AhsayCBS appliance on Microsoft Azure Setup Guide

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Setup

1. Download and install Azure PowerShell Cmdlets to Windows

2. Start [Microsoft Azure PowerShell] from the program menu

3. First of all, it is required to register an Azure account to Azure PowerShell so that Azure PowerShell knows which Azure account to manage. To do so, we first invoke [Get-AzurePublishSettingsFile] cmdlet to obtain the required settings from your Azure account. Then invoke the [Import-AzurePublishSettingsFile] cmdlet to import the settings into Azure PowerShell. For example,

   PowerShell commands to run:

   ```
   PS C:\> Get-AzurePublishSettingsFile
   ```

   this launches your browser and takes you to a page where you can login using the Microsoft account associated with your Windows Azure account. Once logged in you will be prompted to download a < subscription-name(s) >.publishsettings file to your hard drive. This page will automatically generate a management certificate in each and every subscription that you are admin or co-administrator of. Once the file is downloaded you can then call:

   PowerShell commands to run:

   ```
   PS C:\> Import-AzurePublishSettingsFile "C:\MyPublishSettings\mysubscriptions.publishsettings"
   ```

   Azure PowerShell is now ready to use.

   IMPORTANT
   Please note that Azure PowerShell now has full access to your Azure account. You are advised to keep this Azure PowerShell away from unauthorized access. Also, please delete "C:\MyPublishSettings\mysubscriptions.publishsettings" from the system in case it is used again on another machine.

4. Define a name, preferably your company name, for your AhsayCBS appliance in $MyName. Since $MyName will be used as storage account name, which permits only lowercase english alphabet and numbers, in Azure, please use only these characters in $MyName. For simplicity's sake, we define $MyName as "company" here.

   PowerShell commands to run:

   ```
   PS C:\> $MyName = "company"
   ```

5. Choose a region that is closest to you and define it in the $Location variable. As of the time of this writing, the current available options are Central US, East US, East US 2, US Gov Iowa, US Gov Virginia, North Central US, South Central US, West US, North Europe, West Europe, East Asia, Southeast Asia, Japan East, Japan West, Brazil South, Australia East, Australia Southeast, Central India, South India or West India. For details, please refer to https://azure.microsoft.com/en-us/regions/ . In this example, we use "East US" as our $Location.

   PowerShell commands to run:

   ```
   PS C:\> $Location = "East US"
   ```

6. Create a new Azure storage account in the location of your choice.

   PowerShell commands to run:

   ```
   PS C:\> $MyStorageAccountName = "ahsaycbs4$MyName"
   PS C:\> New-AzureStorageAccount -StorageAccountName $MyStorageAccountName -Location $Location

   OperationDescription        OperationID           OperationStatus
   --------------------        -----------           ---------------
   New-AzureStorageAccount     83a682a5-df6f-5377-96c1-7e19868039a7      Succeeded
   ```

7. Set the new storage account to be the default storage account to use under Azure PowerShell

PowerShell commands to run:

```
PS C:\> $SubscriptionName = (Get-AzureSubscription -Current).SubscriptionName
PS C:\> Set-AzureSubscription -CurrentStorageAccountName $MyStorageAccountName -SubscriptionName
>> $SubscriptionName
```

8. Create a private container to store the AhsayCBS appliance virtual hard disk files under the storage account

PowerShell commands to run:

```
PS C:\> ### Give a name to your new container ###
PS C:\> $MyContainerName = "appliance"
PS C:\> New-AzureStorageContainer -Name $MyContainerName -Permission Off

Blob End Point: https://ahsaycbs4company.blob.core.windows.net/

Name            PublicAccess        LastModified
----            ------------        ------------
Appliance       Off                 2015/12/24 ?? 02:28:57 +00:00
```

9. Copy the latest version of AhsayCBS appliance from the official "ahsaycbs" storage account to your storage account and wait until all files have been copied successfully. (You can get a complete list of all versions availble by browsing https://ahsaycbs.blob.core.windows.net/appliance?restype=container&comp=list)

PowerShell commands to run:

```
PS C:\> ### Save the storage account key ###
PS C:\> $StorageKey = (Get-AzureStorageKey -StorageAccountName $MyStorageAccountName).Primary
PS C:\>
PS C:\> ### Create the destination context for authenticating the copy ###
PS C:\> $DestContext = New-AzureStorageContext -StorageAccountName $MyStorageAccountName
>> -StorageAccountKey $StorageKey
PS C:\> ### Create the source context for the annonymous copy ###
PS C:\> $SrcContext = New-AzureStorageContext -Anonymous -StorageAccountName "ahsaycbs" -Protocol
>> Http
PS C:\>
PS C:\> ### Define the blob name for OS and data disk ###
PS C:\> $SourceVhdDiskOSName = "disk-os-latest.vhd"
PS C:\> $SourceVhdDiskDataName = "disk-data-latest.vhd"
PS C:\>
PS C:\> ### Start the Asynchronous Copy ###
PS C:\> $BlobCopyOS = Start-AzureStorageBlobCopy `
>> -SrcContainer "appliance" -SrcBlob $SourceVhdDiskOSName -Context $SrcContext `
>> -DestContainer $MyContainerName -DestBlob $SourceVhdDiskOSName -DestContext $DestContext
>>
PS C:\> $BlobCopyData = Start-AzureStorageBlobCopy `
>> -SrcContainer "appliance" -SrcBlob $SourceVhdDiskDataName -Context $SrcContext `
>> -DestContainer $MyContainerName -DestBlob $SourceVhdDiskDataName -DestContext $DestContext
>>
PS C:\> ### Loop until complete ###
PS C:\> While (1 -eq 1) {
>> ### Retrieve the current status of the copy operation ###
>> $status = $BlobCopyData | Get-AzureStorageBlobCopyState
>> if ($status.Status -ne "Pending") {
>> Break;
>> }
>> ### Print out status ###
>> $status
>> Start-Sleep 10
>> }
>>
```

```
PS C:\>
PS C:\> ### Loop until complete ###
PS C:\> While (1 -eq 1) {
>> ### Retrieve the current status of the copy operation ###
>> $status = $BlobCopyOS | Get-AzureStorageBlobCopyState
>> if ($status.Status -ne "Pending") {
>> Break;
>> }
>> ### Print out status ###
>> $status
>> Start-Sleep 10
>> }
>>
'Pending' copy to blob 'disk-data-latest.vhd' in container 'appliance' from
'https://ahsaycbs.blob.core.windows.net/appli
Percent:8%. BytesCopied: 2673868800Bytes. TotalBytes: 32212255232Bytes.
[oooooooo]
...
'Pending' copy to blob 'disk-os-latest.vhd' in container 'appliance' from
'https://ahsaycbs.blob.core.windows.net/appli Percent:20%. BytesCopied: 4322230272Bytes.
TotalBytes: 21474836992Bytes.
[oooooooooooooooooooooo]
...
'Pending' copy to blob 'disk-os-latest.vhd' in container 'appliance' from
'https://ahsaycbs.blob.core.windows.net/appli
'Pending' copy to blob 'disk-os-latest.vhd' in container 'appliance' from
'https://ahsaycbs.blob.core.windows.net/appli
'Pending' copy to blob 'disk-os-latest.vhd' in container 'appliance' from
'https://ahsaycbs.blob.core.windows.net/appli
7 activities not shown...

CopyId                :    febe4007-c0b3-437f-89d7-aab9a095a1f5
CompletionTime        :
Status                :    Pending
Source                :    https://ahsaycbs.blob.core.windows.net/appliance/disk-data-latest.vhd
BytesCopied           :    658505728
TotalBytes            :    32212255232
StatusDescription     :
....
CopyId                :    febe4007-c0b3-437f-89d7-aab9a095a1f5
CompletionTime        :
Status                :    Pending
Source                :    https://ahsaycbs.blob.core.windows.net/appliance/disk-data-latest.vhd
BytesCopied           :    30857494528
TotalBytes            :    32212255232
StatusDescription     :
....
CopyId                :    e2adc853-c3b7-4c51-9d86-fd9f34c8fbfe
CompletionTime        :
Status                :    Pending
Source                :    https://ahsaycbs.blob.core.windows.net/appliance/disk-os-latest.vhd
BytesCopied           :    2673868800
TotalBytes            :    21474836992
StatusDescription     :
....
CopyId                :    e2adc853-c3b7-4c51-9d86-fd9f34c8fbfe
CompletionTime        :
Status                :    Pending
Source                :    https://ahsaycbs.blob.core.windows.net/appliance/disk-os-latest.vhd
BytesCopied           :    2673868800
TotalBytes            :    20407386112
StatusDescription     :
```

10. Create Azure disks for the virtual hard disks copied.

PowerShell commands to run:

```
PS C:\> $DiskNameOS = "$MyStorageAccountName-disk-os"
PS C:\> $MyVhdDiskOSPath =
>> "https://$MyStorageAccountName.blob.core.windows.net/$MyContainerName/$SourceVhdDiskOSName"
PS C:\> Add-AzureDisk -DiskName $DiskNameOS -MediaLocation $MyVhdDiskOSPath -Label $DiskNameOS
>> -OS Linux

AffinityGroup           :
AttachedTo              :
IsCorrupted             :       False
Label                   :       ahsaycbs4company-disk-os
Location                :       East Asia
DiskSizeInGB            :       20
MediaLink               :
https://ahsaycbs4company.blob.core.windows.net/appliance/disk-os-latest.vhd
DiskName                :       ahsaycbs4company-disk-os
SourceImageName         :
OS                      :       Linux
IOType                  :       Standard
OperationDescription    :       Add-AzureDisk
OperationId             :       7e85ab1c-d667-5cbf-abd6-300b571e1b43
OperationStatus         :       Succeeded

PS C:\> $DiskNameData = "$MyStorageAccountName-disk-data"
PS C:\> $MyVhdDiskDataPath =
>> "https://$MyStorageAccountName.blob.core.windows.net/$MyContainerName/$SourceVhdDiskDataName"
PS C:\> Add-AzureDisk -DiskName $DiskNameData -MediaLocation $MyVhdDiskDataPath -Label
>> $DiskNameData

AffinityGroup           :
AttachedTo              :
IsCorrupted             :       False
Label                   :       ahsaycbs4company-disk-os
Location                :       East Asia
DiskSizeInGB            :       30
MediaLink               :
https://ahsaycbs4company.blob.core.windows.net/appliance/disk-os-latest.vhd
DiskName                :       ahsaycbs4company-disk-os
SourceImageName         :
OS                      :       Linux
IOType                  :       Standard
OperationDescription    :       Add-AzureDisk
OperationId             :       6f62a0d7-38ac-52ca-a0b1-26606efaf301
OperationStatus         :       Succeeded
```

11. For AhsayCBS appliance to be a production service, it is required to make sure the public IP address doesn't change between shutdown and restart of virtual machine. This can only be done in Azure by creating an reserving IP for your service and use it for your virtual machine. Please note that there may be a charge for each additional reserved IP to use. See https://azure.microsoft.com/en-us/pricing/details/ip-addresses/ for details.

PowerShell commands to run:

```
### Create a reserved IP for your AhsayCBS service ###

PS C:\> $ReservedIpName = "$MyStorageAccountName-reserved-ip"
PS C:\> New-AzureReservedIP -ReservedIPName $ReservedIpName -Location $location

OperationDescription    OperationID          OperationStatus
--------------------    -----------          ---------------
New-AzureReservedIP     5252359b-c6db-5ec8-b9f2-ef444078ba69    Succeeded
```

12. Now, you are ready to create a virtual machine in Azure by executing the command below. The acceptable options for [InstanceSize] are ExtraSmall, Small, Medium, Large, ExtraLarge, A5, A6, A7, A8, A9, Basic_A0, Basic_A1, Basic_A2, Basic_A3, Basic_A4, Standard_D1, Standard_D2, Standard_D3, Standard_D4, Standard_D11, Standard_D12, Standard_D13 or Standard_D14. In this example, we choose the cheapest option which is Basic_A0 for testing purpose.
For production AhsayCBS appliance you should consider using at least Basic_A2, Standard_D1 or Standard_D2 plans.

This may take up to 15 minutes to execute.

PowerShell commands to run:

```
PS C:\> $VMName = $MyStorageAccountName
PS C:\> $ServiceName = $MyStorageAccountName
PS C:\> New-AzureVMConfig -DiskName $DiskNameOS -Name $VMName -InstanceSize Basic_A0 `
>> | Add-AzureDataDisk -Import -DiskName $DiskNameData -LUN 0 `
>> | Add-AzureEndpoint -Name "SSH" -LocalPort 22 -PublicPort 22 -Protocol TCP `
>> | Add-AzureEndpoint -Name "HTTP" -LocalPort 80 -PublicPort 80 -Protocol TCP `
>> | Add-AzureEndpoint -Name "HTTPS" -LocalPort 443 -PublicPort 443 -Protocol TCP `
>> | New-AzureVM -ServiceName $ServiceName -Location $location -ReservedIPName $ReservedIpName
>> -WaitForBoot
>>

WARNING
No deployment found in service: 'ahsaycbs4company-service'.

OperationDescription      OperationID                        OperationStatus
--------------------      -----------                        ---------------
New-AzureVM               66f88d6c-4a30-51cf-aa0f-a6d644da4d5f  Succeeded
```

The warning of "WARNING: No deployment found in service" can be safely ignored.

13. AhsayCBS appliance should now be up and running in Azure. Most importantly, you need to change the password of the default 'admin' account to prohibit unauthorized access. Use PuTTy or other SSH client software to SSH to ahsaycbs4*MyName*.cloudapp.net (replace $MyName with your own name) . Login with username/password of admin/ahsaycbs. Once logged in successfully, change the password immediately by executing 'passwd'.

14. It is usually required to update your AhsayCBS appliance with the correct timezone. You can do so via the "tzsetup" command after gaining root access through SSH. For example

After logging in as "admin" using SSH

```
$ su - root@ahsaycbs:/data/cbs/conf # tzsetup
```

Choose "Yes" in the [Use local or UTC (Greenwich Mean Time) clock] dialog and select your timezone. Then reboot the system using the "reboot" command. Wait around 5 minutes for AhsayCBS appliance to be fully rebooted.

Sample Output from the commands above:

```
root@ahsaycbs:/data/cbs/conf # reboot
```

15. Everything is ready now. Point your browser to http://ahsaycbs4*MyName*.cloudapp.net (replace $MyName with your own name). You should see the AhsayCBS web console. You can then login with the default username/password of system/system and use AhsayCBS as if it is installed on your own physical machine.

16. (Optional) You can customize the URL by creating a CNAME record in your domain record which points to the default ahsaycbs4*MyName*.cloudapp.net (replace $MyName with your own name) hostname. For example, add the following domain record to your DNS service,

```
cbs.company.com CNAME        ahsaycbs4$MyName.cloudapp.net
```

you can now access your AhsayCBS by http://cbs.company.com

Further Information

1. You can check all arguments available in each Azure Powershell Cmdlet by running
"Get-Help $AzurePowershellCmdlet -full", e.g. "PS C:\> Get-Help Add-AzureDisk -full".

2. You can harden the security of your AhsayCBS appliance running on Azure by restricting SSH access to your trusted IP addresses by using the "Set-AzureAclConfig" Azure Powershell Cmdlet. For example, to enable SSH access exclusively from a single IP address 1.2.3.4 and a class C IP subnet 1.2.3.0-1.2.3.255, please do the followings:

PowerShell commands to run:

```
PS C:\> $Acl1 = New-AzureAclConfig
PS C:\>
PS C:\> $TrustedIp1 = "1.2.3.4/32"
PS C:\> $TrustedIpDesc1 = "My trusted single IP address"
PS C:\> Set-AzureAclConfig -AddRule -ACL $Acl1 -Order 100 -Action permit -RemoteSubnet
>> $TrustedIp1 -Description $Trusted

IpDesc1

RuleId          :    0
Order           :    100
Action          :    permit
RemoteSubnet    :    1.2.3.4/32
Description     :    My trusted single IP address

PS C:\>
PS C:\> $TrustedIp2 = "1.2.3.0/24"
PS C:\> $TrustedIpDesc2 = "My trusted IP subnet"
PS C:\> Set-AzureAclConfig -AddRule -ACL $Acl1 -Order 101 -Action permit -RemoteSubnet
>> $TrustedIp2 -Description $Trusted

IpDesc2

RuleId          :    0
Order           :    100
Action          :    permit
RemoteSubnet    :    1.2.3.4/32
Description     :    My trusted single IP address
RuleId          :    1
Order           :    101
Action          :    permit
RemoteSubnet    :    1.2.3.0/32
Description     :    My trusted single IP address

PS C:\>
PS C:\> Get-AzureVM -ServiceName $ServiceName -Name $VMName `
>> | Set-AzureEndpoint -Name "SSH" -Protocol TCP -Localport 22 -PublicPort 22 -ACL $Acl1 `
>> | Update-AzureVM
>>

OperationDescription      OperationID                              OperationStatus
--------------------      -----------                              ---------------
Update-AzureVM            199fa23e-7fa0-579a-9cd9-02b524ccb1f7     Succeeded
```

3. You can obtain the Azure reserved IP address which preserves between reallocation by running
"Get-AzureReservedIp -ReservedIPName $ReservedIpName | Format-List Address", e.g. Get-AzureReservedIp -ReservedIPName ahsaycbs4company-reserved-ip | Format-List Address.

PowerShell commands to run:

```
PS C:\> Get-AzureReservedIp -ReservedIPName $ReservedIpName | Format-List Address

Address   :    1.2.3.4
```