

# openQA 用户手册

## 介绍

针对 openEuler riscv qcow2 格式镜像使用 openQA 进行系统的自动化测试

## openQA部署

### 安装openSUSE

使用openSUSE部署openQA，此处使用的版本是 [openSUSE-Leap-15.6-DVD-x86\\_64-Media.iso](#)，在x86实体机或虚拟机中安装

安装完成后，如需 ssh 连接，使用 root 用户运行以下命令进行设置，后续所有操作直接在 root 用户下进行

```
$ systemctl start sshd  
$ systemctl enable sshd  
$ systemctl stop firewalld  
$ systemctl disable firewalld
```

### 安装openQA

安装openQA server：

```
$ zypper in openQA
```

安装openQA worker：

```
$ zypper in openQA-worker
```

## 基础配置

(1) 安装本地Apache http代理

```
$ /usr/share/openqa/script/configure-web-proxy
```

(2) 配置apache proxy，正常如下配置都已经配置了，这里再执行一次，确保正确

```
$ a2enmod headers  
$ a2enmod proxy  
$ a2enmod proxy_http
```

```
$ a2enmod proxy_wstunnel  
$ a2enmod rewrite
```

可以通过 `a2enmod -l` 检查启用了哪些模块

(3) 将 `openqa.conf.template` 复制到 `openqa.conf`, 并根据需要修改 `ServerName` 设置

```
$ cp /etc/apache2/vhosts.d/openqa.conf.template /etc/apache2/vhosts.d/openqa.conf
```

(4) 不启用https的配置, 编辑 `/etc/openqa/openqa.ini` 文件, 确认如下位置设置为0

```
[openid]  
httpsonly = 0
```

(5) 编辑 `/etc/openqa/openqa.ini` 文件, 其中auth字段设置Fake模式

```
[auth]  
method = Fake
```

(6) 默认系统中没有 `qemu-system-riscv64`, 即使有也推荐进行以下安装

1. 安装依赖

```
$ zypper install ninja gcc gcc-c++ glib2-devel libfdt-devel zlib-devel libaio-devel libusb-1_0-devel cmake  
$ zypper install libSDL2-devel gtk3-devel libvirt-devel libpixman-1-0-devel alsadevel libiscsi-devel libzstd-devel xz-devel meson pkgconf  
$ zypper install libslirp-devel
```

2. 源码编译 qemu

```
$ wget https://download.qemu.org/qemu-9.0.1.tar.xz  
$ tar xvJf qemu-9.0.1.tar.xz  
$ cd qemu-9.0.1  
$ ./configure --prefix=/usr --target-list=riscv64-softmmu,riscv64-linux-user --enable-sdl --enable-slirp --enable-vnc --enable-debug --enable-tools --enable-system  
$ make -j$(nproc)  
$ make install
```

上述命令会自动将 `qemu-system-riscv64` 安装到 `/usr/bin` 目录下

### 3. 验证

```
$ qemu-system-riscv64 --version
```

(7) 编辑 /etc/openqa/worker.ini 文件，添加支持RISC-V的BACKEND和WORKER\_CLASS

```
[global]
BACKEND=qemu
QEMU_SYSTEM_BINARY=/usr/bin/qemu-system-riscv64
WORKER_CLASS=qemu_riscv64
```

启动web ui和worker

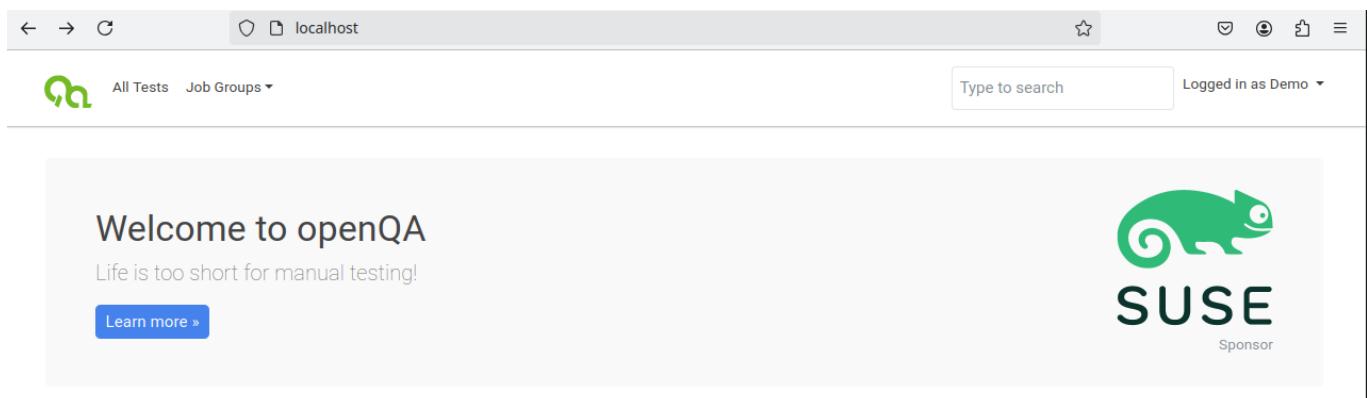
(1) 启动WEB UI，并设置开机自启动

```
$ systemctl enable --now postgresql
$ systemctl enable --now openqa-webui
$ systemctl enable --now openqa-scheduler
# to use Apache as reverse proxy under openSUSE
$ systemctl enable apache2
$ systemctl restart apache2
```

(2) 确保已关闭防火墙，并禁用开机自启

```
$ systemctl stop firewalld
$ systemctl disable firewalld
```

(3) 本机在浏览器输入<http://localhost>可访问 openQA web ui，局域网其他机器在浏览器通过服务器IP地址同样可以访问



(4) 点击“Manage API Keys”

Type to search

Logged in as Demo ▾

- [Operators Menu](#)
- [Activity View](#)
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- [Minion Dashboard](#)
  
- [Manage API keys](#)
  
- [Appearance](#)
- [API help](#)

04 +0000

(5) 取消勾选过期时间后，点击“Create”，然后下面就会生成新的key和secret

## API Keys

New API Key

Expiration

2025/12/03 02:36:41

**Create**

创建成功

Key	Secret	Expires	Action
1234567890ABCDEF	1234567890ABCDEF	2024-12-04 02:36:04 +0000	
922FBEF300B81165	B51936ACE711228E	never	

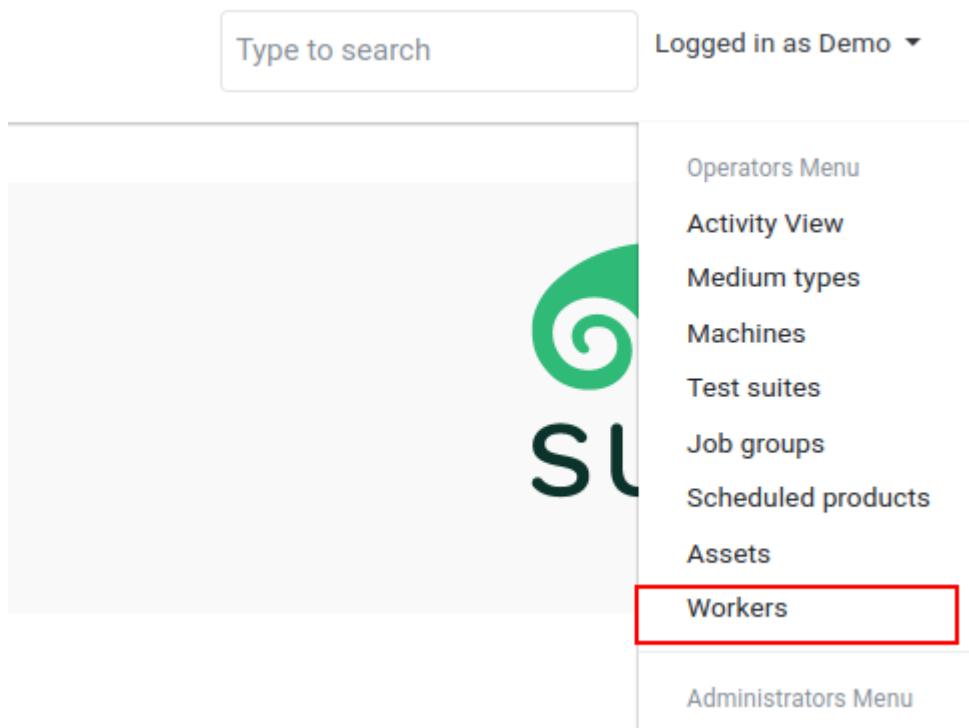
(6) 拷贝新建的key和secret，在安装openQA的服务器上编辑 /etc/openqa/client.conf 文件，在如下位置填入key和secret

```
## you can generate key and secret via the web ui
##
#[openqa.example.com]
#key = foo
#secret = bar
[localhost]
key = 922FBEF300B81165
secret = B51936ACE711228E
```

(7) 启动openQA-worker

```
$ systemctl start openqa-worker@1
```

(8) 查看workers



(9) 如下图所示，已经存在一个worker了

## Workers

Statistics							
Online:	1	Busy:	0	Idle:	1	Total:	1
Show 10 entries						Search:	
Worker	Host	Class	Host Architecture	Idle	WebSocket API version	os-autoinst version	Actions
localhost.localdomain:1	localhost.localdomain	qemu_riscv64	x86_64	Idle	1	40	

Showing 1 to 1 of 1 entries

Previous 1 Next

(10) 也可以再增加几个worker，执行如下命令即可，只需要改变@符号后的数字（不必要）

```
$ systemctl start openqa-worker@2
$ systemctl start openqa-worker@3
```

(11) 再次查看worker，可以发现此时已经存在3个worker了

## Workers

Statistics							
Online:	3	Busy:	0	Idle:	3	Total:	3
Show 10 entries						Search:	
Worker	Host	Class	Host Architecture	Idle	WebSocket API version	os-autoinst version	Actions
localhost.localdomain:1	localhost.localdomain	qemu_riscv64	x86_64	Idle	1	40	
localhost.localdomain:2	localhost.localdomain	qemu_riscv64	x86_64	Idle	1	40	
localhost.localdomain:3	localhost.localdomain	qemu_riscv64	x86_64	Idle	1	40	

Showing 1 to 3 of 3 entries

Previous 1 Next

(12) 设置worker开机自启动

```
$ systemctl enable openqa-worker@1
```

至此基于 openSUSE 系统 openQA 已经部署完成了

## 使用openEuler qcow2镜像进行测试

(1) 获取资产 (openEuler qcow2镜像、 bios固件)， 可从以下链接获得 [2403LTS-test/v1/QEMU/](https://mirror.iscas.ac.cn/openeuler-sig-riscv/openEuler-RISC-V/testing/2403LTS-test/v1/QEMU/) 或者是使用自己构建的系统镜像， qcow2镜像需要放置到 /var/lib/openqa/share/factory/hdd/ 目录下， bios固件可以放置到 /var/lib/openqa/share/factory/other/ 目录下

```
$ cd /var/lib/openqa/share/factory/hdd/
$ wget https://mirror.iscas.ac.cn/openeuler-sig-riscv/openEuler-RISC-V/testing/2403LTS-test/v1/QEMU/openEuler-24.03-V1-base-qemu-testing-uefi.qcow2.zst
```

```
$ zstd -d openEuler-24.03-V1-base-qemu-testing-uefi.qcow2.zst
$ cd ../other/
$ wget https://mirror.iscas.ac.cn/openeuler-sig-riscv/openEuler-RISC-
V/testing/2403LTS-test/v1/QEMU/fw_payload_oe_uboot_2304.bin
```

(2) 获取测试用例，可以将其放置到 /var/lib/openqa/tests/ 目录下，目录名修改为 openeuler

```
$ cd /var/lib/openqa/tests/
$ git clone https://intranet.leapfive.com/bitbucket/scm/dcsdkdo/os-autoinst-
distri-openeuler-riscv.git
$ mv os-autoinst-distri-openeuler-riscv openeuler
```

(3) 运行测试

```
$ openqa-cli schedule --monitor \
--param-file
SCENARIO_DEFINITIONS_YAML=/var/lib/openqa/tests/openeuler/scenario-
definitions.yaml \
DISTRI=openeuler VERSION=0 FLAVOR=dev ARCH=riscv64 \
TEST=legacy_boot _GROUP_ID=0 BUILD=test \
CASEDIR=/var/lib/openqa/tests/openeuler \
NEEDLES_DIR=%CASEDIR%/needles \
HDD_1=openEuler-24.03-V1-base-qemu-testing-uefi.qcow2 \
BIOS=/var/lib/openqa/factory/other/fw_payload_oe_uboot_2304.bin
```

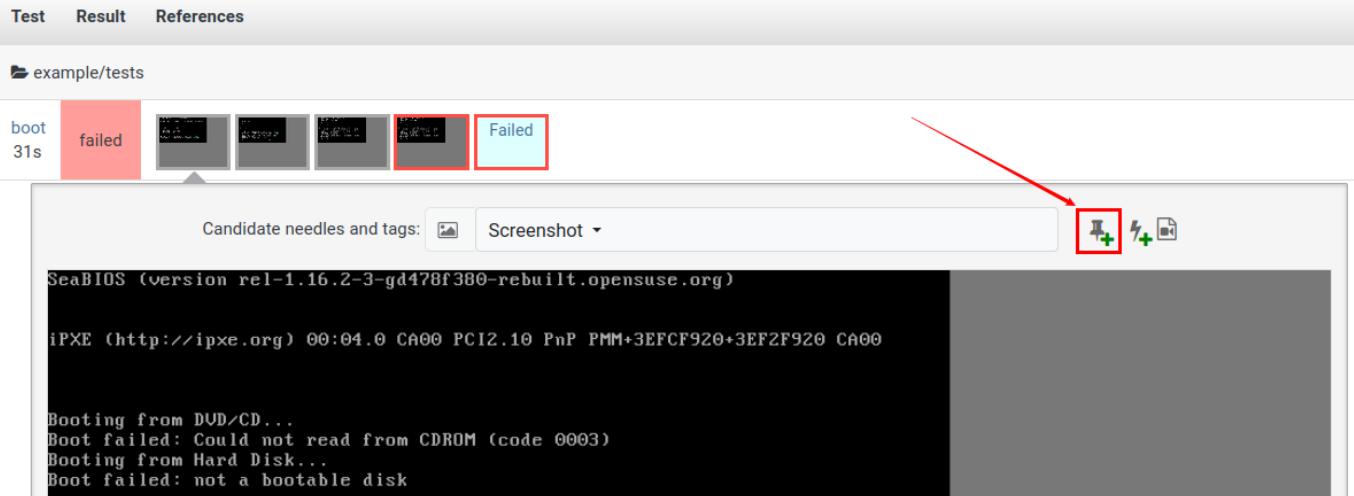
## 自定义测试

编写 testcase

参考上述测试用例中的 tests 目录下的 .pm 编写所需用例

添加 needles

测试运行失败时，参考以下两个图通过 needle editor 创建新 needle



Needle bootloader-20241121 created/updated - restart job

Basics of Needle

Name: bootloader-20241121

workaround

Review JSON Save

Needle based on: None

Tags:  bootloader

Add new tags here Add

Screenshot and Areas

Take image from: Screenshot ?

Copy areas from: None  Take matches

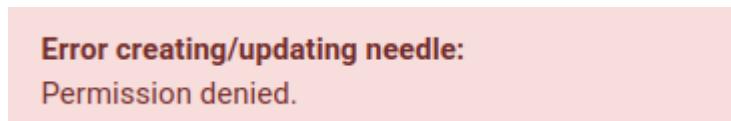
Selected area:

- ! Change match level
- ! Change margin
- ! Add click coordinates for assert\_and\_click

SeabIOS (version rel-1.16.2-3-gd478f380-rebuilt.opensuse.org)  
iPXE (http://ipxe.org) 00:04.0 CA00 PCI2.10 PnP PMM+3EFCF920+3EF2F920 CA00  
Booting from DVD/CD...  
Boot failed: Could not read from CDROM (code 0003)  
Booting from Hard Disk...  
Boot failed: not a bootable disk

直接点击 **restart job** 即可重新运行，新测试用例需要运行多次从而完成 needle 添加

需要注意的是 needles 目录需要有写权限，否则提示权限拒绝



直接赋予 needles 目录所有权限

```
$ cd /var/lib/openqa/tests/openeuler
$ chmod 777 needles/
```

## 参考

- [openQA官方文档](#)