

@naPyVo
@brugcz
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Jenkins-Koji integration

Ultimate OSS easy-to-use
clean-room environment

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Why should I care?

- Customer wants fix for a historic release.
- Nobody knows where sources are.
- Language runtime used to build the project no longer available.
- Customer pays a lot of \$\$\$ and your boss wants fix ASAP.



How can Koji help?

- Freezed runtimes & set of dependencies.
- Reproducibility
- Auditability.
- Evidence.
- Security.
- Clean room environment..



Clean room environment

- Machines are provisioned each time.
- Buildroots are isolated.
- Permissions and security are key.
- VMs/images are created in the beginning, destroyed in the end.
- All build dependencies are installed from source.



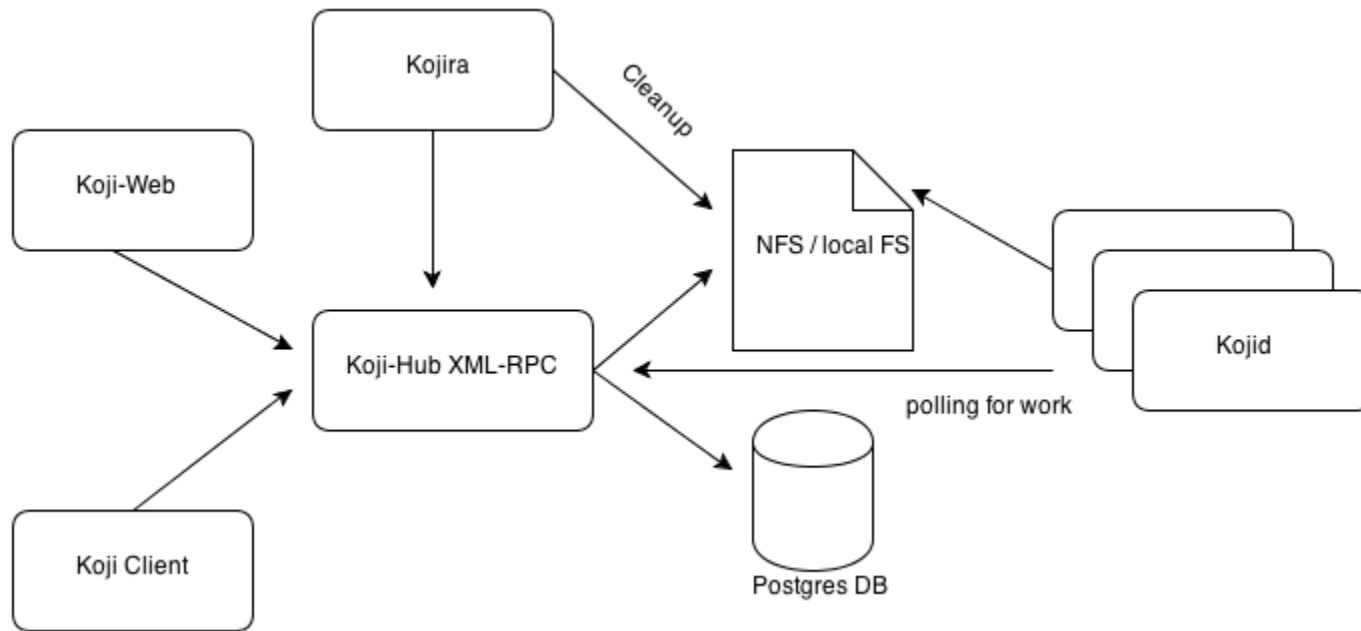
Koji

- In the past: environment to build RPMs in freshly provisioned machines using chroots, mock and yum.
- Now:
 - Environment to build production Docker images.
 - Environment for production releases of Enterprise Apps.




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Koji Architecture



Koji-web

 Brew

jb

vtunka ▾ help ▾ ENGINEERING TOOLS

Summary Packages Builds Tasks **Tags** Build Targets Users Hosts Reports Search

Information for tag [dist-mead-jboss-build](#)

Name	dist-mead-jboss-build
ID	1648
Arches	i386
Locked	no
Permission	admin
Maven Support?	yes
Include All Maven Builds?	no
Inheritance	<div>dist-mead-jboss-build<ul style="list-style-type: none">dist-mead-jbossmead-import-jbossmead-import-mavenmead-import-custom</div>



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Koji

- Developed 8 years ago.
- Written in Python and Bash.
- Has historic XML-RPC API.
- Hard to use: build tags, build targets, hierarchy, white listing, black listing, complex settings -> Jenkins-Koji.
- Hard to install -> Kojak.



Koji problems

- Never designed to be CI or to run tests.
- You need to constantly poll Koji for results:
 - Is it ready?
 - And now?
 - Is it, pretty please?
- Heavy-weight clean room process, never intended for developers.



Kojak

- Set of scripts to automatically install Koji on a VM or on local system [2].
- Creates all the services, creates DB, sets correct permissions, generate OpenSSL keys, etc.
- Koji environment ready to use in minutes.



Jenkins-Koji plugin



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Jenkins-Koji plugin

- Run your builds using Jenkins CI, as you do now.
- Once build & tests are passing and you are ready to produce a production build call Jenkins-Koji build step.



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Jenkins-Koji plugin

- Jenkins-Koji plugin orchestrates the jobs in Koji, you can choose a "scratch build" which is a temporary build which is garbage collected after a time.
- Once Koji is finished, use Jenkins-Koji plugin to automatically fetch the artifacts from Koji and for example run a set of smoke tests.



Jenkins-Koji plugin

- Once these advanced tests pass, you are ready for a full build, once again execute Koji build, this time a regular build, which will be stored permanently in Koji



How to design your API?

Koji API lessons learned..

- Never use XML-RPC, migrate to something usable like REST :)
 - XML-RPC has issues with None/null types.
 - Obey the SPEC!
- Never design your API in Python like this, argument order matters:

```
listTagged(tag, event=None, inherit=False, prefix=None, latest=False,  
package=None, owner=None, type=None)
```



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API lessons learned

- Declare how are types going to get marshalled and de-marshalled.
- Provide API at least with slight type hints.
 - Use `system.methodSignature()` or something similar using reflection.
 - Never return lists / maps, use object describing custom data structures instead.



API lessons learned

- Try to write client for your API before publishing it.
- Never ever write API in non-object manner.
- Limit usage of language sugar in API.
- Document the contract and obey it.



Demo time

☒ Run only if build succeeds ☐ Run only if build succeeds or is unstable ☐ Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Koji integration

Choose task for Koji instance

Koji build

Koji package

Koji target

Koji SCM URL

Other options

Scratch build ☒

Check if you don't want this build to be tagged into Koji database

Add post-build step ▼

- Execute Windows batch command
- Execute shell
- Generate random data
- Invoke Ant
- Invoke top-level Maven targets
- Koji integration



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Questions?



Wabeeja Medawagse Mersi unalchéesh Tingki Komapsumnida Shukuria
 Paldies Tashakkur Maketai hui Sanco bolzín Maake Denkauja gozaimashita Fakaauue Spasibo
 anha atuu Ekhmet Mehrbani Nenachaliya Spassibo Baiika Yuspagaràtam Minmonchar Atto Gaejtho
 Maiteka ekoju Tavtapuch suksama Sikomo Yaqhanyelay Efcharisto Gui
 Merci Shukria lah Merastawhy Dhanyabaad Chaltu
 Thank BiyanGrazie Snachalluaya Juspaxar
 Arigato Dankscheen



References

- [1] Jenkins-Koji plugin
<https://wiki.jenkins-ci.org/display/JENKINS/Koji+Plugin>
- [2] Kojak
<https://github.com/sbadakhc/kojak>
- [3] Koji
<https://fedorahosted.org/koji/>



Image References

- PyVo community logo, courtesy of python.cz
- CC Clean room image
- CC [Thanks image](#) by woodleywonderworks



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