



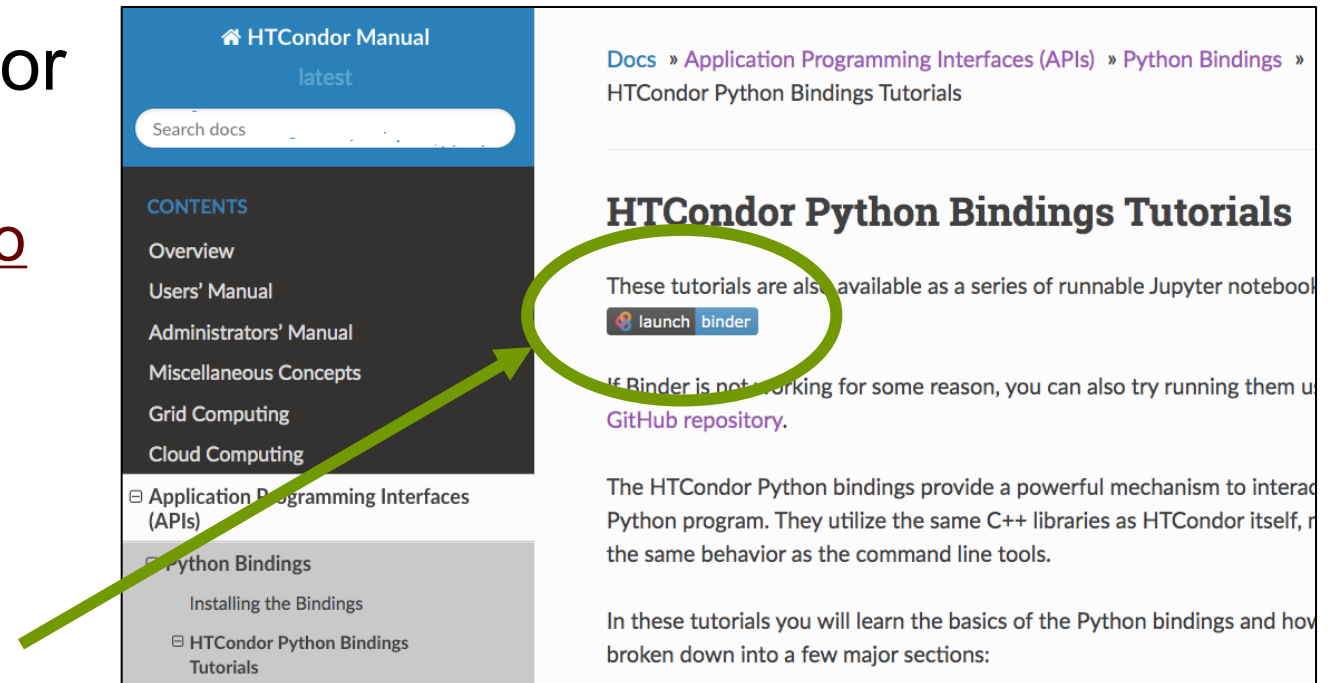
HTCondor's Python API – The Python Bindings

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Tutorial – Load this now!

- › Head over to the HTCCondor documentation
<https://htcondor.readthedocs.io>
- › Application Programming Interfaces
 - > Python Bindings
 - > [HTCondor Python Bindings Tutorials](#)
 - > Launch Binder



The screenshot shows the HTCondor Manual website. The left sidebar contains a 'CONTENTS' menu with the following items: Overview, Users' Manual, Administrators' Manual, Miscellaneous Concepts, Grid Computing, Cloud Computing, Application Programming Interfaces (APIs), Python Bindings (with sub-items: Installing the Bindings), and HTCondor Python Bindings Tutorials. The main content area displays the 'HTCondor Python Bindings Tutorials' page. A green arrow points from the 'Python Bindings' menu item to the 'launch binder' button on the page. The 'launch binder' button is circled in green. The page text includes: 'These tutorials are also available as a series of runnable Jupyter notebooks', 'If Binder is not working for some reason, you can also try running them using our [GitHub repository](#).', and 'The HTCondor Python bindings provide a powerful mechanism to interact with a Python program. They utilize the same C++ libraries as HTCondor itself, and exhibit the same behavior as the command line tools. In these tutorials you will learn the basics of the Python bindings and how they are broken down into a few major sections:'

HTCondor Clients in 2013

Command Line Clients

Fully Featured!

Requires fork/exec and process handling

Outputs in multiple formats

Something
Missing
In
The
Middle

SOAP Clients

Features! (Some)

Caveats with respect to scalability, security.

Command Line Clients

Fully Featured!

Requires fork/exec and process handling

Outputs in multiple formats



SOAP Clients

RESTful clients, workflow managers, monitoring tools

Features! (Some)

Caveats with respect to scalability, security.

Design Philosophy

ClassAds: Everything based on ClassAds; make these the “core” of the bindings.

Pythonic: Semantics and APIs should feel natural to a Python programmer.

- Use iterators, exceptions, guards.
- ClassAds behave as much like a dict as reasonable.

Backward compatible: APIs are here to stay for as long as possible.

- When we absolutely must, use standard Python DeprecationWarning techniques.
- Yes, this means that we keep even design warts for far longer than we’d like!

Native code: Call same HTCondor library code as CLI; identical in performance.

Complete: If you can do it with the command line tools, you should be able to do it with Python.

Pythonic!

Since *pythonic* is in our design philosophy, the education tools should use the tools favored by the Python community:

- › Sphinx-based documentation. Hosted on ReadTheDocs; looks / feels / smells like Python documentation.
- › Jupyter-based tutorials. Use Binder.org service to spawn a Docker container with a private HTCondor instance (or use Docker locally). Interact via your browser.

You can help!

The contents of the tutorials and documentation are kept on GitHub:

- › <https://github.com/htcondor/htcondor-python-bindings-tutorials>
- › JupyterLab & Binder integration developed by Josh Karpel.
- › Find a bug? Spot some missing content?
 - Send a pull request; Travis-CI will test and update the static content once merged.

Installing Python Bindings

> On Linux

- Included in the RPM and DEB packages for the system Python(s)
- Available via PyPI on Linux:
 - `pip install htcondor`
- Available via Anaconda (via conda-forge channel) on Linux and macOS:
 - `conda install -c conda-forge python-htcondor`

> On Windows

- Included in the Windows MSI
 - 9.0.x LTS Releases and 9.8.1- Feature Releases: Python 2.7 and Python 3.6
 - 9.9.0+ Feature Releases: Python 3.9

> On MacOS

- Included in the HTCondor tarball for the system Python
- Available via Anaconda, see above

Python API – Big Changes

- › No major changes since last year
- › Upcoming deprecations
 - User-controllable Schedd transactions
with `schedd.transaction()` as `txn: ...`
not deprecated yet but will be soon (HTCondor 10.1?), check the
release notes and docs closely!
 - Use `schedd.submit(my_submit_obj)` now!
- › Keep track of changes in the release notes

Tutorial

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TIME FOR TUTORIAL DEMO

Questions?

- › Python bindings API developers and users alike are active on the [HTCondor Users mailing list](#)

Thank You!



Follow us on Twitter!
<https://twitter.com/HTCondor>



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