



ExternalProject

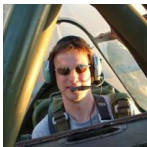
A step towards externalizing Jenkins data

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About us

- Part of Developer Infrastructure
- Work on build/release services for Googlers
- Manage a Jenkins-based build service



JUC 2015 Talk Recap

- <https://www.cloudbees.com/jenkins/juc-2015/abstracts/us-west/02-01-1600>
- Talked about work we did for:
 - Uptime
 - Automated failovers
 - Storing build logs externally
 - Security
 - Adding new node type that uses gRPC
 - Performance fixes
- Also discussed thoughts on making Jenkins a distributed cloud service
 - Multiple active masters for same projects
 - Data not on local disk

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Agenda

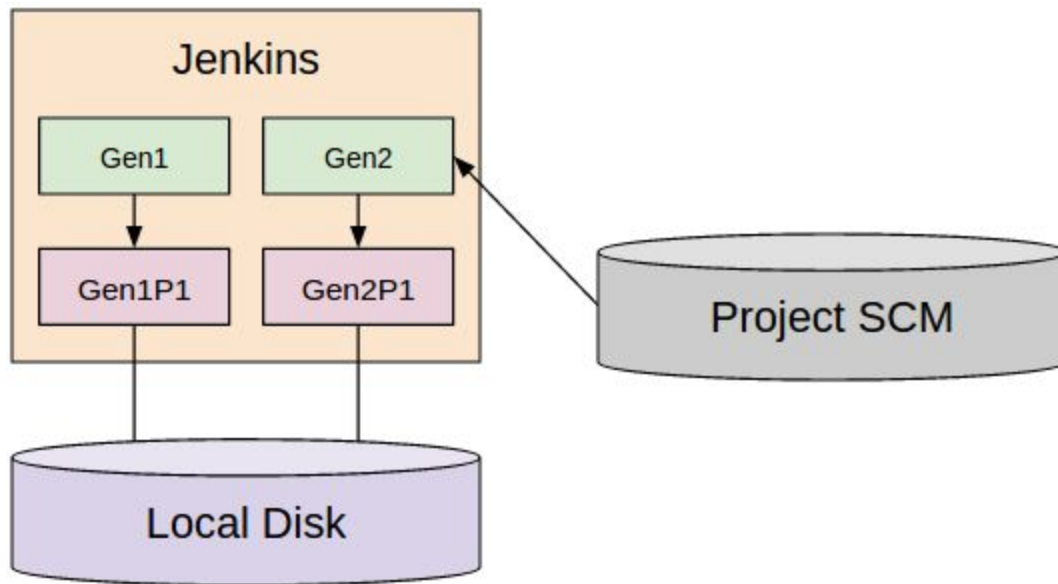
- Discuss follow-up work with Jenkins to read config data externally
 - Talk about existing methods
 - Approaching feature from different angle
- Discuss next steps
- Informative, fun & thought-provoking

Feature: Project configs from external source

- eg. config file in git repo
- At present mainly two different approaches:
 - a. Generate sub-projects for each build
 - Literate, YAML, Workflow
 - b. Re-generate same projects
 - DSL
- Different features/abilities

Generate Sub-Projects for each build

- User creates generator projects
- It creates sub-projects on-the-fly for each build using configs from workspace

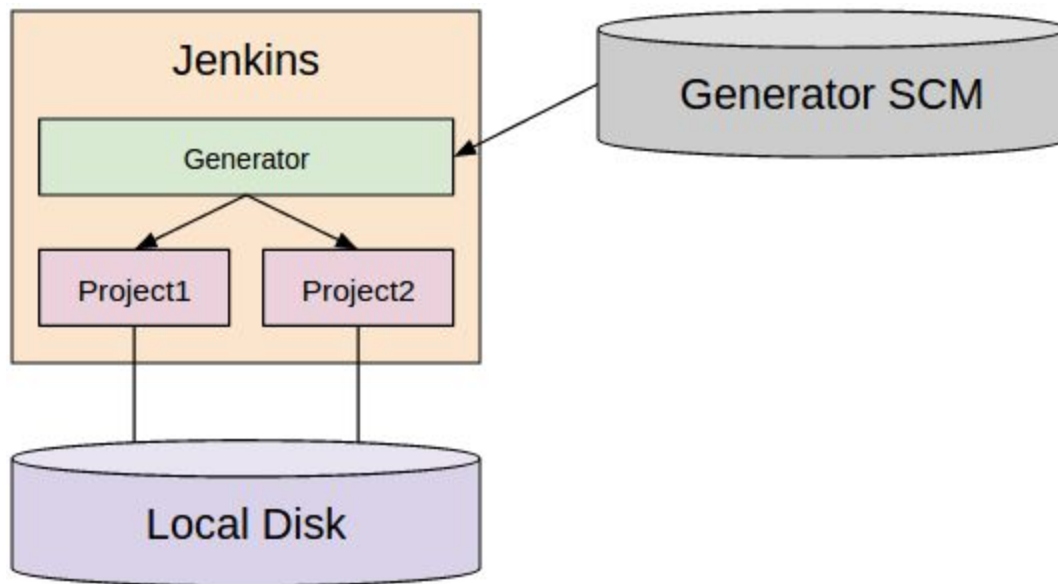


Generate Sub-Projects for each build

- Issues
 - Cannot share common configs
 - Forced to read all configuration from same version
 - eg. Email addresses should not be read from old version
 - Clutter
 - Sub-projects still configurable through UI
 - Cannot guarantee current config is what was used
 - Still have to create parent projects in UI

Re-generate same Projects

- User creates one main Generator Project
- Generator project re-creates same Projects



Re-generate same Projects

- Issues

- Only HEAD version of configuration can be used
- Still have to create parent projects in UI
- Projects still configurable through UI
- Issues when re-generating large number at same time?

Best of both worlds + more

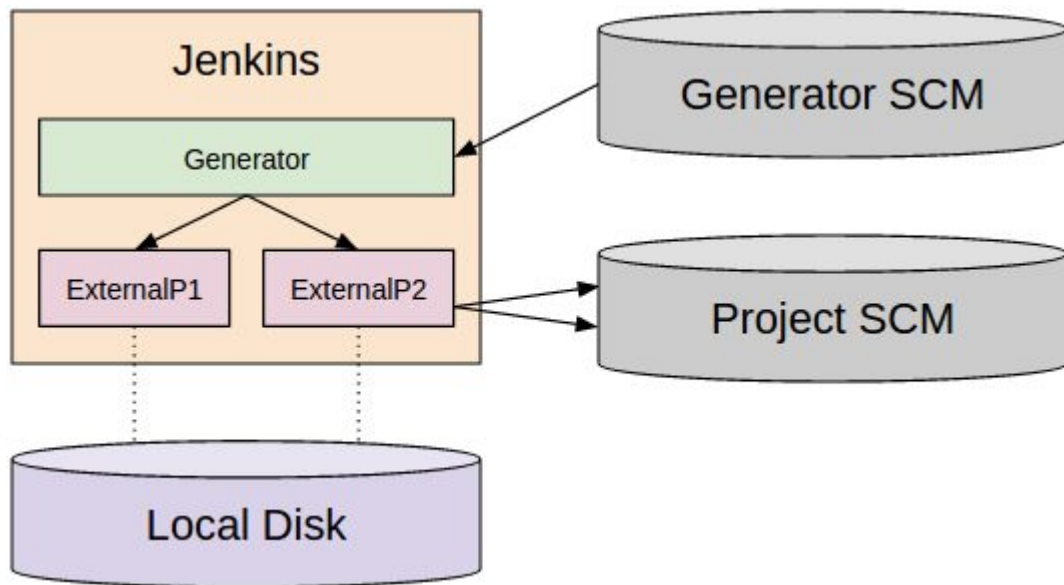
- Share common configuration
- Reading configuration from HEAD/Version correctly
- No clutter
- Projects are immutable in Jenkins

Approached from a Different Angle

- Assumptions current approaches make:
 - Project xml configs on local disk
 - Push/pull configuration into “normal” Jenkins Project
 - One config file contains all information and read at same version
- How about we change how Jenkins reads the configs?

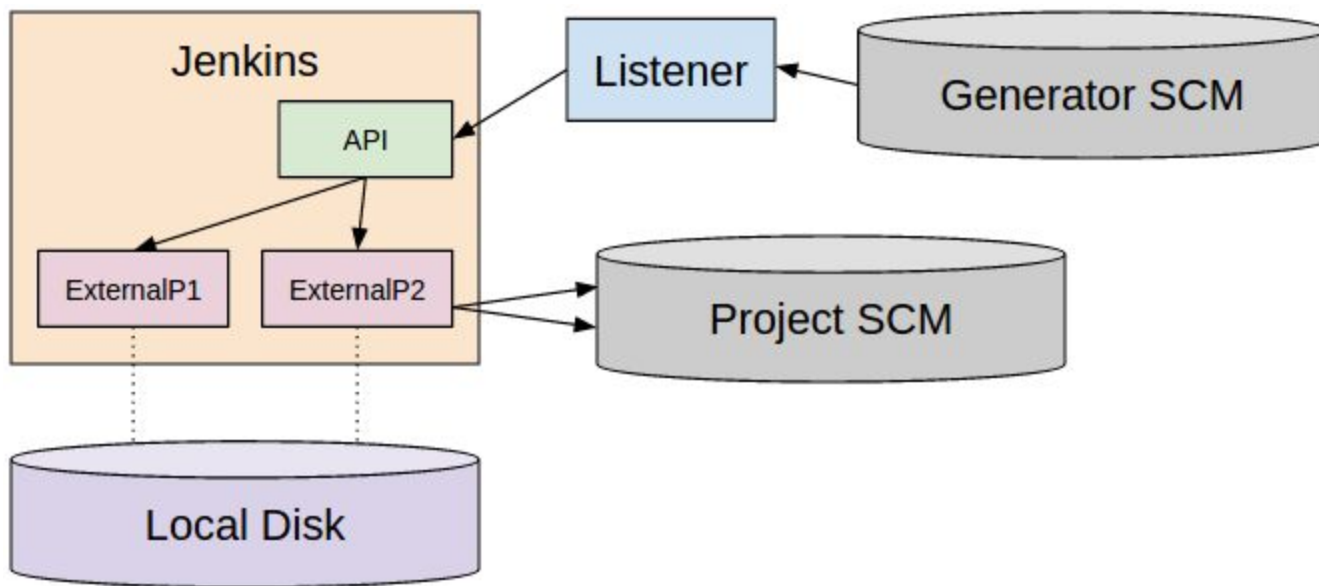
Read Configuration Externally

- Define new Project type that reads configs externally
- Generator job only adds/deletes projects



Read Configuration Externally

- Use SCM listener & API instead of Generator project
- It only adds/deletes projects



Cut-down Configuration on Master

- Configuration is read dynamically from external source
- Avoids problem of having all builds reference same local configuration or the need to create new projects for each version
 - Can control which version of config is read

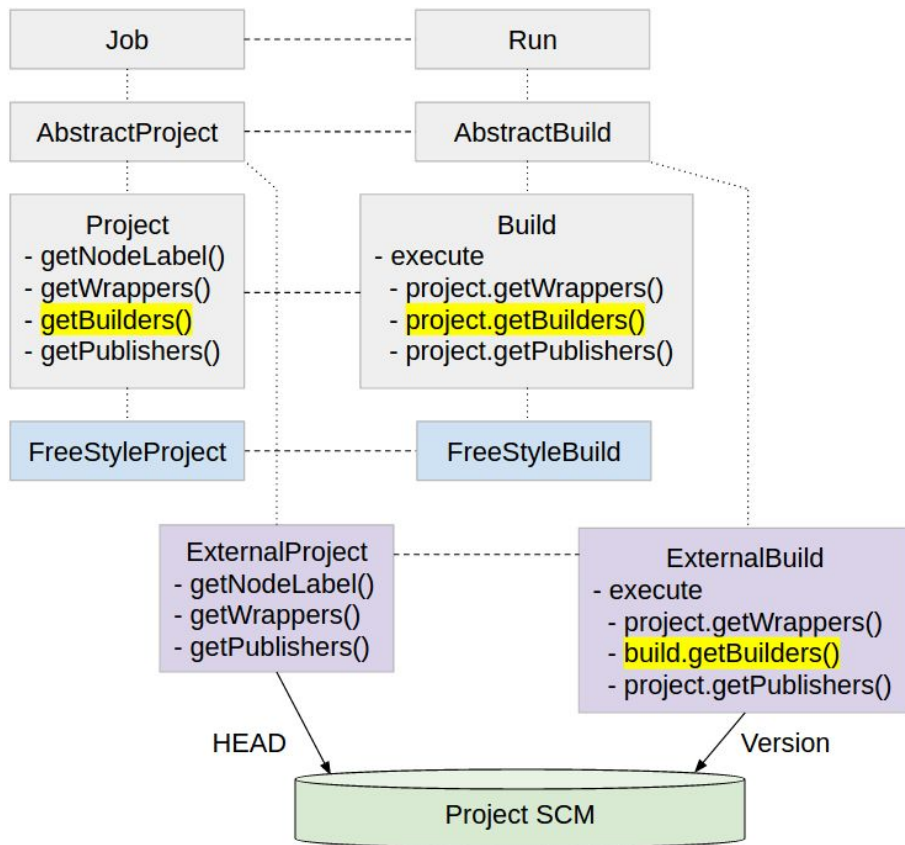
Splitting the Configuration

- Some configuration always read from HEAD, other always read from Version
- Differentiate “project” and “build” configuration
 - How to build vs What to do with artifacts
- Project configs should always be read from HEAD
 - eg: email addresses
- Build configs, ie. how to build a project, should be read from Version

Splitting the Configuration

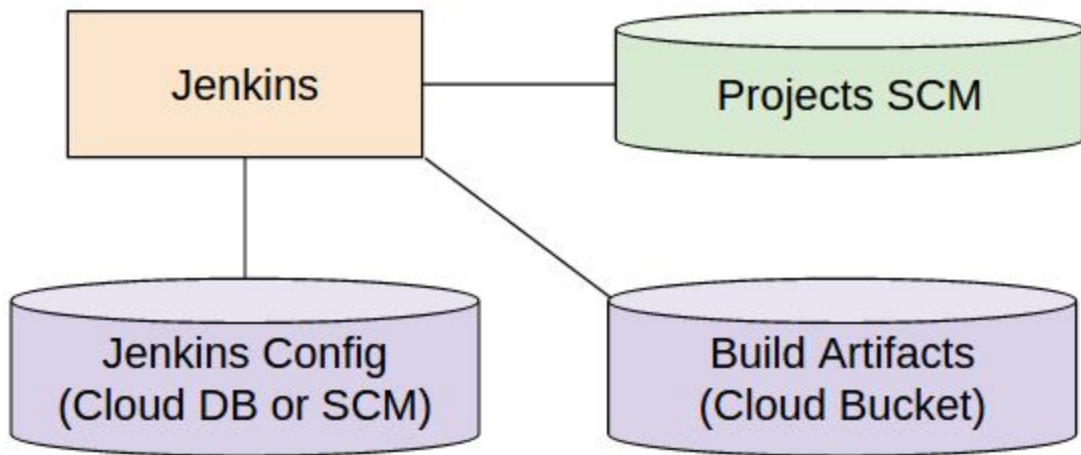
- Can get tricky, eg. Artifacts plugin
- Separate into two:
 - Create artifacts
 - Publish artifacts
- How to create artifacts vs What to do with artifacts

Read Configuration Externally



Next Steps

- Remove need to read from local disk entirely
- ExternalFolder?
 - Better to get Jenkins to natively read externally



Recap

- Discussed existing methods to support external configs
- New Project type that reads data from external source
 - Shift towards model of getting Jenkins to read external data
 - Instead of “pushing” external data into Jenkins
- Next step is to go further, native support in Jenkins for this

Q&A