Building Ubuntu remixes

WITH IONA

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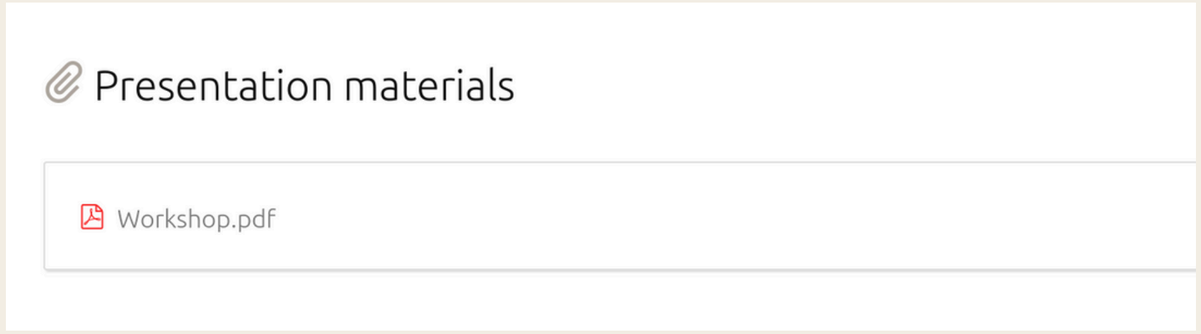
Introduction

To follow along and open links, download this presentation from: https://events.canonical.com/event/89/contributions/457/

Or scan the QR code to the right.



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Introduction

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Structure of Ubuntu ISOs

/EFI: GRUB (bootloader)

/casper:

- **filesystem.squashfs**: squashfs containing main live rootfs (mounted by the initramfs)
- **initrd.img**: initramfs (initial filesystem the kernel copies to RAM and uses as /)
- **vmlinuz**: Linux kernel image

/boot/grub: GRUB config and other files

Structure of Ubuntu ISOs

More information at:

- https://help.ubuntu.com/community/LiveCDCustomization
- https://help.ubuntu.com/community/LiveCDCustomizationFromScratch

Setting up a build env

Skip this slide if you’re already on Ubuntu or Debian.

If you’re on:

- Windows: set up Ubuntu on WSL2 by following the guide here.
- Another Linux distribution: create a virtual machine with Ubuntu 24.04 or Debian 12.

Setting up a build env

Run the following command to install all of the required packages:

```
sudo apt-get update && sudo apt install git mmdebstrap
systemd-container arch-install-scripts cd-boot-images-amd64
```

Pulling & installing Iona

Run the following commands to clone the Iona repository on GitHub and to copy it to /usr/local.

```
pushd ~/Documents
git clone https://github.com/RudraSwat/iona # to clone Iona
cp iona/iona /usr/local/bin
popd
```

Building your first remix

Run the following commands to build an Ubuntu ISO without any UI or other packages.

```
cd ~/Documents/iona/sample-configs
sudo iona ./sample-configs/ubuntu-mini.yaml
```

While it builds, we can have a look at the YAML configuration file for this ISO.

```
name: 'Ubuntu Mini'

codename: 'noble'

repos:
    - url: 'http://archive.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble'
        - 'noble-updates'
      deb-src: false

    - url: 'http://security.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble-security'
      deb-src: false

post-workarounds:
    - name: 'ubuntu-network'

artifacts:
    - type: 'iso'
      name: 'mini.iso'
```

```
pre-workarounds:
    - name: 'command'
      command: 'apt-get update; apt-get install -y wget; wget -q https://packages.mozilla.org/apt/repo-signing-key.gpg -O- | sudo tee /etc/apt/keyrings/packages.mozilla.org.asc'

    - name: 'command'
      command: 'echo "deb [signed-by=/etc/apt/keyrings/packages.mozilla.org.asc] https://packages.mozilla.org/apt mozilla main" | sudo tee -a /etc/apt/sources.list.d/mozilla.list'

    - name: 'command'
      command: 'echo -e "Package: *\nPin: origin packages.mozilla.org\nPin-Priority: 1000" | sudo tee /etc/apt/preferences.d/mozilla'

packages:
    - type: 'deb'
      list:
        - 'nala'
        - 'firefox'
        - 'gnome-core'
        - 'gnome-session'
        - 'gnome-terminal'
        - 'network-manager'
        - 'ubiquity-casper'
        - 'ubiquity-frontend-gtk'
        - 'ubiquity-slideshow-ubuntu'
        - 'software-properties-common'

post-workarounds:
    - name: 'ubuntu-network'
    - name: 'ubiquity-remove'

artifacts:
    - type: 'iso'
      name: 'ubuntu-gnome.iso'
```

Building a minimal GNOME ISO

Run the following commands to build an Ubuntu ISO with a minimal, vanilla GNOME interface.

```
cd ~/Documents/iona/sample-configs
sudo iona ./sample-configs/ubuntu-gnome.yaml
```

While it builds, we can have a look at the YAML configuration file for this ISO.

```
name: 'Ubuntu GNOME'

codename: 'noble'

repos:
    - url: 'http://archive.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble'
        - 'noble-updates'
      deb-src: false

    - url: 'http://security.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble-security'
      deb-src: false
```

```
name: 'Ubuntu GNOME'

codename: 'noble'

repos:
    - url: 'http://archive.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble'
        - 'noble-updates'
      deb-src: false

    - url: 'http://security.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble-security'
      deb-src: false
```

Building Ubuntu Lomiri

Run the following commands to build Ubuntu Lomiri Remix, an actively-developed remix of Ubuntu.

```
cd ~/Documents/iona/sample-configs
sudo iona ./sample-configs/ubuntu-lomiri.yaml
```

While it builds, we can have a look at the YAML configuration file for this ISO.

```
name: 'Ubuntu Lomiri'

codename: 'noble'

repos:
    - url: 'http://archive.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble'
        - 'noble-updates'
      deb-src: false

    - url: 'http://security.ubuntu.com/ubuntu'
      components:
        - 'main'
        - 'universe'
        - 'multiverse'
        - 'restricted'
      suites:
        - 'noble-security'
      deb-src: false
```

```
54    post-workarounds:
55        - name: 'ubuntu-network'
56
57        - name: 'command'
58          command: 'echo "[Autologin]" > /etc/sddm.conf'
59        - name: 'command'
60          command: 'echo "User=ubuntu" >> /etc/sddm.conf'
61        - name: 'command'
62          command: 'echo "Session=lomiri" >> /etc/sddm.conf'
63        - name: 'command'
64          command: ['mkdir', '-p', '/etc/systemd/user/lomiri.service.d']
65        - name: 'command'
66          command: 'echo "[Service]" > /etc/systemd/user/lomiri.service.d/override.conf'
67        - name: 'command'
68          command: 'echo "TimeoutStartSec=infinity" >> /etc/systemd/user/lomiri.service.d/override.conf'
69        - name: 'command'
70          command: 'echo "[User]" > /var/lib/AccountsService/users/ubuntu'
71        - name: 'command'
72          command: 'echo "Background=/usr/share/backgrounds/warty-final-lomiri.png" > /var/lib/AccountsService/users/ubuntu'
73
74        - name: 'ubiquity-remove'
75
76    artifacts:
77        - type: 'iso'
78          name: 'ubuntu-lomiri.iso'
```

Thank you!

Any questions?

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