



Data Plane Development Kit Test Suite

Communications & Storage
Infrastructure Group

Intel DPDK Team



Agenda

1

What's DPDK Test Suite

2

Challenges to Validation on DPDK.ORG

3

Benefits from DPDK Test Suite

4

Integration with dpdk.org

What's DPDK Test Suite

- Overview

DPDK Test Suite is an open source automation test tool for DPDK software, a python-base library. It can run on remote tester machine, and communicate/manage DUT by SSH connection. DTF supports different kind of traffic generators, including DPDK-based PacketGen, third-party professional tester equipment (IXIA®).

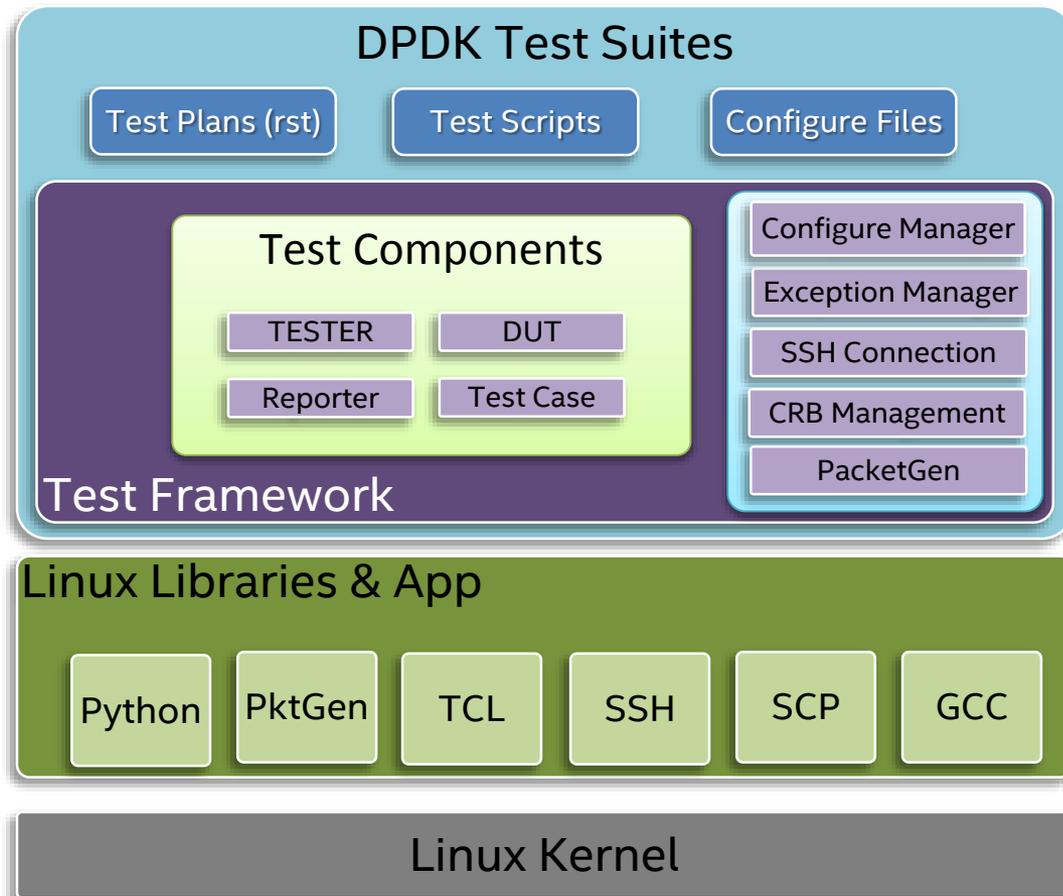
What's DPDK Test Suite

- Architecture

- DPDK Test Suite is open source test tool for DPDK developers, including one set of test cases and test framework.
- DTS will help to improve quality of open source patch and leverage effort with community members.

Test Cases in DTS:

- Command line
- Hello world
- Multi process
- Timer
- Blacklist /Whitelist
- Checksum offload
- Jumbo frame
- Testpmd
- L2fwd
- L3fwd
- IP fragment
- Flow direction
- Link flow control
- ieee1588
- Packet Framework
- Vlan cases
- NIC Generic Filter
- Link Bonding



What's DPDK Test Suite

- Functions List

As generic test framework, DTS provides the following functions:

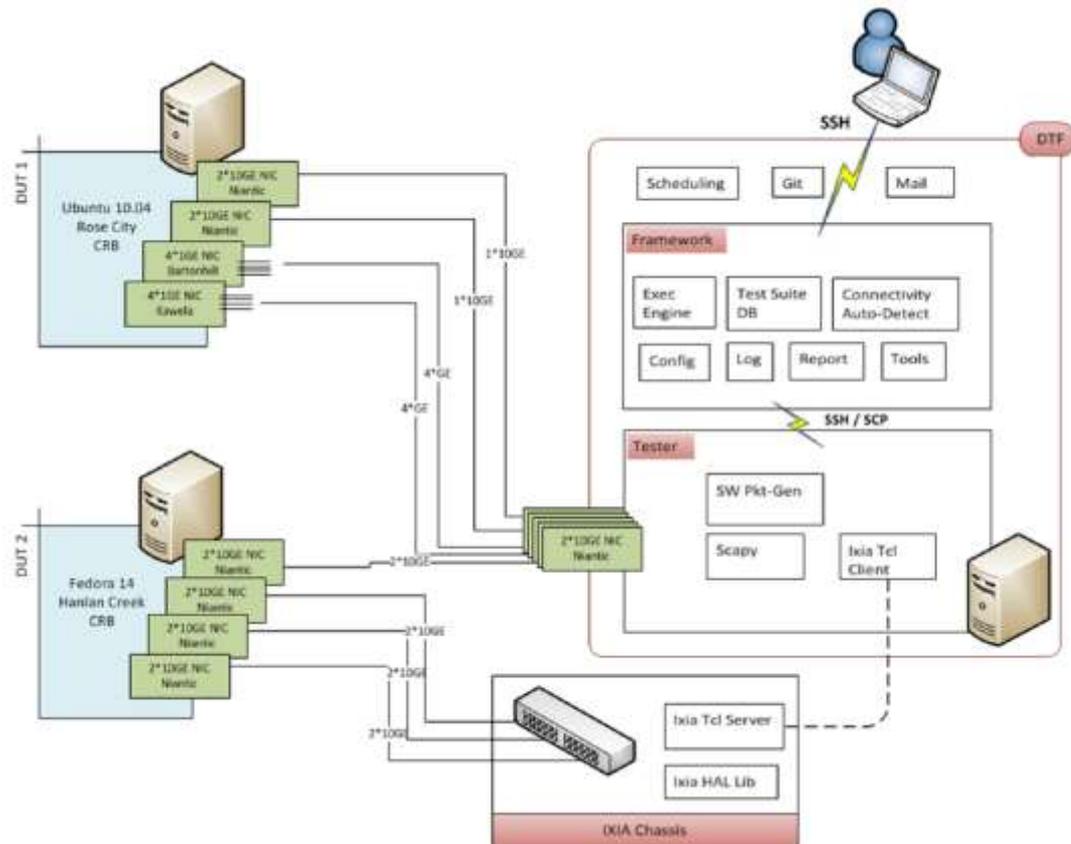
- Able to configure DUT (Device Under Test), which installed Fedora, Ubuntu, WindRiver, FreeBSD, RedHat and SUSE.
- Support both software and hardware traffic generators, including Scapy, DPDK-based PacketGen and IXIA traffic generator, even third party packet generator via TCL or Python library.
- Provide configure files to customize test suite and test cases to run under DUT.
- Support to output test result by excel, log text file, etc.

What's DPDK Test Suite

-Network Topology Management

DTS provides automatically mechanism to manage tester, DUT and packet generators both software and hardware IXIA.

In this architecture , DTS can automatically identify network topology and then configure/deploy environment for DUT and tester.

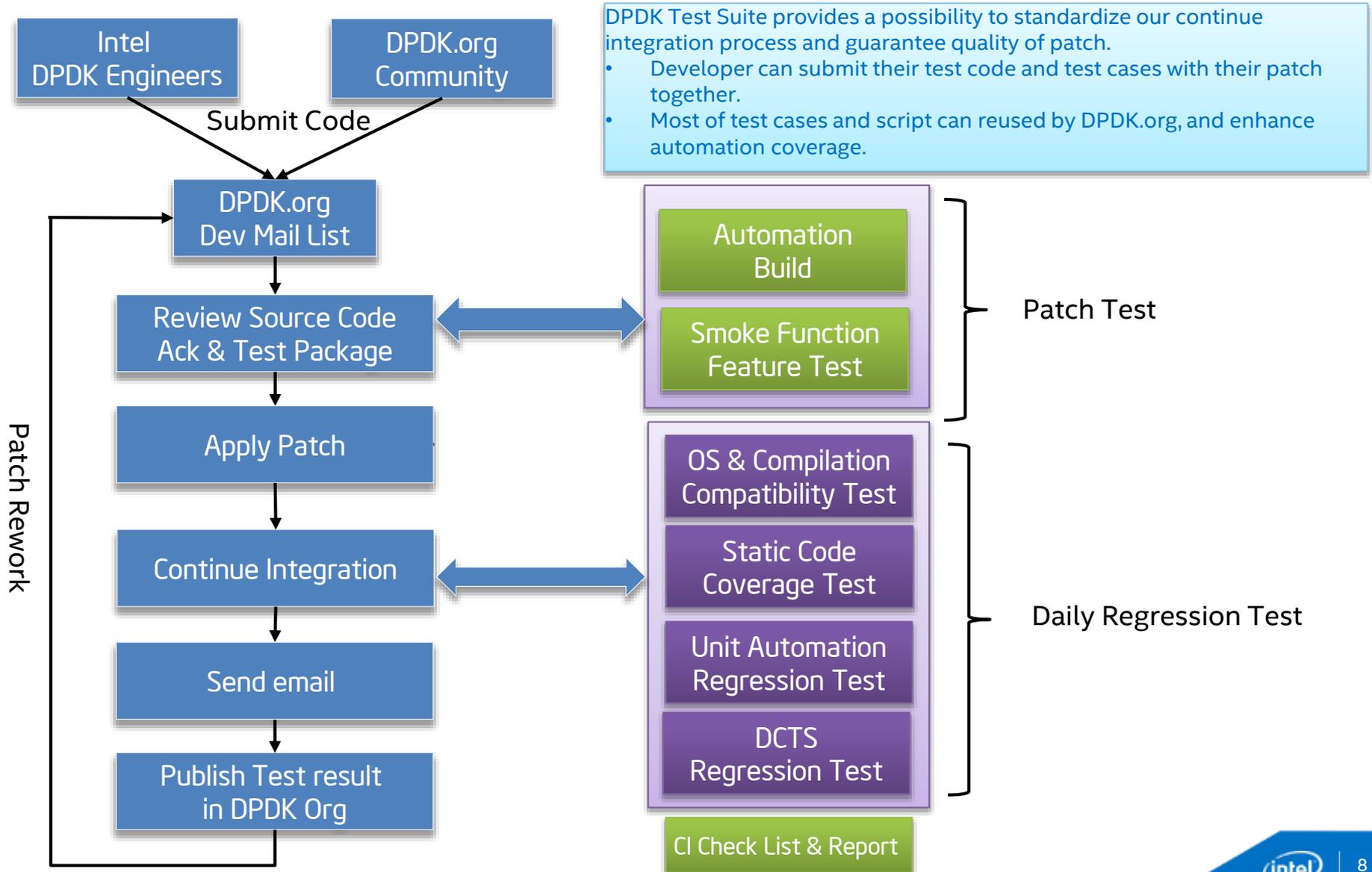


Challenges to Validation on DPDK.ORG

- Need to acknowledge/test feature patch in timely.
- Each features patch and example will have different behaviors in different environments, and cost a lot of issues and effort in platform configuration.
- Have to verify different options with different of kinds Processors, NIC, Linux Kernel , Compiler. That's huge & complicated matrix for testing.
- Lack of automation test on open source community
- Maintainer requires more information about test result before merge patches.

Benefits from DPDK Test Suite

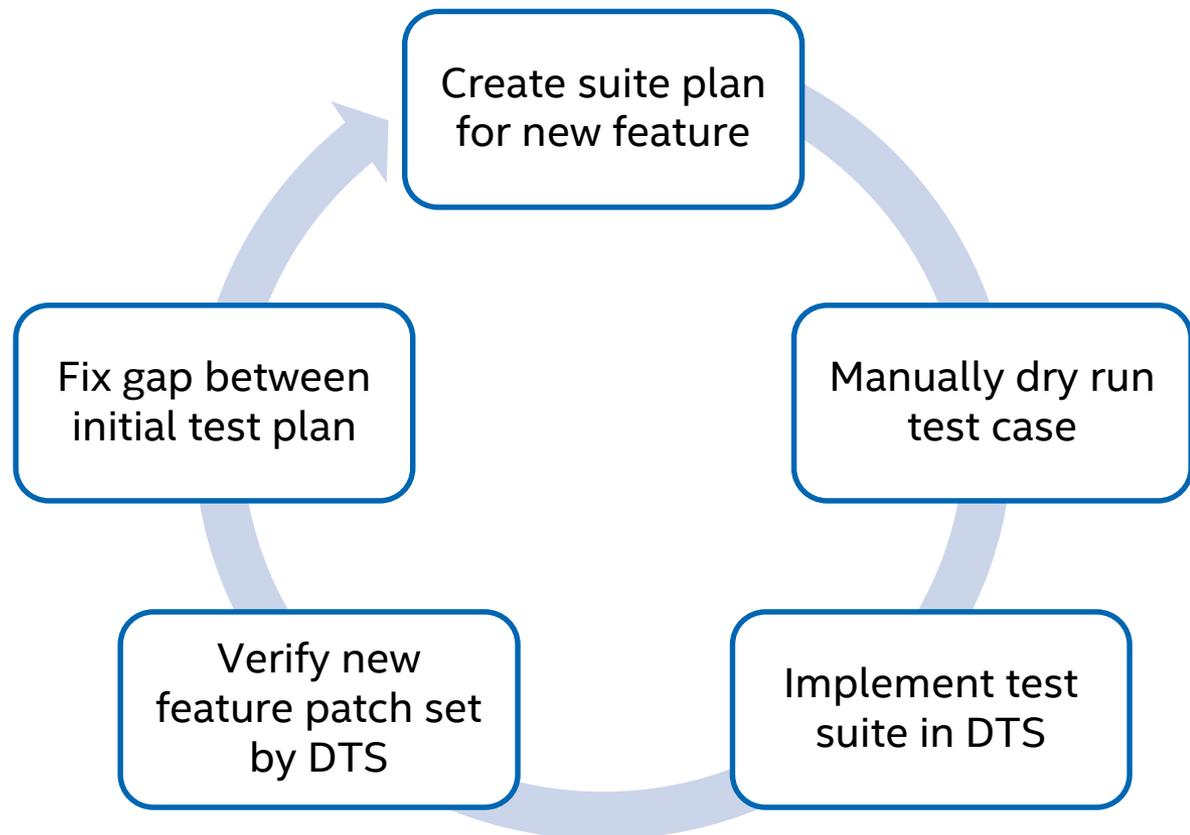
- Standardize Continue Integration Process



Benefits from DPDK Test Suite

- Saving validation effort on new patch

DPDK Test Suite provides a solution to allow that DPDK developers contribute their function test to certify their patch integration. It only requires limitation effort to maintain test cases once merged into DPDK Test Suite. Everyone can utilize DPDK Test Suite to measure performance and functionality for features.



Benefits from DPDK Test Suite

- Easy to track and manage test result

After DTS finished the validation, all the result files will be saved in output folder. The files in output folder maybe different when change the CRB or choose different suites.

Generally output folder will contained these files:

CRB : folder contained with result RST file and graph of performance data

dts.log: Full execution log of DPDK Test Suite framework

statistics.txt: summary statistics of DPDK Test Suite executed suites

TestSuiteName .log: log message of suite

test_result.xls: excel format result file

Example for Result:

```
[root@tester output]# cat statistics.txt
```

```
Passed    = 2
```

```
Failed    = 0
```

```
Blocked   = 0
```

```
Pass rate = 100.0
```

<i>DUT</i>	<i>Target</i>	<i>NIC</i>	<i>Test suite</i>	<i>Test case</i>	<i>Results</i>
10.239.128.117	x86_64-native-linuxapp-gcc	niantic			
			hello_world	hello_world_all_cores	PASSED
				hello_world_single_core	PASSED

Integration with dpdk.org

DPDK.ORG: DTS Maintenance and Release

- Maintenance for DTS on DPDK.ORG
 - Marvin Liu (Intel) will maintain DPDK Test Suite code before finding other volunteers.
 - DTS Code will stored in separate repo.
 - It's better to create mail list to discuss testing stuffs for DTS
 - New test suites/cases will integrated into DTS as patch set.
- DTS Release management
 - Generally, DTS will deliver release package based on DPDK release timeline, provide stable version for each DPDK formal release.
 - DTS will release as extension or tool for DPDK.

DPDK.ORG: Download Link for DTS

DPDK: Data Plane Development Kit

[Home](#)[Download](#)[Documentation](#)[Development](#)[Mailing Lists](#)[Events](#)[News](#)[About](#)

Download

Latest version: 1.7.1.

Other versions and formats are available from the [browsing interface](#).

Once downloaded, follow the [quick start instructions](#) to build and run a first test.

Extensions

- [memnic](#) — latest: 1.3
- [virtio-net-pmd](#) — latest: 1.2
- [vmxnet3-usermap](#) — latest: 1.2

Applications

- [pktgen-dpdk](#) (traffic generator)

Tools

- [dts](#) (test suite)

DPDK.ORG: Upload DTS

Dpdk.org has create one separated repo for DTS and the first version code has been already pushed into repo.

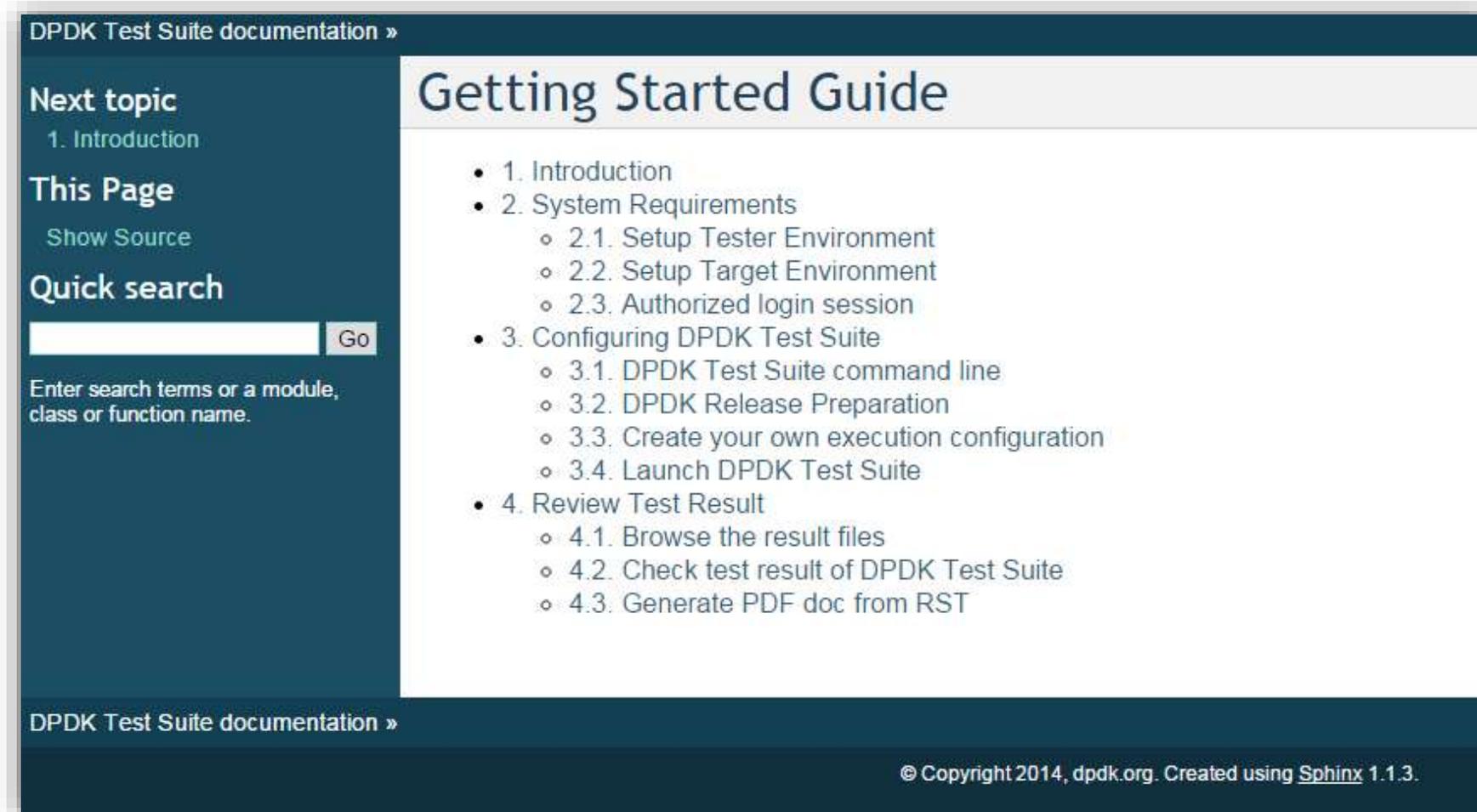


The screenshot shows a Git repository page for 'index:dts' on dpdk.org. The repository is titled 'index:dts' and is described as 'DPDK Test Suite'. The current branch is 'master'. The commit message is 'Tcl library update follow IXIA corporation copyright'. The author is 'Yong Lu' and the commit is 7 days old. The page includes navigation links for 'summary', 'refs', 'log', 'tree', 'commit', and 'diff'. There is also a search bar and a 'log msg' dropdown menu.

Branch	Commit message	Author	Age
master	Tcl library update follow IXIA corporation copyright	Yong Lu	7 days

DPDK.ORG: DTS GSG Documentation

User can create latest html format guide by make html target under folder doc/dts_gsg.



The screenshot displays the DPDK Test Suite documentation website. The main content area is titled "Getting Started Guide" and contains a list of sections:

- 1. Introduction
- 2. System Requirements
 - 2.1. Setup Tester Environment
 - 2.2. Setup Target Environment
 - 2.3. Authorized login session
- 3. Configuring DPDK Test Suite
 - 3.1. DPDK Test Suite command line
 - 3.2. DPDK Release Preparation
 - 3.3. Create your own execution configuration
 - 3.4. Launch DPDK Test Suite
- 4. Review Test Result
 - 4.1. Browse the result files
 - 4.2. Check test result of DPDK Test Suite
 - 4.3. Generate PDF doc from RST

The left sidebar includes a "Next topic" section with "1. Introduction", a "This Page" section with a "Show Source" link, and a "Quick search" section with a search input field and a "Go" button. The footer of the page contains the copyright information: "© Copyright 2014, dpdk.org. Created using Sphinx 1.1.3."

DPDK.ORG: Mail List for DPDK DTS

Intel® DPDK: Data Plane Development Kit

[Home](#) [Download](#) [Documentation](#) [Development](#) [Mailing Lists](#) [Events](#) [News](#) [About](#)

Mailing Lists

announce@dptk.org	release announcements (forwarded to dev list)	register archives
dev@dptk.org	patches reviews and development discussions	register archives gmane
dts@dptk.org	test suite reviews and discussions	register archives gmane

If you are having trouble using the lists, please contact admin@dptk.org.

Best practices

As advised by Eric S. Raymond in "[How To Ask Questions The Smart Way](#)", a good title convey what you're asking while not being too long. Then try to be descriptive in the email body.

In-line replies are preferred because it's easier to read. See [posting styles](#) for more details.

HTML emails are forbidden because they are difficult to view in the archives.

As this is a public mailing list, confidential disclaimers are not allowed.

