Do you create OS images?

If so, please take our survey now and we’ll share the results at the end: http://bit.do/composer1

Composer: Building OS images for any platform

Will Woods, Senior Software Engineer
Jenn Giardino, Senior Interaction Designer
I need to quickly create customized OS images for all of my hybrid deployment environments, including physical, virtual, private, and public clouds.”

Terry
Composer builds custom images for any platform

**CONTENT IN**
- Red Hat content
- Custom
- Third Party

**COMPOSER**
- GUI
- CLI
- Rest API
- Backend builders

**CONTENT OUT**
- DVD Installers
- FileSystem img
- Virtual img
- Cloud img

+ other cloud platforms

VIRTUALIZATION & CLOUD PLATFORMS
Composer builds custom images for any platform, and uses existing tooling.
What doesn’t it do?
Demo
Configuration

```
[root@composer ~]# composer-cli blueprints list
example-atlas
example-development
example-http-server
[root@composer ~]# composer-cli blueprints save example-http-server
[root@composer ~]#
```
Configuration

```
[root@composer ~]# cat example-http-server.toml
name = "example-http-server"
description = "An example http server with PHP and MySQL support."
version = "0.0.1"
groups = []

[[modules]]
name = "httpd"
version = "2.4.*"

[[modules]]
name = "mod_ssl"
version = "2.4.*"

[[packages]]
name = "openssh-server"
version = "7.*"

[[packages]]
...`
```
Configuration

```
[root@composer ~]# cat root.toml
[[customizations.user]]
name = "root"
password = "$6$mP23DsdS1v5heEdFSNkgahaKmLkyCUZPakpNtP.37Pd7.4CGeb/sQ/MRiP0HiU2/gc.6thiVgg7Q9PcdABV31Ygu0s0PTPwSfSxhQ01"
key = "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDzJQxgAfhryXsxRiHrs5N8ekyeH6m5VvFkVTYQxrwaVG0IGLFU8pPGsxd66jrY0AkG2mkWOhYLCTakjli8/GNDVCLLLIZ16zQncxxkoQEAAYyghN/414TMrP7MDOjr7o1Q8ZskeMmXZTIiG08SzbCU/OSgURrzn5WhQn7nI47M0OGtLeA8RyB1czsdFCOtMIzozRhaA267w7z1Eic8M0OT6Ni+JUT3aqpWkNUzEoKgCkHDgxDDr6J1qu3BIXKDR5XNvdSXzBc3wq094hV9WkJj4zTDkYz1GvuUM1ofYKPYWqfJWRFU5bM4n22ePIBwe/TL9yvk9+efX6Kk1/MKjt tmoney@redhat.com"
```
Configuration

[root@composer ~]# cat tmoney.toml
[[customizations.user]]
name = "tmoney"
description = "Terry 'T-Money' Bowling"
password = "$6$mP23DsdS1v5heEdF$NkgahaKmLkyCUZPakpTNtp.37Pd7.4CGeb/sQ/MRIp0HiU2/gc.6thiVqg7Q9PcdABV3iYgu0s0PTPwSfSxhQ01"
groups = ["wheel"]
key = "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDSqJQxgAfhryXsxRiHrs5N8ekyeH6m5VvFkVTYQxrwaVG0IgLfu8pPGsx66jrY0AkG2mkW0hYLClTakjl8/GNDVcLLIZ16zQncxxkoQEAYyghN/4l4TMrP7MD0jr7o1Q8ZskeMmXZTIiG08SzbCN/OISgUrzzn5WshQn7n47Mo0GtLeA8RyB1czsdFC0tMizoRhaA267w7z1Eic8M00T6Ni+JUT3aqpWkNUzEoKgCkHDgxDr6J1qu3BIXKDR5XNvdSXzBc3wq094hV9WkLj4zTDkYz1GvuUM1ofYKPYWqfJWRU5bM4n22ePIBwwe/TL9yvk9+efX6Kk1/MKjt tmoney@redhat.com"
#home = "/home/admin/"
#shell = "/usr/bin/bash"
Configuration

[root@composer ~]# cat root.toml tmoney.toml >> example-http-server.toml
[root@composer ~]# composer-cli blueprints push example-http-server.toml
[root@composer ~]# composer-cli compose start example-http-server vmdk
Compose 3d5a186e-28c4-4782-a18c-c1e7ee30ae57 added to the queue
What about configuration / customization

- kickstart
- cloud-init
- Ansible
- ignition
- ...?
Survey Results
Q5 - What tools do you currently use to create OS images? (check all that apply)

- Packer/Terraform: 1
- Imagefactory: 1
- Livemedia-creator (tonex): 1
- Diskimage-builder from OpenStack: ??
- Ansible + kickstarts: 2
- Other (please specify): 2

Page Options ▾
Q2 - What is your first preferred tooling to configure an OS image during or after deployment?

- Kickstart: 3
- Cloud-init: 1
- CoreOS Ignition: 1
- Ansible: 1
- Other (please specify): 1
Q3 - What is your second preferred tooling to configure an OS image during or after deployment?

- **Kickstart**: 1
- **Cloud-init**: 1
- **CoreOS ignition**: 0
- **Ansible**: 4
- **Other (please specify)**: 1
Installing in Fedora 29

dnf copr enable @weldr/welder-web
dnf install cockpit-composer composer composer-cli
Will Woods
Senior Software Engineer

Source Code
- https://github.com/weldr/lorax
- https://github.com/weldr/welder-web

Questions
- wwoods@redhat.com
- @__wwoods__

Jenn Giardino
Senior Interaction Designer
at the
Red Hat User Experience Design booth

Questions
- wwoods@redhat.com
- @__wwoods__
Demo Screencaps
<table>
<thead>
<tr>
<th>Blueprint</th>
<th>Description</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>example-atlas</td>
<td>Automatically Tuned Linear Algebra Software</td>
<td>Edit Blueprint, Create Image</td>
</tr>
<tr>
<td>example-development</td>
<td>A general purpose development image</td>
<td>Edit Blueprint, Create Image</td>
</tr>
<tr>
<td>example-http-server</td>
<td>An example http server with PHP and MySQL support.</td>
<td>Edit Blueprint, Create Image</td>
</tr>
</tbody>
</table>
Available Components

- aajohan-comfortaa-fonts
  Modern style true type font

- abattis-cantarell-fonts
  Cantarell, a Humanist sans-serif font family

- abrt
  Automatic bug detection and reporting tool

- abrt-addon-ccpp
  abrt's C/C++ add-on

- abrt-addon-coredump-helper
  abrt's proc/sys/kernel/core_pattern helper

- abrt-addon-kerneloops
  abrt's kerneloops addon

- abrt-addon-psstoreoops
  abrt's psstoreoops addon

- abrt-addon-vmcore
  abrt's vmcore add-on

- abrt-cli-xorg
  abrt's Xorg add-on

- abrt-cli-ng
  abrt's improved command line interface

- abrt-console-notification
  abrt's console notification

Blueprint Components

- httpd
  Apache HTTP Server
  Version 2.4.35
  Release 6.e18+2089+57a79027

- mod_ssl
  SSL/TLS module for the Apache HTTP Server
  Version 2.4.35
  Release 6.e18+2089+57a79027

- openssh-server
  An open source SSH server daemon
  Version 7.8p1
  Release 3.e8

- php
  PHP scripting language for creating dynamic web sites
  Version 7.2.11
  Release 1.e18+2002+9409c40c

- php-mysqlnd
  A module for PHP applications that use MySQL databases
  Version 7.2.11
  Release 1.e18+2002+9409c40c

- rsync
  A program for synchronizing files over a network
  Version 3.1.3
  Release 4.e8

- tmux
  A terminal multiplexer
  Version 2.7
  Release 1.e8
### Available Components

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>nodejs</td>
<td>JavaScript runtime</td>
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<td>JavaScript runtime - development headers</td>
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<td>Node.js API documentation</td>
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<td>Blueprint Components</td>
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<td>nodejs</td>
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### Selected Components

- **httpd**
  - Apache HTTP Server
  - Version: 2.4.35
  - Release: 6.68+2089+b7a79027
- **mod_ssl**
  - SSL/TLS module for the Apache HTTP Server
  - Version: 2.4.35
  - Release: 6.68+2089+b7a79027
- **nodejs**
  - JavaScript runtime
  - Version: 10.11.0
  - Release: 2.68+2021+27085a9b
- **openssh-server**
  - An open source SSH server daemon
  - Version: 7.8p1
  - Release: 3.68
- **php**
  - PHP scripting language for creating dynamic web sites
  - Version: 7.2.11
  - Release: 1.68+2022+9409c40c
- **php-mysqli**
  - A module for PHP applications that use MySQL databases
  - Version: 7.2.11
  - Release: 1.68+2022+9409c40c
- **rsync**
  - A program for synchronizing files over a network
  - Version: 3.1.3
  - Release: 4.68
**example-http-server**

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**Blueprint Components**

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<tr>
<th>Component</th>
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<th>Dependencies</th>
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<tr>
<td>nodejs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>npm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Active Filters**

- name: nodejs

**Not Secure**

https://192.168.66.101:9090/weldert#edit/example-http-server
### Example HTTP Server

#### Available Components

- **nodejs**
  - JavaScript runtime

- **nodejs-devel**
  - JavaScript runtime - development headers

- **nodejs-docs**
  - Node.js API documentation

- **nodejs-nodemon**
  - Simple monitor script for use during development of a node.js app

- **nodejs-packaging**
  - RPM Macros and Utilities for Node.js Packaging

#### Blueprint Components

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<tr>
<th>Name</th>
<th>Filter by Name...</th>
<th>▼</th>
<th>▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>npm</td>
<td>Node.js Package Manager</td>
<td>Version 6.4.1</td>
<td>Release 1.10.11.0.2.el8+2021+27085a9b1</td>
</tr>
</tbody>
</table>
### example-http-server

**An example http server with PHP and MySQL support.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Version</th>
<th>Date Created</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>example-http-server-ver0.0.3-openstack</td>
<td>0.0.3</td>
<td>Thu Jan 24 2019</td>
<td>openstack</td>
<td>Complete</td>
</tr>
<tr>
<td>example-http-server-ver0.0.2-vmdk</td>
<td>0.0.2</td>
<td>Thu Jan 24 2019</td>
<td>vmdk</td>
<td>Complete</td>
</tr>
<tr>
<td>example-http-server-ver0.0.2-qcow2</td>
<td>0.0.2</td>
<td>Tue Jan 22 2019</td>
<td>qcow2</td>
<td>Complete</td>
</tr>
</tbody>
</table>