

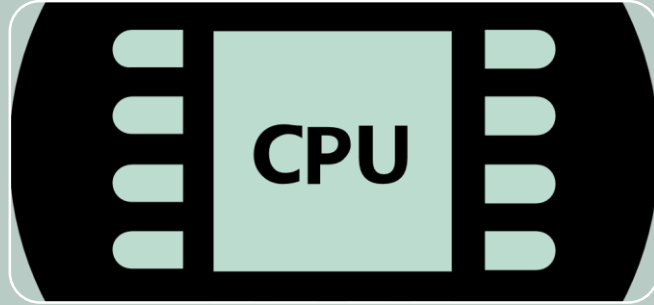
Deploying and Managing Microsoft Services with PowerShell on Windows Server Core

James Preston, The Queen's College, University of Oxford

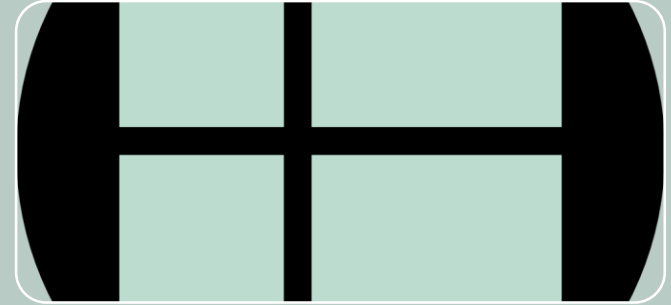
The IT Office



3 Full Time
Staff



3 Hyper-V
Hosts



Largely
Microsoft
for Services

'(Free)' Microsoft Tools for managing Windows Server Core

- Remote Server Administration Tools (RSAT)
 - Various MMC snap ins
 - PowerShell Modules
- PowerShell
- Server Manager
- Remote Desktop
- Project Honolulu
- Desired State Configuration

PowerShell - What does it do?

- Pretty much anything that has an API it can talk to
 - So pretty much anything
 - Sending emails
 - Talking direct T-SQL
 - Modifying files
 - Installing roles and features
 - Outputting data as CSV/HTML
 - Managing SYMPA mailing lists
 - Configuring network switches
- Interactive scripts and non interactive

Desired State Configuration and PowerShell v6



Deploy Server 2016 Core

Windows Setup

Windows Server 2016

Language to install: English (United States)

Time and currency format: English (United Kingdom)

Keyboard or input method: United Kingdom

Enter your language and other preferences and click "Next" to continue.

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Windows Setup

Select the operating system you want to install

Operating system	Architecture	Date modified
Windows Server 2016 Standard	x64	2/2/2018
Windows Server 2016 Standard (Desktop Experience)	x64	2/3/2018
Windows Server 2016 Datacenter	x64	2/3/2018
Windows Server 2016 Datacenter (Desktop Experience)	x64	2/3/2018

Description:
This option (recommended) reduces management and servicing by installing... to run most server roles and applications. It does not include a GUI, but you... server locally or remotely with Windows PowerShell or other tools. For more... Server Installation Options."

Windows Setup

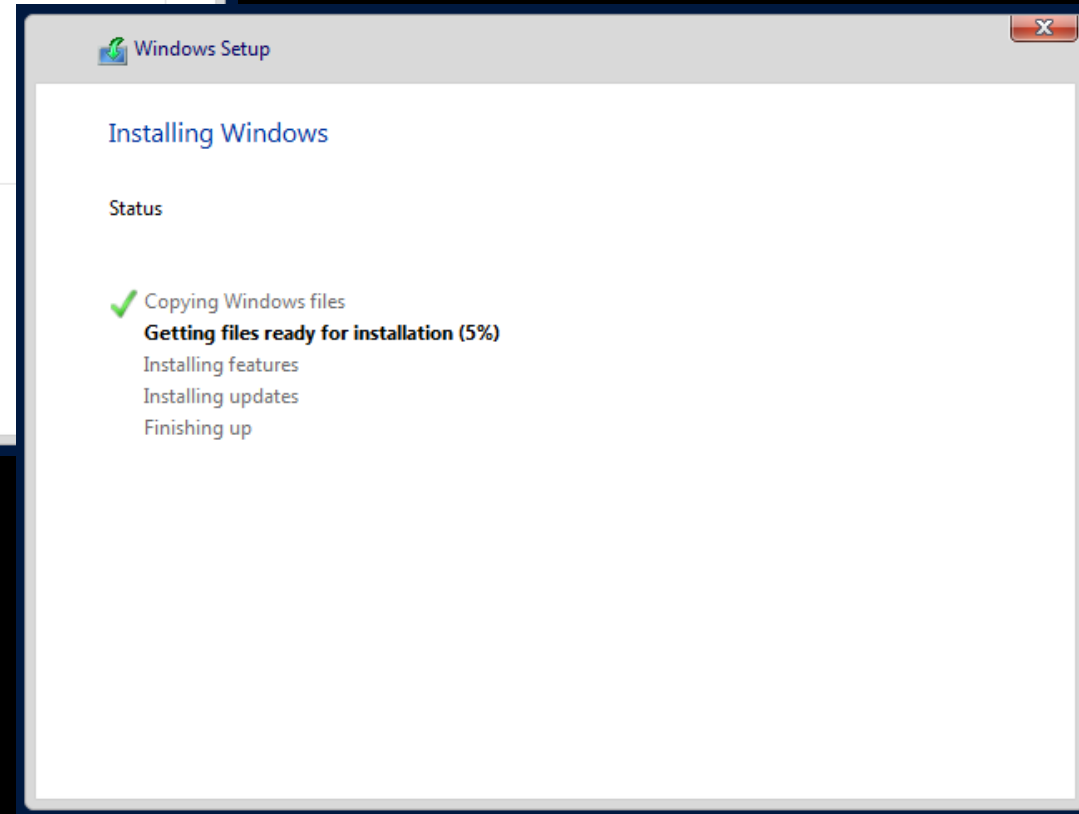
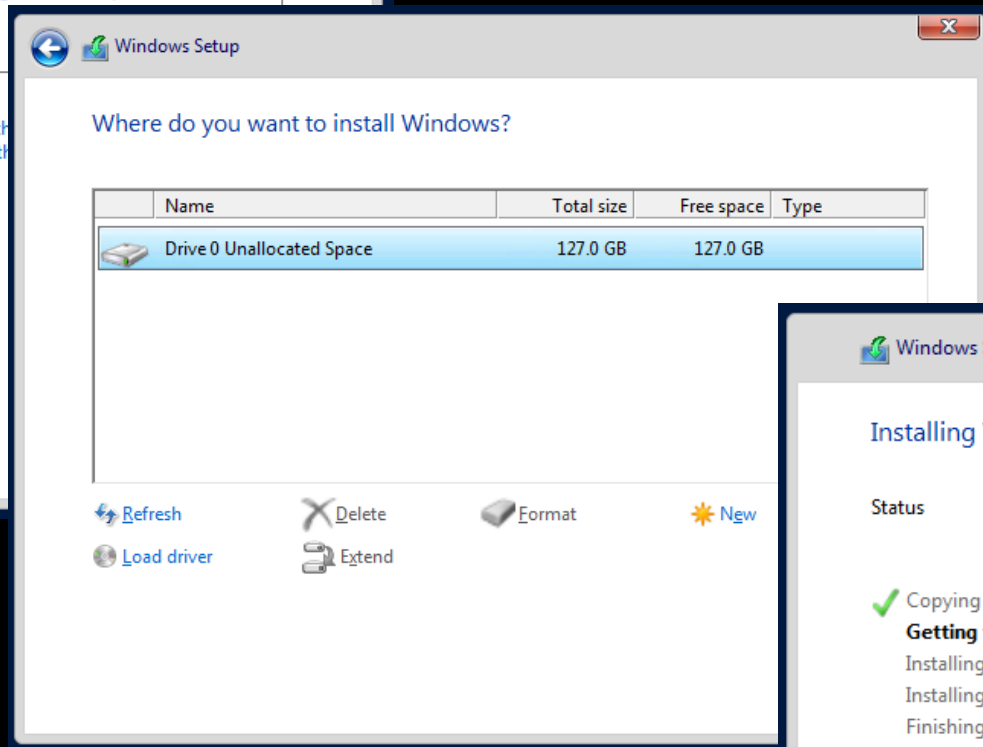
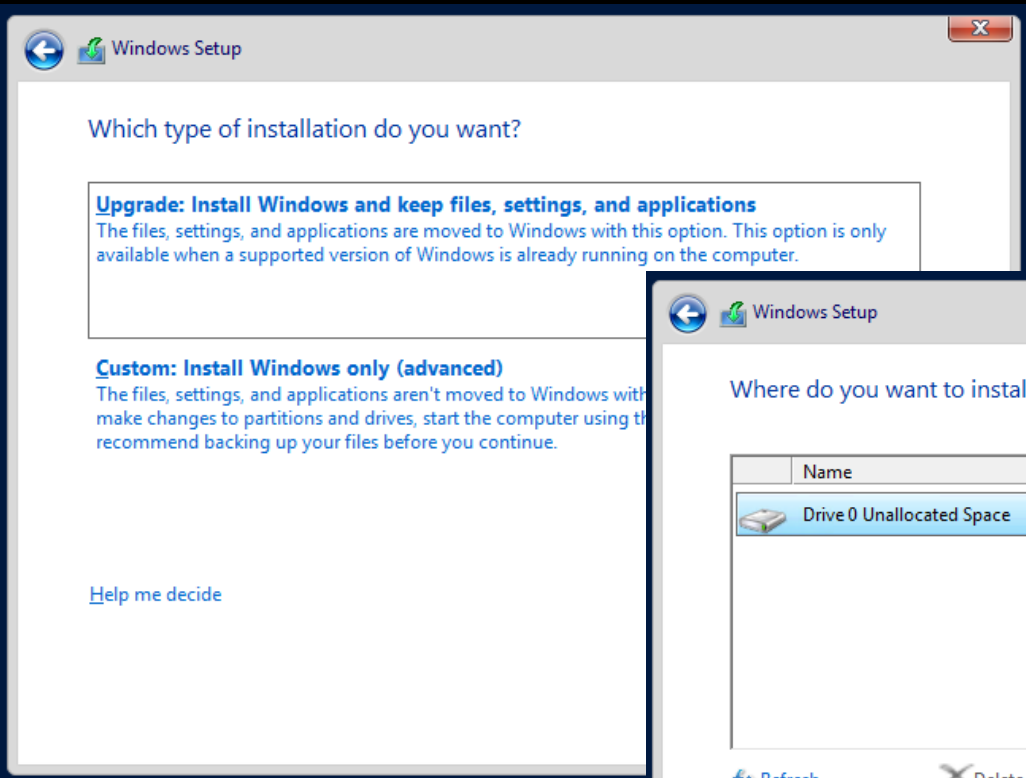
Applicable notices and license terms

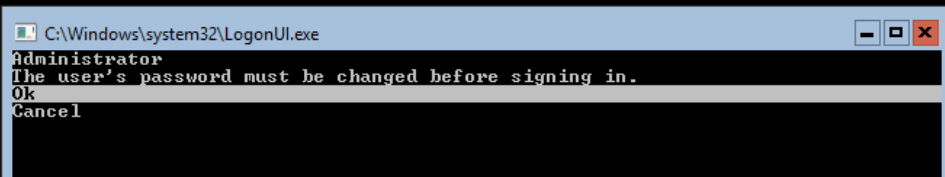
Your use of this software is subject to the terms and conditions of the license agreement by which you acquired this software. If you are a volume license customer, use of this software is subject to your volume license agreement. You may not use this software if you have not validly acquired a license for the software from Microsoft or its licensed distributors.

EULAIID:T1S_SR_1_ED_SRVDC_V_en-us

accept the license terms

Next







C:\Windows\system32\cmd.exe Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>

Deploy Server (1709) Core

 Windows Server 1709.ISO	21/03/2018 17:30	Disc Image File	3,142,442 KB
 Windows Server 2016.ISO	21/03/2018 17:33	Disc Image File	5,863,090 KB

Windows Setup

Windows Server

Language to install: English (United States)

Time and currency format: English (United Kingdom)

Keyboard or input method: United Kingdom

Enter your language and other preferences and click "Next" to continue.

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Windows Setup

Select the operating system you want to install

Operating system	Architecture	Date modified
Windows Server Standard	x64	9/29/2017
Windows Server Datacenter	x64	9/29/2017

Description:
This option (recommended) reduces management and servicing by installing only the components needed to run most server roles and applications. It does not include a GUI, but you can run server locally or remotely with Windows PowerShell or other tools. For more details, see "Server Installation Options."

Windows Setup

Applicable notices and license terms

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WINDOWS CLIENT AND WINDOWS SERVER OPERATING SYSTEMS PRE-RELEASE**

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I accept the license terms

Next

Windows Setup


Which type of installation do you want?





Upgrade: Install Windows and keep files, settings, and applications
The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.



Custom: Install Windows only (advanced)
The files, settings, and applications aren't moved to Windows with this option. If you want to make changes to partitions and drives, start the computer using the installation disc. We recommend backing up your files before you continue.

Windows Setup

Where do you want to install Windows?

Name	Total size	Free space	Type
 Drive 0 Unallocated Space	127.0 GB	127.0 GB	

 Refresh  Delete  Format  New

 Load driver  Extend

Next

Windows Setup

Installing Windows

Status

Copying Windows files (0%)
Getting files ready for installation
Installing features
Installing updates
Finishing up

C:\Windows\system32\LogonUI.exe

Enter new credentials for Administrator or hit ESC to cancel

New password : *****

Confirm password : *****

Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>

Initial Configuration

C:\Windows\system32\cmd.exe

C:\Users\Administrator>sconfig

C:\Windows\system32\cmd.exe - sconfig

Microsoft (R) Windows Script Host Version 5.812
Copyright (C) Microsoft Corporation. All rights reserved.

Inspecting system...

=====
Server Configuration
=====

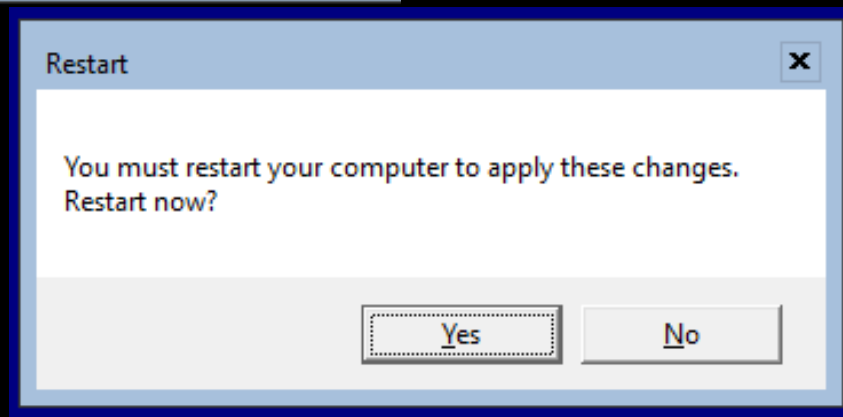
- | | |
|---------------------------------|----------------------|
| 1) Domain/Workgroup: | Workgroup: WORKGROUP |
| 2) Computer Name: | WIN-QGAN89D9RU4 |
| 3) Add Local Administrator | |
| 4) Configure Remote Management | Enabled |
| 5) Windows Update Settings: | DownloadOnly |
| 6) Download and Install Updates | |
| 7) Remote Desktop: | Disabled |
| 8) Network Settings | |
| 9) Date and Time | |
| 10) Telemetry settings | Enhanced |
| 11) Windows Activation | |
| 12) Log Off User | |
| 13) Restart Server | |
| 14) Shut Down Server | |
| 15) Exit to Command Line | |

Enter number to select an option:

Enter number to select an option: 2

Computer Name

Enter new computer name (Blank=Cancel): KINGS-DC1



Enter number to select an option: 8

Network settings

Available Network Adapters

Index#	IP address	Description
1	192.168.1.105	Microsoft Hyper-V Network Adapter

Select Network Adapter Index# (Blank=Cancel)

Network Adapter Settings

NIC Index	1
Description	Microsoft Hyper-V Network Adapter
IP Address	192.168.1.105 fe80::8ab:ff7f:febd:599f
Subnet Mask	255.255.255.0
DHCP enabled	True
Default Gateway	192.168.1.1 fe80::1:1
Preferred DNS Server	192.168.1.1
Alternate DNS Server	

- 1) Set Network Adapter Address
- 2) Set DNS Servers
- 3) Clear DNS Server Settings
- 4) Return to Main Menu

Select option: 1

Select (D)HCP, (S)tatic IP (Blank=Cancel): s

Set Static IP

Enter static IP address: 192.168.1.10

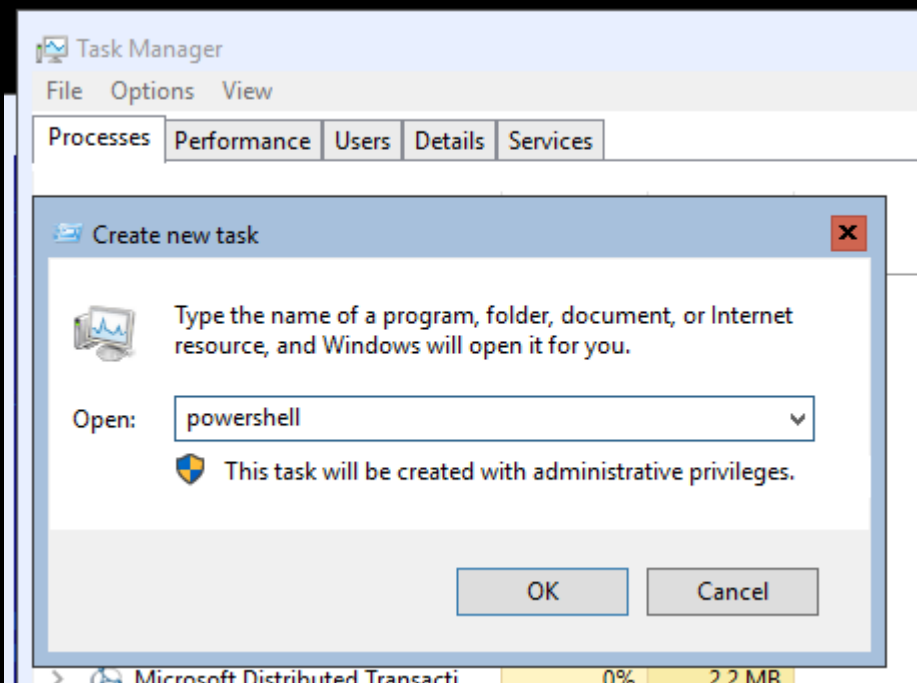
Enter subnet mask (Blank = Default 255.255.255.0): 255.255.248.0

Enter default gateway: 192.168.1.1

Setting NIC to static IP...

C:\Windows\system32\LogonUI.exe

Change a password
Lock
Sign out
Switch User
Task Manager
Cancel



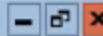
```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Windows\system32> $dnsaddress = "127.0.0.1"
PS C:\Windows\system32> Set-DnsClientServerAddress -InterfaceAlias Ethernet -ServerAddresses $dnsaddress
```

Configure AD DS

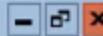
PS C:\Windows\system32>

PS C:\Windows\system32>



PS C:\Windows\system32>





PS C:\Windows\system32>



PS C:\Windows\system32>



```
PS C:\Windows\system32> Install-ADDSForest -DomainName kings.ox.ac.uk
```

```
SafeModeAdministratorPassword: *****
```

```
Confirm SafeModeAdministratorPassword: *****
```

The target server will be configured as a domain controller and restarted when this operation is complete.

Do you want to continue with this operation?

```
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "Y"): y
```

WARNING: Windows Server 2016 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.

For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).

WARNING: A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "kings.ox.ac.uk". Otherwise, no action is required.

WARNING: Windows Server 2016 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.

For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).

WARNING: A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "kings.ox.ac.uk". Otherwise, no action is required.

```
Message
```

```
Context
```

```
RebootRequired
```

```
Status
```

```
-----  
Operation completed successfully DCPromo.General.3 False Success
```

```
PS C:\Windows\system32>
```

You're about to be signed out

The computer is being restarted because Active Directory Domain Services was installed or removed.

Close

```
Get-WindowsFeature | Where-Object -Property Name -EQ "AD-Domain-  
Services" | Install-WindowsFeature -IncludeManagementTools
```

```
Install-ADDSForest -DomainName kings.ox.ac.uk
```

Remote Server Administration Tools

<https://support.microsoft.com/en-gb/help/2693643/remote-server-administration-tools-rsat-for-windows-operating-systems>

Download locations for RSAT

[Remote Server Administration Tools for Windows 10](#)

[Remote Server Administration Tools \(RSAT\) for Windows 8.1](#)

[Remote Server Administration Tools \(RSAT\) for Windows 8](#)

[Remote Server Administration Tools \(RSAT](#)

[Remote Server Administration Tools \(RSAT](#)

[Remote Server Administration Tools \(RSAT](#)

Choose the download you want

<input type="checkbox"/> File Name	Size
<input type="checkbox"/> WindowsTH-RSAT_WS_1709-x64.msu	94.5 MB
<input type="checkbox"/> WindowsTH-RSAT_WS_1709-x86.msu	69.9 MB
<input type="checkbox"/> WindowsTH-RSAT_WS2016-x64.msu	92.2 MB
<input type="checkbox"/> WindowsTH-RSAT_WS2016-x86.msu	69.9 MB

Windows Update Standalone Installer



Windows Update Standalone Installer

Do you want to install the following Windows software update?

Update for Windows (KB2693643)

Yes

No

DHCP

Active Directory Users and Computers

Active Directory Users and Computers

- Saved Queries
- kings.ox.ac.uk

Group Policy Management

Group Policy Management

- Forest: kings.ox.ac.uk

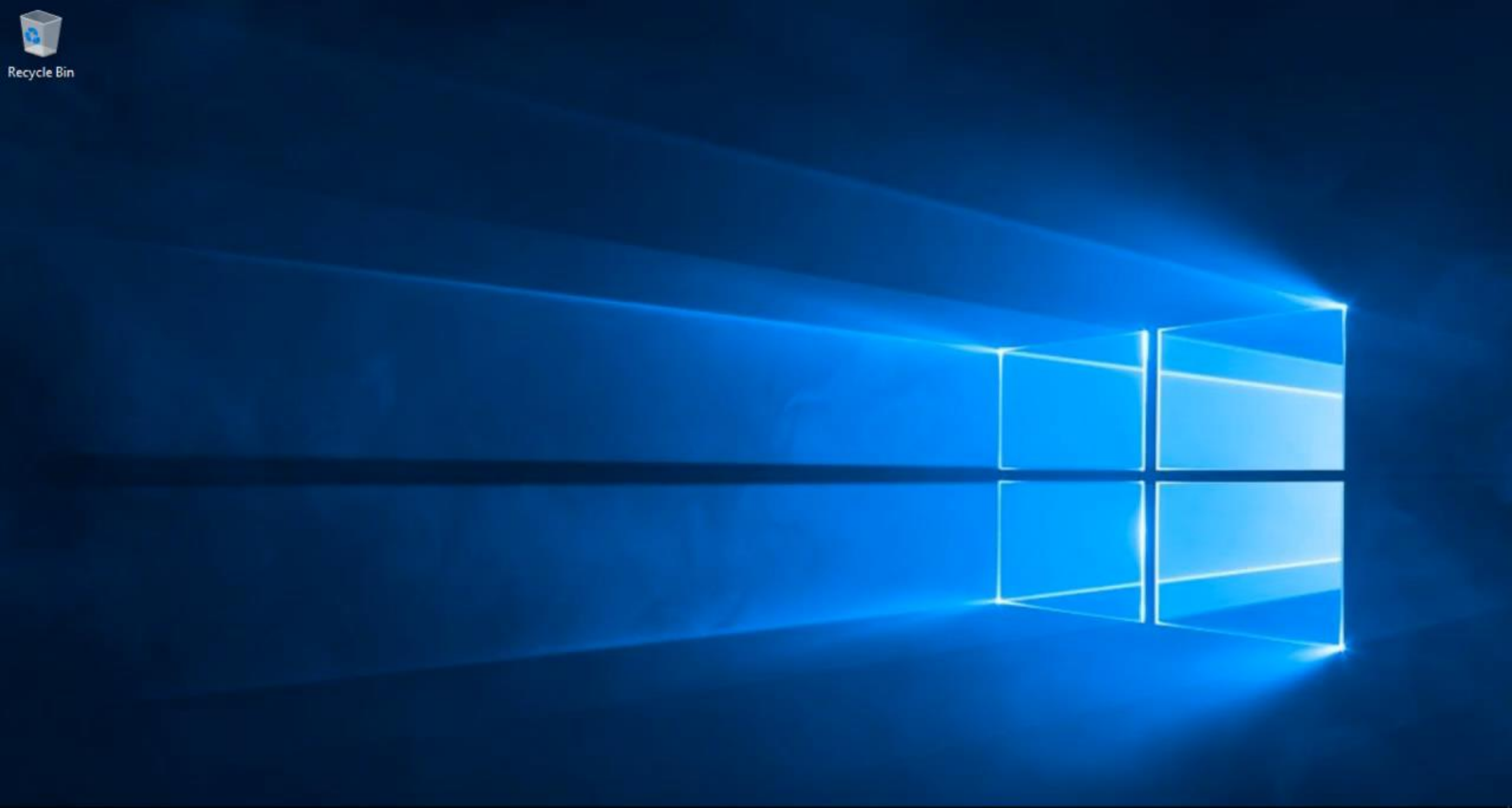
Print Management

Name	Actions
Print Management	
Custom Filters	Custom Filters
All Printers (3)	All Printers (3)
All Drivers (5)	All Drivers (5)
Printers Not Ready	Printers Not Ready
Printers With Jobs	Printers With Jobs
Print Servers	
Deployed Printers	
	More Actions

Enable Scripts



Recycle Bin




System tray area containing icons for network, volume, and notification, along with the time and date: 16:21 11/12/2017.


Get the latest version! (if not on Windows 10)

PowerShell Documentation


- Get Started
- Features
- Reference
- Community




Get started with Windows PowerShell
Learn how to use PowerShell.




Setup and installation
Get PowerShell installed in your environment.




Tutorials
A cookbook of common scripting tasks.




PowerShell on GitHub
PowerShell is an open-source project and available for Windows, Linux and macOS.



Download WMF
Windows Management Framework contains the latest versions of PowerShell, DSC, WMI, and WinRM for older versions of Windows.



PowerShell Module Browser
Search for PowerShell modules and cmdlets.



PowerShell in Azure Cloud Shell
PowerShell in Azure Cloud Shell is now available in public preview. Learn more!

Windows Management Framework 5.1

Language:

English

Download

Windows Management Framework 5.1 includes updates to Windows PowerShell, Windows PowerShell Desired State Configuration (DSC), Windows Remote Management (WinRM), Windows Management Instrumentation (WMI). Release notes: <https://go.microsoft.com/fwlink/?linkid=839460>

 [Details](#)

 [System Requirements](#)

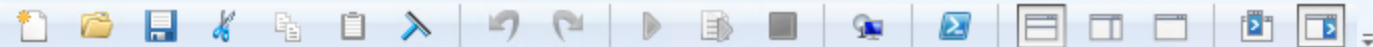
 [Install Instructions](#)

Remoting

- PowerShell Remoting is enabled by default on Server 2012 onwards for
 - Domain/Private Networks – any client
 - Public Networks – local subnet only
- By default only members of the Administrators group can use Remoting
- On older Server releases and on Client PCs use Enable-PSRemoting - Force to enable remote management (or configure through Group Policy)
- Test connections with Test-WsMan <clienthostname>

Visual Studio Code (VS Code)

<https://code.visualstudio.com/docs/setup/windows>



Untitled1.ps1 X

1

PS C:\Users\administrator>

Commands X

Modules:

All

Refresh

Name:

A:

- Add-ADCentralAccessPolicyMember
- Add-ADComputerServiceAccount
- Add-ADDomainControllerPasswordReplication
- Add-ADFineGrainedPasswordPolicySubject
- Add-ADGroupMember
- Add-ADPrincipalGroupMembership
- Add-ADResourcePropertyListMember
- Add-AppvClientConnectionGroup
- Add-AppvClientPackage
- Add-AppvPublishingServer
- Add-AppxPackage
- Add-AppxProvisionedPackage
- Add-AppxVolume
- Add-BCDataCacheExtension
- Add-BgpCustomRoute
- Add-BgpPeer
- Add-BgpRouteAggregate
- Add-BgpRouter
- Add-BgpRoutingPolicy

Run

Insert

Copy

Ln 1 Col 1

100%

Overview

SETUP

GET STARTED

USER GUIDE

LANGUAGES

NODE.JS /
JAVASCRIPT

PYTHON

JAVA

EXTENSION
AUTHORING

EXTENSIBILITY
REFERENCE

OTHER

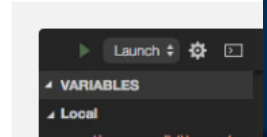
Thanks for downloading VS Code for Windows!

Download not starting? Try this [direct download link](#).
Please take a few seconds and help us improve ... [click to take survey](#).

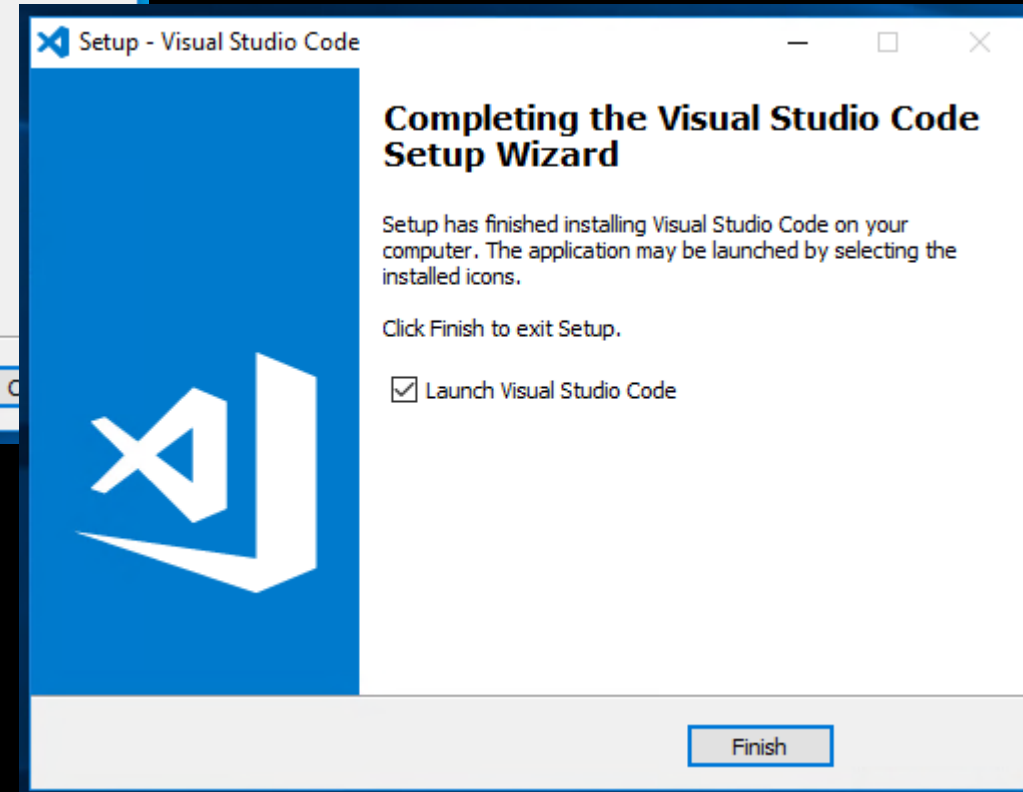
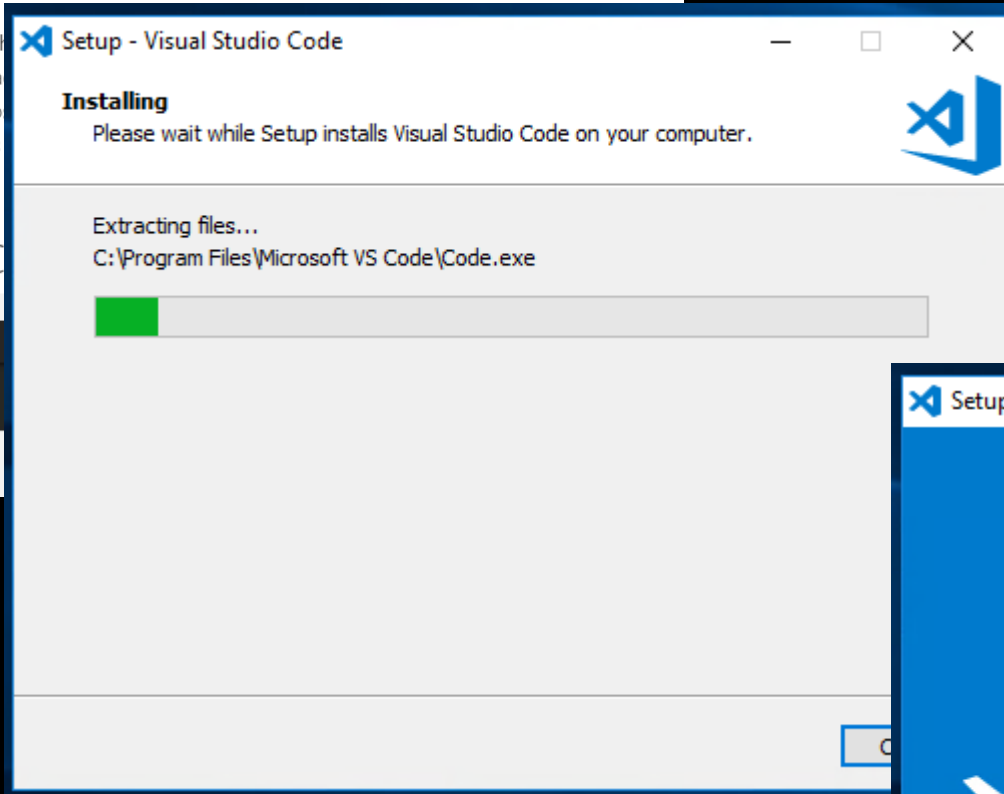
Getting Started

Visual Studio Code is a light-weight editor available for Windows, macOS, Linux, and FreeBSD. It has a rich ecosystem of extensions (such as Python, Java, Go) and runtimes (such as Node.js and .NET).

Visual Studio Code



VSCodeSetup-x64...exe



⚠ Git not found. Install it or configure it using the 'git.path' setting.

Source: Git (Extension)

Download

git --everything-is-local

🔍 Search entire site...

Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, convenient **staging areas**, and **multiple workflows**.



Learn Git in your browser for free with **Try Git**.



About

The advantages of Git compared to other source control systems.



Documentation

Command reference pages, Pro Git book content, videos and other material.



Downloads

GUI clients and binary releases for all major platforms.



Community

Get involved! Bug reporting, mailing list, chat, development and more.



Git 2.16.2 Setup

Information

Please read the following important information before continuing.

When you are ready to continue with Setup, click Next.

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Version 2, June 1991

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Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change

<https://gitforwindows.org/>

Next >

Cancel

Extension: PowerShell - Visual Studio Code [Administrator]

File Edit Selection View Go Debug Tasks Help

EXTENSIONS: MARKETPLACE

powershell

- PowerShell** 1.6.0
Develop PowerShell scripts in Visual St...
Microsoft Install
- PowerShell Stack Overflow Sea...** 0.0.2
Search for selected text + the PowerSh...
DougFinke Install
- vscode-psconf2017** 1.0.5
PowerShell Conference Europe 2017 A...
Stefan Stranger Install
- CodeShell** 0.2.2
Start a new PowerShell window for the...
Kipters Install

PowerShell ms-vscode.powershell

Microsoft | 2,321,820 | ★★★★★ | Repository | License

Develop PowerShell scripts in Visual Studio Code!

Install

Details Contributions Channels Dependencies

Extension: PowerShell x

PowerShell ms-vscode.powershell

Microsoft | 2,321,820

Develop PowerShell scripts in Vis

Reload Uninstall

Visual Studio Code [Administrator]

File Edit Selection View Go Debug Tasks Help

EXTENSIONS

Search Extensions in Marketplace

INSTALLED 1

- PowerShell** 1.6.0
Develop PowerShell scripts in Visual St...
Microsoft ⚙️

RECOMMENDED 0

No extensions found.

PROBLEMS OUTPUT DEBUG CONSOLE ... Git

```
Looking for git in: C:\Program Files\Git\cmd\git.exe
Using git 2.16.2.windows.1 from C:\Program Files\Git\cmd\git.exe
```

OPEN EDITORS

Untitled-1

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

Git



```
Looking for git in: C:\Program Files\Git\cmd\git.exe  
Using git 2.16.2.windows.1 from C:\Program Files\Git\cmd\git.exe
```

```
1 Update-Help|
2 cls
3
4 Get-Help *ADComputer*
5 Get-Help Get-ADComputer -Examples
6
7 Get-ADComputer -Filter * -SearchBase "DC=kings,DC=ox,DC=ac,DC=uk"
8 Get-ADComputer -Filter * -SearchBase "DC=kings,DC=ox,DC=ac,DC=uk" | Export-Csv -Path C:\temp\data.csv -NoTypeInformation
9 Get-ADComputer -Filter * -SearchBase "DC=kings,DC=ox,DC=ac,DC=uk" | Get-Member
10 Get-ADComputer -Filter * -SearchBase "DC=kings,DC=ox,DC=ac,DC=uk" | Select-Object -Property Name | Out-GridView
11
```

PROBLEMS 1

OUTPUT

DEBUG CONSOLE

TERMINAL

2: PowerShell |



PS C:\Users\administrator> []

Ctrl + Space – Invoke Intellisense

Ctrl + K Ctrl + O – Collapse

Ctrl + K Ctrl + J – Expand

Alt + Z – Word Wrap Toggle

Untitled-1 x

1

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

2: PowerShell |



PS C:\Users\administrator>

Tool Making

'We're not banging rocks together over here. We know how to make a quantum space hole.'

Cave Johnson Portal 2

```
1 function KingsGet-Time {  
2     Get-Date -Format hh:mm:ss  
3 }
```

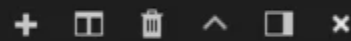
PROBLEMS 1

OUTPUT

DEBUG CONSOLE

TERMINAL

2: PowerShell | ▾



PS C:\Users\administrator> |

Untitled-1 x

```
1 |
```

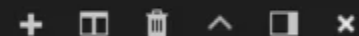
PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL






2: PowerShell | ▾



PowerShell Integrated Console

PS C:\Users\administrator>

WindowsPowerShell

Name	Date modified	Type	Size
 Modules	20/11/2017 10:21	File folder	
 Scripts	12/12/2017 01:33	File folder	
 Snippets	25/05/2017 12:53	File folder	
 profile.ps1	21/04/2017 13:12	Windows PowerS...	1 KB
 WARNING! Read Me.txt	21/04/2017 09:44	TXT File	1 KB

Name	Date modified	Type	Size
PSOpenVAS	15/08/2017 13:03	File folder	
PSSympa	13/06/2017 14:10	File folder	
QcDelete-TestVm	05/05/2017 12:52	File folder	
QcGet-Clients	05/05/2017 09:23	File folder	
QcGet-ComputerManager	27/06/2017 11:00	File folder	
QcGet-Cud	16/06/2017 13:46	File folder	
QcGet-DeployedToner	13/04/2017 12:41	File folder	
QcGet-FreshdeskTicketsIt	18/05/2017 10:11	File folder	
QcGet-FreshDeskUsers	18/05/2017 10:11	File folder	
QcGet-GlobalLog	03/05/2017 15:32	File folder	
QcGet-HostnamePort	13/04/2017 14:55	File folder	
QcGet-IPMAC	22/04/2017 13:28	File folder	
QcGet-MacAddressPort	13/04/2017 14:39	File folder	
QcGet-Net2Permissions	28/08/2017 11:18	File folder	
QcGet-Net2UsersAtAccessLevel	30/08/2017 10:32	File folder	
QcGet-Net2UsersAtAccessLevelReport	30/08/2017 11:44	File folder	
QcGet-Net2UserswithIndividualPermissio...	28/08/2017 14:10	File folder	
QcGet-PrintEvents	16/05/2017 16:28	File folder	
QcGet-RemoteAssistance	24/04/2017 12:55	File folder	
QcGet-RemoteLoggedInUsers	27/04/2017 16:18	File folder	
QcGet-Servers	02/05/2017 14:48	File folder	
QcGet-UsernamePort	13/04/2017 14:51	File folder	
QcGet-WuRebootStatus	17/04/2017 13:18	File folder	
QcNew-ContractorMac	30/05/2017 13:15	File folder	
QcNew-ContractorUser	30/05/2017 12:08	File folder	
QcNew-FellowStaffMac	30/05/2017 12:14	File folder	
QcNew-FellowStaffUser	05/05/2017 16:15	File folder	
QcNew-FreshDeskTicketIt	18/05/2017 10:11	File folder	
QcNew-FreshdeskTicketWorks	30/06/2017 14:34	File folder	
QcNew-GlobalLogEntry	28/04/2017 10:00	File folder	
QcNew-ImageFdTicket	05/06/2017 09:58	File folder	
QcNew-ImageMac	15/05/2017 16:07	File folder	
QcNew-IoTMac	30/05/2017 12:12	File folder	
QcNew-OpenVASTarget	21/09/2017 14:57	File folder	
QcNew-RSScheduledTask	14/07/2017 15:12	File folder	

Name	Date modified	Type	Size
Add-SympaMailingListMember.ps1	13/06/2017 11:42	Windows PowerS...	3 KB
Get-SympaLogin.ps1	27/06/2017 09:33	Windows PowerS...	4 KB
Get-SympaMailingListMember.ps1	13/06/2017 11:17	Windows PowerS...	2 KB
PSSympa.psd1	27/06/2017 09:35	Windows PowerS...	9 KB
PSSympa.psm1	26/05/2017 09:29	Windows PowerS...	1 KB
Remove-SympaMailingListMember.ps1	13/06/2017 11:46	Windows PowerS...	3 KB
samplecredsfile.csv	13/06/2017 10:03	Microsoft Excel C...	1 KB
samplememberslist.csv	13/06/2017 11:43	Microsoft Excel C...	1 KB
samplesynclist.csv	13/06/2017 12:52	Microsoft Excel C...	1 KB
Sync-SympaMailingList.ps1	13/06/2017 13:32	Windows PowerS...	4 KB
Test-SympaMailingListMember.ps1	29/05/2017 12:36	Windows PowerS...	2 KB

Name	Date modified	Type	Size
QcGet-Servers.psm1	02/05/2017 16:48	Windows PowerS...	1 KB

> profile.ps1 ●

```
1 #Try to connect to the central store, if you can then copy down the latest files, if not then report that you cannot connect to the central store
2 if($(Get-Item -Path \\queens.ox.ac.uk\softwaredeployment\PowerShell\For-AdminPCs -ErrorAction SilentlyContinue).Exists -eq $True){
3     #Tell the user what is going on
4     Write-Host "Copying down any changed files from the central PowerShell store to the local store" -ForegroundColor Green
5
6     #Copy modules and scripts from the central store, do not display the list of folders copied or the headers (summary only)
7     Robocopy.exe "\\queens.ox.ac.uk\softwaredeployment\PowerShell\For-AdminPCs\" "$($env:USERPROFILE)\Documents\WindowsPowerShell\" /mir /njh /ndl
8
9     #Report all done
10    Write-Host "If new files were copied please close and reopen PowerShell to use the new/improved functionality" -ForegroundColor Green
11 }
12 else{
13     Write-Host "Cannot connect to central PowerShell store" -ForegroundColor Red
14 }
```



```
78 Write-Host "Sleeping for 10 seconds to allow AD replication to catch up"
79 Start-Sleep -Seconds 10
80
81 #Add the user to the right security group for network access
82 Add-ADGroupMember -Identity $NetworkGroup -Members $sAMAccountName
83
84 Write-Host "Sleeping for 10 seconds to allow AD replication to catch up"
85 Start-Sleep -Seconds 10
86
87 #Set the users primary group to the network access group
88 Get-ADUser $sAMAccountName | Set-ADObject -Replace @{primaryGroupID=$NetworkId} -Confirm:$false
89
90 Write-Host "Sleeping for 10 seconds to allow AD replication to catch up"
91 Start-Sleep -Seconds 10
92
93 #Remove the user from the Domain Users security group
94 Remove-ADGroupMember -Identity "Domain Users" -Members $sAMAccountName -Confirm:$false
95
96 }
```

```
1 function QcGet-MacAddressPort
2 {
3 param(
4     [Parameter(Mandatory=$true,HelpMessage="Enter the MAC Address that you would like to lookup in the format aabbccddeeff")]
5     [string]$MacAddress,
6     [Parameter(Mandatory=$true,HelpMessage="Enter the number of results to return")]
7     [int]$ResultsToReturn
8 )
9
10 $GetData = @"
11 SELECT TOP $ResultsToReturn [timestamp]
12     ,[NAS_Identifier]
13     ,[NAS_Port]
14     ,[NP_Policy_Name]
15     ,[Proxy_Policy_Name]
16     ,[Computer_Name] AS [Domain Controller]
17 FROM [NPSODBC].[dbo].[accounting_data]
18 where [User_Name] = '$($MacAddress.ToLower())'
19 order by [timestamp] DESC
20 "@
21 Write-Host "Query execution time is typically 15 seconds" -ForegroundColor Yellow
22 Invoke-Sqlcmd -ServerInstance QC-vSQL02 -Database "NPSODBC" -Query $GetData -OutputAs DataRows
23 }
```

```
1 function QcGet-PrintEvents
2 {
3     #The event logs we want to get
4     $LogToGet = "Microsoft-Windows-PrintService/Operational"
5
6     Get-WinEvent -ComputerName QC-vPRINT01 -LogName $LogToGet -MaxEvents 50
7 }
```

```
1 function QcNew-TestVm
2 {
3 param(
4     [Parameter(Mandatory=$true,HelpMessage="Enter a name for your VM")]
5     [String]$VmName
6 )
7 #Tell the user what is going on
8 Write-Host "I'm going to make a VM with name Test-`$VmName on QC-HYPERV01 with 4GB RAM, 4 vCPUs, 127GB HDD
9 connected to VLAN4"
10
11 #Instruct the Hyper-V test host to create the VM
12 Invoke-Command -ComputerName QC-HYPERV01 -ScriptBlock {
13     $VmName = "Test-` $($args[0])"
14     New-VM -Name $VmName -MemoryStartupBytes 4GB -Generation 2 -SwitchName 'QC Network' -BootDevice
15     NetworkAdapter -NewVHDPATH "D:\Hyper-V\Virtual Hard Disks\$VmName.vhdx" -NewVHDSIZEBYTES 127GB
16     Set-VM -Name $VmName -ProcessorCount 4
17     Set-VMNetworkAdapterVlan -VMName $VmName -Access -VlanId 4
18 } -ArgumentList $VmName
19 }
```



> Untitled-1 x



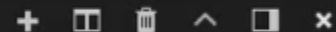
PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

1: PowerShell I ▾



PS C:\Users\quee3211\Documents\WindowsPowerShell\Modules> █

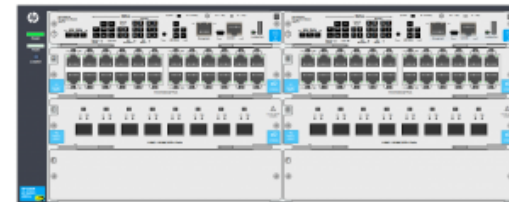


```
1 function QcTest-GlobalDns
2 {
3 param(
4     [Parameter(Mandatory=$true,HelpMessage="Enter the hostname that you want to test")]
5     [String]$TestHostName
6 )
7 $DnsServers = "qc-vdc01.queens.ox.ac.uk","qc-vdc02.queens.ox.ac.uk","resolver0.dns.ox.ac.uk","resolver1.dns.ox.ac.uk",
8 "google-public-dns-a.google.com","google-public-dns-b.google.com"
9 Write-Host "Testing $($TestHostName.ToLower())" -ForegroundColor Green
10
11 foreach($DnsHost in $DnsServers){
12     Resolve-DnsName -Name $TestHostName -Server $DnsHost | Add-Member -MemberType NoteProperty -Name DnsHost -Value $DnsHost
13     -PassThru | Select-Object -Property DnsHost, Address, Type
14 }
```

Automated backup for your network switches with WinSCP and PowerShell

Published 2 November, 2015 | By James Preston

Although it may not be the most glamorous side of IT every sysadmin will appreciate the value of a rock solid backup system. All too often though these systems do not extend down to the ‘embedded’ systems like network switches and firewalls.

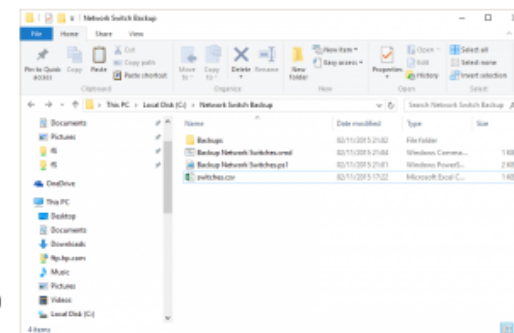


However with a little WinSCP (and its fantastic .NET assembly automation package) and PowerShell combined its pretty easy to cook up something that is 100% less of the cost of any management solution.

This guide shows how to **setup the backup of a HP ProCurve switch** (I’ve tested it with the ProCurve 8200 series, 5400 series the 2920s, a 2626 and a 2530 all of which were running the most recent firmware) although it should be a simple matter of changing the relevant paths to make it work with other manufacturers kit (e.g. Cisco).

Download Source Files

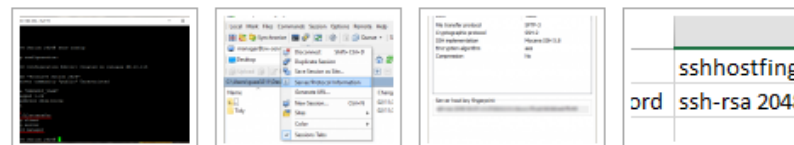
First up grab the source files from the link below and extract the contents to C:\Network Switch Backup (you can use any other path but will just need to update the paths inside the PowerShell) you should then have a folder which contains a .cmd file, a .ps1, a sample .csv and a sub folder called Backups.



 [Network Switch Backup](#) (1.7 KiB, 1,304 hits)

Getting your Switch ready and filling out the CSV

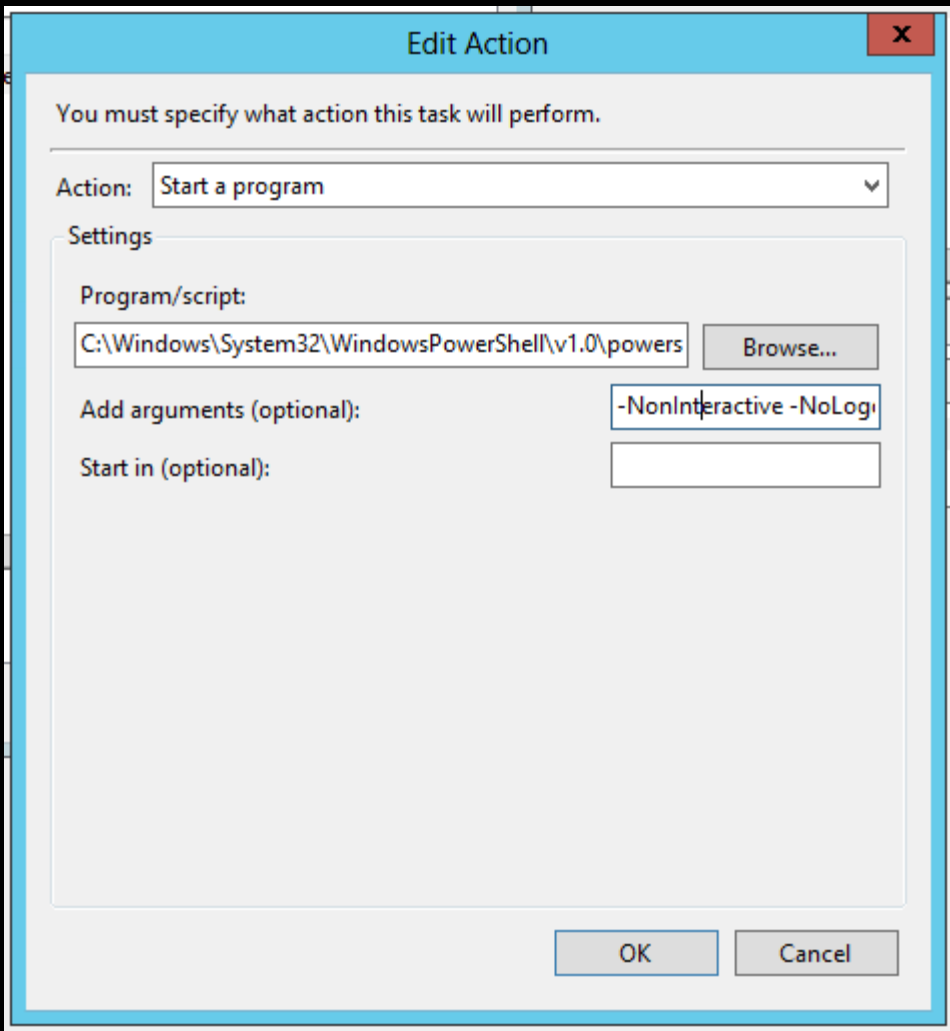
Each switch will now need ip ssh and ip ssh filetransfer running on it through the CLI (if its not already setup); be sure to set a manager password (if you haven’t done so already!) as well. In addition you will need to find the Server host key fingerprint for each switch; the screen shots below show one way of doing this.



```
1 #Created by: James Preston of The Queen's College, Oxford|
2 #Version: 1.0 on 02/11/2015 17:05
3 #Website: myworldofit.net
4
5 #Load the .NET assembly for WinSCP
6 Add-Type -Path "C:\Program Files (x86)\WinSCP Automation\WinSCPnet.dll"
7
8 #Import the CSV containing switch details and store it in a variable
9 $switches = Import-Csv -Path "C:\Network Switch Backup\switches.csv"
10
11 #Get the current system date in the format year/month/date which will be used to name the backup files
12 $date = Get-Date -Format yyyy-M-d
13
14 #Loop over the lines in the CSV
15 Foreach ($line in $switches) {
16
17 #Define the folder to store the output in and create it if it does not exist (if the folder exists already this will generate a non-blocking error)
18 $outputfolder = "C:\Network Switch Backup\Backups\" + $line.hostname + "\"
19 New-Item $outputfolder -ItemType Directory
20
21 #Define the path to store the result of the download
22 $outputpath = $outputfolder + $date
23
24 #Store the session details
25 $sessionOptions = New-Object WinSCP.SessionOptions
26 $sessionOptions.Protocol = [WinSCP.Protocol]::Sftp
27 $sessionOptions.HostName = $line.hostname
28 $sessionOptions.UserName = $line.username
29 $sessionOptions.Password = $line.password
30 $sessionOptions.SshHostKeyFingerprint = $line.sshhostfingerprint
31 $session = New-Object WinSCP.Session
32
33 #Connect to the host
34 $session.Open($sessionOptions)
```

Running your scripts as tasks

Name	Status	Triggers	Next Run Time	Last Run Time
Asset Upload	Ready	Multiple triggers defined	12/12/2017 08:31:13	11/12/2017 11:32:16
Automation - AD Account Creation	Ready	At 07:00 every day	12/12/2017 07:00:00	11/12/2017 07:00:00
Automation - Backup Reports	Ready	At 07:00 every day	12/12/2017 07:00:00	11/12/2017 07:00:00
Automation - Export Student Special Diets	Ready	At 07:30 every day	12/12/2017 07:30:00	11/12/2017 07:30:01
Automation - Freshdesk IT Daily Tasks	Ready	At 07:30 every day	12/12/2017 07:30:00	11/12/2017 07:30:17
Automation - Freshdesk OLDS Daily Tasks	Ready	At 08:00 every day	12/12/2017 08:00:00	11/12/2017 08:00:00
Automation - Get Privileged Groups Changes	Ready	At 00:00 every day - After triggered, repeat every 1 hour for a duration of 1 day.	12/12/2017 03:00:00	12/12/2017 02:00:00
Automation - IT Office Daily Report	Ready	At 07:30 every day	12/12/2017 07:30:00	11/12/2017 07:30:01
Automation - RSS Reader	Ready	At 08:00 every day - After triggered, repeat every 1 hour for a duration of 08:00:00.	12/12/2017 08:00:00	11/12/2017 16:00:00
Automation - Update Computer Description in AD	Ready	At 07:30 every day	12/12/2017 07:30:00	11/12/2017 07:30:01
Automation - Write Network Switch Changes to GlobalLog	Ready	At 17:00 every day	12/12/2017 17:00:00	11/12/2017 17:00:00
Backup Alacer	Ready	At 00:30 every day	13/12/2017 00:30:00	12/12/2017 00:30:00
Backup Network Switches	Ready	At 16:00 every day	12/12/2017 16:00:00	11/12/2017 16:00:00
Backup Uniflow	Ready	At 23:30 every day	12/12/2017 23:30:00	11/12/2017 23:30:00
Get Windows Update Reboot Status	Ready			30/05/2017 12:30:40
Optimize Start Menu Cache Files-S-1-5-21-1343024091-78...	Disabled	When computer is idle		04/11/2017 08:24:19
Run Windows Update	Ready			15/11/2017 13:06:38
Shutdown	Ready	At 09:06 on 22/06/2017		22/06/2017 09:06:00
Sophos Cloud Scheduled Scan	Ready	At 00:00 every Saturday of every week, starting 09/12/2017	16/12/2017 00:00:00	09/12/2017 00:00:00



C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe

-NonInteractive -NoLogo -NoProfile
-File "D:\Automation Scripts\WSUS
Data\Build-Inventory.ps1"

PowerShell Gallery

The screenshot shows the PowerShell Gallery homepage with a navigation bar containing 'Home', 'Items', 'Publish', 'Statistics', 'Documentation', and 'Support'. A search bar is located on the right. The main content area features a 'Welcome to the PowerShell Gallery' section, followed by 'Getting Started with the Gallery' which includes a 'Get Latest PowerShellGet' button and a list of actions like 'Search through items in the Gallery with Find-Module and Find-Script'. At the bottom, three statistics are displayed: Unique Items (2,595), Total Item Downloads (68,824,817), and Total Items (14,001).

PowerShell Gallery

Register | Sign in

Home Items Publish Statistics Documentation Support Search Items

Welcome to the PowerShell Gallery

The PowerShell Gallery is the central repository for PowerShell content. You can find new PowerShell commands or Desired State Configuration (DSC) resources in the Gallery.

Getting Started with the Gallery

Installing items from the Gallery requires the latest version of the PowerShellGet module.

[Get Latest PowerShellGet](#)

For PowerShell 5.0 and up.

To see all options for installing PowerShellGet, see our [documentation](#) or the [PowerShellGet Github repository](#).

With the latest PowerShellGet module, you can:

- Search through items in the Gallery with [Find-Module](#) and [Find-Script](#)
- Save items to your system from the Gallery with [Save-Module](#) and [Save-Script](#)
- Install items from the Gallery with [Install-Module](#) and [Install-Script](#)
- Upload items to the Gallery with [Publish-Module](#) and [Publish-Script](#)
- Add your own custom repository with [Register-PSRepository](#)

Check out our [documentation](#) for more information on how to use PowerShellGet commands with the Gallery. You can also run `Update-Help -Module PowerShellGet` to install local help for these commands.

Unique Items	Total Item Downloads	Total Items
2,595	68,824,817	14,001

Got a question? Have feedback?

More information about the PowerShell Gallery and PowerShellGet can be found in our [documentation](#). Please provide feedback and report issues using [UserVoice](#).

December 2017

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Home Items Publish Statistics Documentation Status Search Items

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3,006	99,241,119	16,703





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March 2017

Items


These items are currently published for the world to see.

Item	Item ID	Item Type	Description	Downloads
  PSSympa	PSSympa	Module	Manage Sympa Mailing Lists (http://www.sympa.org/) with PowerShell ...	99
  PSOpenVAS	PSOpenVAS	Module	Manage OpenVAS with PowerShell	74
You have a total of 2 items.				173


Search for *mysql* returned 7 items

Displaying results 1 - 7.


Sort By

 **xMySQL** By: PowerShellTeam
Latest Version: 2.1.0.0
Module
Module for installing an instance of MySQL

15,690 downloads Tags [DesiredStateConfiguration](#) [DSC](#) [DSCResourceKit](#) [DSCResource](#)
[Functions](#) [Invoke-MySQLCommand](#) [Get-MySQLInstallerConsole](#) [Get-MySQLExe](#) [Get-MySQLVersionInstalled](#) [Get-MySQLAllInstalled](#) [Get-ShortVersion](#) [Read-ErrorFile](#) [Get-MySQLPort](#) [Get-ArchitectureName](#) [DSC Resources](#) [xMySQLDatabase](#) [xMySQLGrant](#) [xMySQLProvision](#) [xMySQLServer](#) [xMySQLUser](#)

 **MySQLCmdlets** By: CData
Latest Version: 17.0.6428.0
Module
CData Cmdlets for MySQL

263 downloads Tags [CData](#) [Cmdlets](#) [MySQL Cmdlets](#) [Connect-MySQL](#) [Disconnect-MySQL](#) [Invoke-MySQL](#) [Select-MySQL](#) [Add-MySQL](#) [Update-MySQL](#) [Remove-MySQL](#) [Sync-MySQL](#) [Get-License](#)

 **Invoke-MySQLQuery** By: ramblingcookiemonster
Latest Version: 1.0.0
Script
Runs a SQL script against a MySQL instance. Requires the ADO.NET driver for MySQL - <http://dev.mysql.com/downloads/connector/net/>

149 downloads Tags [MySQL](#) [Query](#) [Sql](#) [Functions](#) [Invoke-MySQLQuery](#)

Search for *vmware* returned 44 items

Displaying results 1 - 20.

Sort By



VMware.VimAutomation.Core By: VMware

Latest Version: 6.5.2.6234650

Module

This Windows PowerShell module contains Windows PowerShell cmdlets for managing vSphere.

107,888 downloads [Cmdlets](#) [Add-PassthroughDevice](#) [Add-VirtualSwitchPhysicalNetworkAdapter](#) [Add-VMHost](#) [Add-VMHostNtpServer](#) [Connect-VIServer](#) [Copy-DatastoreItem](#) [Copy-HardDisk](#) [Copy-VMGuestFile](#) [Disconnect-VIServer](#) [Dismount-Tools](#) [Export-VApp](#) ... [Functions](#)
[HookGetViewAutoCompleter](#)



VMware.VimAutomation.Common By: VMware

Latest Version: 6.5.4.6979861

Module

This Windows PowerShell module contains functionality required by multiple PowerCLI modules.

99,262 downloads



VMware.VimAutomation.Sdk By: VMware

Latest Version: 1.0.0.5334677

Module

This Windows PowerShell module contains PowerCLI Sdk.

99,208 downloads [Functions](#) [Get-PSVersion](#) [Get-InstallPath](#)



VMware.VimAutomation.Cis.Core By: VMware

Latest Version: 6.5.4.6983166

Module

This Windows PowerShell module contains PowerCLI Cloud Infrastructure Suite cmdlets.

100,345 downloads [Cmdlets](#) [Connect-CisServer](#) [Disconnect-CisServer](#) [Get-CisService](#)

Untitled-1 x

```
1 |
```

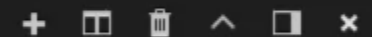
PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

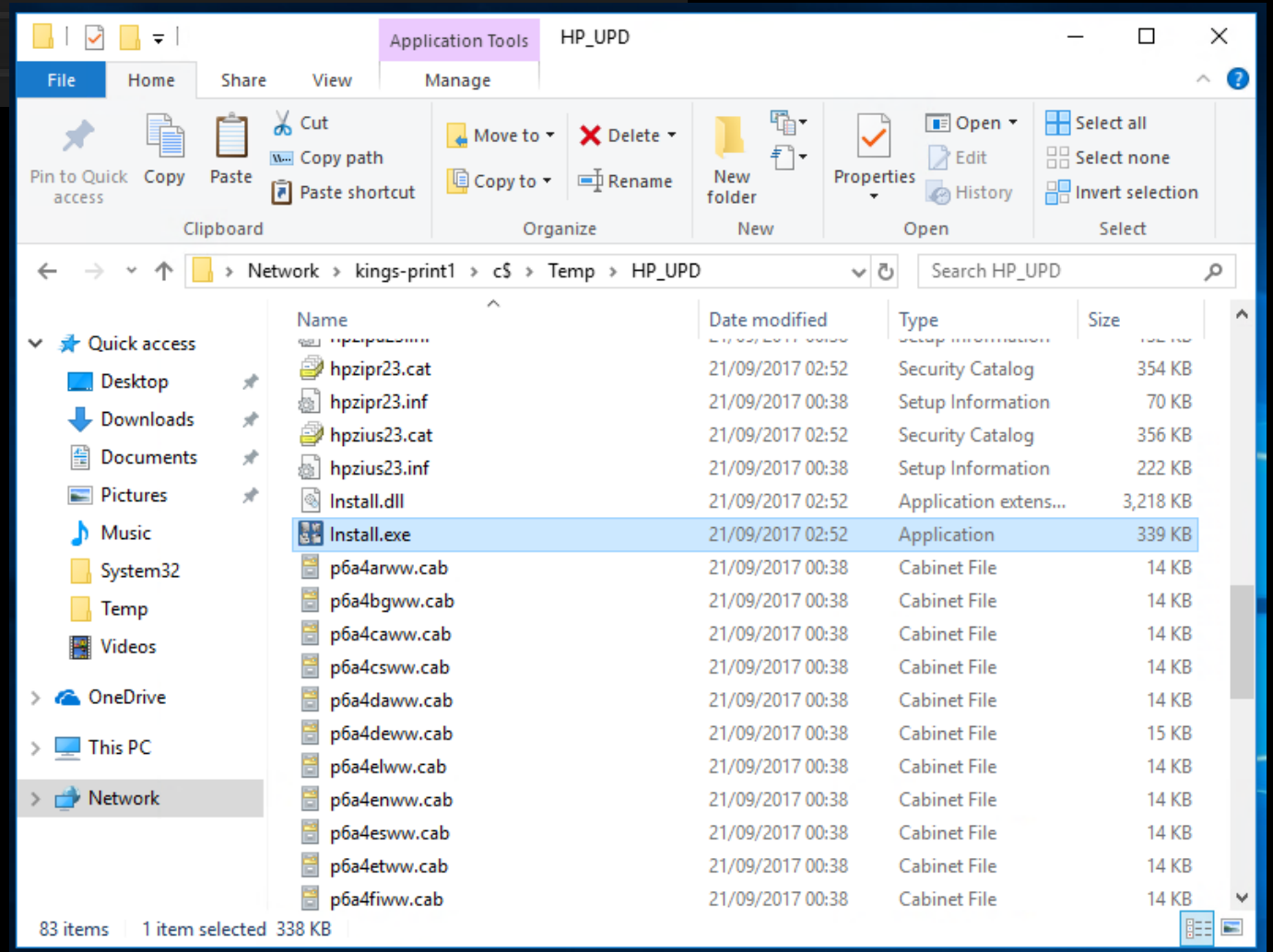
2: PowerShell | ▾



PowerShell Integrated Console

PS C:\Users\administrator>

```
1 Invoke-Command -ComputerName KINGS-PRINT1 -ScriptBlock {  
2     Set-Service -Name Spooler -StartupType Automatic  
3     Start-Service -Name Spooler  
4 }
```



```
1 #Get useful infomation
2 $Destination = "KINGS-PRINT1"
3 $PrinterIP = "10.128.32.11"
4 $PrinterLocation = "SAH"
5 $PrinterMaxPage = "A4"
6 $PrinterColour = "BW"
7 $PrinterName = "$PrinterLocation-$PrinterMaxPage-$PrinterColour"
8 $DestinationSession = New-PSSession -ComputerName $Destination
9
10 #Add the new printer port
11 Invoke-Command -ComputerName $Destination -ScriptBlock {Add-PrinterPort -Name $args[0] -SNMP 1 -SNMPCommunity public
    -PrinterHostAddress $args[1]} -ArgumentList $PrinterName, $PrinterIP -Verbose
12
13 #Create a file on the server with the command line for the HP UPD installer
14 $result = "& C:\Temp\HP_UPD\Install.exe /sm$PrinterName /q /n`"$PrinterName`""
15 $result | Out-File -FilePath "\\$Destination\C$\Temp\AddHPUPDPrinter.ps1"
16
17 #Add the printer to the server and to the port just created
18 Invoke-Command -Session $DestinationSession -ScriptBlock { C:\Temp\AddHPUPDPrinter.ps1 } -Verbose
19
20 #Start a sleep for 60s to allow the printer to install on the server before making changes
21 Start-Sleep -Seconds 60 -Verbose
22
23 #Get the printer into a useable state
24 Invoke-Command -ComputerName $Destination -ScriptBlock { Get-Printer $args[0] | Set-Printer -Published $true -Shared $true
    -ShareName $args[0] -RenderingMode CSR } -ArgumentList $PrinterName -Verbose
```

Port Name

- COM1:
- COM2:
- COM3:
- COM4:
- FILE:
- LPT1:
- LPT2:
- LPT3:
- PORTPROMPT:
- SAH-A4-BW

Configure Standard TCP/IP Port Monitor

Port Settings

Port Name: SAH-A4-BW

Printer Name or IP Address: 10.128.32.11

Protocol

Raw LPR

Raw Settings

Port Number: 9100

LPR Settings

Queue Name:

LPR Byte Counting Enabled

SNMP Status Enabled

Community Name: public

SNMP Device Index: 1

OK Cancel

Printer Name

- Microsoft Print to PDF
- Microsoft XPS Document Writer
- SAH-A4-BW

SAH-A4-BW on kings-print1 Properties

General Sharing Ports Advanced Security Device Settings About

SAH-A4-BW

Location:

Comment:

Model: HP Universal Printing PCL 6

SAH-A4-BW on kings-print1 Properties

General Sharing Ports Advanced Security Device Settings About

You can share this printer with other users on your network. The printer will not be available when the computer is sleeping or turned off.

Share this printer

Share name: SAH-A4-BW

Render print jobs on client computers

List in the directory

Drivers

If this printer is shared with users running different versions of Windows, you may want to install additional drivers, so that the users do not have to find the print driver when they connect to the shared printer.

Additional Drivers...

OK Cancel Apply

SAH-A4-BW on kings-print1 Properties

General Sharing Ports Advanced Security Device Settings About

SAH-A4-BW

Print to the following port(s). Documents will print to the first free checked port.

Port	Description	Printer
<input type="checkbox"/> COM2:	Serial Port	
<input type="checkbox"/> COM3:	Serial Port	
<input type="checkbox"/> COM4:	Serial Port	
<input type="checkbox"/> FILE:	Print to File	
<input checked="" type="checkbox"/> SAH-A4-BW	Standard TCP/IP Port	SAH-A4-BW
<input type="checkbox"/> PORTPROMPT:	Local Port	Microsoft XPS Document W

Add Port... Delete Port Configure Port...

Enable bidirectional support

Enable printer pooling

OK Cancel Apply


Project Honolulu

<http://aka.ms/HonoluluDownload>

Project Honolulu (Technical Preview)

All Connections

+ Add Connect Manage As Remove Edit Tags 1 item Search

Name ↑	Type	Last Connected	Managing As	Tags
 win10.kings.ox.ac.uk	Windows PC	Never	KINGS\administrator	

Q: What Microsoft operating systems can Honolulu manage?

A: Honolulu can manage the following operating systems:

- Windows Server 2016 Standard and Datacenter
- Windows Server 2012 and 2012 R2 Standard and Datacenter
- Microsoft Hyper-V Server 2016
- Microsoft Hyper-V Server 2012 R2

Q: How much does Honolulu cost?

A: Honolulu is free of charge. Download it here: <https://aka.ms/HonoluluDownload>

Q: Can Honolulu be used to manage the free Microsoft Hyper-V Server?

A: Yes. Honolulu can be used to manage Microsoft Hyper-V Server 2016 and Microsoft Hyper-V Server 2012 R2.



Smaller deployments for small-to-medium business, remote/branch office.

"In-Box" Tools » Honolulu

Windows Server



Larger deployments for enterprises, hosters, and service providers.

System Center IBTs » H

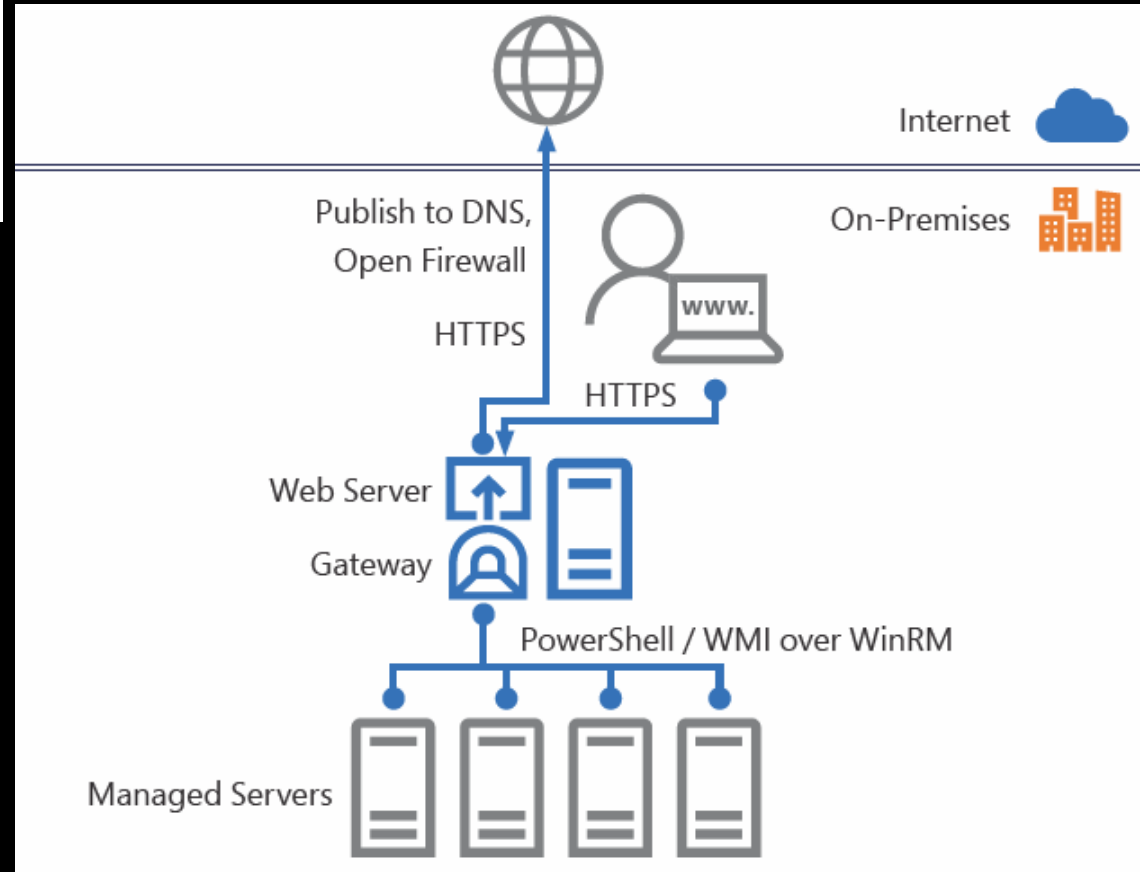
Windows Server



Cloud for hybrid IT management as a service.

Azure Operations Management Suite IBTs » H

Windows Server



Other fun things to try

QC-HYPERV03 Properties

General Operating System Member Of Delegation Password Replication
 Location Managed By Object Security Attribute Editor BitLocker Recovery

Attributes:

Attribute	Value
employeeID	3176
employeeNumber	<not set>

The Queen's College ... The Queen's College (Local ... Servers Hyper-V Hosts qc-hyperv03 [Hyper-V Host (...

Device qc-hyperv03 [Hyper-V Host (DR Target)]

Overview Live Graph 2 days 30 days 365 days Alarms Log Settings Notifications

Status: OK Sensors: 10 (of 10) DNS/IP: qc-hyperv03.queens.ox.ac.uk Dependency: Ping Default Interval: 60 seconds

Last Auto-Discovery: 793 days ago Last Recommendation: 29 days ago ID: #3176

Ping OK

Ping Time
0 msec

Uptime OK

System Uptime
7 d 17 h

Pagefile Usage OK

Total
<1 %

Memory OK

Available Mem...
123 GByte

CPU Load OK

Total
1 %

Total
Sensor-ID: 3178
Min: -6.69 %
Avg: 3.11 %
Max: 56 %

```
1 function QcReboot-Servers
2 {
3     #Details for PRTG
4     $APIUsername = ██████████
5     $APIPasswordHash = ██████████
6     $HowLongToPause = "8"
7
8     #Get the servers to be rebooted from a list
9     $ServersToReboot = QcGet-Servers | Select-Object DNSHostName, employeeID, OperatingSystem, Description | Sort-Object -Property
DNSHostName | Out-GridView -Title 'Select the server(s) to reboot' -OutputMode Multiple
10
11     #Get the time to reboot the servers
12     Write-Host "Enter the hour that you want the server(s) to reboot at"
13     [int]$TimeHour = Read-Host
14     Write-Host "Enter the minute of the hour that you want the server(s) to reboot at"
15     [int]$TimeMinute = Read-Host
16     Write-Host "Enter the reason for the reboot"
17     [string]$Reason = Read-Host
18
19     #Work out timings for PRTG
20     $UnformattedStart = $($Get-Date).Date.AddHours($TimeHour).AddMinutes($TimeMinute)
21     $UnformattedEnd = $($Get-Date).Date.AddHours($TimeHour).AddMinutes($TimeMinute).AddMinutes($HowLongToPause)
22     $Start = $UnformattedStart | Get-Date -Format yyyy-MM-dd-HH-mm-ss
23     $End = $UnformattedEnd | Get-Date -Format yyyy-MM-dd-HH-mm-ss
24
25     $UnformattedStRebootTime = $($Get-Date).Date.AddHours($TimeHour).AddMinutes($TimeMinute)
26     $StRebootTime = $UnformattedStRebootTime | Get-Date -Format HH:mm:ss
27
28     #Give the user a chance to back out
29     Write-Host "Ok I'm going to tell $($ServersToReboot.DNSHostName) to reboot at $StRebootTime today, press Ctrl + C to back out
now if thats not what you want" -ForegroundColor Yellow
30     pause
31 }
```

```
32 #Instruct the servers to reboot at the set time and inform PRTG
33 foreach($Server in $ServersToReboot){
34     #Create a ST on the server to tell it to reboot
35     Invoke-Command -ComputerName $Server.DNSHostName -ScriptBlock {Schtasks.exe /Create /Z /RU SYSTEM /SC ONCE /ST "$($args[0])"
36     " /TN "Reboot today" /TR "shutdown.exe /r /t 1" /V1} -ArgumentList $StRebootTime
37
38     #Tell PRTG about the downtime window
39     Invoke-WebRequest -URI "https://spog.queens.ox.ac.uk/api/setobjectproperty.htm?id=$((Server.employeeID)&
40     username=$APIUsername&passhash=$APIPasswordHash&name=maintenable&value=1"
41     Invoke-WebRequest -URI "https://spog.queens.ox.ac.uk/api/setobjectproperty.htm?id=$((Server.employeeID)&
42     username=$APIUsername&passhash=$APIPasswordHash&name=maintstart&value=$Start"
43     Invoke-WebRequest -URI "https://spog.queens.ox.ac.uk/api/setobjectproperty.htm?id=$((Server.employeeID)&
44     username=$APIUsername&passhash=$APIPasswordHash&name=maintend&value=$End"
45
46     #Tell the GlobalLog about the reboot
47     QcNew-GlobalLogEntry -LogCategory Hardware -LogType Added -LogWhat $($Server.DNSHostName | Out-String) -LogSubject "Server
48     has been instructed to reboot at $StRebootTime by the QcReboot-Servers Module" -LogBody "$Reason"
49 }
```





Wed 21/02/2018 07:30

Central Operating System <it-support@queens.ox.ac.uk>

IT Office Daily Report

To James Preston

Table of contents

[Changes since 0730hrs yesterday](#)

[Unresolved tickets](#)

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Changes since 0730hrs yesterday

DateTime: 21/02/2018 07:01:05
 Category: Active Directory (Users)
 Type: Added
 Who: Administrator
 What: New accounts created by the Automation Script on QC-BACKUP01
 Subject: See body for a list of the accounts

User

Body:

 [Redacted]
 [Redacted]

DateTime: 21/02/2018 07:00:27
 Category: Backup
 Type: Added
 Who: Administrator
 What: Uniflow
 Subject: Backup Report

ROBOCOPY :: Robust File Copy for Windows

Started : 20 February 2018 23:30:01

Source :

Dest :

Files : *.*

DateTime: 21/02/2018 07:00:03
 Category: Backup
 Type: Added
 Who: Administrator
 What: Hyper-V Hosts
 Subject: Backup Report

TimeCreated Id LevelDisplayName Message

 20/02/2018 19:50:01 754 Information The Block Level Backup Engine service has stopped.
 20/02/2018 19:46:13 14 Information The backup operation has completed.
 Body: 20/02/2018 19:46:13 4 Information The backup operation has finished successfully.
 20/02/2018 17:01:28 24 Information Backup started a fresh backup for volume '{00000000-0000-0000-0000-00000000...
 20/02/2018 17:00:17 1 Information The backup operation has started.
 20/02/2018 17:00:00 753 Information The Block Level Backup Engine service has successfully started.

Unresolved tickets for James

[Server Room Check - Wednesday](#) reported by No Reply

[Update SQL Server 2012 to SP4 on uniflow](#) reported by No Reply

[Update SQL Server 2012 to SP4 on qc-vre01](#) reported by No Reply

[Update SQL Server 2012 to SP4 on qc-vaccurate01](#) reported by No Reply

```
1 function Send-ITStaffEmail{
2 param(
3     [array]$ITStaff,
4     [string]$smtpserver,
5     [string]$smtpfrom,
6     [string]$smtpsubject,
7     [string]$smtpbody
8 )
9 foreach($Staff in $ITStaff){
10     Send-MailMessage -SmtpServer $smtpserver -From $smtpfrom -To $Staff.Email -Subject $smtpsubject -Body $smtpbody -BodyAsHtml
11 }
12 }
13
```

```
14 function Get-FreshdeskReport{
15     [Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::TLS12
16
17     $FDApiKey= ████████████████████
18
19     $pair = "$($FDApiKey):$($FDApiKey)"
20     $bytes = [System.Text.Encoding]::ASCII.GetBytes($pair)
21     $base64 = [System.Convert]::ToBase64String($bytes)
22     $basicAuthValue = "Basic $base64"
23     $FDHeaders = @{ Authorization = $basicAuthValue }
24
25     #Get all unresolved tickets
26     $alltickets = Invoke-RestMethod -Uri https://thequeenscollegeit.freshdesk.com/helpdesk/tickets/filter/unresolved?format=json -Headers $FDHeaders
27     #$alltickets = $alltickets | Where-Object -Property status -eq "2"
28
29     #Get the current IT Office Staff
30     $ItStaff = Import-Csv "\\queens.ox.ac.uk\softwaredeployment\PowerShell\Lists\ItStaff.csv"
31
32     #Return the tickets for each staff member
33     $FreshdeskTicketsReport = foreach($Staff in $ItStaff){
34
35         "<h2>Unresolved tickets for $($Staff.Forename)</h2>"
36
37         foreach($ticket in $alltickets){
38
39             if($ticket.responder_id -eq $Staff.FreshDeskID){
40                 "<br><a href=https://thequeenscollegeit.freshdesk.com/helpdesk/tickets/$(($ticket.display_id))>$(($ticket.subject)</a> reported by $($ticket.requester_name)"
41             }
42         }
43     }
44 }
45
46 $FreshdeskReport = "<h1 id=tickets>All unresolved tickets</h1>"
47 $FreshdeskReport += $FreshdeskTicketsReport
48 return $FreshdeskReport
49 }
50
```

	A	B	C	D	E	F	G	H	I	J	K
1	Subject	Body	AssignTo	NextRun	Priority	RepeatEveryDays	RepeatEveryWeeks	RepeatEveryMonths	RepeatEveryYears	ReportTo	Enabled
2	Placeholder	Without this here the file would delete it's self if there was no data	Systems Officer	01/01/4099	1	1					TRUE
3	Server Room Check - Monday	Confirm all is well in the server room	Systems Officer	26/03/2018	3		1				TRUE
4	Server Room Check - Tuesday	Confirm all is well in the server room	Systems Officer	27/03/2018	3		1				TRUE
5	Server Room Check - Wednesday	Confirm all is well in the server room	Systems Officer	28/03/2018	3		1				TRUE
6	Server Room Check - Thursday	Confirm all is well in the server room	Systems Officer	29/03/2018	3		1				TRUE
7	Server Room Check - Friday	Confirm all is well in the server room	Systems Officer	23/03/2018	3		1				TRUE
8	Take Backup of PaloAlto	Refer to https://queenscollege.atlassian.net/wiki/display/IOKB/Backup+	Systems Officer	01/04/2018	3				1		TRUE

	A	B	C	D	E	F	G	H	I	J	K
1	Subject	Body	AssignTo	NextRun	Priority	RepeatEveryDays	RepeatEveryWeeks	RepeatEveryMonths	RepeatEveryYears	ReportTo	Enabled
2	Check Water Softener Salt Levels	Service Yard Plant Room	Plumber	26/03/2018	1		1			Deputy Clerk of Works	TRUE
3	Check Water Softener Salt Levels	Carrodus Plant Room	Plumber	26/03/2018	1		1			Deputy Clerk of Works	TRUE
4	Take Gas Meter Readings	All Buildings	Assistant Electrician	01/04/2018	1			1		Deputy Clerk of Works	TRUE
5	Take Electric Meter Readings	All Buildings	Assistant Electrician	01/04/2018	1			1		Deputy Clerk of Works	TRUE
6	Lift Maintenance		Deputy Clerk of Works	01/07/2018	1				1		TRUE
7	Lift Maintenance		Deputy Clerk of Works	01/07/2018	1				1		TRUE
8	Lift Maintenance		Deputy Clerk of Works	01/07/2018	1				1		TRUE
9	Submit Gas Meter Readings	All Buildings	Deputy Clerk of Works	03/04/2018	1			1			TRUE
10	Submit Electric Meter Readings	All Buildings	Deputy Clerk of Works	03/04/2018	1			1			TRUE
11	Take & Submit RHI Readings	Shulman Auditorium	Clerk of Works	06/04/2018	1			3			TRUE
12	Dry Riser Annual Check	Florey	Deputy Clerk of Works	10/07/2018	1				1		TRUE
13	Kitchen Drains	Service Yard	Plumber	15/04/2018	1			1		Deputy Clerk of Works	TRUE
14	Foul & Surface Water Pumps		Deputy Clerk of Works	15/07/2018	1			4			TRUE
15	Take & Submit PV Readings	St Aldates House	Clerk of Works	30/04/2018	1			3			TRUE
16	Kitchen Main Clean		Deputy Clerk of Works	17/04/2018	1			4			TRUE
17	Fire Alarm		Deputy Clerk of Works	25/04/2018	1			4			TRUE
18	Dust Extraction		Deputy Clerk of Works	01/09/2018	1				1		TRUE
19	Mechanical Installations		Deputy Clerk of Works	01/09/2018	1				1		TRUE
20	Grease Guzzlers		Deputy Clerk of Works	01/05/2018	1			4	1		TRUE
21	Emergency Light testing	All Buildings	Electrician	01/06/2018	1			3		Deputy Clerk of Works	TRUE
22	Clean Shower Heads	All Buildings	Assistant Electrician	01/06/2018	1			3			TRUE
23	Lightning Protection		Deputy Clerk of Works	04/09/2018	1				1		TRUE

```
50 #Build the array to store the data to send up to FreshDesk
51 $output = New-Object System.Collections.ArrayList
52 $item = New-Object -TypeName System.Object
53 $item | Add-Member -MemberType NoteProperty -Name "email" -Value $EmailAddress
54 $item | Add-Member -MemberType NoteProperty -Name "subject" -Value $Subject
55 $item | Add-Member -MemberType NoteProperty -Name "type" -Value $Type
56 $item | Add-Member -MemberType NoteProperty -Name "responder_id" -Value $responder_id
57 $item | Add-Member -MemberType NoteProperty -Name "status" -Value $Status
58 $item | Add-Member -MemberType NoteProperty -Name "priority" -Value $Priority
59 $item | Add-Member -MemberType NoteProperty -Name "description" -Value $Body
60 $item | Add-Member -MemberType NoteProperty -Name "source" -Value $Source
61 $item | Add-Member -MemberType NoteProperty -Name "group_id" -Value $group_id
62 $output.Add($item) | Out-Null
63
64 #Tell the host what is going on
65 Write-Host "Submitting ticket for $Subject by $EmailAddress of type $Type with Priority $Priority for the $Post"
66 Write-Host "Responder ID is $responder_id"
67
68 #Convert the data to JSON
69 $output = $output | ConvertTo-Json
70
71 #Send the request up to FreshDesk
72 Invoke-RestMethod -Method Post -Body $output -ContentType application/json -Uri https://thequeenscollegeit.freshdesk.com/api/v2/tickets -Headers $FDHeaders
73 }
```

Apache

HTTP SERVER



```
1 #This script is used to update Apache on QC-vWEB02, see https://queenscollege.atlassian.net/wiki/s
2
3 #Set Vars
4 $ApacheOldInstall = "C:\Apache24"
5 $ApacheBackup = "C:\Temp\ApacheBackup"
6 $AppacheNewInstall = "C:\Temp\Apache-New"
7
8 #Clean out the previous backup
9 Remove-Item $ApacheBackup -Recurse
10
11 #Take Backup of 'Old' Apache
12 New-Item -Path $ApacheBackup -ItemType Directory
13 Copy-Item -Path $ApacheOldInstall\* -Destination $ApacheBackup -Recurse
14
15 #Copy the config file from the 'Old' installation to the 'New' installation
16 Copy-Item -Path $ApacheOldInstall\conf\* -Destination $AppacheNewInstall\conf -Force -Recurse
17
18 #Stop the Apache Service
19 Stop-Service Apache2.4
20
21 #Delete the Old Installation and copy over the new install
22 Remove-Item -Path $ApacheOldInstall\* -Recurse
23 Copy-Item -Path $AppacheNewInstall\* -Destination $ApacheOldInstall -Recurse
24
25 #Start the Apache Service
26 Start-Service Apache2.4
```

Further reading

- Lynda.com <https://www.lynda.com/search?q=powershell>
- PowerShell Gallery <https://www.powershellgallery.com>
- myworldofit.net <http://myworldofit.net/?s=powershell>
- Project Honolulu <http://aka.ms/HonoluluDownload>
- PowerShell v6 announcement
<https://blogs.msdn.microsoft.com/powershell/2017/07/14/powershell-6-0-roadmap-coreclr-backwards-compatibility-and-more/>
- Things that don't work in v6
<https://github.com/PowerShell/PowerShell/blob/master/docs/BREAKINGCHANGES.md>