# Intel® Distribution for Python* 2020 Update 1

*Release Notes*

26 March 2020

## Version History/Revision History

| Date | Revision | Description |
| --- | --- | --- |
| 26 March 2020 | 1.0 | Release Notes for the Intel® Distribution for Python* 2020 Update 1 |

## Intended Audience

The target audience for the release notes are software developers and end users of the Intel® Distribution for Python* 2020 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 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 1

The following are new features for the release:

- Update packages to latest versions
- DBSCAN is accelerated in sklearn
- Performance improvement for F-contiguous inputs in daal4py
- Patches updated for compatibility with sklearn 0.22

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

- o  Ubuntu* 17.10
- o  Ubuntu* 18.04
- o  macOS* 10.12
- o  macOS* 10.13
- o  macOS* 10.14
- o  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:
     - o  **.\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 | 1.3.0** | Linux,Windows,macOS |
| bzip2 | 1.0.8** | Linux,Windows,macOS |

| | | |
|---|---|---|
| certifi | 2019.11.28** | Linux,Windows,macOS |
| cffi | 1.13.2** | Linux,Windows,macOS |
| chardet | 3.0.4 | Linux,Windows,macOS |
| conda | 4.7.12 | Linux,Windows,macOS |
| conda-package-handling | 1.4.0 | Linux,Windows,macOS |
| cryptography | 2.8** | Linux,Windows,macOS |
| cycler | 0.10.0 | Linux,Windows,macOS |
| cython | 0.29.14** | Linux,Windows,macOS |
| daal | 2020.1** | Linux,Windows,macOS |
| daal4py | 2020.1** | Linux,Windows,macOS |
| freetype | 2.10.1 | Linux,Windows,macOS |
| funcsigs | 1.0.2 | Linux,Windows,macOS |
| icc_rt | 2020.1** | Linux,Windows,macOS |
| idna | 2.8** | Linux,Windows,macOS |
| impi_rt | 2020.1** | Linux,Windows |
| intel-openmp | 2020.1** | Linux,Windows,macOS |
| intelpython | 2020.1** | Linux,Windows,macOS |
| ipp | 2020.1** | Linux,Windows, macOS |
| joblib | 0.13.2 | Linux,Windows,macOS |
| kiwisolver | 1.1.0** | 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 | 2.9.9 | Linux,Windows,macOS |
| llvmlite | 0.31.0** | Linux,Windows,macOS |
| lz4-c | 1.8.1.2 | Linux,Windows,macOS |
| lzo | 2.10 | Linux,Windows,macOS |
| matplotlib | 3.1.2** | Linux,Windows,macOS |
| menuinst | 1.4.1 | Windows |
| mkl | 2020.1** | Linux,Windows,macOS |
| mkl-service | 2.3.0 | Linux,Windows,macOS |
| mkl_fft | 1.1.0** | Linux,Windows,macOS |
| mkl_random | 1.1.0 | Linux,Windows,macOS |
| mpi4py | 3.0.3** | Linux,Windows |
| numba | 0.48.0 | Linux,Windows,macOS |
| numexpr | 2.7.0 | Linux,Windows,macOS |
| numpy | 1.17.5** | Linux,Windows,macOS |
| numpy-base | 1.17.5** | Linux,Windows,macOS |
| openssl | 1.1.1d | Linux,Windows,macOS |
| pandas | 0.25.3** | Linux,Windows,macOS |
| pip | 19.3.1** | Linux,Windows,macOS |

| | | |
|---|---|---|
| pycosat | 0.6.3 | Linux,Windows,macOS |
| pycparser | 2.19** | Linux,Windows,macOS |
| pyeditline | 2.0.0 | Linux |
| pyopenssl | 19.1.0** | Linux,Windows,macOS |
| pyparsing | 2.4.5** | 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 | 2019.3** | Linux,Windows,macOS |
| pywin32 | 224 | Windows |
| pyyaml | 5.3** | Linux,Windows,macOS |
| requests | 2.22.0** | Linux,Windows,macOS |
| ruamel_yaml | 0.15.99** | Linux,Windows,macOS |
| scikit-learn | 0.22.1** | Linux,Windows,macOS |
| scipy | 1.3.3** | Linux,Windows,macOS |
| setuptools | 45.2.0** | Linux,Windows,macOS |
| six | 1.13.0** | Linux,Windows,macOS |
| smp | 0.1.4 | Linux |
| sqlite | 3.30.1** | Linux,Windows,macOS |
| tbb | 2020.1** | Linux,Windows,macOS |
| tbb4py | 2020.1** | 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 | 1.25.7** | Linux,Windows |
| vc | 14.0 | Windows |
| vs2015_runtime | 14.0.25420 | Windows |
| wheel | 0.33.6** | Linux,Windows,macOS |
| win_inet_pton | 1.1.0** | Windows |
| wincertstore | 0.2 | Windows |
| xgboost | 1.0.1** | Linux |
| xz | 5.2.4 | Linux,Windows,macOS |
| yaml | 0.1.7 | Linux,macOS |
| zlib | 1.2.11.1** | Linux,Windows,macOS |
| zstd | 1.4.0 | 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 | https://github.com/wbond/asn1crypto |
| bzip2 | http://www.bzip.org/docs.html |
| certifi | https://certifi.io |
| cffi | http://cffi.readthedocs.org |
| chardet | https://github.com/chardet/chardet |
| conda | http://conda.pydata.org/docs/ |
| conda-package-handling | https://github.com/conda/conda-package-handling |
| cryptography | https://cryptography.io |
| cycler | http://matplotlib.org/cycler/ |
| cython | http://cython.org/#documentation |
| freetype | http://freetype.sourceforge.net/freetype2/documentation.html |
| funcsigs | http://funcsigs.readthedocs.org/en/latest/ |
| idna | https://github.com/kjd/idna |
| intel-openmp | http://software.intel.com |
| ipp | http://software.intel.com/en-us/articles/intel-ipp/ |
| joblib | https://joblib.readthedocs.io/en/latest/ |
| kiwisolver | https://kiwisolver.readthedocs.io/en/latest/ |
| libarchive | http://www.libarchive.org/ |
| libffi | http://sourceware.org/libffi/ |
| libiconv | https://www.gnu.org/software/libiconv/ |
| libpng | http://www.libpng.org/pub/png/libpng.html |
| llvmlite | https://github.com/numba/llvmlite |
| lz4-c | https://www.lz4.org |
| lzo | http://www.oberhumer.com/opensource/lzo/ |
| matplotlib | http://matplotlib.org/contents.html# |
| menuinst | https://pypi.python.org/pypi/menuinst/ |
| 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/ |
| 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/ |
| pandas | http://pandas.pydata.org/pandas-docs/stable/ |
| pip | https://pip.pypa.io/en/stable/ |

| pycosat | https://github.com/ContinuumIO/pycosat |
| --- | --- |
| pycparser | https://github.com/eliben/pycparser |
| pyopenssl | https://pyopenssl.readthedocs.org/en/stable/ |
| pyparsing | http://pyparsing.wikispaces.com/Documentation |
| pysocks | https://github.com/Anorov/PySocks |
| python | https://www.python.org/doc/versions/ |
| python-dateutil | https://dateutil.readthedocs.org/en/latest/ |
| python-libarchive-c | https://github.com/Changaco/python-libarchive-c |
| pytz | http://pytz.sourceforge.net/ |
| pywin32 | https://github.com/mhammond/pywin32 |
| pyyaml | http://pyyaml.org/ |
| requests | http://docs.python-requests.org/ |
| ruamel_yaml | https://bitbucket.org/ruamel/yaml |
| scikit-learn | http://scikit-learn.org/stable/ |
| scipy | http://www.scipy.org/docs.html |
| setuptools | http://pythonhosted.org/setuptools/ |
| six | http://pythonhosted.org/six/ |
| smp | https://github.com/IntelPython/smp |
| sqlite | http://www.sqlite.org/docs.html |
| tbb | http://www.threadingbuildingblocks.org |
| tcl | http://www.tcl.tk/doc/ |
| tk | http://www.tcl.tk/doc/ |
| tqdm | https://pypi.python.org/pypi/tqdm |
| urllib3 | https://urllib3.readthedocs.io/ |
| vc | https://github.com/conda/conda/wiki/VC-features |
| vs2015_runtime | http://www.microsoft.com |
| wheel | http://wheel.readthedocs.org/en/latest/ |
| win_inet_pton | https://github.com/hickeroar/win_inet_pton |
| wincertstore | https://bitbucket.org/tiran/wincertstore |
| xgboost | https://github.com/dmlc/xgboost |
| xz | http://tukaani.org/xz/ |
| yaml | http://yaml.org/ |
| zlib | http://zlib.net/manual.html |

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