

Modern Software Management on Windows with Chocolatey and Puppet

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Founder
Chocolatey Software



Rob Reynolds

- Creator and Founder of Chocolatey 
- Puppet Alum 
- 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 10 years experience in infrastructure automation
- Obsesses over user experience
- Microsoft MVP for whatever they are calling .NET area now



Agenda

- Chocolatey
 - Why
 - What
 - Features
- Chocolatey + Puppet
- Demo
- Questions









Why Chocolatey?



**Software management may
account for 50-90% of your
automation**



Windows Software Ecosystem

- Over 20 installer formats and thousands of installers in the wild
- Zips and other archive formats
- Software installers are messy
- Deploy internal/3rd party software using same approach?
- It's like the Wild West



Why Chocolatey?

- Reporting
- Features
- Offline
- Secure
- Flexibility
- Beyond Programs and Features
- Beyond just running installers
- Integrates with everything





Why Chocolatey?

- Focused solution - does 1 thing very well for over 6+ years
- Uses PowerShell - not learning new or proprietary technologies
- One approach for all software management - 3rd party and internal
- Reinventing Chocolatey could cost over \$1 million
- Hundreds of other companies are using it, there must be a reason





What is Chocolatey?



What is Chocolatey?

- Universal Approach for Software Management
- PowerShell
- Fancy zip files = “packages”
- Packages are independent software deployment artifacts
- Takes your deployment scripts to the next level





Organizational / Internal Use



Recognize this?





That's an iceberg

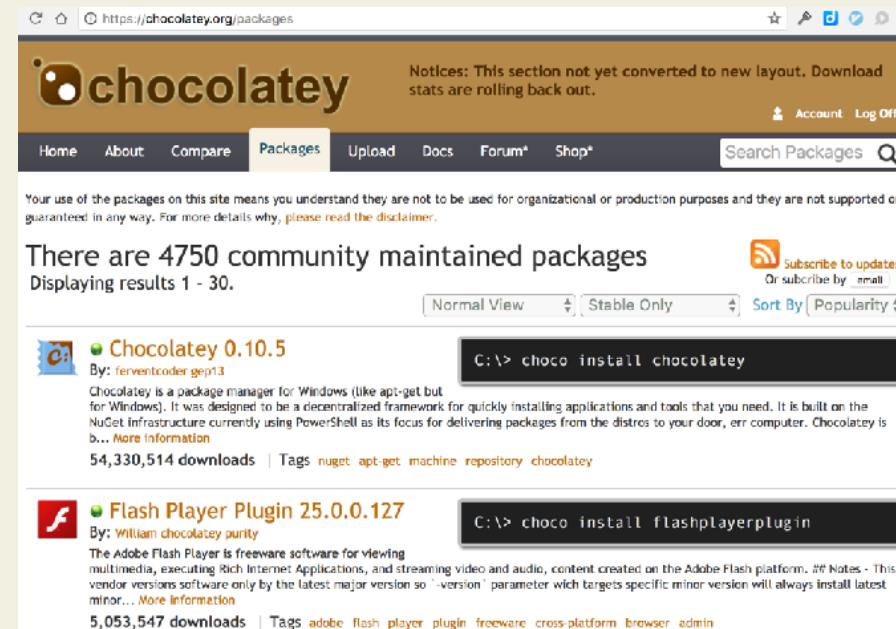




Well, obviously - what does it represent though?



Here's a hint



Understanding Chocolatey and Packaging

Community Package Repository

- Public domain
- Distribution rights
- Has Internet dependencies - failure point
- Possible trust issues for organizations

Organizational Use

- Internal / Offline
- Many thousands of packages larger
- Reliability

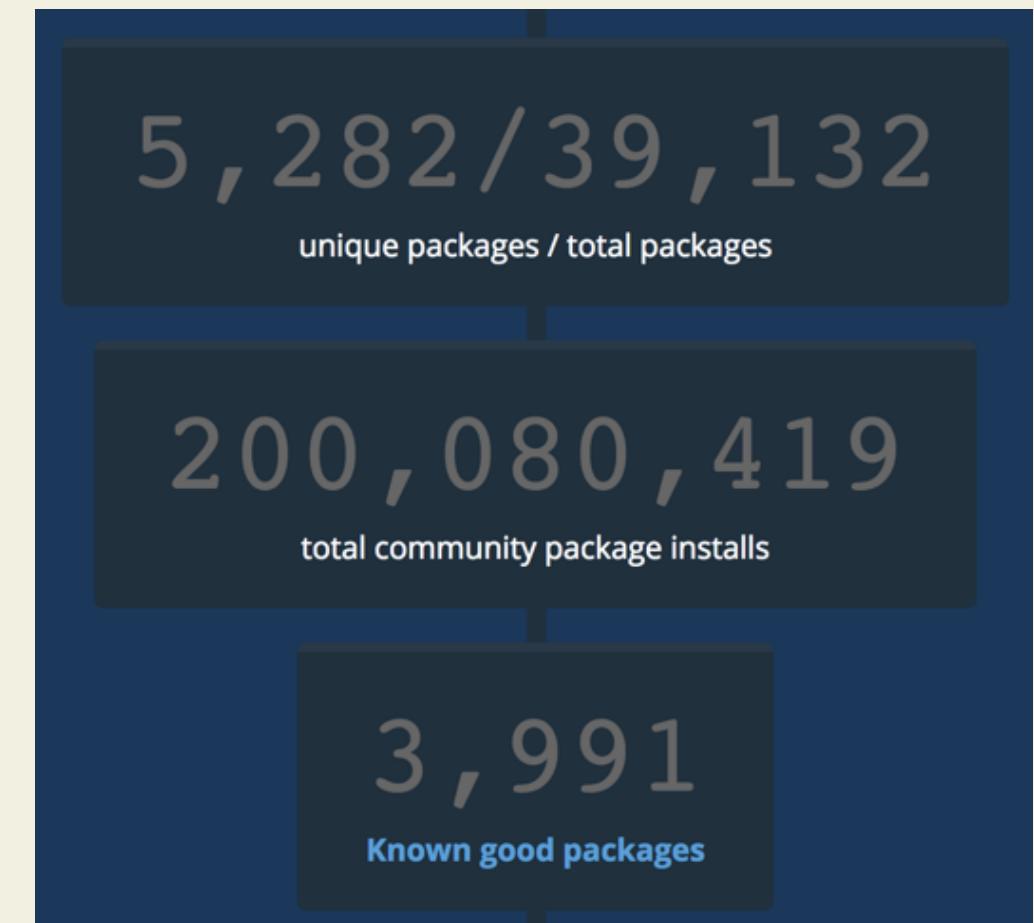
Do not cross this line to external / internet

WARNING: Objects in mirror may be larger than they appear



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**





Sweet Features



FOSS vs Chocolatey for Business (C4B)



- **Chocolatey open source (FOSS) == package management**
 - Works well in organizational use
- **C4B == complete software management**
 - Smoother experience
 - Builds on top of FOSS
 - Better system integration, endpoint management, etc
 - Better visual interfaces (GUIs)
 - Features geared specifically towards organizational use

Smart Installs / Smarter Upgrades

```
Administrator: Windows PowerShell
PS C:\packages> choco install git.install --source . -y
Chocolatey v0.9.10-beta1-426-g3c8b16e Business
Installing the following packages:
git.install
By installing you accept licenses for the packages.

git.install v2.8.4
Loading 'chocolatey.licensed' extension.
Copying git.install
  from 'C:\ProgramData\chocolatey\lib\git.install\tools\files\Git-2.8.4-64-bit.exe'
Virus checking skipped/turned off. Not verifying 'Git-2.8.4-64-bit.exe'
Installing Git-2.8.4-64-bit.exe...

Git-2.8.4-64-bit.exe has been installed.
WARNING: Git installed - You may need to close and reopen your shell for PATH changes to take effect.
Environment Vars (like PATH) have changed. Close/reopen your shell to see the changes (or in powershell/cmd.exe just type `refreshenv`).
The install of git.install was successful.
Software installed to 'C:\Program Files\Git\' ←

Chocolatey installed 1/1 package(s). 0 package(s) failed.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
PS C:\packages> git
git : The term 'git' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ git
+ ~~~
  + CategoryInfo          : ObjectNotFound: (git:String) [], CommandNotFoundException
  + FullyQualifiedErrorId : CommandNotFoundException

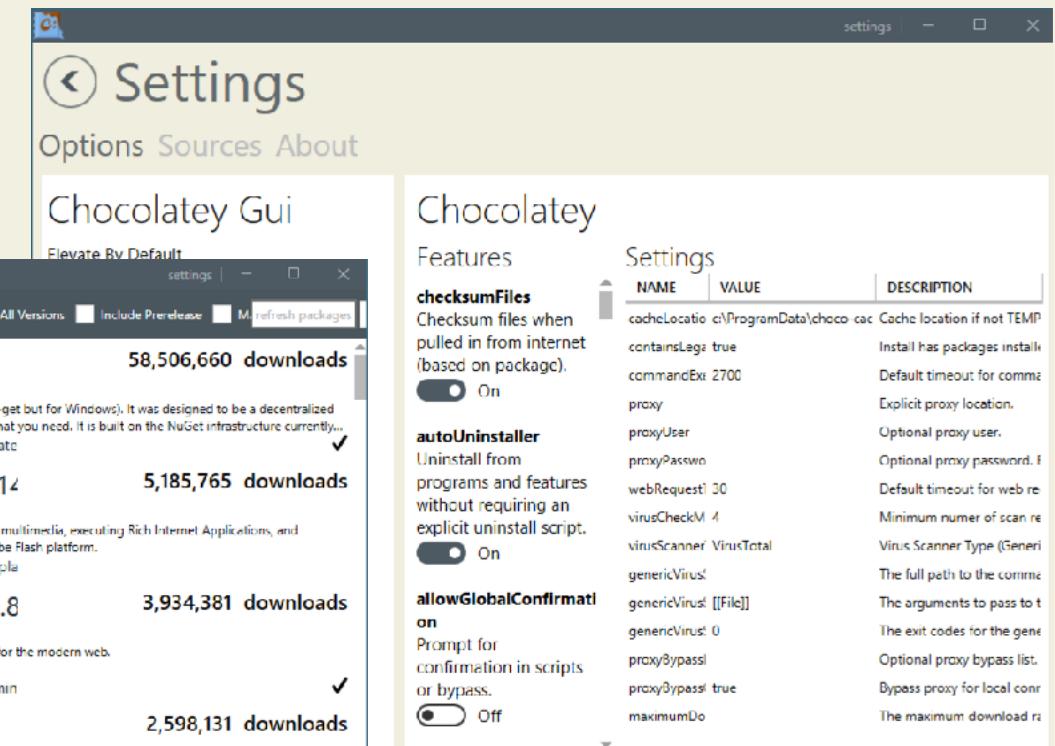
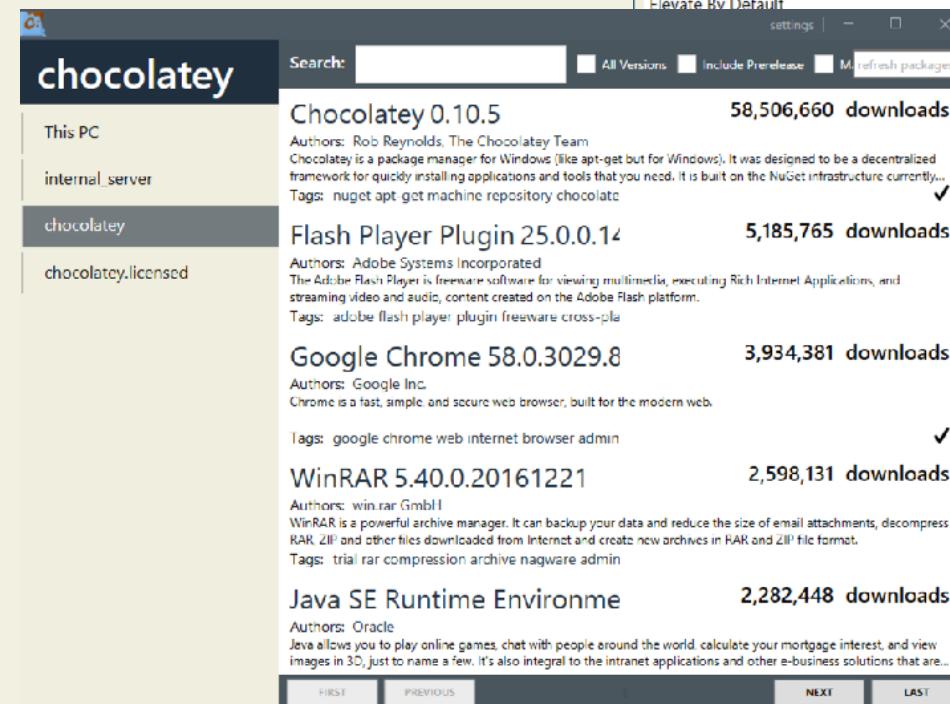
PS C:\packages> refreshenv ←
Refreshing environment variables from the registry...
Finished
PS C:\packages> git
usage: git [--version] [--help] [-c <path>] [-c name=value]
  [--exec-path=<path>] [--html-path] [--man-path] [--info-path]
```

- Track software installation in Programs & Features to map packages to system installs
- Track environment variable changes
- Leave out guesswork by reporting on software installation location
- Upgrades - Use XML Document Transform (XDT) for .NET configuration file changes
- Exclusive to Chocolatey - Use new tools / commands without closing / re-opening your shell for environment changes to take effect



Graphical Interface - Chocolatey GUI

- Configure Chocolatey
- Manage software installations



Automatic Uninstallation

```
PS C:\packages> choco uninstall 1password -y
Chocolatey v0.9.10-beta1-422-g335bc01 Business
Uninstalling the following packages:
1password

1password v4.6.0.598
Running auto uninstaller...
Auto uninstaller has successfully uninstalled 1password.
1password has been successfully uninstalled.

Chocolatey uninstalled 1/1 packages. 0 packages failed.
See the log for details (C:\ProgramData\chocolatey\logs\choco.log)
```

- Exclusive to Chocolatey - Automatically uninstall over 90% of installations without uninstall script
- AutoUninstaller reduces time by not developing and managing uninstall scripts





Reporting / Auditing





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.
```

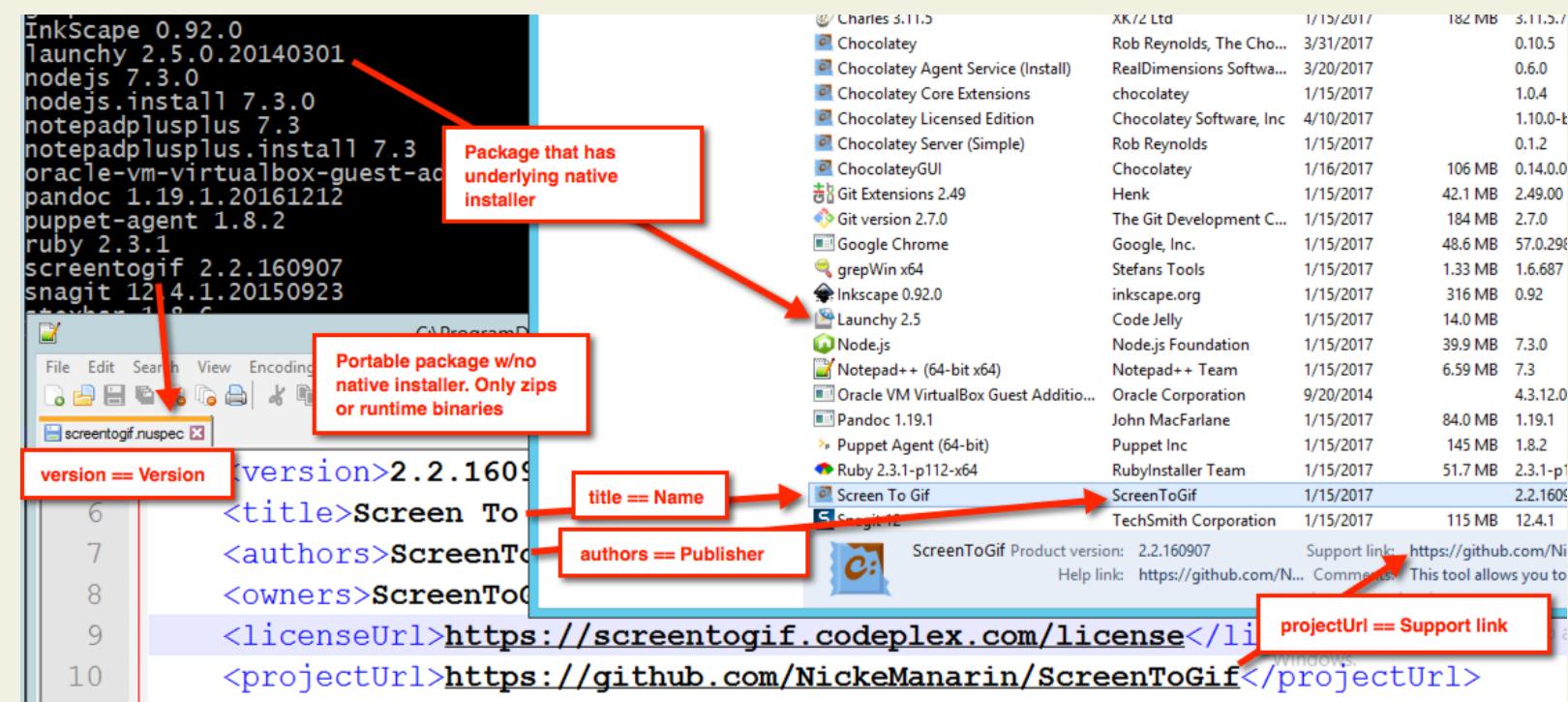
- Exclusive to Chocolatey - Visibility beyond just the software 'installed' in Programs & Features
- Track versions of zip archives & own internal software that is not visible in system installation.
- Get a complete view of your systems. Chocolatey reports applications in systems not directly under its management.
- Package Audit (C4B) adds who and when

```
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
```



All Packages in Programs and Features (C4B)

- 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





Logging - Detailed Reporting

A screenshot of a terminal window titled "ANSI" showing the contents of the log file "C:\ProgramData\chocolatey\logs\chocolatey.log". The log file is 5.9 MB and contains numerous DEBUG-level entries from June 9, 2017, at 21:55:52. The log details the configuration of log4net, the evaluation of a license file, the loading of extensions, and various system interactions like attempting to delete old executables and sending messages to subscribers. It also tracks the removal of packages and the handling of updates for various software components like Chocolatey Agent, Chocolatey Core, Chocolatey Extension, Chocolatey Server, Chocolatey GUI, DotNet4.0, DotNet4.5.2, git, gitextensions, Google Chrome, grepwin, and InkScape.

```
Open Highlighting Follow Tail ANSI C:\ProgramData\chocolatey\logs\chocolatey.log (5.9 MB)
0 2017-06-09 21:55:52,794 2236 [DEBUG] - Configured chocolatey.infrastructure.logging.log4net.config.xml from assembly choco, Version=0.10.7.0, Culture=neutral, PublicKeyToken=b03f5f7f1133d5f4, processorArchitecture=MSIL
0 2017-06-09 21:55:52,849 2236 [DEBUG] - XmlConfiguration is now operational
0 2017-06-09 21:55:52,857 2236 [DEBUG] - Evaluating license file found at 'C:\ProgramData\chocolatey\license\chocolatey.license'.
0 2017-06-09 21:55:53,044 2236 [DEBUG] - Loading Licensed Extensions and Commands
0 2017-06-09 21:55:53,083 2236 [INFO ] - =====
0 2017-06-09 21:55:53,411 2236 [INFO ] - Chocolatey v0.10.7 Business
0 2017-06-09 21:55:53,427 2236 [DEBUG] - Chocolatey is running on Windows v 6.3.9600.0
0 2017-06-09 21:55:53,427 2236 [DEBUG] - Attempting to delete file "C:\ProgramData\chocolatey\choco.exe.old".
0 2017-06-09 21:55:53,435 2236 [DEBUG] - Attempting to delete file "C:\ProgramData\chocolatey\choco.exe.old".
0 2017-06-09 21:55:53,443 2236 [DEBUG] - Command line: "C:\ProgramData\chocolatey\choco.exe" upgrade chocolatey.extension -s C:\vagrant\resources\packages -y -f
0 2017-06-09 21:55:53,443 2236 [DEBUG] - Received arguments: upgrade chocolatey.extension -s C:\vagrant\resources\packages -y -f
0 2017-06-09 21:55:53,536 2236 [DEBUG] - RemovePendingPackagesTask is now ready and waiting for PreRunMessage.
0 2017-06-09 21:55:53,544 2236 [DEBUG] - CountdownTask is now ready and waiting for PostRunMessage.
0 2017-06-09 21:55:53,544 2236 [DEBUG] - Terminal services setup not necessary for this session.
0 2017-06-09 21:55:53,552 2236 [DEBUG] - SynchronizeTask is now ready and waiting for PreRunMessage.
0 2017-06-09 21:55:53,552 2236 [DEBUG] - PackagesInProgramsAndFeaturesTask is now ready and waiting for PostRunMessage.
0 2017-06-09 21:55:53,560 2236 [DEBUG] - Sending message 'PreRunMessage' out if there are subscribers...
0 2017-06-09 21:55:53,575 2236 [DEBUG] - [Pending] Removing all pending packages that should not be considered installed...
0 2017-06-09 21:55:53,599 2236 [DEBUG] - [Synchronize] Updating packages with Programs and Features
0 2017-06-09 21:55:53,599 2236 [DEBUG] - [Synchronize] Currently only supports removals. Soon will handle updates.
0 2017-06-09 21:55:53,872 2236 [DEBUG] - 7zip 16.02.0.20160811
0 2017-06-09 21:55:53,880 2236 [DEBUG] - baretail 3.50.0.20120226
0 2017-06-09 21:55:53,950 2236 [DEBUG] - Charles 3.11.5
0 2017-06-09 21:55:53,950 2236 [DEBUG] - chocolatey 0.10.7
0 2017-06-09 21:55:53,950 2236 [DEBUG] - chocolatey-agent 0.6.0
0 2017-06-09 21:55:53,950 2236 [DEBUG] - chocolatey-core.extension 1.0.4
0 2017-06-09 21:55:53,950 2236 [DEBUG] - chocolatey.extension 1.10.0
0 2017-06-09 21:55:53,958 2236 [DEBUG] - chocolatey.server 0.1.2
0 2017-06-09 21:55:53,958 2236 [DEBUG] - ChocolateyGUI 0.14.0-unstable0165
0 2017-06-09 21:55:53,958 2236 [DEBUG] - DotNet4.0 4.0.30319.20141222
0 2017-06-09 21:55:53,958 2236 [DEBUG] - DotNet4.5.2 4.5.2.20140902
0 2017-06-09 21:55:53,958 2236 [DEBUG] - git 2.7.0.0
0 2017-06-09 21:55:53,958 2236 [DEBUG] - gitextensions 2.49
0 2017-06-09 21:55:53,958 2236 [DEBUG] - GoogleChrome 55.0.2883.87
0 2017-06-09 21:55:53,966 2236 [DEBUG] - grepwin 1.6.16
0 2017-06-09 21:55:53,966 2236 [DEBUG] - InkScape 0.92.0
0 2017-06-09 21:55:53,966 2236 [DEBUG] - l10n-en-US 0.5.0.20140901
```

- Log file captures very detailed information - environment and state
- Reduces rollback / recreation necessity



Compliance – Audit Out of Date Software

- choco outdated
- Comprehensive reporting on available upgrades
- See what will upgrade on next maintenance window

```
PS C:\packages> choco outdated
Chocolatey v0.9.10-beta1-426-g3c8b16e Business
Outdated Packages
  Output is package name | current version | available version | status

nodejs|4.4.5|6.2.1|false
nodejs.install|4.4.5|6.2.1|false
notepadplusplus|6.8.1|6.9.2|false
notepadplusplus.install|6.8.1|6.9.2|false
roundhouse|0.8.5.0|0.8.6|false

Chocolatey has determined 5 package(s) are outdated.
PS C:\packages>
```



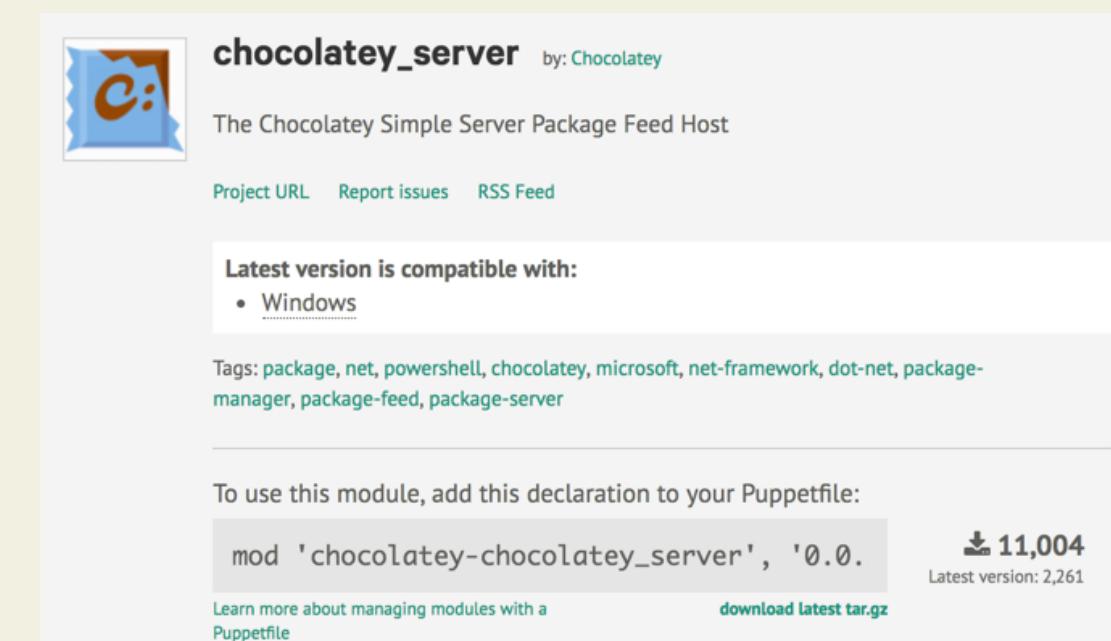


Package Repository



Hosting Your Own Package Server

- <https://chocolatey.org/docs/how-to-host-feed>
- Artifactory Pro  (cross platform)
- Sonatype Nexus  (cross platform)
- ProGet  / MyGet 
- Chocolatey.Server (Puppet Module -->)
- File Share (DFS, SMB, CIFS)
- NuGet Gallery 
- NuGet.Server
- SCCM Distribution Points
- Visual Studio Team Services (use v2 endpoints)



Creating Software Deployment “Packages”





Chocolatey Packages

- Terminology: "Package" is nupkg file, "Software" is binaries or installers
- Zip files + Versioning, Dependencies & PowerShell
- Metadata - Software Information / Package Information
- PowerShell - <https://chocolatey.org/docs/helpers-reference>
 - 30+ Built-in functions - complex tasks become 1 liners
 - Handle additional missing installer logic (like add to PATH)
 - Add options missing from installer arguments
- Files - drop in binaries, native installers

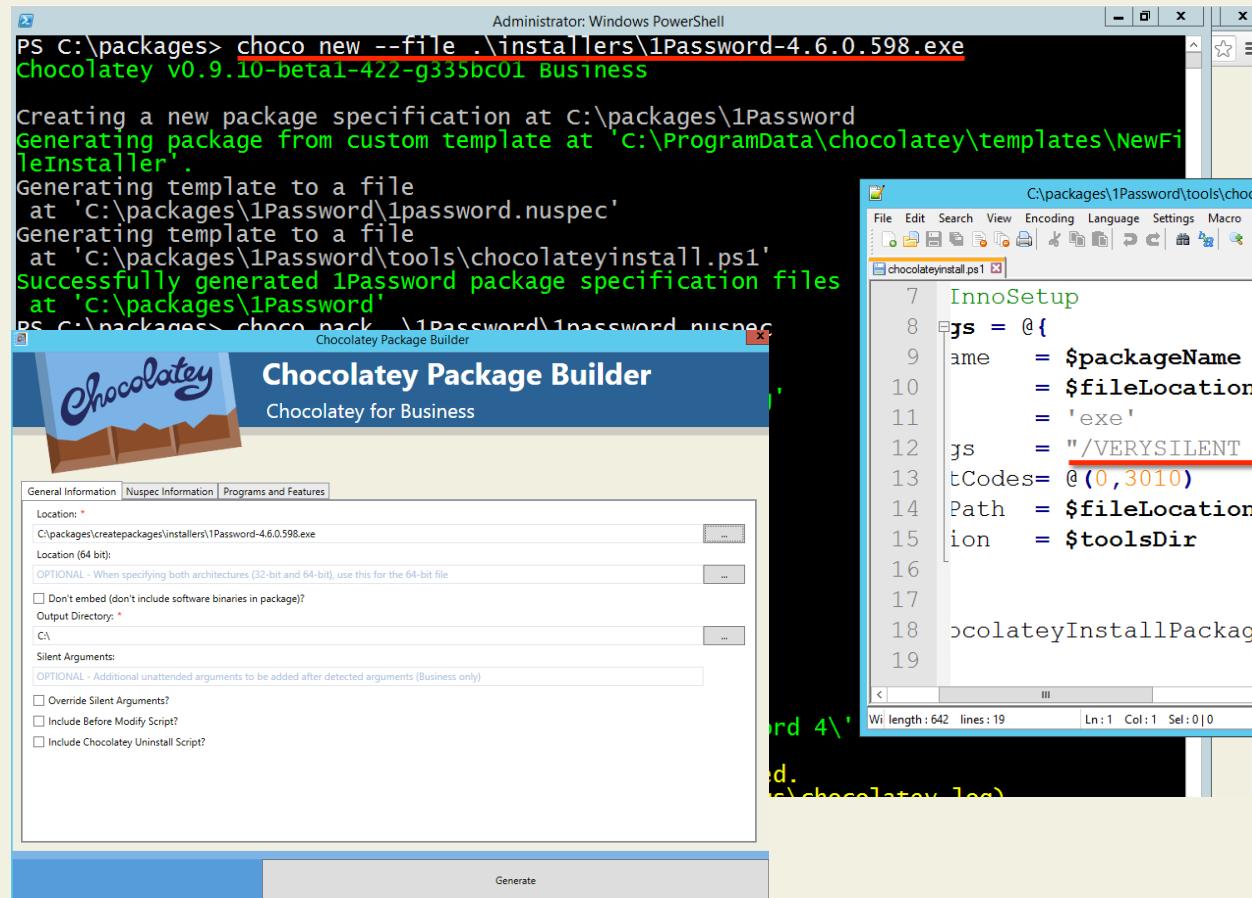


Creating Packages

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



Package Builder (C4B) - “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
- Supports passing urls (and checksums) - downloads files first
- Allows customization
- Supports exe, msi, 7z, zip, msu, and msp files

Package Internalizer (C4B) - “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> choco download --recompile git.install
Chocolatey v0.9.10-beta1-426-g3c8b16e Business
Downloading an existing package to C:\packages\download

git.install v2.8.4 [Approved]
Found Install-ChocolateyPackage. Inspecting values for remote resources.
Found 'https://github.com/git-for-windows/git/releases/download/v2.8.4.windows-2.8.4-32-bit.exe' for replacement.
Found 'https://github.com/git-for-windows/git/releases/download/v2.8.4.windows-2.8.4-64-bit.exe' for replacement.

Download of 'Git-2.8.4-32-bit.exe' completed.
Replacing 'https://github.com/git-for-windows/git/releases/download/v2.8.4.windows-2.8.4-32-bit.exe' with '$(Split-Path -parent $MyInvocation.MyCommand.Definition.MyCommandOrigin) files\Git-2.8.4-32-bit.exe'

Download of 'Git-2.8.4-64-bit.exe' completed.
Replacing 'https://github.com/git-for-windows/git/releases/download/v2.8.4.windows-2.8.4-64-bit.exe' with '$(Split-Path -parent $MyInvocation.MyCommand.Definition.MyCommandOrigin) files\Git-2.8.4-64-bit.exe'
Updating chocolateyInstall.ps1 with local resources.
Recompiling package.

Recompiled package files available at 'C:\packages\download\git.install'
Recompiled nupkg available in 'C:\packages'
```





How does it work?







Package Synchronizer (C4B)

- stay in sync w/system





Package Synchronizer (Licensed) - Auto Sync

```
PS C:\> choco list -lo
Chocolatey v0.9.10-beta1-422-g335bc01 Bu
[Synchronize] Removing 1password package
tey.
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.
PS C:\>
```

- 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



Package Synchronizer (C4B) - Choco Sync Command

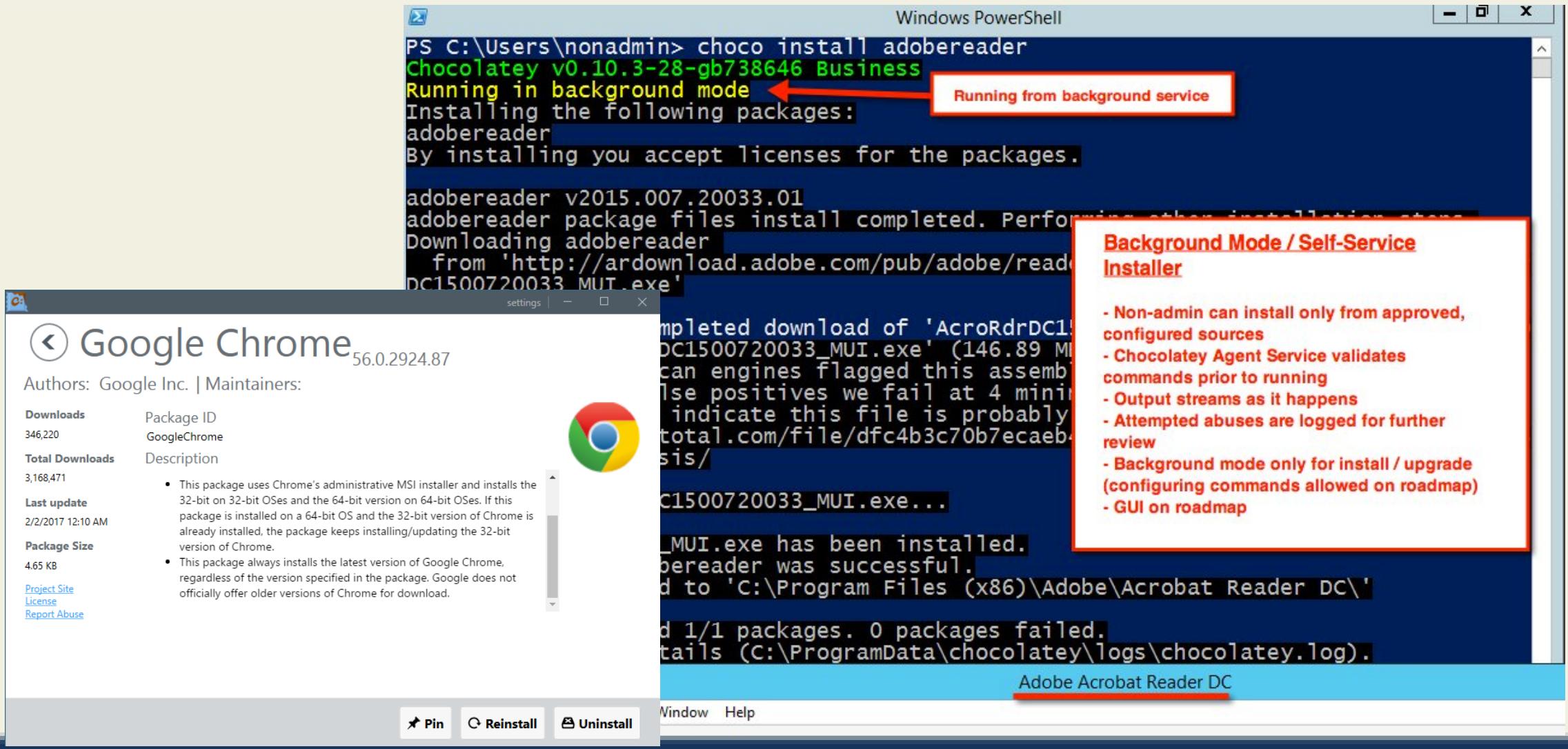
```
PS C:\> choco sync -r
Package Id|Display Name|Version|New Package
7zip|7-Zip 16.02 (x64)|16.2|False
oracle-vm-virtualbox-guest-additions|Oracle V
12.0|True
bitvise-ssh-server|Bitvise SSH Server 5.60 (r
PS C:\>
```

- Brings all software in Programs and Features under Chocolatey management
- Generates packaging and baselines to Chocolatey install
- Provides packaging code to take back to source control

Self-Service (C4B) - “Non-administrative desktop users can install/upgrade software!”



Self-Service Installer / Background Mode (C4B)



The screenshot illustrates the Chocolatey self-service installer and background mode. On the left, a Windows PowerShell window shows the command `choco install adobereader` being run. The output indicates "Running in background mode" and "Running from background service". A red arrow points from the "Running in background mode" text to a callout box containing the same text. Below this, the package "adobereader" is being installed. On the right, a Google Chrome window displays the package details for "Google Chrome 56.0.2924.87". The package ID is GoogleChrome. The "Description" section includes bullet points about the MSI installer and the latest version of Google Chrome. A red box highlights the "Background Mode / Self-Service Installer" section, which lists several key features:

- Non-admin can install only from approved, configured sources
- Chocolatey Agent Service validates commands prior to running
- Output streams as it happens
- Attempted abuses are logged for further review
- Background mode only for install / upgrade (configuring commands allowed on roadmap)
- GUI on roadmap



Package Reducer (Licensed)

- Reduce Chocolatey space usage down automatically
- Reduction on install/upgrade
- choco optimize to clean existing

```
Space reduced for 'snagit': 87.33 MB.  
Optimizing 'stexbar'  
Reducing package size for 'stexbar'...  
Reducing nupkg file size ('stexbar').  
Reducing extracted archives and installers ('stexbar')  
Reducing any cached archives / installers ('stexbar')  
Removing 'c:\ProgramData\choco-cache\stexbar\1.8.6\St  
  
Space reduced for 'stexbar': 376.09 KB.  
Optimizing 'virustotaluploader'  
Reducing package size for 'virustotaluploader'...  
Reducing nupkg file size ('virustotaluploader').  
Reducing extracted archives and installers ('virustota  
Reducing any cached archives / installers ('virustota  
Removing 'c:\ProgramData\choco-cache\virustotaluploade  
xe' ('virustotaluploader')).  
Space reduced for 'virustotaluploader': 139.92 KB.  
Optimizing 'visualstudiocode'  
Reducing package size for 'visualstudiocode'...  
Reducing nupkg file size ('visualstudiocode').  
Reducing extracted archives and installers ('visualst  
Reducing any cached archives / installers ('visualst  
Removing 'c:\ProgramData\choco-cache\visualstudiocode  
('visualstudiocode')).  
Space reduced for 'visualstudiocode': 33.75 MB.  
  
Chocolatey optimized 34 packages.  
Total space reduced overall: 626.48 MB.
```





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 Workshop

- <https://github.com/ferventcoder/chocolatey-workshop>
- Become an expert
- You will learn something new
- Great learning resource for newer folks





Chocolatey Roadmap

- <https://chocolatey.org/docs/roadmap>
- Central Management UI (C4B)
- Choco Deploy CLI (C4B)
- WSA / Windows Nano Support
- PowerShell
PackageManagement Official Provider
- Package Enhancements
- Pack Validation
- Virtual packages
- GPG Signing
- Package Grid (C4B)
- Deferred Installer (C4B)
- Chocolatey Toast (C4B)
- Possible support on other platforms



puppetlabs/chocolatey

- <https://puppet.com/blog/puppet-supported-module-chocolatey>
- Everything from **chocolatey/chocolatey** - drop in replacement
 - package resource
 - ensure Chocolatey install
- Full configuration for Chocolatey
 - chocolateysource
 - chocolateyconfig
 - chocolateyfeature



Install Chocolatey

```
include chocolatey

# OR

class {'chocolatey':
  chocolatey_download_url => 'http://url/to/chocolatey.nupkg',
  use_7zip                => false,
}
```

- Install and initial configuration
- Point to internal resources





Package Resource

```
package {'name_of_package':  
  provider          => chocolatey,  
  ensure            => absent, installed, latest, '1.0.0', held  
  source             => 'https://some_odata_feed/;c:\\local;\\some\\network\\share',  
  install_options   => ['-installArgs', "'", 'addtl', 'args', "'"],  
  uninstall_options => ['-uninstallargs', "'", 'addtl', 'args', "'"],  
}  
}
```

- installable, uninstallable, upgradeable, versionable, holdable, install_options, uninstall_options
- Still later: virtual_packages





Chocolatey Package Resource

```
# built-in Windows provider
package { "Git version 2.6.1":
  ensure  => installed,
  source   => 'C:\temp\Git-2.6.1-32-bit.exe',
  install_options => ['/VERYSILENT']
}

# chocolatey provider
package { 'git':
  ensure  => latest,
}
```

- Built in provider requires manifest maintenance
- Package resource default to provider => chocolatey for Windows.
- Platform agnostic packaging





chocolateysource

- Disable/remove default community repository
- Add your own sources
- user/password protected as well
- puppet resource chocolateysource

```
chocolateysource {'chocolatey':  
  ensure => disabled,  
}  
  
chocolateysource {'internal_server':  
  ensure => present,  
  location => 'http://somewhere/internal',  
  priority => 1,  
}
```





chocolateyconfig

- Set config settings
- Full list available by choco config list or puppet resource chocolateyconfig

```
chocolateyconfig {'cacheLocation':  
  value => 'c:\ProgramData\choco-cache',  
}  
  
chocolateyconfig {'commandExecutionTimeoutSeconds':  
  value => '2700',  
}
```





chocolateyfeature

- Enable/disable features
- Full list available by choco feature list or puppet resource chocolateyfeature

```
chocolateyfeature {'checksumFiles':  
  ensure => enabled,  
}  
  
chocolateyfeature {'useFipsCompliantChecksums':  
  ensure => enabled,  
}
```





Puppet Roadmap

- chocolatey_server to use new Puppet supported IIS module
 - IIS has a small bug in it currently for first run
- puppetlabs/chocolatey - continue to be supported by Puppet and Chocolatey
- chocolatey/chocolatey - deciding what to do with it
- New things will be coming



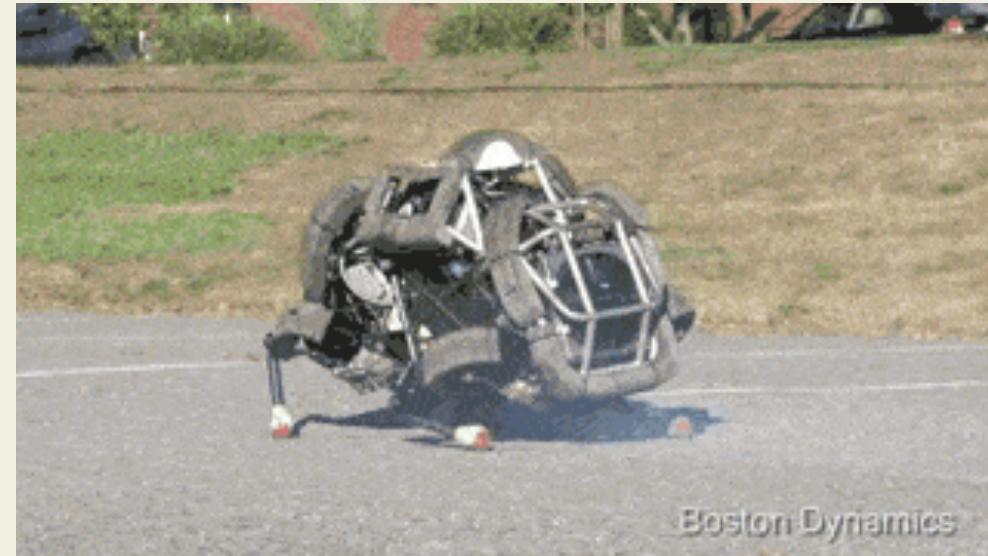


Once you go Chocolatey...





Would you go back to other methods?



Automate Software Management Without Chocolatey?





Automate Software Management Without Chocolatey?





Automate Software Management Without Chocolatey?



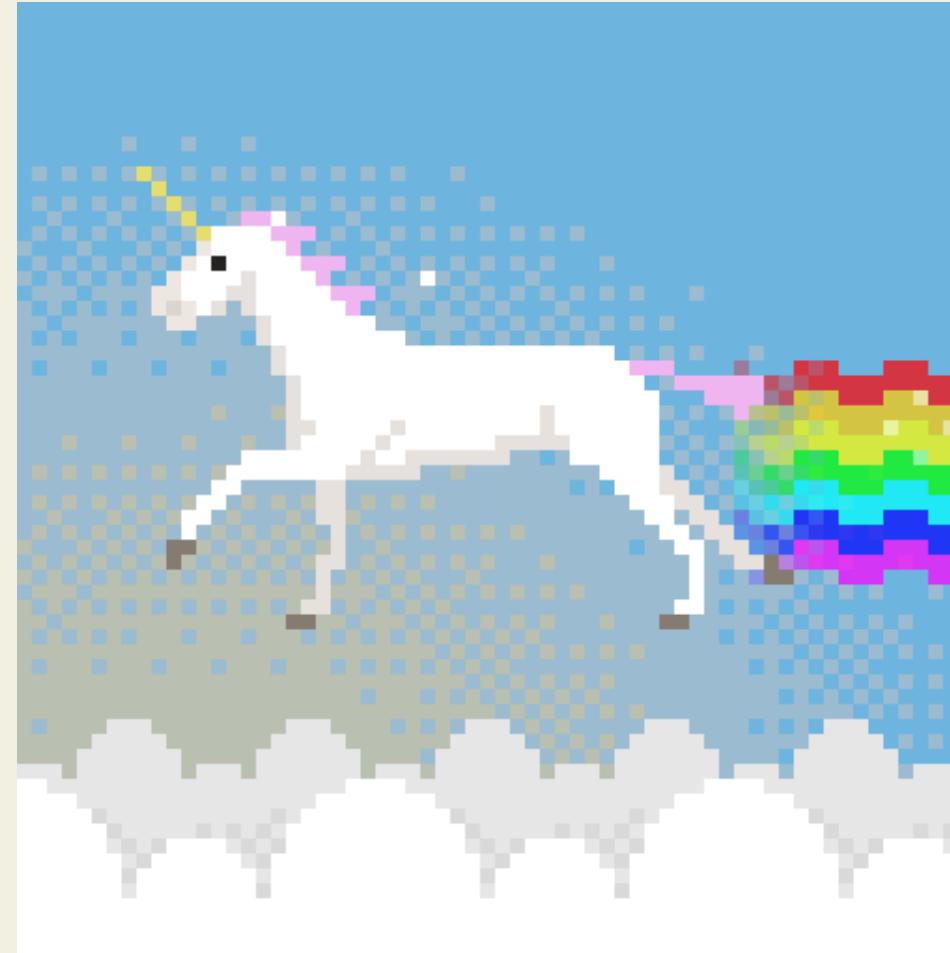
Demo





This is you







This is you on Chocolatey







Any Questions?



Questions?

[https://chocolatey.org/
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