



Yocto Project® Intro to Yocto validation

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**Yocto Project *Virtual* Summit Europe, October 29-30,
2020**

Intro

- **This would not be possible without the gracious contributions of the Yocto Project Members.**
- **They have help fund the infrastructure and resources to make this all happen.**
- **Lots of community support**

Intro

- **Agenda**
 - **Continuous Integration**
 - **Quality Assurance**
 - **Some extras**



Continuous Integration

CI - overview

- **Our CI is called “AutoBuilder”**
 - **Buildbot technology**
 - **Initial version 2012**
 - **Version 2 - 2018**
 - **Buildbot separation**
 - **Easier to maintain**
 - **Easier to update**

CI - overview

- **Public**
 - **<https://autobuilder.yoctoproject.org/>**
- **Workers are x86 and Arm64**
- **Wide range of Hosts**
 - **Centos** **Fedora**
 - **Ubuntu** **Debian**
 - **OpenSuse** **Tumbleweed**

CI - overview

- **Two system configurations**
 - **Controller**
 - <https://git.yoctoproject.org/git/yocto-autobuilder2>
 - **Worker**
 - **Per branch configurations**
 - **Per supported distos**
 - <https://git.yoctoproject.org/git/yocto-autobuilder-helper>

CI: A-Quick

- **41 builds**
- **All Machines**
- **Multilib**
- **musl**
- **single selftest**
- **Runtime test**
 - **Fast Ptest**

CI: A-Quick

- **Alt config**
 - **Systemd**
 - **pam**
 - **Different kernel version**

CI: A-full

- **All of A-quick**
 - **14 more build configurations**
- **All selftest**
- **All ptest**
 - **ltp**
- **buildperf**
- **Member layers**

CI: Use cases

- **Package updates**
- **New host OS validation**
- **Stable releases**
- **LTS release**
- **AUH**
- **Kernel updates**

CI: artifacts

- **Builds**
 - <https://autobuilder.yocto.io/pub/non-release/>
 - <https://autobuilder.yocto.io/pub/releases/>
- **Official Releases**
 - <http://downloads.yoctoproject.org/releases/>

CI: artifacts

- **Mirrors**
 - **Shared State**
 - **<http://sstate.yoctoproject.org/PATH>**
 - **Sources**
 - **<http://downloads.yoctoproject.org/mirror/sources/>**

CI: artifacts - Historical

- **Errors**
 - <https://errors.yoctoproject.org>
- **Buildhistory**
 - <https://git.yoctoproject.org/git/poky-buildhistory>
- **Wiki build logs**
 - <https://wiki.yoctoproject.org/wiki/BuildLog>



Quality Assurance

QA

- **There are two QA categories:**
 - **CI**
 - **A-quick**
 - **A-full**
 - **Formal**
 - **Independent verification**
 - **Covers Manual tests**
 - **Reports generated**

CI - QA

- **First tests added in 2013**
- **Framework based on “unittest”**
- **Test groupings:**
 - **Selftests**
 - **Runtime**
 - **(e)sdk**
 - **Buildperf**

QA - selftests

- **Two kinds**
 - **Bitbake-selftest**
 - **353 + testcases**
 - **Oe-selftest**
 - **400 + testcases**
- **Tests run on the host**

QA - selftests

- **Used to help validate new OS's**
- **Standard three test states:**
 - **Pass/Fail**
 - **Skip**
 - **Auto detection**

QA - runtime

- **Run on a MACHINE**
 - **Virtual**
 - **Real hardware**
- **Executive commands**
 - **Check ps**
 - **Parse logs**

QA - runtime

- **Special case tests**
 - **Ptest**
 - **Tests per package**
 - **Executor ptest-runner**
 - **Currently 135 tests**
 - **LTP**
- **Split results**
 - **pass/fail/skip**

QA - runtime

- **(e)SDK**
 - **25 tests**
- **Results**
 - **Json**
 - **tmp/logs/oeqa**
 - **uploaded**
 - **<http://git.yoctoproject.org/cgi/cgi.cgi/yocto-testresults/>**

CI - QA

- **Buildperf**
 - **Collects data on how long things take to run and resource usage.**
 - **<https://wiki.yoctoproject.org/wiki/TipsAndTricks/MiningPerformanceData>**
 - **<http://git.yoctoproject.org/cgit/cgit.cgi/yocto-buildstats/>**

General

	Current commit	Comparing with
Hostname	perf-centos7.yoctoproject.org	perf-centos7.yoctoproject.org
Branch	master	master
Commit number	57867	57867
Commit	5d47cdf448b	5d47cdf448b
Number of test runs	1	1

Test result summary

test1: Build core-image-sato	build time	1:04:57	+0.00 s	+0.0 %
	tmpdir size	44.93 GiB	+0.0 kiB	+0.0 %
	rootfs size	256.16 MiB	+0.0 kiB	+0.0 %
test12: Build virtual/kernel	build time	5:40.7	+0.00 s	+0.0 %
test13: Build core-image-sato with rm_work enabled	build time	1:05:43	+0.00 s	+0.0 %
	tmpdir size	7.44 GiB	+0.0 kiB	+0.0 %
test2: Run core-image-sato do_rootfs with sstate	do_rootfs time	2:17.4	+0.00 s	+0.0 %
test3: Bitbake parsing (bitbake -p)	parse_1 time	15.3 s	+0.00 s	+0.0 %
	parse_2 time	10.4 s	+0.00 s	+0.0 %
	parse_3 time	2.2 s	+0.00 s	+0.0 %
test4: eSDK metrics	installer_bin size	264.46 MiB	+0.0 kiB	+0.0 %
	deploy time	1:08.3	+0.00 s	+0.0 %
	deploy_dir size	1.51 GiB	+0.0 kiB	+0.0 %



QA - Formal

Formal QA

- **Donated resources from Intel and Windriver**
 - **Intel does Intel h/w**
 - **QA lead**
 - **Windriver does Non-Intel h/w**
 - **Beaglebone**
 - **PPC**
 - **EdgeRouter**

Formal QA

- **We do Formal QA when the Project has a need to do an official release**
 - **Milestones**
 - **Typical cycle**
 - **https://wiki.yoctoproject.org/wiki/Yocto_3.2_Schedule#Yocto_Project_3.2_release_milestone_structure**
 - **New stable**
 - **Dot releases**

Formal QA

- **Provides as an independent checks & balances**
- **Re-Run Automated tests**
- **Run the Manual tests on real hardware including our official Yocto BSP's**

Formal QA

- **Additional regression analysis**
 - **Resulttool**
 - **Comparison between test runs**
 - **Ptests**
 - **Ltp**
 - **Toolchain**

Formal QA

- **Official QA results reported**
 - **Uploaded to git**
 - <http://git.yoctoproject.org/cgit/cgit.cgi/yocto-testresults-contrib/>
 - **Defects opened on regressions**
 - **Sent to mailing list**
 - **Yocto@**

Formal QA

Hello all,

This is the full report for yocto-3.2_M3.rc2:

<https://git.yoctoproject.org/cgi/cgit.cgi/yocto-testresults-contrib/tree/?h=intel-yocto-testresults>

=====
Summary
=====

No new defects are found.

No high milestone defects.

Bugs verified:

1. BUG id:14052 - The beaglebone can not bootup

Verified Fixed.

2. BUG id:14055 - failure in oe-core manual test: test_dependency_explorer_is_launched

Verified Fixed (with patch applied).

Existing bugs observed in this release:

1. valgrind ptest failed (BUG id:14051)

Updated with additional failures observed.

2. parted ptest failed (BUG id:14050)

3. pango ptest failed (BUG id:14049)

=====
Bugs
=====

https://bugzilla.yoctoproject.org/show_bug.cgi?id=14052

https://bugzilla.yoctoproject.org/show_bug.cgi?id=14055

https://bugzilla.yoctoproject.org/show_bug.cgi?id=14051

https://bugzilla.yoctoproject.org/show_bug.cgi?id=14050

https://bugzilla.yoctoproject.org/show_bug.cgi?id=14049

Thanks,

Sangeeta

Formal QA

- **Yocto Project TSC**
 - **Reviews**
 - **Approves**



Hey old Man! Anything else ?

Extra

- **The base framework is contained in core**
- **meta/lib/oeqa**
 - **Buildperf**
 - **Runtime**
 - **Selftest**
 - **sdk**
 - **Manual**

- **Framework can be extended**
 - **Any layer can add their own**
 - **Use the same directory structure**
 - **Inherit the appropriate classes**
 - **Examples**
 - **meta-openembedded**
 - **meta-intel**
 - **meta-security**

- **Run automated tests on a MACHINE**
 - **INHERIT += “testimage”**
 - **Bitbake {image} -c testimage**
- **On real hardware**
 - **TEST_TARGET_IP**
 - **TEST_SERVER_IP**

A decorative pattern of semi-transparent grey hexagons is located in the upper-left corner of the slide.

Thanks for your time

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