OPNFV Artifact Repository

Artifact Repository

What is Artifact Repository

An Artifact Repository is akin to what Subversion is to source code, i.e. it is a way of versioning artifacts produced by build systems, CI, and so on. [1]

Why Artifact Repository is Needed

Since many developers check their source code into the GIT repository it may seem natural to just place the files you've built into the repo too. This can work okay for a single developer working on a project over the weekends but with a team working on many components that need to be tested and integrated, this won't scale.

The way git works, no revision of any file is ever lost. So if you ever check in a big file, the repository will always contain it, and a git clone will be that much slower for every clone from that point onward.

The golden rule of revision control systems applies: *check in your build scripts, not your build products*.

Unfortunately, it only takes one person to start doing this and we end up with huge repositories. Please don't do this. It will make your computers sad. Thankfully, Gerrit and code review systems are a massive disincentive to doing this.

You definitely need to avoid storing binary images in git. This is what artifact repositories are for. [2]

A “centralized image repository” is needed that can store multiple versions of various virtual machines and have something like /latest pointing to the newest uploaded image. It could be a simple nginx server that stores the output images from any jenkins job if it's successful, for instance.

OPNFV Artifact Repository

What is used as Artifact Repository for OPNFV

Setting up, hosting, and operating an artifact repository on OPNFV Infrastructure in Linux Foundation (LF) environment requires too much storage space. It is also not a straightforward undertaking to have robust Artifact Repository and provide 24/7 support.

OPNFV Project decided to use **Google Cloud Storage** as OPNFV Artifact Repository due to reasons summarized above. [3]

Usage of Artifact Repository in OPNFV CI

Binaries/packages that are produced by OPNFV Continuous Integration (CI) are deployed/uploaded to Artifact Repository making it possible to reuse artifacts during later stages of OPNFV CI. Stored artifacts can be consumed by individual developers/organizations as well.

In OPNFV, we generally produce PDF, ISO and store them on OPNFV Artifact Repository.

OPNFV Artifact Repository Web Interface

OPNFV Artifact Repository is accessible via link http://artifacts.opnfv.org/.

A proxy has been set up by LF for the community members located in countries with access restrictions to Google http://build.opnfv.org/artifacts/.

Access Rights to OPNFV Artifact Repository

As summarized in previous sections, OPNFV uses Google Cloud Storage as Artifact Repository. By default, everyone has read access to it and artifacts can be fetched/downloaded using browser, a curl-like command line HTTP client, or gsutil.

Write access to Artifact Repository is given per request basis and all the requests must go through LF Helpdesk with an explanation regarding the purpose of write access. Once you are given write access, you can read corresponding section to store artifacts on OPNFV Artifact Repository.

How to Use OPNFV Artifact Repository

There are 3 basic scenarios to use OPNFV Artifact repository.

- browsing artifacts
- downloading artifacts
- uploading artifacts

Please see corresponding sections regarding how to do these.

How to Browse Artifacts Stored on OPNFV Artifact Repository

You can browse stored artifacts using

- **Web Browser**: By navigating to the address OPNFV Artifact Storage.
- **Command Line HTTP-client**

  ```
  curl -o <output_filename> http://artifacts.opnfv.org
  ```

  Example:

  ```
  curl -o opnfv-artifact-repo.html http://artifacts.opnfv.org
  ```

- **Google Storage Util (gsutil)**

  ```
  gsutil ls gs://artifacts.opnfv.org/<path_to_bucket>
  ```

  Example:

  ```
  gsutil ls gs://artifacts.opnfv.org/octopus
  ```

How to Download Artifacts from OPNFV Artifact Repository

You can download stored artifacts using

- **Web Browser**: By navigating to the address OPNFV Artifact Storage and clicking the link of the artifact you want to download.
- **Command Line HTTP-client**

  ```
  curl -o <output_filename> http://artifacts.opnfv.org/<path/to/artifact>
  ```

  Example:

  ```
  curl -o main.pdf http://artifacts.opnfv.org/octopus/docs/release/main.pdf
  ```

- **Google Storage Util (gsutil)**

  ```
  gsutil cp gs://artifacts.opnfv.org/<path/to/artifact> <output_filename>
  ```

  Example:

  ```
  gsutil cp gs://artifacts.opnfv.org/octopus/docs/release/main.pdf main.pdf
  ```

How to Upload Artifacts to OPNFV Artifact Repository

As explained in previous sections, you need to get write access for OPNFV Artifact Repository in order to upload artifacts.

Apart from write access, you also need to have Google account and have the Google Cloud Storage utility, **gsutil**, installed on your computer.

Install and Configure gsutil

Please follow steps listed below.

1. Install gsutil

   Please follow steps listed on this link to install gsutil to your computer.

2. Configure gsutil

   Issue below command and follow the instructions. You will be asked for the project-id. The project-id is **linux-foundation-collab**.

   ```
   gsutil config
   ```

3. Request write access for OPNFV Artifact Repository

   Send an email to LF Helpdesk and list the reasons for the request. Do not forget to include gmail mail address.

Upload Artifacts

Once you installed and configured gsutil and got write access from LF Helpdesk, you should be able to upload artifacts to OPNFV Artifact Repository.

The command to upload artifacts is

```
gsutil cp <file_to_upload> gs://artifacts.opnfv.org/<path/to/bucket>
```

Example:

```
gsutil cp README gs://artifacts.opnfv.org/octopus
```

Once the upload operation is completed, you can do the listing and check to see if the artifact is where it is expected to be.

```
gsutil ls gs://artifacts.opnfv.org/<path/to/bucket>
```

Example:

```
gsutil ls gs://artifacts.opnfv.org/octopus
```

Getting Help

Send an email to LF Helpdesk or join the channel **#opnfv-octopus** on IRC.

References

1. Why you should be using an Artifact Repository
2. Regarding VM image and Git repo
3. Google Cloud Storage

Documentation tracking

Revision: a17eb962dcfe5e4f0074d874c95a554e137b9176

Build date: Tue Nov 10 07:16:05 UTC 2015