AGL-JTA
CIAT tool for AGL

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Self Introduction

- Kyohei Oki (kyohei.oki@jp.fujitsu.com)
- Fujitsu Ten Software Engineer (2012 ~)

Agenda

- **WHAT** is CIAT
- **WHY** use AGL-JTA
- **HOW** to use AGL-JTA
- **DEMO**
- **Future Work**

WHAT is CIAT

- Continuous Integration and Automated Test
  - https://wiki.automotivelinux.org/eg-ciat#explanation_of_ciat
  - https://lists.linuxfoundation.org/pipermail/automotive-discussions/2015-July/000591.html

- CIAT is supposed to include:
  - CI pipeline which executes tests on user's demand or triggered by upstream changes automatically
  - collection of source code from upstream
  - automated instructions for building/deploying built distro
  - ability to include binary artifacts
  - automated test pipeline which executes sets of tests
  - publishing of built distro/component and test results/logs
  - mechanism for formal code review prior to merging of changes
  - demonstration of license compliance

WHY use AGL-JTA

- based on Fuego
  - formerly called JTA (Jenkins Test Automation)
  - A host/target script engine and a jenkins front-end
  - official automated test framwork for LTSI project

- advantages
  - lots of plugins to extend features
  - highly customizable
  - flexible test configuration
  - running tests in batches
  - not imposing any demands on boards or distributions
  - easy yet flexible board setup

WHY use AGL-JTA

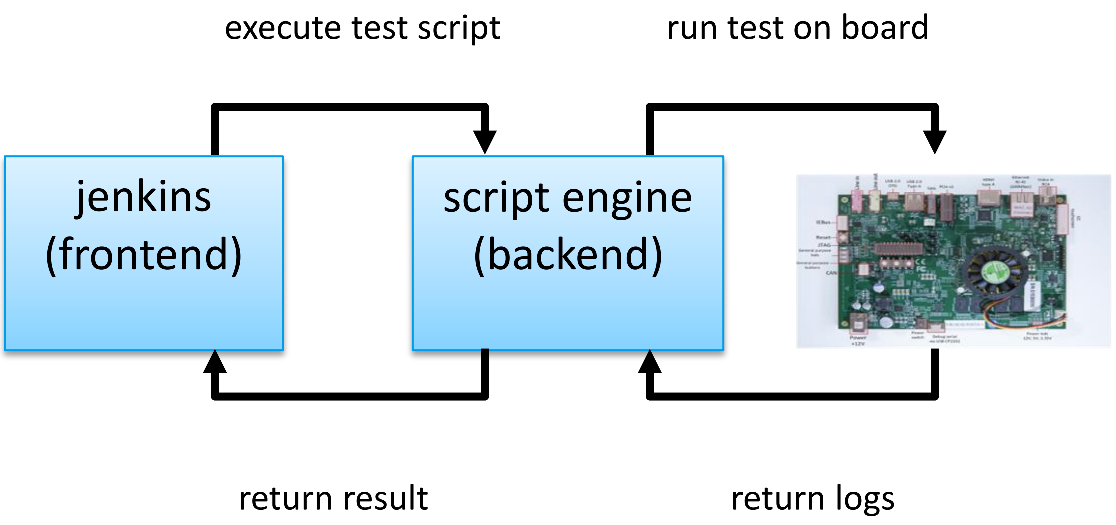
- match AGL CIAT's goals

CIAT's goals	AGL-JTA's feature
flexible trigger	build triggers (like gerrit, cron job)
collection of source code	Source Code Management (SCM, like git)
instructions for building/deploying	host/target script engine
include binary artifacts	host/target script engine
executing sets of tests	job trigger of jenkins
publishing of distro and test results	plugins of jenkins, or use SCM to upload distro/result
code review	(offered by gerrit)
demonstration of license compliance	(offered by gerrit)

HOW to use AGL-JTA

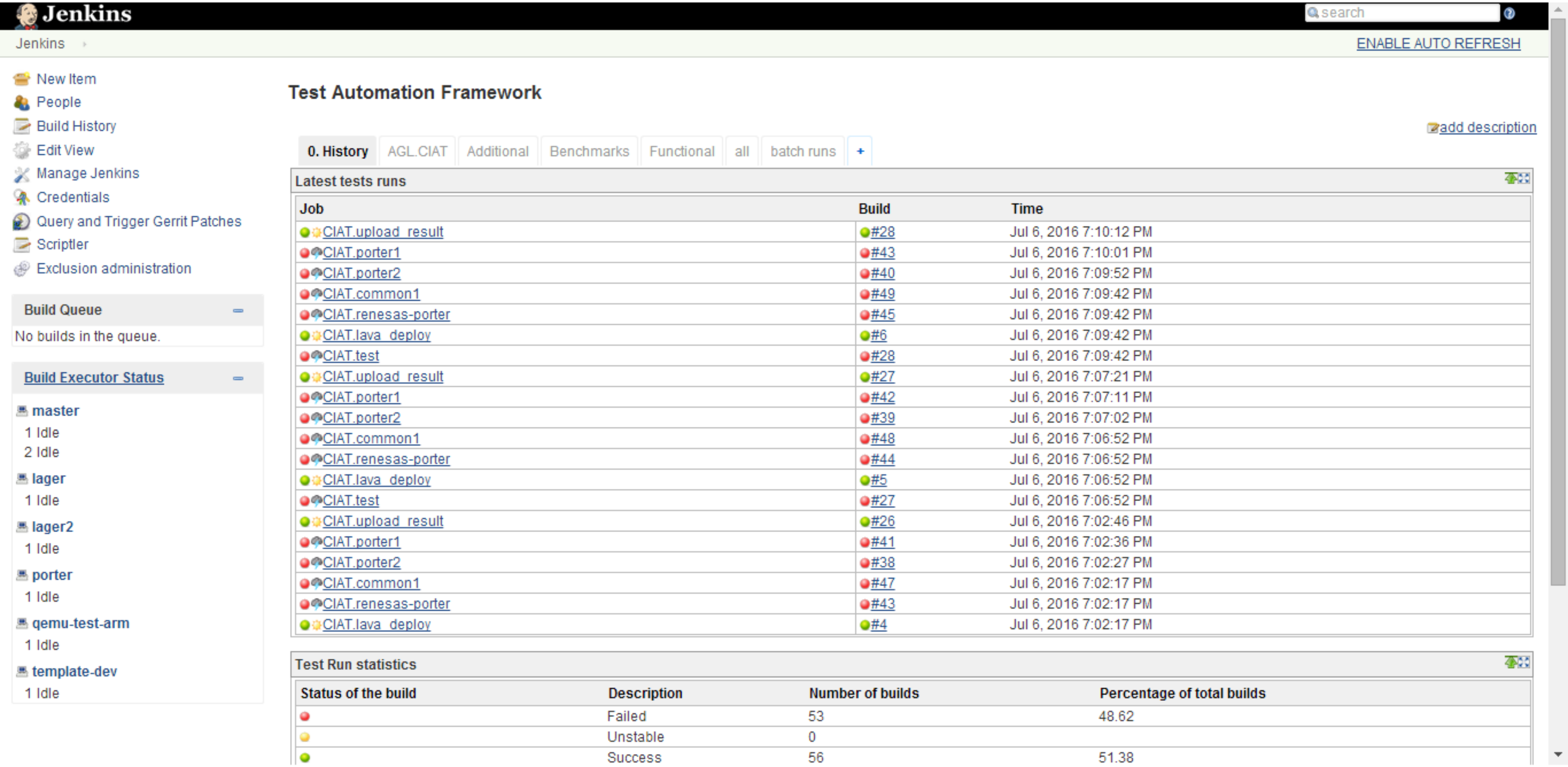
➢simple test

- jenkins will call script engine first, then gather test result/log from script engine
- script engine will do the work
  - cross-compile testsuite for target board
  - load testsuite to target board then execute
  - gather test logs



HOW to use AGL-JTA

➢have a glance – homepage



Build Queue

No builds in the queue.

Build Executor Status

- master
  - 1 Idle
  - 2 Idle
- lager
  - 1 Idle
- lager2
  - 1 Idle
- porter
  - 1 Idle
- qemu-test-arm
  - 1 Idle
- template-dev
  - 1 Idle

Test Automation Framework

Latest tests runs

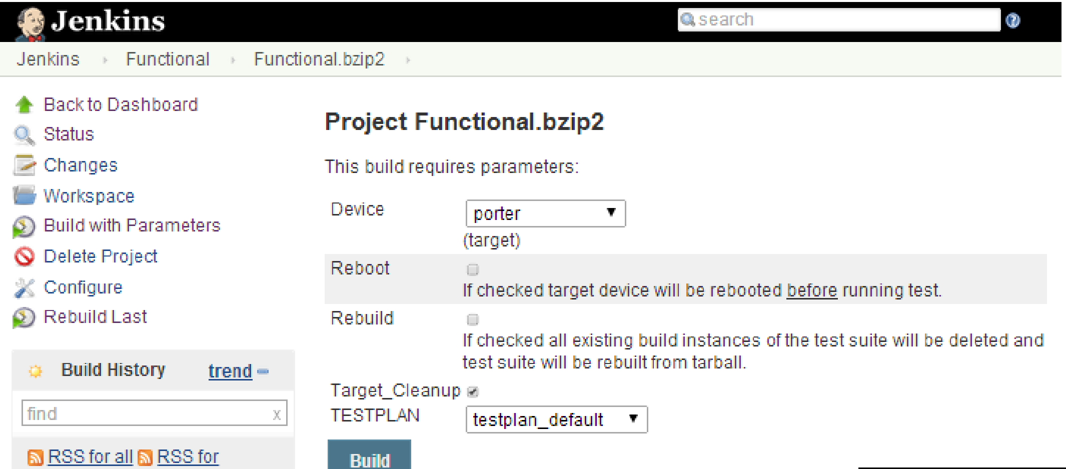
Job	Build	Time
🟢 CIAT.upload_result	🟢 #28	Jul 6, 2016 7:10:12 PM
🔴 CIAT.porter1	🔴 #43	Jul 6, 2016 7:10:01 PM
🔴 CIAT.porter2	🔴 #40	Jul 6, 2016 7:09:52 PM
🔴 CIAT.common1	🔴 #49	Jul 6, 2016 7:09:42 PM
🔴 CIAT.renesas-porter	🔴 #45	Jul 6, 2016 7:09:42 PM
🟢 CIAT.lava_deploy	🟢 #6	Jul 6, 2016 7:09:42 PM
🔴 CIAT.test	🔴 #28	Jul 6, 2016 7:09:42 PM
🟢 CIAT.upload_result	🟢 #27	Jul 6, 2016 7:07:21 PM
🔴 CIAT.porter1	🔴 #42	Jul 6, 2016 7:07:11 PM
🔴 CIAT.porter2	🔴 #39	Jul 6, 2016 7:07:02 PM
🔴 CIAT.common1	🔴 #48	Jul 6, 2016 7:06:52 PM
🔴 CIAT.renesas-porter	🔴 #44	Jul 6, 2016 7:06:52 PM
🟢 CIAT.lava_deploy	🟢 #5	Jul 6, 2016 7:06:52 PM
🔴 CIAT.test	🔴 #27	Jul 6, 2016 7:06:52 PM
🟢 CIAT.upload_result	🟢 #26	Jul 6, 2016 7:02:46 PM
🔴 CIAT.porter1	🔴 #41	Jul 6, 2016 7:02:36 PM
🔴 CIAT.porter2	🔴 #38	Jul 6, 2016 7:02:27 PM
🔴 CIAT.common1	🔴 #47	Jul 6, 2016 7:02:17 PM
🔴 CIAT.renesas-porter	🔴 #43	Jul 6, 2016 7:02:17 PM
🟢 CIAT.lava_deploy	🟢 #4	Jul 6, 2016 7:02:17 PM

Test Run statistics

Status of the build	Description	Number of builds	Percentage of total builds
🔴	Failed	53	48.62
🟡	Unstable	0	
🟢	Success	56	51.38

HOW to use AGL-JTA

➢have a glance – execute tests



Jenkins search

Jenkins › Functional › Functional.bzip2 ›

- Back to Dashboard
- Status
- Changes
- Workspace
- Build with Parameters
- Delete Project
- Configure
- Rebuild Last

Build History trend

find

RSS for all RSS for failures

Project Functional.bzip2

This build requires parameters:

Device: porter ▼
(target)

Reboot: □
If checked target device will be rebooted before running test.

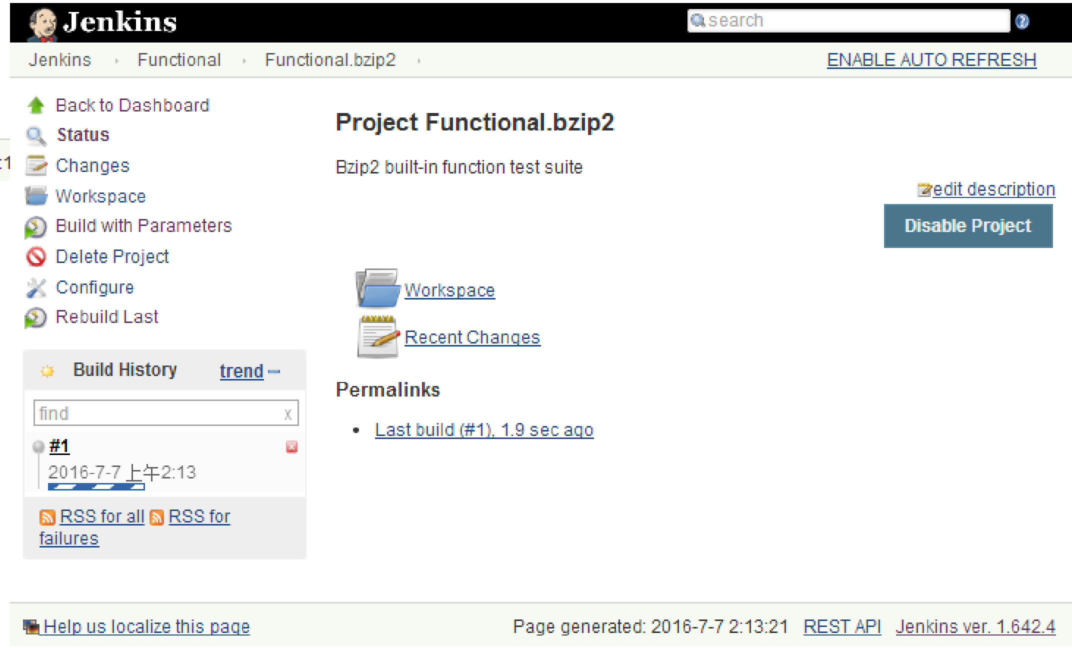
Rebuild: □
If checked all existing build instances of the test suite will be deleted and test suite will be rebuilt from tarball.

Target_Cleanup ☑

TESTPLAN: testplan_default ▼

Build

Help us localize this page   Page generated: 2016-7-7 2:12:1



Jenkins search

Jenkins › Functional › Functional.bzip2 ›   ENABLE AUTO REFRESH

- Back to Dashboard
- Status
- Changes
- Workspace
- Build with Parameters
- Delete Project
- Configure
- Rebuild Last

Build History trend

find

#1
2016-7-7 上午2:13

RSS for all RSS for failures

Project Functional.bzip2

Bzip2 built-in function test suite

edit description

Disable Project

Workspace

Recent Changes

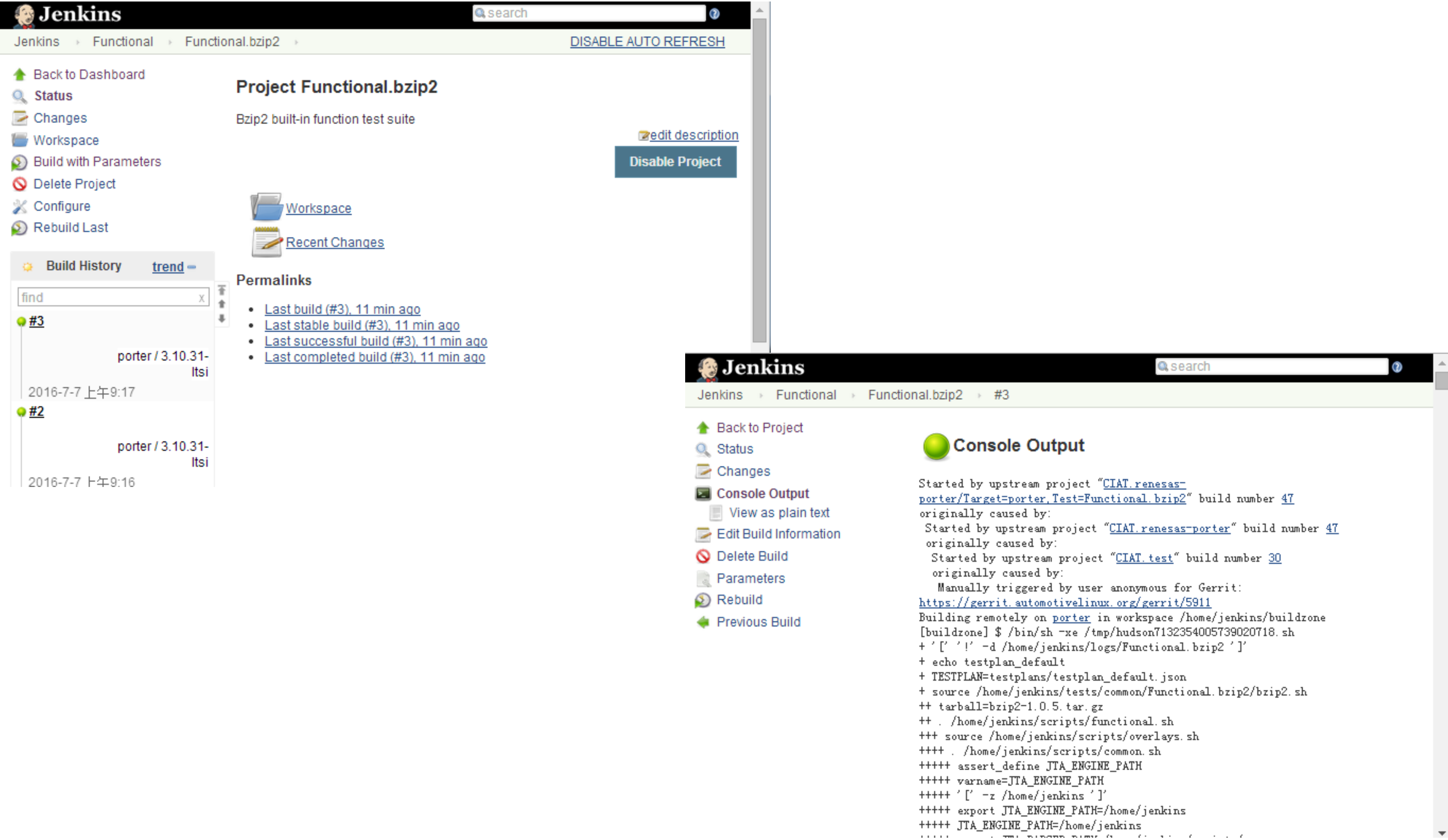
Permalinks

- Last build (#1), 1.9 sec ago

Help us localize this page   Page generated: 2016-7-7 2:13:21 REST API Jenkins ver. 1.642.4

HOW to use AGL-JTA

➢have a glance – execute tests



Project Functional.bzip2

Bzip2 built-in function test suite

#3 porter / 3.10.31-ltsi 2016-7-7 上午9:17

#2 porter / 3.10.31-ltsi 2016-7-7 上午9:16

Permalinks

- Last build (#3), 11 min ago
- Last stable build (#3), 11 min ago
- Last successful build (#3), 11 min ago
- Last completed build (#3), 11 min ago

Console Output

```
Started by upstream project "CIAT.renesas-
porter/Target=porter,Test=Functional.bzip2" build number 47
originally caused by:
 Started by upstream project "CIAT.renesas-porter" build number 47
 originally caused by:
  Started by upstream project "CIAT.test" build number 30
  originally caused by:
   Manually triggered by user anonymous for Gerrit:
https://gerrit.automotivelinux.org/gerrit/5911
Building remotely on porter in workspace /home/jenkins/buildzone
[buildzone] $ /bin/sh -xe /tmp/hudson7132354005739020718.sh
+ '[' '!' -d /home/jenkins/logs/Functional.bzip2 ']'
+ echo testplan_default
+ TESTPLAN=testplans/testplan_default.json
+ source /home/jenkins/tests/common/Functional.bzip2/bzip2.sh
++ tarball=bzip2-1.0.5.tar.gz
++ . /home/jenkins/scripts/functional.sh
+++ source /home/jenkins/scripts/overlays.sh
++++ . /home/jenkins/scripts/common.sh
+++++ assert_define JTA_ENGINE_PATH
+++++ varname=JTA_ENGINE_PATH
+++++ '[' -z /home/jenkins ']'
+++++ export JTA_ENGINE_PATH=/home/jenkins
+++++ JTA_ENGINE_PATH=/home/jenkins
```

HOW to use AGL-JTA – CIAT

role in AGL's CIAT

- for Automated Test mainly
- also involves building/deploying images

work flow

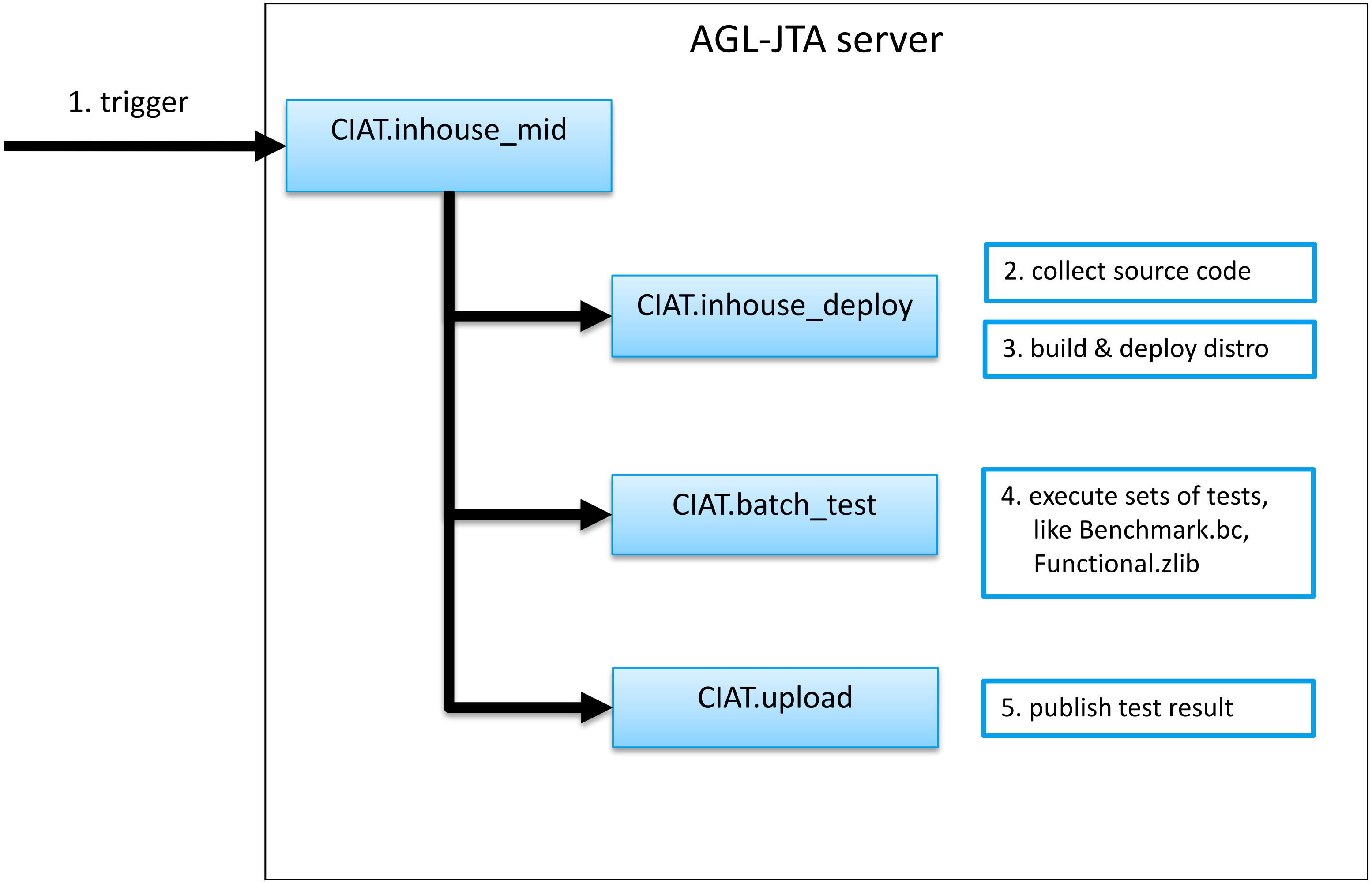
- trigger
- collect source code
- build/deploy distro to target board
- execute tests on board
- public test result

instance

- private server – inhouse CIAT (mid-term test)

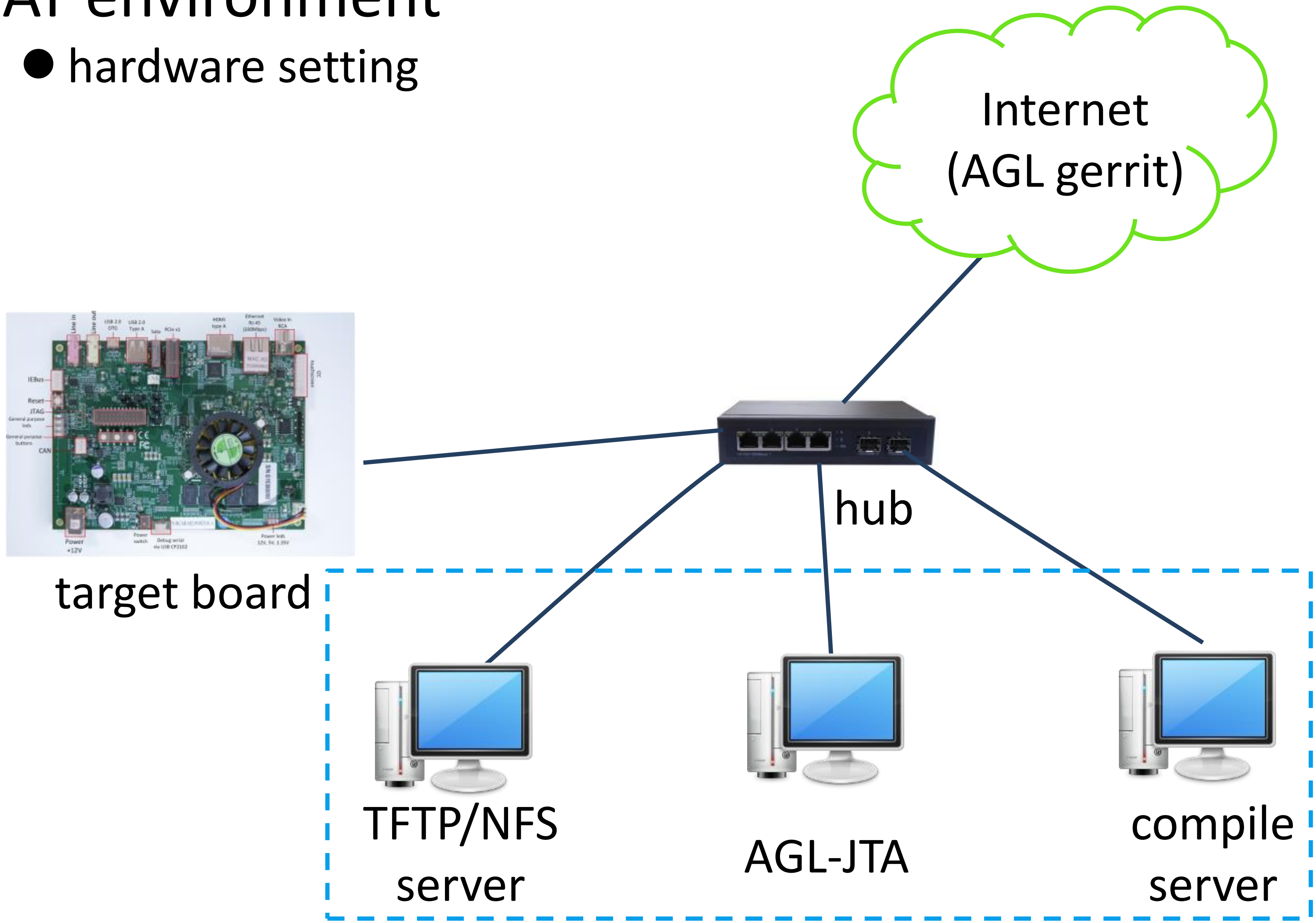
HOW to use AGL-JTA – CIAT

- private server – inhouse CIAT



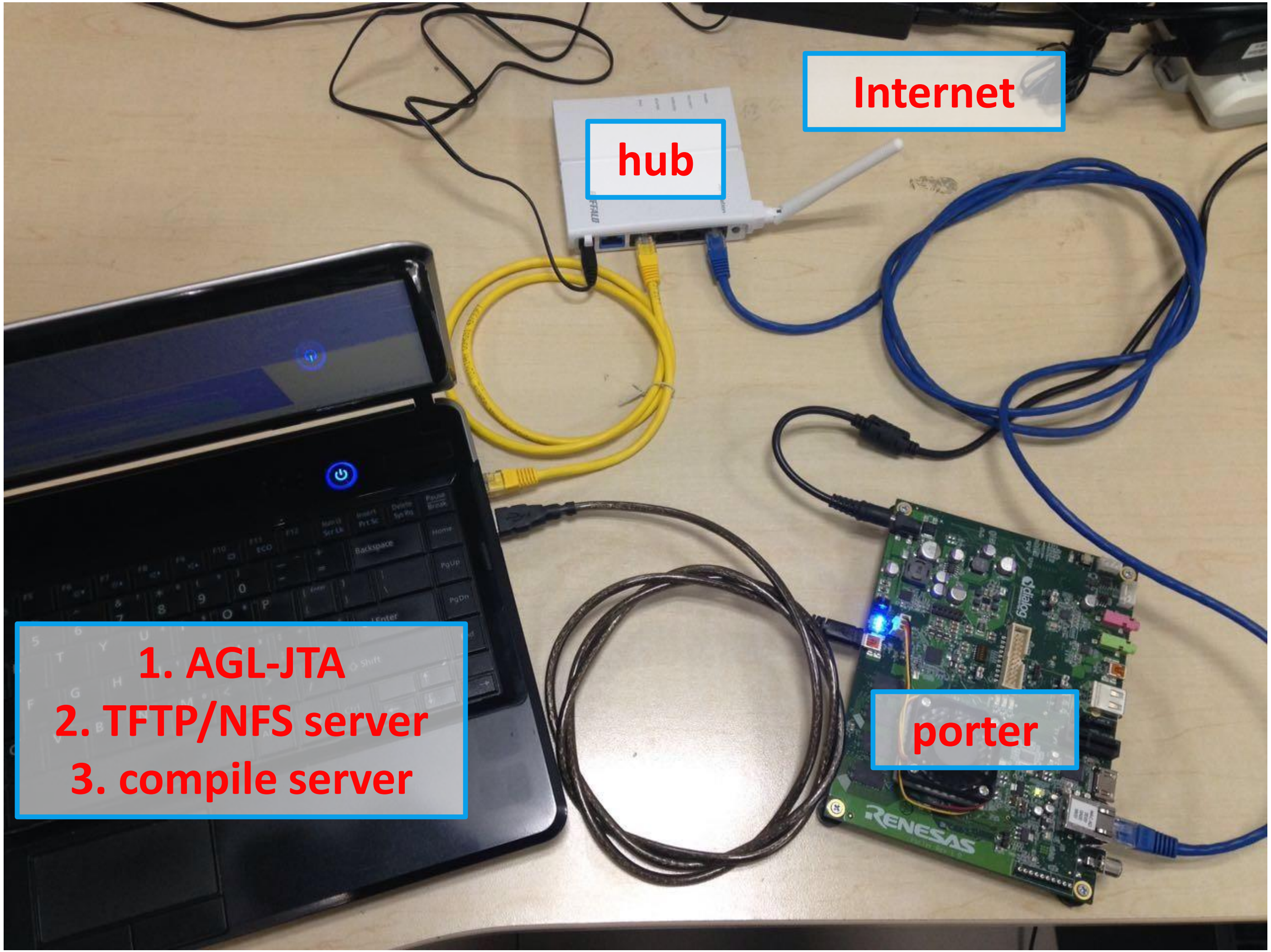
HOW to use AGL-JTA

- CIAT environment
  - hardware setting



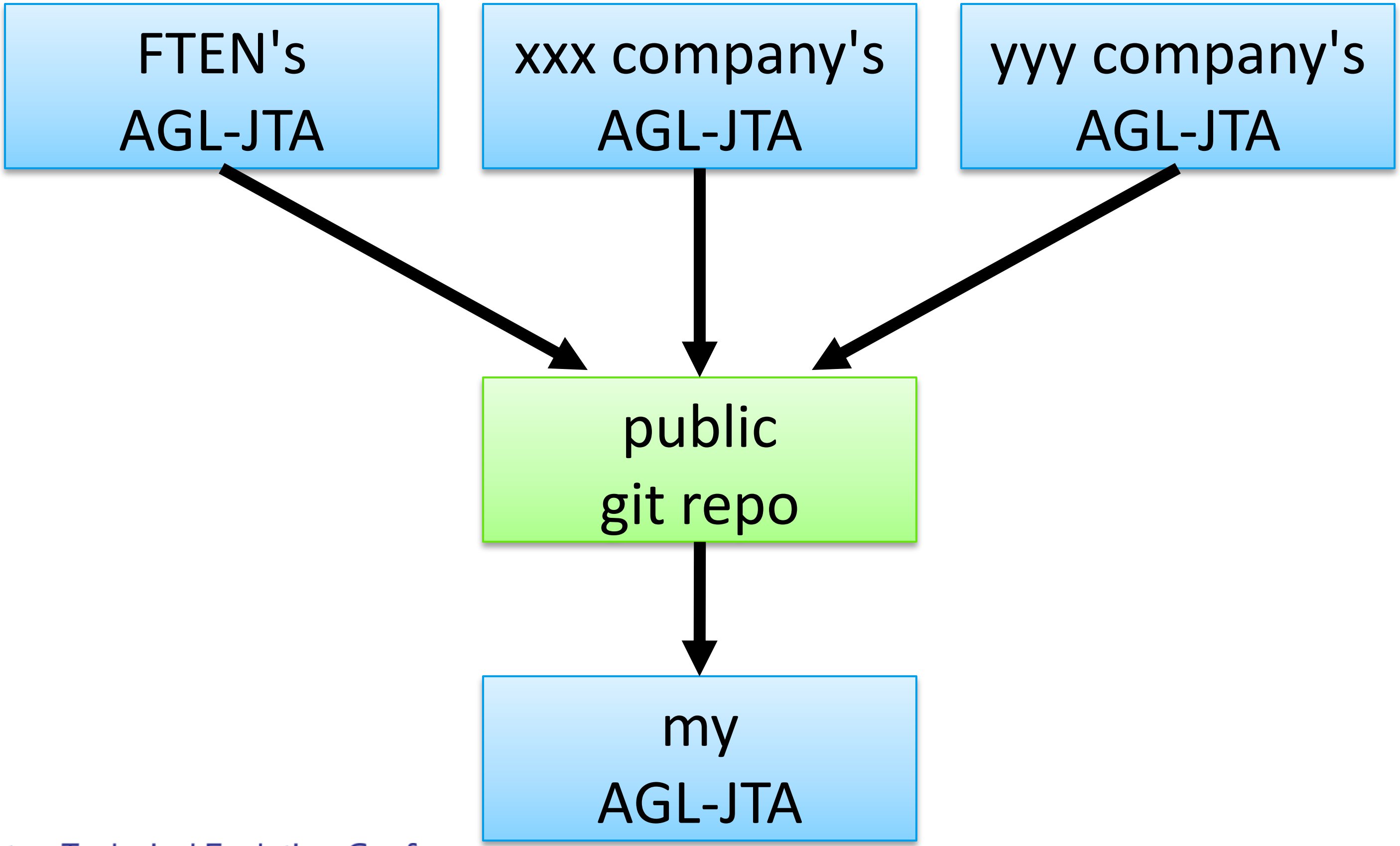
HOW to use AGL-JTA

- CIAT environment
  - hardware setting



HOW to use AGL-JTA

- more flexible way to share test result
  - public git repo for storing test result
  - AGL-JTA gather required test result and display
  - still in developing


FTEN's AGL-JTA

xxx company's AGL-JTA

yyy company's AGL-JTA

public git repo

my AGL-JTA

HOW to use AGL-JTA – share test result

➢CIAT.upload

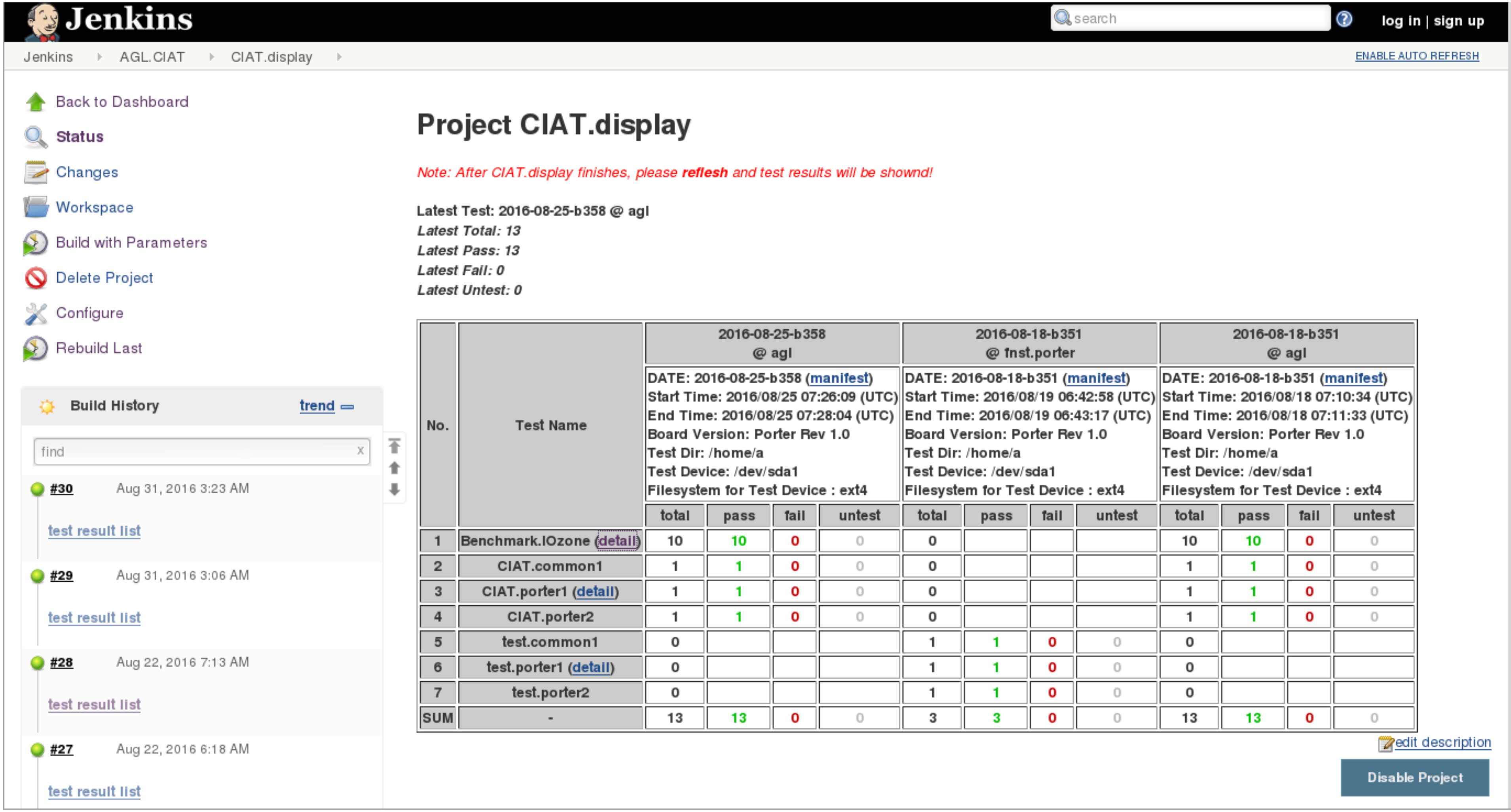
- one part of CIAT (publishing test result)
- called by CIAT.mid, CIAT.inhouse_mid
- test summary, test info, manifest, detailed results

➢public git repo for test result

- git: https://gerrit.automotivelinux.org/gerrit/gitweb?p=staging/agl-jta-results.git;a=summary
- branch for each snapshot
- 1st-level directories are for company & target board

HOW to use AGL-JTA – display test result

- make shared test result easy to read and compare



Project CIAT.display

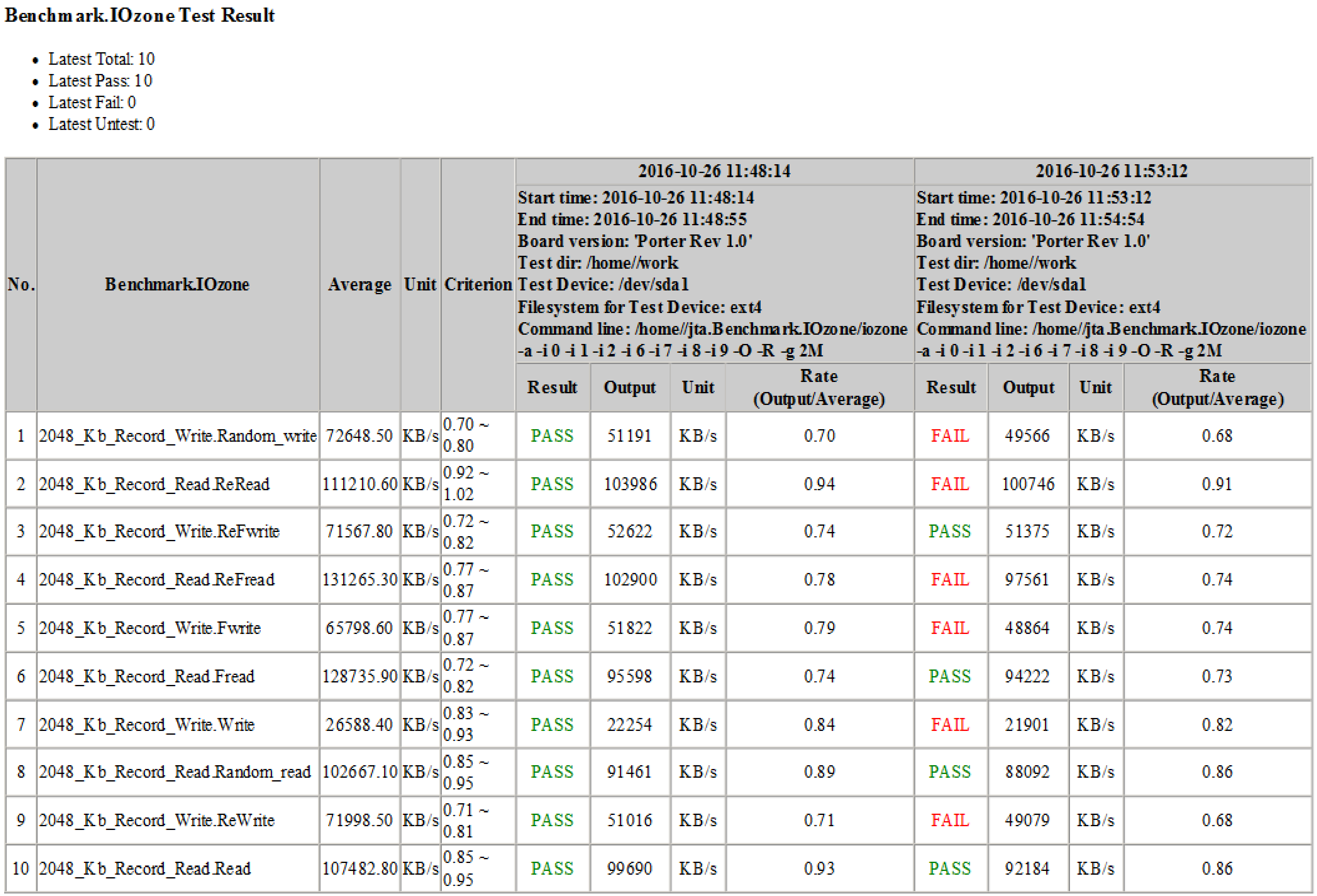
*Note: After CIAT.display finishes, please **reflesh** and test results will be shownd!*

Latest Test: 2016-08-25-b358 @ agl
Latest Total: 13
Latest Pass: 13
Latest Fail: 0
Latest Untest: 0

No.	Test Name	2016-08-25-b358 @ agl				2016-08-18-b351 @ fnst.porter				2016-08-18-b351 @ agl			
		DATE: 2016-08-25-b358 (manifest) Start Time: 2016/08/25 07:26:09 (UTC) End Time: 2016/08/25 07:28:04 (UTC) Board Version: Porter Rev 1.0 Test Dir: /home/a Test Device: /dev/sda1 Filesystem for Test Device : ext4				DATE: 2016-08-18-b351 (manifest) Start Time: 2016/08/19 06:42:58 (UTC) End Time: 2016/08/19 06:43:17 (UTC) Board Version: Porter Rev 1.0 Test Dir: /home/a Test Device: /dev/sda1 Filesystem for Test Device : ext4				DATE: 2016-08-18-b351 (manifest) Start Time: 2016/08/18 07:10:34 (UTC) End Time: 2016/08/18 07:11:33 (UTC) Board Version: Porter Rev 1.0 Test Dir: /home/a Test Device: /dev/sda1 Filesystem for Test Device : ext4			
		total	pass	fail	untest	total	pass	fail	untest	total	pass	fail	untest
1	Benchmark.IOzone (detail)	10	10	0	0	0				10	10	0	0
2	CIAT.common1	1	1	0	0	0				1	1	0	0
3	CIAT.porter1 (detail)	1	1	0	0	0				1	1	0	0
4	CIAT.porter2	1	1	0	0	0				1	1	0	0
5	test.common1	0				1	1	0	0	0			
6	test.porter1 (detail)	0				1	1	0	0	0			
7	test.porter2	0				1	1	0	0	0			
SUM	-	13	13	0	0	3	3	0	0	13	13	0	0

HOW to use AGL-JTA – display test result

- make shared test result easy to read and compare



Benchmark.IOzone Test Result

- Latest Total: 10
- Latest Pass: 10
- Latest Fail: 0
- Latest Untest: 0

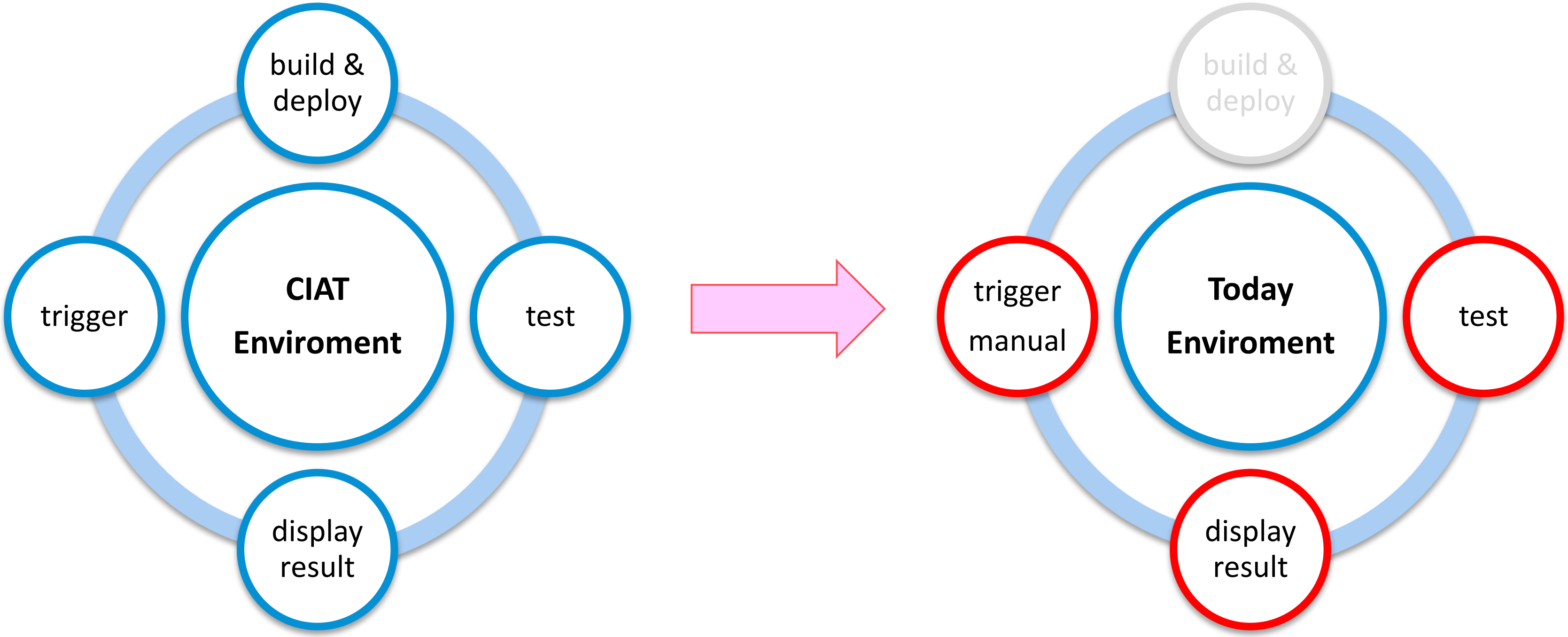
No.	Benchmark.IOzone	Average	Unit	Criterion	2016-10-26 11:48:14				2016-10-26 11:53:12			
					Start time: 2016-10-26 11:48:14 End time: 2016-10-26 11:48:55 Board version: 'Porter Rev 1.0' Test dir: /home//work Test Device: /dev/sda1 Filesystem for Test Device: ext4 Command line: /home//jta.Benchmark.IOzone/iozone -a -i 0 -i 1 -i 2 -i 6 -i 7 -i 8 -i 9 -O -R -g 2M				Start time: 2016-10-26 11:53:12 End time: 2016-10-26 11:54:54 Board version: 'Porter Rev 1.0' Test dir: /home//work Test Device: /dev/sda1 Filesystem for Test Device: ext4 Command line: /home//jta.Benchmark.IOzone/iozone -a -i 0 -i 1 -i 2 -i 6 -i 7 -i 8 -i 9 -O -R -g 2M			
					Result	Output	Unit	Rate (Output/Average)	Result	Output	Unit	Rate (Output/Average)
1	2048_Kb_Record_Write.Random_write	72648.50	KB/s	0.70 ~ 0.80	PASS	51191	KB/s	0.70	FAIL	49566	KB/s	0.68
2	2048_Kb_Record_Read.ReRead	111210.60	KB/s	0.92 ~ 1.02	PASS	103986	KB/s	0.94	FAIL	100746	KB/s	0.91
3	2048_Kb_Record_Write.ReFwrite	71567.80	KB/s	0.72 ~ 0.82	PASS	52622	KB/s	0.74	PASS	51375	KB/s	0.72
4	2048_Kb_Record_Read.ReFread	131265.30	KB/s	0.77 ~ 0.87	PASS	102900	KB/s	0.78	FAIL	97561	KB/s	0.74
5	2048_Kb_Record_Write.Fwrite	65798.60	KB/s	0.77 ~ 0.87	PASS	51822	KB/s	0.79	FAIL	48864	KB/s	0.74
6	2048_Kb_Record_Read.Fread	128735.90	KB/s	0.72 ~ 0.82	PASS	95598	KB/s	0.74	PASS	94222	KB/s	0.73
7	2048_Kb_Record_Write.Write	26588.40	KB/s	0.83 ~ 0.93	PASS	22254	KB/s	0.84	FAIL	21901	KB/s	0.82
8	2048_Kb_Record_Read.Random_read	102667.10	KB/s	0.85 ~ 0.95	PASS	91461	KB/s	0.89	PASS	88092	KB/s	0.86
9	2048_Kb_Record_Write.ReWrite	71998.50	KB/s	0.71 ~ 0.81	PASS	51016	KB/s	0.71	FAIL	49079	KB/s	0.68
10	2048_Kb_Record_Read.Read	107482.80	KB/s	0.85 ~ 0.95	PASS	99690	KB/s	0.93	PASS	92184	KB/s	0.86

HOW to use AGL-JTA

- simple test
  - REAME
  - docs/jta-docs.pdf
  - docs/How-to-Add-Test-Cases-on-JTA
- CIAT
  - docs/How-to-Configure-CIAT-on-AGL-JTA.pdf
- More documents for your instances

Demo contents

- Inhouse CIAT
- Carry out a test in a manual trigger and operate slowly
- Test is IOZONE performance -> Filesystem tests
- Compare results and introduce display detail



Future Work

- board supporting
- trigger
- display
- cooperate with fuego
- …

Future Work

- board supporting
  - current
    - CIAT for porter
    - simple test for porter & MinnowBoard
  - future work
    - Dragon board
    - more board?

- trigger
  - current
    - gerrit trigger
  - future work
    - for different types of changes uploaded to gerrit
    - for snapshot/release

Future Work

- display
  - current
    - only display result of each tests
  - future work
    - display detailed information/log of each tests
    - test environment information
- cooperate with fuego
  - fix gap between fuego
  - share features and test cases

Future Work

- AGL support
  - https://jta.automotivelinux.org/
- your suggestion to improve it
- sharing test cases
- sharing test results
- participate in improving AGL-JTA and AGL's CIAT

Thank you!

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