


Development resources for OpenStack clouds

This web page will walk you through the stages of learning to develop applications to run on OpenStack.

Development Environments 

Writing Your First App 

Reference Architectures 

View SDKs 

View APIs 

View CLIs 

Development Environments

Need a place to start learning OpenStack, or your own personal OpenStack development environment?

Public Environments

- TryStack The OpenStack Sandbox (<http://trystack.org/>)
- Public Clouds on the Marketplace (<https://www.openstack.org/marketplace/public-clouds/>)

Private Installations

- DevStack Create a development environment based on the latest code (<https://docs.openstack.org/developer/devstack/>)
- PackStack A simple Puppet driven installation of OpenStack (<https://github.com/openstack/packstack/blob/master/docs/packstack.rst>)

Writing Your First OpenStack Application

Want to quickly learn how to manipulate OpenStack using the OpenStack SDKs?

OpenStack FirstApp

- FirstApp with the Libcloud public Python library (<https://developer.openstack.org/firstapp-libcloud/>)
- FirstApp using the OpenStack Shade SDK (<https://developer.openstack.org/firstapp-shade/>)

Reference Architectures

Think of these as curated playlists of OpenStack configurations. These Reference Architectures are based on real-world workloads. The Reference Architecture document will give you a good idea of which core and optional projects might be used by the workload. In addition, each Reference Architecture includes sample Heat and or Murano packages which will allow you to reproduce the workload in your own environment.

Reference Architectures

- Web Applications (<https://www.openstack.org/software/sample-configs#web-applications>)
- Big Data (<https://www.openstack.org/software/sample-configs#big-data>)
- eCommerce (<https://www.openstack.org/software/sample-configs#ecommerce>)

Heat Templates

- Web Applications (<https://apps.openstack.org/#tab=heat-templates&asset=3-tier%20Web%20Application%20-%20WordPress%20FLAMP>)
- Big Data (<https://apps.openstack.org/#tab=heat-templates&asset=Big%20Data%20Application%20-%20Hadoop>)
- eCommerce (<https://apps.openstack.org/#tab=heat-templates&asset=eCommerce%20Application%20-%20OpenCart%20FLAMP>)

SDKs

A software development kit (SDK) contains code, examples, and documentation that you use to create OpenStack cloud applications in the language of your choice.

If one of the following SDKs do not support your language or use case, you can use the APIs or one of the other known SDKs (https://wiki.openstack.org/wiki/SDKs#Known_SDKs).

Java

SDK

Apache jclouds SDK (<http://jclouds.apache.org/guides/openstack/>)

Docs and resources

OpenStack: Getting Started Guide (<http://jclouds.apache.org/guides/openstack/>)

Javadoc for Apache jclouds (<http://jclouds.apache.org/reference/javadoc/>)

Release Notes Archive (<http://jclouds.apache.org/releasesnotes/>)

Community

Twitter: @jclouds (<https://twitter.com/jclouds>)

IRC: #jclouds (<irc://irc.freenode.net/jclouds>) on freenode

Mailing list: Register (<mailto:jclouds-user-subscribe@apache.org>) | Archive (<http://www.mail-archive.com/user@jclouds.apache.org/>)

Issues: Report a Bug (<http://jclouds.apache.org/reference/report-a-bug/>)

Node.js

SDK

pkgcloud SDK (<https://github.com/pkgcloud/pkgcloud/blob/master/docs/providers/openstack/README.md>)

Docs and resources

Getting started with pkgcloud & Openstack (<https://github.com/pkgcloud/pkgcloud/blob/master/docs/providers/openstack/getting-started-compute.md>)

Supported APIs (<https://github.com/pkgcloud/pkgcloud#supported-apis>)

pkgcloud Releases (<https://github.com/pkgcloud/pkgcloud/releases/>)

Community

Twitter: @pkgcloud (<https://twitter.com/pkgcloud>)

IRC: #pkgcloud (<irc://irc.freenode.net/pkgcloud>) on freenode

Issues: pkgcloud/pkgcloud Issues (<https://github.com/pkgcloud/pkgcloud/issues>)

Python

SDK

libcloud SDK (<https://libcloud.apache.org/>)

Docs and resources

Getting started (https://developer.openstack.org/firstapp-libcloud/getting_started.html)

OpenStack Compute Driver Documentation (<https://libcloud.readthedocs.org/en/latest/compute/drivers/openstack.html>)

Welcome to Apache Libcloud's documentation! (<https://libcloud.readthedocs.org/en/latest/>)

Changes with current version of Apache Libcloud (<https://git-wip-us.apache.org/repos/asf?p=libcloud.git;a=blob;f=CHANGES.rst>)

Community

Twitter: @libcloud (<https://twitter.com/libcloud>)

IRC: #libcloud (<irc://irc.freenode.net/libcloud>) on freenode

Mailing list: Register (<https://libcloud.apache.org/community.html>) | Archive (<https://issues.apache.org/jira/browse/LIBCLOUD>)

Issues: Issues (<https://issues.apache.org/jira/browse/LIBCLOUD/?selectedTab=com.atlassian.jira.jira-projects-plugin:issues-panel>)

SDK

Shade SDK (<https://docs.openstack.org/infra/shade/>)

Docs and resources

Getting started (https://developer.openstack.org/firstapp-shade/getting_started.html)

Usage (<https://docs.openstack.org/infra/shade/usage.html>)

Release notes (<https://docs.openstack.org/infra/shade/releasesnotes.html>)

Community

IRC: #openstack-sdks (<irc://irc.freenode.net/openstack-sdks>) on freenode

Mailing list: Register (<http://lists.openstack.org/cgi-bin/mailman/listinfo/openstack-infra>) | Archive (<http://lists.openstack.org/pipermail/openstack-infra/>)

Issues: Issues (<https://storyboard.openstack.org/#/project/760>)

Ruby

SDK

Fog SDK (<http://fog.io/>)

Docs and resources

Getting started (https://github.com/fog/fog-openstack/blob/master/docs/getting_started.md)

Supported APIs (<https://github.com/fog/fog-openstack/blob/master/supported.md>)

Code samples (<https://github.com/fog/fog-openstack/tree/master/examples>)

Community

Twitter: @fog (<https://twitter.com/fog>)

IRC: #ruby-fog (<irc://irc.freenode.net/ruby-fog>) on freenode

Mailing list: ruby-fog (<http://groups.google.com/group/ruby-fog>)

Issues: fog/fog Issues (<https://github.com/fog/fog-openstack/issues>)

.NET**SDK**

.NET SDK (<http://www.openstacknetsdk.org>)

Docs and resources

Getting started (<https://github.com/openstacknetsdk/openstack.net/wiki/Getting-Started-With-The-OpenStack-NET-SDK>)

Supported APIs (<http://www.openstacknetsdk.org/docs/html/e11545c6-88c9-4ff1-b0cf-abffd4bd3ff7.htm>)

Code samples (<https://github.com/openstacknetsdk/openstack.net/tree/develop/samples>)

openstacknetsdk/openstack.net (<https://github.com/openstacknetsdk/openstack.net>)

Community

IRC: #openstack-sdks (<irc://irc.freenode.net/openstack-sdks>) on freenode

Mailing list: Register (<http://lists.openstack.org/cgi-bin/mailman/listinfo/openstack-dev>) | Archive (<http://lists.openstack.org/pipermail/openstack-dev/>)

Issues: openstacknetsdk/openstack.net Issues (<https://github.com/openstacknetsdk/openstack.net/issues>)

PHP**SDK**

PHP OpenCloud SDK (<http://docs.os.php-opencloud.com/en/latest/>)

Docs and resources

Supported APIs (<http://docs.os.php-opencloud.com/en/latest/#supported-services>)

Code samples (<https://github.com/php-opencloud/openstack/tree/master/samples>)

php-opencloud/openstack (<https://github.com/php-opencloud/openstack>)

Community

IRC: #openstack-sdks (<irc://irc.freenode.net/openstack-sdks>) on freenode

Mailing list: php-opencloud (<https://groups.google.com/forum/#!forum/php-opencloud>)

Issues: php-opencloud/openstack Issues (<https://github.com/php-opencloud/openstack/issues>)

APIs

An application programming interface (API) lets you access service capabilities through predefined functions.

To learn how to use the APIs, see the OpenStack API Guide (<https://developer.openstack.org/api-guide/quick-start/>). All documented OpenStack APIs are listed below.

Translations

- German (de) (<https://developer.openstack.org/de/api-guide/quick-start/>)
- Indonesian (id) (<https://developer.openstack.org/id/api-guide/quick-start/>)
- Japanese (ja) (<https://developer.openstack.org/ja/api-guide/quick-start/>)
- Korean (ko_KR) (https://developer.openstack.org/ko_KR/api-guide/quick-start/)
- Chinese (zh_CN) (https://developer.openstack.org/zh_CN/api-guide/quick-start/)

Bare Metal API	Block Storage API	Clustering API
(https://Developer.Openstack.Org/Api-Compute-API)	(https://Developer.Openstack.Org/Api-Container-Infrastructure-Management-API)	(https://Developer.Openstack.Org/Api-Data-Processing)
CLIs	CLIs	CLIs
(https://Developer.Openstack.Org/Api-Compute-API)	(https://Developer.Openstack.Org/Api-Container-Infrastructure-Management-API)	(https://Developer.Openstack.Org/Api-Data-Processing)
Ref/Baremetal/	Ref/Block-Storage/	Ref/Clustering/
(https://Developer.Openstack.Org/Api-Compute-API)	(https://Developer.Openstack.Org/Api-Container-Infrastructure-Management-API)	(https://Developer.Openstack.Org/Api-Data-Processing)
A command-line interface (CLI) is a text-based client that lets you interact with OpenStack clouds.	A command-line interface (CLI) is a text-based client that lets you interact with OpenStack clouds.	A command-line interface (CLI) is a text-based client that lets you interact with OpenStack clouds.

Data Protection Orchestration	Database Service API	Domain Name Server (DNS) API
(https://Developer.Openstack.Org/Api-EC2-API-Service)	(https://Developer.Openstack.Org/Api-Identity-API)	(https://Developer.Openstack.Org/Api-Image-Service-API)
(https://Developer.Openstack.Org/Api-Ref/Data-Protection-Orchestration/)	(https://Developer.Openstack.Org/Api-Ref/Database/Messaging-API)	(https://Developer.Openstack.Org/Api-Ref/Dns/Networking-API)
(http://Developer.Openstack.Org/Api-Nfv-Orchestration-API)	(https://Developer.Openstack.Org/Api-Ref/Identity/Object-Storage-API)	(https://Developer.Openstack.Org/Api-Ref/Image/Orchestration-API)
(https://Developer.Openstack.Org/Api-Ref/Nfv-Search-API)	(https://Developer.Openstack.Org/Api-Ref/Messaging/Shared-File-Systems-API)	(https://Developer.Openstack.Org/Api-Ref/Networking/All-OpenStack-APIs)
To install the CLIs, see https://docs.openstack.org/user-guide/cli.html . To use the CLIs, see https://docs.openstack.org/user-guide/cli.html .		
Ref/Search	Ref/Shared-File-Systems	Guide/Quick-Start/

More Links

OpenStack for App Developers (<https://www.openstack.org/appdev/>).

Documentation treated like code, powered by the community - interested? Here's how to contribute (<https://docs.openstack.org/contributor-guide/>) .

The OpenStack project is provided under the Apache 2.0 license. Openstack.org is powered by Rackspace Cloud Computing (<http://www.rackspacecloud.com/>) .

OpenStack
<ul style="list-style-type: none">Projects (https://www.openstack.org/projects/)OpenStack Security (https://www.openstack.org/projects/openstack-security/)Common Questions (https://www.openstack.org/projects/openstack-faq/)Blog (https://www.openstack.org/blog/)News (https://www.openstack.org/news/)
Community
<ul style="list-style-type: none">User Groups (https://www.openstack.org/community/)Events (https://www.openstack.org/community/events/)Jobs (https://www.openstack.org/community/jobs/)Companies (https://www.openstack.org/foundation/companies/)Contribute (https://docs.openstack.org/infra/manual/developers.html)
Documentation
<ul style="list-style-type: none">OpenStack Manuals (https://docs.openstack.org)Getting Started (https://www.openstack.org/software/start/)API Documentation (https://developer.openstack.org)Wiki (https://wiki.openstack.org)
Branding & Legal
<ul style="list-style-type: none">Logos & Guidelines (https://www.openstack.org/brand/)Trademark Policy (https://www.openstack.org/brand/openstack-trademark-policy/)Privacy Policy (https://www.openstack.org/privacy/)OpenStack CLA (https://wiki.openstack.org/wiki/How_To_Contribute#Contributor_License_Agreement)
Stay In Touch
(https://www.openstack.org/online/openstack-foundation)

The OpenStack project is provided under the Apache 2.0 license. Openstack.org is powered by [Rackspace Cloud Computing \(http://rackspace.com\)](http://rackspace.com).