ApacheCon Europe 2009

G2iX.com

Apache Continuum Build, Test, and Release

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continuum

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continuum

How many...

Continuous Integration

Continuous Integration

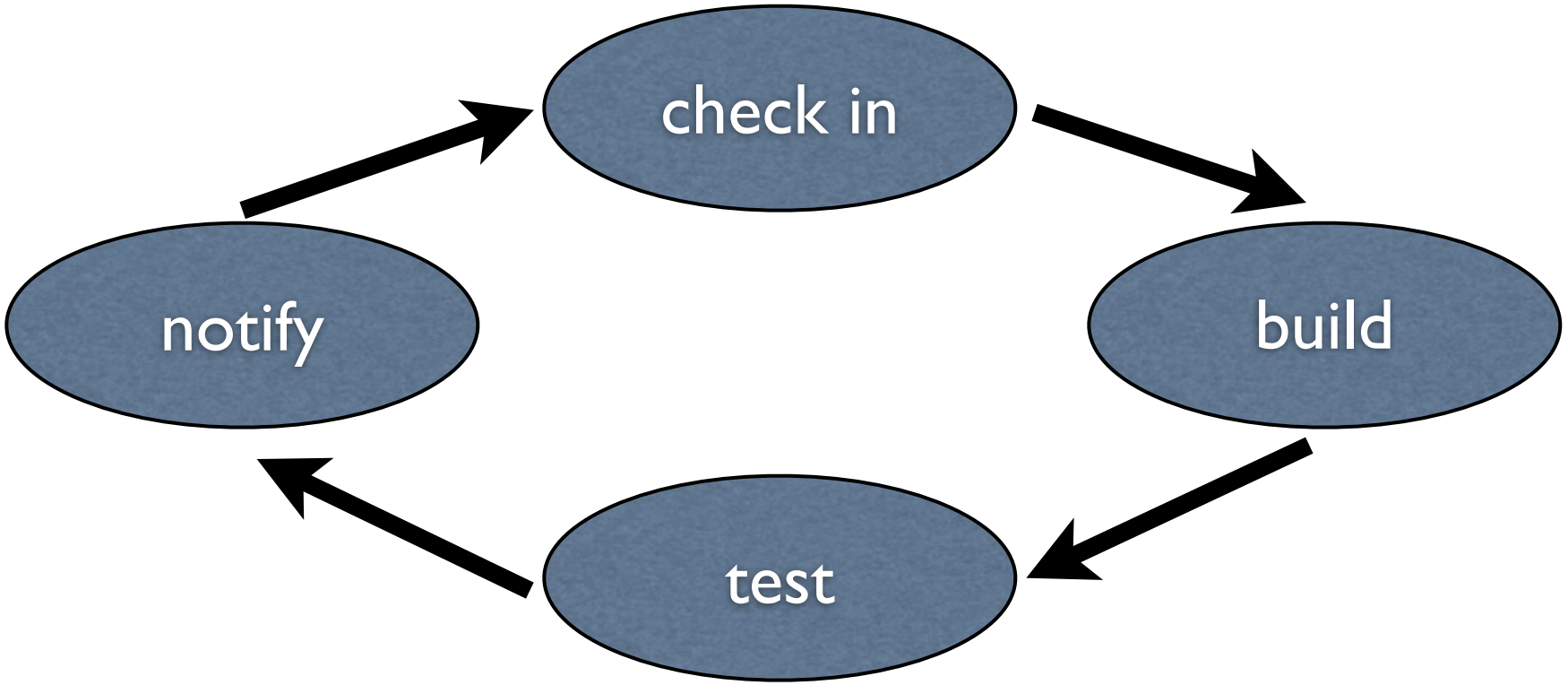
... is a software development practice in which members of a team integrate their work frequently.

Usually each person integrates at least daily - leading to multiple integrations per day.

Each integration is verified by an automated build (including tests).

http://www.martinfowler.com/articles/continuousIntegration.html

Continuous Integration



Why CI?

- Save time
- Increase visibility
- Improve coverage

Apache Continuum

Apache Continuum

- Apache top-level project
- More than CI...
  - Role-based Access Control
  - Release Management
  - Parallel and Distributed Builds
  - Configurable JVM Wrapper

continuum

Prerequisites

- Java SE 5
- Maven, Ant, Script
- Subversion, CVS, Git
- Tests!

Demo

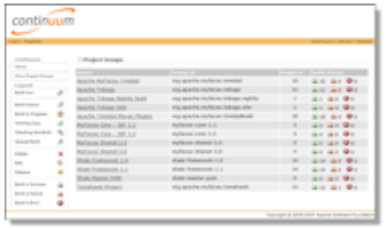
- Download
- Install
- Start and Stop
- Configure
- Build Definitions
- Build Environments
- Build Schedules
- Build Queues
- Release
- Project Groups
- Users and Roles
- Notifiers
- JVM Wrapper
- XML-RPC

Download

Apache Continuum

Continuous Integration and Build Server

Apache Continuum is an enterprise-ready continuous integration server with features such as automated builds, release management, role-based security, and integration with popular build tools and source control management systems. Whether you have a centralized build team or want to put control of releases in the hands of developers, Continuum can help you improve quality and maintain a consistent build environment.

Download	Documentation	Community	Features
Continuum 1.2.3 (GA) January 13, 2009 Release Notes	Quick Start	How to Contribute	
Continuum 1.3.2 (Beta) March 26, 2009 Release Notes	User Guides	Getting Help	Screenshot Tour
Apache License 2.0	Knowledge Base	Issue Tracking	Live Demo
	Installation	Mailing Lists	Articles
	Admin Guides	Source Repository	
	Developer Guides		
	Index (category)		

http://continuum.apache.org

Install

- Unpack the distribution
  - Continuum + Jetty + Derby

```
$ ls
LICENSE apps    conf   derby.log  logs
NOTICE  bin     data   lib        tmp
```

Pre-Configure

- conf/jetty.xml
  - Port number
  - SMTP config
  - Data sources

Start

- bin/continuum start
  - Automatically detects platform
- Windows
  - bin/continuum.bat console --or--
  - bin/continuum.bat install (as a service)

Demo Setup

svn.example.com
httpd + mod_dav_svn
running locally

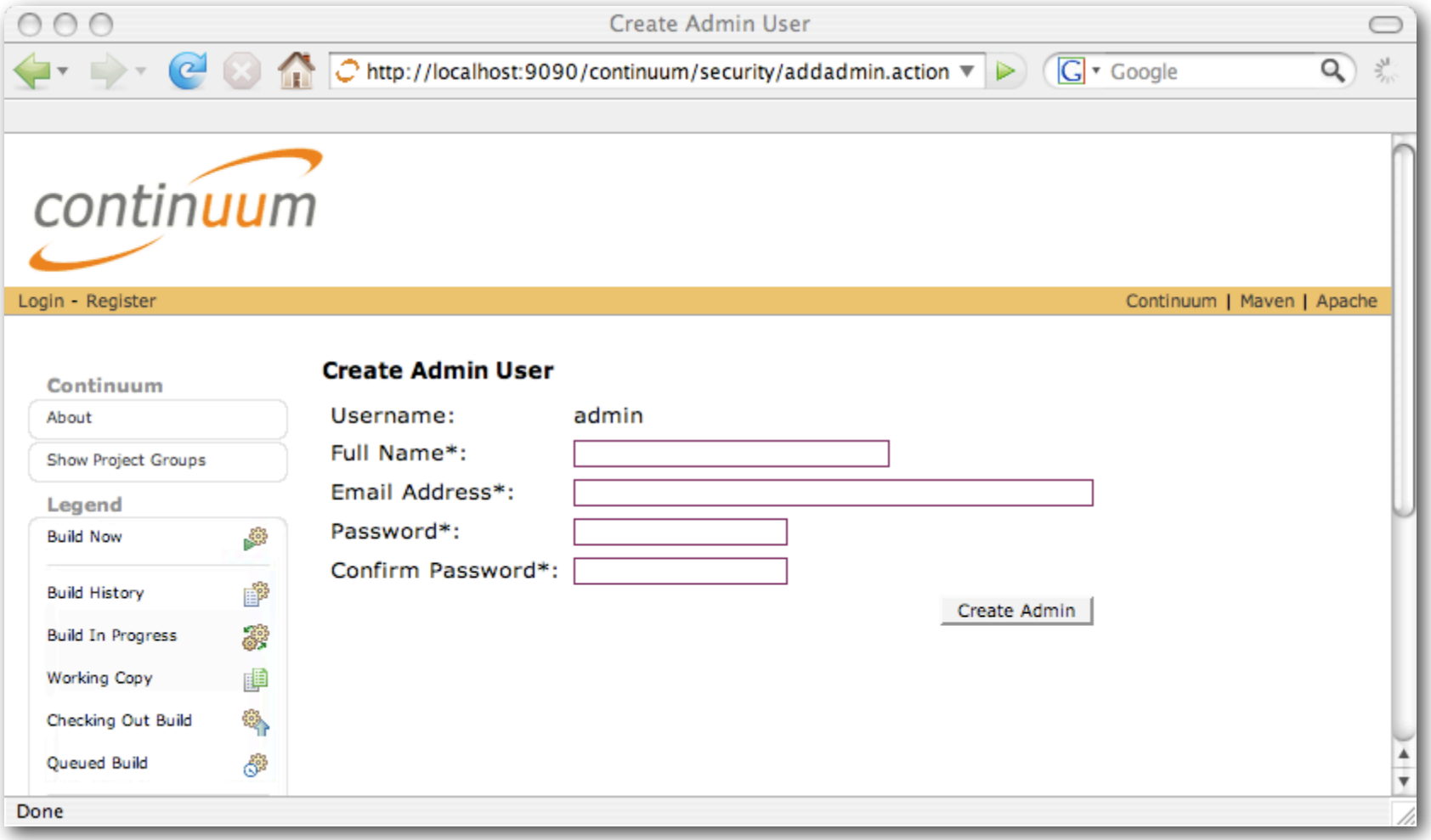
build.example.com
Continuum + Jetty
running locally

command line
developer workstation

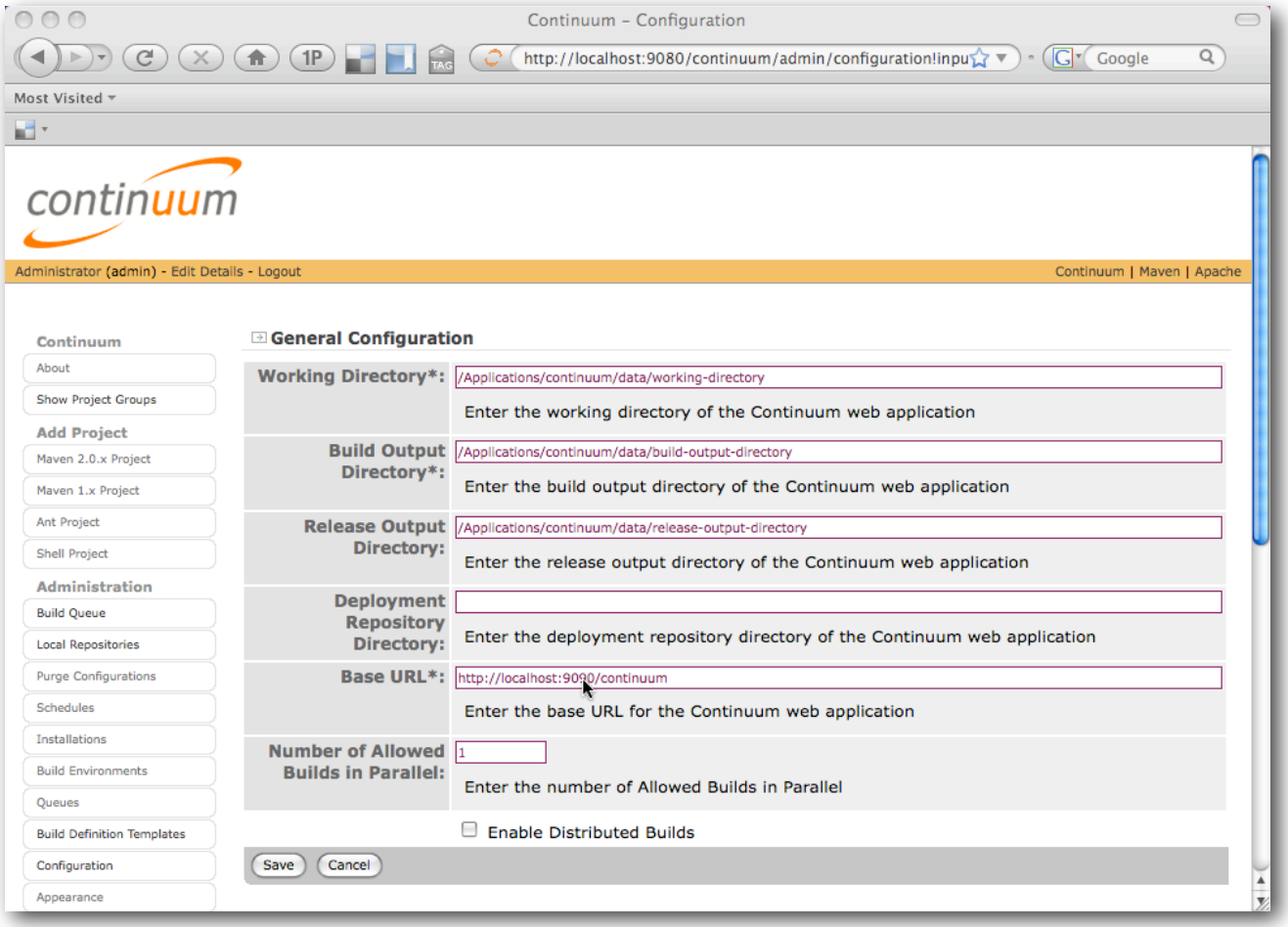
repo.example.com
Archiva + Jetty
running locally

Demo!

Admin User


Create Admin User
http://localhost:9090/continuum/security/addadmin.action
Google
continuum
Login - Register
Continuum | Maven | Apache
Continuum
About
Show Project Groups
Legend
Build Now
Build History
Build In Progress
Working Copy
Checking Out Build
Queued Build
Create Admin User
Username: admin
Full Name*:
Email Address*:
Password*:
Confirm Password*:
Create Admin
Done

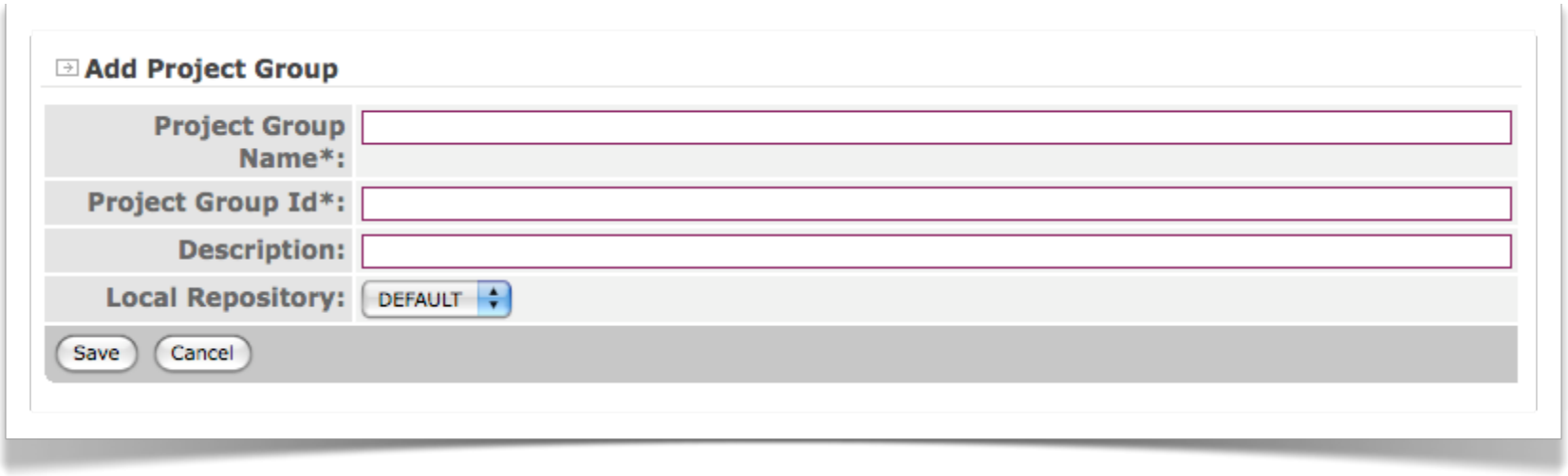
Configure


Continuum – Configuration
http://localhost:9080/continuum/admin/configuration!inpu
Google
Most Visited
continuum
Administrator (admin) - Edit Details - Logout
Continuum | Maven | Apache
Continuum
About
Show Project Groups
Add Project
Maven 2.0.x Project
Maven 1.x Project
Ant Project
Shell Project
Administration
Build Queue
Local Repositories
Purge Configurations
Schedules
Installations
Build Environments
Queues
Build Definition Templates
Configuration
Appearance
General Configuration
Working Directory*:
/Applications/continuum/data/working-directory
Enter the working directory of the Continuum web application
Build Output Directory*:
/Applications/continuum/data/build-output-directory
Enter the build output directory of the Continuum web application
Release Output Directory:
/Applications/continuum/data/release-output-directory
Enter the release output directory of the Continuum web application
Deployment Repository Directory:
Enter the deployment repository directory of the Continuum web application
Base URL*:
http://localhost:9090/continuum
Enter the base URL for the Continuum web application
Number of Allowed Builds in Parallel:
1
Enter the number of Allowed Builds in Parallel
Enable Distributed Builds
Save
Cancel

Add Projects

- Maven 2
- Ant
- Maven 1
- Shell Script

Project Groups



- Logical group of projects
- Multi-module Maven project

Build

- Build all projects
  - Order is determined by dependencies
- Build one or more projects

View Results

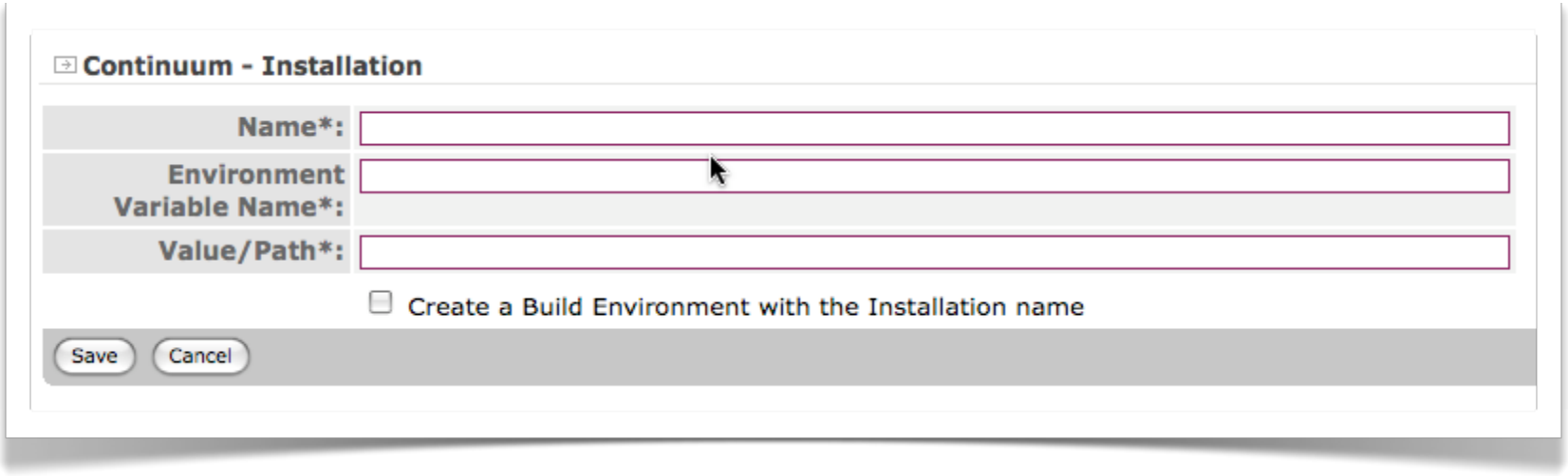
- Build status
- Build output
- Test results
- Working copy

Release

- Web interface
- Prepare, then Perform
- Consistent environment

End Demo

Installations

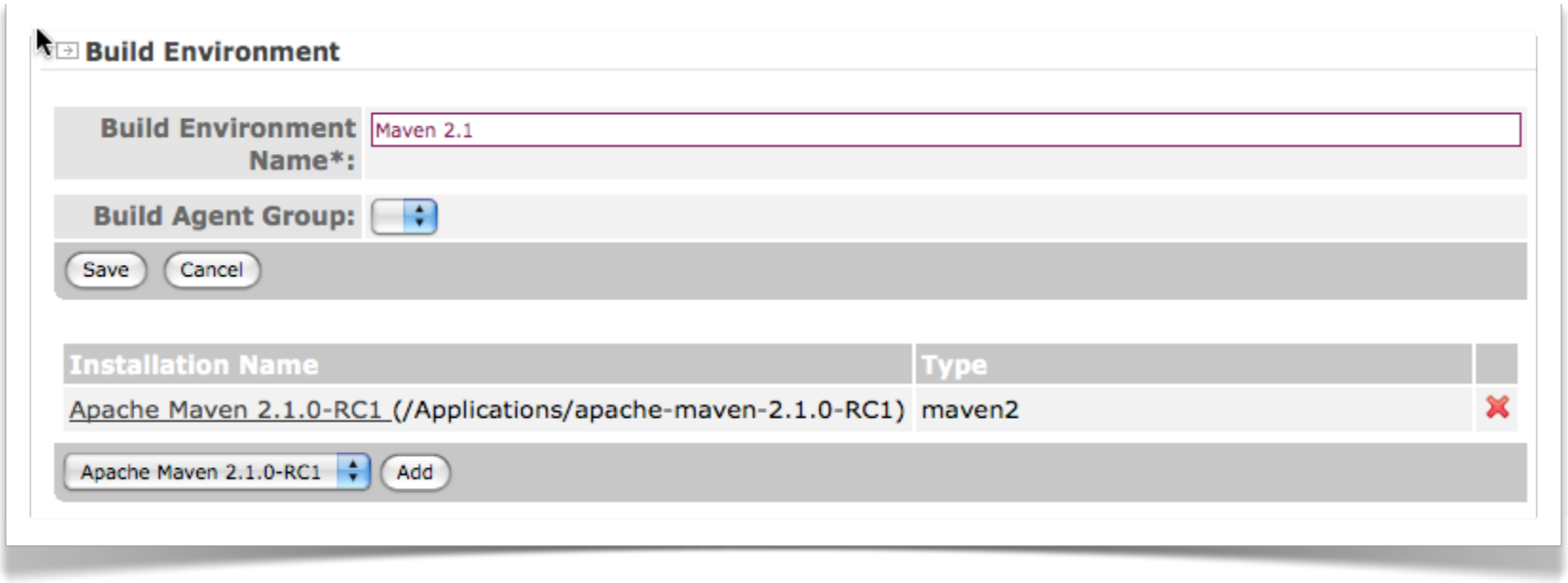


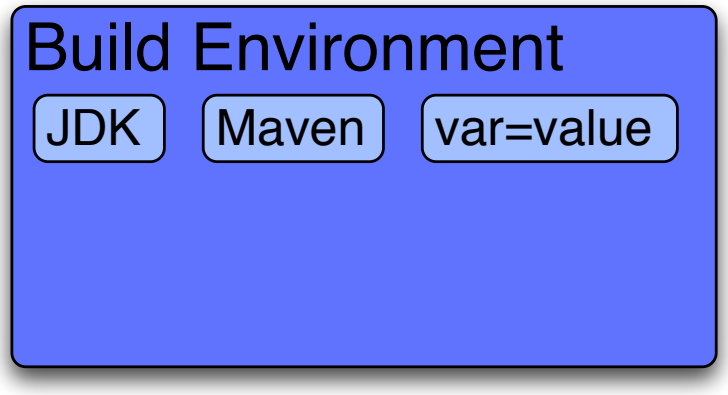
- Environment Variable
- Tool (Ant, Maven, JDK)

var=value

JDK Maven

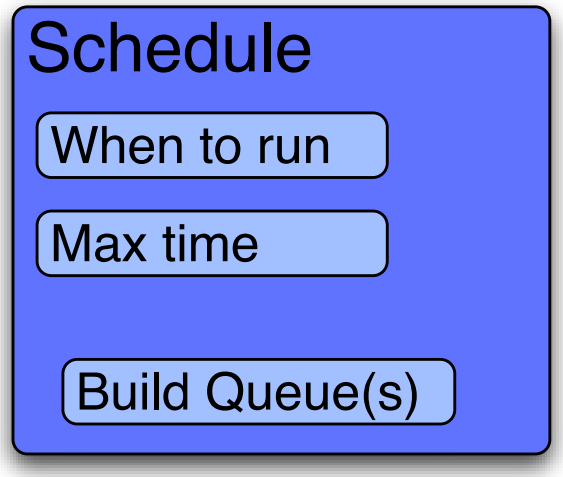
Build Environments





Build Schedules

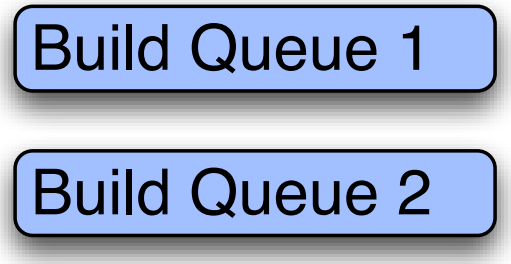
- Hourly by default
- crontab format



Build Definitions

- Build file such as pom.xml
- goals and arguments
- Schedule
- Build Environment

Build Queues

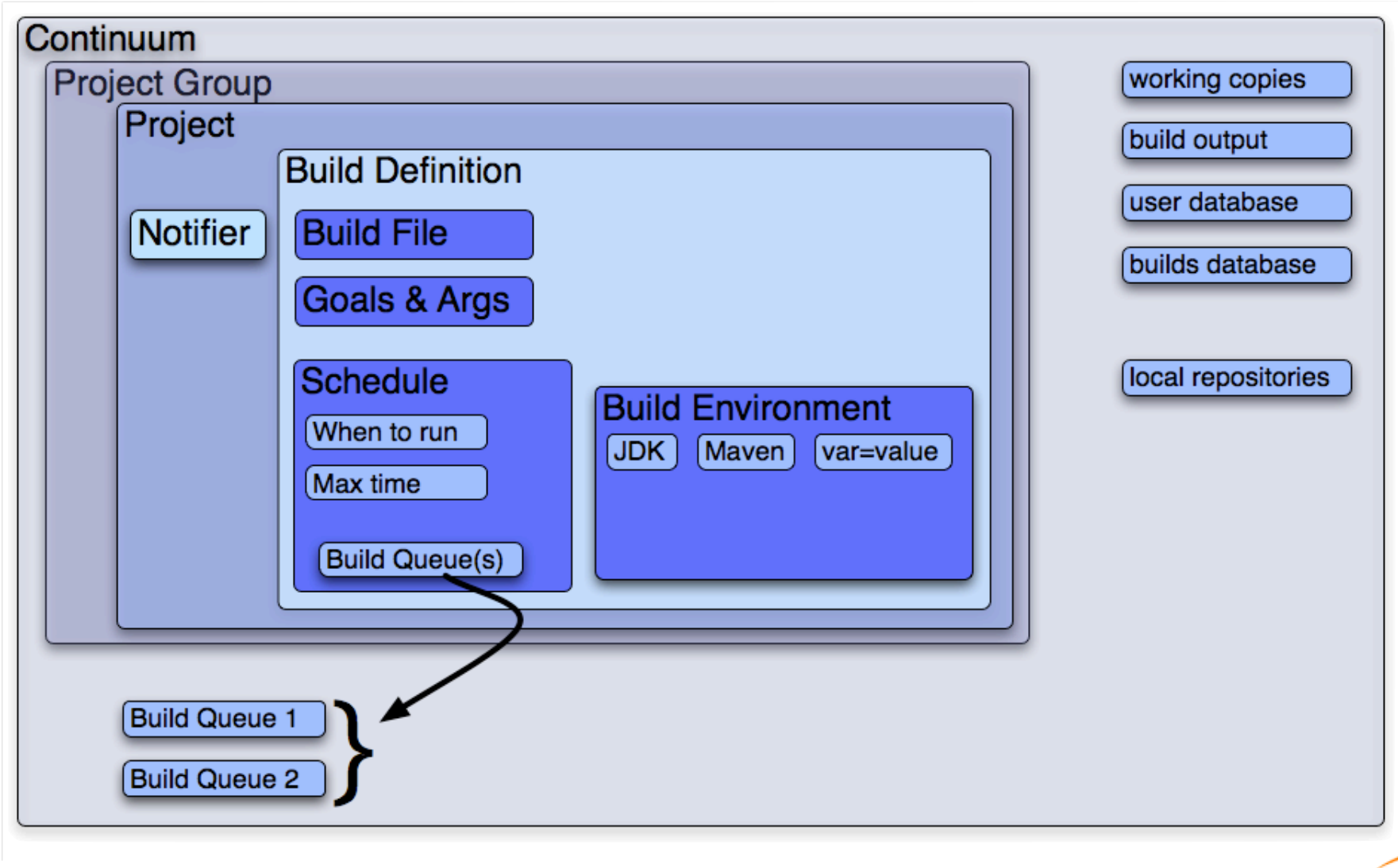


- For parallel builds
- Associated with Schedules

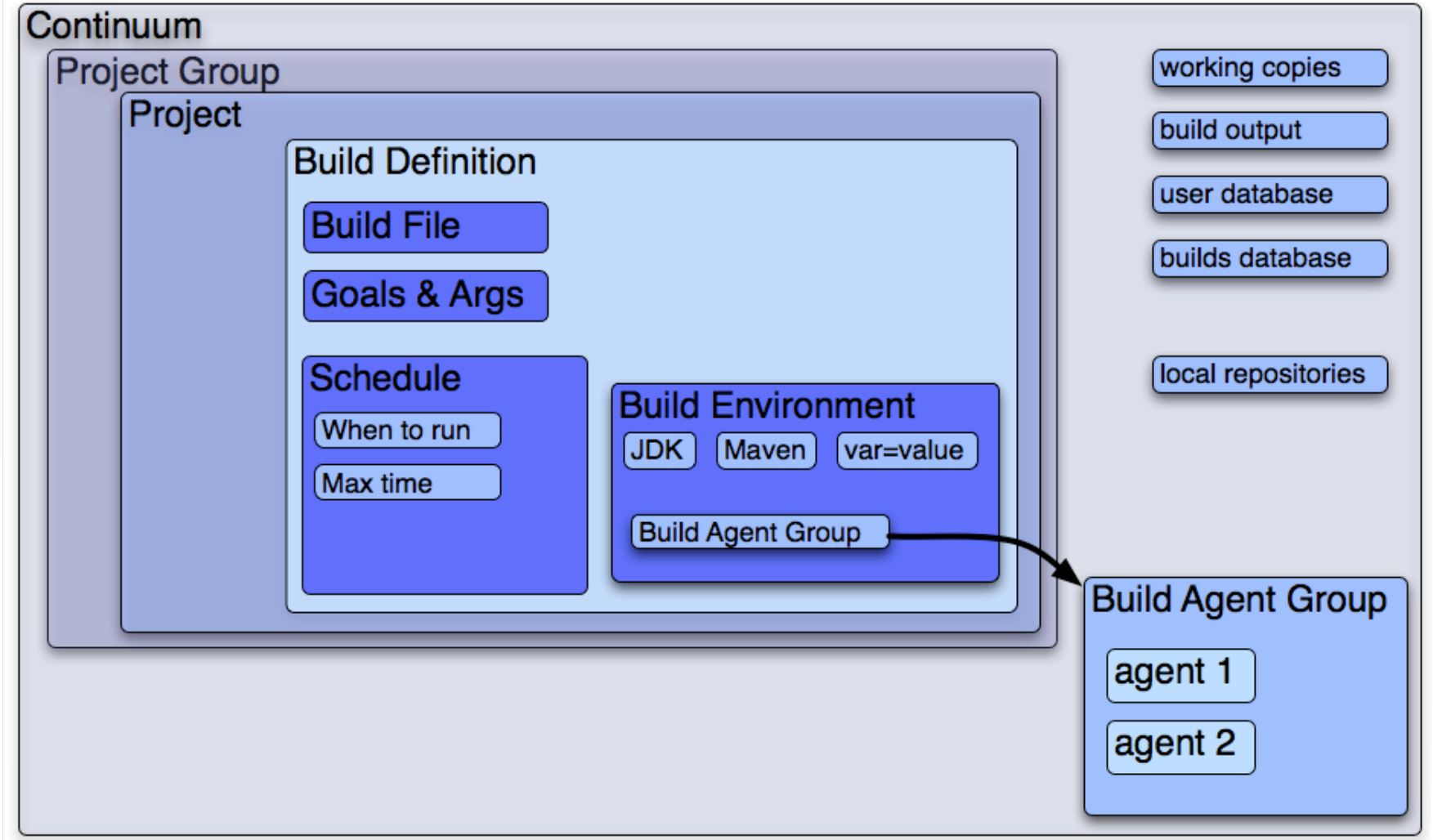
Notifiers

- Email, IRC, MSN, Jabber, Wagon
- Configure in Maven pom.xml
- Add directly to Continuum
  - Can notify the latest committers

Parallel Builds



Distributed Builds



Users

- Self registration
- Per-project roles
- Web based
- Configurable security rules

XML-RPC

- Control Continuum from external scripts or programs
- Java examples available

JVM Wrapper

- conf/wrapper.conf
- http://wrapper.tanukisoftware.org

SCM Support

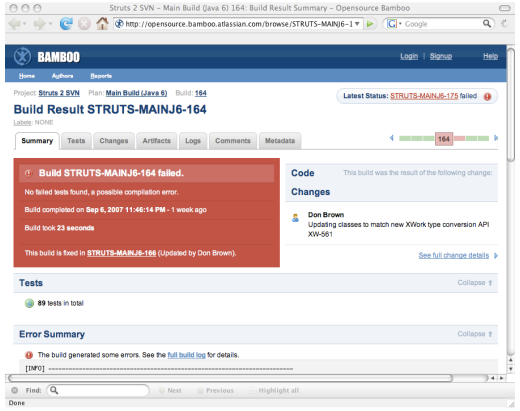
Rating	SCM	add	branch	changelog	checkin	checkout	diff	edit	export	list	login	remove	status	tag	unedit	update
★★★	Bazaar	✓	✗	✓	✓	✓	✓	⊖	✗	✗	⊖	✓	✓	✗	⊖	✓
★★★	Clearcase	✓	✗	✓	✓	✓	✗	✓	✗	✗	⊖	✓	✓	✓	✓	✓
★★★	CVS	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓
★★★	CVS (Pure Java client)	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓
★★★	Local	✓	✗	✓	✓	✓	✗	✗	✗	✗	⊖	✗	✗	✗	✗	✓
★★★	Mercurial (hg)	✓	✗	✓	✓	✓	✓	⊖	✗	✗	⊖	✓	✓	✗	⊖	✓
★★★	Perforce	✓	✗	✓	✓	✓	✓	✓	✗	✗	⊖	✓	✓	✓	✓	✓
★★★	Starteam	✓	✗	✓	✓	✓	✓	✓	✗	✗	⊖	✓	✓	✓	✓	✓
★★★	Subversion	✓	✓	✓	✓	✓	✓	⊖	✓	✓	⊖	✓	✓	✓	⊖	✓

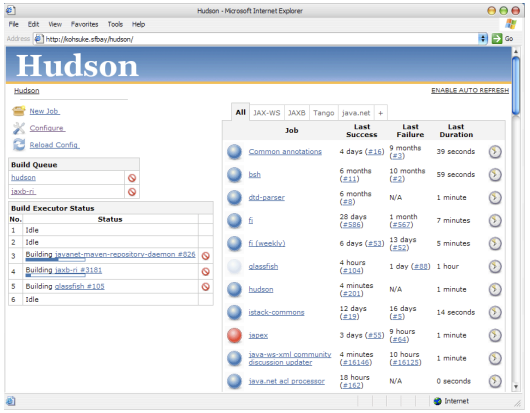
Key:
- ⚠ = Non functional
- ✓ = Functional
- ✗ = Not implemented
- ⊖ = Doesn't exist in SCM tool

http://docs.codehaus.org/display/SCM/SCM+Matrix

Alternatives

- Bamboo (Atlassian)
- Cruise Control (Thoughtworks)
- Hudson
- ... and many others





http://damagecontrol.codehaus.org/Continuous+Integration+Server+Feature+Matrix

What's coming?

- Plugin architecture
- Hosting project websites
- ... what do you need?

Where we need help

- Discussing and coding features and fixes
- UI Design and Usability
- Writing documentation
- Testing - JUnit, TestNG, Selenium

Where you can find us

- http://continuum.apache.org
- users@continuum.apache.org
- #continuum on irc.codehaus.org
- Here at ApacheCon!

Questions?

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