Introduction to Anaconda

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What is Anaconda?

Anaconda is a Python distribution that is particularly popular for data analysis and scientific computing

- Open source project developed by Continuum Analytics, Inc.
- Available for Windows, Mac OS X and Linux
- Includes many popular packages: NumPy, SciPy, Matplotlib, Pandas, IPython, Cython
- Includes **Spyder**, a Python development environment
- Includes **conda**, a platform-independent package manager

Installing Anaconda

Anaconda is easy to install

- Download installer from https://www.continuum.io/download
- Execute the installer and follow the instructions

To install Anaconda on a Linux cluster:

```
$ wget \
 https://repo.continuum.io/archive/Anaconda3-4.2.0-Linux-x86_64.sh
$ bash Anaconda3-4.2.0-Linux-x86_64.sh
```

Introduction to Conda

Simplifies installation of Python packages

- Platform-independent package manager
- Doesn't require administrative privileges
- Installs non-Python library dependencies (MKL, HDF5, Boost)
- Provides "virtual environment" capabilities
- Many *channels* exist that support additional packages
- Documentation at `http://conda.pydata.org/docs/`

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Installing Python packages with Conda

It can be as easy as:

```
$ conda install wxpython
```

Specific versions of packages can be requested:

```
$ conda install wxpython=3.0
```

Some packages are only available in special channels:

```
$ conda install -c vpython vpython
```

Pip can also be used:

```
$ pip install intervaltree
```

Virtual Environments

Environments allow different versions of packages on same machine

Create environment "test" and install numpy version 1.7

```
$ conda create --name test numpy=1.7
```

Environments must be activated

On Mac OS X and Linux:

```
$ source activate test
$ python
...
$ source deactivate
```

On Windows:

```
> activate test
> python
...
> deactivate
```

More Conda operations

Display help for conda command (and sub-commands):

```
$ conda --help
$ conda list --help
```

List packages in current conda environment:

```
$ conda list
```

Display all information about conda installation:

```
$ conda info -a
```

Search for available packages (using regular expressions):

```
$ conda search '^doc'  # packages that start with "doc"
```

Update package:

```
$ conda update wxpython
```

Uninstall package:

```
$ conda remove wxpython
```

Warning about installing/updating packages

Installing packages into existing environment may cause problems

- best to install all necessary packages at same time
- **install** command may ask permission to update existing packages which may result in version conflicts
- install packages into new environments if possible to avoid conflicts

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