistic Regression, Random Forest Regressor & Classifier.

- Modules that have been added or updated are marked with an asterisk under 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* 6
  - 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* 14.04 LTS
- Ubuntu* 16.04 LTS
- Ubuntu* 17.04
- Ubuntu* 17.10
- macOS* 10.12
- macOS* 10.13

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 2.12-2.29 supported

For **macOS***: None.

4 Installation

To download the Intel® Distribution for Python* 2019 Update 1 as a standalone product, visit https://software.intel.com/en-us/python-distribution.

NOTE for Intel® Parallel Studio XE customers: Installation of the Intel® Distribution for Python* can be done either during installation of Intel® Parallel Studio XE, or separately via standalone installer. If installation is done using the Intel® Parallel Studio XE installer, by default, the Intel® Distribution for Python 3 is installed. You can install Intel® Distribution for Python using the Intel® Parallel Studio XE installer, at a later time as well. If you choose to install Intel Distribution for Python* using the standalone installer, visit the Intel® Registration Center and log in using the credentials you entered during registration. The Intel Distribution for Python* is available as a direct download from the home page after login.

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.

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

1. Change directory to the installation path. Ensure **intelpython2** or **intelpython3** does not exist
2. Download the zip file for Intel Distribution for Python* and unzip the file post-download.

3. Change directory to **intelpython2** or **intelpython3** (depending on the version you've downloaded)
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 **intelpython2** or **intelpython3** 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 **intelpython2** or **intelpython3** (depending on the version you've downloaded)
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 **intelpython2** or **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* complies with the SciPy Stack 1.0 specification http://www.scipy.org/stackspec.html. (New*, Updated**)

Name	Version	Platform
appnope	0.1.0	macOS
asn1crypto	0.24.0	Windows,Linux,macOS
backcall	0.1.0	Windows,Linux,macOS
backports	1	Windows,Linux,macOS
backports.functools_lru_cache	1.5	Windows,Linux,macOS
backports_abc	0.5	Windows,Linux,macOS
bleach	2.1.3	Windows,Linux,macOS
bzip2	1.0.6	Windows,Linux,macOS
certifi	2018.1.18	Windows,Linux,macOS
cffi	1.11.5	Windows,Linux,macOS
chardet	3.0.4	Windows,Linux,macOS
colorama	0.3.9	Windows
conda	4.3.31	Windows,Linux,macOS
conda-env	2.6.0	Windows,Linux,macOS
configparser	3.5.0	Windows,Linux,macOS
cryptography	2.3	Windows,Linux,macOS
cycler	0.10.0	Windows,Linux,macOS
cython**	0.28.5	Windows,Linux,macOS
daal**	2019.1	Windows(3.6),Linux,macOS
daal4py*	0.2019.1	Windows(3.6),Linux,macOS
decorator	4.3.0	Windows,Linux,macOS
entrypoints	0.2.3	Windows,Linux,macOS
enum34	1.1.6	Windows,Linux,macOS
freetype	2.9	Windows,Linux,macOS
funcsigs	1.0.2	Windows,Linux,macOS
functools32	3.2.3.2	Windows(2.7),Linux(2.7),macOS(2.7)
futures	3.2.0	Windows,Linux,macOS

get_terminal_size	1.0.0	Windows,Linux,macOS
hdf5**	1.10.3	Windows,Linux,macOS
html5lib	1.0.1	Windows,Linux,macOS
icc_rt**	2019.1	Windows,Linux,macOS
idna	2.6	Windows,Linux,macOS
impi_rt**	2019.1	Windows,Linux
intel-openmp**	2019.1	Windows,Linux,macOS
intelpython**	2019.1	Windows,Linux,macOS
ipaddress	1.0.22	Windows,Linux,macOS
ipykernel	4.6.1	Windows,Linux,macOS
ipyparallel	6.0.2	Windows,Linux,macOS
ipython	5.6.0(2.7), 6.3.1(3.6)	Windows,Linux,macOS
ipython_genutils	0.2.0	Windows,Linux,macOS
ipywidgets	7.0.0	Windows,Linux,macOS
jedi	0.12.0	Windows,Linux,macOS
jinja2	2.9.6	Windows,Linux,macOS
jsonschema	2.6.0	Windows,Linux,macOS
jupyter	1.0.0	Windows,Linux,macOS
jupyter_client	5.1.0	Windows,Linux,macOS
jupyter_console	5.1.0	Windows,Linux,macOS
jupyter_core	4.4.0	Windows,Linux,macOS
kiwisolver	1.0.1	Windows,Linux,macOS
libffi	3.2.1	Linux,macOS
libpng**	1.6.35	Windows,Linux,macOS
libsodium	1.0.16	Windows,Linux,macOS
llvmlite**	0.25.0	Windows,Linux,macOS
markupsafe	1	Windows,Linux,macOS
matplotlib**	2.2.3	Windows,Linux,macOS
menuinst	1.4.1	Windows
mistune	0.8.3	Windows,Linux,macOS
mkl**	2019.1	Windows,Linux,macOS
mkl-service*	1.0.0	Windows,Linux,macOS
mkl_fft**	1.0.6	Windows,Linux,macOS
mkl_random	1.0.1	Windows,Linux,macOS
mpi4py	3.0.0	Windows,Linux
mpmath	1.0.0	Windows,Linux,macOS
nbconvert	5.2.1	Windows,Linux,macOS
nbformat	4.4.0	Windows,Linux,macOS
nose	1.3.7	Windows,Linux,macOS
notebook	5.2.2	Windows,Linux,macOS
numba**	0.40.0	Windows,Linux,macOS
numexpr**	2.6.8	Windows,Linux,macOS
numpy**	1.15.2	Windows,Linux,macOS
numpy-base*	1.15.2	Windows,Linux,macOS

openssl**	1.0.2p	Windows,Linux,macOS
pandas**	0.23.4	Windows,Linux,macOS
pandocfilters	1.4.1	Windows,Linux,macOS
parso	0.2.0	Windows,Linux,macOS
path.py	11.0.1	Windows,Linux,macOS
pathlib2	2.3.0	Windows,Linux,macOS
pexpect	4.2.1	Linux,macOS
pickleshare	0.7.4	Windows,Linux,macOS
pip	9.0.3	Windows,Linux,macOS
prompt_toolkit	1.0.15	Windows,Linux,macOS
ptyprocess	0.5.2	Linux,macOS
pycosat	0.6.3	Windows,Linux,macOS
pycparser	2.18	Windows,Linux,macOS
pyeditline*	2.0.0	Linux 3
pygments	2.2.0	Windows,Linux,macOS
pyopenssl	17.5.0	Windows,Linux,macOS
pyparsing	2.2.0	Windows,Linux,macOS
pysocks	1.6.7	Windows,Linux,macOS
pytables	3.4.3	Windows,Linux,macOS
python	3.6.5,2.7.14	Windows,Linux,macOS
python-dateutil	2.6.0	Windows,Linux,macOS
pytz	2018.4	Windows,Linux,macOS
pyyaml	4.1	Windows,Linux,macOS
pyzmq	16.0.2	Windows,Linux,macOS
requests**	2.19.1	Windows,Linux,macOS
ruamel_yaml	0.11.14	Windows,Linux,macOS
scandir	1.7	Windows,Linux,macOS
scikit-learn**	0.20.0	Windows,Linux,macOS
scipy	1.1.0	Windows,Linux,macOS
setuptools	39.0.1	Windows,Linux,macOS
simplegeneric	0.8.1	Windows,Linux,macOS
singledispatch	3.4.0.3	Windows,Linux,macOS
six	1.11.0	Windows,Linux,macOS
smp	0.1.4	Linux
sqlite	3.23.1	Windows,Linux,macOS
ssl_match_hostname	3.5.0.1	Windows,Linux,macOS
sympy**	1.3	Windows,Linux,macOS
tbb**	2019.2	Windows,Linux,macOS
tbb4py**	2019.2	Windows,Linux,macOS
tcl	8.6.4	Windows,Linux,macOS
terminado	0.8.1	Linux,macOS
testpath	0.3.1	Windows,Linux,macOS
tk	8.6.4	Windows,Linux,macOS
tornado	4.5.2	Windows,Linux,macOS

traitlets	4.3.2	Windows,Linux,macOS
urllib3	1.22	Windows,Linux,macOS
vc	14	Windows
vs2008_runtime	9.00.30729.6161	Windows
wcwidth	0.1.7	Windows,Linux,macOS
webencodings	0.5.1	Windows,Linux,macOS
wheel	0.31.0	Windows,Linux,macOS
widgetsnbextension	3.2.0	Windows,Linux,macOS
win_inet_pton	1.0.1	Windows
win_unicode_console	0.5	Windows
wincertstore	0.2	Windows
xgboost	0.7	Linux
xz	5.2.3	Windows,Linux,macOS
yaml	0.1.7	Windows,Linux,macOS
zeromq	4.2.3	Linux,macOS
zlib	1.2.11	Windows,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
appnope	http://github.com/minrk/appnope
asn1crypto	https://github.com/wbond/asn1crypto
backports_abc	https://pypi.python.org/pypi/backports_abc
backports.functools_lru_cache	https://github.com/jaraco/backports.functools_lru_cache
bleach	http://github.com/mozilla/bleach
bzip2	http://www.bzip.org/docs.html
certifi	https://certifi.io
cffi	http://cffi.readthedocs.org
chardet	https://github.com/chardet/chardet
colorama	http://pypi.python.org/pypi/colorama
conda	http://conda.pydata.org/docs/
configparser	http://docs.python.org/3/library/configparser.html
cryptography	https://cryptography.io
cycler	http://matplotlib.org/cycler/
cython	http://cython.org/#documentation

decorator	http://pythonhosted.org/decorator/
entrypoints	https://github.com/takluyver/entrypoints
enum34	https://pypi.python.org/pypi/enum34
freetype	http://freetype.sourceforge.net/freetype2/documentation.html
funcsigs	http://funcsigs.readthedocs.org/en/latest/
functools32	http://docs.python.org/3.2/library/functools.html
futures	https://docs.python.org/dev/library/concurrent.futures.html
get_terminal_size	https://github.com/chrippa/backports.shutil_get_terminal_size
hdf5	https://www.hdfgroup.org/HDF5/doc/
html5lib	http://html5lib.readthedocs.org/
idna	https://github.com/kjd/idna
intel-openmp	http://software.intel.com
ipaddress	https://github.com/phihag/ipaddress
ipp	http://software.intel.com/en-us/articles/intel-ipp/
ipykernel	http://ipython.readthedocs.org/
ipyparallel	http://ipyparallel.readthedocs.org/
ipython	http://ipython.org/documentation.html
ipython_genutils	http://jupyter.org
ipywidgets	https://github.com/ipython/ipywidgets
jinja2	http://jinja.pocoo.org/docs/dev/
jsonschema	https://python-jsonschema.readthedocs.org
jupyter	http://jupyter.readthedocs.org/
jupyter_client	http://jupyter-client.readthedocs.org/
jupyter_console	http://jupyter-console.readthedocs.org/
jupyter_core	http://jupyter-core.readthedocs.org/
libffi	http://sourceware.org/libffi/
libpng	http://www.libpng.org/pub/png/libpng.html
libsodium	http://libsodium.org
llvmlite	https://github.com/numba/llvmlite
markupsafe	https://pypi.python.org/pypi/MarkupSafe
matplotlib	http://matplotlib.org/contents.html#
menuinst	https://pypi.python.org/pypi/menuinst/
mistune	http://mistune.readthedocs.org/
mkl	http://software.intel.com/en-us/articles/intel-mkl/
mkl_fft	http://github.com/IntelPython/mkl_fft
mkl_random	http://github.com/IntelPython/mkl_random
mpi4py	http://mpi4py.readthedocs.org/
mpmath	http://mpmath.org/doc/current/
nbconvert	http://nbconvert.readthedocs.org/
nbformat	http://nbformat.readthedocs.org
nose	https://nose.readthedocs.org

notebook	https://jupyter-notebook.readthedocs.org/en/latest/
numba	http://numba.pydata.org/
numexpr	https://github.com/pydata/numexpr/wiki/Numexpr-Users-Guide
numpy	http://numpy.scipy.org/
openssl	http://www.openssl.org/
packaging	https://github.com/pypa/packaging
pandas	http://pandas.pydata.org/pandas-docs/stable/
pandocfilters	http://github.com/jgm/pandocfilters
path.py	https://pythonhosted.org/path.py/
pathlib2	https://pypi.python.org/pypi/pathlib2/
pexpect	http://pexpect.readthedocs.org/
pickleshare	https://pypi.python.org/pypi/pickleshare
pip	https://pip.pypa.io/en/stable/
prompt_toolkit	https://github.com/jonathanslenders/python-prompt-toolkit
ptyprocess	https://github.com/pexpect/ptyprocess
pycosat	https://github.com/ContinuumIO/pycosat
pycparser	https://github.com/eliben/pycparser
pygments	http://pygments.org/docs/
pyopenssl	https://pyopenssl.readthedocs.org/en/stable/
pyparsing	http://pyparsing.wikispaces.com/Documentation
pysocks	https://github.com/Anorov/PySocks
pytables	http://www.pytables.org/
python	https://www.python.org/doc/versions/
python-dateutil	https://dateutil.readthedocs.org/en/latest/
pytz	http://pytz.sourceforge.net/
pyyaml	http://pyyaml.org/
pyzmq	https://pyzmq.readthedocs.org/en/latest/
requests	http://docs.python-requests.org/
ruamel_yaml	https://bitbucket.org/ruamel/yaml
scandir	https://github.com/benhoyt/scandir
scikit-learn	http://scikit-learn.org/stable/
scipy	http://www.scipy.org/docs.html
setuptools	http://pythonhosted.org/setuptools/
simplegeneric	https://pypi.python.org/pypi/simplegeneric
singledispatch	http://docs.python.org/3/library/functools.html#functools.singledispatch
six	http://pythonhosted.org/six/
smp	https://github.com/IntelPython/smp
sqlite	http://www.sqlite.org/docs.html
ssl_match_hostname	https://pypi.python.org/pypi/backports.ssl_match_hostname
sympy	http://docs.sympy.org/latest/index.html
tbb	http://www.threadingbuildingblocks.org

tcl	http://www.tcl.tk/doc/
terminado	http://terminado.readthedocs.org/en/latest/
testpath	https://testpath.readthedocs.io
tk	http://www.tcl.tk/doc/
tornado	http://www.tornadoweb.org/en/stable/
traitlets	http://traitlets.readthedocs.org/en/stable/
urllib3	https://urllib3.readthedocs.io/
vc	https://github.com/conda/conda/wiki/VC-features
vs2008_runtime	http://www.microsoft.com
vs2015_runtime	http://www.microsoft.com
wcwidth	https://github.com/jquast/wcwidth
webencodings	https://github.com/gsnedders/python-webencodings
wheel	http://wheel.readthedocs.org/en/latest/
widgetsnbextension	http://ipython.org
win_inet_pton	https://github.com/hickeroar/win_inet_pton
win_unicode_console	https://github.com/Drekin/win-unicode-console
wincertstore	https://bitbucket.org/tiran/wincertstore
xgboost	https://github.com/dmlc/xgboost
xz	http://tukaani.org/xz/
yaml	http://yaml.org/
zeromq	http://zeromq.org/intro:read-the-manual
zlib	http://zlib.net/manual.html

8 Legal Information

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.

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