

KERNEL C.I.

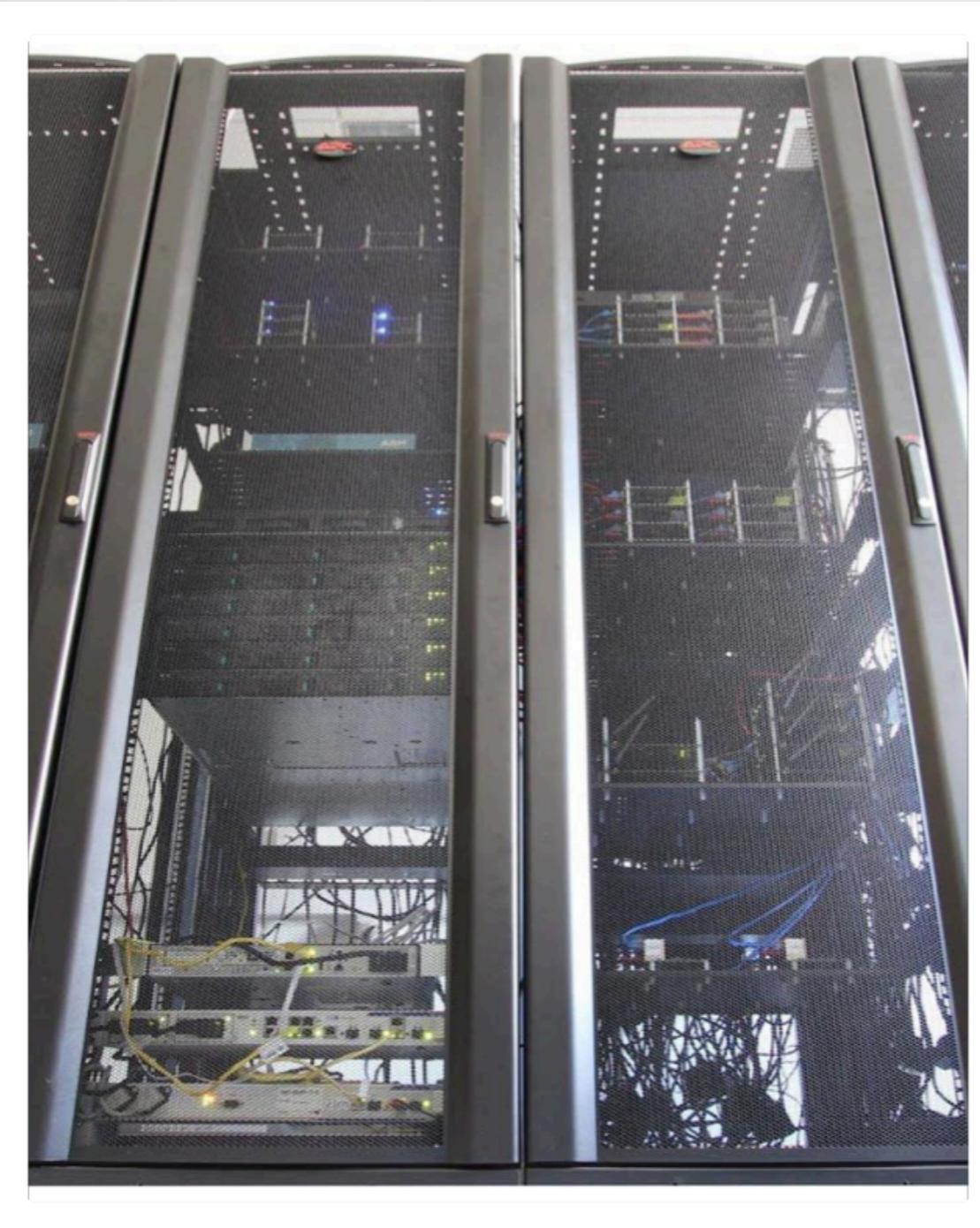
USING LINARO'S AUTOMATED VALIDATION ARCHITECTURE

TYLER BAKER

- TECHNICAL ARCHITECT
- [HTTP://WWW.LINARO.ORG](http://www.linaro.org)
- LAVA DEVELOPER
- LAVA EVANGELIST
- FORMER PLATFORM ENGINEER
- KERNEL HACKER



MT. BAKER, WA

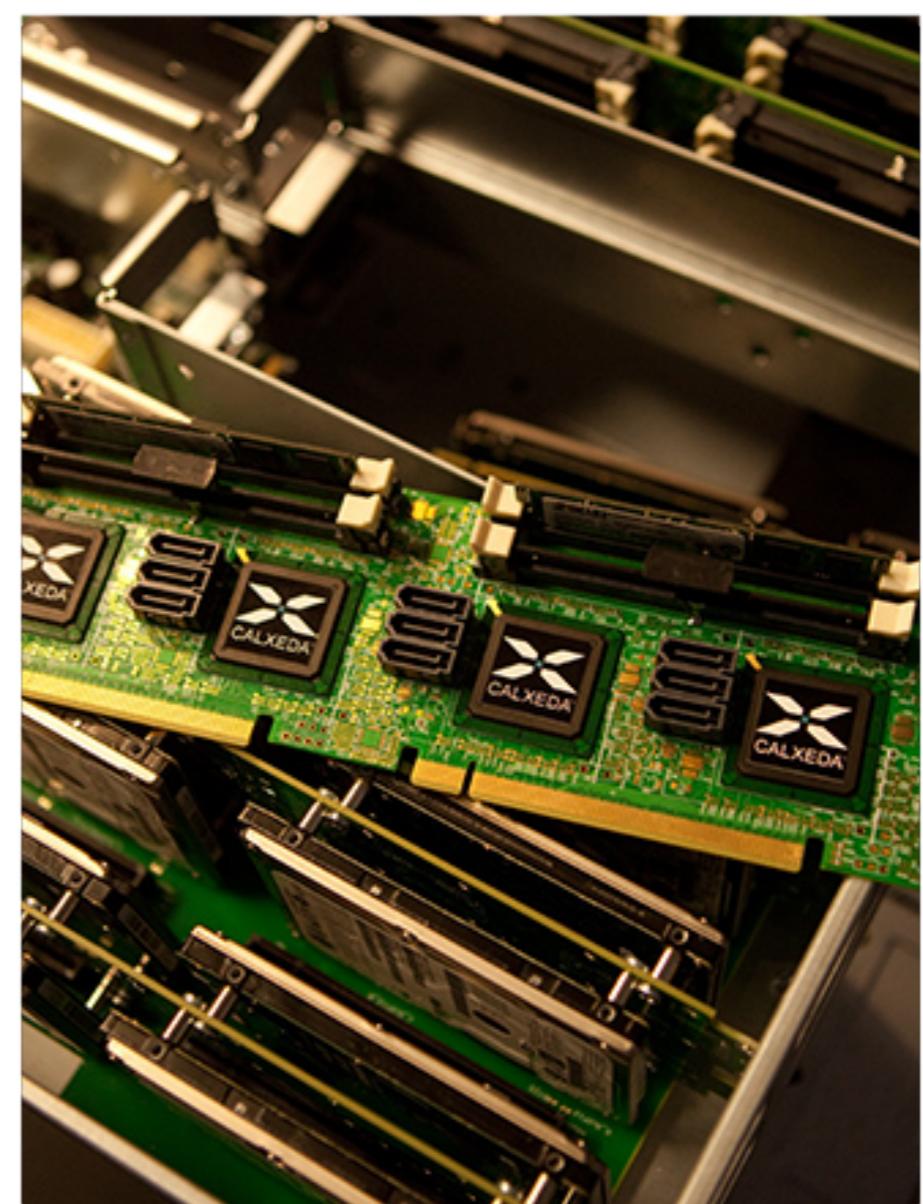


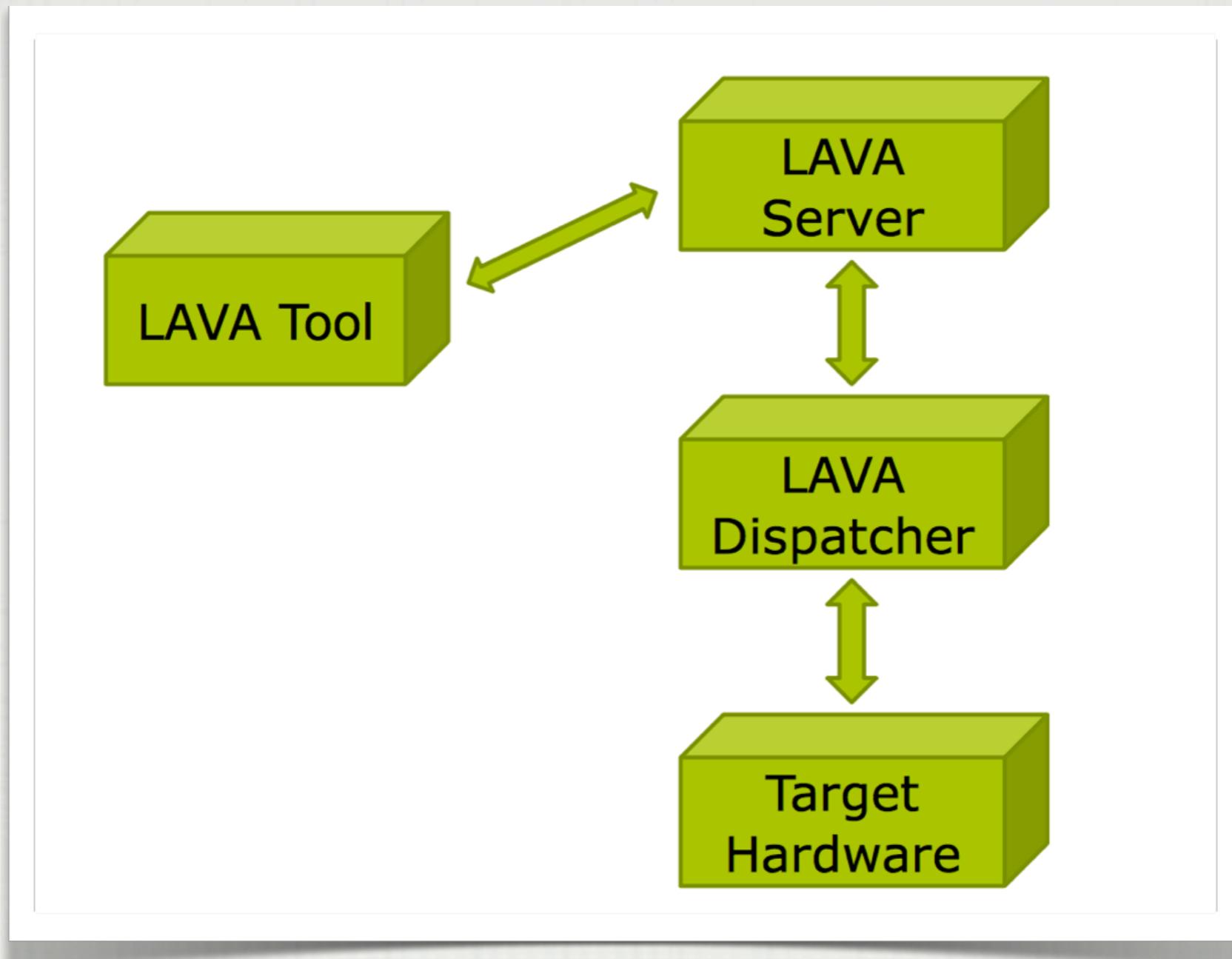
LAVA OVERVIEW

LAVA | LINARO AUTOMATED VALIDATION ARCHITECTURE

MAAS @ LINARO

- PROVEN
 - REAL WORLD
- ACTIVE
 - DEDICATED TEAM
- TESTED
 - AUTOMATED REGRESSION TESTING





LAVA ARCHITECTURE

A loosely coupled distributed automation framework

LAVA SERVER

- DJANGO FRONTEND
- DJANGO APPS
 - LAVA SCHEDULER
 - LAVA DASHBOARD
- EXTENSIBLE
 - CREATE A DJANGO APP AS LAVA EXTENSION
- PROVIDES XML-RPC API
- USER AUTHENTICATION
- DECOUPLED COMPONENTS
- FULL STACK
- STANDALONE
- WRITTEN IN PYTHON

[HTTP://VALIDATION.LINARO.ORG](http://validation.linaro.org)



LAVA SERVER

LAVA SCHEDULER

- LAVA SERVER EXTENSION
- INCLUDES A DAEMON
- USERS SUBMIT JOBS TO THE SCHEDULER
- JOBS DESCRIBED IN JSON
- SCHEDULES JOBS ON DEVICES
- MANAGES DEVICE STATE
- DISPLAYS STREAMING CONSOLE LOGS
- DEVICE HEALTH REPORTING
- SUPPORTS MULTI DEVICE TESTS
- DISPLAYS ALL TEST JOBS

[HTTP://VALIDATION.LINARO.ORG/SCHEDULER/](http://validation.linaro.org/scheduler/)

Device Type Overview

81/87 devices online
76/76 health check jobs passed in 24 hours

Show 25 entries

Name
aa9
ardale
beaglebone-black
beaglexm
capri
highbank
k3v2
kvm
nexus
nexus10
origen
panda
panda-es
qemu
rtsm_foundation-armv8
rtsm_ve-a15x1-a7x1
rtsm_ve-a15x4-a7x4
rtsm_ve-armv8
snowball_sd
vexpress-a5
vexpress-a9
vexpress-tc2
vexpress-tc2-benchmark

Showing 1 to 23 of 23 entries

[All Devices](#)
[All Devices Health](#)

Active Jobs

Show 10 entries

ID	Status	Priority	Device	Link
72081	Running	Medium	ardale05	https://ci.linaro.org/jenkins/job/linux-lng-preempt-rt/hw/
72049	Submitted	Medium	vexpress-a9	https://ci.linaro.org/jenkins/job/linux-linaro-tracking-ll/h/
72040	Running	Medium	vexpress-a9-01	https://ci.linaro.org/jenkins/job/ubuntu-armhf-pre-built-i/
72004	Running	Medium	rtsm_ve-a15x4-a7x4_01	https://android-build.linaro.org/jenkins/job/linaro-andro/

Health Job Summary

By Day

By Week

Test Job Summary

By Day

By Week

Submit Job

Paste your job definition JSON here. Alternatively, you can paste a URL to your job definition file:

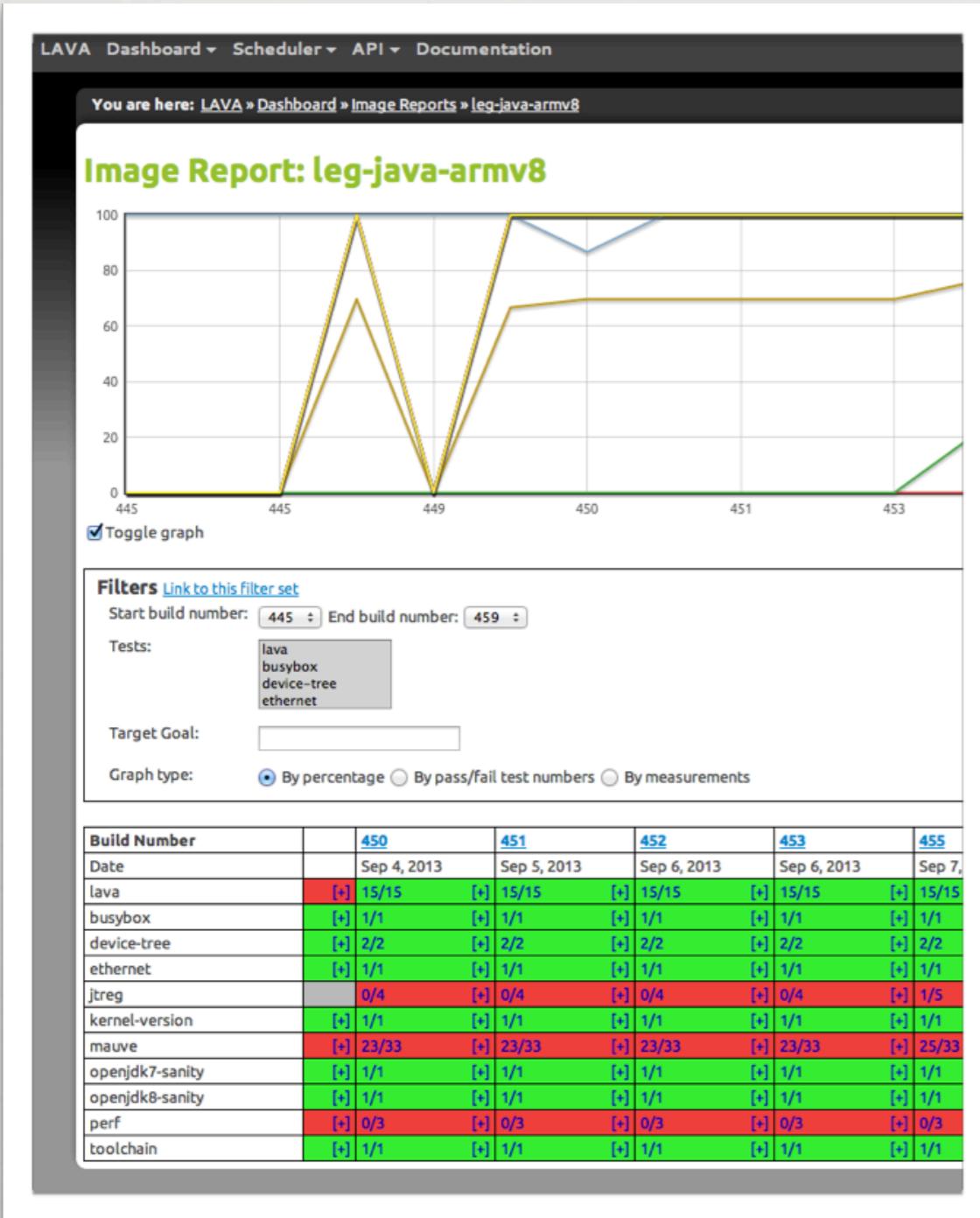
```
1 | Enter your job definition or link to a job definition here.
2 |
3 |
4 |
5 |
6 |
7 |
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9 |
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11 |
12 |
13 |
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24 |
25 |
26 |
27 |
28 |
~~
```

LAVA SCHEDULER

LAVA DASHBOARD

- LAVA SERVER EXTENSION
- IMAGE REPORTS
- MANAGES AND DISPLAYS TEST RESULTS
- DATA VISUALIZATION
- BUNDLE STREAMS
- MEASUREMENTS
- CONTAINER FOR TEST RESULTS
- PASS / FAIL
- FILTERS
- PERCENTAGES
- TARGET GOALS

[HTTP://VALIDATION.LINARO.ORG/DASHBOARD/](http://validation.linaro.org/dashboard/)



Show 10 ▾ entries Search:

Device	Test Run	Test	Passes	Fails	Uploaded On	Analyzed On
rtsm_foundation-armv8_01	lava_results	lava	15		2013-09-10 10:28:41	2013-09-10 05:32:01
rtsm_foundation-armv8_01	busybox_results	busybox	1		2013-09-10 10:28:41	2013-09-10 05:43:53
rtsm_foundation-armv8_01	openjdk8-sanity_results	openjdk8-sanity	1		2013-09-10 10:28:41	2013-09-10 06:02:54
rtsm_foundation-armv8_01	toolchain_results	toolchain	1		2013-09-10 10:28:41	2013-09-10 05:54:41
rtsm_foundation-armv8_01	mauve_results	mauve	23	10	2013-09-10 10:28:41	2013-09-10 10:24:10
rtsm_foundation-armv8_01	device-tree_results	device-tree	2		2013-09-10 10:28:41	2013-09-10 05:46:07
rtsm_foundation-armv8_01	perf_results	perf		3	2013-09-10 10:28:41	2013-09-10 05:52:33
rtsm_foundation-armv8_01	jtreg_results	jtreg			2013-09-10 10:28:41	2013-09-10 10:29:16
rtsm_foundation-armv8_01	ethernet_results	ethernet	1		2013-09-10 10:28:41	2013-09-10 05:48:13
rtsm_foundation-armv8_01	kernel-version_results	kernel-version	1		2013-09-10 10:28:41	2013-09-10 05:50:21

Showing 1 to 10 of 11 entries First Previous 1 2 Next Last

Show 25 ▾ entries Search:

Results

#	Test Case	Result	Measurement
1	gnu.testlet.javax.security		pass
2	gnu.testlet.java.awt		fail
3	gnu.testlet.org.omg		fail
4	gnu.testlet.java.swing		fail
5	gnu.testlet.java.print		fail
6	gnu.testlet.java.lang		pass
7	gnu.testlet.java.nio		pass
8	gnu.testlet.java.text		fail
9	gnu.testlet.BinaryCompatibility.altered		pass
10	gnu.testlet.BinaryCompatibility		pass
11	gnu.testlet.javax.naming		pass
12	gnu.testlet.java.util		fail
13	gnu.testlet.locales		pass
14	gnu.testlet.runner		pass
15	gnu.testlet.java.sql		pass
16	gnu.testlet.gnu.java		pass
17	gnu.testlet.javax.imageio		pass
18	gnu.testlet.javax.sound		pass
19	gnu.testlet.java.io		fail
20	gnu.testlet.javax.net		pass
21	gnu.testlet.javax.crypto		pass
22	gnu.testlet.javax.management		pass
23	gnu.testlet.runner.compare		pass
24	gnu.testlet.java.beans		pass
25	gnu.testlet.java.net		fail

Showing 1 to 25 of 33 entries First Previous 1 2 Next Last

LAVA DASHBOARD

LAVA DISPATCHER

- CAN BE INVOKED BY SCHEDULER OR COMMAND LINE
- DIRECTLY INTERACTS WITH HARDWARE
 - SERIAL
 - ADB / FASTBOOT
 - IPMI / SOL / TFTP / PXE
- DEPLOYS SOFTWARE
 - SYSTEM IMAGES
 - BOOTLOADERS
 - KERNELS / MODULES
- CONFIGURES BOOTLOADER
- RUNS TESTS
- ANY LANGUAGE

Job information

[Job definition file - 2287](#)

[Download as text file](#)

Submitted by:	tyler
Requested device:	staging-black07
Description:	bootloader-job-defined-boot-cmds-lava-test-shell
Status:	Complete
Priority:	Medium
On device:	staging-black07
Submitted at:	Sept. 10, 2013, 5:40 p.m.
Started at:	Sept. 10, 2013, 5:40 p.m.
Finished at:	Sept. 10, 2013, 5:44 p.m.

Views

- [Summary](#)
- [Complete log](#)
- [Definition](#)
- [Results Bundle](#)

```

1   {
2     "actions": [
3       {
4         "command": "deploy_linaro_kernel",
5         "parameters": {
6           "dtb": "http://community.validation.linaro.org/images",
7           "kernel": "http://community.validation.linaro.org/images",
8           "ramdisk": "http://community.validation.linaro.org/images"
9         }
10      },
11      {
12        "command": "boot_linaro_image",
13        "parameters": {
14          "interactive_boot_cmds": true,
15          "options": [
16            "setenv autoload no",
17            "setenv pxefile_addr_r '0x50000000'",
18            "setenv kernel_addr_r '0x80200000'",
19            "setenv initrd_addr_r '0x81000000'",
20            "setenv fdt_addr_r '0x815f0000'",
21            "setenv initrd_high '0xffffffff"',
22            "setenv fdt_high '0xffffffff'",
23            "setenv loadkernel 'tftp ${kernel_addr_r} ${lava_dtb}'",
24            "setenv loadinitrd 'tftp ${initrd_addr_r} ${lava_dtb}'",
25            "setenv loadfdt 'tftp ${fdt_addr_r} ${lava_dtb}'",
26            "setenv bootargs 'console=tty00,115200n8 root=/dev/mmcblk0p1 boot=cmdline'",
27            "setenv bootcmd 'dhcp; setenv serverip ${lava_server_ip}; boot' "
28          ]
29        }
30      },
31      {
32        "command": "lava_test_shell",
33        "parameters": {
34          "testdef_repos": [
35            {
36              "git-repo": "git://git.linaro.org/ga/test-defs",
37              "testdef": "openembedded/kernel-version.yaml"
38            }
39          ],
34          "timeout": 9600
35        }
36      },
37      {
38        "command": "submit_results",
39        "parameters": {
40          "server": "http://tyler@staging.validation.linaro.org",
41          "stream": "/anonymous/lava-functional-tests/",
42          "token": "bbwoynl3wyd9bjrsa086xsse5bkuazhma18q22nyssp"
43        }
44      }
45    ],
46    "device_type": "beaglebone-black",
47    "health_check": false,
48    "job_name": "bootloader-job-defined-boot-cmds-lava-test-shell",
49    "logging_level": "DEBUG",
50    "target": "staging-black07",
51    "timeout": 18000
52  }

```

Job information

Submitted by: tyler
Requested device: staging-black07
Description: bootloader-job-defined-boot-cmds-lava-test-shell
Status: Complete
Priority: Medium
On device: staging-black07
Submitted at: Sept. 10, 2013, 5:40 p.m.
Started at: Sept. 10, 2013, 5:40 p.m.
Finished at: Sept. 10, 2013, 5:44 p.m.

Dispatcher Log Summary

Dispatcher Log messages (file size = 46.4 KB) [Download as text file](#)

[DEBUG](#) [INFO](#) [WARNING](#) [ERROR](#) [CRITICAL](#)

```

05:40:45 PM INFO: Attempting to connect to device
05:40:53 PM INFO: Matched <class 'pexpect.TIMEOUT'> which means all-good
05:40:53 PM DEBUG: [ACTION-B] Single node test!
05:40:53 PM INFO: [ACTION-B] deploy_linaro_kernel is started with {'u'ramdisk': u'http://community.validation.linaro.org/images/bbb/zImage'}
05:40:53 PM INFO: Downloading image: http://community.validation.linaro.org/images/bbb/uInitrd
05:40:56 PM INFO: Downloading image: http://community.validation.linaro.org/images/bbb/am335x-bone.dtb
05:40:56 PM DEBUG: setting status pass
05:40:56 PM DEBUG: finally status pass
05:40:56 PM INFO: [ACTION-B] deploy_linaro_kernel is finished successfully.
05:40:56 PM INFO: [ACTION-B] boot_linaro_image is started with {'u'interactive_boot_cmds': True, 'u'options': [u'setenv', 'u'root=/dev/mmcblk0p1', 'u'boot=cmdline']}
05:40:56 PM INFO: Boot the test image
05:40:56 PM INFO: Booting the test image. Attempt: 1
05:40:56 PM INFO: Perform hard reset on the system
05:40:56 PM DEBUG: Executing on host: ['nice', 'sh', '-c', '/usr/local/lab-scripts/pduclient --daemon services']
05:40:56 PM DEBUG: expect (1200): 'Hit any key to stop autoboot'
05:41:07 PM DEBUG: sendline :
05:41:07 PM DEBUG: send:
05:41:07 PM DEBUG: send:
05:41:07 PM INFO: Overriding boot_cmds from job file
05:41:07 PM DEBUG: expect (150): 'U-Boot'
05:41:07 PM DEBUG: sendline : lava_server_ip=192.168.1.50
05:41:07 PM DEBUG: send : lava_server_ip=192.168.1.50
05:41:07 PM DEBUG: send:
05:41:07 PM DEBUG: expect (150): 'U-Boot'
05:41:09 PM DEBUG: sendline : lava_kernel_images/tmpZPngX1/.zImage
05:41:09 PM DEBUG: send : lava_kernel_images/tmpZPngX1/.zImage
05:41:11 PM DEBUG: send:
05:41:11 PM DEBUG: expect (150): 'U-Boot'
05:41:11 PM DEBUG: sendline : lava_ramdisk=images/tmpZPngX1/uInitrd
05:41:11 PM DEBUG: send : lava_ramdisk=images/tmpZPngX1/uInitrd
05:41:11 PM DEBUG: send:
05:41:13 PM DEBUG: expect (150): 'U-Boot'
05:41:13 PM DEBUG: sendline : lava_dtb=images/tmpZPngX1/am335x-bone.dtb
05:41:13 PM DEBUG: send : lava_dtb=images/tmpZPngX1/am335x-bone.dtb
05:41:15 PM DEBUG: send :
05:41:15 PM DEBUG: expect (150): 'U-Boot'

```

Views

- [Summary](#)
- [Complete log](#)
- [Definition](#)
- [Results Bundle](#)

Job Actions

[Re-submit](#) [Annotate](#)

Section 76 <LAVA_DISPATCHER>2013-09-10 05:41:47 PM DEBUG: expect (300): 'Linux version'

[skip 53 lines to next log entry →](#)

Section 77 boot

```

77.1 link up on port 0, speed 100, full duplex
77.2 BOOTP broadcast 1
77.3 DHCP client bound to address 192.168.81.72
77.4 link up on port 0, speed 100, full duplex
77.5 Using cpaw device
77.6 TFTP from server 192.168.1.50; our IP address is 192.168.81.72
77.7 Filename 'images/tmpZPngX1/.zImage'.
77.8 Load address: 0x80200000
77.9 Loading: #####
77.10 #####
77.11 #####
77.12 #####
77.13 #####
77.14 827.1 KiB/s
77.15 done
77.16 Bytes transferred = 4013576 (3d3e08 hex)
77.17 link up on port 0, speed 100, full duplex
77.18 Using cpaw device
77.19 TFTP from server 192.168.1.50; our IP address is 192.168.81.72
77.20 Filename 'images/tmpZPngX1/uInitrd'.
77.21 Load address: 0x81000000
77.22 Loading: #####
77.23 #####
77.24 #####
77.25 #####
77.26 #####
77.27 #####
77.28 827.1 KiB/s

```

LAVA DISPATCHER

Wednesday, September 11, 13

LAVA TOOL

- COMMAND LINE UTILITY CREATE BUNDLE STREAMS
- UTILIZES XML-RPC API
- SCHEDULE JOB
- POLL JOB STATUS
- RETRIEVE OR PUSH RESULTS
- RETRIEVE CONSOLE
OUTPUT

```
3.269 [ 8.198167] Kernel panic - not syncing: Attempted to kill init! exitcode=0x00000600
3.270 [ 8.198167]
3.271 [ 8.207304] CPU: 3 PID: 1 Comm: init Not tainted 3.10.11-linaro-highbank #2
3.272 [ 8.214283] [<c00118c9>] (unwind_backtrace+0x1/0x9c) from [<c000fa81>] (show_stack+0x11/0x14)
3.273 [ 8.222810] [<c000fa81>] (show_stack+0x11/0x14) from [<c03d0e9b>] (panic+0x7b/0x170)
3.274 [ 8.230556] [<c03d0e9b>] (panic+0x7b/0x170) from [<c001dd63>] (do_exit+0x67f/0x748)
3.275 [ 8.238210] [<c001dd63>] (do_exit+0x67f/0x748) from [<c001e917>] (do_group_exit+0x2f/0x80)
3.276 [ 8.246472] [<c001e917>] (do_group_exit+0x2f/0x80) from [<c001e97b>] (SyS_exit_group+0x13/0x14)
3.277 [ 8.255171] [<c001e97b>] (SyS_exit_group+0x13/0x14) from [<c000cc01>] (ret_fast_syscall+0x1/0x46)
3.278 [ 8.264036] CPU2: stopping
3.279 [ 8.266740] CPU: 2 PID: 0 Comm: swapper/2 Not tainted 3.10.11-linaro-highbank #2
3.280 [ 8.274135] [<c00118c9>] (unwind_backtrace+0x1/0x9c) from [<c000fa81>] (show_stack+0x11/0x14)
3.281 [ 8.282654] [<c000fa81>] (show_stack+0x11/0x14) from [<c0010cdf>] (handle_IPI+0xd3/0xf4)
3.282 [ 8.290740] [<c0010cdf>] (handle_IPI+0xd3/0xf4) from [<c0008435>] (gic_handle_irq+0x51/0x54)
3.283 [ 8.299174] [<c0008435>] (gic_handle_irq+0x51/0x54) from [<c000c79b>] (__irq_svc+0x3b/0x5c)
3.284 [ 8.307516] Exception stack(0xef0a7f88 to 0xef0a7fd0)
3.285 [ 8.312563] 7f80: ffffffed 006b2000 c05ddc74 00000000 ef0a6000 c060e464
3.286 [ 8.320734] 7fa0: c060de48 80000000 c05dc550 c03d8f20 00000001 ef0a6000 ef0a7f98 ef0a7fd0
3.287 [ 8.328904] 7fc0: c000d765 c000d75e 60000033 ffffffff
3.288 [ 8.333954] [<c000c79b>] (__irq_svc+0x3b/0x5c) from [<c000d75e>] (arch_cpu_idle+0x22/0x2c)
3.289 [ 8.342218] [<c000d75e>] (arch_cpu_idle+0x22/0x2c) from [<c00483d7>] (cpu_startup_entry+0xe3/0x164)
3.290 [ 8.351260] [<c00483d7>] (cpu_startup_entry+0xe3/0x164) from [<003ce5c9>] (0x3ce5c9)
3.291 [ 8.358995] CPU0: stopping
3.292 [ 8.361697] CPU: 0 PID: 0 Comm: swapper/0 Not tainted 3.10.11-linaro-highbank #2
3.293 [ 8.369091] [<c00118c9>] (unwind_backtrace+0x1/0x9c) from [<c000fa81>] (show_stack+0x11/0x14)
3.294 [ 8.377612] [<c000fa81>] (show_stack+0x11/0x14) from [<c0010cdf>] (handle_IPI+0xd3/0xf4)
3.295 [ 8.385697] [<c0010cdf>] (handle_IPI+0xd3/0xf4) from [<c0008435>] (gic_handle_irq+0x51/0x54)
3.296 [ 8.394129] [<c0008435>] (gic_handle_irq+0x51/0x54) from [<c000c79b>] (__irq_svc+0x3b/0x5c)
3.297 [ 8.402469] Exception stack(0xc05d5f58 to 0xc05d5fa0)
3.298 [ 8.407512] 5f40: ffffffed 006a0000
3.299 [ 8.415685] 5f60: c05ddc74 00000000 c05d4000 c060e464 c060de48 80000000 c05dc550 c03d8f20
3.300 [ 8.423857] 5f80: 00000001 c05d4000 c05d5f68 c05d5fa0 c000d765 c000d75e 60000033 ffffffff
3.301 [ 8.432031] [<c000c79b>] (__irq_svc+0x3b/0x5c) from [<c000d75e>] (arch_cpu_idle+0x22/0x2c)
3.302 [ 8.440292] [<c000d75e>] (arch_cpu_idle+0x22/0x2c) from [<c00483d7>] (cpu_startup_entry+0xe3/0x164)
3.303 [ 8.449336] [<c00483d7>] (cpu_startup_entry+0xe3/0x164) from [<c05838ef>] (start_kernel+0x2bb/0x2c4)
3.304 [ 8.458458] CPU1: stopping
3.305 [ 8.461161] CPU: 1 PID: 0 Comm: swapper/1 Not tainted 3.10.11-linaro-highbank #2
3.306 [ 8.468559] [<c00118c9>] (unwind_backtrace+0x1/0x9c) from [<c000fa81>] (show_stack+0x11/0x14)
3.307 [ 8.477078] [<c000fa81>] (show_stack+0x11/0x14) from [<c0010cdf>] (handle_IPI+0xd3/0xf4)
3.308 [ 8.485166] [<c0010cdf>] (handle_IPI+0xd3/0xf4) from [<c0008435>] (gic_handle_irq+0x51/0x54)
3.309 [ 8.493598] [<c0008435>] (gic_handle_irq+0x51/0x54) from [<c000c79b>] (__irq_svc+0x3b/0x5c)
3.310 [ 8.501938] Exception stack(0xef0a5f88 to 0xef0a5fd0)
3.311 [ 8.506985] 5f80: ffffffed 006a9000 c05ddc74 00000000 ef0a4000 c060e464
3.312 [ 8.515155] 5fa0: c060de48 80000000 c05dc550 c03d8f20 00000001 ef0a4000 ef0a5f98 ef0a5fd0
3.313 [ 8.523323] 5fc0: c000d765 c000d75e 60000033 ffffffff
3.314 [ 8.528371] [<c000c79b>] (__irq_svc+0x3b/0x5c) from [<c000d75e>] (arch_cpu_idle+0x22/0x2c)
3.315 [ 8.536631] [<c000d75e>] (arch_cpu_idle+0x22/0x2c) from [<c00483d7>] (cpu_startup_entry+0xe3/0x164)
3.316 [ 8.545671] [<c00483d7>] (cpu_startup_entry+0xe3/0x164) from [<003ce5c9>] (0x3ce5c9)
```

KERNEL DEPLOYMENT

USING LAVA AS A DEVELOPER

DEFINE A JOB

- ENCODED IN JSON
- DESCRIBES
- SOFTWARE TO DEPLOY
- BOOTLOADER CONFIGURATION
- TESTS TO RUN
- BUNDLE STREAM FOR RESULTS

```
{
  "actions": [
    {
      "command": "deploy_linaro_kernel",
      "parameters": {
        "dtb": "http://community.validation.linaro.org/images/bbb/am335x-bone.dtb",
        "kernel": "http://community.validation.linaro.org/images/bbb/zImage",
        "ramdisk": "http://community.validation.linaro.org/images/bbb/uInitrd"
      }
    },
    {
      "command": "boot_linaro_image",
      "parameters": {
        "interactive_boot_cmds": true,
        "options": [
          "setenv autoload no",
          "setenv pxefile_addr_r '0x50000000'",
          "setenv kernel_addr_r '0x80200000'",
          "setenv initrd_addr_r '0x81000000'",
          "setenv fdt_addr_r '0x815f0000'",
          "setenv initrd_high '0xffffffff'",
          "setenv fdt_high '0xffffffff'",
          "setenv loadkernel 'tftp ${kernel_addr_r} ${lava_kernel}'",
          "setenv loadinitrd 'tftp ${initrd_addr_r} ${lava_ramdisk}; setenv initrd ${lava_loadaddr} tftp ${fdt_addr_r} ${lava_dtbs}'",
          "setenv bootargs 'console=tty0,115200n8 root=/dev/ram0 ip=:::::eth0:dhc",
          "setenv bootcmd 'dhcp; setenv serverip ${lava_server_ip}; run loadkernel
          \"boot\""
        ]
      }
    },
    {
      "command": "lava_test_shell",
      "parameters": {
        "testdef_repos": [
          {
            "git-repo": "git://git.linaro.org/qa/test-definitions.git",
            "testdef": "openembedded/kernel-version.yaml"
          }
        ],
        "timeout": 9600
      }
    },
    {
      "command": "submit_results",
      "parameters": {
        "server": "http://community-ci@validation.linaro.org/RPC2/",
        "stream": "/anonymous/lava-functional-tests/",
        "token": "rg3tkizuiw07gzeg6rhehwdrtej19ck4o33ko8fb0fdh9423ct270uf4mz7ra7bxg
      }
    }
  ],
  "device_type": "beaglebone-black",
  "health_check": false,
  "job_name": "bootloader-job-defined-boot-cmds-lava-test-shell",
  "logging_level": "DEBUG",
  "target": "beaglebone-black01",
  "timeout": 18000
}
```

SELECT A TARGET

- TARGET
- TIMEOUT (OPTIONAL)
- SPECIFIC DEVICE
- INTEGER
- DEVICE TYPE
- GROUP
- JOB NAME (OPTIONAL)
- STRING
- DEBUG LEVEL (OPTIONAL)

DEPLOY A KERNEL

- DEPLOY_LINARO_KERNEL
 - KERNEL (REQUIRED)
 - RAMDISK (OPTIONAL)
 - DTB (OPTIONAL)
 - FIRMWARE (OPTIONAL)
 - BOOTLOADER (OPTIONAL)
- URLs
 - FILE://
 - HTTP(S)://
 - SCP://
 - DATA://
 - BASE64 ENCODED
 - COMING SOON

BOOT

- BOOT_LINARO_IMAGE
- BOOT THE TARGET INTO TEST IMAGE
- DEFAULT BOOT COMMANDS ARE DEFINED BY LAVA
- CUSTOM BOOT COMMANDS CAN BE EMBEDDED IN JOB
- BOOT COMMAND STANZA
- SEND / EXPECT
- SENDLINE

```

tions": [
{
  "command": "deploy_linaro_kernel",
  "parameters": {
    "dtb": "http://community.validation.linaro.org/images/bbb/am335x-bone.dtb",
    "kernel": "http://community.validation.linaro.org/images/bbb/zImage",
    "ramdisk": "http://community.validation.linaro.org/images/bbb/uInitrd"
  }
},
{
  "command": "boot_linaro_image",
  "parameters": {
    "interactive_boot_cmds": true,
    "options": [
      "setenv autoload no",
      "setenv pxefile_addr_r '0x50000000'",
      "setenv kernel_addr_r '0x80200000'",
      "setenv initrd_addr_r '0x81000000'",
      "setenv fdt_addr_r '0x815f0000'",
      "setenv initrd_high '0xffffffff'",
      "setenv fdt_high '0xffffffff'",
      "setenv loadkernel 'tftp ${kernel_addr_r} ${lava_kernel}'",
      "setenv loadinitrd 'tftp ${initrd_addr_r} ${lava_ramdisk}; setenv initrd_size ${filesize}'",
      "setenv loadfdt 'tftp ${fdt_addr_r} ${lava_dtb}'",
      "setenv bootargs 'console=tty0,115200n8 root=/dev/ram0 ip=:::::eth0:dhcp'",
      "dhcp; setenv serverip ${lava_server_ip}",
      "run loadkernel; run loadinitrd; run loadfdt",
      "bootz ${kernel_addr_r} ${initrd_addr_r} ${fdt_addr_r}"
    ]
  }
},
{
  "command": "lava_test_shell",
  "parameters": {
    "testdef_repos": [
      {
        "git-repo": "git://git.linaro.org/qa/test-definitions.git",
        "testdef": "openembedded/kernel-version.yaml"
      }
    ]
  }
}
]

```

INTERACTIVE BOOT COMMANDS

```

"command": "deploy_linaro_image",
"parameters": {
  "hwpack": "http://releases.linaro.org/13.07/ubuntu/vexpress/hwpack_linaro-vexpress_20130723-408_armhf",
  "rootfs": "http://snapshots.linaro.org/ubuntu/images/nano-lava/447/linaro-raring-nano-lava-20130730-447-armhf",
  "bootloader": "uefi"
},
,

"command": "boot_linaro_image",
"parameters": {
  "interactive_boot_cmds": true,
  "options": [
    "sendline a",
    "expect Choice:",
    "sendline 1",
    "expect Select the Boot Device:",
    "sendline 2",
    "expect File path of the EFI Application or the kernel:",
    "sendline uImage",
    "expect [a/g/l]",
    "sendline l",
    "expect Add an initrd: [y/n]",
    "sendline y",
    "expect File path of the initrd:",
    "sendline uInitrd",
    "expect Arguments to pass to the binary:",
    "sendline console=ttyAMA0,38400n8 root=/dev/mmcblk0p2 rootwait ro mem=1024M earlyprintk",
    "expect File path of the local FDT:",
    "sendline rtsm\\rtsm_ve-ca15x4-ca7x4.dtb",
    "expect Description for this new Entry:",
    "sendline Test Image",
    "expect Choice:",
    "sendline 5",
    "expect Start:",
    "sendline 2"
  ]
},
,

"command": "lava_test_shell",
"parameters": {
  "testdef_repos": []
}

```

INTERACTIVE BOOT COMMANDS

RUN A TEST

- LAVA_TEST_SHELL
- PARSES STDOUT
- TEST DESCRIPTION
- URLs
- DEFINED IN YAML
- FILE://
- INSTALL STEPS
- HTTP://
- RUN STEPS
- GIT
- RUNS ON THE TARGET
- BZR

SUBMIT RESULTS

- SUBMIT_RESULTS
- BUNDLE STEAM
- SERVER
- BUNDLES LAVA RESULTS
- SUBMITS THEM TO DASHBOARD

```
{  
    "actions": [  
        {  
            "command": "deploy_linaro_kernel",  
            "parameters": {  
                "dtb": "http://community.validation.linaro.org/images/bbb/am335x-bone.dtb",  
                "kernel": "http://community.validation.linaro.org/images/bbb/zImage",  
                "ramdisk": "http://community.validation.linaro.org/images/bbb/uInitrd"  
            }  
        },  
        {  
            "command": "boot_linaro_image"  
        },  
        {  
            "command": "lava_test_shell",  
            "parameters": {  
                "testdef_repos": [  
                    {  
                        "git-repo": "git://git.linaro.org/qa/test-definitions.git",  
                        "testdef": "openembedded/kernel-version.yaml"  
                    }  
                ],  
                "timeout": 9600  
            }  
        },  
        {  
            "command": "submit_results",  
            "parameters": {  
                "server": "http://validation.linaro.org/RPC2/",  
                "stream": "/anonymous/lava-functional-tests/"  
            }  
        }  
    ],  
    "device_type": "beaglebone-black",  
    "job_name": "bootloader-device-defined-boot-cmds-lava-test-shell",  
    "timeout": 18000  
}
```

EXAMPLE JOB

UNDER THE HOOD

- LAVA DISPATCHER
 - DOWNLOADS BINARIES
 - POWERS ON DEVICE
 - ENTERS THE BOOTLOADER
- SETS ENVIRONMENT VARIABLES
 - LAVA_KERNEL
 - LAVA_RAMDISK
 - LAVA_DTB
 - LAVA_BOOTLOADER
 - LAVA_FIRMWARE

UNDER THE HOOD

- RUN THE BOOT COMMANDS
- PARSES RESULTS
- SERVES BINARIES OVER TFTP
- PULLS RESULTS
- WAITS FOR PROMPT
- OVER TCP/IP
- DEPLOYS TESTS
- SUBMITS RESULTS BUNDLE TO SERVER
- OVER TCP/IP
- INVOKES TEST RUNNER

LAVA ASSUMPTIONS

- RAMDISK WILL PROVIDE
 - POSIX SHELL
 - BUSYBOX
 - HTTPD
 - GREP
 - CAT
 - AWK
- IFCONFIG
- NETWORK CONNECTIVITY
- FREE SPACE
- NETWORK ASSUMPTIONS ARE BAD

LAVA COMMAND

- LAVA_COMMAND
- ONLY ASSUMES CONSOLE ACCESS
- RUN COMMANDS
- STDOUT STORED ON LAVA SERVER
- ENABLES BOOTLOADER TESTING
- CURRENTLY UNDER DEVELOPMENT
- LANDING 2013.09

```
{  
    "actions": [  
        {  
            "command": "deploy_linaro_kernel",  
            "parameters": {  
                "dtb": "http://community.validation.linaro.org/images/bbb/am335x-bone.dtb",  
                "kernel": "http://community.validation.linaro.org/images/bbb/zImage",  
                "ramdisk": "http://community.validation.linaro.org/images/bbb/uInitrd"  
            }  
        },  
        {  
            "command": "boot_linaro_image"  
        },  
        {  
            "command": "lava_command_run",  
            "parameters": {  
                "commands": ["cd ltp",  
                             "./run-ltp.sh"],  
                "parser" : "^(?P<test_case_id>\\S+)\\s+\\d+\\s+(?P<result>\\w+)\\s+:\\s+.+",  
                "fixupdict" : ["pass=TPASS",  
                               "fail=TFAIL"],  
            }  
        },  
        {  
            "command": "submit_results",  
            "parameters": {  
                "server": "http://community-ci@validation.linaro.org/RPC2/",  
                "stream": "/anonymous/lava-functional-tests/"  
            }  
        }  
    ],  
    "device_type": "beaglebone-black",  
    "job_name": "bootloader-device-defined-boot-cmds-lava-test-shell",  
    "timeout": 18000  
}
```

LAVA COMMAND

LAVA TEST SHELL

- LAVA EXPECTS
- STDOUT
- LAVA DOES NOT CARE
ABOUT LANGUAGES
- USERS DEFINE A PARSER
- REGULAR EXPRESSION
- LAVA PARSES STDOUT
- GENERATES RESULTS
- LAVA TEST DEFINITIONS
- DEFINED IN YAML
- PACKAGES FOR
INSTALLATION

#3-215b28a5

Build #3-215b28a5 (Aug 17, 2013 5:13:20 PM)

 Changes



1. MAINTAINERS: Change ownership for SGI specific modules. ([detail](#))
2. s390: Fix broken build ([detail](#))

 Started by upstream project [linux-arm-kernel-build-trigger](#) build number 8 originally caused by:

- Started by anonymous user

 Revision: 215b28a5308f3d332df2ee09ef11fda45d7e4a92

- origin/master

Configurations

acs5k acs5k_tiny ag5evm am200epdkit ape6evm armadillo800eva assabet at91_dt at91rm9263 at91sam9263 at91sam9q45 at91sam9rl at91x40 badge4 bcm2835 bcm bockw cerfcube clps7 colibri_pxa270 colibri_pxa300 collie corgi da8xx omapl davinci_all dove ebsa110 em_x270 footbridge h3600 h5000 hackkit imote2 imx_v4_v5 imx_v6_v7 integrator iop13xx iop32x kota2 ks8695 kzm9d kzm9g lart lpc32xx lp270 lubbock mackerel magician mainstone mv78xx0 mvebu mxs neponset netwinder netx nhk8815 nuc910 nuc950 nuc960 oma prima2 pxa168 pxa255-idp pxa3xx pxa910 raumfeld realview-smp realview rpc s3c2410 shannon shark simpad socfpqa spear13xx spear3xx spear6xx spitz tct_hammer tegra viper xcep zeus

CONTINUOUS INTEGRATION

BUILD | BOOT | TEST | VALIDATION USING LAVA

BUILD

- BUILD THE BINARIES
- CREATE A LAVA JOB
- JENKINS
- JSON LIBRARY
- HUDSON
- SED TEMPLATE
- HOMEBREW SCRIPTS
- SUBMIT JOB
- METADATA
- LAVA TOOL (CLI)
- GIT REVISION
- XML-API
- KERNEL VERSION
- JOB ID

```
{  
  "device_type": "beagle-xm",  
  "actions": [  
    {  
      "command": "deploy_linaro_image",  
      "parameters": {  
        "kernel": "BUILD_URLartifact/arch/arm/boot/zImage",  
        "ramdisk": "http://www.nwdrone.com/images/bbb_tftp/uInitrd",  
        "dtb": "BUILD_URLartifact/arch/arm/boot/dts/omap3-beagle-xm.dtb"  
      },  
      "metadata": {  
        "ci.delivery": "tftp",  
        "ci.build": "BUILD_NUMBER",  
        "ci.name": "JOB_NAME",  
        "kernel.version": "KERNEL_VERSION"  
      }  
    },  
    {  
      "command": "boot_linaro_image"  
    },  
    {  
      "command": "submit_results",  
      "parameters": {  
        "stream": "/anonymous/beagle-xm/",  
        "server": "http://www.nwdrone.com/RPC2/"  
      }  
    }  
  ],  
  "timeout": 18000,  
  "job_name": "Beagleboard Linux KERNEL_VERSION CI"  
}
```

SED JOB TEMPLATE

BOOT

- POLL JOB STATUS
- ON COMPLETE
- SUBMITTED
- DEVICE BOOTED
- RUNNING
- ON INCOMPLETE
- INCOMPLETE
- ERROR DETECTED
- COMPLETE
- GET CONSOLE LOG
- PARSE FOR ERRORS

```
{
    "command": "lava_test_shell",
    "parameters": {
        "testdef_repos": [
            {
                "git-repo": "http://staging.git.linaro.org/git-ro/lava-team",
                "testdef": "lava-test-shell/multi-node/multinode02.yaml"
            }
        ],
        "timeout": 1800
    }
},
{
    "command": "submit_results_on_host",
    "parameters": {
        "stream": "/anonymous/lava-functional-tests/",
        "server": "http://staging.validation.linaro.org/RPC2/"
    }
}
]
}
staging.validation.linaro.org
http://staging.validation.linaro.org/scheduler/job/2104
Job Status: Submitted
Job Status: Running
Job Status: Complete
Finished: SUCCESS
```

BOOT MONITORING

TEST

- GATHER TEST RESULTS
- GENERATE LINK TO TEST RESULTS
- GET CONSOLE LOG
- PARSE FOR REGRESSIONS
- GET TEST RESULTS
- CONVERT TEST RESULT (OPTIONAL)
- E-MAIL DEVELOPERS OR MAILING LIST

Test run details

Test Name (?): [ltp](#)

Test Run UUID (?): 651847ef-9867-4479-9942-af0b60f9f87c ([permalink](#))

Bundle SHA1 (?): [2015198bc...bf16](#)

Tags (?): There are no tags associated with this test run.

Software context

OS Distribution: Linaro 13.04

Software packages (?): [See all 276 software packages](#)

Software sources (?): [See all 1 source references](#)

Hardware context

Board: Generic AM33XX (Flattened Device Tree)

Other devices (?): [See all 3 devices](#)

Custom attributes (?)

```
rootfs.type = nano
target.device_type = beaglebone-black
target.device_version = 20130523-340/20130328-317
target.hostname = beaglebone-black01
target.linaro-media-create-version = linaro-media-create 2013.04.1 : usage: qemu-arm [options] program [arguments...]
ubuntu.build = 299
ubuntu.distribution = quantal
ubuntu.name = beaglebone-black
```

Time stamps (?)

Log analyzed on (?): May 25, 2013 1:08 a.m. (3 months, 2 weeks ago)

Time check performed (?): no

Data imported on (?): May 25, 2013 1:11 a.m. (3 months, 2 weeks ago)

Results

#	Test Case	Result
1	abort01	✗ fail
2	accept01	✓ pass
3	accept01	✓ pass
4	accept01	✓ pass
5	accept01	✓ pass
6	accept01	✓ pass
7	accept01	✓ pass
8	accept01	✓ pass
9	accept04_01	✓ pass
10	accept04_01	✓ pass
11	accept04_01	✓ pass
12	accept04_01	✓ pass
13	access01	✓ pass
14	access01	✓ pass
15	access01	✓ pass
16	access01	✓ pass
17	access03	✓ pass
18	access03	✓ pass
19	access03	✓ pass
20	access03	✓ pass
21	access03	✓ pass
22	access03	✓ pass
23	access03	✓ pass
24	access03	✓ pass
25	access04	✓ pass

Showing 1 to 25 of 3,962 entries

TEST RESULTS

LAVA ROADMAP

- BZR -> GIT
- AUTO BISECT
- IN PROGRESS
- PLANNING
- LAVA COMMAND
- REPORTING
- IN PROGRESS
- REGRESSIONS
- PACKAGING
- KPI TRENDS
- APT
- YUM

LAVA RESOURCES

- IRC.FREENODE.NET
 - #LINARO-LAVA
- MAILING LIST
 - LINARO-VALIDATION@LIST.LINARO.ORG
- WIKI
 - <HTTP://WIKI.LINARO.ORG/PLATFORM/LAVA>

THANK YOU

QUESTIONS?