

Beyond the Registry

Puppet for Windows Administrators

Me!

- Twitter: @matthewstone
- GitHub: <http://github.com/matthewrstone>
- Forge: <http://forge.puppetlabs.com/souldo>
- I do computer stuff...

Puppet Forge Stats

- 3,223 Modules in Puppet Forge
- Search for RedHat – 859
- Search for Debian – 867
- Search for Windows – 160

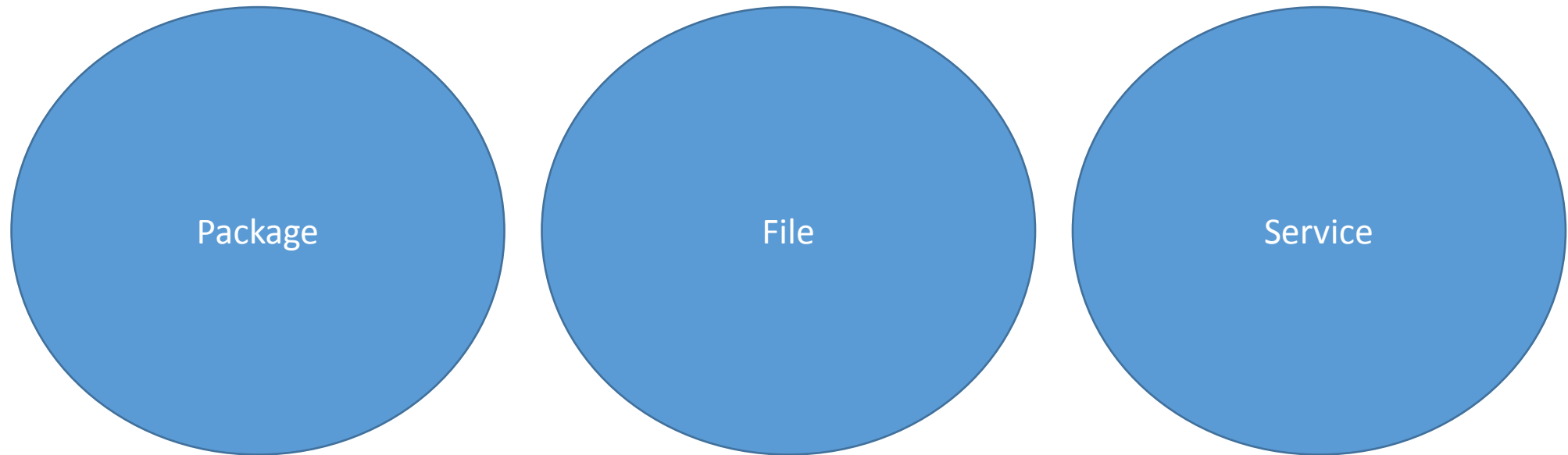
Most Common Windows Modules

- Windows Firewall
- Automatic Updates
- Environment Variables
- Remote Desktop
- Downloading files

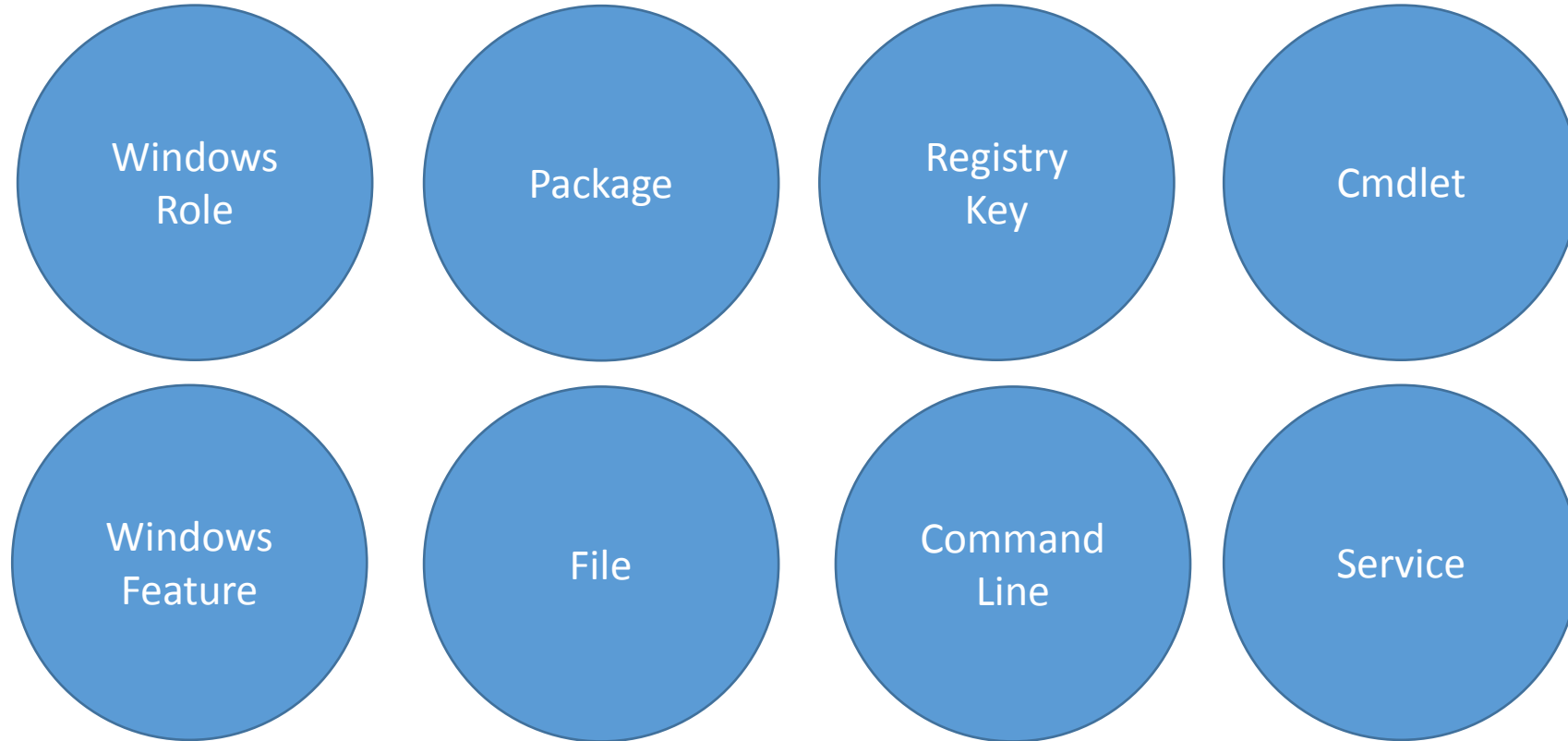
Windows is confusing.

Where Are My Settings?

The Linux Trinity



The Windows Infinity



Windows is bulky.

I loved that car...

Windows PowerShell

Windows PowerShell
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PS C:\Users\Matthew> c:\tools\install-puppet-enterprise.ps1 -master puppet.mydomain.com

Window Snip

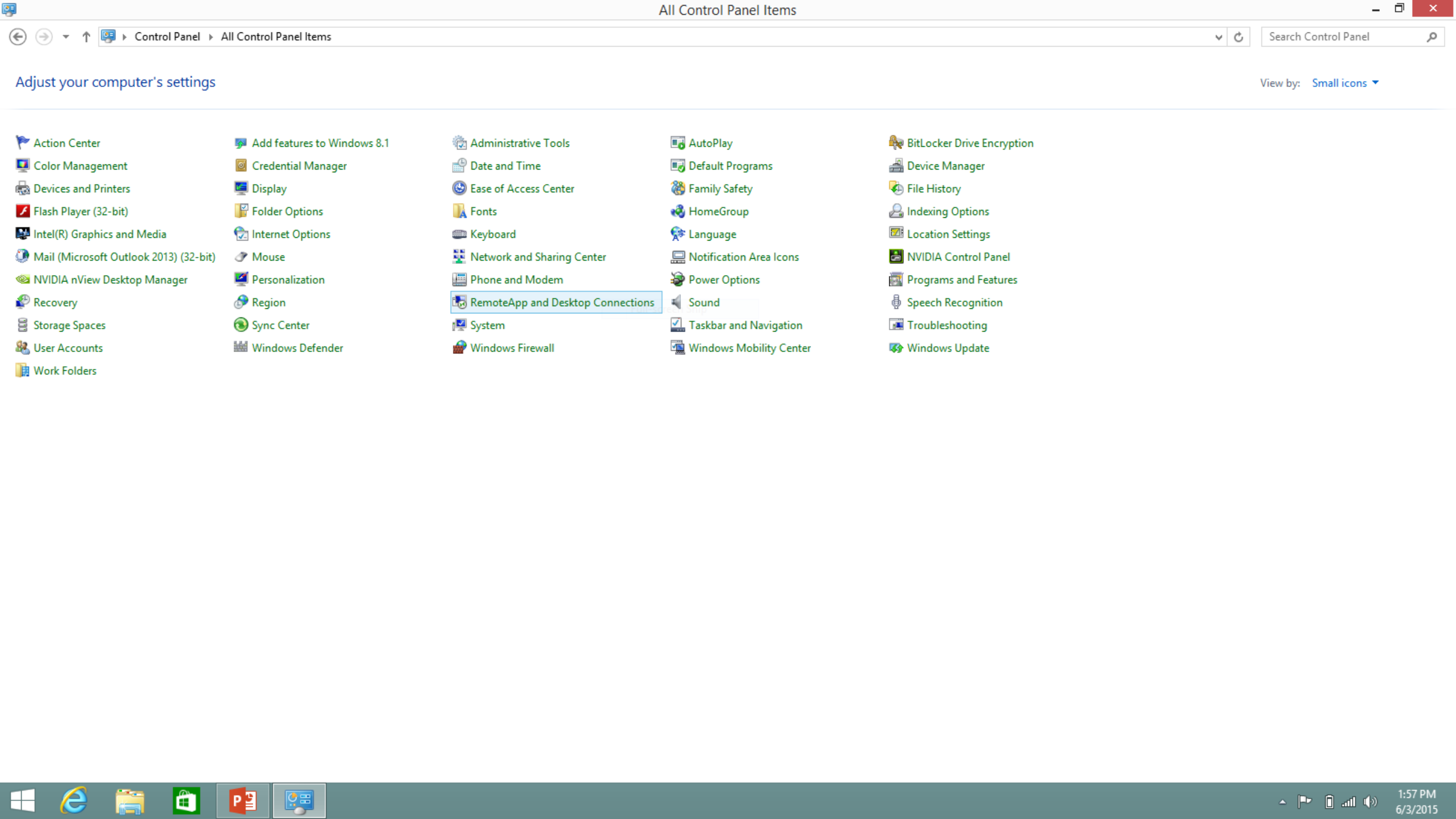
Server Core Benefits

- Server Core in Windows Server 2012 **reduces the disk footprint** of the operating system by approximately 4GB.*
- as much as **35-45% fewer patches** needed on Server Core installations.*
- Easy to switch back and forth.
- Smaller attack surface.
- Smaller group of hands on “administrators”.

* source - <http://blogs.technet.com/b/keithmayer/archive/2012/10/19/improved-taste-less-filling-more-uptime-server-core-in-windows-server-2012-31-days-of-favorite-features-in-winserv-2012-part-19-of-31.aspx>

Server Core Roles

- Active Directory Certificate Services
- Active Directory Domain Services
- DHCP Server
- DNS Server
- File Services (including File Server Resource Manager)
- Active Directory Lightweight Directory Services (AD LDS)
- Hyper-V
- Print and Document Services
- Streaming Media Services
- Web Server (including a subset of ASP.NET)
- Windows Server Update Server
- Active Directory Rights Management Server
- Routing and Remote Access Server



Windows PowerShell

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Window Snip

Server Core Disadvantages

- Compatibility
- Learning Curve

Just Say No To Click-Jockeying

Dare To Keep Kids Off GUIs

Powershell Cmdlet

`Install-WindowsFeature Web-WebServer`

Powershell Filtering

```
Get-WindowsFeature | Where { $_.Installed -match 'True' }
```

Powershell Scripting

```
[array]$features = ($getCmd | Where { $_.Installed -match 'True' }).Name
```

```
If ([environment]::OSVersion.Version.Minor) -eq 1) {  
    $getCmd = "Import-Module ServerManager; Get-WindowsFeature"  
} else {  
    $getCmd = "Get-WindowsFeature"  
}
```

Puppet Manifests vs. Powershell Scripts

Powershell Cmdlets in Puppet

```
class winfeature(
  $feature,
  $ensure = 'present',
){
  case $ensure {
    'present' : {
      $command = 'Install-WindowsFeature'
      $eq = '-eq'
    }
    'absent' : {
      $command = 'Remove-WindowsFeature'
      $eq = '-neq'
    }
  }
}

exec {"${feature} on ${::hostname}":
  command => "${command} ${feature}",
  onlyif   => "If ((Get-WindowsFeature -Name ${feature}).Installed ${eq} 'True') { exit 1 }",
  provider => powershell,
}
```

Powershell Scripts in Puppet

```
class myapplication($appversion) {  
  $directory= 'c:\tools'  
  $ps_args= $appversion ? {  
    'v1' => '-AppVersion v1'  
    'v2' => '-AppVersion v2'  
  }  
  file { ["${directory}\\${script}"] :  
    ensure => present,  
    source => template("${module_name}/myscript.ps1  
  }  
  exec { 'prepscript' :  
    command => 'Invoke-Expression $script',  
    provider => powershell,  
  }
```

Powershell in ERB Template

```
Param(
  [string]$AppVersion = '<%= @appversion =>'
)

function v1stuff() {
  # Do your v1 code here...
}

function v2stuff() {
  # Do your v2 code here...
}

if ($AppVersion -eq 'v1') { v1stuff }
elseif ($AppVersion -eq 'v2') { v2stuff }

Set-Location <%= @directory =>
Write-Host "I am a jedi..."
```

Desired State Configuration

Configuration Management Inception

DSC vs. Puppet

```
WindowsFeature IIS
{
    Ensure = "Present"
    Name = "Web-Server"
}
```

```
File WebDirectory {
    Ensure = "Present"
    Type = "Directory" # Default is "File"
    Recurse = $true
    SourcePath = $WebsiteFilePath
    DestinationPath = "C:\inetpub\wwwroot"
    Requires = "[WindowsFeature]IIS"
}
```

```
windowsfeature { 'web-server':
    ensure => present
}
```

```
File { 'c:\inetpub\wwwroot' :
    ensure => directory,
    recurse => true,
    source => "puppet:///${module_name}/wwwroot,
    require => Windowsfeature['web-server'],
}
```


Helpful Forge Modules

Puppet Supported Modules

- puppetlabs/registry
- puppetlabs/powershell
- puppetlabs/reboot
- puppetlabs/acl

Puppet Approved Modules

- opentable/windowsfeature
- opentable/iis

Chocolatey

-or-

How I Stopped Worrying and Made a Windows Package

Pros and Cons of Chocolatey



- PRO: Actual package management for Windows!
- CON: Have to learn how to stand up a feed server.
- CON: Have to learn how to make packages.
- PRO: Choco is puppet friendly!
- PRO: Powershell is your friend!
- PRO: Easy to get started

Setup Chocolatey Server!

```
node myawesomenode {  
  include chocolatey_server  
}
```

Making Things Chocolatey

- `choco new <package_name>`
- Add the nugety middle
 - Installation code – URL, and Powershell
 - Uninstallation code – Do the above, just backwards.
 - Nuspec – XML metadata (version, author, etc...)
- `choco pack`
- Push It!

This PC ▸ Local Disk (C:) ▸ tools ▸ chocolatey.server ▸ App_Data ▸ Packages			
Name	Date modified	Type	Size
 Readme	5/30/2015 2:14 PM	Text Document	1 KB
 sublimetext2.2.0.2.nupkg	5/31/2015 1:31 PM	NUPKG File	4 KB

Installing Puppet

Installation via Windows

- Determine version of PM (pe_build).
- Download appropriate MSI version.
 - Requires a file share or download from PL.
- Run MSI
 - Command line or 'puppet config set' for all information from the puppetmaster.

Installation via Linux

```
curl -k https://pm:8140/packages/current/install.bash | bash
```

pe_winagent

http://forge.puppetlabs.com/souldo/pe_winagent

C:\tools\install-puppet-enterprise.ps1 --master puppet.blah.xyz

Evolve

Embrace the command line!

Learning Resources

- Microsoft Virtual Academy
 - Powershell
 - <http://www.microsoftvirtualacademy.com/en-US/training-courses/getting-started-with-powershell-3-0-jump-start-8276>
 - <http://www.microsoftvirtualacademy.com/training-courses/advanced-tools-scripting-with-powershell-3-0-jump-start>
 - Puppet on Windows
 - <https://docs.puppetlabs.com/windows/index.html>