

Overview of openQA

The heart of openSUSE's automated
Testing

Ludwig Nussel
ludwig.nussel@suse.de



Testing openSUSE releases ...

- ▶ NET images
- ▶ DVD images
- ▶ Live images
- ▶ Biarch DVD
- ▶ Rescue CD



Testing openSUSE releases ...

- ▶ NET images
- ▶ DVD images
- ▶ Live images
- ▶ Biarch DVD
- ▶ Rescue CD
- ▶ USB
- ▶ DVD
- ▶ Desktop
- ▶ Laptop
- ▶ UEFI
- ▶ Legacy
- ▶ x86_64
- ▶ aarch64
- ▶ ppc64



Testing openSUSE releases ...

- ▶ NET images
- ▶ DVD images
- ▶ Live images
- ▶ Biarch DVD
- ▶ Rescue CD
- ▶ USB
- ▶ DVD
- ▶ Desktop
- ▶ Laptop
- ▶ UEFI
- ▶ Legacy
- ▶ x86_64
- ▶ aarch64
- ▶ ppc64
- ▶ GNOME
- ▶ KDE
- ▶ textmode
- ▶ RAID
- ▶ LVM
- ▶ ext4
- ▶ btrfs
- ▶ LUKS
- ▶ ...



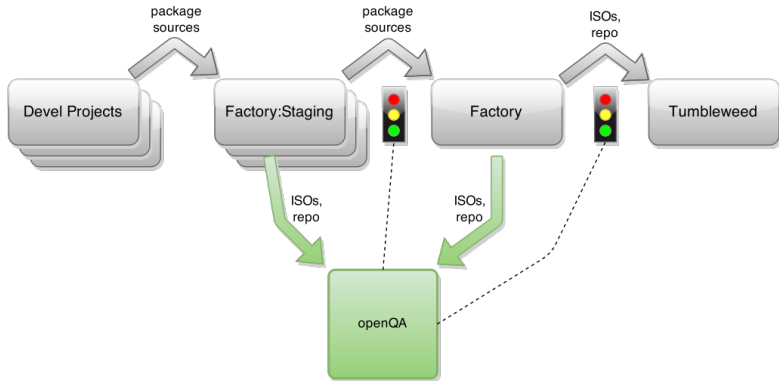
Testing openSUSE releases ...

- ▶ NET images
- ▶ DVD images
- ▶ Live images
- ▶ Biarch DVD
- ▶ Rescue CD
- ▶ USB
- ▶ DVD
- ▶ Desktop
- ▶ Laptop
- ▶ UEFI
- ▶ Legacy
- ▶ x86_64
- ▶ aarch64
- ▶ ppc64
- ▶ GNOME
- ▶ KDE
- ▶ textmode
- ▶ RAID
- ▶ LVM
- ▶ ext4
- ▶ btrfs
- ▶ LUKS
- ▶ ...

... needs automation!



openQA in openSUSE

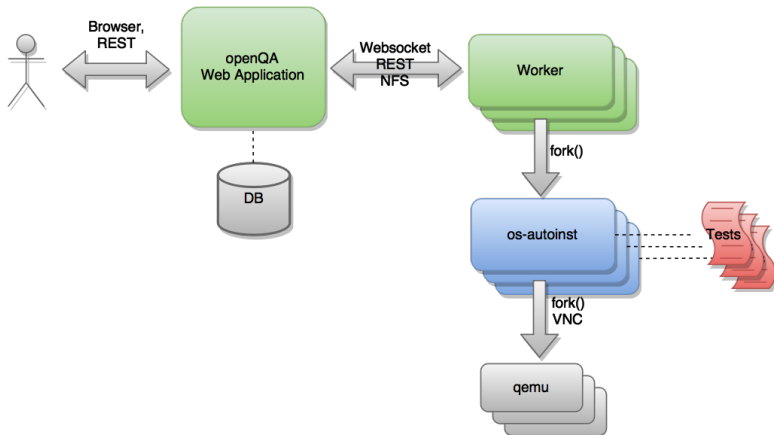


Basic Ideas

- ▶ test full stack: bootloader, installer, desktop, apps
- ▶ image recognition to "see like a human"
- ▶ act on the image seen (keyboard, mouse)
- ▶ use virtualization
- ▶ parallelize
- ▶ report!



Architecture



openQA welcome screen

openQA

Logged as Inussel ([manage API keys](#) | [admin](#) | [Logout](#))

Welcome to openQA

Life is too short for manual testing!

[Learn more »](#)



openSUSE Tumbleweed

[Build20150425](#) (2 days ago)

100 passed

5

[Build20150423](#) (4 days ago)

99 passed

6

[Build20150422](#) (5 days ago)

99 passed

6














openQA build overview

Test result overview

Overall Summary of **openSUSE Tumbleweed** build 20150425

Passed: **74** Soft Failure: **26** Failed: **5**












Flavor: DVD

Test	i586	x86_64
RAID0	-	C 
RAID1	-	C 
RAID10	-	C 
RAID5	-	C 
cryptlvm	C  yast2_bootloader	C 
dual_windows8	-	C 
ext4	C 	C 
gnome	C  gnucash	C  gnucash
gnome@Laptop_32	C  gnucash	-
gnome@Laptop_64	-	C  gnucash

openQA job overview

Results for opensuse-Tumbleweed-DVD-i586-Build20150425-cryptlvm

Result: **passed** finished 2 days ago (36:50 minutes)

Test	Result	References
isozsize !	passed	
bootloader 🐛	passed	     
welcome 🐛	passed	 
good_buttons 🐛	passed	
installation_mode 🐛	passed	

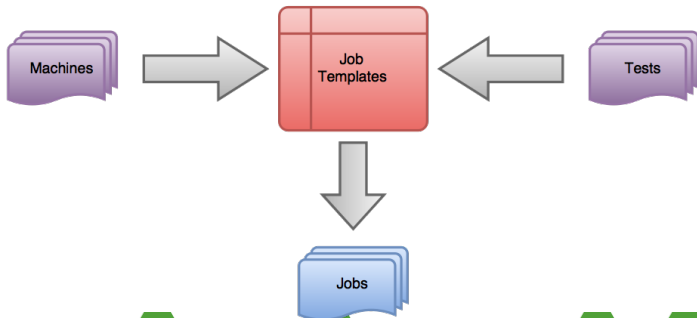
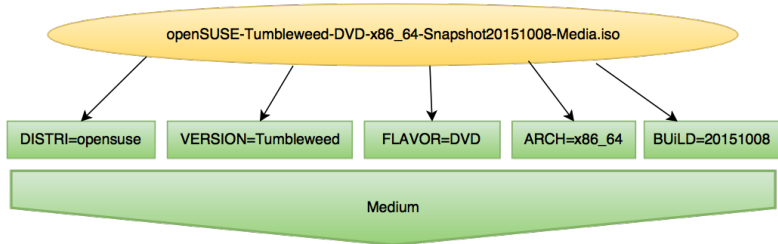
A Job in openQA

A job ...

- ▶ is a set of tests to run (installation, log in, launch Firefox..)
- ▶ has a state (running, scheduled, cancelled, ...)
- ▶ has a result (passed, failed)
- ▶ has settings
 - ▶ machine settings (disk size, CPU, ...)
 - ▶ media/product settings (ISO name, repo to use, ...)
 - ▶ test suite settings (Desktop, partitioning, ...)



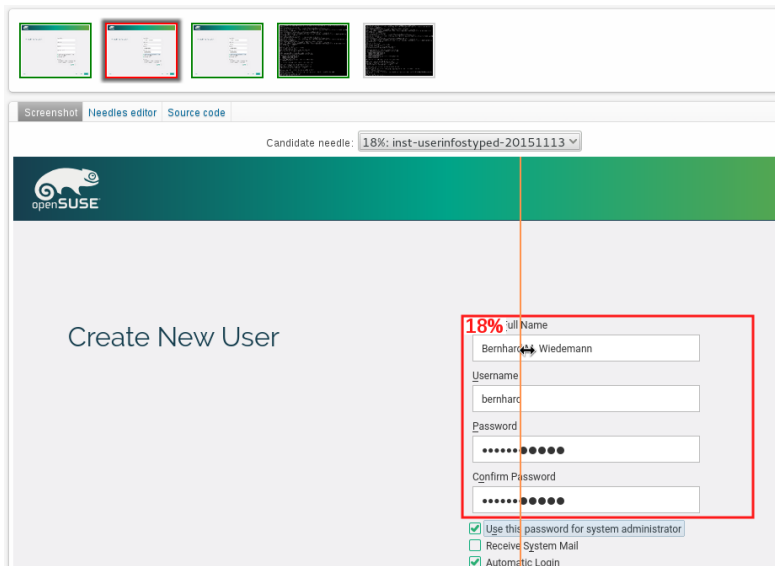
Job Templates



openQA test result details

good_buttons	passed	
installation_mode	passed	
partitioning	passed	
partitioning_finish	passed	
installer_timezone	passed	
logpackages	passed	     
installer_desktopselection	passed	
user_settings	failed	    
installation_overview	none	

openQA test result details



The image shows a screenshot of an openQA test result page. At the top, there are five thumbnail images of the test environment. Below them are tabs for 'Screenshot', 'Needles editor', and 'Source code'. The 'Candidate needle' is set to '18%: inst-userinfostyped-20151113'. The main content area displays the 'Create New User' test. A red box highlights the '18%' progress indicator and the form fields for 'Full Name', 'Username', 'Password', and 'Confirm Password'. The 'Full Name' field contains 'Bernhard Wiedemann'. The 'Username' field contains 'bernhard'. The 'Password' and 'Confirm Password' fields are masked with dots. Below the form, there are three checkboxes: 'Use this password for system administrator' (checked), 'Receive System Mail' (unchecked), and 'Automatic Login' (checked).

Screenshot Needles editor Source code

Candidate needle: 18%: inst-userinfostyped-20151113

openSUSE

Create New User

18% Full Name
Bernhard Wiedemann

Username
bernhard

Password
.....

Confirm Password
.....

☒ Use this password for system administrator
☐ Receive System Mail
☒ Automatic Login

Needle Editor

Actions

Name:

inst-userinfostyped-2015120

Tags:

☒ inst-userinfostyped

☒ ENV-DISTRI-opensuse

☒ ENV-INSTLANG-en_US

Add

Properties:

☐ workaround

JSON:

```
{
  "area": [
    {
      "ypos": 189,
      "height": 239,
      "width": 345,
      "type": "match",
      "xpos": 533
    }
  ],
  "properties": [],
  "tags": [
    "inst-userinfostyped",
    "ENV-DISTRI-opensuse",
    "ENV-INSTLANG-en_US"
  ]
}
```

Change Match Level

Change Margin

Test modules

Screenshot

Needles editor

Source code

Screens/Needle

Image

Areas

Matches

Tags

Screens/Needle	Image	Areas	Matches	Tags
screenshot				
18%: inst-userinfostyped-20151113				
18%: inst-userinfostyped-20151120				
0%: inst-userinfostyped-20140902				

Create New User

User's Full Name

Bernhard M. Wiedemann

Username

bernhard

Password

••••••••

Confirm Password

••••••••

☒ Use this username for system administrator

Test API


```
use base "basetest";
use strict;
use testapi;

sub run {
    # wait for bootloader to appear
    assert_screen "bootloader", 30;

    # "Install" is second option
    if (!get_var('LIVETEST')) {
        send_key "down";
    }

    # press enter to boot current entry
    send_key "ret";

    # wait for the desktop to appear
    assert_screen "desktop", 300;
}
```



Advanced Features

- ▶ interactive needling mode
- ▶ real hardware testing
- ▶ multi machine support
- ▶ disk images, autoyast profiles etc as result



Future Plans

- ▶ enhance multi machine networking
- ▶ even more support for hardware testing
- ▶ get rid of NFS
- ▶ more application testing
- ▶ do actual releases



Summary

- ▶ state of the art web app
- ▶ test framework for fully automated OS and application testing
- ▶ visual documentation of test result, including video
- ▶ log files for failures
- ▶ simple API for tests
- ▶ remote controllable via REST API



Get it

Web site <http://os-autoinst.github.io/openQA/>

Code <https://github.com/os-autoinst>

openQA documentation, server, worker

os-autoinst isotovideo tool and the API for tests.

os-autoinst-distri-opensuse openSUSE tests

os-autoinst-needles-opensuse openSUSE needles

RPMs <https://build.opensuse.org/project/show/devel:openQA>



Contact

- ▶ openSUSE project management tool
<https://progress.opensuse.org/projects/openqav3>
- ▶ #openSUSE-factory IRC channel at Freenode
- ▶ opensuse-factory@opensuse.org





Questions?

Join the conversation,
contribute & have a lot of fun!

www.opensuse.org

Thank
you.



License

This slide deck is licensed under the Creative Commons Attribution-ShareAlike 4.0 International license. It can be shared and adapted for any purpose (even commercially) as long as Attribution is given and any derivative work is distributed under the same license.

Details can be found at <https://creativecommons.org/licenses/by-sa/4.0/>

General Disclaimer

This document is not to be construed as a promise by any participating organisation to develop, deliver, or market a product. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. openSUSE makes no representations or warranties with respect to the contents of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The development, release, and timing of features or functionality described for openSUSE products remains at the sole discretion of openSUSE. Further, openSUSE reserves the right to revise this document and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes. All openSUSE marks referenced in this presentation are trademarks or registered trademarks of SUSE LLC, in the United States and other countries. All third-party trademarks are the property of their respective owners.

Credits

Template
Richard Brown
rbrown@opensuse.org

Design & Inspiration
openSUSE Design Team
<http://opensuse.github.io/branding-guidelines/>