Advanced Alchemy

Building Gold-Master Images with Kiwi

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Agenda

What's the problem?

Why is Kiwi the answer?

Kiwi Overview

Advanced Kiwi

- *Embedded Autoyast*
- *Multiple image types*
- *Using profiles*
- *Hooks*

Hands-On Time!

Let’s get started

What's the problem?

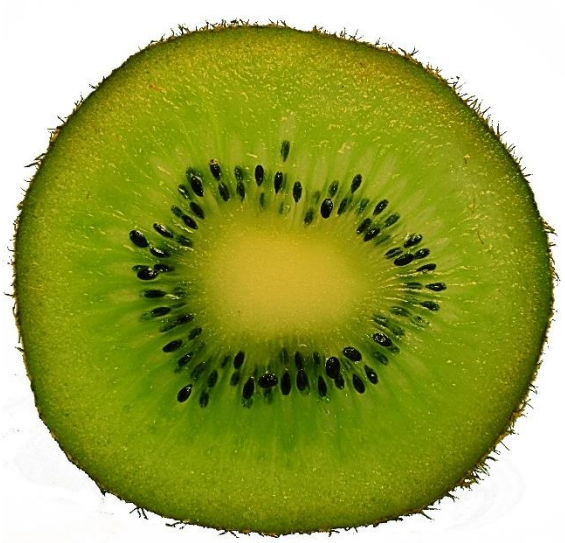
Creating disk image templates in Linux has traditionally been a manual process

Why is Kiwi the answer?

Kiwi simplifies the process of building images

Benefits:

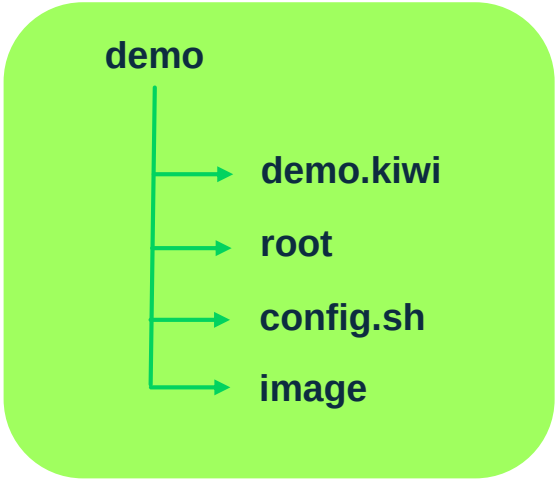
- **Consistent images across multiple platforms from single source**
- **Easily managed via version-control systems**
- **Application-based images make self-service deployment faster, more responsive**
- **Integrated into Open Build Service**



Kiwi Overview

Image Directory

1. **Kiwi file**
   - config.xml – or – <custom name>.kiwi
2. **Overlay**
   - “root” directory = /
3. **Config script**
   - config.sh
4. **Optional: Image build directory**
   - Keeps build “stuff” organized with configs
   - I call mine “image”
   - Tip: “build” directory inside “image” directory can be tmpfs

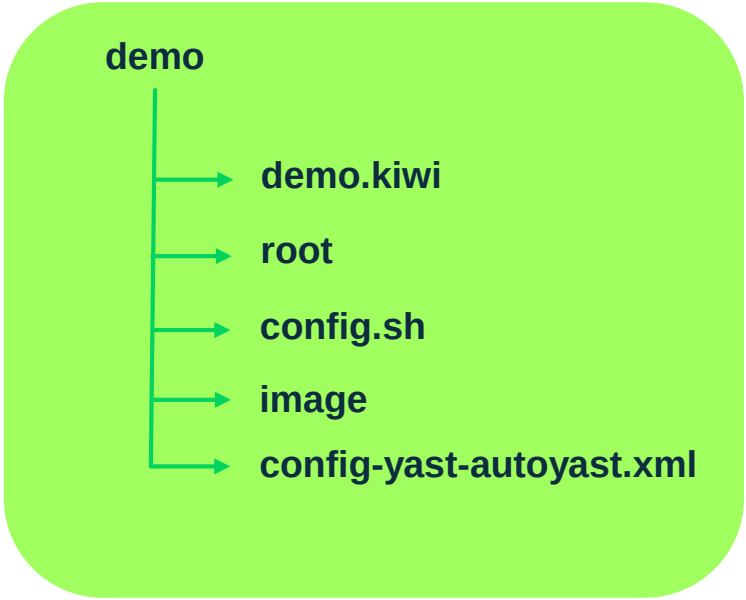


Advanced Kiwi

Customizing a Template

Image Directory

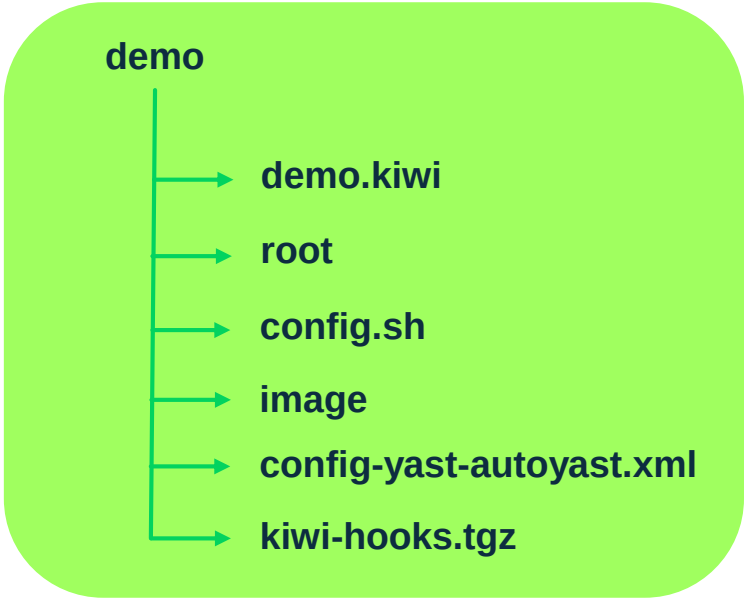
- **AutoYast file**
  - config-yast-autoyast.xml
  - Executes on-boot after network start
  - Used to configure things too specific for a generic template
  - NOT used to modify the basic structure of the image
    - Partitioning
    - Package installation



Customizing a Template

Image Directory

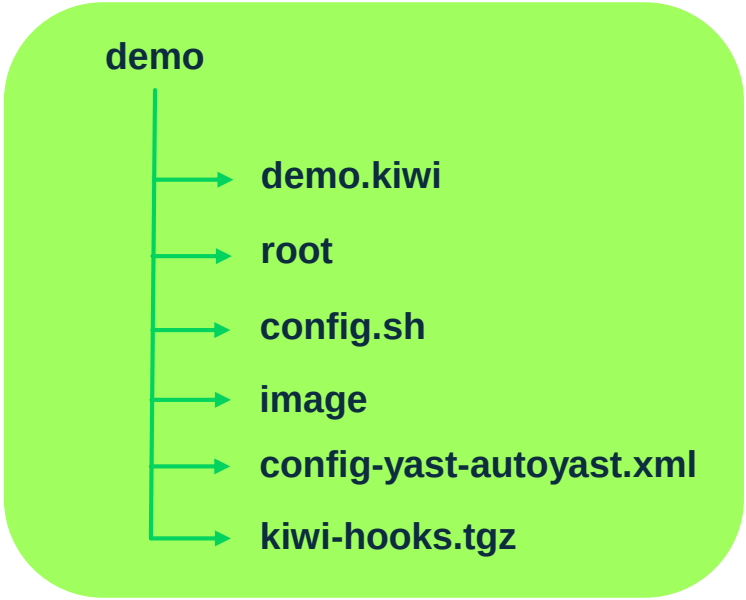
- **Hooks**
  - kiwi-hooks.tgz
  - Embedded into initrd
  - Available hooks differs by image type
  - Tar file MUST include:
    - Root level directory called “kiwi-hooks”
    - Scripts inside the kiwi-hooks directory
      - No subdirectories
      - Script names must match the hook
        - <hook name>.sh
        - Capitalization matters



Customizing a Template

Image Directory

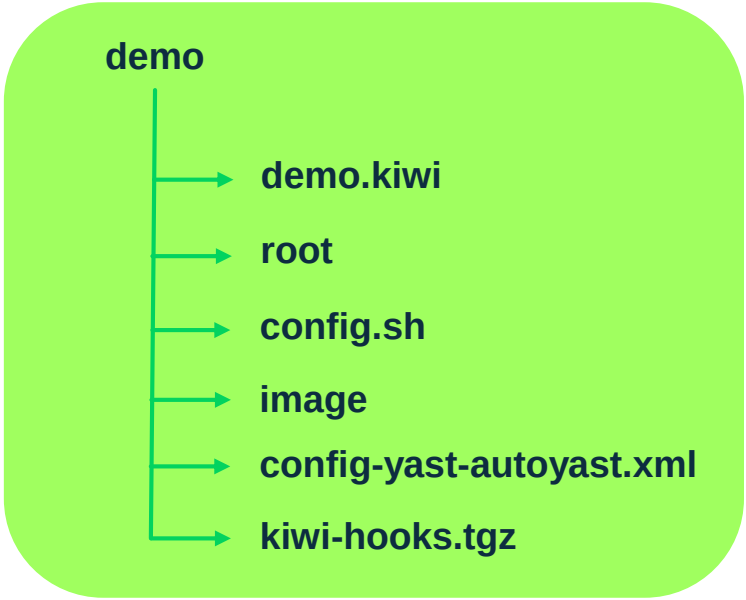
- **Hooks**
  - ALL
    - handleSplash
      - Called prior to any dialog/exception message or progress dialog. Can be used to customize the behavior of the splash screen.
    - preException
      - Called before a system error is handled



Customizing a Template

Image Directory

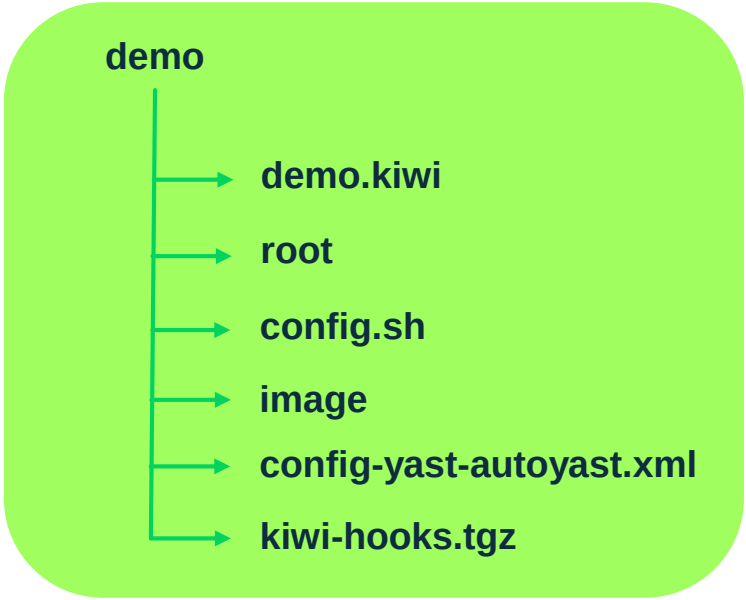
- **Hooks**
  - OEM
    - preHWdetect | postHWdetect
      - Called before & after boot code detects possible target storage device(s)
    - preImageDump | postImageDump
      - Called before & after the install image is dumped on the target disk
    - preCallInit
      - Called before initialization process (root mounted)
    - preRecovery | postRecovery
      - Called before & after recovery code is processed.
    - preRecoverySetup | postRecoverySetup
      - Called before & after the recovery setup is processed.



Customizing a Template

Image Directory

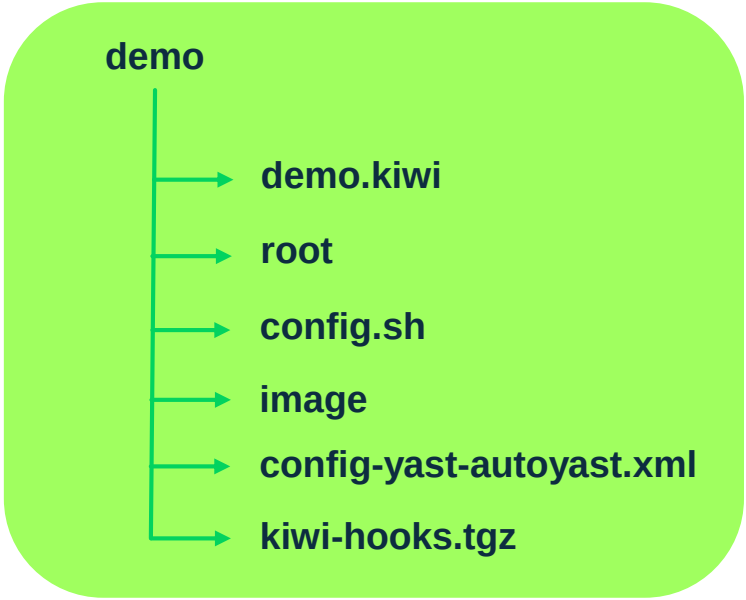
- **Hooks**
  - VMX
    - preCallInit
      - Called before initialization process (root mounted)



Customizing a Template

Image Directory

- **Hooks**
  - Post Commands
    - Run after hook script executes
    - Specified as kernel parameter
      - KIWI_HOOK_CMD_<*hook name*>=“”
      - Ex: KIWI_HOOK_CMD_preHWdetect=“ls –l”
    - Can be disabled via KIWI_FORBID_HOOK_CMDS=1



Expanding Your Options

Profiles

Maintain multiple image types in a single image definition while allowing for variation in packages, drivers, and preferences for specific image types

```
<profiles>
  <profile name="name" description="text"/>
  <!-- ... -->
</profiles>
```

```
<packages type="image" profiles="vmware">
      <package name="open-vm-tools"/>
</packages>
```

Let’s get to it!

LAB

Access all the session materials at:

https://github.com/darthzen/conferences/tree/master/susecon/2017/HO126885/

Kiwi Commands:

Use Cache For Speed
kiwi --init-cache /usr/share/kiwi/image/vmxboot/suse-SLES12

Basic
kiwi –b <kiwi file path> -d <destination> --cache /var/cache/kiwi-images

Profile
kiwi –b <file path> -d <dest> --cache /var/cache/kiwi-images --add-profile <profile> [--type <image type>]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