



Chocolatey

The package manager for Windows

Chocolatey for Organizations: Easily Manage Software



Rob Reynolds

Founder

Chocolatey Software

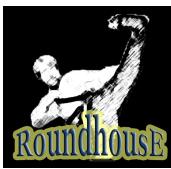
@ferventcoder





Rob Reynolds

- Creator and Founder of Chocolatey 
- Enjoys long walks on the beach and designing solutions that make hard things easy
- Co-wrote infrastructure framework known as the Chuck Norris Framework
- Over 13 years experience in infrastructure automation
- Obsesses over user experience
- Microsoft MVP for both Cloud and Datacenter Management and Visual Studio and Development Technologies





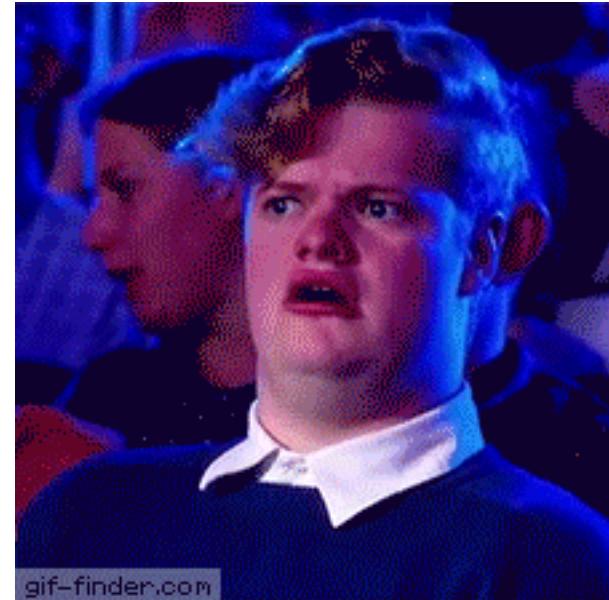
Agenda

- Chocolatey
- Organizational Use
- Demos



Kicking Off

- We are going to cover a lot of ground quickly
- You will see open source & commercial features
- <https://chocolatey.org/compare#compare>





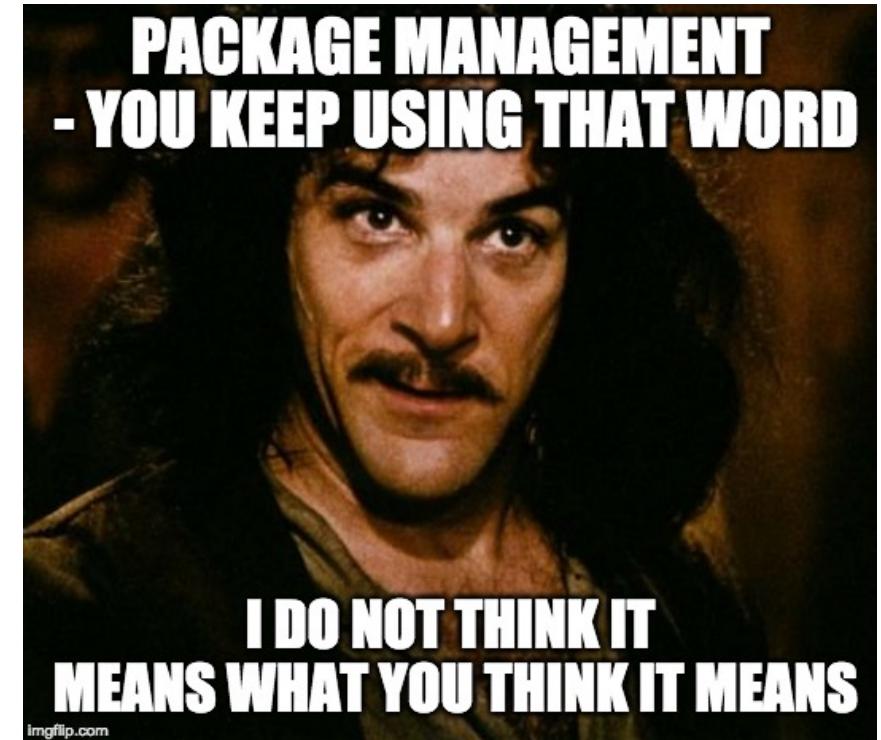
What is Chocolatey?





Chocolatey is...

- Software management / package management
- Universal management for zips, scripts, binaries, and installers
- Software deployment automation packages





With Chocolatey you can...

- Manage ANY software, not just installers
- Define dependencies
- Write a software deployment one time (with PowerShell!)
- Test your deployments - gain confidence long before a prod deployment
- Deploy to any supported version of Windows (including Server.Core / Docker containers)
- On prem, in the cloud, etc
- With any remote deployment tool (Puppet, Chef, Ansible, DSC, SCCM, LanDesk, MDT, etc) or combination
- Track and Report on software





**Chocolatey allows you to
deploy any Windows software,
anywhere,
with anything,
and manage and track that software over time.**

Did we mention PowerShell?





**So that sounds amazing.
Here's a dose of reality**





**There is nothing you can
purchase or implement that
removes all work**





Chocolatey is a Framework

- There is still work, it is not magic. There is no tool that does it all - sorry to burst your bubble
- It is amazingly flexible
- It does make software management very easy
- There are steps into automation you can do to really reduce your work - Chocolatey is a catalyst for that
- It is lightweight





The image shows a screenshot of a Windows desktop environment. In the top-left corner, there is a blue decorative element with the word "Chocolatey" written in white script font, accompanied by a small brown mountain icon. The main window is a Chocolatey package manager interface. On the left, a sidebar shows the current context: "Administrator: Windows PowerShell" and "PS C:\> c". Below this, a tree view lists "This PC", "internal_server", "chocolatey" (which is selected), and "chocolatey.licensed". The main area displays a grid of software packages. The first row includes "Chocolatey" (version 0.10.8, status: Installed), "Flash Player Plugin" (version 27.0.0.183, status: out-of-date), "Google Chrome" (version 62.0.3202.75, status: out-of-date), and "Adobe Reader DC" (version 2015.007.20033.02, status: Installed). The second row includes "Java SE Runtime Enviro..." (version 8.0.151, status: out-of-date), "Chocolatey Core Extensi..." (version 1.3.3, status: out-of-date), "Mozilla Firefox" (version 56.0.2, status: out-of-date), and "Flash Player ActiveX" (version 27.0.0.183, status: out-of-date). The third row includes "WinRAR" (version 5.50, status: out-of-date), "Adobe AIR Runtime" (version 27.0.0.124, status: out-of-date), "7-Zip (Install)" (version 16.4.0.20170506, status: Installed), and "Java Runtime (JRE)" (version 8.0.151, status: out-of-date). To the right of the grid, there is a vertical list of additional packages: "Chocolatey Core Extensions" (version 1.3.3), "Java SE Runtime Environment" (version 8.0.151), "Notepad++" (version 7.5.9), "CCleaner" (version 5.48.534), "Win32 OpenSSH (Universal Installer)" (version 972.1), "Adobe Shockwave Player" (version 12.2.8.598), and "Git" (version 2.39.1). Each package entry includes a brief description, version number, download count, and a "Learn More" link.



The screenshot displays three main sections of the Chocolatey web application:

- Audit logs:** Shows a list of audit log entries for the date range 03/19/2019 - 03/19/2019. The table includes columns for Time, User name, and Service. The entries show various actions taken by 'ccmadmin' on '2019-03-19 17:01:49' across different services like 'ComputersApp', 'SoftwareApp', and 'SoftwareConsole'.
- Dashboard:** Provides a quick overview of package statistics:
 - Total Installed Packages: 65
 - Total Outdated Packages: 33
 - Total Unique Installed Packages: 54
 - Total Unique Outdated Packages: 55
- Software Details:** A table listing software details with columns for IP Address and Last check in date time. It shows two entries, both with IP address 255.255.255.0 and last checked in on 5 Dec 2018 at 03:35:29.





Editions



- Open Source - DIY, Apache v2 license
- C4B (Chocolatey for Business) - More UIs, smoother experience, more precision, and features geared towards organizational use
- Easy to migrate between the two





Commercial Capabilities

Real-time Insights

Chocolatey Central Management

The screenshot shows a Windows desktop environment with multiple windows open. One window is titled 'Chocolatey Central Management' and displays a list of packages with columns for Name, Version, and Description. Another window shows a large 'Chocolatey' logo with the text 'CENTRAL MANAGEMENT' below it.

Improve Accuracy & Simplify Software Management

Package Synchronizer

```
PS C:\> choco list -lo
chocolatey v0.9.10-beta-422-g335bc01 Business
[Syncronize] Removing ipassword package - it has been uninstalled outside of Chocolatey.
chocolatey 0.9.10-beta-20160609
chocolatey.extension 1.4.0
chocolatey.server 0.1.1
DotNet4.0 4.0.30319.20141222
git 2.7.0.0
git.install 2.8.4
GoogleChrome 51.0.2704.84
Launchy 2.5.0.20140301
roundhouse 0.8.5.0
9 packages installed.
```

Synchronize with Programs and Features

- Chocolatey for Business - any Chocolatey command will trigger synchronization
- Synchronizes state between Chocolatey and Programs and Features
- Currently supports manual software removals
- Adding upgrade tracking

Accelerate Deployments

Package Builder & Package Uploader

The screenshot shows two windows side-by-side. The left window is 'Chocolatey Package Builder' showing a configuration interface with tabs for 'General', 'Dependencies', 'Script', and 'Advanced'. The right window is 'Chocolatey Package Upload' showing a file selection dialog with a path 'C:\packages\aspnetcore-runtimepackagestore2.1.0.nupkg' and an 'Upload' button.

Improve Accuracy & Simplify Software Management

Package Synchronizer

Enhance User Experience

Self-Service GUI

The screenshot shows a Windows application window titled 'Chocolatey'. It features a sidebar with categories like 'This PC', 'Install Server', 'chocolatey', and 'chocolatey.extension'. The main area displays a grid of software icons, including Chocolatey, Flash Player Plugin, Google Chrome, Adobe Reader DC, Java Runtime Environment, Chocolatey Core, Mozilla Firefox, Flash Player ActiveX, WinRAR, Adobe AIR Runtime, 7-Zip, and Java Runtime (JRE).

Improve Security & Controls

Package Internalizer & Package Audit

The screenshot shows a terminal window with several lines of log output. The logs show the process of downloading Google Chrome and inspecting its values for remote resources. It includes URLs for replaced files, original files, and the final download. The logs also mention the use of 'MyCommandDefinition' and 'ForceStandaloneEnterprise'.

Optimization & Environments

Package Reducer & Package Throttle

The screenshot shows a terminal window with logs for 'Optimizer' and 'Optimizer "snagit"'. The 'Optimizer' section shows the reduction of space for 'screentogif'. The 'Optimizer "snagit"' section shows the reduction of space for 'adobeader' and the configuration of a download throttle. A red box highlights the 'Optimizer "adobeader"' section, which discusses bandwidth limits and the use of 'adb' for low bandwidth environments.





So What is Chocolatey?
It is software management
that works





**Why Chocolatey? Because
the following Is NOT how we
should manage software**







YES! THAT IS AWESOME!



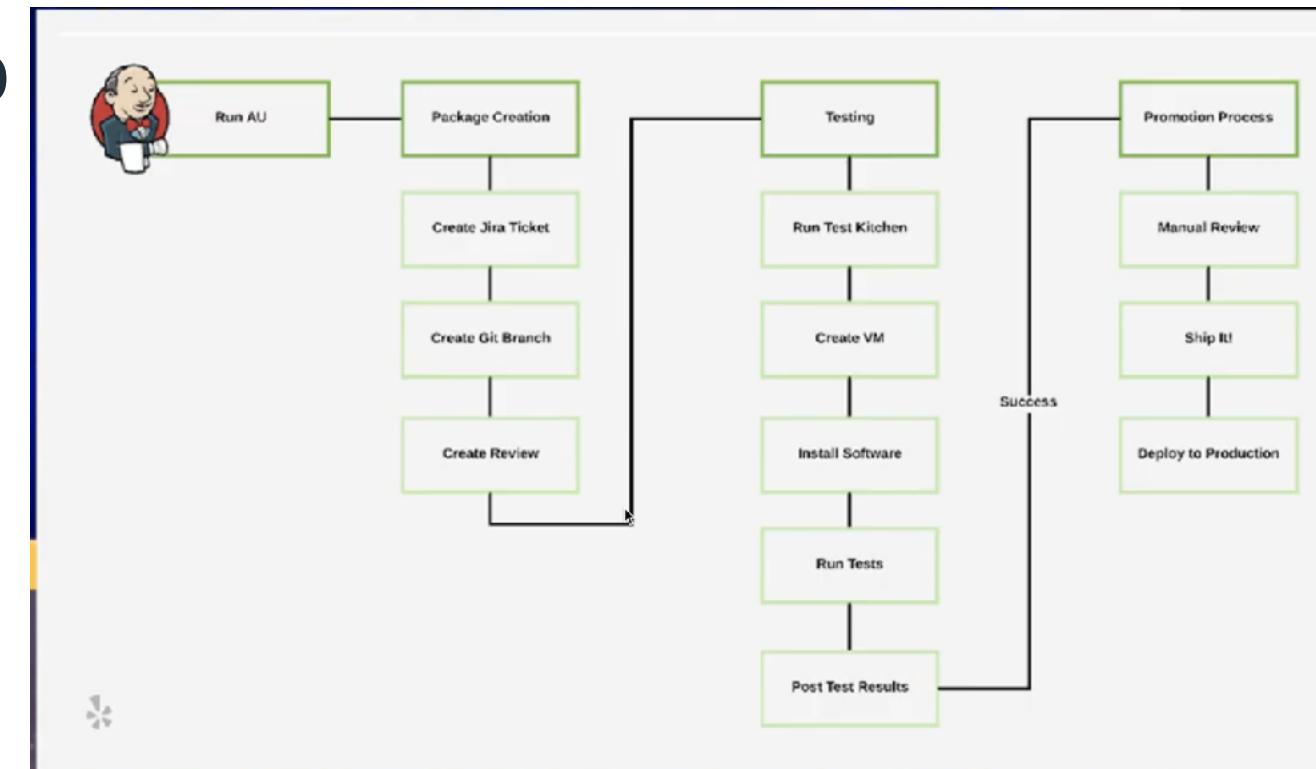


Organizational Use



What's possible?

- This is a framework Yelp shared with us at Chocolatey Fest 2018
- <https://www.youtube.com/watch?v=wSgWVklw4xA>



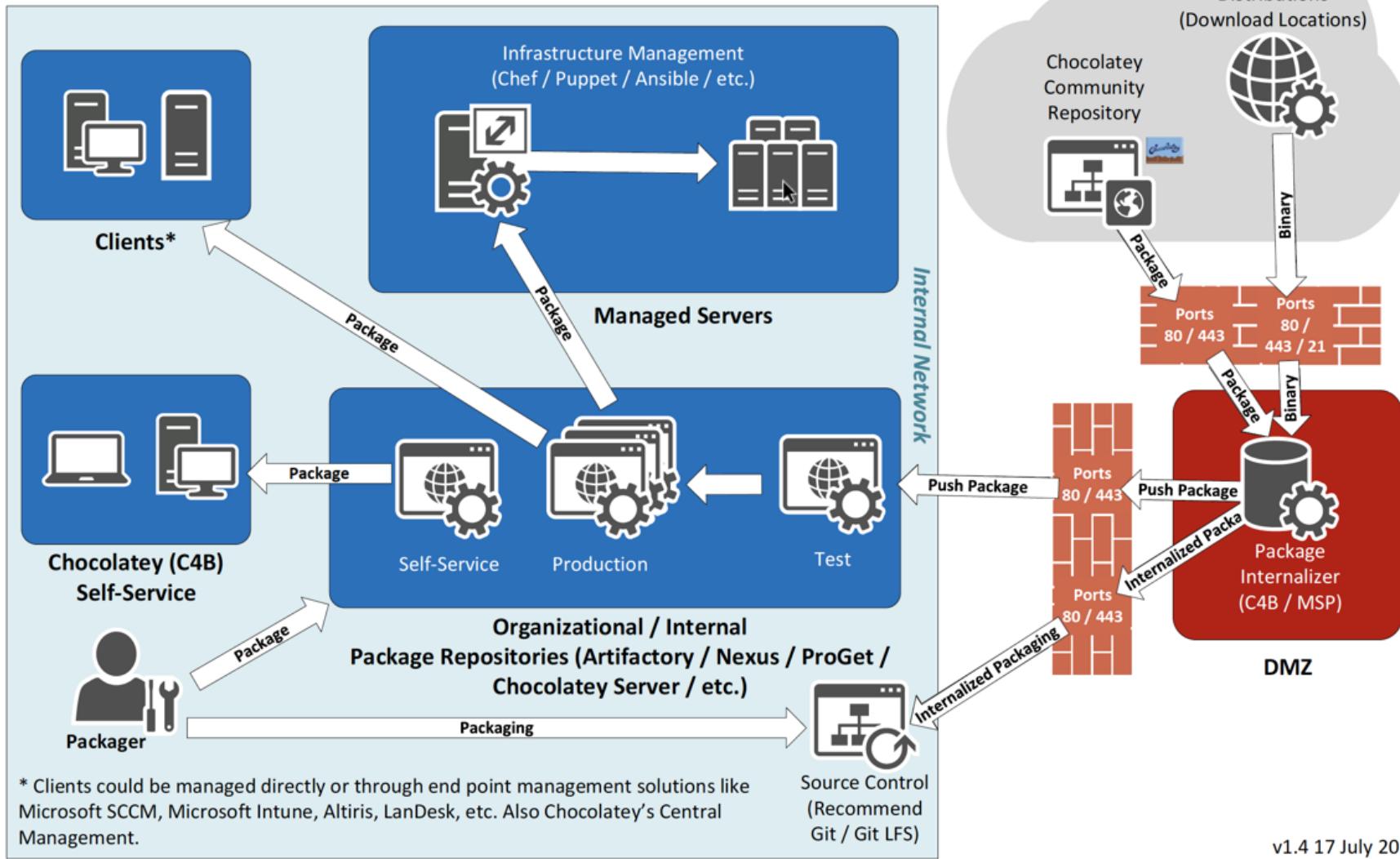


Organizational Use





Chocolatey Architecture Diagram



v1.4 17 July 2018



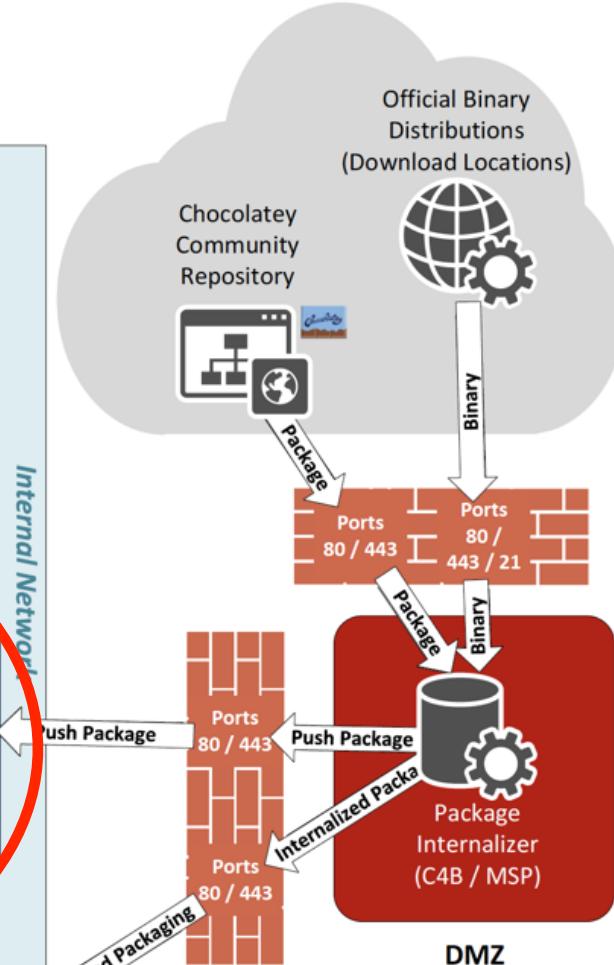
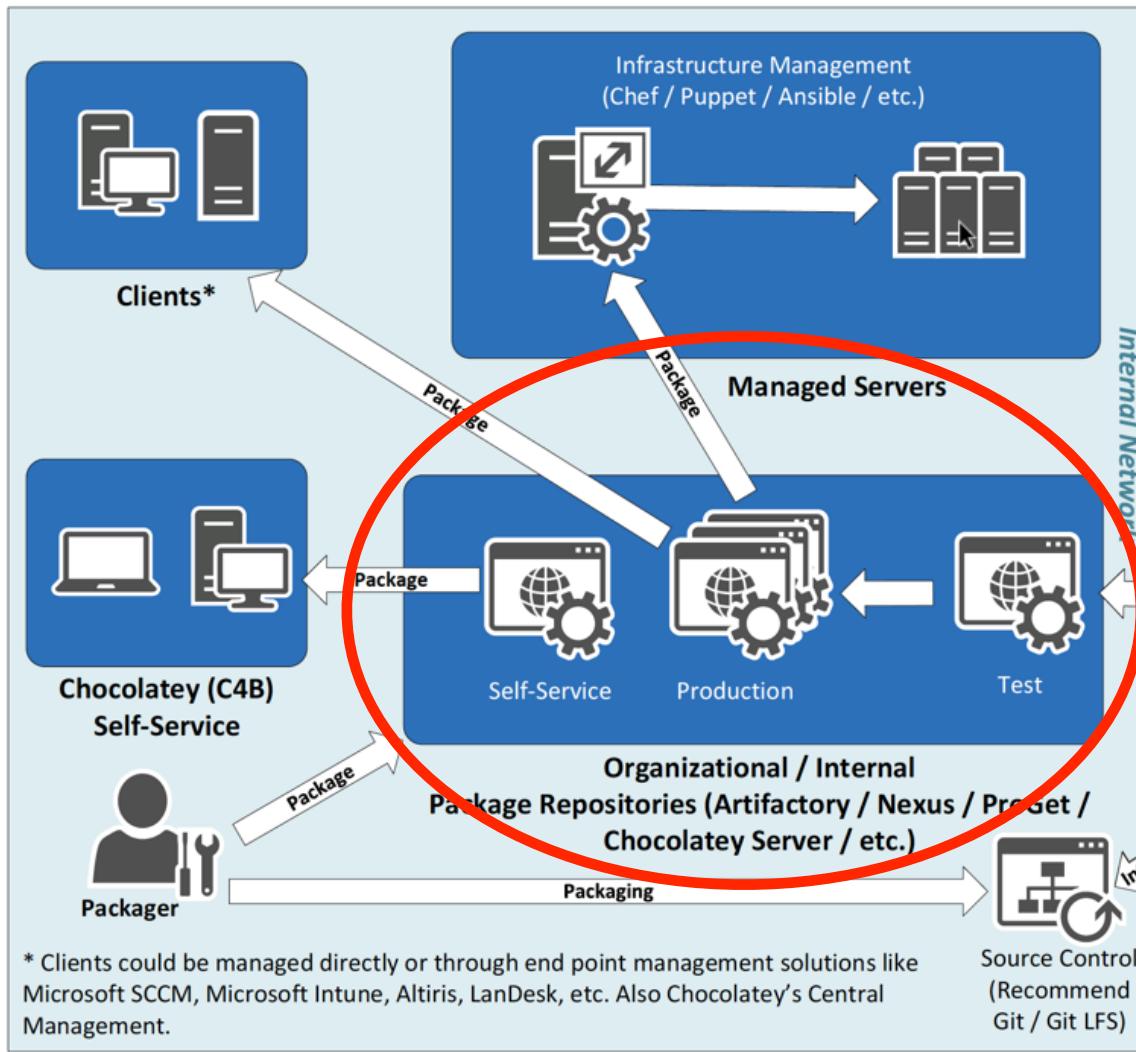


Repositories





Chocolatey Architecture Diagram



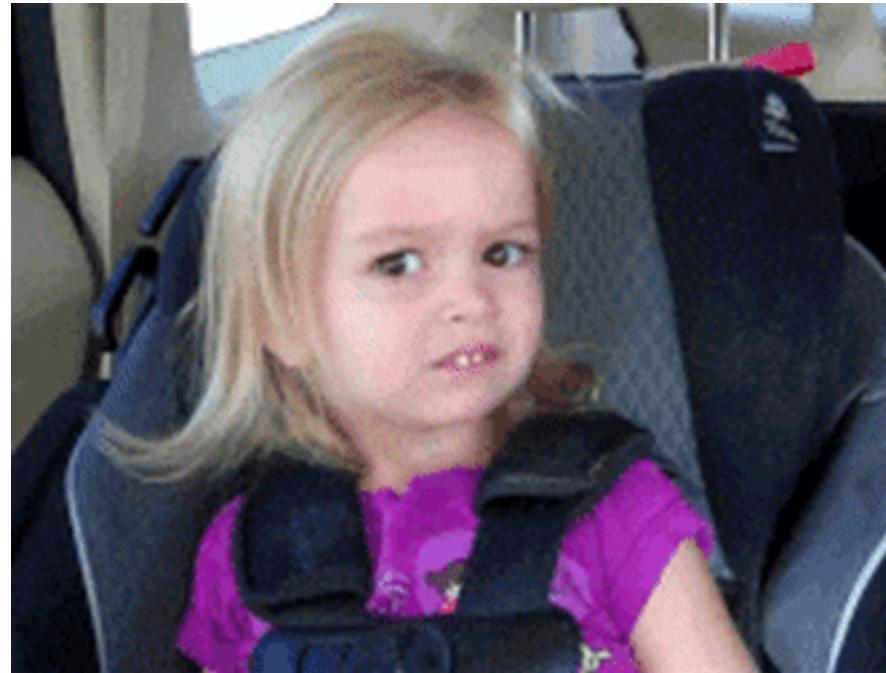
v1.4 17 July 2018





Why Can't I Just Use The Community Repository?

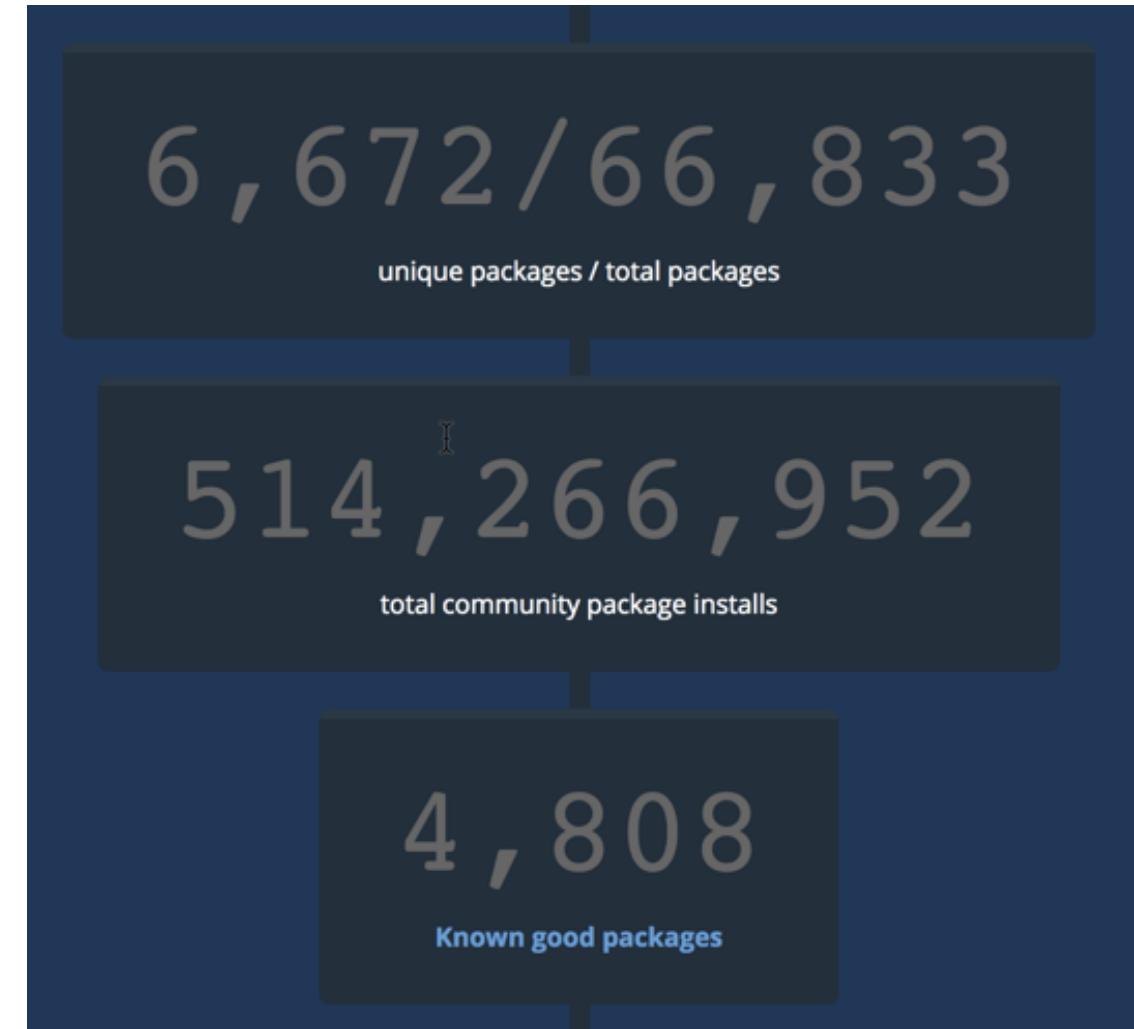






Community Package Repository

- <https://chocolatey.org/packages>
- Community Feed / Community Maintained
- Moderated as of October 2014
- Everything goes through VirusTotal
- **Organizations Should Avoid**
 - **Not Fully Reliable - public repo means subject to distribution rights (download CDN cache feature helps)**
 - **Trust and Control**





Internal Repositories

- <https://chocolatey.org/docs/how-to-host-feed>
- Artifactory Pro (cross-platform)
- Sonatype Nexus (cross-platform)
- Inedo's ProGet
- MyGet (hosted)
- Chocolatey.Server
- NuGet.Server / NuGet Gallery proper
- Visual Studio Team Services (v2 endpoints) / TFS
- File Share (DFS, CIFS, SMB) / SCCM Distribution points

Commercial options:

- Web Interface
- One Install / Multiple repositories
- Multiple repository types, not just NuGet/Chocolatey



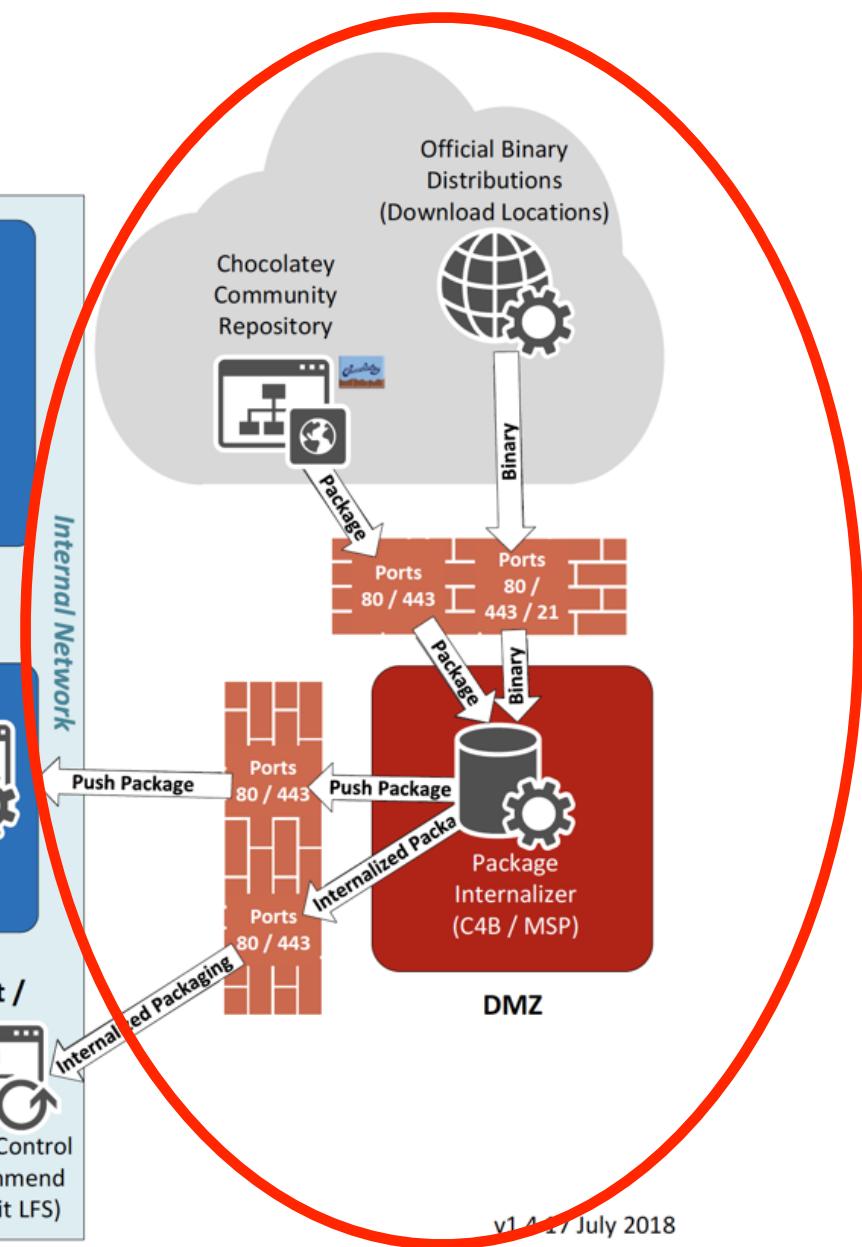
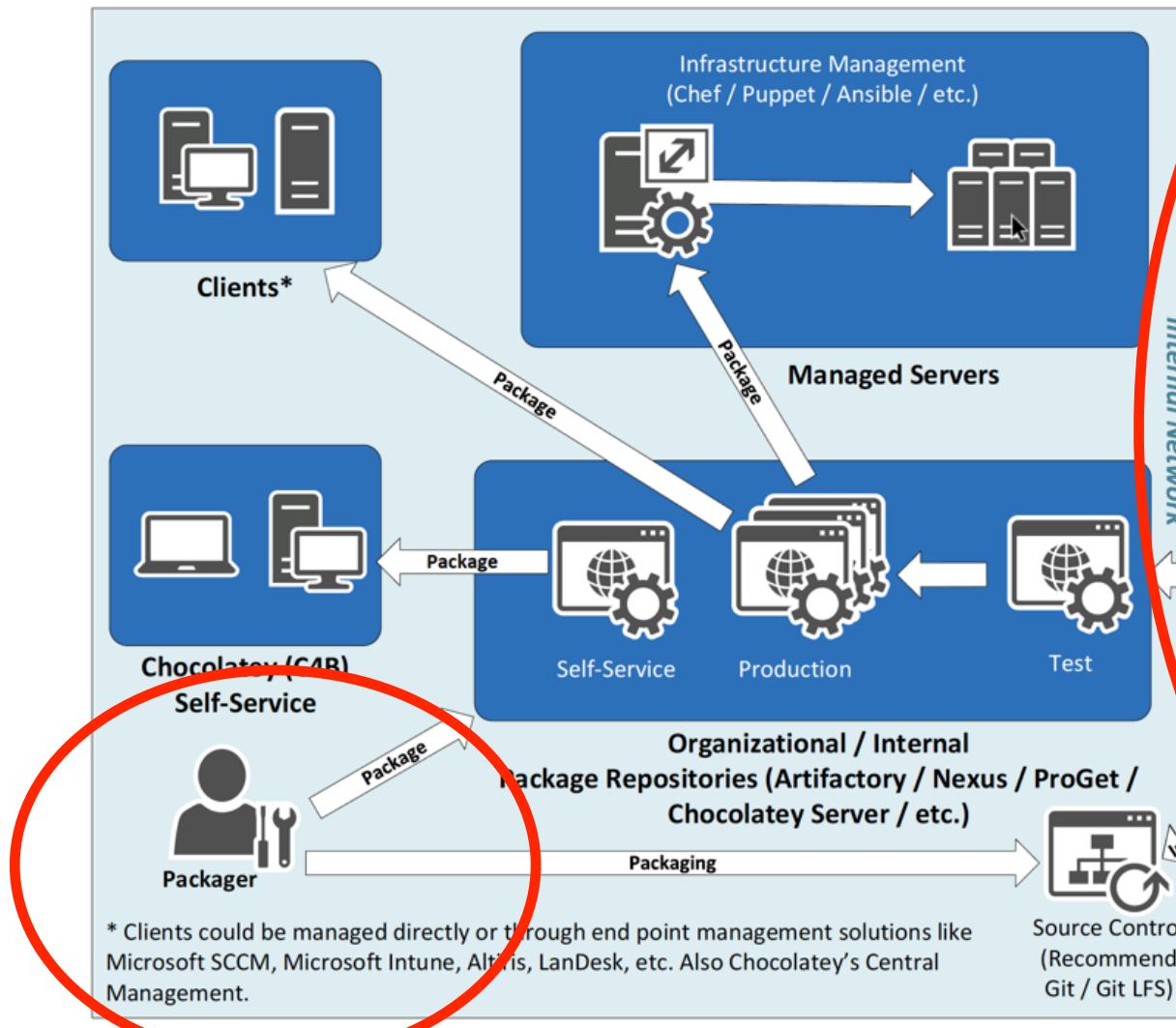


Packaging





Chocolatey Architecture Diagram



v1.4 - 17 July 2018





Package Internalizer - “Convert existing packages to 100% offline and reliable”

- Take advantage of existing packages without dependency on the internet
- Downloads existing package and all remote resources
- Recompiles package to use those internal resources
- Option to download and point to other locations
- Ability to host packages on private internal repositories
- Visual Interface coming

```
PS C:\packages\createpackages> choco download visualstudio2017enterprise --internalize
Chocolatey v0.10.8 Business
Downloading existing package(s) to C:\packages\createpackages\download
Progress: Downloading chocolatey-visualstudio.extension 1.4.1... 100%
Progress: Downloading visualstudio2017enterprise 15.2.26430.20170605... 100%
Progress: Downloading KB3033929 1.0.3... 100%
Progress: Downloading chocolatey-windowsupdate.extension 1.0.2... 100%
Progress: Downloading KB3035131 1.0.1... 100%
Progress: Downloading KB2919355 1.0.20160915... 100%
Progress: Downloading KB2919442 1.0.20160915... 100%
Progress: Downloading KB2999226 1.0.20170509... 100%
Progress: Downloading DotNet4.6.1 4.6.01055.20170308... 100%
Progress: Downloading visualstudio2017-installer 1.0.0... 100%

KB3035131 v1.0.1 [Approved]
Automatic recompile may not be necessary.
The package either uses incompatible methods (currently) or there is
no call for a download. Inspect the chocolateyInstall.ps1 at
'c:\packages\createpackages\download\KB3035131\Tools\ChocolateyInstall.ps1' to be sure.
If you determine things are good, use the nupkg as is at
'C:\packages\createpackages\KB3035131.1.0.1.nupkg'

KB3033929 v1.0.3 [Approved]
Automatic recompile may not be necessary.
The package either uses incompatible methods (currently) or there is
no call for a download. Inspect the chocolateyInstall.ps1 at
'c:\packages\createpackages\download\KB3033929\Tools\ChocolateyInstall.ps1' to be sure.
If you determine things are good, use the nupkg as is at
'C:\packages\createpackages\KB3033929.1.0.3.nupkg'

KB2919442 v1.0_20160915 [Approved]
Found Install-ChocolateyPackage. Inspecting values for remote resources.
Found 'https://download.microsoft.com/download/9/D/A/9DA6C939-9E65-4681-BBBE-A8F73A5C
116E/Windows8.1-KB2919442-x86.msu' for replacement.
```





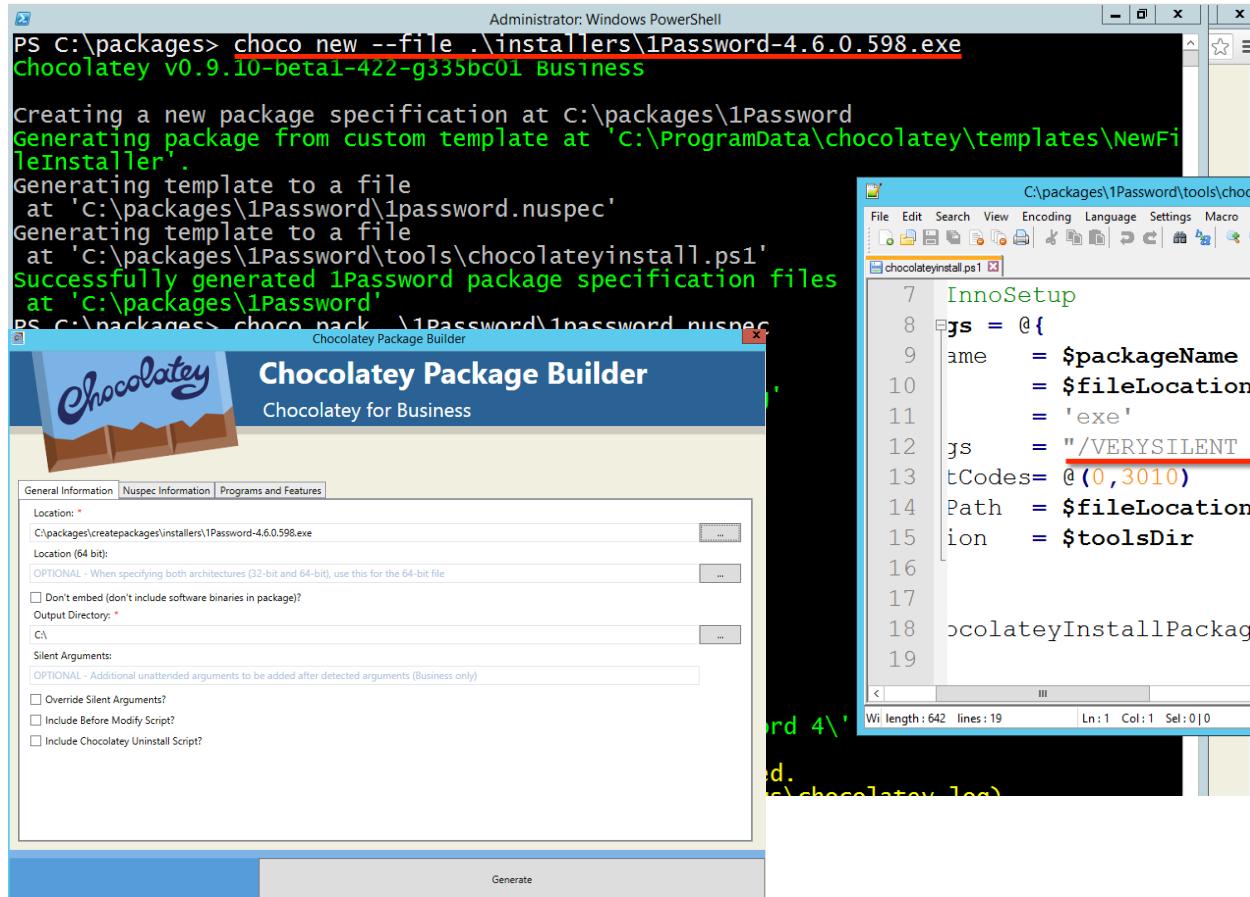
Creating Packages

- <https://chocolatey.org/docs/create-packages>
- choco new
 - Generates package files with most of the work done
 - Create your own packaging templates!





Package Builder - “Generate software deployment packages in seconds”



- Package Builder automatically creates high quality packaging from an installer/zip in 5-10 seconds
- Determines everything necessary for silently installing software for 70% of installers out there
- Supports passing urls (and checksums) - downloads files first
- Allows customization
- Supports exe, msi, 7z, zip, msu, and msp files





Non-Silent Installers?

- MSI Repackaging
- C4B Customers can use optional Packaging Services for small fee



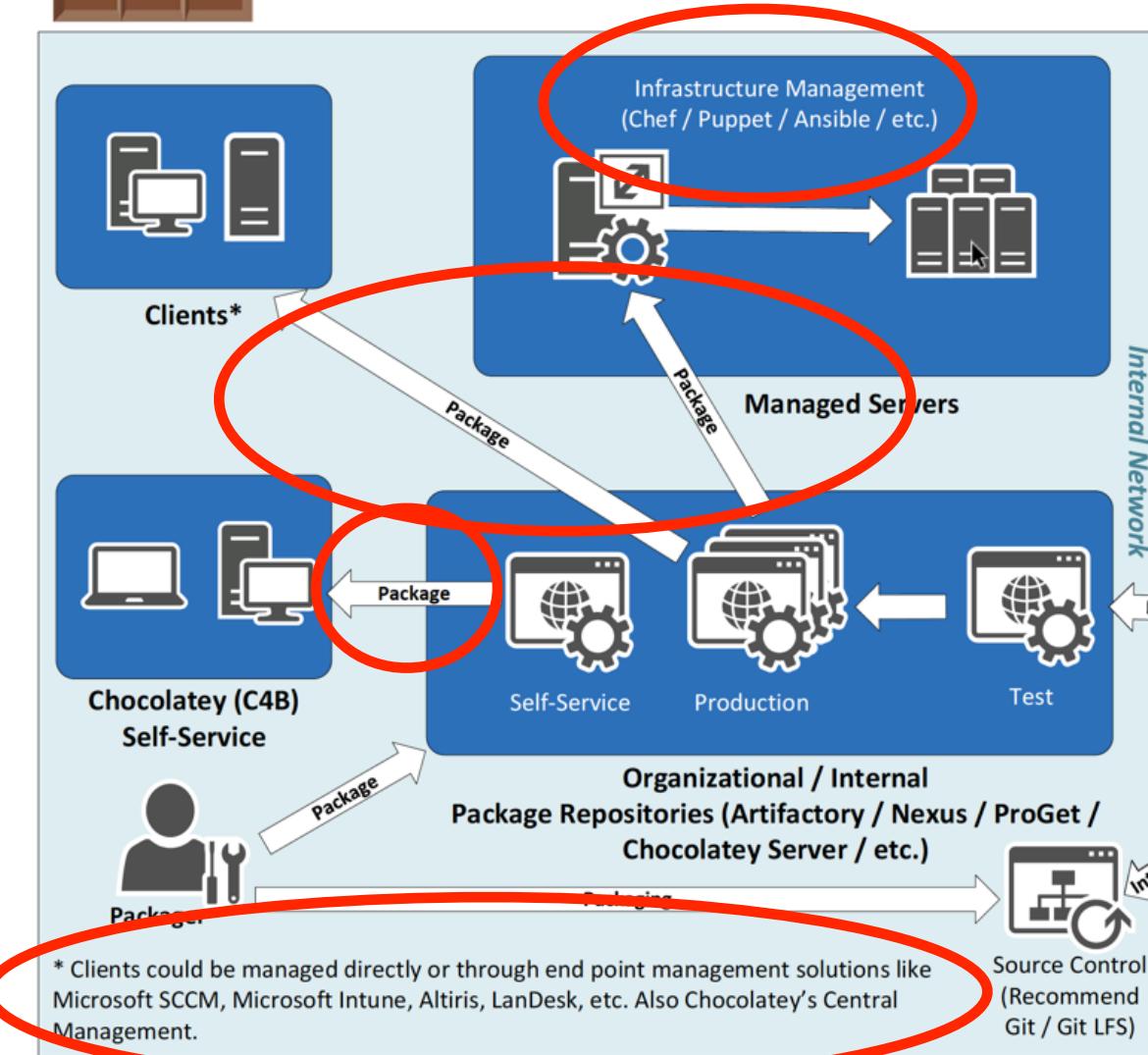


Deployment & Management





Chocolatey Architecture Diagram



v1.4 17 July 2018



Infrastructure Management

- <https://chocolatey.org/docs/features-infrastructure-automation>
- **Tight - provider-based**
- Chef (built-in), cookbook
- Puppet
- PowerShell DSC
- Ansible
- Saltstack
- **Script-based**
- Octopus Deploy
- Boxstarter
- SCCM
- RMM, or really anything that can run scripts





Reporting





Inventory - Comprehensive Software Audit

```
PS C:\> choco list -lo --include-programs
1password 4.6.0.603
chocolatey 0.9.10.3
chocolatey.extension 1.4.0
chocolatey.server 0.1.1
DotNet4.0 4.0.30319.20141222
git 2.7.0.0
GoogleChrome 51.0.2704.106
roundhouse 0.8.5.0
8 packages installed.

7-zip 9.22 (x64 edition)|9.22.00.0
Bitvise SSH Server 5.60 (remove only)|
ChocolateyGUI 0.13.2.0|0.13.2.0
Launchy 2.5|
Notepad++|6.4.2
Oracle VM VirtualBox Guest Additions 4.3.12|4.3.12.0
Puppet (64-bit)|3.8.3
7 applications not managed with Chocolatey.
```

- Exclusive to Chocolatey - Visibility beyond just the software 'installed' in Programs & Features
- Track versions of zip archives & own internal software that is not visible in system installation.
- Get a complete view of your systems. Chocolatey reports applications in systems not directly under its management.
- Package Audit adds who, when, and history

```
PS C:\packages\createpackages> choco list -lo --audit -r
1password|4.6.0.598|User:vagrant|Domain:WIN2012R2X64|Original User:vagrant|Install Date:2017-07-09 16:53:17Z
7zip|16.02.0.20160811
baretail|3.50.0.20120226
```





Compliance – Audit Out of Date Software

```
PS C:\> choco outdated
Chocolatey v0.10.8 Business
Outdated Packages
  Output is package name | current version | available version | pinned?
```

```
bitvise-ssh-server|5.60.0|7.34|false
chocolatey-agent|0.8.0|0.8.1|false
chocolatey-core.extension|1.3.1|1.3.3|false
chocolatey.extension|1.12.5|1.12.8|false
git|2.7.0.0|2.15.0|false
GoogleChrome|60.0.3112.113|62.0.3202.75|false
nodejs|8.4.0|9.0.0|false
nodejs.install|8.4.0|9.0.0|false
oracle-vm-virtualbox-guest-additions|4.3.12.0|4.3.12.0|false
ruby|2.4.
```



The screenshot shows the Chocolatey web application interface. The left sidebar has links for Computers, Software (which is selected), and Administration. The main area is titled "Software" and shows a search bar. A table lists five packages: Microsoft Visual C++ Redistributable for Visual Studio, 1Password (Install), Charles (Install), 7-Zip (Install), and 1Password (Install). The first two are marked as "Yes" for being outdated, while the others are marked as "No".

Is outdated	Name	Package Id
Yes	Microsoft Visual C++ Redistributable for Visual St...	vcredist40
Yes	1Password (Install)	1password
No	Charles (Install)	charles
No	7-Zip (Install)	7-zip
No	1Password (Install)	1password

- choco outdated
- Comprehensive reporting on available upgrades
- See what will upgrade on next maintenance window
- Pinned items won't upgrade until pin is remove





Package Synchronizer - Auto Sync

- Chocolatey maintains state based on packages. System state can be manipulated outside of Chocolatey
- Any Chocolatey command will trigger synchronization in licensed editions of Chocolatey
- Package Synchronizer syncs with manual software removal
- Syncs w/software that automatically upgrades, such as Chrome

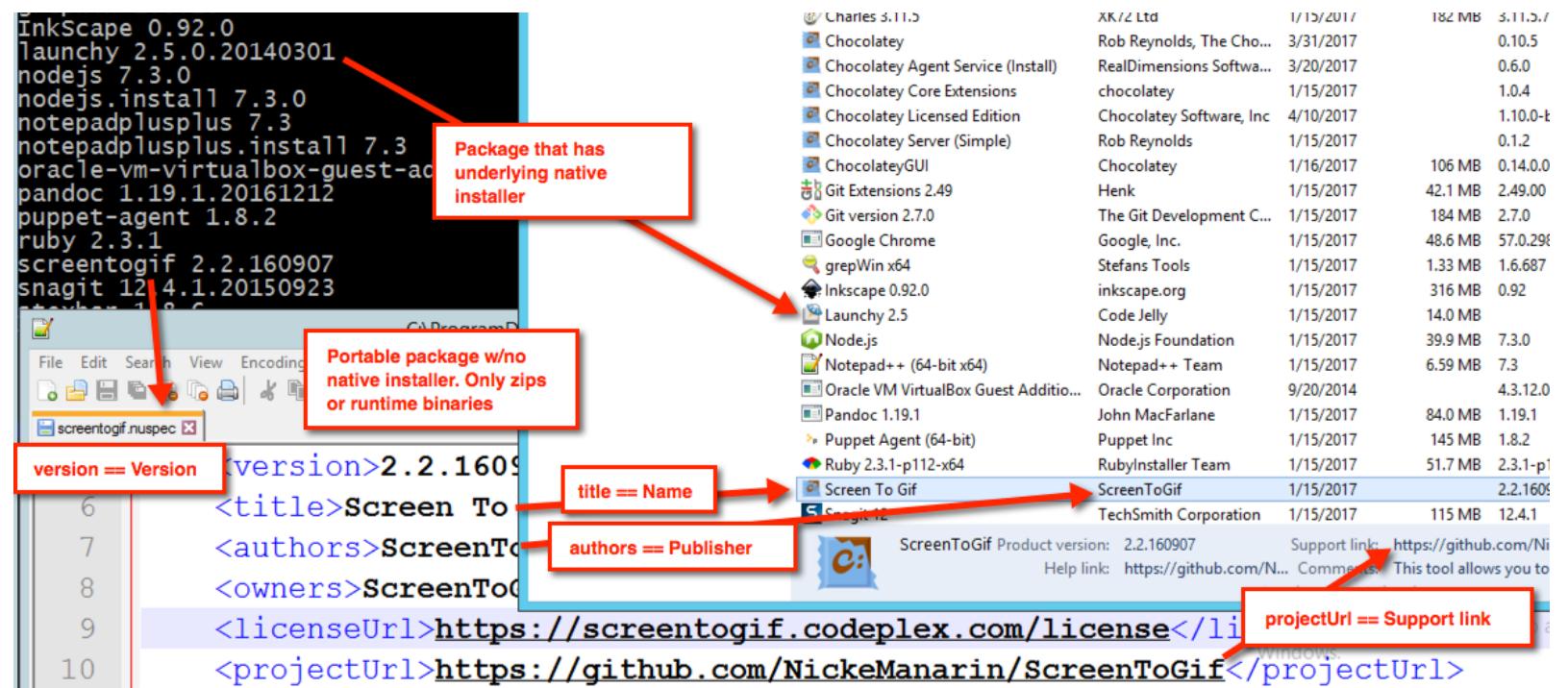
```
PS C:\> choco list -lo
Chocolatey v0.10.8 Business
[Syncronize] Removing grepwin package - it has been uninst
1led outside of Chocolatey.
7zip 16.4.0.20170506
7zip.install 16.4.0.20170506
baretail 3.50.0.20120226
bitvise-ssh-server 5.60.0
Charles 3.11.5
chocolatey 0.10.8
chocolatey-agent 0.8.0
chocolatey-core.extension 1.3.1
chocolatey.extension 1.12.5
chocolatey.server 0.1.3
chocolateygui 0.16.0-unstable0074
DotNet4.0 4.0.30319.20141222
DotNet4.5.2 4.5.2.20140902
git 2.7.0.0
gitextensions 2.50.01
```





Package Synchronizer - All Packages in Programs and Features

- Programs and Features represents only 50-80% of the software on a machine
- Chocolatey brings managed entries for non-installer packages
- Supporting legacy inventory reporting systems is now a snap
- Do not need to build MSIs / Installers for internal use just to support legacy reporting





Chocolatey Central Management

The screenshot displays two main sections of the Chocolatey Central Management web application. On the left, the 'Computers' page lists managed computers with columns for Name, Friendly Name, IP Address, and Last check in date time. A search bar and filters are at the top. On the right, the 'Computer Details' page for a specific computer (Name: i-0b0fe7e249aa807ae) shows its friendly name (172.30.0.121), last check-in date (10/21/2018), and a table of installed software packages.

Name	Friendly Name	IP Address	Last check in date time
ccmserver		172.30.0.232	10/18/2018
i-0903275efef62e0f98		172.30.0.160	10/21/2018
i-03b067693ec0bd0e02		172.30.0.50	10/22/2018
i-025db246406f20fb1		172.30.0.135	10/22/2018
i-095d02cd882d02e0fe		172.30.0.182	10/19/2018
i-034f27f14fd698bf7		172.30.0.252	10/22/2018
i-0c193c0f241de030b		172.30.0.177	10/22/2018
i-0cb4c4973dc1c386		172.30.0.33	10/22/2018
i-03350bc2a40f6c285		172.30.0.98	10/22/2018
i-080397fb04d3ebbd		172.30.0.151	10/22/2018
i-039f2e23e09df9b42		172.30.0.227	10/22/2018
i-0354e0e70e686099		172.30.0.241	10/22/2018
i-04627f9cab03076		172.30.0.20	10/22/2018
i-0b3800d3340ce10b		172.30.0.27	10/18/2018
i-0b0fe7e249aa807ae		172.30.0.121	10/21/2018
i-00a783c3de2aac81		172.30.0.245	10/22/2018
i-030bb69691554d72d		172.30.0.118	10/22/2018
i-088d49d2d0a99388		172.30.0.125	10/21/2018
i-045973c7cbfd387		172.30.0.102	10/22/2018
i-08fbccbfb634e0bb8		172.30.0.64	10/22/2018
i-03f5a0aed7299b754		172.30.0.103	10/22/2018

Computer Details for Name: i-0b0fe7e249aa807ae

Is outdated	Name	Package Id	Package Version
Yes	1Password (Install)	1password	4.6.0.598
No	7-Zip (Install)	7-zip	18.1.0
No	BareTail	baretail	3.50.20120226
No	Charles (install)	charles	4.2.6.3
No	Chocolatey	chocolatey	0.10.12-beta-20181011
No	Chocolatey Licensed Extension	chocolatey.extension	2.0.0-beta-20181009
No	Chocolatey Agent Service (Install)	chocolatey-agent	0.9.0-beta-20181009
No	Chocolatey Core Extensions	chocolatey-core.extension	13.3
No	Chocolatey GUI	ChocolateyGUI	0.16.0
No	Dot Net 4.5.2	DotNet4.5.2	4.5.2.20140902
No	Git	git	218.0
No	Git (install)	gitinstall	218.0
No	Launchy	launchy	2.5.0.20140301
No	NotePad++	notepadplusplus	7.5.8

- See reports / information across the org
- Modules / plugins coming
- Deployments





Other Features

- <https://chocolatey.org/docs/release-notes>
- Internal sources (like ProGet)
- *choco upgrade all* - Windows update for your 3rd party and internal software
- Shimming - like symlinks but better
- Pass install arguments directly through to installer (append or override package args)
- Package Parameters to adjust logic in packages
- Handles locking on upgrades in package folders
- Great reference docs - [& https://chocolatey.org/docs/commands-reference](https://chocolatey.org/docs/commands-reference) & <https://chocolatey.org/docs/helpers-reference>
- Excellent open source support community
- 30+ built-in PowerShell Functions
- Extend functionality with your own PowerShell Modules
- Custom Package Templates
- Can manage anything on Windows





Other Features (C4B)

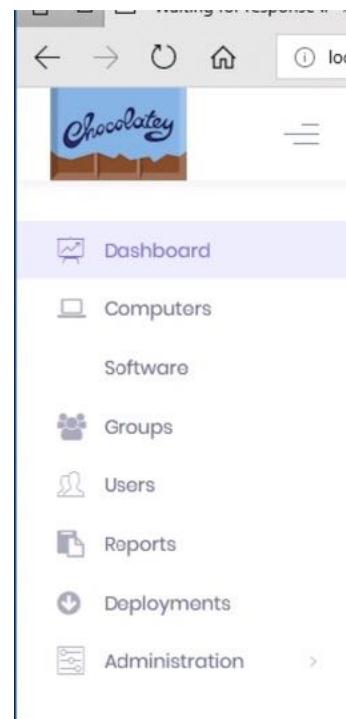
- <https://chocolatey.org/docs/release-notes-licensed>
- Auto-uninstaller more effective - uninstaller detection / Package Synchronizer
- Install/upgrade keeping secrets out of logs
- Ubiquitous Install Directory Option
- More built-in PowerShell functions
- Uninstall non-Chocolatey managed software
- Direct Installer - install directly from exe/msi
- Package Throttle
- Runtime malware protection
- CDN Cache
- Professional Packaging Services
- Amazing expert support team - <https://chocolatey.org/support>





Chocolatey Roadmap

- [https://chocolatey.org/
docs/roadmap](https://chocolatey.org/docs/roadmap)
 - More GUIs (C4B)
 - Authenticode / GPG Signing
 - Package Grid (C4B)
 - Deferred Installer (C4B)
 - Others (just ask)
- Choco Deploy CLI (C4B)
- WSA / AppX / MSIx
- Package Enhancements
- Pack Validation





Learn More

- <https://chocolatey.org/contact> (choose “Sales”)
- <https://chocolatey.org/docs>
- Expansive community
- chocolateynuget on twitter





**Anyone here doing all of
this?**









Demos

