

Getting Started w/Azure & PowerShell

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Azure & PowerShell

Getting Started!



Who am I?

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The Cloud & Services team are practitioners of Lean Engineering, a high velocity product development process that applies Lean methodology, service oriented patterns and practices and cloud platform capabilities for the design and development of modern applications for the enterprise.

Ron Bokleman has been in the software industry for 30 years having worked for both ISVs and large corporations such as Microsoft as a Senior Consultant and Technical Architect in the Northeast. Ron has deep industry experience in Banking, Financial Services and Construction.



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Before we get going...

How many consider themselves “Developers”?

How many consider themselves more of an “Infrastructure / IT Pro” person?



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Before we get going...

How many did your pre-session homework and either created or have access to a non-Production “Sandbox” Azure subscription?

Reminder: 101 Level Session, however, if you want more we can plan follow on sessions!



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Agenda

- Provision (homework) an Azure Subscription
- Assign Administrators
- Preparing Your Desktop
- Getting Connected
- Executing Your First PowerShell Commands
- Azure IaaS Building Blocks
- Keeping up to date
- Resources

Provision an Azure Subscription

Free Trial!



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Provision an Azure Subscription

- Azure IaaS/PaaS

- In a Software Defined Data Center, all elements of the infrastructure — networking, storage, CPU and security – are virtualized and delivered as a set of services.
 - Software Defined & Virtualized Compute Resources (Virtual Machines)
 - Software Defined Networking (SDN)
 - Software Defined Storage (SDS)
 - Accessible API Layer & Tools for management and automation software, enabling an administrator to provision, control, and manage each software-defined data center component

Rest

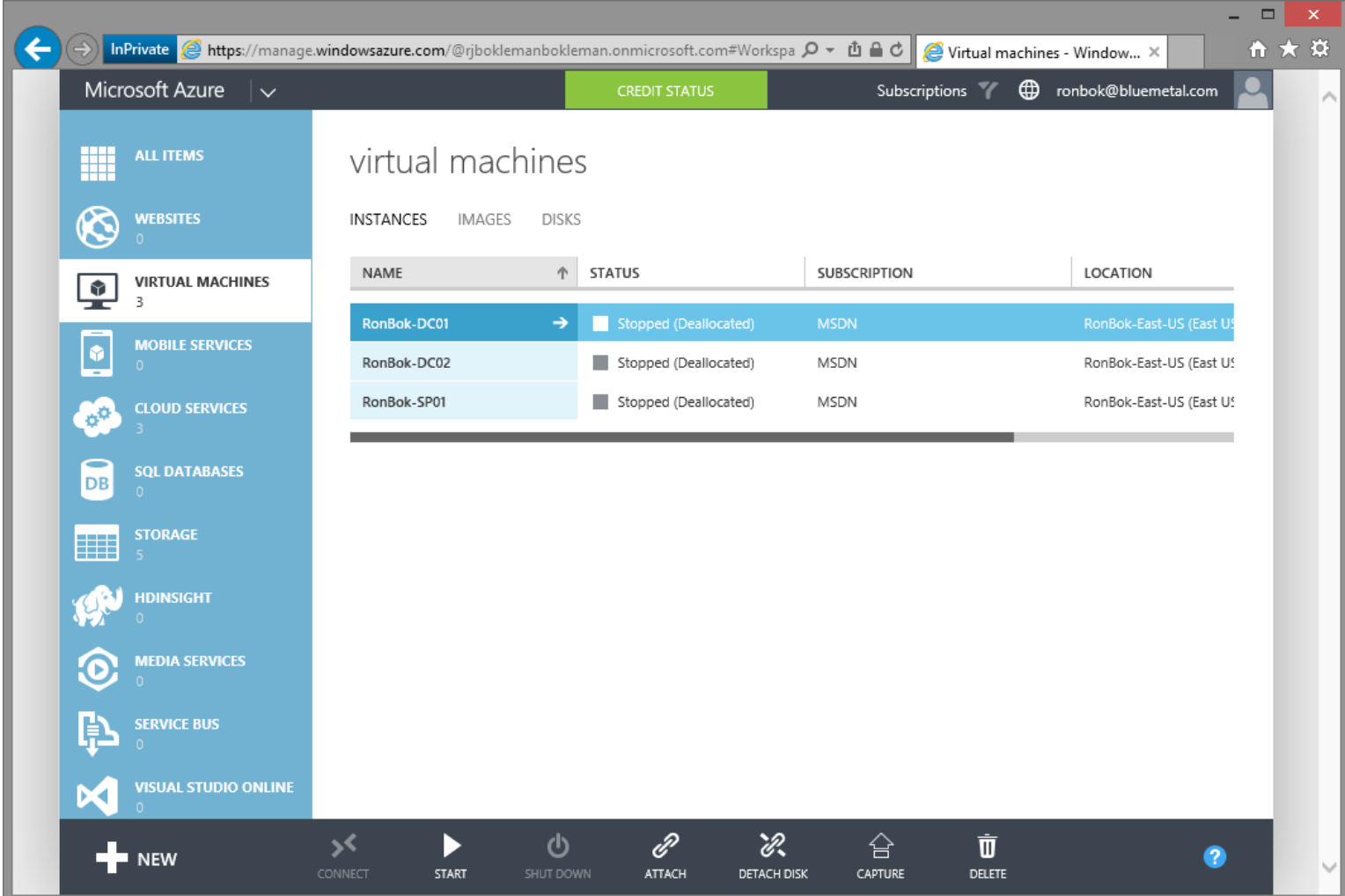
PowerShell

Node.js

- Azure itself, is a Software Defined Data Center (SDDC) !
- A SDDC that can be utilized by establishing one or more subscriptions optionally as an extension of existing physical Data Center(s).
- Sign Up
 - <http://azure.microsoft.com/>

Azure Management Console

- <https://manage.windowsazure.com>
- Sign In using the MicrosoftID used to create the subscription.
- Question: How many like the Azure Management Console?



The screenshot displays the Azure Management Console interface. The left sidebar contains a navigation menu with categories such as ALL ITEMS, WEBSITES, VIRTUAL MACHINES (3), MOBILE SERVICES, CLOUD SERVICES (3), SQL DATABASES, STORAGE (5), HDINSIGHT, MEDIA SERVICES, SERVICE BUS, and VISUAL STUDIO ONLINE. The main content area is titled 'virtual machines' and shows a table of instances. The table has columns for NAME, STATUS, SUBSCRIPTION, and LOCATION. Three instances are listed: RonBok-DC01, RonBok-DC02, and RonBok-SP01, all with a status of 'Stopped (Deallocated)' and located in 'RonBok-East-US (East US)'. The bottom of the interface features a toolbar with icons for NEW, CONNECT, START, SHUT DOWN, ATTACH, DETACH DISK, CAPTURE, and DELETE.

NAME	STATUS	SUBSCRIPTION	LOCATION
RonBok-DC01	Stopped (Deallocated)	MSDN	RonBok-East-US (East US)
RonBok-DC02	Stopped (Deallocated)	MSDN	RonBok-East-US (East US)
RonBok-SP01	Stopped (Deallocated)	MSDN	RonBok-East-US (East US)

Azure *Preview* Management Console

- <https://portal.azure.com>
- Preview



Assign Administrators

Free Trial!



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Assign Administrators

- Scroll down to the bottom to locate Settings
- Select Administrators
- Add:
 - Microsoft ID
 - Outside your organization
 - OrgID (O365/Azure AD)
 - Azure Active Directory Account
 - Unique to your subscription

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'HOME', 'PRICING', 'DOCUMENTATION', 'DOWNLOADS', 'COMMUNITY', and 'SUPPORT'. The main navigation area has tabs for 'SUBSCRIPTIONS', 'MANAGEMENT CERTIFICATES', 'ADMINISTRATORS' (highlighted with a red box), 'AFFINITY GROUPS', 'USAGE', and 'REMOTEAPP'. Below these tabs is a table with columns: 'SUBSCRIPTION', 'SUBSCRIPTION ID', 'ACCOUNT ADMINISTRATOR', and 'DIRECTORY'. The table contains one row with the following data:

SUBSCRIPTION	SUBSCRIPTION ID	ACCOUNT ADMINISTRATOR	DIRECTORY
MSDN	35ebcdf6-a417-493e-a679-997083d59a51	rjbokleman@bokleman.us	MSDN (rjboklem...

The left-hand navigation menu is visible, with 'SETTINGS' highlighted by a red box. A red arrow on the right side of the page points downwards, indicating the scroll action mentioned in the text.

Preparing Your Desktop

For Azure & PowerShell



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Prepare Desktop

- How to install and configure Azure PowerShell
 - <http://azure.microsoft.com/en-us/documentation/articles/install-configure-powershell/#Install>
- Web Platform Installer
 - <http://go.microsoft.com/fwlink/p/?linkid=320376&clid=0x409>
 - `$PSVersionTable.PSVersion`
- Windows 8.1 w/PowerShell v4.0 recommended.
- Windows Server 2012 or R2 recommended.
 - OS X with node.js
- Locate and launch the PowerShell ISE

Getting Connected To Azure

Using PowerShell v4.0 and above...



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Getting Connected To Azure Subscription

- Start PowerShell ISE as an Administrator
 - Hint: You can pin it to the Windows taskbar for easy access.
- Get-ExecutionPolicy / Set-ExecutionPolicy
`Get-ExecutionPolicy -Scope LocalMachine`
`Set-ExecutionPolicy Unrestricted -Scope LocalMachine`
`Update-Help`
- Create C:\PSScripts folder...
- Create C:\PSScripts\Azure folder...

Getting Connected To Azure Subscription

- Establish Subscription Session

Get-AzurePublishSettingsFile

- Opens browser...
- Select subscription...
- Download file [SubscriptionName-MM-DD-YYYY-credentials.publishsettings] to local disk C:\PSScripts\Azure...

Import-AzurePublishSettingsFile

'C:\PSScripts\Azure\SubscriptionName-MM-DD-YYYY-credentials.publishsettings'

- Hint: If the importation doesn't work, or you simple want to start over, you can delete the files in C:\Users\\AppData\Roaming\Windows Azure Powershell*.*

Executing Your First...

PowerShell Commands



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Executing Your First Azure PowerShell Commands

- Subscription?

```
# List Current Subscription
```

```
Get-AzureSubscription -Current
```

- Azure PowerShell Version?

```
(Get-Module Azure).Version
```

- Change between subscriptions?

```
# select Subscription
```

```
Select-AzureSubscription -SubscriptionName $Subscription
```

```
# List Subscription
```

```
Get-AzureSubscription -Current
```

Azure IaaS Building Blocks



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Azure IaaS Building Blocks

- Azure IaaS
 - Subscription(s)
 - Billing Container
 - Region(s)
 - The **Region** (Location) is the physical location on a larger scale than an affinity group.
 - Affinity Group(s)
 - Affinity groups are a way you can group your cloud services by proximity to each other in the Azure datacenter in order to achieve optimal performance. When you create an affinity group, it lets Azure know to keep all of the services that belong to your affinity group as physically close to each other as possible. For example, if you want to keep the services running your data and your code together, you would specify the same affinity group for those cloud services. They would then run on hardware that is located close together in the datacenter. This can reduce latency and increase performance, while potentially lowering costs.
 - Affinity groups are defined at the subscription level and the name of each affinity group must be unique within the subscription. Each affinity group you create is tied to a Region (which is the Location). Specify the same region when creating your affinity group and your virtual network.

Azure IaaS Building Blocks

- Storage Account(s)
 - Containers
- Virtual Network(s)
 - DNS – Azure provided or your own, for external you either need your own or ISP hosted or even Route53 in AWS
<https://msdn.microsoft.com/en-us/library/azure/jj156088.aspx>
 - Subnets – Your own design using private network address space
 - P2S VPN - <https://msdn.microsoft.com/en-us/library/azure/dn133792.aspx>
 - S2S VPN - <https://msdn.microsoft.com/en-us/library/azure/dn133795.aspx>
Includes Multi-Site
 - V2V VPN - <https://msdn.microsoft.com/en-us/library/azure/dn690122.aspx>
 - Load Balancing
- Cloud Service(s)
 - The **Cloud Service DNS Name** is the global DNS name that becomes part of the URI that's used to contact the virtual machine. You'll need to come up with your own cloud service name because it must be unique in Azure.
- VM Image(s)
 - Licensing
 - Endpoints

PowerShell – VM Images?

- Get all VM images for Windows Server 2012 R2?

```
(Get-AzureVMImage | where {$_.Label -like "Windows Server 2012 R2*"} |  
Sort PublishedDate -Descending)[0].ImageName
```

- A word about licensing...
- VM sizing...

PowerShell VM Role Sizes?

- PowerShell Exercise

- <https://ronbokleman.wordpress.com/2014/11/23/manage-windows-azure-iaas-wpowershell/>

Keeping Updated



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Keeping Updated

- What version of Microsoft Azure PowerShell do we have?
- Updates?



Or

- `(Get-Module Azure).version`

A screenshot of the Windows Control Panel 'Programs and Features' window. The window title is 'Azure - Programs and Features'. The address bar shows 'Control Panel > Programs > Programs and Features'. The main content area is titled 'Uninstall or change a program' and includes instructions: 'To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.' Below this is a table of installed programs. The table has columns for Name, Publisher, Installed On, Size, and Version. The row for 'Microsoft Azure PowerShell - November 2014' is selected, showing a version of 0.8.11 and a size of 122 MB. At the bottom of the window, a status bar shows the Microsoft logo, 'Microsoft Corporation', 'Product version: 0.8.11', and 'Size: 122 MB'.

Name	Publisher	Installed On	Size	Version
CloudBerry Explorer for Azure Blob Storage 2.1.2	CloudBerryLab	12/17/2014		2.1.2
Microsoft Azure Authoring Tools - v2.5	Microsoft Corporation	11/24/2014	8.25 MB	2.5.6496.10
Microsoft Azure Storage Tools - v3.0.0	Microsoft Corporation	11/24/2014	5.01 MB	3.0.0.0
Microsoft Azure Libraries for .NET - v2.5	Microsoft Corporation	11/24/2014	29.2 MB	2.5.1024.161
<input checked="" type="checkbox"/> Microsoft Azure PowerShell - November 2014	Microsoft Corporation	11/24/2014	122 MB	0.8.11
Windows Azure Storage Emulator - v3.4	Microsoft Corporation	11/24/2014		3.4.6848.0
Microsoft Azure Compute Emulator - v2.5	Microsoft Corporation	11/24/2014		2.5.6496.10
Microsoft Azure Authoring Tools - v2.4.1	Microsoft Corporation	11/1/2014	20.9 MB	2.4.6499.5
Microsoft Azure Libraries for .NET - v2.4	Microsoft Corporation	9/6/2014	27.7 MB	2.4.0724.110
Microsoft Azure Tools for Microsoft Visual Studio 2013 - v2.4	Microsoft Corporation	9/6/2014	35.4 MB	2.4.20730.1601
Microsoft Azure Tools for Microsoft LightSwitch for Visual Studio 2013 ...	Microsoft Corporation	9/6/2014	1.72 MB	2.4.20620.1603
Windows Azure Active Directory Module for Windows PowerShell	Microsoft Corporation	7/10/2014	4.37 MB	1.0.0
Windows Azure Authoring Tools - v2.2	Microsoft Corporation	2/6/2014	16.8 MB	2.2.6492.2
Windows Azure Libraries for .NET - v2.2	Microsoft Corporation	2/6/2014	35.5 MB	2.2.0924.200

Resources



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Resources

TechNet PowerShell Script Center

<http://go.microsoft.com/fwlink/p/?linkid=320211&clcid=0x409>

Scripting with Windows PowerShell

<http://go.microsoft.com/fwlink/p/?linkid=320210&clcid=0x409>

Windows Azure Management Cmdlets

<https://msdn.microsoft.com/en-us/library/azure/dn495184.aspx>

Running PowerShell Scripts

<http://go.microsoft.com/fwlink/p/?linkid=320627&clcid=0x409>

Hey, Scripting Guy!

<http://blogs.technet.com/b/heyscriptingguy/>

Create an Azure VM (Properly)

- Step 0 : Standardize on naming conventions!
- Step 1 : Create an Affinity Group
- Step 2 : Create a Network
- Step 3 : Create a Storage Account and Container
- Step 4 : Create a Cloud Service
- Step 5 : Create a VM
 - Optionally...Create an Availability Set

Create an Affinity Group

```
# Create new Affinity Group in "East US" Region.
```

```
New-AzureAffinityGroup -Name "RonBok-P-East-US" -Location "East US" -  
Description "Affinity group for Production in East US."
```

```
New-AzureAffinityGroup -Name "RonBok-T-East-US" -Location "East US" -  
Description "Affinity group for Test in East US."
```

```
New-AzureAffinityGroup -Name "RonBok-D-East-US" -Location "East US" -  
Description "Affinity group for Development in East US."
```

- NOTE: Naming conventions?

Create a Network

```
# Create Virtual Networks
```

```
Set-AzureVNetConfig -ConfigurationPath
```

```
"C:\PSScripts\<<Subscription>RonBok-North-Central-US-NetworkConfig.xml"
```

- NOTE: This is - DESTRUCTIVE – of any existing networks, so make a backup FIRST. You can even export the existing, network, edit the .XML accordingly and then import it.

Create a Storage Account and Container

- # Create new Storage Account in "East US" Region.
- `New-AzureStorageAccount -AffinityGroup "RonBok-P-East-US" -StorageAccountName "ronbokpeastus"`
- `New-AzureStorageAccount -AffinityGroup "RonBok-T-East-US" -StorageAccountName "ronbokteastus"`
- `New-AzureStorageAccount -AffinityGroup "RonBok-D-East-US" -StorageAccountName "ronbokdeastus"`
- NOTE: Naming conventions?
- NOTE: \vhds
- NOTE: \backups?

Create a Cloud Service

- # Create new Cloud Service in "East US" Region.
- `New-AzureService -AffinityGroup "RonBok-P-East-US" -ServiceName "RonBok-P-East-US" -Description "Cloud Service for Production in East US."`
- `New-AzureService -AffinityGroup "RonBok-T-East-US" -ServiceName "RonBok-T-East-US" -Description "Cloud Service for Test in East US."`
- `New-AzureService -AffinityGroup "RonBok-D-East-US" -ServiceName "RonBok-D-East-US" -Description "Cloud Service for Development in East US."`
- NOTE: You may want a Cloud Service per server pairing...or by project

Create a VM or two, or ...

- Get a list of VM images

Get a list of existing Azure VM Images from the Gallery.

```
Get-AzureVMImage | where {$_.ImageName -like "*windows-server-2012-R2*"} | Format-Table -AutoSize
```

- Get a single, specific VM image

```
(Get-AzureVMImage | where {$_.Label -like "windows server 2012 R2*"} | Sort PublishedDate -Descending)[0].ImageName
```

Select the proper storage account

```
#Set-AzureSubscription -SubscriptionName "Visual Studio Ultimate with  
MSDN" -CurrentStorageAccountName "ronbokwestus"
```

```
Set-AzureSubscription -SubscriptionName "Visual Studio Ultimate with  
MSDN" -CurrentStorageAccountName "ronbokeastus"
```

- NOTE: If you don't do this...your VM will create it's own default storage account with a nice long, random name. ☹️

...finally we can create our VM

- # Create RonBok-DC01/DC02 virtual Machine in East US!
- `New-AzureQuickVM -ImageName $AzureVMImage -ServiceName "RonBok-DC-East-US" -windows -AdminUsername "ronbok" -AvailabilitySetName "DomainControllers" -InstanceSize "Small" -Name "RonBok-DC01" -Password "Password.1" -SubnetNames "Subnet-1" -VNetName "RonBok-East" #-AffinityGroup "RonBok-East-US"`
- `New-AzureQuickVM -ImageName $AzureVMImage -ServiceName "RonBok-DC-East-US" -windows -AdminUsername "ronbok" -AvailabilitySetName "DomainControllers" -InstanceSize "Small" -Name "RonBok-DC02" -Password "Password.1" -SubnetNames "Subnet-1" -VNetName "RonBok-East" #-AffinityGroup "RonBok-East-US"`
- Done!