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# **lf-releng-global-jjb**

***Release v0.48.1.dev0+93a86e0***

**Nov 18, 2019**



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Linux Foundation Release Engineering Global Jenkins Job Builder (JJB) Documentation.

Global-JJB is a library project containing reusable Jenkins Job Builder templates. Developed for LFCI to deploy management Jenkins jobs to an LF managed Jenkins instance, there are other jobs defined which may be helpful to projects that use the same build technology. The intention is to help projects save time from having to define their own job templates.



# CHAPTER 1

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## Release Notes

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Global JJB provides regular releases. The release notes for all releases are available in the relnotes directory in Git.

<https://github.com/lfit/releng-global-jjb/tree/master/relnotes>





## 2.1 Release Notes

### 2.1.1 v0.48.1

#### Bug Fixes

- Change multi-cloud image validation to look for an OS\_CLOUD variable in the cloud.cfg instead of overloading CLOUD\_CREDENTIAL\_ID as that variable does not usually point to an ID that is in the openstack clouds.yaml file.

### 2.1.2 v0.48.0

#### New Features

- By default, the lf-venv-create() function only installs/upgrades 'pip' and any packages that need to be tied to a specific version like. Currently the only version specific package is: 'jenkins-job-builder==2.8.0'. The current version of lf-venv-create() supports being called twice but that functionality has NOT yet been thoroughly tested. RELENG-2508 has been created to validate & optimize that functionality.
- Created new function lf-activate-venv(). This function creates a venv in /tmp and prepends the bin directory to the PATH. The 'pip install' command now specifies: '-upgrade-strategy eager'. lf-activate-venv() supports an optional -python flag to specify which python to use to create the venv, the default is python3.

Two new functions: lf-git-validate-jira-urls() and lf-jjb-check-ascii(). They will be used to replace the git-validate-jira-urls.sh & jjb-check-unicode.sh scripts at some point. For now, they are not being used.

#### Bug Fixes

- Update the gerrit trigger regexes for the docker job templates to use the shorter and more readable versions of the regexes used in other verify and merge job templates. Clarify documentation for comment triggers.

- Multi-cloud image validation was not properly working as we force set the OS\_CLOUD environment variable before validation of images. This has been rectified to dynamically modify the OS\_CLOUD variable based upon the cloud.cfg that will be used to define the cloud in Jenkins.
- We now validate that a cloud.cfg file exists for any defined OpenStack cloud.
- Removes undocumented, and now unneeded, openstack-cloud variable from the jenkins-cfg-verify job definition
- Change compare-type to REG\_EXP in macros lf\_python\_clm\_xc and lf\_pypi\_common for config parameter gerrit\_trigger\_file\_paths with the regular expression .\* Previously was ANT, which didn't match anything with pattern .\* so recheck/reverify comment triggers did not work. Clarify documentation of comment triggers for python jobs.
- Add .pypirc config file provider to builders in release job. Extend PyPI documentation with recommended directory layout.
- Change the comment-added-contains-event strings for the release-verify and release-merge templates to the same regexes used in other verify and merge templates, instead of custom versions that didn't seem to work; verify now uses '^Patch Sets+d+:s+(recheck|reverify)s\*\$' merge now uses '^Patch Sets+d+:s+remerges\*\$'
- Change pip's upgrade-strategy to "eager" for python-tools-install.sh. Pip changed its default upgrade-strategy to "only-if-required", which is not correctly upgrading requests (and potentially other packages in the future) to meet other packages' requirements. This results in errors in the build log. By using the upgrade-strategy "eager", pip is able to properly install what is needed.

## Other Notes

- The lf-venv-add(), lf-venv-create() & lf-venv-activate functions have been removed. No-one is accessing it yet.

## 2.1.3 v0.47.0

### New Features

- Refactor PyPI release-verify and release-merge templates to download distribution files from a PyPI staging index and upload the files to a PyPI release index. Remove all the builders that were previously used. Call pip upgrade to install latest version of setuptools and twine. Split the PyPI job groups because the verify & merge templates do not accept the same arguments as release-verify & release-merge templates. Remove stream, branch usage; just one PyPI release job per project now. Extend the PyPI release yaml file schema for log\_dir and other values. All this makes the PyPI release ver/mrg templates highly similar to the release-job ver/mrg templates. Revise documentation appropriately. Move the PyPI release features to the lf-release-jobs.(rst,yaml) files. Extend the release-job.sh script to have pypi release functions, and drop the pypi-tag-release.sh script.
- Added two new functions: lf-venv-create(), lf-venv-add() Changed name of lf-activate() -> lf-venv-activate() Updated functionality of lf-venv-activate (support for paths & python versions)

### Bug Fixes

- Added 'll return 1' to appropriate commands. Functions do not support '-e' and a function will normally continue after a command fails.

## Other Notes

- Improved Comments

## 2.1.4 v0.46.0

### New Features

- Read-the-docs job will run but skip its verification bits unless the repo has .readthedocs.yaml file in the root of its repository. This allows projects to commit changes to their docs/ dir without having to configure the read the docs builds.

### Upgrade Notes

- Extend If\_tox\_sonar with sonarcloud, sonarcloud-project-key, sonarcloud-project-organization, sonarcloud-api-token, tox-dir and tox-envs properties; also with If-infra-tox-parameters macro. Use new sonarcloud property as guard for conditional builder step, if true use If-infra-maven-sonarcloud, else use If-infra-maven-sonar.

### Bug Fixes

- Add missing trigger “remerge” to the PyPI release merge template. Move trigger definitions into PyPI templates, instead of defining four separate trigger definition blocks and using each exactly once. Document the required comment text for the triggers.
- Add macro with If-infra-wrappers block to set jenkins-ssh-credential parameter to the value in parameter jenkins-ssh-release-credential, which makes the PyPI release merge templates parallel to the release-job merge template. Both need privileges to push a tag on the Jenkins minion. Document the revised configuration parameter. Silence yamllint issues.
- Add missing underscore in two echo commands in release-job.sh. Move comment for shellcheck disable to new line in If-env.sh. Extend documentation of the container self-release process. Exclude If-rtdv3.rst from WriteGoodBear coala processing.
- Add a verification step to maven releases to make sure the version being defined in the releases file matches the actual version produced by the maven-stage job that created the release candidate. This is to prevent releases being pushed in Nexus with a version different from what the developer intended in the releases file.
- Add missing {branch} parameter to branch-pattern in gerrit trigger blocks in PyPI release-verify and release-merge templates. Jobs were starting on all defined branches, not limited to target. Change pypi-tag-release script to continue if tag exists, not stop.
- Update to If-env.sh. Change If-set-maven-options(): MAVEN\_OPTIONS to maven\_options to better support shellcheck.
- Add step to verify Nexus staging repository is closed correctly or fail the staging job, if the repository is still open. This allows projects to address the validation failures earlier during maven-stage phase, instead of waiting to catch them while running the self-release job.

## 2.1.5 v0.45.0

### New Features

- Add If-env.sh ‘library’ script in ~jenkins. Sourcing this ‘library’ script from a bash script provides access to a number of functions. The script is installed by the ‘init’ script at boot time so that it is accessible from any Jenkins build script. Hopefully over time other functions will be added to this library.

## Upgrade Notes

- Add sonar-project-file parameter to ci sonar jobs. By enabling the caller to override the default project file name with an empty string, we enable the ability to provide project settings directly in the sonar-properties field. This removes the requirement for a “sonar-project.properties” file in the repo.

## Bug Fixes

- Fix the auto update image script to compare the image type before updating an the image in the source repository. This fixes the bug that updates images although they are the same flavour but a different type.
- Add DRY\_RUN parameter to the PyPI verify and merge template common macro because it's required by the pypi\_upload.sh script. Adjust verbosity of shell scripts - quiet down pip, add repository name to echo output.
- Correct doc .pypirc test URL to <https://test.pypi.org/legacy/> Change doc .pypirc to use API tokens instead of username/password. Use pypi-test as the default repository name in the PyPI merge template (instead of “staging”) to match established ONAP practice.

## 2.1.6 v0.44.1

### New Features

- Archive ‘sudo’ logs. The log will be located in the ‘sudo’ sub-directory of the archive. The actual name of the log-file depends on the OS of the builder.

### Bug Fixes

- Change Packer version back to 1.4.2. Packer 1.4.3 frequently has issues setting metadata after a build completes. Packer 1.4.4 is not expected until October, so this change is needed now to fix the broken builds.
- In the PyPI merge template, add cron parameter to support daily build and push to a staging repo, like the maven merge template. In PyPI release templates, change name of gerrit and github trigger file patterns parameter. This avoids accidental overriding by jobs that limit their actions to subdirectories. The release file patterns are hardcoded in a shell script. Remove params from RST doc. In all PyPI templates, add disabled option and disable-job parameter to be consistent with other python templates.

## 2.1.7 v0.44.0

### New Features

- Add an additional Sonar job that allows the caller to provide a builder that runs prior to the Sonar scan.
- Add template to update OpenStack cloud images.
- This job finds and updates OpenStack cloud images on the ci-management source repository.
- The job is triggered in two ways:
  1. When a packer merge job completes, the new image name created is passed down to the job.
  2. Manually trigger the job to update all images.
- When the job is triggered through an upstream packer merge job, this only generates a change request for the new image built.

- When the job is triggered manually, this job finds the latest images on OpenStack cloud and compares them with the images currently used in the source ci-management source repository. If the compared images have newer time stamps are **all** updated through a change request.
- This job requires a Jenkins configuration merge and verify job setup and working on Jenkins.
- New templates to build and push Python source and binary distributions to a PyPI server. Includes: `{project-name}-pypi-verify-{stream}`, `gerrit-pypi-verify`, `github-pypi-verify`, `{project-name}-pypi-merge-{stream}`, `gerrit-pypi-merge`, `github-pypi-merge`, `{project-name}-pypi-release-verify-{stream}`, `gerrit-pypi-release-verify`, `github-pypi-release-verify`, `{project-name}-pypi-release-merge-{stream}`, `gerrit-pypi-release-merge`, `github-pypi-release-merge`,

## Upgrade Notes

- Packer merge jobs have a new build parameter when checked also updates the cloud image.
- **If-infra-packer-build** macro now requires 1 new variables to be passed.
- 1. **update-cloud-image**: Set to true when images need to be updated on Jenkins.

## Bug Fixes

- Changed the trigger to run sonar from stage-release to run-sonar. This makes it more consistent with the other parts.
- Run WhiteSource scan jobs weekly on Sunday.
- Pip install pyenv from python2 should force more-itertools to 5.0.0 In a fresh python2.7 venv “pip install pyenv” correctly pulls down more-itertools [required: Any, installed: 5.0.0] If for some reason a higher version is already installed this will downgrade more-itertools to a py2 compatible version
- Allow java-opts to be defined in WhiteSource scans. This avoids java heap failures.

## 2.1.8 v0.43.1

### Upgrade Notes

- CONTAINER\_PULL\_REGISTRY and CONTAINER\_PUSH\_REGISTRY need to be defined in Jenkins global environment variables.

### Bug Fixes

- Pin python-cinderclient to 4.3.0.  
A new version of python-cinderclient 5.0.0 is released which breaks the openstack jobs.
- openstack -os-cloud vex limits show -absolute Error: No module named v1.contrib
- Debug info shows: File “/home/jenkins/.local/lib/python2.7/site-packages/openstackclient/volume/client.py”, line 40, in make\_client from cinderclient.v1.contrib import list\_extensions ImportError: No module named v1.contrib
- Update echo commands in release-job.sh for easy identification.

- Update release-container-schema to use CONTAINER\_PULL\_REGISTRY and CONTAINER\_PUSH\_REGISTRY from Jenkins global variables. These will be used to pull and push operations for self release containers. Can be overwritten in the releases files.
- Fix warnings from tox (shellcheck).
- Remove quotes from optional var WSS\_UNIFIED\_AGENT\_OPTIONS. When empty, the quotes will cause WS Unified Agent failures.
- Upgrade WS Unified Agent CLI to latest version 19.8.1

## 2.1.9 v0.43.0

### New Features

- Add python tox merge job templates for gerrit and github. These templates are triggered by merge events to test the Python code on the branch that received the merge. Renamed tox-verify macro to tox-common.

### Bug Fixes

- Import GPG signing key in release jobs before verifying Gerrit tag details.
- INFO validate job checks that repositories matches \$PROJECT Catches projects that replace / with - in their INFO file Also ensures that repositories only has one entry. We are not supporting multiple projects with a single INFO.yaml file.
- Remove unused the MAVEN\_CENTRAL\_URL variable. The self-release job is designed to work with any Nexus repository info published in *staging-repo.txt.gz*, which makes the *MAVEN\_CENTRAL\_URL* redundant, hence remove the unused variable.
- Revise tox-install.sh script to invoke python using environment variable PYTHON instead of hardcoding “python”, and remove the pip -quiet flag. Extend the RTD template to pass python-version, default python2.
- Use existing builder lf-infra-maven sonar, drop incomplete builder lf-tox-maven-sonar, to gain desired behavior of pushing code analysis results to Sonar. Use trivial goal ‘validate’ by default. The script maven-sonar.sh calls maven twice, first with build goals and then with Sonar goals. The incomplete builder did not supply the build goals.
- Release schema verification needs to happen first before we attempt to assign values to the variables. Validate version only after the schema validation has passed and the variables are assigned.
- Organize variable setup into functions. Maven release files expects different variables than container release files.
- Rename “version” variable in container release files to “container\_release\_tag” which is a better user friendly name given the fact that container versions are rather called tags. Internally, we still process it as “version” to allow reuse of the tag function.

## 2.1.10 v0.42.1

### New Features

- Add DRY\_RUN build param to do a test run the job with publishing artifacts.

## Upgrade Notes

- Update Lftools version to **v0.26.2**.

## Bug Fixes

- Verify both repos before attempting release. We have run into a case where the repo on ODL nexus was good, and the repo on Sonatype nexus was missing. Cover this case by running the verify loop over each repo before attempting release.

## 2.1.11 v0.42.0

### New Features

- Add support for distribution\_type “container”
- Add function maven\_release\_file and container\_release\_file and the logic to choose the correct one. No functional change to maven\_release\_file.
- Add docker login step when docker releases are being processed.
- container\_release\_file downloads log\_dir/console.log.gz and parses it to get a list of container name and version. Verifies pulls container and grabs the image\_id then performs the merge then tags and pushes the container.
- Add If-sonar-common job-template to If-ci-jobs.yaml and add If-infra-sonar to macros.yaml. The purpose of a new job template is to adopt using jenkins sonar plug-in along with the sonar-project.properties file versus pom.xml. Lastly the new job template will ensure that anything using If-infra-tox-sonar is unaffected.
- Add support for “Build with Parameters” for projects that do not want to use a release file for maven builds.

## Upgrade Notes

- release-verify and merge will need to run on a docker build-node for example centos7-docker-8c-8g Lftools will need to be updated to 0.26.0 so that -v is supported for Lftools nexus release
- Update Lftools version to **v0.26.1**.

## Bug Fixes

- Fix missing extension in ID for release-schema.yaml.
- Make “distribution\_type” mandatory in future release files.
- Rename “RELEASE\_FILE” parameter to “USE\_RELEASE\_FILE” in release-jobs. This will match the actual variable default value better and will not collide with the local “release\_file” in the script.
- Fix “USE\_RELEASE\_FILE” if statement. We are now using a bool instead of a string. Changing the if statements to evaluate bools.
- Add pre-build-script parameter to python clm, tox and sonar templates. Gives flexibility to install prerequisite libraries, rearrange the source tree, etc.
- Pin more-itertools ~= 5.0.0, since version 6.0.0 requires Python 3.4 <https://github.com/erikrose/more-itertools/releases>  
Error: more-itertools requires Python ‘>=3.4’ but the running Python is 2.7.5

- Restructure shell/release-job.sh into functions.

## 2.1.12 v0.41.0

### Upgrade Notes

- Update lftools version to **v0.26.0**.
- Update packer version to 1.4.3. This new packer version fixed an issues in docker image, where its unable to install the packages into docker containers due to checking of wrong container OS. Fix in 1.4.3: builder/docker: Check container os, not host os, when creating container dir default [GH-7939]

### Bug Fixes

- Project job sections that define `gerrit_trigger_file_paths` are overriding ones set in Default parameters of `lf_release_common` Hard Code `gerrit_trigger_file_paths` to fix this.

## 2.1.13 v0.40.4

### Upgrade Notes

- Update lftools version to **v0.25.4**.

### Bug Fixes

- Git fetch needs the dashed version `git fetch "$PATCH_DIR/${PROJECT////-}.bundle"`. Fix if statement.
- Release creds are only required for promoting the repo, which uses diff ACL as compared to normal user. Therefore dont use the release creds for the verify jobs and the scm sections in both the job templates.
- 1. The release merge job is a one way operation. Given this, Release jobs should only exist in the format `{project-name}-release-verify` and `{project-name}-release-merge` As these jobs trigger from a change to any branch/\*\* These jobs Must Exit 0 if release job has already tagged a repo. Inevitably a release file will be pulled in from master to branch or a remerge will be requested This will again trigger the release jobs. since in this case the repo is already tagged, the job should not report a failure. This is solved by having the verify and merge exit 0 when the repo is already tagged 2. Rather than use project as defined in the release file use `${PROJECT////-}` This changes `PROJECT="optf/osdf/foo/bar"` to `optf-osdf-foo-bar` so that we can fetch the log files. by changing `/`'s in the project names to `-`'s

## 2.1.14 v0.40.3

### Known Issues

- Update release job template to tigger on any branch name, and not just 'master'. ODL projects branches are version '4.0.x' which requires passing the branch name to the template.

### Bug Fixes

- Fix the release job script to handle any trailing `'` set on `log_dir` and also handle unbound variables correctly.
- Update lftools version to **v0.25.3**.



## 2.1.15 v0.40.1

### Upgrade Notes

- Projects using If-release-job will need to add the project's signing public key in their Jenkins Settings Files.

### Bug Fixes

- Use {GERRIT\_PROJECT} when calling Gerrit in release-merge job.
- Project pattern was incorrectly set to \*\* must be {project}
- The self-release jobs does not handle multiple repositories listed in staging-repo.txt file. This fixes the issue by deriving the NEXUS\_URL and the STAGING\_REPO from each entry in the file. This approach also eliminates the need for having multiple release.yaml files for every staging-repo.
- Allow If\_release\_verify and If\_release\_merge to verify tag signature.

## 2.1.16 v0.40.0

### New Features

- Add packer image \$NAME to the description setting so that the image name is displayed above the job logs URL. This saves a some time from looking for the image name in the jobs logs.
- Allows projects to promote their own builds. Requires setup of accounts and permissions in Gerrit, Jenkins and Nexus. Please refer to the If-release-jobs documentation for details.
- Remove orphaned ports from the openstack cloud environment. These orphaned ports are residue of CSIT jobs that needs to be purged, as a part of the openstack cron job. A large number of stale jobs could cause IP address allocation failures.
- Enable JAVA\_HOME to point to openjdk12 install path for CentOS 7.

### Upgrade Notes

- Consolidated If-infra-jjbini macros with JJB 2.0. This requires renaming any Jenkins managed files “jjbini-sandbox” to “jjbini” to switch to the format supported in JJB > 2.0.
- Projects using If-release-jobs need to make sure they have the global variable NEXUSPROXY added in Jenkins production and Jenkins sandbox servers. The value of this variable should be the URL to the project's Nexus server. Previous commit 118b7cbf171aca498d1a0a3a485bad990ad2e7b6 missed this variable.
- Projects using If-release-jobs need to make sure they have the global variable NEXUSPROXY added in Jenkins production and Jenkins sandbox servers. The value of this variable should be the URL to the project's Nexus server.
- This change will require to update If-release-job calls. Update from using “{project-name}-releases-merge-{stream}”, “{project-name}-releases-verify-{stream}” to “{project-name}-release-merge-{stream}”, “{project-name}-release-verify-{stream}”. No upgrade need to be done if using “{project-name}-gerrit-release-jobs” group.

## Bug Fixes

- There is no way on finding out the \$JOB\_NAME pushed to sandbox with the jjb-deploy command in the logs. The change outputs the \$JOB\_NAME to the logs, which is useful for debugging purposes.
- Add release-schema used to validate the releases yaml file as part of lf-release-jobs.
- Tarball the \$JAVADOC\_DIR as a workaround for javadoc verify jobs to avoid uploading a large number of small files. Uploading a large number of small files does not work well with Nexus unpack plugin which fails on 504 gateway timeout.
- Allow maven goals to be configured in sonatype-clm.sh. Set to “clean install” by default.
- Allow maven goals to be configured in maven-sonar.sh. Set to “clean install” by default.
- Add support for JAVA\_OPTIONS in sonar job. Some of the maven build options in the sonar job require to set the JAVA\_OPTIONS to specific value for the build to pass This option will help to pass the JAVA\_OPTIONS from the template.
- Perform “lftools schema verify” command to validate the release files against schema/release-schema.yaml Obtain optional maven central URL inside the loop that scans release files.
- Allow only semantic release versions like “v\${SEMVER}” or “\${SEMVER}”. Fail the script if the version is not valid. Do not append any additional characters to the release version during tag and push steps.
- Delete stacks with the `--force` option to ensure that any delete failures does not stop the openstack-cron jobs from continuing.
- Download raw version of release-schema.yaml to compare against release files using lftools.
- Avoid the usage of project specific variables. Do not use ODLNEXUSPROXY var, but instead use a generalized variable.
- Avoid the usage of project specific variables. Do not use ODLNEXUSPROXY var, but instead use a generalized variable.
- Using “releases” and “release” in different places is becoming confusing. Standardize to “release” to match lftools command and the majority of the existing wording.  
  
Use “releases” for the list of tech team releases and triggers since it is intuitive there. For example “releases/1.1.1.yaml”
- Move info-schema to schema/info-schema.yaml to keep schemas consistency.
- Download only needed files for lf-info-yaml-verify rather than cloning the entire repo.
- Allow lf-maven-stage jobs to be triggered using either “stage-release” or “stage-maven-release”.
- Allow lf-maven-docker-stage jobs to be triggered using either “stage-release” or “stage-docker-release”.
- Upgrade to the WhiteSource Unified Agent version 19.7.1.

## 2.1.17 v0.39.1

### Bug Fixes

- Update lftools version to **v0.25.2**.

## 2.1.18 v0.39.0

### Critical Issues

- Iftools v0.24.0 introduced a major issue which caused the Jenkins cloud configuration merge job for OpenStack clouds to fail. This has been corrected in Iftools v0.25.1

### Bug Fixes

- Add missing git-url variable in {project-name}-releases-merge-{stream} job.
- Add the {stream} name in releases-verify and releases-merge jobs.
- Some ONAP components like DCAEGEN2 do not host a version.properties file in the root of their repos. We need to be able to provide a location and/or different name for the version.properties file for jobs using the If-maven-versions-plugin builder step.

## 2.1.19 v0.38.4

### New Features

- Group {project-name}-releases-verify and {project-name}-releases-merge into {project-name}-gerrit-release-jobs.

Add test jobs for If-release-jobs.

### Bug Fixes

- Change parameter names used to specify container tag method, with a new default to use the fixed string 'latest' as a tag. Merge two shell scripts into one instead of using Jenkins conditional steps. Extend to accept a custom directory for the container-tag.yaml if the yaml-file method is used to set the docker tag information; this is an optional variable which is set to empty by default, and falls back to DOCKER\_ROOT.
- Add missing scm block in gerrit-releases-merge job definition. Add missing submodule-disable variable for jobs using If-infra-gerrit-scm. Update documentation for gerrit-releases-merge and gerrit-releases-verify to remove submodule options as optional parameters.
- Update Iftools version to **v0.25.0**
- Add missing \$ to variable tag\_file so the yq query can pull the tag from the container-tag.yaml file.
- Add -l to /bin/bash shebang line at top of docker-get-container-tag.sh to make it a login shell, which automatically includes /home/jenkins/.local/bin on the path, because that is where pip installs the yq command.

## 2.1.20 v0.38.3

### Bug Fixes

- Add trigger on cron to docker merge macro to support regular rebuilds. This makes the merge macro match the behavior of most other jobs.
- Add yamllint verification to INFO.yaml files.

## Other Notes

- Update lftools version to **v0.24.0**.

## 2.1.21 v0.38.2

### Bug Fixes

- Add missing config for triggering on file paths to docker macros and templates, namely `gerrit_trigger_file_paths` and `github_included_regions`, to make the verify and merge macros and templates match the behavior of other jobs.

## 2.1.22 v0.38.1

### Bug Fixes

- Install `yq` to be used to read `yaml` files. In specific, it will be needed to read `container-tag.yaml`.
- When calling builder step macros “`lf-docker-get-container-tag`”, “`lf-docker-build`” and “`lf-docker-push`”, make sure the needed variables are also passed explicitly to avoid these variables appear as undefined.
- Allow `DOCKER_ARGS` to be empty in `docker-build.sh`. This is not a required parameter, it can be empty.

Remove container reference in `docker-get-git-describe.sh`. The `CONTAINER_PUSH_REGISTRY` already gets added in the `docker-push` script. No need to add it again.

Rename `image_name` to `image_build_tag` in `docker-get-yaml-tag` to match `docker-get-git-describe`. Add missing “`DOCKER_NAME`” in the `DOCKER_IMAGE`.

`docker-get-git-describe.sh` and `docker-get-yaml-tag.sh` should only export the `tag` variable. Let `docker-build.sh` process `DOCKER_NAME`

## Other Notes

- Add `yq` install as part of `python-tools-install.sh` Allow future scripts to use `yq` package.

## 2.1.23 v0.38.0

### New Features

- **gerrit-tox-verify** now has a new parameter `gerrit-skip-vote` (bool) to control whether Jenkins should skip voting depending on the build outcome. It defaults to `false` since it is the default used by the Jenkins Gerrit Trigger Plugin.
- `gerrit-docker-verify` runs for new commits and runs a build of the affected Docker images.
- `gerrit-docker-merge` runs for merged commits, runs a build of the affected Docker images and pushes the images to a specified Docker registry.
- New `lf-release-job-merge` and `lf-release-job-verify` templates allow projects to have self-serve releases. Project will create a `tagname.yaml` file in the `releases/` directory of their git repo. example:

```
$ cat releases/4.0.0.yaml
---
distribution_type: 'maven'
version: '4.0.0'
project: 'odlparent'
log_dir: 'odlparent-maven-release-master/11/'
#below is optional
maven_central_url: 'oss.sonatype.org'
```

- **If-infra-gerrit-scm** and **If-infra-github-scm** now require a `submodule-disable` parameter (bool) to control whether submodules are ignored or not during git fetch operations.
- All job-templates now provide an optional `submodule-disable` parameter for git fetch operations, defaulting to `false`.

## Upgrade Notes

- Any project using the **If-infra-gerrit-scm** and **If-infra-github-scm** macros in global-jjb should need to add a `submodule-disable` value. It is recommended to default this value to `false` since it is the default used by the Jenkins Git Plugin.
- Update gerrit comment trigger to use a more standard regex and avoid triggering jobs, when these keywords are intended to be used as code review comments between users. Also improve the regexes to make them more succinct and readable.

## Bug Fixes

- Add missing config for triggering on file paths to maven stage macros and templates, namely `gerrit_trigger_file_paths` and `github_included_regions`, to make those macros and templates match the behavior of maven verify and maven merge.
- fix multiple jobs created using same job-template update same github check status due to hard coded status-context to Maven Verify. Now appending status-context with maven-version and java-version to make it unique. And create different status checks in the github. fix applied for maven verify and maven docker verify jobs
- Fix log shipping script to not require a `LOGS_SERVER`. There was a regression that caused the log shipping script to start requiring a `LOGS_SERVER` which fails in the case of a system that does not have that optional environment variable set.
- Handle multiple search extension or patterns passed by upstream JJB `ARCHIVE_ARTIFACTS` param as a single string by splitting these values before being passed to `lftools deploy archives`.

```
ARCHIVE_ARTIFACTS="**/*.prop \
                  **/*.log \
                  **/target/surefire-reports/*-output.txt \
                  **/target/failsafe-reports/failsafe-summary.xml \
                  **/hs_err_*.log **/target/feature/feature.xml"
```

For example, the above env variable passed to the script and to `lftools deploy archives` as:

```
lftools deploy archives -p **/*.prop \
                        **/*.log \
                        **/target/surefire-reports/*-output.txt \
                        **/target/failsafe-reports/failsafe-summary.xml \
                        **/hs_err_*.log **/target/feature/feature.xml \
                        "$NEXUS_URL" \
```

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```
"$NEXUS_PATH" \  
"$WORKSPACE"
```

The correct way of passing this as per lftools implementation is:

```
lftools deploy archives -p '**/*.prop' \  
    -p '**/*.log' \  
    -p '**/target/surefire-reports/*-output.txt' \  
    -p '**/target/failsafe-reports/failsafe-summary.xml' \  
    -p '**/hs_err_*.log' \  
    -p '**/target/feature/feature.xml' \  
    "$NEXUS_URL" \  
    "$NEXUS_PATH" \  
    "$WORKSPACE"
```

- Fix error with handling unbound arrays for search extensions, when using *set -u*. The correct way of using this.

```
set -u  
arr=()  
echo "output: '${arr[@]}'"  
bash: arr[@]: unbound variable  
echo "output: '${arr[@]:-}'"  
foo: ''
```

- If-maven-versions-plugin builder step needs to run before maven-patch-release.sh as this second script contains a condition to confirm if the maven versions plugin was selected as a way to remove the ‘SNAPSHOT’ pattern from the pom.xml files. If-maven-docker-stage was based on lf-maven-stage and it seems that these particular builder steps were switched in place accidentally.
- The logs-deploy.sh script now allows ARCHIVE\_ARTIFACTS to contain zero or more files.
- request-2.22.0 does not work with python-3.4.9, so pin requests to v2.21.0 to address the tox failures.

## 2.1.24 v0.37.2

### Bug Fixes

- Use maven goal install (not deploy) in the maven + docker verify job. An image cannot be pushed by a verification job, and the deploy target directs the plugin to push.

## 2.1.25 v0.37.1

### Bug Fixes

- Remove maven-versions-plugin-set-version variable in newly added macro. This is a variable that does not need to be defined by the users of the jobs. The version needed in this builder step is inherited from versions.properties as “release\_version”.

## 2.1.26 v0.37.0

## New Features

- Add verify, merge and stage templates for Java projects that build and wrap a JAR (e.g., a Spring-Boot application) inside a Docker image, and do not need to deploy any JAR libraries or POM files.

## Upgrade Notes

- The next release of common-packer will require a minimum version of 1.3.2 for packer. The current release of packer is 1.4.0.

## Bug Fixes

- The packer-merge job for Gerrit systems was improperly configured to use the Gerrit Trigger choosing strategy and not default. This caused issues unexpected issues with retriggering merged changes when the expectation was that it would pick up the latest change as per normal.
- This is a variable that does not need to be defined by the users of the jobs. The version needed in this builder step is inherited from versions.properties as “release\_version” and it is fixed as that. This also helps teams not having to define this version in 2 places and just rely on version.properties.
- Projects using maven versions plugin let this plugin take care of updating their versions in the pom.xml. When maven-versions-plugin is set to “true”, skip the stripping of SNAPSHOTs from the pom.xml files. maven-versions-plugin is set to “false” by default.

## Other Notes

- Update example Jenkins Init Script in README to redirect all output to a log file.

## 2.1.27 v0.36.0

### Prelude

WhiteSource is a security and license compliance management platform. It is used to perform scans on a great variety of coding and scripting languages.

## New Features

- New `comment-to-gerrit` builder will comment back to gerrit patchset if a file called `gerrit_comment.txt` is created by the build.
- Allows maven to run a clean install step before the WhiteSource scan runs the Unified Agent to fetch additional dependencies. Set to false by default.
- Job `{project-name}-whitesource-scan-{stream}` uses the WhiteSource Unified Agent scanner CLI tool to perform the code scan and report the results into the WhiteSource dashboard.

## Bug Fixes

- Tag releases will now trigger a docs build to regenerate and update the release note link.
- Update `jenkins-cfg-verify` job to validate new images names obtained from `$GERRIT_REFSPEC` instead of the master branch.

- Hardcode project version to the “GERRIT\_BRANCH”. Follow previous convention from CLM where reports were versioned after the branch name. Fix minor nits with bash variables.
- wss-unified-agent.config file should not be opened for configuration to tech teams. The config file should be part of Jenkins Settings Files and called via Managed Files. wss-unified-agent.config must be created in Jenkins config files based on wss-unified-agent.config.example.

## Other Notes

- To run this job, a configuration file is needed (wss-unified-agent.config.example). A new secret text credential will need to be created. (ID=wss-apiKey Secret=WhiteSource organization API key)
- Update lftools version to **v0.23.1**.

## 2.1.28 v0.35.0

### New Features

- The **jjb-merge** job now has a new parameter `jjb-workers` to allow configuration of the number of threads to run update with. Default is 0 which is equivalent to the number of CPU cores available on the system.
- New `info-vote-verify` macro Will count votes against an INFO.yaml change and submit automatically if a majority of committers vote +1 or +2 on the change. Job is triggered by +2 votes or a comment of “vote”

## Other Notes

- The Maven Verify job will now call `-Dmaven.source.skip` to skip source jar generation in the verify job. This saves us some time in the verify build as the source artifacts are not useful in a verify job.

## 2.1.29 v0.34.0

### New Features

- **jenkins-init-scripts** The ‘ciman’ repo is not longer required to be located in ‘/opt/ciman’.
- If-maven-set-version conditional step for If-maven-stage to allow teams to run Maven versions plugin to update their artifact versions. Step will run if maven-versions-plugin is set to true.
- Support for the **Throttle Plugin** is added to JJB jobs so static build servers can restrict the number of concurrent JJB jobs ran at the same time.

This must be explicitly enabled by setting *throttle-enabled* on the jobs.

## Bug Fixes

- Adapt maven path search for files and dirs. The “-f” maven param can specify both a directory, in which case it will look for “pom.xml” in the directory, or a specific file. The original version of this search was only compatible with directories that contain a pom.xml file.
- Update the If-maven-central macro documentation and example templates with the missing required params.
- Fix JAVA\_HOME for openjdk11 on CentOS 7 to use the OpenJDK version installed in /usr/lib/jvm/java-11-openjdk.



- The JJB Deploy Job is configured to trigger only if the Gerrit comment starts with the *jjb-deploy* keyword.

Without the regex being optimized the job triggers on any occurrence of the *jjb-deploy* keyword in a Gerrit comment, with is waste infra resources.

Example of a valid command in Gerrit comment that triggers the job:

```
jjb-deploy builder-jjb-*
```

Example of a invalid command in Gerrit comment that would *\_not\_* trigger the job:

```
Update the job. jjb-deploy builder-jjb-*
```

## 2.1.30 v0.33.0

### New Features

- **jenkins-init-scripts** If the environmental variable ‘SWAP\_SIZE’ is set when the ‘init.sh’ script is called, then a ‘SWAP\_SIZE’ GB swap space will be configured. If ‘SWAP\_SIZE’ is ‘0’ or is not a valid integer, then no swap space is configured. If it is unset then 1GB of swap will be configured. Previously the swap size was fixed at 1GB.
- **jenkins-init-scripts** If the work directory or volume (/w) already exists, the ownership will be recursively set to ‘jenkins:jenkins’. Previously only the top directory /w was owned by ‘jenkins:jenkins’
- **If-sigul-sign-dir** macros now supports a *sign-mode* parameter which allows jobs to choose to sign artifacts using either *parallel* mode or *serial* mode (default).

### Upgrade Notes

- **If-sigul-sign-dir** users need to add a new parameter *sign-mode* to their job-templates setting either *parallel* or *serial* as the value, we recommend setting serial mode for this setting.

**{project-name}-maven-stage-{stream}**’s Sigul signer now defaults to *serial* mode instead of the previous *parallel* behaviour. To change this back to the previous behaviour pass the “sign-mode” parameter to the job template:

```
- project:
  name: parallel-sign
  jobs:
    - gerrit-maven-stage:
      sign-mode: parallel
```

## 2.1.31 v0.31.0

### New Features

- New job-template **{project-name}-release-announce** for If-releng projects to automate release announcement emails.
- Add support for pushing Sonar results to SonarCloud. Refer to [Maven Sonar docs](#) for details.

## Upgrade Notes

- Jobs using the **lf-maven-stage** macro now need to update to the new usage. Preparation calls to **lf-provide-maven-settings**, **lf-infra-create-netrc**, and **lf-provide-maven-settings-cleanup** are no longer necessary to prepare the **lf-maven-stage** macro.

Usage:

```
- lf-maven-stage:
  mvn-global-settings: 'global-settings'
  mvn-settings: 'settings'
  mvn-staging-id: 'staging profile id'
```

## 2.1.32 v0.30.0

### New Features

- Packer merge jobs now include the image name in the Jenkins build description.

### Bug Fixes

- Extend `${JOB_NAME}` to include `{java-version}` parameter to support jobs to build with multiple versions of `openjdk{8,11}`.
- Modified `lf-maven-jobs.yaml` sonar cron entry to `'{obj:cron}'` to pass value from custom user config file.

## 2.1.33 v0.29.0

### New Features

- Add a `puppet-verify` job to `lf-ci-jobs`. This job will perform Puppet linting on the specified repository.

```
- project:
  name: lf-infra-puppet-mymodule
  project-name: lf-infra-puppet
  project: puppet/modules/mymodule
  jobs:
    - gerit-puppet-verify
```

### Bug Fixes

- `maven-fetch-metadata.sh` was not respecting the `“-f”` (for file path) flag in `MAVEN_PARAMS`, causing `lf-maven-merge` jobs that utilize this flag to fail. It will now set a path based on this flag if it is present, or default to the current working directory.
- Check `openjdk $VERSION` before setting `$JAVA_HOME`. This enables jobs to pass `“openjdk10”` or `“openjdk11”` on CentOS 7 images to use the OpenJDK version installed in `/opt`.

## 2.1.34 v0.28.3

### Bug Fixes

- Compress and upload all jjb-verify XML files to Nexus, to ease out the IOPs on cron jobs that manage the logs on Nexus and optimize job performance by ~8 mins. This is because the job generates around ~2.3K XML files (small files) which is uploaded to Nexus in every run of jjb-verify. Doing this is faster as compared to the Nexus Unpack plugin in the Nexus end unpacking the zip file we upload takes longer.

## 2.1.35 v0.28.1

### Other Notes

- Update lftools version to **v0.19.0**.

## 2.1.36 v0.28.0

### New Features

- New `lf-stack-create` macro allows job-templates to setup an OpenStack Heat stack, useful for spinning up CSIT labs to run integration tests against. Use with the `lf-stack-delete` macro.
- Concurrency for the `gerrit-jjb-verify` job can now be configured by setting the `'build-concurrent'` parameter.
- New macro **lf-maven-central** is available to deploy artifacts to OSSRH staging for jobs that want to eventually deploy to Maven Central.

```

---
- job-template:
  name: lf-maven-central-macro-test

  #####
  # Default variables #
  #####

  mvn-central: true
  mvn-global-settings: ""
  mvn-settings: ""
  ossrh-profile-id: ""

  #####
  # Job configuration #
  #####

  builders:
    - lf-maven-central:
      mvn-central: "{mvn-central}"
      mvn-global-settings: "{mvn-global-settings}"
      mvn-settings: "{mvn-settings}"
      ossrh-profile-id: "{osrrh-profile-id}"

```

- The `GERRIT_REFSPEC` build parameter can now be used to trigger a test build from the Jenkins Sandbox system against a work in progress packer image patch from a GitHub Pull Request.

## Upgrade Notes

- `lf-stack-delete` has been modified to be a companion macro to `lf-stack-create` in order to cleanup the stack at the end of a job run. It now includes a required parameter **openstack-cloud** to choose the `clouds.yaml` cloud configuration for the project. Existing users of this macro will need to update their job templates accordingly.
- Requires JJB 2.8.0 for the `jenkins-sandbox-cleanup` job to not fail.

---

**Note:** Despite the failure if JJB 2.8.0 is not available the job will successfully delete all jobs and views, the primary purpose of this job.

---

## Bug Fixes

- [RELENG-1450](#) All view disappears on Jenkins Sandbox after views are deleted. The **All** view is now recreated after `delete-all` is run.

## 2.1.37 v0.27.0

### New Features

- Add the ability to configure the location of JJB's cache directory for CI jobs.
- New view-templates `project-view`, `common-view`, and `csit-view` are available for projects to manage Jenkins views through code.

To use the `project-view` template in a project:

```
- project:
  name: aaa-view
  views:
    - project-view

  project-name: aaa
```

To use the `common-view` template in a project:

```
- project:
  name: daily-builds
  views:
    - common-view

  view-name: Periodic
  view-regex: '.*-periodic-.*'
```

To use the `csit-view` template in a project:

```
- project:
  name: csit
  views:
    - csit-view

  view-name: CSIT
  view-regex: '.*csit.*'
```

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```

- project:
  name: csit-lnode
  views:
    - csit-view

  view-name: CSIT-lnode
  view-regex: '.*-csit-lnode-.*'

```

- Add support to maven-stage jobs to publish to Maven Central via OSSRH.

This is accomplished by adding these 2 new optional parameters to the job configuration.

```

- gerrit-maven-stage:
  mvn-central: true
  ossrh-profile-id: 7edbe315063867

```

- The **openstack-cron** job now has the ability to remove images older than a specified age (default: 30).
- The **openstack-cron** job now has the ability to remove orphaned servers.
- The **openstack-cron** job now has the ability to remove orphaned stacks.
- The **openstack-cron** job now has the ability to remove orphaned volumes.
- **If-infra-gerrit-scm** and **If-infra-github-scm** now require a `submodule-timeout` parameter to provide a timeout value (in minutes) for git fetch operations.
- All job-templates now provide an optional `submodule-timeout` parameter for git fetch operations, defaulting to 10 minutes.

## Upgrade Notes

- Some LF projects are already using a `common-view` template in their local ci-management repo. This `common-view` is called `project-view` in `global-jjb` so rename all instances of `common-view` to `project-view` when upgrading and remove the local `common-view` view-template definition from ci-management.
- The **openstack-cron** job now requires a new parameter configured `jenkins-urls` in order to use the job.
- Any project using the **If-infra-gerrit-scm** and **If-infra-github-scm** macros in `global-jjb` should need to add a `submodule-timeout` value. It is recommended to default this value to 10 since it is the default used by the Jenkins Git Plugin.

## Bug Fixes

- The `jenkins-init` scripts dir is now updated to reflect changes recommended for the v0.25.0 release. We unfortunately missed this critical piece in the v0.25.0 release.
- Specify `refspec` to be blank for SCM config on `github-maven-merge` job. Setting the `refspec` to `+refs/pull/*:refs/remotes/origin/pr/*` causes there to be no merge job triggered.
- New detox version requires `tox >= 3.5` and `< 4`. Instead of explicitly pulling `tox`, we are now implicitly pulling via `detox`. (<https://jira.opendaylight.org/browse/RELENG-136>)

## Other Notes

- lftools' `openstack` module will now be installed as part of pre-build.
- The `openstack-cron` job now runs every hour instead of daily. This is because stack cleanup should happen more regularly.

## 2.1.38 v0.26.0

### New Features

- Add a new `nexus-iq-namespace` optional parameter to insert a namespace into Nexus IQ AppID. This is useful for shared Nexus IQ systems where projects might have concern about namespace collision.

---

**Note:** We recommend when using the namespace to add a trailing - to the value. Eg. 'odl-', this is to make the namespace look nice for example "odl-aaa" is the result of namespace odl-, and project name aaa.

---

- Add `lf-infra-publish-windows`. A publisher for use at the end of Windows based job-templates.

### Bug Fixes

- Fix packer-verify job to correctly work with `clouds.yaml` config model implemented in global-jjb v0.25.0.

## 2.1.39 v0.25.1

### Bug Fixes

- `jjb-cleanup.sh` may be merged with other shell scripts that `set -u` which causes Jenkins to fail when activating `virtualenvs`

## 2.1.40 v0.25.0

### New Features

- Add support to the packer-build job to use `clouds.yaml` for openstack builder configuration rather than through the `cloud-env` file. This allows us to simplify the template configuration for openstack builders moving forward.
- New macro `lf-sigul-sign-dir` available to sign artifacts in a provided directory using Sigul.

Usage:

```
- lf-sigul-sign-dir:  
  sign-dir: '$WORKSPACE/m2repo'
```

This macro also requires a boolean variable to `SIGN_ARTIFACTS` to be set to true to activate the macro. We recommend the job-template that uses this macro to define it in the job parameters section.

Example:

```
- bool:
  name: SIGN_ARTIFACTS
  default: '{sign-artifacts}'
  description: Use Sigul to sign artifacts.
```

- Add Sigul signing support to the maven-staging job. To activate Sigul signing make sure to set `sign-artifacts: true`. Example:

```
- project:
  name: abc
  jobs:
    - gerrit-maven-stage

  sign-artifacts: true
```

- Add `lf-stack-delete` macro to delete an openstack heat stack at the end of the job.  
This macro requires a parameter defined in the job named `STACK_NAME` containing the name of the stack to delete.
- Add `lf-infra-wrappers-windows` to handle Windows specific wrapper configuration.
- Refactor `lf-infra-wrappers` to be for Linux systems and split out the non-linux specific components into a new `lf-infra-wrappers-common`. This change is seamless for current users of `lf-infra-wrappers`.

## Upgrade Notes

- Upgrade to global-jjb v0.24.6 before performing this upgrade. This ensures that `jjb-verify` job pulls in a regex fix that will allow it to verify the v0.25.0 upgrade.
- Global JJB now has non-JJB YAML configuration and requires action on the ci-management repo when upgrading to this version of Global JJB to prevent JJB from picking up these YAMLs as config. Follow the instructions below BEFORE upgrading global-jjb:

```
cd <git-root>
git mv jjb/global-jjb global-jjb
mkdir jjb/global-jjb
ln -s ../../global-jjb/shell jjb/global-jjb/shell
ln -s ../../global-jjb/jjb jjb/global-jjb/jjb
git add jjb/global-jjb
git commit -sm "Prepare repo for global-jjb v0.25.0"
```

- Minimum packer version 1.2.5 is now required for the `packer-build` job.
- **lf-infra-packer-build** macro now requires 2 new variables to be passed.
  1. **openstack:** Set to true if template is built using the openstack builder
  2. **openstack-cloud:** The clouds.yaml cloud to use when running `packer build`

## Deprecation Notes

- `lftools-install.sh` is deprecated and will be removed in a future release. We recommend installing lftools via `pip install --user lftools` to install instead of using this script.

## Bug Fixes

- Fix *pip install pip setuptools* which seems to fail against the Nexus 3 proxy. Run them as separate calls to make things happier.
- jjb-verify will now test on all changes in the jjb directory. The previous pattern was too specific and sometimes missed verifying patches that should be verified.
- Replace jjb-verify to test on all changes in the shell/\* directory.
- Fix the lftools virtualenv workaround we had to put in place in the tox-verify job by using `pip install --user` for global tool installs.
- Fix jobs failing with UNSTABLE build due to install `pip==18.0` missing. This change moves all the jobs to using lf-infra-pre-build to install lftools via `-user` command.
- Use *python -m pip* to ensure that we are using the pip version that was installed rather than the OS wrapper version of pip.
- Fix package listing script in post-builder from causing UNSTABLE build due to difference in the two files being compared.
- Fix RTD job failing to find PBR install.

## Other Notes

- Update lftools to ~ 0.17.1

## 2.2 Install

global-jjb requires configuration in 2 places; Jenkins and the *ci-management* repository.

### 2.2.1 Jenkins configuration

On the Jenkins side, we need to prep `environment variables` and `plugins` required by the jobs in global-jjb before we can start our first jobs.

#### Install Jenkins plugins

Install the following required Jenkins plugins and any optional ones as necessary by the project.

##### Required

- Config File Provider
- Description Setter
- Environment Injector Plugin
- Git plugin
- Post Build Script
- SSH Agent
- Workspace Cleanup

##### Required for Gerrit connected systems



- Gerrit Trigger

**Required for GitHub connected systems**

- GitHub plugin
- GitHub Pull Request Builder

**Optional**

- Mask Passwords
- MsgInject
- OpenStack Cloud
- Timestamper

**Environment Variables**

The *Jenkins Configuration Merge* job can manage environment variables job but we must first bootstrap them in Jenkins so that the job can run and take over.

**Required:**

```
GIT_URL=ssh://jenkins-$SILO@git.opendaylight.org:29418
JENKINS_HOSTNAME=jenkins092
NEXUS_URL=https://nexus.opendaylight.org
SILO=production
SONAR_URL=https://sonar.opendaylight.org
```

**Gerrit:**

```
GERRIT_URL=https://git.opendaylight.org/gerrit
```

**GitHub:**

```
GIT_URL=https://github.com
GIT_CLONE_URL=git@github.com:
```

---

**Note:** Use GIT\_CLONE\_URL for GitHub projects as this will be different from the URL used in the properties configuration.

---

**Optional:**

```
LOGS_SERVER=https://logs.opendaylight.org
```

**Steps**

1. Navigate to <https://jenkins.example.org/configure>
2. Configure the environment variables as described above
3. Configure the same environment variables in the *ci-management* repo

## 2.2.2 ci-management

*ci-management* is a git repository containing *JJB* configuration files for Jenkins Jobs. Deploying Global JJB here as a submodule allows us easy management to install, upgrade, and rollback changes via git tags. Install Global JJB as follows:

### 1. Install Global JJB

```
GLOBAL_JJB_VERSION=v0.1.0
git submodule add https://github.com/lfrit/releng-global-jjb.git global-jjb
cd global-jjb
git checkout $GLOBAL_JJB_VERSION
cd ..

# Setup symlinks
mkdir -p jjb/global-jjb
ln -s ../../global-jjb/jenkins-init-scripts jjb/global-jjb/jenkins-init-scripts
ln -s ../../global-jjb/shell jjb/global-jjb/shell
ln -s ../../global-jjb/jjb jjb/global-jjb/jjb
git add jjb/global-jjb

git commit -sm "Install global-jjb $GLOBAL_JJB_VERSION"
```

---

**Note:** We are purposely using github for production deploys of global-jjb so that uptime of LF Gerrit does not affect projects using global-jjb. In a test environment we can use <https://gerrit.linuxfoundation.org/infra/releng/global-jjb> if desired.

---

### 2. Setup jjb/defaults.yaml

Create and configure the following parameters in the `jjb/defaults.yaml` file as described in the *defaults.yaml configuration docs* <defaults-yaml>.

Once configured commit the modifications:

```
git add jjb/defaults.yaml
git commit -sm "Setup defaults.yaml"
```

### 3. Push patches to Gerrit / GitHub using your favourite push method

At this point global-jjb installation is complete in the *ci-management* repo and is ready for use.

## 2.2.3 Deploy ci-jobs

The CI job group contains jobs that should deploy in all LF Jenkins infra. The minimal configuration to deploy the **{project-name}-ci-jobs** job group as defined in **lf-ci-jobs.yaml** is as follows:

jjb/ci-management/ci-management.yaml:

```
- project:
  name: ci-jobs

  jobs:
    - '{project-name}-ci-jobs'

project: ci-management
```

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```
project-name: ci-management
build-node: centos7-builder-2c-1g
```

**Required parameters:**

- project** The project repo as defined in source control.
- project-name** A custom name to call the job in Jenkins.
- build-node** The name of the builder to use when building (Jenkins label).

**Optional parameters:**

- branch** The git branch to build from. (default: master)
- jjb-version** The version of JJB to install in the build minion. (default: <defined by the global-jjb project>)

## 2.2.4 Deploy packer-jobs

The packer job group contains jobs to build custom minion images. The minimal configuration needed to deploy the packer jobs is as follows which deploys the **{project-name}-packer-jobs** job group as defined in **lf-ci-jobs.yaml**.

jjb/ci-management/packer.yaml:

```
- project:
  name: packer-builder-jobs

  jobs:
    - '{project-name}-packer-jobs'

  project: ci-management
  project-name: ci-management
  branch: master
  build-node: centos7-builder-2c-1g

  platforms:
    - centos
    - ubuntu-16.04

  templates: builder

- project:
  name: packer-docker-jobs

  jobs:
    - '{project-name}-packer-jobs'

  project: ci-management
  project-name: ci-management
  branch: master
  build-node: centos7-builder-2c-1g

  templates: docker

  platforms:
    - centos
    - ubuntu-16.04
```

**Required parameters:**

- project** The project repo as defined in source control.
- project-name** A custom name to call the job in Jenkins.
- build-node** The name of the builder to use when building (Jenkins label).
- platforms** A list of supported platforms.
- templates** A list of templates to build. We recommend setting one template per `project` section so that we can control which platforms to build for specific templates.

**Optional parameters:**

- branch** The git branch to build from. (default: master)
- packer-version** The version of packer to install in the build minion, when packer is not available. (default: <defined by global-jjb>)

## 2.3 Configuration

### 2.3.1 defaults.yaml

This file lives in the ci-management repo typically under the path `jjb/defaults.yaml`. The purpose of this file is to store default variable values used by global-jjb templates.

**Required**

- jenkins-ssh-credential** The name of the Jenkins Credential to use for ssh connections. (ex: jenkins-ssh)
- lftools-version** Version of lftools to install. Can be a specific version like '0.6.1' or a [PEP-440 definition](#) For example `<1.0.0` or `>=1.0.0,<2.0.0`.
- mvn-site-id** Maven Server ID from settings.xml containing the credentials to push to a Maven site repository.
- mvn-staging-id** Maven Server ID from settings.xml containing the credentials to push to a Maven staging repository.

**Gerrit required parameters:**

- gerrit-server-name** The name of the Gerrit Server as defined in Gerrit Trigger global configuration. (ex: Primary)

**GitHub required parameters:**

- git-url** Set this to the base URL of your GitHub repo. In general this should be <https://github.com>. If you are using GitHub Enterprise, or some other GitHub-style system, then it should be whatever your installation base URL is. This sets a job property that GitHub Pull Request Builder requires to work. Note that this is the web url to your project: (eg. <https://github.com/protect/TI\textdollarORG/protect/TI\textdollarPROJECT>)
- git-clone-url** This is the clone prefix used by GitHub jobs. Set this to either the same base url as **git-url**, or to '[git@github.com](https://github.com):' including the trailing ':'. Determined by your clone method (https or git).
- github-org** The name of the GitHub organization interpolated into the scm config.
- github\_pr\_org** The name of the GitHub organization. All members of this organization will be able to trigger jobs.
- github\_pr\_whitelist** List of GitHub members you wish to be able to trigger jobs.

**github\_pr\_admin\_list** List of GitHub members that will have admin privileges on the jobs.

Example Gerrit Infra:

```
- defaults:
  name: global

  # lf-infra defaults
  jenkins-ssh-credential: jenkins-ssh
  gerrit-server-name: OpenDaylight
  lftools-version: '<1.0.0'
  mvn-site-id: opendaylight-site
  mvn-staging-id: opendaylight-staging
```

Example GitHub Infra:

```
- defaults:
  name: global

  # lf-infra defaults
  jenkins-ssh-credential: jenkins-ssh
  github-org: lfit
  github_pr_whitelist:
    - jpwku
    - tykeal
    - zxiiro
  github_pr_admin_list:
    - tykeal
  lftools-version: '<1.0.0'
  mvn-site-id: opendaylight-site
  mvn-staging-id: opendaylight-staging
```

## 2.3.2 Jenkins Files

global-jjb makes use of the Jenkins Config File Provider plugin to provide some default configurations for certain tools. This section details the files to define in Jenkins' **Managed Files** configuration (eg: <https://jenkins.example.org/configfiles/index>).

### npmrc

This file contains default npmrc configuration and lives in \$HOME/.npmrc. Documentation for npmrc is available via the [npm project](#).

**Required** This file **MUST** exist. An empty file is acceptable if a proxy is not available for the project.

**type** Custom file

Create a **Custom file** with contents:

```
registry = https://nexus.opendaylight.org/content/repositories/npmjs/
```

### clouds-yaml

Needed by openstack client and packer to fetch OpenStack credentials and configuration. This file is OpenStack's [clouds.yaml](#) file.

**Optional** Needed for jobs that use `openstack client.packer` if building against OpenStack infra.

**type** Custom file

Create a **Custom file** with contents:

```
clouds:
vex:
  auth:
    project_name: OS_PROJECT_NAME
    username: OS_USERNAME
    password: OS_PASSWORD
    auth_url: 'https://auth.vexxhost.net/v3/'
    user_domain_name: Default
    project_domain_name: Default
    region_name: ca-ymq-1
```

**Warning:** If using packer 1.3.0 make sure that the `clouds.yaml` **profile** configuration is **NOT** configured. Using **profile** causes packer to look for another file called `clouds-public.yaml` for configuration.

## **pipconf**

This file contains default configuration for the python-pip tool and lives in `$HOME/.config/pip/pip.conf`. Documentation for `pip.conf` is available via the [pip project](#).

**Required** This file **MUST** exist. An empty file is acceptable if a proxy is not available for the project.

**type** Custom file

Create a **Custom file** with contents:

```
[global]
timeout = 60
index-url = https://nexus3.opendaylight.org/repository/PyPi/simple
```

## **jjbini**

This file contains the Jenkins Job Builder configuration for *CI Jobs*.

**Required** This file **MUST** exist.

**type** Custom file

Create a **Custom file** with contents:

```
[job_builder]
ignore_cache=True
keep_descriptions=False
include_path=.:scripts:~/git/
recursive=True

[jenkins]
user=jenkins-jobbuilder
password=1234567890abcdef1234567890abcdef
url=https://jenkins.example.org
query_plugins_info=False
```

(continues on next page)

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```
[production]
user=jenkins-jobbuilder
password=1234567890abcdef1234567890abcdef
url=https://jenkins.example.org
query_plugins_info=False

[sandbox]
user=jenkins-jobbuilder
password=1234567890abcdef1234567890abcdef
url=https://jenkins.example.org/sandbox
query_plugins_info=False
```

The last 2 sections are for the `jenkins-cfg` job use, they should match the `silo` names for the respective Jenkins systems, typically `production` and `sandbox`.

### jenkins-log-archives-settings

See *If-infra-ship-logs* for usage. If not archiving logs then keep this file with default settings, `global-jjb` needs the file to exist to function.

Requires a *credential* named 'logs' of type 'Username and Password' created in the Jenkins Credentials system.

1. Add Server Credentials
2. Set `ServerId` to `logs`
3. Set Credentials to the `logs` user created in the Credentials System

**Required** This file **MUST** exist if using log archiving.

**type** Maven settings.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<settings xmlns="http://maven.apache.org/SETTINGS/1.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/SETTINGS/1.0.0 http://maven.
  ↪apache.org/xsd/settings-1.0.0.xsd">
</settings>
```

**Note:** This example is the default boilerplate generated by Jenkins with the comments stripped out. We can also use the default generated by Jenkins without modifying it.

### packer-cloud-env

Cloud environment configuration variables for Packer jobs. These can contain credentials and configuration for whichever clouds packer jobs are using.

**Required** This file **MUST** exist to use packer jobs.

**type** Json file

```
{
  "cloud_auth_url": "https://auth.vexxhost.net/v3/",
  "cloud_tenant": "TENANT_ID",
```

(continues on next page)

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```
"cloud_user": "CLOUD_USERNAME",  
"cloud_pass": "CLOUD_PASSWORD",  
"cloud_network": "CLOUD_NETWORK",  
"ssh_proxy_host": ""  
}
```

## 2.3.3 Jenkins CI Jobs

### jenkins-cfg-merge

This job manages Jenkins Global configuration. Refer to the [CI Documentation](#) for job configuration details.

## 2.3.4 Log Archiving

The logs account requires a Maven Settings file created called **jenkins-log-archives-settings** with a server ID of **logs** containing the credentials for the logs user in Nexus.

## 2.4 Best Practices

### 2.4.1 JJB YAML Layout

---

**Note:** While some of this applies to the Global JJB project other recommendations are generally useful to projects that might be defining JJB templates.

---

The Global JJB project is a useful example project to look at so we recommend referring to the Maven job definitions as an example as you read the documentation below:

<https://github.com/lfit/releng-global-jjb/blob/master/jjb/lf-maven-jobs.yaml>

We recommend sectioning off the template into 3 general sections in order:

1. Job Groups (optional)
2. Common Functions
3. Job Template Definitions

In section 1) not all configurations need this so is an optional section. Job groups are useful in cases where there are jobs that are generally useful together. For example the OpenDaylight uses a lot of Merge and Verify job combinations so every new project will want both job types defined in their project.

In section 2) we want to define all common functions (anchors, aliases, macros) that are generally useful to all jobs in the file. This allows job template developers to look at the top of the file to see if there are useful functions already defined that they can reuse.

In section 3) we can declare our job definitions. In the Global JJB project we create Gerrit and GitHub versions of the jobs so the format we use here might look strange at first but is well layed out for code reuse if we need to define 2 or more versions of the same job template for different systems. We will define this in more detail in the next section.



## Job Template Layout

1. Comment of Job Template Name
2. Macro containing build definition of the job a. Macro named after job b. Complete documentation of the job parameters c. Default parameters defined by the job d. Job configuration
3. job-template definition containing build triggers

In section 1) we need to declare a in large comment text to identify the job section.

In section 2) we declare the actual job definition. This is so that we have a single macro that we call in all the real job-template sections that is reusable and not duplicating any code. First we declare the macro as the job name. Then in 2.b) we provide the complete documentation of the job parameters this is so that we can link users of the job to this file and they can understand fully what options they can configure for this particular job. Then we define defaults for any parameters that are optional. The last section we define the job configuration which completes the macro.

In section 3) we declare the actual job-template. Because of all the preparations above job template definitions should be small and simple. It needs to define the scm and job triggers. The Global JJB project needs to support both Gerrit and GitHub versions of the same job so the job definitions there have 2 templates for each job defined.

## 2.4.2 Passing parameters to shell scripts

There are 2 ways to pass parameters into scripts:

1. JJB variables in the format {var}
2. Environment variables in the format \${VAR}

We recommend avoiding using method 1 (Pass JJB variables) into shell scripts and instead always use method 2 (Environment variables). This makes troubleshooting JJB errors easier and does not require escaping curly braces.

This method requires 3 steps:

1. Declare a parameter section or inject the variable as properties-content.
2. Invoke the shell script with *include-raw-escape* instead of *include-raw*.
3. Use the shell variable in shell script.

The benefit of this method is that parameters will always be at the top of the job page and when clicking the Build with Parameters button in Jenkins we can see the parameters before running the job. We can review the parameters retroactively by visiting the job parameters page `job/lastSuccessfulBuild/parameters/`. Injecting variables as properties-content makes the variable local to the specific macro, while declaring it as parameter makes the variable global.

---

**Note:** When a macro which invokes a shell script has no JJB parameters defined *!include-raw-escape* will insert extra curly braces, in such cases its recommended to use *!include-raw*.

---

## 2.4.3 Shell scripts

When developing shell scripts for JJB we recommend to create shell scripts as a separate file instead of inlining in YAML. This way we can ensure that the ShellCheck linter can catch potential issues with the scripts.

When writing the script itself, we recommend to redeclare all expected inputs at the top of the file using lowercase variable names before setting `set -u` after the inputs section. This ensures that all variables the script expects are at the top of the file which is useful for others to review and debug the script at a later stage. The `set -u` configuration before the start of the script code ensures that we catch any of these undeclared variables at the top of the file.

Example:

```
#!/bin/bash

# Inputs
tox_dir="${TOX_DIR:-$WORKSPACE}"
tox_envs="${TOX_ENVS:-}"

# Script start
set -eux -o pipefail

# ... script code goes here
```

## 2.4.4 Usage of config-file-provider

When using the config-file-provider plugin in Jenkins to provide a config file. We recommend using a macro so that we can configure the builder to remove the config file as a last step. This ensures that credentials do not exist on the system for longer than it needs to.

ship-logs example:

```
- builder:
  name: lf-ship-logs
  builders:
    - config-file-provider:
      files:
        - file-id: jenkins-log-archives-settings
          variable: SETTINGS_FILE
    - shell: !include-raw:
      - ../shell/logs-get-credentials.sh
    - shell: !include-raw:
      - ../shell/logs-deploy.sh
    - shell: !include-raw:
      - ../shell/logs-clear-credentials.sh
    - description-setter:
      regexp: '^Build logs: .*'
```

In this example the script logs-deploy requires a config file to authenticate with Nexus to push logs up. We declare a macro here so that we can ensure that we remove credentials from the system after the scripts complete running via the logs-clear-credentials.sh script. This script contains 3 basic steps:

1. Provide credentials via config-file-provider
2. Run logs-deploy.sh
3. Remove credentials provided by config-file-provider

## 2.4.5 Preserving Objects in Variable References

JJB has an option to preserve a data structure object when you want to pass it to a template. <https://docs.openstack.org/infra/jenkins-job-builder/definition.html#variable-references>

One thing that is not explicitly covered is the format of the variable name that you pass the object to. When you use the `{obj:key}` notation to preserve the original data structure object, it will not work if the variable name has a dash - in it. The standard that we follow, and recommend, is to use an underscore \_ instead of a dash.

Example:

```
.. literalinclude:: _static/github-pr-trigger.example
```

In the above example note the use of underscores in `github_pr_whitelist`, `github_pr_admin_list`, and `github_included_regions`.

## 2.4.6 Using single quotes around variables

Its recommended to use single quotes around JJB variables ‘{variable}-field’ during variable substitution or when using a variable in a string field, in other cases its recommended to drop the single quotes.

Example:

```
- builder:
  name: lf-user-logs
  builders:
    - inject:
      properties-content: |
        'HOME={user-home}'
    - build-file:
      settings: '{settings-file}'
      file-version: '{file-version}'
```

## 2.4.7 Variable expansion and Defaults

JJB has a concept called **Defaults** which is what JJB will replace a variable with if unset. Variables can configure dynamic content in **job-template** sections and allow certain options in these sections to be configurable.

The section that expands Defaults is **Job Templates** no other sections will expand a default. This documentation will explain how variables and defaults expansion works and which take precedence in JJB’s variable expansion logic for the following configuration sections.

- macro
- job-template
- project
- default

### Macro sections

**Macro** sections can contain variables but do **NOT** support default values getting filled in both at the macro definition level and at the defaults configuration level. **Macros** and **Job Templates** can use Macros but any variables defined in a Macro needs to pass a value or a new variable redefined in the **Job Template** if you want to pass on the configuration.

So for example if you have a macro that has a ‘{msg}’ variable:

Example:

```
- builder:
  name: echo-msg
  builders:
    - shell: "echo {msg}"
```

Any downstream job-templates or macros that use this macro **MUST** pass in a *msg*: *Hello* definition or redefine the msg variable *msg*: {*msg*}.

## Job Template sections

Job Template sections can use defaults in two ways.

1. Configure the message:

```
- job-template:
  name: echo-hello-world
  builders:
    - echo-msg:
      msg: 'Hello World'
```

2. Re-define '{msg}' variable

```
- job-template:
  name: echo-message
  builders:
    - echo-msg:
      msg: '{message}'
```

In option 2, we redefine the variable msg as `{message}` which a user of the job-template can now pass into the job their own custom message which is different than option 1, where we set a static message to pass in. We purposely redefined the `{msg}` to `{message}` here to show that you do not need to redefine it with the same name but we could have used the same name `{msg}` in the template too if we wanted to keep it the same.

Job Templates can also default a default variable for the variables it defines.

Example:

```
- job-template:
  name: echo-message
  message: 'Hello World'
  builders:
    - echo-msg:
      msg: '{message}'
```

This creates a job template variable called `{message}` which will default to “Hello World” if the user of the template does not explicitly pass in a message.

We should be aware of 2 Defaults concepts:

1. Default as defined in the `job-template`
2. Default as defined in a `defaults` configuration (typically `defaults.yaml`)

In this case there is a default `{message}` set in the `job-template`. JJB will use this default if the user (project section) does not declare a `{message}`.

If we do not declare a default in the `job-template` then JJB will fallback to checking the “defaults configuration”.

This means that the precedence of defaults is as follows:

1. User-provided
2. Job Template
3. Defaults.yaml

## Project sections

Project sections define real jobs and pass in variables as necessary. Projects sections do NOT expand `defaults.yaml`.

So you cannot configure a setting with {var} in here and expect defaults.yaml to fill it in for you. Define required configuration here.

Example:

```
- project
  name: foo
  jobs:
    - 'echo-message'
  message: 'I am foo'
```

## Defaults sections

Defaults sections are the absolute last thing JJB checks if a variable is not configured in a job-template and user did not pass in the variable. JJB will fill in whatever is in the defaults configuration.

Variable expansion order of precedence seems to be:

1. job-group section definition
2. project section definition
3. job-template variable definition
4. defaults.yaml variable definition

---

**Note:** Defaults set variables in job-templates and are NOT used in Macros.

---

global-jjb should not provide job-group definitions and leave it up to users of global-jjb to create their own as a job-group as a variable defined in a job group the highest precedence. Global JJB should strive to be purely a job-template and macro library for downstream consumers.

## Final thoughts

For any [Basic Job Configuration](#) for example “concurrent”, “jdk”, “node” etc. . . we cannot set defaults with the same name as JJB will not expand them. To use “node” we need to give the variable for that setting a different name such as “build-node” instead, if we want JJB to perform expansion for those settings. This issue affects top level job configuration, it does not appear to affect items below the top level such as calling a builder, wrapper or parameter.

## 2.5 Glossary

**ciman** Short for *ci-management*.

**ci-management** Refers to the SCM repository containing the *JJB* configuration files. In most LF Projects this is the repository named *ci-management*, but is *releng/builder* in the OpenDaylight project and *releng* in the OPNFV project.

**JJB** Short for Jenkins Job Builder (JJB) a tool used to convert YAML definitions into XML as a way to define Jenkins job configuration.

## 2.6 Appendix

### 2.6.1 ShellCheck

When using ShellCheck to lint global-jjb or any projects that include global-jjb as part of their project (common with ci-management repos) then we require version 0.4.x of ShellCheck installed on the build vms. This version introduces annotations used by shell scripts in this repo.

Job template code is in the *jjb/* directory but documentation is in the *docs/jjb/* directory of this project.

## 3.1 C/C++ Jobs

### 3.1.1 Job Templates

#### CMake Sonar

Sonar job which runs cmake && make then publishes to Sonar.

This job purposely runs on the master branch as there are configuration needed to support multi-branch.

##### Template Names

- {project-name}-cmake-sonar
- gerrit-cmake-sonar
- github-cmake-sonar

**Comment Trigger** run-sonar

##### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Configure in defaults.yaml)

**sonar-scanner-version** Version of sonar-scanner to install.

**sonarcloud-project-key** SonarCloud project key.

**sonarcloud-project-organization** SonarCloud project organization.

**sonarcloud-api-token** SonarCloud API Token.

##### Optional parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cmake-opts** Parameters to pass to cmake. (default: ‘’)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: ‘@daily’)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**install-prefix** CMAKE\_INSTALL\_PREFIX to use for install. (default: \$BUILD\_DIR/output)

**make-opts** Parameters to pass to make. (default: ‘’)

**pre-build** Shell script to run before performing build. Useful for setting up dependencies. (default: ‘’)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_sonar\_triggers** Override Gerrit Triggers.

## CMake Stage

Stage job which runs cmake && make && make install and then packages the project into a tar.xz tarball to produce a release candidate.

### Template Names

- {project-name}-cmake-stage-{stream}
- gerrit-cmake-stage
- github-cmake-stage

**Comment Trigger** stage-release

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Configure in defaults.yaml)

**nexus-group-id** The Maven style Group ID for the namespace of the project in Nexus.

**staging-profile-id** The unique Nexus Staging Profile ID for the project. Contact your infra admin if you do not know it.

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-dir** Directory to build the project in. (default: \$WORKSPACE/target)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cmake-opts** Parameters to pass to cmake. (default: ‘’)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)



**install-prefix** CMAKE\_INSTALL\_PREFIX to use for install. (default: \$BUILD\_DIR/output)

**make-opts** Parameters to pass to make. (default: '')

**pre-build** Shell script to run before performing build. Useful for setting up dependencies. (default: '')

**stream** Keyword that to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**version** (default: '') Project version to stage release as. There are 2 methods for using this value:

1. Defined explicitly here.
2. Leave this value blank and set /tmp/artifact\_version

Use method 2 in conjunction with 'pre-build' configuration to generate the artifact\_version automatically from files in the project's repository. For example with pre-build script:

```
#!/bin/bash
MAJOR_VERSION="$(grep 'set(OCIO_VERSION_MAJOR' CMakeLists.txt_
↪ | awk '{{print $NF}}' | awk -F')' '{{print $1}}')"
```

```
MINOR_VERSION="$(grep 'set(OCIO_VERSION_MINOR' CMakeLists.txt_
↪ | awk '{{print $NF}}' | awk -F')' '{{print $1}}')"
```

```
PATCH_VERSION="$(grep 'set(OCIO_VERSION_PATCH' CMakeLists.txt_
↪ | awk '{{print $NF}}' | awk -F')' '{{print $1}}')"
```

```
echo "${MAJOR_VERSION}.${MINOR_VERSION}.${PATCH_VERSION}"
↪ > /tmp/artifact_version
```

## CMake Verify

Verify job which runs cmake && make && make install to test a project build..

### Template Names

- {project-name}-cmake-verify-{stream}
- gerrit-cmake-verify
- github-cmake-verify

**Comment Trigger** rechecklreverify

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Configure in defaults.yaml)

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-dir** Directory to build the project in. (default: \$WORKSPACE/target)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cmake-opts** Parameters to pass to cmake. (default: '')

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**install-prefix** CMAKE\_INSTALL\_PREFIX to use for install. (default: \$BUILD\_DIR/output)

**make-opts** Parameters to pass to make. (default: '')

**pre-build** Shell script to run before performing build. Useful for setting up dependencies. (default: '')

**stream** Keyword that to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which to filter which file modifications will trigger a build.

## 3.2 CI Jobs

### 3.2.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project's needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-release
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies:
      build-timeout: 180

  mvn-version: mvn35

- project:
  name: aaa
  jobs:
    - odl-maven-jobs
```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes mvn-version to *mvn35* and build-timeout to *180* for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert `disable-job: true` parameter against the jobs to disable.

Below is a list of CI job groups:

```

---
- job-group:
  name: "{project-name}-ci-jobs"

  jobs:
    - gerrit-jenkins-cfg-merge
    - gerrit-jenkins-cfg-verify
    - gerrit-jenkins-sandbox-cleanup
    - gerrit-jjb-deploy-job
    - gerrit-jjb-merge
    - gerrit-jjb-verify

- job-group:
  name: "{project-name}-github-ci-jobs"

  jobs:
    - github-jenkins-cfg-merge
    - github-jenkins-cfg-verify
    - github-jenkins-sandbox-cleanup
    - github-jjb-deploy-job
    - github-jjb-merge
    - github-jjb-verify

- job-group:
  name: "{project-name}-info-yaml-jobs"

  jobs:
    - gerrit-info-yaml-verify

- job-group:
  name: "{project-name}-github-info-yaml-jobs"

  jobs:
    - github-info-yaml-verify

- job-group:
  name: "{project-name}-packer-jobs"

  jobs:
    - gerrit-packer-merge
    - gerrit-packer-verify

- job-group:
  name: "{project-name}-github-packer-jobs"

  jobs:
    - github-packer-merge
    - github-packer-verify

- job-group:
  name: "{project-name}-openstack-jobs"

  jobs:

```

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```
- gerrit-openstack-update-cloud-image
- gerrit-openstack-cron

- job-group:
  name: "{project-name}-github-openstack-jobs"

  jobs:
    - github-openstack-update-cloud-image
    - github-openstack-cron
```

## 3.2.2 Macros

### If-infra-jjb-parameters

#### Required Parameters

**jjb-cache** Location of Jenkins Job Builder (JJB) cache used for jjb jobs.

**jjb-version** Version of Jenkins Job Builder (JJB) to install and use in the jjb jobs.

### If-jenkins-cfg-clouds

Deploys Jenkins Cloud configuration read from the `jenkins-clouds` directory in ci-management repositories.

---

**Note:** Requires the `jjbini` file in Jenkins CFP to contain JJB 2.0 style config definitions for “production” and “sandbox” systems.

---

#### Required Parameters

**jenkins-silos** Space-separated list of Jenkins silos to update configuration for as defined in `~/.config/jenkins_jobs/jenkins_jobs.ini`

### If-jenkins-cfg-global-vars

Manages the Global Jenkins variables. This macro will clear all exist macros in Jenkins and replaces them with the ones defined by the `ci-management/jenkins-config/global-vars-SILO.sh` script.

---

**Note:** Requires the `jjbini` file in Jenkins CFP to contain JJB 2.0 style config definitions for “production” and “sandbox” systems.

---

#### Required parameters

**jenkins-silos** Space-separated list of Jenkins silos to update configuration for as defined in `~/.config/jenkins_jobs/jenkins_jobs.ini`

### If-infra-jjbini

Provides `jenkins_jobs.ini` configuration for Jenkins.

### If-packer-common

Common packer configuration.

### If-packer-file-paths

Gerrit file-paths for packer jobs.

### If-packer-parameters

Parameters useful for packer related tasks.

#### Parameters

**packer-version** Version of packer to install / use. (shell: PACKER\_VERSION)

### If-packer-verify-file-paths

Gerrit file-paths for packer verify jobs.

### If-puppet-parameters

Parameters useful for Puppet related tasks.

#### Parameters

**puppet-lint-version** Version of puppet-lint to install / use. (shell: PUPPET\_LINT\_VERSION)

## 3.2.3 Job Templates

### Gerrit Branch Lock

Job submits a patch to lock or unlock a project's branch.

#### Template Names

- {project-name}-gerrit-branch-lock-{stream}
- gerrit-branch-lock

#### Comment Trigger

- lock branch
- unlock branch

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

#### Optional parameters

**branch** Git branch to build against. (default: master)

**git-url** URL to clone project from. (default: \$GIT\_URL/\$GERRIT\_PROJECT)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

## Jenkins Configuration Merge

Jenkins job to manage Global Jenkins configuration.

---

**Note:** Requires the jjbini file in Jenkins CFP to contain JJB 2.0 style config definitions for “production” and “sandbox” systems.

---

### Template names

- {project-name}-jenkins-cfg-merge
- gerrit-jenkins-cfg-merge
- github-jenkins-cfg-merge

### Optional parameters

**branch** Git branch to build against. (default: master)

**cron** How often to run the job on a cron schedule. (default: @daily)

**git-url** URL to clone project from. (default: \$GIT\_URL/\$GERRIT\_PROJECT)

**jenkins-silos** Space separated list of Jenkins silos to update configuration for as defined in ~/.config/jenkins\_jobs/jenkins\_jobs.ini (default: production sandbox)

Typically this template is automatically pulled in by the “{project-name}-ci-jobs” job-group and does not need to be explicitly called if the job group is being used.

Minimal Example:

```
---
- project:
  name: jenkins-cfg-merge-minimal-test
  jobs:
    - "gerrit-jenkins-cfg-merge"

  project-name: ci-management
```

Full Example:

```
---
- project:
  name: jenkins-cfg-merge-full-test
  jobs:
    - "gerrit-jenkins-cfg-merge"

  project-name: builder
  jenkins-silos: releng sandbox
```

## Global Environment Variables

Global Environment Variables are managed via the `jenkins-config/global-vars-SILO.sh` file in ci-management. Replace SILO with the name of the Jenkins silo the variable configuration is for.

The format for this file is `KEY=value` for example:

```
GERRIT_URL=https://git.opendaylight.org/gerrit
GIT_BASE=git://devvexx.opendaylight.org/mirror/$PROJECT
GIT_URL=git://devvexx.opendaylight.org/mirror
JENKINS_HOSTNAME=vex-yul-odl-jenkins-2
LOGS_SERVER=https://logs.opendaylight.org
NEXUS_URL=https://nexus.opendaylight.org
ODLNEXUSPROXY=https://nexus.opendaylight.org
SILO=sandbox
SONAR_URL=https://sonar.opendaylight.org
```

## Cloud Configuration

This configuration requires the OpenStack Cloud plugin in Jenkins and is currently the only cloud plugin supported.

OpenStack Cloud plugin version supported:

- 2.30 - 2.34
- 2.35 - 2.37

Cloud configuration are managed via a directory structure in ci-management as follows:

- `jenkins-config/clouds/openstack/`
- `jenkins-config/clouds/openstack/cattle/cloud.cfg`
- `jenkins-config/clouds/openstack/cattle/centos7-builder-2c-2g.cfg`
- `jenkins-config/clouds/openstack/cattle/centos7-builder-4c-4g.cfg`
- `jenkins-config/clouds/openstack/cattle/centos7-docker-4c-4g.cfg`

The directory name inside of the “openstack” directory is used as the name of the cloud configuration. In this case “cattle” is being used as the cloud name.

The `cloud.cfg` file is a special file used to configure the main cloud configuration in the format `KEY=value`.

### Cloud Parameters

**CLOUD\_URL** API endpoint URL for Keystone. (default: “”)

**CLOUD\_IGNORE\_SSL** Ignore unverified SSL certificates. (default: false)

**CLOUD\_ZONE** OpenStack region to use. (default: “”)

**CLOUD\_CREDENTIAL\_ID** Credential to use for authentication to OpenStack. (default: “os-cloud”)

**INSTANCE\_CAP** Total number of instances the cloud will allow spin up. (default: null)

**SANDBOX\_CAP** Total number of instances the cloud will allow to spin up. This applies to “sandbox” systems and overrides the `INSTANCE_CAP` setting. (default: null)

### Template Parameters

---

**Note:** In the case of template definitions of a parameter below is not passed the one defined in default clouds will be inherited.

---

**IMAGE\_NAME** The image name to use for this template. (required)

**HARDWARE\_ID** OpenStack flavor to use. (required)

**LABELS** Labels to assign to the vm. (default: FILE\_NAME)

**NETWORK\_ID** OpenStack network to use. (default: “”)

**USER\_DATA\_ID** User Data to pass into the instance. (default: jenkins-init-script)

**INSTANCE\_CAP** Total number of instances of this type that can be launched at one time.  
When defined in clouds.cfg it defines the total for the entire cloud. (default: null)

**SANDBOX\_CAP** Total number of instances of this type that can be launched at one time.  
When defined in clouds.cfg it defines the total for the entire cloud. This applies to  
“sandbox” systems and overrides the INSTANCE\_CAP setting. (default: null)

**FLOATING\_IP\_POOL** Floating ip pool to use. (default: “”)

**SECURITY\_GROUPS** Security group to use. (default: “default”)

**AVAILABILITY\_ZONE** OpenStack availability zone to use. (default: “”)

**START\_TIMEOUT** Number of milliseconds to wait for the agent to be provisioned and  
connected. (default: 600000)

**KEY\_PAIR\_NAME** SSH Public Key Pair to use for authentication. (default: jenkins)

**NUM\_EXECUTORS** Number of executors to enable for the instance. (default: 1)

**JVM\_OPTIONS** JVM Options to pass to Java. (default: “”)

**FS\_ROOT** File system root for the workspace. (default: “/w”)

**RETENTION\_TIME** Number of minutes to wait for an idle slave to be used again before  
it’s removed. If set to -1, the slave will be kept forever. (default: 0)

**CONNECTION\_TYPE** The connection type for Jenkins to connect to the build minion.  
Valid options: JNLP, SSH. (default: “SSH”)

For a live example see the OpenDaylight project jenkins-config directory. <https://github.com/opendaylight/releng-builder/tree/master/jenkins-config>

## Troubleshooting

### Cloud Configuration

The directory `groovy-inserts` contains the groovy script output that is used to push to Jenkins. In the event of a job failure this file can be inspected.

### Jenkins Configuration Verify

Jenkins job to verify the Global Jenkins configuration.

Requires the `clouds-yaml` file to be setup on the Jenkins host.

#### Template names



- {project-name}-jenkins-cfg-verify
- gerrit-jenkins-cfg-verify
- github-jenkins-cfg-verify

#### Optional parameters

**branch** Git branch to build against. (default: master)

**git-url** URL to clone project from. (default: \$GIT\_URL/\$GERRIT\_PROJECT)

This job is not part of the “{project-name}-ci-jobs” group. It must be called explicitly.

Example:

```
---
- project:
  name: jenkins-cfg-verify
  jobs:
    - "gerrit-jenkins-cfg-verify"

  project-name: ci-management
```

## Jenkins Sandbox Cleanup

Cleanup Jenkins Sandbox of jobs and views periodically.

#### Template names

- {project-name}-jenkins-sandbox-cleanup
- gerrit-jenkins-sandbox-cleanup
- github-jenkins-sandbox-cleanup

**Comment Trigger** NONE

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

#### Optional parameters

**cron** Schedule to run job. (default: ‘0 8 \* \* 6’)

## JJB Deploy Job

Deploy jobs to jenkins-sandbox system via code review comment.

This job checks out the current code review patch and then runs a `jenkins-jobs update` to push a patch defined by the comment.

#### Template names

- {project-name}-jjb-deploy-job
- gerrit-jjb-deploy-job
- github-jjb-deploy-job

### Comment Trigger `jjb-deploy JOB_NAME`

---

**Note:** The JJB Deploy Job is configured to trigger only if the Gerrit comment starts with the *jjb-deploy* keyword.

Example of a valid command in Gerrit comment that triggers the job:

```
jjb-deploy builder-jjb-*
```

Example of an invalid command in Gerrit comment that would *\_not\_* trigger the job:

```
Update the job. jjb-deploy builder-jjb-*
```

`JOB_NAME` can include the `*` wildcard character to push multiple jobs matching the pattern. For example `jjb-deploy builder-jjb-*` will push all `builder-jjb-*` jobs to the sandbox system.

---

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in `defaults.yaml`)

### Optional parameters

**git-url** URL clone project from. (default: `$GIT_URL/$PROJECT`)

**gerrit\_jjb\_deploy\_job\_triggers** Override Gerrit Triggers.

## JJB Merge

Runs *jenkins-jobs update* to update production job configuration

### Template Names

- `{project-name}-jjb-merge`
- `gerrit-jjb-merge`
- `github-jjb-merge`

**Comment Trigger** `remerge`

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in `defaults.yaml`)

### Optional parameters

**branch** Git branch to fetch for the build. (default: `master`)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: `7`)

**build-timeout** Timeout in minutes before aborting build. (default: `10`)

**git-url** URL clone project from. (default: `$GIT_URL/$PROJECT`)

**jjb-cache** JJB cache location. (default: `$HOME/.cache/jenkins_jobs`)

**jjb-workers** Number of threads to run **update** with. Set to `0` by default which is equivalent to the number of available CPU cores. (default: `0`)

**jjb-version** JJB version to install. (default: see job-template)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build. (default defined by If\_jjb\_common)

## JJB Verify

Runs *jenkins-jobs test* to validate JJB syntax

### Template Names

- {project-name}-jjb-verify
- gerrit-jjb-verify
- github-jjb-verify

**Comment Trigger** recheck|reverify

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-concurrent** Whether or not to allow this job to run multiple jobs simultaneously. (default: true)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**jjb-cache** JJB cache location. (default: \$HOME/.cache/jenkins\_jobs)

**jjb-version** JJB version to install. (default: see job-template)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**throttle\_categories** List of categories to throttle by.

**throttle-enabled** Whether or not to enable throttling on the job. (default: true)

**throttle-max-per-node** Max jobs to run on the same node. (default: 1)

**throttle-max-total** Max jobs to run across the entire project. - 0 means ‘unlimited’ (default: 0)

**throttle-option** Throttle by the project or by list of categories defined in the throttle plugin configuration. (options: ‘project’, ‘category’; default: project)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build. (default defined by lf\_jjb\_common)

## JJB Verify Upstream Global JJB

Runs `jenkins-jobs test` to validate JJB syntax for upstream global-jjb patches. This job is useful to notify upstream that they may be breaking project level jobs.

### Template Names

- {project-name}-jjb-verify-upstream-gjjb
- gerrit-jjb-verify-upstream-gjjb

**Comment Trigger** recheck|reverify

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**jjb-cache** JJB cache location. (default: \$HOME/.cache/jenkins\_jobs)

**jjb-version** JJB version to install. (default: see job-template)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

## Info YAML Verify

Info YAML Verify job validates that INFO.yaml file changes are kept isolated from other file changes. Verifies INFO.yaml files follow the schema defined in *lf/releng-global-jjb/schema/info-schema.yaml*.

### Template Names

- {project-name}-info-yaml-verify
- gerrit-info-yaml-verify
- github-info-yaml-verify

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

#### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

## License Checker

Job to scan projects for files missing license headers.

#### Template Names

- {project-name}-license-check
- gerrit-license-check
- github-license-check

#### Optional parameters

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**file-patterns** Space-separated list of file patterns to scan. (default: \*.go \*.groovy \*.java \*.py \*.sh)

**spdx-disable** Disable the SPDX-Identifier checker. (default: false)

**lhc-version** Version of LHC to use. (default: 0.2.0)

**license-exclude-paths** Comma-separated list of paths to exclude from the license checker. The paths used here will be matched using a contains rule so it is best to be as precise with the path as possible. For example a path of 'src/generated/' will be searched as 'src/generated/'. Example: org/opendaylight/yang/gen,protobuf/messages (default: '')

**licenses-allowed** Comma-separated list of allowed licenses. (default: Apache-2.0,EPL-1.0,MIT)

**project-pattern** The ANT based pattern for Gerrit Trigger to choose which projects to trigger job against. (default: '\*\*')

## OpenStack Cron

Cron job that runs regularly to perform periodic tasks against OpenStack.

This job requires a Config File Provider file named `clouds-yaml` available containing the credentials for the cloud.

### Template Names

- {project-name}-openstack-cron
- gerrit-openstack-cron
- github-openstack-cron

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**jenkins-urls** URLs to Jenkins systems to check for active builds.

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 90)

**cron** Time when the packer image should be rebuilt (default: @hourly)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**openstack-cloud** OS\_CLOUD setting to pass to openstack client. (default: vex)

**openstack-image-cleanup** Whether or not to run the image cleanup script. (default: true)

**openstack-image-cleanup-age** Age in days of image before marking it for removal. (default: 30)

**openstack-image-protect** Whether or not to run the image protect script. (default: true)

**openstack-server-cleanup** Whether or not to run the server cleanup script. (default: true)

**openstack-stack-cleanup** Whether or not to run the stack cleanup script. (default: true)

**openstack-volume-cleanup** Whether or not to run the volume cleanup script. (default: true)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

Minimal Example:

```
---
- project:
  name: openstack-cron-minimal-test
  jobs:
    - "gerrit-openstack-cron"

  project-name: ci-management

  jenkins-urls: >
    https://jenkins.example.org
    https://jenkins.example.org/sandbox
```

Full Example:

```
---
- project:
  name: openstack-cron-full-test
  jobs:
    - "gerrit-openstack-cron"

  project-name: ciman-full

  jenkins-urls: >
    https://jenkins.example.org
    https://jenkins.example.org/sandbox
  openstack-cloud: example-cloud
  openstack-image-cleanup: false
  openstack-image-cleanup-age: 42
  openstack-image-protect: false
  openstack-server-cleanup: false
  openstack-stack-cleanup: false
  openstack-volume-cleanup: false
```

## OpenStack Update Cloud Image

This job finds and updates OpenStack cloud images on the ci-management source repository.

The job is triggered in two ways:

1. When packer merge job completes, the new image name created is passed down to the job.
2. When the job is triggered manually to update all new images.

When the job is triggered through an upstream packer merge job, this only generates a change request for the new image built.

When the job is triggered manually, this job finds the latest images on OpenStack cloud and compares them with the images currently used in the source ci-management source repository. If the compared images have newer time stamps are **all** updated through a change request.

This job requires a Jenkins configuration merge and verify job setup and working on Jenkins.

### Template Names

- {project-name}-openstack-update-cloud-image
- gerrit-openstack-update-cloud-image
- github-openstack-update-cloud-image

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**new-image-name** Name of new image name passed from packer merge job or set to 'all' to update all images. (default: all)

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 90)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**openstack-cloud** OS\_CLOUD setting to pass to openstack client. (default: vex)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**update-cloud-image** Submit a change request to update new built cloud image to Jenkins. (default: false)

Minimal Example:

```
---
- project:
  name: openstack-update-cloud-images-minimal-test
  jobs:
    - "gerrit-openstack-update-cloud-image"

  project-name: ciman-minimal
  gerrit-user: "jenkins-user"
  gerrit-host: "git.example.org"
  gerrit-topic: "update-cloud-image"
  reviewers-email: "jenkins-user@example.org"
```

Full Example:

```
---
- project:
  name: openstack-update-cloud-images-full-test
  jobs:
    - "gerrit-openstack-update-cloud-image"

  project: ciman
  project-name: ciman-full
  build-timeout: 10
  branch: master
  archive-artifacts: "**/*.log"
  jenkins-ssh-credential: "{jenkins-ssh-credential}"
  gerrit-user: "jenkins-user"
  gerrit-host: "git.example.org"
  gerrit-topic: "update-cloud-image"
  reviewers-email: "jenkins-user@example.org"
```

## Packer Merge

Packer Merge job runs *packer build* to build system images in the cloud.

### Template Names

- {project-name}-packer-merge-{platforms}-{templates}
- gerrit-packer-merge



- github-packer-merge

**Comment Trigger** remerge

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

**platforms** Platform or distribution to build. Typically json file found in the packer/vars directory. (Example: centos)

**template** System template to build. Typically shell script found in the packer/provision directory. (Example: java-builder)

#### Optional parameters

**cron** Time when the packer image should be rebuilt (default: @monthly)

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 90)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**openstack** Packer template uses an OpenStack builder (default: true).

**openstack-cloud** Sets OS\_CLOUD variable to the value of this parameter. (default: vex).

**packer-cloud-settings** Name of settings file containing credentials for the cloud that packer will build on. (default: packer-cloud-env)

**packer-version** Version of packer to install / use in build. (default: 1.0.2)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**update-cloud-image** Submit a change request to update new built cloud image to Jenkins. (default: false)

### Test an in-progress patch

To test an in-progress patch from a GitHub Pull Request. Upload this job to the [Jenkins Sandbox](#). Then when manually building the job replace the GERRIT\_REFSPEC parameter with the GitHub Pull Request number of the patch you would like to test.

Example GitHub:

```
GERRIT_REFSPEC: origin/pr/49/merge
```

## Packer Verify

Packer Verify job runs *packer validate* to verify packer configuration.

### Template Names

- {project-name}-packer-verify
- gerrit-packer-verify
- github-packer-verify

**Comment Trigger** recheck|reverify

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**openstack** Packer template uses an OpenStack builder (default: true).

**openstack-cloud** Sets OS\_CLOUD variable to the value of this parameter. (default: vex).

**packer-cloud-settings** Name of settings file containing credentials for the cloud that packer will build on. (default: packer-cloud-env)

**packer-version** Version of packer to install / use in build. (default: 1.0.2)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build.

## Puppet Verify

Runs puppet-lint in the `puppet-dir` directory. puppet-lint runs recursively, the base directory is usually the best place to run from.

### Template Names

- {project-name}-puppet-verify
- gerrit-puppet-verify

- github-puppet-verify

**Comment Trigger** rechecklreverify

#### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

#### Optional Parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**gerrit\_trigger\_file\_paths** Override file paths which used to filter which file modifications will trigger a build. Refer to JJB documentation for “file-path” details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

**git-url** URL clone project from. (default: \$GIT\_URL/\$GERRIT\_PROJECT)

**puppet-dir** Directory containing the project’s puppet module(s) relative to the workspace. (default: ‘’)

**puppet-lint-version** Version of puppet-lint to use for testing. (default: 2.3.6)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

## Sonar

Runs Jenkins Sonarqube plug-in to review for bugs, code smells, and security vulnerabilities.

Requires `SonarQube Scanner for Jenkins`

#### Plug-in configurations

##### Manage Jenkins -> Configure System -> SonarQube servers

- Name: Sonar (fixed)
- Server URL: <https://sonar.server.org/> or <https://sonarcloud.io>
- Server authentication token: none for local, API token (saved as a “secret text” credential) for Sonarcloud

##### Manage Jenkins -> Global Tool Configuration -> SonarQube Scanner

- Name: SonarQube Scanner (fixed)
- Install automatically
- Select latest version

---

**Note:** Sonar properties can be set directly in the job definition by setting the `sonar-project-file` to “” and adding all properties under `sonar-properties`.

---

### Template Names

- {project-name}-sonar
- gerrit-sonar
- github-sonar

### Optional Parameters

**sonar-task** Sonar task to run. (default: “”)

**sonar-project-file** The filename for the project’s properties (default: “sonar-project.properties”)

**sonar-properties** Sonar configuration properties. (default: “”)

**sonar-java-opts** JVM options. (default: “”)

**sonar-additional-args** Additional command line arguments. (default: “”)

## Sonar with Prescan

The same as the Sonar job above, except the caller also defines a builder called `lf-sonar-prescan`, in which they can put any builders that they want to run prior to the Sonar scan.

```
- builder:
  name: lf-sonar-prescan
  builders:
    - shell: "# Pre-scan shell script"
```

### Template Names

- {project-name}-sonar-prescan
- gerrit-sonar-prescan
- github-sonar-prescan

### Required Parameters

**lf-sonar-prescan** A builder that will run prior to the Sonar scan.

### Optional Parameters

**sonar-task** Sonar task to run. (default: “”)

**sonar-project-file** The filename for the project’s properties (default: “sonar-project.properties”)

**sonar-properties** Sonar configuration properties. (default: “”)

**sonar-java-opts** JVM options. (default: “”)

**sonar-additional-args** Additional command line arguments. (default: “”)

## 3.3 Docker Jobs

### 3.3.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project’s

needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerit-maven-clm
    - gerit-maven-merge
    - gerit-maven-release
    - gerit-maven-verify
    - gerit-maven-verify-dependencies:
      build-timeout: 180

  mvn-version: mvn35

- project:
  name: aaa
  jobs:
    - odl-maven-jobs
```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes mvn-version to *mvn35* and build-timeout to *180* for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert `disable-job: true` parameter against the jobs to disable.

Below is a list of Docker job groups:

```
---
- job-group:
  name: "{project-name}-gerit-docker-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for any docker project ci.

  jobs:
    - gerit-docker-verify
    - gerit-docker-merge

- job-group:
  name: "{project-name}-github-docker-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for any docker project ci.

  jobs:
    - github-docker-verify
    - github-docker-merge
```

### 3.3.2 Macros

#### If-docker-get-container-tag

Chooses a container tag to label the image based on the 'container-tag-method' parameter. If container-tag-method: latest, the tag 'latest' is used. If container-tag-method: git-describe, the tag is obtained using the git describe command,

which requires that the repository has a git tag. If `container-tag-method: yaml-file`, the tag is obtained using the `yq` command, which requires that the repository has a YAML file named `'container-tag.yaml'`. The script checks the `docker-root` directory by default or the directory specified by parameter `container-tag-yaml-dir`. An example file appears below.

### **lf-docker-build**

Calls `docker build` to build the container.

### **lf-docker-push**

Calls `docker-push.sh` script to push docker images.

## **3.3.3 Job Templates**

### **Docker Verify**

Executes a docker build task.

#### **Template Names**

- `{project-name}-docker-verify-{stream}`
- `gerrit-docker-verify`
- `github-docker-verify`

**Comment Trigger** `recheck|reverify` post a comment with one of the triggers to launch this job manually.

Do not include any other text or vote in the same comment.

#### **Required parameters**

**build-node** The node to run build on.

**container-public-registry** Docker registry source with base images.

**docker-name** Name of the Docker image.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in `defaults.yaml`)

**mvn-settings** Maven `settings.xml` file containing credentials to use.

#### **Optional parameters**

**branch** Git branch to fetch for the build. (default: `master`)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: `7`)

**build-timeout** Timeout in minutes before aborting build. (default: `60`)

**container-tag-method** Specifies the docker tag-choosing method. Options are “latest”, “git-describe” or “yaml-file”. Option `git-describe` requires a git tag to exist in the repository. Option `yaml-file` requires a file “`container-tag.yaml`” to exist in the repository. (default: `latest`)

**container-tag-yaml-dir** Directory with `container-tag.yaml`. (default: `$DOCKER_ROOT`)

**docker-build-args** Additional arguments for the docker build command.

**docker-root** Build directory within the repo. (default: `$WORKSPACE`, the repo root)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pre\_docker\_build\_script** Build script to execute before the main verify builder steps. (default: a string with only a comment)

**post\_docker\_build\_script** Build script to execute after the main verify builder steps. (default: a string with only a comment)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override Gerrit file paths which can be used to filter which file modifications will trigger a build.

**github\_included\_regions** Override Github file paths which can be used to filter which file modifications will trigger a build; must match parameter `gerrit_trigger_file_paths`

container-tag.yaml example:

```
---
tag: 1.0.0
```

## Docker Merge

Executes a docker build task and publishes the resulting images to a specified Docker registry.

### Template Names

- {project-name}-docker-merge-{stream}
- gerrit-docker-merge
- github-docker-merge

**Comment Trigger** **remerge** post a comment with the trigger to launch this job manually. Do not include any other text or vote in the same comment.

### Required parameters

**build-node** The node to run build on.

**container-public-registry** Docker registry source with base images.

**container-push-registry** Docker registry target for the deploy action.

**docker-name** Name of the Docker image.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** Maven settings.xml file containing credentials to use.

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**container-tag-method** Specifies the docker tag-choosing method. Options are “latest”, “git-describe” or “yaml-file”. Option git-describe requires a git tag to exist in the repository. Option yaml-file requires a file “container-tag.yaml” to exist in the repository. (default: latest)

**container-tag-yaml-dir** Directory with container-tag.yaml. (default: \$DOCKER\_ROOT)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. No default. Use ‘@daily’ to run daily or ‘H H \* \* 0’ to run weekly.

**docker-build-args** Additional arguments for the docker build command.

**docker-root** Build directory within the repo. (default: \$WORKSPACE, the repo root)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pre\_docker\_build\_script** Build script to execute before the main merge builder steps. (default: a string with only a comment)

**post\_docker\_build\_script** Build script to execute after the main merge builder steps. (default: a string with only a comment)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override Gerrit file paths which can be used to filter which file modifications will trigger a build.

**github\_included\_regions** Override Github file paths which can be used to filter which file modifications will trigger a build; must match parameter gerrit\_trigger\_file\_paths

### Sample container-tag.yaml File

```
---
tag: 1.0.0
```

## 3.4 Info Vote Job

Job counts the votes from the committers against a change to the INFO.yaml file

If needed, will also check for a majority of TSC voters (not yet implemented)

Auto-merges the change on a majority vote.

### 3.4.1 info-vote

**Comment Trigger** recheck|verify|Vote

**Required parameters**

**build-node** The node to run build on.



**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

## 3.5 Global Macros

### 3.5.1 Builders

#### comment-to-gerrit

This macro will post a comment to the gerrit patchset if the build creates a file named gerrit\_comment.txt To use this macro add it to the list of builders.

#### If-fetch-dependent-patches

Fetch all patches provided via comment trigger

This macro will fetch all patches provided via comment trigger and will create a list of projects from those patches via environment variable called DEPENDENCY\_BUILD\_ORDER which can be used if necessary to build projects in the specified order. The order is determined by first patch instance for a project in the patch list.

#### If-license-check

Checks files for

##### Required parameters

**file-patterns** Space-separated list of file patterns to scan. For example: \*.go \*.groovy  
\*.java \*.py \*.sh

**spdx-disable** Disable the SPDX-Identifier checker.

**lhc-version** Version of LHC to use.

**license-exclude-paths** Comma-separated list of paths to exclude from the license checker.  
The paths used here will be matched using a contains rule so it is best to be as precise with the path as possible. For example a path of 'src/generated/' will be searched as 'src/generated/'. Example: org/opendaylight/yang/gen,protobuf/messages

**licenses-allowed** Comma-separated list of allowed licenses. For example: Apache-2.0,EPL-1.0,MIT

#### If-infra-create-netrc

Create a ~/.netrc file from a Maven settings.xml

##### Required parameters

**server-id** The id of a server as defined in settings.xml.

##### Optional parameters

**ALT\_NEXUS\_SERVER** URL of custom nexus server. If set this will take precedence.  
Use this to point at nexus3.\$PROJECTDOMAIN for example.

### lf-infra-deploy-maven-file

Deploy files to a repository.

#### Required parameters

- global-settings-file** Global settings file to use.
- group-id** Group ID of the repository.
- maven-repo-url** URL of a Maven repository to upload to.
- mvn-version** Version of Maven to use.
- repo-id** Repository ID
- settings-file** Maven settings file to use.
- upload-files-dir** Path to directory containing one or more files

### lf-infra-docker-login

Login into a custom hosted docker registry and / or docker.io

The Jenkins system should have the following global variables defined

#### Environment variables

- DOCKER\_REGISTRY** The DNS address of the registry (IP or FQDN) ex: nexus3.example.com (GLOBAL variable)
- REGISTRY\_PORTS** Required if DOCKER\_REGISTRY is set. Space separated list of the registry ports to login to. ex: 10001 10002 10003 10004 (GLOBAL variable)
- DOCKERHUB\_EMAIL** If this variable is set then an attempt to login to DockerHub (docker.io) will be also made. It should be set to the email address for the credentials that will get looked up. Only one credential will ever be found in the maven settings file for DockerHub. (GLOBAL variable)

### lf-infra-gpg-verify-git-signature

Verify gpg signature of the latest commit message in \$WORKSPACE. This command assumes that \$WORKSPACE is a git repo.

### lf-infra-pre-build

Macro that runs before all builders to prepare the system for job use.

### lf-infra-package-listing

Lists distro level packages.

### If-infra-packer-build

Run *packer build* to build system images.

#### Required parameters

**openstack** Packer template uses an OpenStack builder (true/false).

**openstack-cloud** Sets OS\_CLOUD variable to the value of this parameter.

**packer-version** Version of packer to use.

**platform** Build platform as found in the vars directory.

**template** Packer template to build as found in the templates directory.

#### Optional parameters

**update-cloud-image** Submit a change request to update new built cloud image to Jenkins.

### If-infra-packer-validate

Run *packer validate* to verify packer configuration.

#### Required parameters

**openstack** Packer template uses an OpenStack builder (true/false).

**openstack-cloud** Sets OS\_CLOUD variable to the value of this parameter.

**packer-cloud-settings** Cloud configuration file. Loaded on the build server as CLOUDENV environment variable.

**packer-version** Version of packer to use.

### If-infra-push-gerrit-patch

Push a change through a Jenkins job to a Gerrit repository in an automated way using git-review.

#### Required parameters

**gerrit-commit-message** Commit message to assign.

**gerrit-host** Gerrit hostname.

**gerrit-topic** Gerrit topic.

**gerrit-user** Gerrit user-id used for submitting the change.

**reviewers-email** Reviewers email. Space-separated list of email addresses to CC on the patch.

**project** Gerrit project name.

### If-infra-ship-logs

Gather and deploy logs to a log server.

### If-infra-sysstat

Retrieves system stats.

## lf-infra-update-packer-images

Find and update the new built cloud image{s} in the ci-management source repository.

## lf-jacoco-nojava-workaround

Workaround for Jenkins not able to find Java in JaCoCo runs.

## lf-maven-central

Publish artifacts to OSSRH (Maven Central) staging.

Requires that the project's settings.xml contains a ServerId 'ossrh' with the credentials for the project's OSSRH account.

This macro assumes the directory \$WORKSPACE/m2repo contains a Maven 2 repository which is to upload to OSSRH.

### Required parameters

**mvn-central** Whether or not to upload to mvn-central. (true/false)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-settings** The name of settings file containing credentials for the project.

**ossrh-profile-id** Nexus staging profile ID as provided by OSSRH.

```
---
- job-template:
  name: lf-maven-central-macro-test

  #####
  # Default variables #
  #####

  mvn-central: true
  mvn-global-settings: ""
  mvn-settings: ""
  ossrh-profile-id: ""

  #####
  # Job configuration #
  #####

  builders:
    - lf-maven-central:
      mvn-central: "{mvn-central}"
      mvn-global-settings: "{mvn-global-settings}"
      mvn-settings: "{mvn-settings}"
      ossrh-profile-id: "{ossrh-profile-id}"
```

## lf-maven-install

Call maven-target builder with a goal of -version to force Jenkins to install the need provided version of Maven. This is needed for any shell scripts that want to use Maven.

**Required parameters**

**mvn-version** Version of Maven to install.

**If-pip-install**

Call pip install to install packages into a virtualenv located in /tmp/v/VEENV

---

**Note:** The first package listed in PIP\_PACKAGES is used as the VENV name.

---

**If-provide-maven-settings**

Push a global settings and user settings maven files to the build node.

**If-provide-maven-settings-cleanup**

Cleanup maven settings.xml configuration. This should be called at the end of any macros that call the *lf-provide-maven-settings* macro.

**If-rtd-trigger-build**

Script to trigger a build on <http://readthedocs.org>

**If-rtd-verify**

ReadTheDocs verify script. Installs and runs tox.

**Required parameters**

**doc-dir** Document directory.

**python-version** Python version.

**If-rtdv3-build**

Read the docs scripts that leverage the new Read the Docs v3 api [RTD v3 API](#) Runs tox to verify that the docs are good and then runs the RTDv3 shell script. This script handles creating projects as needed, assigning subprojects to the main read the docs project and triggering builds to update the documentation. Jobs will run but skip verify bits until a .readthedocs.yaml is found in the root of their repository.

**check-info-votes**

Calls shell script to validate votes on a change to an INFO.yaml

## If-release

releases Iftools.ini (required) needed to push to nexus.

[nexus] username= password=

Then runs ../shell/release-job.sh

## If-sigul-sign-dir

Use Sigul to sign a directory via {sign-dir}.

Requires SIGUL\_BRIDGE\_IP configured as a global envvar.

### Required Parameters

**sign-artifacts** Whether or not to sign artifacts with Sigul.

**sign-dir** Directory to sign.

**sign-mode** serialparallel

## If-infra-provide-docker-cleanup

Forcibly removes all of the docker images.

## If-infra-sonar

Runs Jenkins SonarQube plug-in.

Requires SonarQube Scanner for Jenkins

---

**Note:** Sonar properties can be set directly in the job definition by setting the sonar-project-file to "" and adding all properties under sonar-properties.

---

### Optional Parameters

**sonar-task** Sonar task to run. (default: "")

**sonar-project-file** The filename for the project's properties (default: "sonar-project.properties")

**sonar-properties** Sonar configuration properties. (default: "")

**sonar-java-opts** JVM options. (default: "")

**sonar-additional-args** Additional command line arguments. (default: "")

## If-infra-sonar-with-prescan

Runs Jenkins SonarQube plug-in after a pre-scan builder, which is defined by the macro's caller.

Requires SonarQube Scanner for Jenkins

---

**Note:** Sonar properties can be set directly in the job definition by setting the sonar-project-file to "" and adding all properties under sonar-properties.

---

### Required Parameters

**lf-sonar-prescan** A builder that will run prior to the Sonar scan.

### Optional Parameters

**sonar-task** Sonar task to run. (default: "")

**sonar-project-file** The filename for the project's properties (default: "sonar-project.properties")

**sonar-properties** Sonar configuration properties. (default: "")

**sonar-java-opts** JVM options. (default: "")

**sonar-additional-args** Additional command line arguments. (default: "")

## 3.5.2 Parameters

### lf-clm-parameters

Provides the policy evaluation stage to run against Nexus IQ Server. Valid values include: 'build', 'stage-release', 'operate'.

### lf-cmake-parameters

Provides parameters needed by CMake. Should be used by any jobs that need to call the `cmake && make && make install` pattern.

### lf-infra-maven-parameters

Provides parameters needed by Maven. Should be used by any jobs that need to call the `mvn cli`.

### lf-infra-openstack-parameters

Provides parameters needed by OpenStack client CLI. Use in jobs that need to call the openstack cli.

### Required Parameters

**os-cloud** Configures `OS_CLOUD` envvar as used by openstack cli.

### lf-infra-parameters

Standard parameters used in the LF CI environments. Gerrit variables are not used by GitHub projects, but defining them is not harmful. Should be used in every job template.

### lf-infra-node-parameters

Provides parameters needed by NodeJS and NPM. Should be used by any jobs that need to run NodeJS or NPM.

### lf-infra-tox-parameters

Provides parameters needed by `python-tox`. Should be used by any jobs that need to run `tox` <<https://tox.readthedocs.io>>.

## If-build-with-parameters-maven-release

Provides parameters needed for maven release jobs ‘build with parameters’.

## 3.5.3 Properties

### If-infra-properties

Configures the build-discarder plugin for Jenkins with the recommended If-infra settings. Should be used in all job-templates.

## 3.5.4 Publishers

### If-jacoco-report

Provides basic configuration for the JaCoCo plugin.

### If-infra-publish

Provides basic If-infra recommended publisher configurations which should be used in all job templates. This primary objective of this trigger is to gather build logs and copy them to a log server.

### If-infra-publish-windows

Windows publisher for use at the end of Windows job templates. Takes care of cleaning out the workspace at the end of a job.

## 3.5.5 SCM

### If-infra-gerrit-scm

Basic SCM configuration for Gerrit based projects.

#### Required parameters

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

### If-infra-github-scm

Basic SCM configuration for GitHub based projects.

On the *branch* variable you can assign *\$sha1* or *\$ghprbActualCommit* as the value. This will require that the job be triggered via the GHPRB plugin and not manually.

#### Required parameters

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)



## 3.5.6 Wrappers

### If-infra-wrappers-common

Provides If-infra recommended wrappers which should be used in every job-template. It's meant to be used by more specific wrappers below.

### If-infra-wrappers

Provides If-infra recommended wrappers which should be used in every job-template that's run on Linux systems.

This wrapper requires that a managed file called *npmrc* exists in the Jenkins. The main use case here is to point to a npm proxy, on Nexus for example. The type of the file should be "Custom file". You can set various npmrc settings in it. Documentation on npm configuration can be found at <https://docs.npmjs.com/files/npmrc>. If you are not using npm then it is fine for the file to be empty.

Example npmrc:

```
registry=https://nexus3.onap.org/repository/npm.public/
```

### If-infra-wrappers-windows

Provides If-infra recommended wrappers which should be used in every job-template that's run on Windows systems.

## 3.6 Maven Jobs

### 3.6.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project's needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-release
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies:
      build-timeout: 180

  mvn-version: mvn35

- project:
  name: aaa
  jobs:
    - odl-maven-jobs
```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes `mvn-version` to `mvn35` and `build-timeout` to `180` for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert `disable-job: true` parameter against the jobs to disable.

Below is a list of Maven job groups:

```
---
- job-group:
  name: "{project-name}-maven-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Java project in Gerrit that builds with maven.

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-stage
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies

- job-group:
  name: "{project-name}-github-maven-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Java project in Github that builds with maven.

  jobs:
    - github-maven-clm
    - github-maven-merge
    - github-maven-stage
    - github-maven-verify

- job-group:
  name: "{project-name}-gerrit-maven-docker-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Java project in Gerrit that builds with maven and docker.

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-docker-merge
    - gerrit-maven-docker-stage
    - gerrit-maven-docker-verify

- job-group:
  name: "{project-name}-github-maven-docker-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Java project in Github that builds with maven and docker.

  jobs:
    - github-maven-clm
    - github-maven-docker-merge
    - github-maven-docker-stage
    - github-maven-docker-verify

- job-group:
```

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```

name: "{project-name}-maven-javadoc-jobs"

# This job group contains all the recommended jobs that should be deployed
# for a Java project in Gerrit that publishes javadoc with maven.

jobs:
  - gerrit-maven-javadoc-publish
  - gerrit-maven-javadoc-verify
- job-group:
  name: "{project-name}-github-maven-javadoc-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Java project in Github that publishes javadoc with maven.

  jobs:
    - github-maven-javadoc-publish
    - github-maven-javadoc-verify

```

## 3.6.2 Macros

### If-infra-maven-sonar

Runs Sonar against a Maven project.

#### Required Parameters

- java-version** Version of Java to execute Sonar with.
- mvn-version** Version of Maven to execute Sonar with.
- mvn-settings** Maven settings.xml file containing credentials to use.

### If-infra-maven-sonarcloud

Runs Sonar against a Maven project and pushes results to SonarCloud.

#### Required Parameters

- java-version** Version of Java to execute Sonar with.
- mvn-version** Version of Maven to execute Sonar with.
- mvn-settings** Maven settings.xml file containing credentials to use.
- sonarcloud-project-key** SonarCloud project key.
- sonarcloud-project-organization** SonarCloud project organization.
- sonarcloud-api-token** SonarCloud API Token.

### If-maven-build

Calls the maven build script to perform a maven build.

#### Required parameters

- mvn-goals** The maven goals to perform for the build. (default: clean deploy)

## If-maven-common

Common Jenkins configuration for Maven jobs.

## If-maven-deploy

Calls the maven deploy script to push artifacts to Nexus.

## If-maven-versions-plugin

Conditionally calls Maven versions plugin to set, update and commit the maven *versions:set*.

### Required Parameters

- maven-versions-plugin** Whether to call Maven versions plugin or not. (default: false)
- version-properties-file** Name and path of the version properties file. (default: version.properties)
- mvn-version** Version of Maven to execute Sonar with.
- mvn-pom** Location of pom.xml.
- mvn-settings** Maven settings.xml file containing credentials to use.

## If-maven-stage

Calls the maven stage script to push artifacts to a Nexus staging repository.

### Required Parameters

- mvn-global-settings** The name of the Maven global settings to use for Maven configuration.
- mvn-settings** The name of settings file containing credentials for the project.

## If-update-java-alternatives

Setup Java alternatives for the Distro.

### Required Parameters

- java-version** Version of Java to set as the default Java. Eg. openjdk8

## If-infra-sonatype-clm

Runs a Sonatype CLM scan against a Maven project and pushes results to Nexus IQ server.

### Optional parameters

- mvn-goals** The maven goals to perform for the build. (default: clean install)

### 3.6.3 Job Templates

#### Maven CLM

Produces a CLM scan of the code into Nexus IQ Server.

##### Template Names

- {project-name}-maven-clm-{stream}
- gerrit-maven-clm
- github-maven-clm

**Comment Trigger** run-clm

##### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

##### Optional parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-goals** The maven goals to perform for the build. (default: clean install)

**mvn-opts** Sets MAVEN\_OPTS. (default: '')

**mvn-params** Additional mvn parameters to pass to the cli. (default: '')

**mvn-version** Version of maven to use. (default: mvn35)

**nexus-iq-namespace** Insert a namespace to project AppID for projects that share a Nexus IQ system to avoid project name collision. We recommend inserting a trailing - dash if using this parameter. For example 'odl-'. (default: '')

**nexus-iq-stage** Stage the policy evaluation will be run against on the Nexus IQ Server. (default: 'build')

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

## Maven JavaDoc Publish

Produces and publishes javadocs for a Maven project.

Expects javadocs to be available in \$WORKSPACE/target/site/apidocs

### Template Names

- {project-name}-maven-javadoc-publish-{stream}-{java-version}
- gerrit-maven-javadoc-publish
- github-maven-javadoc-publish

**Comment Trigger** remerge

### Required parameters

**build-node** The node to run build on.

**javadoc-path** The path in Nexus to deploy javadoc to.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

**mvn-site-id** Maven Server ID from settings.xml to pull credentials from. (Note: This setting should be configured in defaults.yaml.)

### Optional parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: “)

**mvn-params** Additional mvn parameters to pass to the cli. (default: “)

**mvn-version** Version of maven to use. (default: mvn35)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

## Maven JavaDoc Verify

Produces javadocs for a Maven project.

Expects javadocs to be available in \$WORKSPACE/target/site/apidocs

**Template Names**

- {project-name}-maven-javadoc-verify-{stream}-{java-version}
- gerrit-maven-javadoc-verify
- github-maven-javadoc-verify

**Comment Trigger** rechecklreverify

**Required parameters**

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

**Optional parameters**

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**deploy-path** The path in Nexus to deploy javadoc to. (default: \$PROJECT/\$STREAM)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: “)

**mvn-params** Additional mvn parameters to pass to the cli. (default: “)

**mvn-version** Version of maven to use. (default: mvn35)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**Maven Merge**

Merge job which runs *mvn clean deploy* to build a project.

This job pushes files to Nexus using cURL instead of allowing the Maven deploy goal to push the upload. This is to get around the issue that Maven deploy does not properly support uploading files at the end of the build and instead pushes as it goes. There exists a *-Ddeploy-at-end* feature however it does not work with extensions.

This job uses the following strategy to deploy jobs to Nexus:

1. *wget -r* to fetch maven-metadata.xml from Nexus
2. *mvn deploy -DaltDeploymentRepository* to prepare files for upload
3. Removes untouched maven-metadata.xml files before upload

#### 4. Use lftools (cURL) upload script to push artifacts to Nexus

##### Template Names

- {project-name}-maven-merge-{stream}
- gerrit-maven-merge
- github-maven-merge

**Comment Trigger** remerge

##### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

**mvn-snapshot-id** Maven Server ID from settings.xml to pull credentials from. (Note: This setting should be configured in defaults.yaml.)

**nexus-snapshot-repo** The repository id of the Nexus snapshot repo to deploy to.

##### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: 'H H \* \* 0' to run weekly)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: '')

**mvn-params** Additional mvn parameters to pass to the cli. (default: '')

**mvn-version** Version of maven to use. (default: mvn35)

**nexus-cut-dirs** Number of directories to cut from file path for *wget -r*.

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build.



## Maven Merge for Docker

Produces a snapshot docker image in a Nexus registry. Appropriate for Java projects that do not need to deploy any POM or JAR files.

Similar to Maven Merge as described above but logs in to Docker registries first and skips the If-maven-deploy builder. The project POM file should invoke a plugin to build and push a Docker image. The base image should be pulled from the registry in the environment variable `CONTAINER_PULL_REGISTRY`. The new image should be pushed to the registry in the environment variable `CONTAINER_PUSH_REGISTRY`.

### Template Names

- {project-name}-maven-docker-merge-{stream}
- gerrit-maven-docker-merge
- github-maven-docker-merge

### Required parameters

**container-public-registry** Docker registry source with base images.

**container-snapshot-registry** Docker registry target for the deploy action.

All other required and optional parameters are identical to the Maven Merge job described above.

## Maven Stage

Produces a release candidate by creating a staging repo in Nexus.

The staging repo name is in the format `PROJECT-NUMBER` for example “aaa-1234”, “autorelease-2000”, “odlparent-1201”, etc. . .

This job runs a Maven build and deploys to `$WORKSPACE/m2repo` directory. This directory is then used later to deploy to Nexus.

### Template Names

- {project-name}-maven-stage-{stream}
- gerrit-maven-stage
- github-maven-stage

**Comment Trigger** “stage-release” or “stage-maven-release”

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in `defaults.yaml`)

**mvn-settings** The name of settings file containing credentials for the project.

**mvn-staging-id** Maven Server ID from settings.xml to pull credentials from. (Note: This setting should be configured in `defaults.yaml`.)

**staging-profile-id** Profile ID of the project’s Nexus staging profile.

### Optional parameters

**archive-artifacts** Artifacts to archive to the logs server (default: “”).

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: ‘’)

**deploy-path** The path in Nexus to deploy javadoc to. (default: \$PROJECT/\$STREAM)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-central** Set to ‘true’ to also stage to OSSRH. This is for projects that want to release to Maven Central. If set the parameter `ossrh-profile-id` also needs to be set. (default: false)

**maven-versions-plugin** Whether to call Maven versions plugin or not. (default: false)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: ‘’)

**mvn-params** Additional mvn parameters to pass to the cli. (default: ‘’)

**mvn-version** Version of maven to use. (default: mvn35)

**ossrh-profile-id** Profile ID for project as provided by OSSRH. (default: ‘’)

**sign-artifacts** Sign artifacts with Sigul. (default: false)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**version-properties-file** Name and path of the version properties file. (default: version.properties)

**gerrit\_release\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build.

## Maven Stage for Docker

Produces a release candidate docker image in a Nexus registry. Appropriate for Java projects that do not need to deploy any POM or JAR files.

Similar to Maven Stage as described above but logs in to Docker registries first and skips the If-maven-deploy builder. The project POM file should invoke a plugin to build and push a Docker image. The base image should be pulled from the registry in the environment variable `CONTAINER_PULL_REGISTRY`. The new image should be pushed to the registry in the environment variable `CONTAINER_PUSH_REGISTRY`.

### Template Names

- {project-name}-maven-docker-stage-{stream}
- gerrit-maven-docker-stage

- github-maven-docker-stage

**Comment Trigger** “stage-release” or “stage-docker-release”

**Required parameters**

**container-public-registry** Docker registry source with base images.

**container-staging-registry** Docker registry target for the deploy action.

**Optional parameters**

**gerrit\_release\_docker\_triggers** Override Gerrit Triggers.

All other required and optional parameters are identical to the Maven Stage job described above.

## Maven Sonar

Sonar job which runs mvn clean install then publishes to Sonar.

This job purposely only runs on the master branch as there are Additional configuration needed to support multiple branches and there’s not much interest in that kind of support.

**Template Names**

- {project-name}-sonar
- gerrit-maven-sonar
- github-maven-sonar

**Comment Trigger** run-sonar

**Required parameters**

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

**Optional parameters**

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: ‘H H \* \* 6’ to run weekly)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-goals** The maven goals to perform for the build. (default: clean install)

**mvn-opts** Sets MAVEN\_OPTS. (default: ‘’)

**mvn-params** Additional mvn parameters to pass to the cli. (default: ‘’)

**mvn-version** Version of maven to use. (default: mvn35)

**sonar-mvn-goals** Maven goals to run for sonar analysis. (default: sonar:sonar)

**sonarcloud** Whether or not to use SonarCloud `true|false`. (default: `false`)

**sonarcloud-project-key** SonarCloud project key. (default: `''`)

**sonarcloud-project-organization** SonarCloud project organization. (default: `''`)

**sonarcloud-api-token** SonarCloud API Token. (default: `''`)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: `master`)

**submodule-recursive** Whether to checkout submodules recursively. (default: `true`)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: `10`)

**submodule-disable** Disable submodule checkout operation. (default: `false`)

**gerrit\_sonar\_triggers** Override Gerrit Triggers.

SonarCloud Example:

```
---
- project:
  name: example-sonarcloud
  jobs:
    - gerrit-maven-sonar

  project: "sonarcloud"
  project-name: "sonarcloud"
  branch: "master"
  mvn-settings: "sonarcloud-settings"
  mvn-opts: "-Xmx1024m"
  sonarcloud: true
  sonarcloud-project-key: KEY
  sonarcloud-project-organization: ORGANIZATION
  sonarcloud-api-token: TOKEN
```

## Maven Verify

Verify job which runs `mvn clean install` to test a project build..

### Template Names

- `{project-name}-maven-verify-{stream}-{mvn-version}-{java-version}`
- `gerrit-maven-verify`
- `github-maven-verify`

**Comment Trigger** `recheck|reverify`

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in `defaults.yaml`)

**mvn-settings** The name of settings file containing credentials for the project.

### Optional parameters

**branch** Git branch to fetch for the build. (default: `master`)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: `7`)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: '')

**mvn-params** Additional mvn parameters to pass to the cli. (default: '')

**mvn-version** Version of maven to use. (default: mvn35)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build.

## Maven Verify for Docker

Similar to Maven Verify as described above but logs in to Docker registries first. The project POM file should invoke a plugin to build a Docker image. The base image should be pulled from the registry in the environment variable CONTAINER\_PULL\_REGISTRY.

### Template Names

- {project-name}-maven-docker-verify-{stream}-{mvn-version}-{java-version}
- gerrit-maven-docker-verify
- github-maven-docker-verify

### Required parameters

**container-public-registry** Docker registry source with base images.

All other required and optional parameters are identical to the Maven Verify job described above.

## Maven Verify w/ Dependencies

Verify job which runs mvn clean install to test a project build /w deps

This job can be used to verify a patch in conjunction to all of the upstream patches it depends on. The user of this job can provide a list via comment trigger.

### Template Names

- {project-name}-maven-verify-deps-{stream}-{mvn-version}-{java-version}
- gerrit-maven-verify-dependencies

**Comment Trigger** recheck: SPACE\_SEPARATED\_LIST\_OF\_PATCHES

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should be configured in defaults.yaml)

**mvn-settings** The name of settings file containing credentials for the project.

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-opts** Sets MAVEN\_OPTS. (default: “)

**mvn-params** Additional mvn parameters to pass to the cli. (default: “)

**mvn-version** Version of maven to use. (default: mvn35)

**stream** Keyword that can be used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths which can be used to filter which file modifications will trigger a build.

## 3.7 NodeJS Jobs

### 3.7.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project’s needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-release
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies:
      build-timeout: 180
```

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```

    mvn-version: mvn35
- project:
    name: aaa
    jobs:
      - odl-maven-jobs

```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes mvn-version to *mvn35* and build-timeout to *180* for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert disable-job: true parameter against the jobs to disable.

Below is a list of Node job groups:

```

---
- job-group:
    name: "{project-name}-github-node-jobs"

    # Job group containing recommended jobs to deploy for a Node Project.

    node-version: 6.11.4

    jobs:
      - github-node-verify
- job-group:
    name: "{project-name}-node-jobs"

    # Job group containing recommended jobs to deploy for a Node Project.

    node-version: 6.11.4

    jobs:
      - gerrit-node-verify

```

## 3.7.2 Job Templates

### Node Verify

Verify job for NodeJS projects

#### Template Names

- {project-name}-node-verify-{stream}
- gerrit-node-verify
- github-node-verify

**Comment Trigger** recheck|reverify

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**node-version** Version of NodeJS to install. Default defined in job-group.

#### Optional parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**node-dir** Path to a NodeJS project to run node test against (default: “)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build.

## 3.8 OpenStack Heat

This section contains a series of macros for projects that need to spin up full test labs using HEAT scripts.

### 3.8.1 Job Setup

The 2 macros *lf-stack-create* & *lf-stack-delete* are companion macros and used together when constructing a job template that needs to spin up a full integration lab using Heat Orchestration Templates (HOT).

Example Usage:

```
- job-template:
  name: csit-test

  #####
  # Default variables #
  #####

  openstack-cloud: vex
  openstack-heat-template: csit-2-instance-type.yaml
  openstack-heat-template-dir: 'openstack-hot'

  odl_system_count: 1
  odl_system_flavor: odl-highcpu-4
  odl_system_image: ZZCI - CentOS 7 - builder - x86_64 - 20181010-215635.956
  tools_system_count: 1
  tools_system_flavor: odl-highcpu-2
  tools_system_image: ZZCI - Ubuntu 16.04 - mininet-ovs-25 - 20181029-223449.514

  #####
  # Job configuration #
```

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```
#####

builders:
- lf-infra-pre-build
- lf-stack-create:
  openstack-cloud: '{openstack-cloud}'
  openstack-heat-template: '{openstack-heat-template}'
  openstack-heat-template-dir: '{openstack-heat-template-dir}'
  openstack-heat-parameters: |
    vm_0_count: '{odl_system_count}'
    vm_0_flavor: '{odl_system_flavor}'
    vm_0_image: '{odl_system_image}'
    vm_1_count: '{tools_system_count}'
    vm_1_flavor: '{tools_system_flavor}'
    vm_1_image: '{tools_system_image}'

publishers:
- lf-stack-delete:
  openstack-cloud: '{openstack-cloud}'
```

## 3.8.2 Macros

### lf-stack-create

Creates an OpenStack stack as configured by the job. Name pattern of stack is \$SILO-\$JOB\_NAME-\$BUILD\_NUMBER.

Requires lf-infra-pre-build macro to run first to install the openstack and lftools packages.

Requires a Config File Provider configuration for clouds.yaml named clouds-yaml.

#### Required Parameters

**openstack-cloud** The OS\_CLOUD variable to pass to OpenStack client. (Docs: <https://docs.openstack.org/python-openstackclient>)

**openstack-heat-template** Name of template file to use when running stack create.

**openstack-heat-template-dir** Directory in the ci-management repo containing the OpenStack heat templates.

Example:

```
---
- job-template:
  name: stack-create-test

  #####
  # Default variables #
  #####

  openstack-cloud: lf-cloud
  openstack-heat-template: csit-2-instance-type.yaml
  openstack-heat-template-dir: "openstack-hot"

  odl_system_count: 1
  odl_system_flavor: odl-highcpu-4
```

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```

odl_system_image: ZZCI - CentOS 7 - builder - x86_64 - 20181010-215635.956
tools_system_count: 2
tools_system_flavor: odl-highcpu-2
tools_system_image: ZZCI - Ubuntu 16.04 - mininet-ovs-25 - 20181029-223449.514

#####
# Job configuration #
#####

builders:
- lf-infra-pre-build
- lf-stack-create:
    openstack-cloud: "{openstack-cloud}"
    openstack-heat-template: "{openstack-heat-template}"
    openstack-heat-template-dir: "{openstack-heat-template-dir}"
    openstack-heat-parameters: |
        vm_0_count: '{odl_system_count}'
        vm_0_flavor: '{odl_system_flavor}'
        vm_0_image: '{odl_system_image}'
        vm_1_count: '{tools_system_count}'
        vm_1_flavor: '{tools_system_flavor}'
        vm_1_image: '{tools_system_image}'

```

## lf-stack-delete

Deletes the stack associated with this job. Name pattern of stack is \$SILO-\$JOB\_NAME-\$BUILD\_NUMBER.

Requires lf-infra-pre-build macro to run first to install the openstack and lftools packages.

Requires a Config File Provider configuration for clouds.yaml named clouds.yaml.

### Required Parameters

**openstack-cloud** The OS\_CLOUD variable to pass to OpenStack client. (Docs: <https://docs.openstack.org/python-openstackclient>)

Example:

```

---
- job-template:
    name: stack-delete-test

    #####
    # Default variables #
    #####

    openstack-cloud: lf-cloud

    #####
    # Job configuration #
    #####

    publishers:
    - lf-stack-delete:
        openstack-cloud: "{openstack-cloud}"

```

## 3.9 Python Jobs

### 3.9.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project's needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-release
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies:
      build-timeout: 180

  mvn-version: mvn35

- project:
  name: aaa
  jobs:
    - odl-maven-jobs
```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes mvn-version to *mvn35* and build-timeout to *180* for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert `disable-job: true` parameter against the jobs to disable.

Below is a list of Python job groups:

```
---
- job-group:
  name: "{project-name}-python-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Gerrit-based Python project to verify commits using tox.

  jobs:
    - gerrit-python-xc-clm
    - gerrit-tox-verify
    - gerrit-tox-merge

- job-group:
  name: "{project-name}-github-python-jobs"

  # This job group contains all the recommended jobs that should be deployed
  # for a Github-based Python project to verify commits using tox.

  jobs:
    - github-python-xc-clm
    - github-tox-verify
```

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```
- github-tox-merge

- job-group:
  name: "{project-name}-gerrit-pypi-jobs"

  # This job group contains the recommended jobs that should be deployed for
  # a Gerrit-based Python project to test, build and deploy a package.

  jobs:
    - gerrit-pypi-merge
    - gerrit-pypi-verify

- job-group:
  name: "{project-name}-github-pypi-jobs"

  # This job group contains the recommended jobs that should be deployed for
  # a Github-based Python project to test, build and deploy a package.

  jobs:
    - github-pypi-merge
    - github-pypi-verify

- job-group:
  name: "{project-name}-gerrit-pypi-release-jobs"

  # This job group contains the recommended jobs that should be deployed for
  # a Gerrit-based Python project to promote a package from staging to pypi.

  jobs:
    - gerrit-pypi-release-merge
    - gerrit-pypi-release-verify

- job-group:
  name: "{project-name}-github-pypi-release-jobs"

  # This job group contains the recommended jobs that should be deployed for
  # a Github-based Python project to promote a package from staging to pypi.

  jobs:
    - github-pypi-release-merge
    - github-pypi-release-verify
```

## 3.9.2 Macros

### If-infra-clm-python

Runs CLM scanning against a Python project.

#### Required Parameters

**clm-project-name** Project name in Nexus IQ to send results to.

### If-infra-tox-install

Installs Tox into a virtualenv.

**Required Parameters**

**python-version** Version of Python to invoke the pip install of the tox-pyenv package that creates a virtual environment, either “python2” or “python3”.

**If-infra-tox-run**

Creates a Tox virtual environment and invokes tox.

**Required Parameters**

**parallel** Boolean. If true use detox (distributed tox); else use regular tox.

**3.9.3 Job Templates****Python XC CLM**

CLM scans for Python based repos. This job will call the Nexus IQ CLI directly to run the scans.

A new credential named “nexus-iq-xc-clm” needs to exist in the Jenkins credentials. The credential should contain the username and password to access Nexus IQ Server.

**Template Names**

- {project-name}-python-clm-{stream}
- gerrit-python-xc-clm
- github-python-xc-clm

**Comment Trigger** **run-clm** post a comment with the trigger to launch this job manually. Do not include any other text or vote in the same comment.

**Required parameters**

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should get configured in defaults.yaml)

**Optional parameters**

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**nexus-iq-cli-version** Nexus IQ CLI package version to download and use. (default: 1.44.0-01)

**nexus-iq-namespace** Insert a namespace to project AppID for projects that share a Nexus IQ system to avoid project name collision. We recommend inserting a trailing - dash if using this parameter. For example ‘odl-’. (default: ‘’)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-version** Version of Java to use for the build. (default: openjdk8)

**pre-build-script** Shell script to execute before the CLM builder. For example, install prerequisites or move files to the repo root. (default: a string with a shell comment)

**stream** Keyword used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_clm\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for “file-path” details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

## Python Sonar with Tox

Sonar scans for Python based repos. This job invokes tox to run tests and gather coverage statistics from the test results, then invokes Maven to publish the results to either a Sonar server or SonarCloud.

To get the Sonar coverage results, file tox.ini must exist and contain coverage commands to run.

The coverage commands define the code that gets executed by the test suites. Checking coverage does not guarantee that the tests execute properly, but it identifies code that is not executed by any test.

This job reuses the Sonar builders used for Java/Maven projects which run maven twice. The first invocation does nothing for Python projects, so the job uses the goal ‘validate’ by default. The second invocation publishes results using the goal ‘sonar:sonar’ by default.

For example:

```
[testenv:py27]
commands =
    coverage run --module pytest --junitxml xunit-results.xml
    coverage xml --omit=".tox/py27/*","tests/*"
    coverage report --omit=".tox/py27/*","tests/*"
```

For more details refer to coverage and sonar documentation:

<https://coverage.readthedocs.io/>

<https://docs.sonarqube.org/display/PLUG/Python+Coverage+Results+Import>

### Template Names

- {project-name}-tox-sonar
- gerrit-tox-sonar
- github-tox-sonar

**Comment Trigger run-sonar** post a comment with the trigger to launch this job manually. Do not include any other text or vote in the same comment.

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally should get configured in defaults.yaml)

**mvn-settings** The name of the settings file with credentials for the project.

### Optional parameters

**branch** Git branch, should be master (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**cron** Cron schedule when to trigger the job. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: H 11 \* \* \* to run once a day)

**disable-job** Whether to disable the job (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**github-url** URL for Github. (default: <https://github.com>)

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-global-settings** The name of the Maven global settings to use

**mvn-goals** The Maven goal to run first. (default: validate)

**mvn-version** Version of maven to use. (default: mvn35)

**parallel** Boolean indicator for tox to run tests in parallel or series. (default: false, in series)

**pre-build-script** Shell script to execute before the Sonar builder. For example, install prerequisites or move files to the repo root. (default: a string with a shell comment)

**python-version** Python version to invoke pip install of tox-pyenv (default: python2)

**sonarcloud** Boolean indicator to use SonarCloud `true|false`. (default: false)

**sonarcloud-project-key** SonarCloud project key. (default: '')

**sonarcloud-project-organization** SonarCloud project organization. (default: '')

**sonarcloud-api-token** SonarCloud API Token. (default: '')

**sonar-mvn-goal** The Maven goal to run the Sonar plugin. (default: sonar:sonar)

**stream** Keyword used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**tox-dir** Directory containing the project's tox.ini relative to the workspace. The default uses tox.ini at the project root. (default: '.')

**tox-envs** Tox environments to run. If blank run everything described in tox.ini. (default: '')

**gerrit\_sonar\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for "file-path" details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

### Tox Verify

Tox runner to verify a project on creation of a patch set. This job is pyenv aware so if the image contains an installation of pyenv at /opt/pyenv it will pick it up and run Python tests with the appropriate Python versions. This job will set the following pyenv variables before running.

```
export PYENV_ROOT="/opt/pyenv"
export PATH="$PYENV_ROOT/bin:$PATH"
```

### Template Names

- {project-name}-tox-verify-{stream}
- gerrit-tox-verify
- github-tox-verify

**Comment Trigger** **recheck|reverify** post a comment with one of the triggers to launch this job manually. Do not include any other text or vote in the same comment.

### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

### Optional Parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pre-build-script** Shell script to execute before the Tox builder. For example, install pre-requisites or move files to the repo root. (default: a string with a shell comment)

**parallel** Boolean indicator for tox to run tests in parallel or series. (default: false, in series)

**python-version** Python version to invoke pip install of tox-pyenv (default: python2)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**tox-dir** Directory containing the project's tox.ini relative to the workspace. The default uses tox.ini at the project root. (default: '.')

**tox-envs** Tox environments to run. If blank run everything described in tox.ini. (default: '')

**gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for "file-path" details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

## Tox Merge

Tox runner to verify a project after merge of a patch set. This job is pyenv aware so if the image contains an installation of pyenv at /opt/pyenv it will pick it up and run Python tests with the appropriate Python versions. This job will set the following pyenv variables before running.

```
export PYENV_ROOT="/opt/pyenv"
export PATH="$PYENV_ROOT/bin:$PATH"
```



### Template Names

- {project-name}-tox-merge-{stream}
- gerrit-tox-merge
- github-tox-merge

**Comment Trigger** **remerge** post a comment with the trigger to launch this job manually. Do not include any other text or vote in the same comment.

### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

### Optional Parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 10)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pre-build-script** Shell script to execute before the CLM builder. For example, install prerequisites or move files to the repo root. (default: a string with a shell comment)

**python-version** Python version to invoke pip install of tox-pyenv (default: python2)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**tox-dir** Directory containing the project's tox.ini relative to the workspace. The default uses tox.ini at the project root. (default: '.')

**tox-envs** Tox environments to run. If blank run everything described in tox.ini. (default: '')

**gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for "file-path" details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

## PyPI Merge

Creates and uploads distribution files on merge of a patch set. Runs tox, builds a source distribution and (optionally) a binary distribution, and uploads the distribution(s) to a PyPI repository. The project git repository must have a setup.py file with configuration for packaging the component.

This job should use a staging repository like testpypi.python.org, which sets up use of release jobs to promote the distributions later. This job can also use a public release area like the global PyPI repository if the release process is not needed. These PyPI repositories allow upload of a package at a specific version once, they do not allow overwrite of a package. This means that a merge job will fail in the upload step if the package version already exists in the target repository.

The tox runner is pyenv aware so if the image contains an installation of pyenv at /opt/pyenv it will pick it up and run Python tests with the appropriate Python versions. The tox runner sets the following pyenv variables before running.

```
export PYENV_ROOT="/opt/pyenv"  
export PATH="$PYENV_ROOT/bin:$PATH"
```

Installable package projects should use the directory layout shown below. All Python files are in a repo subdirectory separate from non-Python files like documentation. This layout allows highly specific build-job triggers in Jenkins using the subdirectory paths. For example, a PyPI merge job should not run on a non-Python file change such as documentation, because the job cannot upload the same package twice.

```
git-repo-name/  
├── docs/  
│   └── index.rst  
├── helloworld-package/  
│   ├── helloworld/  
│   │   ├── __init__.py  
│   │   ├── helloworld.py  
│   │   └── helpers.py  
│   ├── tests/  
│   │   ├── helloworld_tests.py  
│   │   └── helloworld_mocks.py  
│   ├── requirements.txt  
│   ├── setup.py  
│   └── tox.ini  
├── releases/  
│   └── release-helloworld.yaml  
├── .gitignore  
├── LICENSE  
└── README.md
```

Use of these templates requires a `.pypirc` configuration file in the Jenkins builder home directory. An example appears next that uses API tokens. Note that in the `[pypi]` entry the repository key-value pair is optional, it defaults to `pypi.org`.

```
[distutils] # this tells distutils what package indexes you can push to  
index-servers = pypi-test pypi  
  
[pypi-test]  
repository: https://test.pypi.org/legacy/  
username: __token__  
password: pypi-test-api-token-goes-here  
  
[pypi]  
username: __token__  
password: pypi-api-token-goes-here
```

### Template Names

- {project-name}-pypi-merge-{stream}
- gerrit-pypi-merge
- github-pypi-merge

**Comment Trigger remerge** post a comment with the trigger to launch this job manually. Do not include any other text or vote in the same comment.

#### Required Parameters

- build-node** The node to run the build on.
- jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)
- project** Git repository name
- project-name** Jenkins job name prefix

#### Optional Parameters

- branch** The branch to build against. (default: master)
- build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)
- build-timeout** Timeout in minutes before aborting build. (default: 15)
- cron** Cron schedule when to trigger the job. Supports daily builds. This parameter also supports multiline input via YAML pipe | character in cases where one may want to provide more than 1 cron timer. (default: empty)
- disable-job** Whether to disable the job (default: false)
- dist-binary** Whether to build a binary wheel distribution. (default: true)
- git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)
- parallel** Boolean indicator for tox to run tests in parallel or series. (default: false, in series)
- pre-build-script** Shell script to execute before the tox builder. For example, install system prerequisites. (default: a shell comment)
- pypi-repo** Key for the PyPI target repository in the .pypirc file, ideally a server like test.pypy.org. (default: pypi-test)
- python-version** Python version to invoke pip install of tox-pyenv (default: python3)
- stream** Keyword representing a release code-name. Often the same as the branch. (default: master)
- submodule-recursive** Whether to checkout submodules recursively. (default: true)
- submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)
- submodule-disable** Disable submodule checkout operation. (default: false)
- tox-dir** Directory containing the project's tox.ini relative to the workspace. The default uses tox.ini at the project root. (default: '.')
- tox-envs** Tox environments to run. If blank run everything described in tox.ini. (default: '')
- gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for "file-path" details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

### PyPI Verify

Verifies a Python library project on creation of a patch set. Runs tox then builds a source distribution and (optionally) a binary distribution. The project repository must have a setup.py file with configuration for packaging the component.

The tox runner is pyenv aware so if the image contains an installation of pyenv at /opt/pyenv it will pick it up and run Python tests with the appropriate Python versions. The tox runner sets the following pyenv variables before running.

```
export PYENV_ROOT="/opt/pyenv"
export PATH="$PYENV_ROOT/bin:$PATH"
```

### Template Names

- {project-name}-pypi-verify-{stream}
- gerrit-pypi-verify
- github-pypi-verify

**Comment Trigger** **recheck|reverify** post a comment with one of the triggers to launch this job manually.

Do not include any other text or vote in the same comment.

### Required Parameters

**build-node** The node to run the build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**project** Git repository name

**project-name** Jenkins job name prefix

### Optional Parameters

**branch** The branch to build against. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**disable-job** Whether to disable the job (default: false)

**dist-binary** Whether to build a binary wheel distribution. (default: true)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**parallel** Boolean indicator for tox to run tests in parallel or series. (default: false, in series)

**pre-build-script** Shell script to execute before the tox builder. For example, install system prerequisites. (default: a shell comment)

**python-version** Python version to invoke pip install of tox-pyenv (default: python3)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**tox-dir** Directory containing the project's tox.ini relative to the workspace. The default uses tox.ini at the project root. (default: '.')

**tox-envs** Tox environments to run. If blank run everything described in tox.ini. (default: '')

**gerrit\_trigger\_file\_paths** Override file paths used to filter which file modifications trigger a build. Refer to JJB documentation for "file-path" details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

## 3.10 Self-Serve Release Jobs

Self-serve release jobs allow project committers to direct Jenkins to promote a jar file, container image or Python package from a staging area to a release area.

To use the self-release process, create a `releases/` or `.releases/` directory at the root of the project repository, add one release yaml file to it, and submit a change set with that release yaml file. The required contents of the release yaml file are different for each type of release, see the schemas and examples shown below. The version in the release yaml file must be a valid Semantic Versioning (SemVer) string, matching either the pattern “`v#.#.#`” or “`#.#.#`” where “`#`” is one or more digits. Upon merge of the change, Jenkins will sign the reference extrapolated by `log_dir` and promote the artifact.

---

**Note:** The release file regex is: `(releases/.*.yaml|.releases/.*.yaml)`. In words, the directory name can be “`.releases`” or “`releases`”; the file name can be anything with suffix “`.yaml`”.

---

The build node for all release jobs must be CentOS, which supports the sigul client for accessing a signing server. The build node for container release jobs must have Docker installed.

A Jenkins admin user can also trigger a release job via the “Build with parameters” action, removing the need to create and merge a release yaml file. The user must enter parameters in the same way as a release yaml file, except for the special `USE_RELEASE_FILE` and `DRY_RUN` check boxes. The user must uncheck the `USE_RELEASE_FILE` check box if the job should run without a release file, instead passing the required information as build parameters. The user can check the `DRY_RUN` check box to test the job while skipping upload of files to the release repository.

For example, the parameters for a Maven release are as follows:

```
GERRIT_BRANCH = master
VERSION = 1.0.0
LOG_DIR = example-project-maven-stage-master/17/
DISTRIBUTION_TYPE = maven
USE_RELEASE_FILE = false
DRY_RUN = false
```

### 3.10.1 Maven Release Files

An example of a maven release file appears below.

```
$ cat releases/maven-release.yaml
---
distribution_type: maven
log_dir: example-project-maven-stage-master/17/
project: example-project
version: 1.0.0
```

The following parameters must appear in a maven release yaml file.

#### Required Parameters

**distribution\_type** Must be “`maven`”.

**log\_dir** The suffix of the logs URL reported on completion by the Jenkins stage job that created and pushed the artifact to the staging repository. For example, use value “`example-project-maven-stage-master/17`” for the logs URL <https://logs.lf-project.org/production/vex-sjc-lfp-jenkins-prod-1/example-project-maven-stage-master/17>

**project** The name of the project.

**version** The semantic version string used for the artifact.

The JSON schema for a maven release file appears below.

```
---
$schema: "http://json-schema.org/schema#"
$id: "https://github.com/lfit/releng-global-jjb/blob/master/release-schema.yaml"

required:
  - "distribution_type"
  - "log_dir"
  - "project"
  - "version"

properties:
  distribution_type:
    type: "string"
  log_dir:
    type: "string"
  project:
    type: "string"
  version:
    type: "string"
```

### 3.10.2 Container Release Files

An example of a container release file appears below.

```
$ cat releases/container-release.yaml
---
distribution_type: container
container_release_tag: 1.0.0
container_pull_registry: nexus.onap.org:10003
container_push_registry: nexus.onap.org:10002
project: test
ref: d1b9cd2dd345fbee0d3e2162e008358b8b663b2
containers:
  - name: test-backend
    version: 1.0.0-20190806T184921Z
  - name: test-frontend
    version: 1.0.0-20190806T184921Z
```

The following parameters must appear in a container release yaml file.

#### Required Parameters

**distribution\_type** Must be “container”.

**container\_release\_tag** The string to use as a Docker tag on all released containers.

**container\_pull\_registry** The Nexus registry that supplies the staged image(s).

**container\_push\_registry** The Nexus registry that receives the released image(s).

**project** The name of the project.

**ref** The git commit reference (SHA-1 code) to tag with the version string.

**containers** A list of name and version (tag) pairs that specify the Docker images in the container-pull registry to promote to the container-push registry.

The JSON schema for a container release file appears below.

```
---
$schema: "http://json-schema.org/schema#"
$id: "https://github.com/lfit/releng-global-jjb/blob/master/release-container-schema.
↪yaml"

required:
  - "containers"
  - "distribution_type"
  - "project"
  - "container_release_tag"
  - "ref"

properties:
  containers:
    type: "array"
    properties:
      name:
        type: "string"
      version:
        type: "string"
    additionalProperties: false
  distribution_type:
    type: "string"
  project:
    type: "string"
  container_release_tag:
    type: "string"
  container_pull_registry:
    type: "string"
  container_push_registry:
    type: "string"
  ref:
    type: "string"
```

### 3.10.3 PyPI Release Files

An example of a PyPI release file appears below.

```
$ cat releases/pypi-release.yaml
---
distribution_type: pypi
pypi_project: mypackage
python_version: '3.4'
version: 1.0.0
```

The following parameters must appear in the PyPI release yaml file. These are not part of the Jenkins job definition to allow independent self-release of a package maintained in a git repository with other packages.

#### Required Parameters

**distribution\_type** Must be “pypi”.

**log\_dir** The suffix of the logs URL reported on completion by the Jenkins merge job that created and pushed the distribution files to the staging repository. For example, use value “example-project-pypi-merge-master/17”

for the logs URL <https://logs.lf-project.org/production/vex-sjc-lfp-jenkins-prod-1/example-project-pypi-merge-master/17>

**pypi\_project** The PyPI project name at the staging and release repositories, for example “mypackage”.

**python\_version** The Python interpreter version to use for pip “Requires-Python” compatibility checks, for example ‘3’, ‘3.7’ or 3.7.4. Put valid decimal values such as 3 or 3.7 in quotes to pass schema validation.

**version** The semantic version string used for the package in the setup.py file.

The JSON schema for a PyPI release file appears below.

```
---
$schema: "http://json-schema.org/schema#"
$id: "https://github.com/lf-project/releng-global-jjb/blob/master/release-pypi-schema.yaml"

required:
  - "distribution_type"
  - "log_dir"
  - "pypi_project"
  - "python_version"
  - "version"

properties:
  distribution_type:
    type: "string"
  log_dir:
    type: "string"
  pypi_project:
    type: "string"
  python_version:
    type: "string"
  version:
    type: "string"
```

### 3.10.4 Jenkins Jobs

An example of a Jenkins job configuration that uses the global-jjb templates for maven and container release jobs appears next.

```
- project:
  name: my-project-release
  project: my-project
  project-name: my-project
  build-node: centos7-docker-4c-4g
  mvn-settings: my-project-settings
  jobs:
    - '{project-name}-gerrit-release-jobs'
```

---

**Note:** Release Engineers: please follow the setup guide below before adding the job definition.

---

### 3.10.5 JJB Macros



## If-release

Release verify and merge jobs are the same except for their scm, trigger, and builders definition. This anchor is the common template.

### 3.10.6 JJB Templates

#### Release Merge

This template supports Maven and Container release jobs.

**Template Name** {project-name}-release-merge

**Comment Trigger** remerge

##### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-release-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**project** Git repository name

**project-name** Jenkins job name prefix

##### Optional parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: REG_EXP
  pattern: '(releases\/.*\.yaml|\.releases\/.*\.yaml)'
```

#### Release Verify

This template supports Maven and Container release jobs.

**Template Name** {project-name}-release-verify

**Comment Trigger** rechecklreverify

##### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**project** Git repository name

**project-name** Jenkins job name prefix

##### Optional Parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-node** The node to run build on.

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**gerrit-skip-vote** Skip voting for this job. (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: REG_EXP
  pattern: '(releases\/.*\.yaml|\.releases\/.*\.yaml)'
```

## PyPI Release Merge

Publishes a Python package on merge of a patch set with a release yaml file. Checks the format of the version string, downloads the package artifacts from the PyPI staging repository, uploads the package artifacts to the PyPI release repository, tags the git repository, signs the tag and pushes the tag to the git server. The release verify template accepts neither a branch nor a stream parameter.

### Template Names

- {project-name}-pypi-release-merge
- gerrit-pypi-release-merge
- github-pypi-release-merge

**Comment Trigger** remerge

### Required Parameters

**build-node** The node to run build on, which must be Centos.

**jenkins-ssh-release-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**project** Git repository name

**project-name** Jenkins job name prefix

### Optional Parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**disable-job** Whether to disable the job (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pypi-stage-index** Base URL of the PyPI staging repository. (default <https://test.pypi.org/simple>)

**pypi-repo** Key for the PyPI release repository in the .pypirc file, should be the repository pypi.org. (default: pypi)

**use-release-file** Whether to use the release file. (default: true)

## PyPI Release Verify

Verifies a Python package project on creation of a patch set with a release yaml file. Checks the contents of the release yaml file, checks the format of the version string, and downloads the release artifacts from the specified PyPI staging repository. The release verify template accepts neither a branch nor a stream parameter.

### Template Names

- {project-name}-pypi-release-verify
- gerrit-pypi-release-verify
- github-pypi-release-verify

**Comment Trigger** recheck

### Required Parameters

**build-node** The node to run build on, which must be Centos.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**project** Git repository name

**project-name** Jenkins job name prefix

### Optional Parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**disable-job** Whether to disable the job (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**pypi-stage-index** Base URL of the PyPI staging repository. (default <https://test.pypi.org/simple>)

**pypi-repo** Key for the PyPI release repository in the .pypirc file, should be the repository pypi.org (default: pypi)

**use-release-file** Whether to use the release file. (default: true)

## 3.10.7 Setup for LFID, Nexus, Jenkins and Gerrit

This section is for the Linux Foundation release engineering team.

### LFID

Create an `lfid` and an `ssh-key`

`YOUR_RELEASE_USERNAME` for example: `onap-release`

`YOUR_RELEASE_EMAIL` for example: `collab-it+onap-release@linuxfoundation.org`

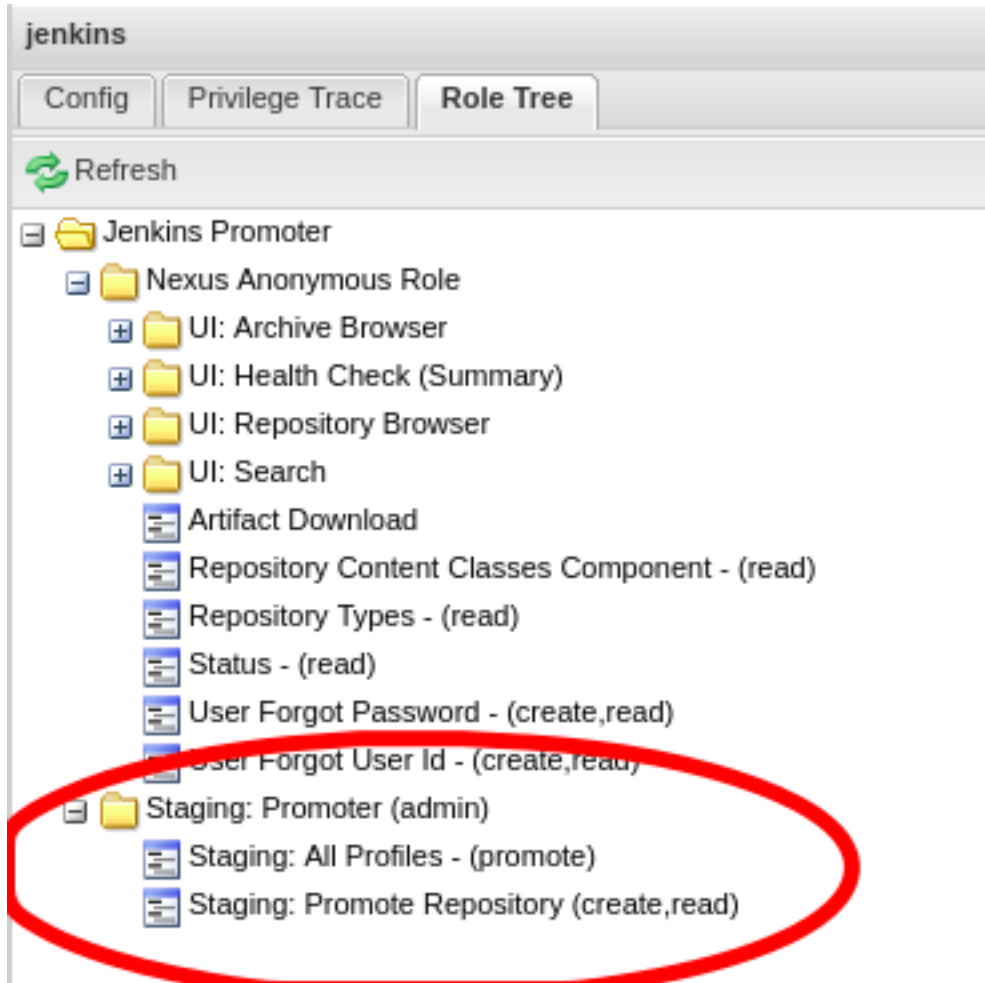
ssh-key example:

```
ssh-keygen -t rsa -C "collab-it+odl-release@linuxfoundation.org" -f /tmp/odl-release
```

Create an LFID with the above values

## Nexus

Create a Nexus account called 'jenkins-release' with promote privileges.



## Gerrit

Log into your Gerrit with YOUR\_RELEASE\_USERNAME, upload the public part of the ssh-key you created earlier. Log out of Gerrit and log in again with your normal account for the next steps.

In Gerrit create a new group called self-serve-release and give it direct push rights via All-Projects Add YOUR\_RELEASE\_USERNAME to group self-serve-release and group Non-Interactive Users

In All project, grant group self-serve-release the following:

```
[access "refs/heads/*"]
  push = group self-serve-release
[access "refs/tags/*"]
  createTag = group self-serve-release
  createSignedTag = group self-serve-release
  forgeCommitter = group self-serve-release
  push = group self-serve-release
```

## Jenkins

Add a global credential to Jenkins called `jenkins-release` and set the ID: `'jenkins-release'` as its value insert the private half of the `ssh-key` that you created for your Gerrit user.

Add Global variables in Jenkins: Jenkins configure -> Global properties -> Environment variables:

```
RELEASE_USERNAME = YOUR_RELEASE_USERNAME
RELEASE_EMAIL = YOUR_RELEASE_EMAIL
```

**Note:** Add these variables to your `global-vars-$SILO.sh` file or they will be overwritten.

Jenkins configure -> Managed Files -> Add a New Config -> Custom File

```
id: signing-pubkey
Name: SIGNING_PUBKEY (optional)
Comment: SIGNING_PUBKEY (optional)

Content: (Ask Andy for the public signing key)
-----BEGIN PGP PUBLIC KEY BLOCK-----
```

Add or edit the managed file in Jenkins called `lftoolsini`, appending a nexus section: Jenkins Settings -> Managed files -> Add (or edit) -> Custom file

```
[nexus.example.com]
username=jenkins-release
password=<plaintext password>
```

## Ci-management

Upgrade your project's `global-jjb` if needed, then add the following to your global defaults file (e.g., `jjb/defaults.yaml`).

```
jenkins-ssh-release-credential: jenkins-release
```

— Job Templates =====

## 3.11 Release Announce

Job for lf-releng projects to automate release announcement emails.

### Template Names

- `{project-name}-release-announce`
- `gerrit-release-announce`

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Configured in `defaults.yaml`)

## 3.12 ReadTheDocs Jobs

### 3.12.1 Job Groups

Job groups are a great tool to configure categories of jobs together at the same time. Below the example are some starting point job-groups but we recommend creating your own to ensure that the jobs configured reflect the project's needs.

An example project:

```
- job-group:
  name: odl-maven-jobs

  jobs:
    - gerrit-maven-clm
    - gerrit-maven-merge
    - gerrit-maven-release
    - gerrit-maven-verify
    - gerrit-maven-verify-dependencies:
      build-timeout: 180

  mvn-version: mvn35

- project:
  name: aaa
  jobs:
    - odl-maven-jobs
```

In this example we are using the job-group to assign a list of common jobs to the aaa project. The job-group also hardcodes mvn-version to *mvn35* and build-timeout to *180* for all projects using this job-group.

A benefit of this method is for example disabling entire category of jobs by modifying the job-group, insert `disable-job: true` parameter against the jobs to disable.

Below is a list of Maven job groups:

```
---
- job-group:
  name: "{project-name}-rtd-jobs"

  jobs:
    - gerrit-rtd-merge
    - gerrit-rtd-verify

- job-group:
  name: "{project-name}-github-rtd-jobs"

  jobs:
    - github-rtd-merge
    - github-rtd-verify
```

### 3.12.2 Macros

## If-rtd-common

RTD verify and merge jobs are the same except for their scm, trigger, and builders definition. This anchor is the common template.

### 3.12.3 Job Templates

#### ReadTheDocs Merge

Merge job which triggers a POST of the docs project to readthedocs.

To use this job first configure the Generic API incoming webhook in ReadTheDocs. To do that follow these steps:

1. Browse to <https://readthedocs.org/dashboard/PROJECT/integrations/>
2. Click on Generic API incoming webhook

---

**Note:** If not available click on Add integration and add the Generic API incoming webhook.

---

3. Copy the custom webhook URL, this is your `rtd-build-url`  
For example: <https://readthedocs.org/api/v2/webhook/opendaylight/32321/>
4. Copy the token, this is your `rtd-token`

#### Template Names

- {project-name}-rtd-merge-{stream}
- gerrit-rtd-merge
- github-rtd-merge

**Comment Trigger** remerge

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

**rtd-build-url** This is the generic webhook url from readthedocs.org. Refer to the above instructions to generate one. (Check Admin > Integrations > Generic API incoming webhook)

**rtd-token** The unique token for the project Generic webhook. Refer to the above instructions to generate one. (Check Admin > Integrations > Generic API incoming webhook)

#### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**git-url** base URL of git project. (default: <https://github.com>)

**project-pattern** Project to trigger build against. (default: \*\*)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: ANT
  pattern: '**/*.rst'
- compare-type: ANT
  pattern: '**/conf.py'
```

## ReadTheDocs Verify

Verify job which runs tox to test the docs project

### Template Names

- {project-name}-rtd-verify-{stream}
- gerrit-rtd-verify
- github-rtd-verify

**Comment Trigger** recheck|reverify

### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

### Optional Parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-node** The node to run build on.

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**doc-dir** Directory where tox will place built docs. as defined in the tox.ini (default: docs/\_build/html)

**gerrit-skip-vote** Skip voting for this job. (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**project-pattern** Project to trigger build against. (default: \*\*)

**python-version** Python version (default: python2)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.



**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: ANT
  pattern: '**/*.rst'
- compare-type: ANT
  pattern: '**/conf.py'
```

### 3.13 ReadTheDocs Version:3 Jobs

User setup:

To transform your rst documentation into a read the docs page, this job must be configured and created as described in Admin setup below. Once this is complete the following files must be added to your repository:

```
.readthedocs.yaml
tox.ini
docs
docs/_static
docs/_static/logo.png
docs/conf.yaml
docs/favicon.ico
docs/index.rst
docs/requirements-docs.txt
docs/conf.py
```

Rather than have you copy and paste these files from a set of docs here, the following repo contains a script that will do this for you. Please refer to the explanation presented in: <https://github.com/lf-it-sandbox/test> This is all currently a beta feature, so feedback is encouraged. the script *docs\_script.sh* is not needed, you can copy the files by hand if you prefer

Once these files are correctly configured in your repository you can test locally:

```
tox -e docs,docs-linkcheck
```

Admin setup:

This is a global job that only needs to be added once to your project's ci-mangement git repository. It leverages the read the docs v3 api to create projects on the fly, as well as setting up subproject associations with the master doc.

Jobs will run but skip any actual verification until a *.readthedocs.yaml* is placed in the root of the repository

The master doc must be defined in *jenkins-config/global-vars-{production|sandbox}.sh*

Normally this project is called doc or docs or documentation and all other docs build will be set as a subproject of this job.

examples: *global-vars-sandbox.sh*: *MASTER\_RTD\_PROJECT=doc-test* *global-vars-production.sh*: *MAS-TER\_RTD\_PROJECT=doc*

In this way sandbox jobs will create docs with a test suffix and will not stomp on production documentation.

Example job config:

example file: *ci-management/jjb/rtd/rtd.yaml*

```
---
- project:
```

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```
name: rtdv3-global-verify
build-node: centos7-builder-1c-1g
jobs:
  - rtdv3-global-verify
stream:
  - master:
      branch: master
  - foo:
      branch: stable/{stream}

- project:
  name: rtdv3-global-merge
  build-node: centos7-builder-1c-1g
  jobs:
    - rtdv3-global-merge
  stream:
    - master:
        branch: master
    - foo:
        branch: stable/{stream}
```

Or add both jobs via a job group:

```
---
- project:
  name: rtdv3-global
  build-node: centos7-builder-1c-1g
  jobs:
    - rtdv3-global
  stream:
    - master:
        branch: master
```

Github jobs must be per project, and will be covered by a different set of jobs once these are proven.

Job requires an lftools config section, this is to provide api access to read the docs.

```
[rtd]
endpoint = https://readthedocs.org/api/v3/
token = [hidden]
```

Merge Job will create a project on read the docs if none exist. Merge Job will assign a project as a subproject of the master project. Merge job will trigger a build to update docs.

### 3.13.1 Macros

#### If-rtdv3-common

RTD verify and merge jobs are the same except for their scm, trigger, and builders definition. This anchor is the common template.

### 3.13.2 Job Templates

## ReadTheDocs v3 Merge

Merge job which triggers a build of the docs to readthedocs.

### Template Names

- rtdv3-global-merge-{stream}

**Comment Trigger** remerge

### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

### Optional parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**project-pattern** Project to trigger build against. (default: \*\*)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**disable-job** Whether to disable the job (default: false)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_merge\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: REG_EXP
  pattern: '^docs\/.*'
```

## ReadTheDocs v3 Verify

Verify job which runs a tox build of the docs project. Also outputs some info on the build.

### Template Names

- rtdv3-global-verify-{stream}

**Comment Trigger** recheckreverify

### Required Parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Generally set in defaults.yaml)

### Optional Parameters

**branch** Git branch to fetch for the build. (default: master)

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 15)

**gerrit-skip-vote** Skip voting for this job. (default: false)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**disable-job** Whether to disable the job (default: false)

**project-pattern** Project to trigger build against. (default: \*\*)

**stream** Keyword representing a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)

**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**gerrit\_verify\_triggers** Override Gerrit Triggers.

**gerrit\_trigger\_file\_paths** Override file paths filter which checks which file modifications will trigger a build. **default:**

```
- compare-type: REG_EXP
  pattern: '^docs\/.*'
```

## 3.14 Jenkins Views

### 3.14.1 View Templates

JJB view-templates provides a way to manage Jenkins views through code. Using view-templates we can define common views configuration that are interesting to a project.

We recommend creating separate project sections for views apart from job configuration such that job configuration does not overlap with the view configuration.

Example Usage:

```
---
- project:
  name: project-view
  views:
    - common-view

  project-name: project

- project:
  name: project-stream1
  jobs:
    - '{project-name}-{seq}'

  project: project
  project-name: project
  seq:
    - a
    - b
```

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```

- project:
  name: project-stream2
  jobs:
    - '{project-name}-{seq}'

  project: project
  project-name: project
  seq:
    - x
    - y

- job-template:
  name: '{project-name}-{seq}'

```

## Project view

Groups all jobs owned by a project under one view by capturing jobs with the prefix of `project-name`.

This view uses the following columns:

### Columns

- status
- weather
- job
- last-success
- last-failure
- last-duration
- build-button
- jacoco
- find-bugs

### Template Names

- {project-name}
- project-view

### Required parameters

**project-name** The name of the project utilizing the view.

### Optional parameters

**view-filter-executors** View filter executor. (default: false)

**view-filter-queue** View filter queue. (default: false)

**view-recurse** View recurse. (default: false)

Example:

```
---
- project:
  name: project-view-test
  views:
    - project-view

  project-name: project-view-test
```

## Common view

Groups all jobs owned by a project under one view by capturing jobs with the prefix of `project-name`.

This view uses the following columns:

### Columns

- status
- weather
- job
- last-success
- last-failure
- last-duration
- build-button
- jacoco
- find-bugs

### Template Names

- {view-name}
- common-view

### Required parameters

**view-name** The name of the view.

**view-regex** Regex to match the jobs.

### Optional parameters

**view-filter-executors** View filter executor. (default: false)

**view-filter-queue** View filter queue. (default: false)

**view-recurse** View recurse. (default: false)

Example:

```
---
- project:
  name: common-view-test
  views:
    - common-view

  view-name: Daily
  view-regex: ".*-daily-.*"
```

## CSIT view template

View template that loads columns useful for CSIT jobs.

This view uses the following columns:

### Columns

- status
- weather
- job
- last-success
- last-failure
- last-duration
- build-button
- robot-list

### Template Names

- {view-name}
- csit-view

### Required parameters

**view-name** The name of the view.

**view-regex** Regex to match the jobs.

### Optional parameters

**view-description** View description. (default: 'CSIT Jobs.')

**view-filter-executors** View filter executor. (default: false)

**view-filter-queue** View filter queue. (default: false)

**view-recurse** View recurse. (default: false)

Example:

```
---
- project:
  name: csit-view-test
  views:
    - csit-view

  view-name: CSIT-1node
  view-regex: ".*csit-1node.*"
```

## 3.15 WhiteSource Jobs

### 3.15.1 Macros

### lf-infra-wss-mvn-clean-install

Run maven clean install. Applicable to Maven based repos.

### lf-infra-wss-unified-agent-scan

Run WhiteSource Unified Agent for a project.

## 3.15.2 Job Templates

### WhiteSource Unified Agent scan

Trigger WhiteSource code scans using Unified Agent. For more details: <https://whitesource.atlassian.net/wiki/spaces/WD/pages/33718339/Unified+Agent>

The WhiteSource Unified Agent scanner runs using a configuration file: <https://s3.amazonaws.com/unified-agent/wss-unified-agent.config>

#### Template Names

- {project-name}-whitesource-scan-{stream}
- gerrit-whitesource-scan
- github-whitesource-scan

**Comment Trigger** run-whitesource

#### Required parameters

**build-node** The node to run build on.

**jenkins-ssh-credential** Credential to use for SSH. (Set in defaults.yaml)

**wss-product-name** Product to associate the WhiteSource report in the dashboard.

**wss-unified-agent-config** Path to wss-unified-agent.config.

#### Optional parameters

**build-days-to-keep** Days to keep build logs in Jenkins. (default: 7)

**build-timeout** Timeout in minutes before aborting build. (default: 60)

**git-url** URL clone project from. (default: \$GIT\_URL/\$PROJECT)

**java-opts** Java options. Example: -Xmx1024m

**java-version** Version of Java to use for the build. (default: openjdk8)

**mvn-clean-install** Run maven clean install before the code scan. (default: false)

**mvn-global-settings** The name of the Maven global settings to use for Maven configuration. (default: global-settings)

**mvn-version** Version of maven to use. (default: mvn35)

**pom** Path of the pom.xml file.

**stream** Keyword used to represent a release code-name. Often the same as the branch. (default: master)

**submodule-recursive** Whether to checkout submodules recursively. (default: true)



**submodule-timeout** Timeout (in minutes) for checkout operation. (default: 10)

**submodule-disable** Disable submodule checkout operation. (default: false)

**wss-unified-agent-version** WhiteSource Unified Agent version package to download and use.

**gerrit\_trigger\_file\_paths** Override file paths which used to filter which file modifications will trigger a build. Refer to JJB documentation for “file-path” details. <https://docs.openstack.org/infra/jenkins-job-builder/triggers.html#triggers.gerrit>

**gerrit\_wss\_triggers** Override Gerrit Triggers.



## CHAPTER 4

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