

datto

Sweeter image builds with KIWI

Neal Gompa

Who am I?

- Professional technologist
- Linux user for nearly fifteen years
- Contributor and developer in Fedora, Mageia, openSUSE, and OpenMandriva Linux distributions
- Contributor to RPM, DNF, and various related projects
- Senior DevOps Engineer at Datto, Inc.

All About Datto



Founded in 2007



22 global locations



1,600 employees worldwide & growing



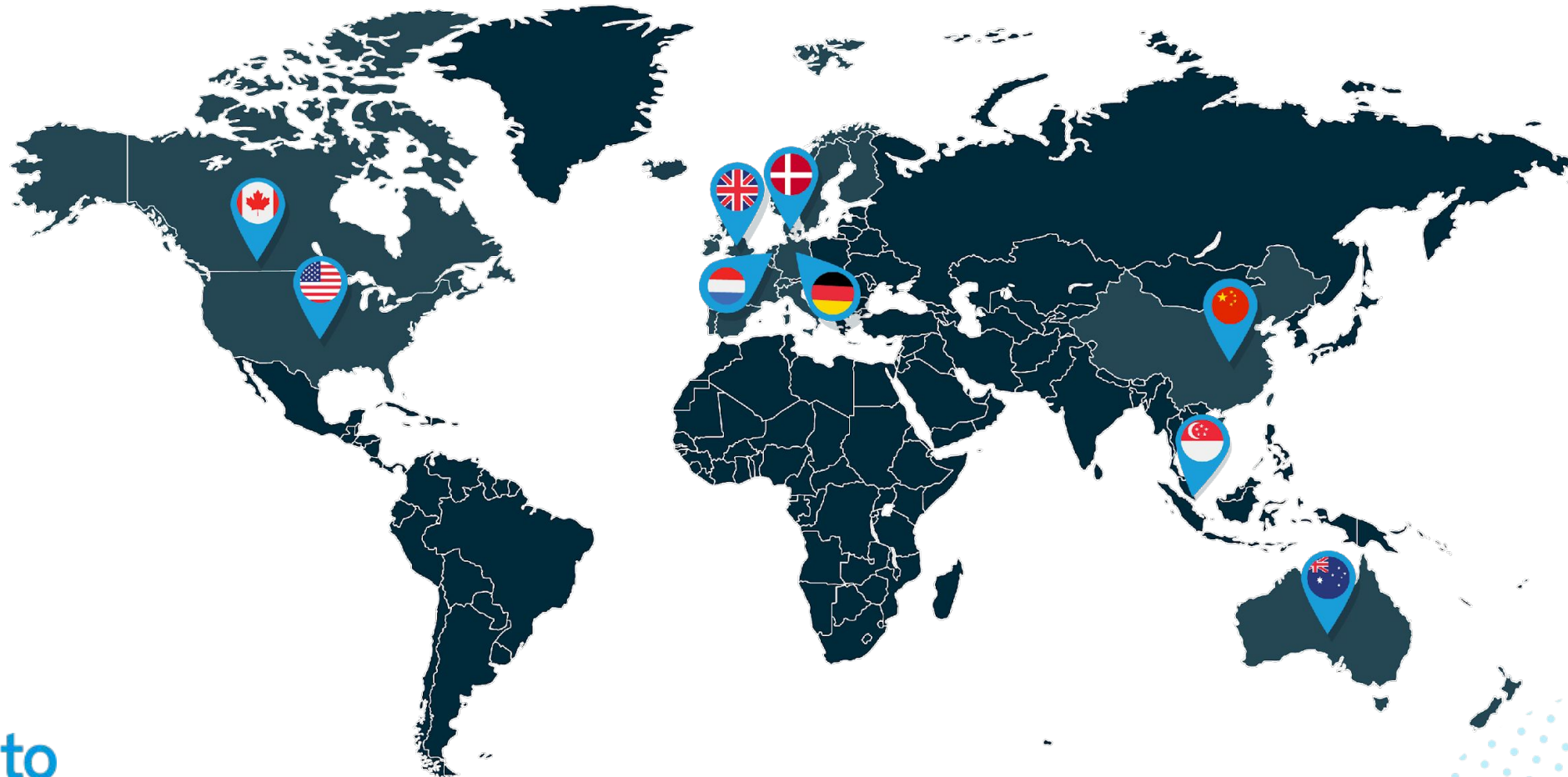
17,000 managed service provider partners



100% channel only

Datto Locations Around The World

Local offices in **9 countries** helping MSPs serve **over one million SMBs** around the world.



What We Offer

Datto products empower our community of Managed Service Provider partners with the right technology, business tools, and support to enable each and every one of their customers to succeed. It's an approach that has made us the world's leading innovator of MSP-delivered IT solutions.

Growth Products



Unified Continuity

Reliable data protection for full IT environment maximizing up time

- SIRIS
- ALTO
- NAS

Datto Cloud Continuity for PCs

Datto File Protection

Datto SaaS Protection

- Office 365
- Google Suite



Networking

Fully cloud managed networking solutions designed for MSPs

- Datto Networking WiFi
- Datto Networking Switches
- Datto Networking Edge Routers
- Datto Managed Power



File Sync & Share

Fully managed File Sync & Share solution

- Datto Workplace

Efficiency Products



Professional Services Automation (PSA)

Autotask PSA: SaaS platform for MSPs to manage their entire business



Remote Monitoring & Management (RMM)

Datto RMM: Cloud-based Software for MSPs to manage SMB endpoints



Commerce

Simplify quoting and drive revenue growth

Building Images at Datto

The Image Building Problem

Datto could build images for days, but practically everyone did image building differently with a different set of issues caused by these methods!

Some tools we are using:

- Packer (OpenStack images)
- live-build (ISOs)
- custom shell (disk images, base images)
- virt-builder (misc VM images)

The Image Building Problem

Commit `b53bab3`  authored 2 years ago by  Neal Gomba

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[Options](#) ▾

setup.sh: Stop apt-daily.service before puppet runs and at the end of the build

Packer does not actually shut down the virtual machine instance before snapshotting. Instead, it requests the cloud provider to snapshot it, handing off the preparatory work to the cloud system.

In our case, OpenStack pauses the VM for snapshotting rather than powering it down. This means that when the image is cloned and instantiated, it technically boots from an "unclean" state, since the machine wasn't properly shut down before snapshotting. This leads to interesting problems when you have regular runs of the package manager that come in just as it is being snapshotted (such as with unattended upgrades through the apt-daily timer).

We now stop the 'apt-daily' service before running Puppet and then after everything is done to ensure that we don't end in a state where APT leaves untracked transaction locks in place.

The Image Building Problem

Commit 09a05217  authored 2 years ago by  Neal Gompa

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Options ▾

dist/isobuild: Disable prepending microcode and switch initramfs to gzip compression

Updates for Spectre/Meltdown security fixes change the way initramfs is created by default to normally prepend the microcode updates and load them at early boot. However, this breaks live-build and casper because they do not know how to account for this.

In addition, the only compression method that seems to work correctly now is gzip, for unexplainable reasons.

The Core Problem

Some of the tools have seemingly hysterical behaviors. Others are poorly maintained.

But really, the problem is that some of these tools do not have a method to their madness. Reasoning how things worked was too hard, and that made using them difficult!

Building Images at Datto

Looking at KIWI as a solution

Looking at KIWI

- Straightforward and idiomatic
 - XML/YAML/JSON descriptions with script hooks
- Flexible
 - Builds almost any type of image
 - Provides an API to construct custom image types
- Free and Open Source Software (GPLv3+)
- Actively developed and maintained
- Friendly developers

Looking at KIWI

Define correct default locations for sources-dir and preferences-dir #307

New issue

Merged davidcassany merged 1 commit into OSInside:master from Conan-Kudo:setaproot on Apr 18, 2017

Conversation 1 Commits 1 Checks 0 Files changed 1 +4 -0



Conan-Kudo commented on Apr 13, 2017

Member

In order to ensure that the defined repositories in the KIWI configuration are set to the correct places for installing into the image, the `sources-dir` and `preferences-dir` need to be redefined to point to the in-image location, as it is done for the other package managers.

Fixes #306.

Changes proposed in this pull request:

- Set `shared_apt_get_dir['sources-dir']` and `shared_apt_get_dir['preferences-dir']` correctly in `use_default_location()` in `RepositoryApt()` class.

Reviewers

davidcassany ✓

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Define correct default locations for sources-dir and preferences-dir ✓ eed6d36

Looking at KIWI

Add support for excluding packages when using Yum or DNF #315

New Issue

Merged

schaefi merged 2 commits into `OSInside:master` from `Conan-Kudo:yumdnf-pkgexclude` on May 2, 2017

Conversation 2 Commits 2 Checks 0 Files changed 4 +28 -22



Conan-Kudo commented on Apr 27, 2017

Member

This pull request implements support for excluding packages from installation onto the image being built when the selected package manager is Yum or DNF.

Fixes #282.

Changes proposed in this pull request:

- Add support for excluding packages when using Yum
- Add support for excluding packages when using DNF

Reviewers

davidcassany ✓

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked issues



Conan-Kudo added 2 commits on Apr 27, 2017

- Add support for excluding packages when using Yum e2d6642
- Add support for excluding packages when using DNF ✓ 808a92f

Demonstration

Images with KIWI are Sweet!

As a well-documented and well-maintained project, it goes beyond most projects in this space. It's extremely simple to get started, and the community is friendly and helpful for developing advanced setups.

The wide range of platforms supported is unmatched by any other tool that can reproducibly build images.

References

- KIWI website and docs:
<http://osinside.github.io/kiwi/>
- KIWI GitHub project:
<https://github.com/OSInside/kiwi>
- Sample descriptions:
<https://github.com/OSInside/kiwi-descriptions>
- Demo descriptions:
<https://github.com/datto/osvc21-kiwi-demo-descriptions>

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