

Installing N-central in Microsoft® Azure

This document describes how to create an Azure-based N-central installation starting with an N-central Azure Virtual Machine image file. The process includes the following steps:

- upload an image to Azure
- instantiate an Azure VM based on this image

Prerequisites

Ensure that you have:

- an Azure subscription
- a Windows-based PC loaded with:
 - PuTTY (or any Secure Shell client)
 - PowerShell with Azure extensions (if this is not done, there are some instructions included for setting this up)

Important Notes:

- N-central is certified to run on Azure. Performance and scalability testing will be complete by the end of 2015. Until that time, SolarWinds N-able recommends deployment on limited sized environments.
- Ensure they you have properly configured N-central before you begin. Refer to the N-central 10 System Requirements documented in the 10.0 SP1 release notes.
- SolarWinds N-able recommends that you plan your deployment with N-central Support. A license may need to be applied before you are able to log in to N-central.
- You must have basic knowledge about how to install and configure N-central. Refer to the *N-central Installation Guide*, version 10.0 SP1.



Creating an Azure-based N-central Installation

Note: This article describes how to install an N-central image for deployment in Azure. The article assumes general understanding and knowledge of Azure including network and hardware troubleshooting.

- 1. Use the VM install file image in NRC: Software Downloads → N-central 10 SP1.
- Set up the PowerShell and Azure environment. PowerShell commands are used to perform the Azure steps required to convert and upload the virtual machine image file and create an Azure cloud VM based on the image. Each step below requires PowerShell with Azure extensions installed on the working PC. Background for the environment set up can be found here: <u>https://azure.microsoft.com/en-us/documentation/articles/powershell-install-configure/</u>

Notes:

- You must have Administrator privileges for the Azure environment.
- Another method to launch PowerShell can be done via Start Menu > Right Click Azure PowerShell tile > Run as Administrator.
- You must download the image file N-central-x.x.x.vhd.gz. Extract this file and you will use the .vhd file in your Azure environment.
- a. For the PowerShell console, the following imports add the required PowerShell Azure modules previously installed (see above).

```
PS > Import-Module "C:\Program Files (x86)\Microsoft
SDKs\Azure\PowerShell\ServiceManagement\Azure\Azure.psd1"
PS > Import-Module "C:\Program Files (x86)\Microsoft
SDKs\Azure\PowerShell\ResourceManager\AzureResourceManager\AzureResourceManager.psd1"
       Azure Module Imports
       PS > Import-Module "C:\Program Files (x86)\Microsoft SDKs\Azure\PowerShell\ServiceManagement\Azure\Azure.psd1"
       PS > Import-Module "C:\Program Files (x86)\Microsoft SDKs\Azure\PowerShell\ResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManager\AzureResourceManag
    (i) Checkpoint Confirm Azure Environment
               Confirm settings by issuing the following commands:
                     PS > $PSVersionTable.PSVersion.Major
                      PS > (Get-Module azure).Version
                     Major Minor Build Revision
                      ----- ----- -----
                                 8 15 1
                      0
                  4
```

b. Connect the console to the Azure subscription.

Note: Alternative Method \rightarrow Download the encrypted credentials so you don't have to input credentials as a variable every time you launch PowerShell (however this may pose a security risk).

• Get-AzurePublishSettingsFile. In the Azure login you can download the credential file.



• Import-AzurePublishSettingsFile "C:\file.publishsettings" and use the "Get-AzureSubscription".

```
Azure Subscription

PS > Add-AzureAccount #Pops an Azure credentials window

PS > $sub = Get-AzureSubscription -ExtendedDetails

PS > Select-AzureSubscription -SubscriptionId $sub.SubscriptionId -Current
```

- c. There must be a network set up on the Azure account. If there isn't, refer to the steps in the following Azure document: https://azure.microsoft.com/en-us/documentation/articles/virtual-networks-create-vnet/
 - The name length is between 8 and 24 characters long.
 - The name must be unique and cannot be renamed.

```
      Set up Storage

      PS > $location = "central US" # use Azure region desired

      PS > $StoreAcctName = "ncentralstorage"

      PS > $StoreAcct = New-AzureStorageAccount -StorageAccountName $StoreAcctName -Location $location -Type "Standard_LRS"

      PS > $StoreAcct = New-AzureStorageAccountName $StoreAcctName).Primary

      PS > $StoreContext = New-AzureStorageContext -StorageAccountName $StoreAcctName -StorageAccountKey $StoreKey

      PS > $StoreContainerName = "ncentralstoragecon"

      PS > $StoreContainer = New-AzureStorageContainer -Name $StoreContainerName -Permission Container -Context $StoreContext

      Image: StoreContainer = New-AzureStorageContainer -Name $StoreContainerName -Permission Container -Context $StoreContext

      Image: StoreContainer = New-AzureStorageContainer

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      Image: StoreContainer

      Image: StoreContainer

      Image: StoreContainer

      Blob End Point: https://ncentralstorage.blob.core.windows.net/
```

The Storage type must support page blobs (VM storage) Premium Storage:

- Local Redundant
- Geo-Redundant
- Premium Locally Redundant (Only available on the DS-series VMs)

Note: The previous step provides you with a storage container. To change the storage container, use the command shown in the example below:

ActiveDirectoryUserId	: hdevadoss@swiengineering.onmicrosoft.com	
Account	: Microsoft.Azure.Common.Authentication.Models.AzureAccount	
Certificate	•	
AccountAdminLiveEmailId	: dev-grp-labmanagement@solarwinds.com	
CurrentCoreCount	: 24	
CurrentHostedServices	: 13	
CurrentDnsServers	: 0	
CurrentLocalNetworkSites	: 0	
CurrentVirtualNetworkSites	: 4	
CurrentStorageAccounts	: 15	
MaxCoreCount	: 10000	
MaxDnsServers	: 20	
MaxHostedServices	: 200	
MaxLocalNetworkSites	: 20	
MaxVirtualNetworkSites	: 50	
MaxStorageAccounts	: 100	
ServiceAdminLiveEmailId	: dev-grp-labmanagement@solarwinds.com	
SubscriptionRealName	: RDOps Azure Cloud	
SubscriptionStatus	: Active	
OperationDescription		
OperationId		
OperationStatus		
ServiceEndpoint	: https://management.core.windows.net/	
ResourceManagerEndpoint	: https://management.azure.com/	
GalleryEndpoint		
SubscriptionId	: 47f8e67f-7f14-4b12-9316-b8916b54c9df	
SubscriptionName	: RDOps Azure Cloud	
Environment		
SupportedModes	: AzureServiceManagement, AzureResourceManager	
DefaultAccount		
Accounts	: {hdevadoss@swiengineering.onmicrosoft.com}	
IsDefault	: True	
IsCurrent	: True	
CurrentStorageAccountName	: harincentralstorage5	
TenantId		

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ActiveDirectoryUseria	: ndevadosseswiengineering.onmicrosoft.com
Contificato	Firefosore, Azure, Comion, Auchenereaction, Moders, AzureAccounc
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ACCOUNTRACTION	t dev-grp-tabmanagementwsofarwinds.com
currentcorecount	
currenthostedservices	: 15
currentonsservers	1 9
currentLocalNetworkSites	1.0
CurrentVirtualNetworkSites	1 M -
CurrentStorageAccounts	: 16
MaxCoreCount	: 10000
MaxDnsServers	: 20
MaxHostedServices	: 200
MaxLocalNetworkSites	: 20
MaxVirtualNetworkSites	: 50
MaxStorageAccounts	: 100
ServiceAdminLiveEmailId	: dev-grp-labmanagement@solarwinds.com
SubscriptionRealName	: RDOps Azure Cloud
SubscriptionStatus	: Active
OperationDescription	
OperationId	
OperationStatus	
ServiceEndpoint	: https://management.core.windows.net/
ResourceManagerEndpoint	: https://management.azure.com/
GallervEndpoint	
SubscriptionId	: 47f8e67f-7f14-4b12-9316-b8916b54c9df
SubscriptionName	: RDOps Azure Cloud
Environment	
SupportedModes	AzureServiceManagement AzureResourceManager
DefaultAccount	
Accounts	{hdevadoss@swiencingering.comicrosoft.com}
IsDefault	: True
TsCurrent	· True
Furrent StorageAccountName	: harincentralstorage6
FenantId	

Afterwards, re-run this command:

PS > \$sub = Get-AzureSubscription -ExtendedDetails

3. Upload the VHD file to Azure and register it as an OS disk. This allows it to be used for VM creation in Azure.

Note: The upload URL is comprised of the *Blob End Point* concatenated with the folder name.

Helpful Tip: GUI apps will cause uploads to upload the entire 200GB image block-by-block. Microsoft recommends using PowerShell to upload data blocks without empty spaces.

VHD Upload to Azure

Azure VM Creation

```
PS > $DiskName = "ncdisk"
PS > $UploadURL = "https://ncentralstorage.blob.core.windows.net/uploads/ncentralVM"
PS > Add-AzureVhd -LocalFilePath $vhdPath -Destination $UploadURL -NumberOfUploaderThreads 5
PS > Add-AzureDisk -DiskName $DiskName -MediaLocation $UploadURL -Label $DiskName -OS Linux
```

4. Create the Azure service (unit of deployment) and VM.

PS > \$ServName = "ncentralserv0" # the service name forms part of the URL for accessing the VM PS > \$vmName = "ncentralvm0" PS > New-AzureService -ServiceName \$ServName -Location \$location PS > \$myVM = New-AzureVMConfig -DiskName \$DiskName -Name \$vmName -InstanceSize Large PS > Set-AzureSubnet -SubnetNames \$Subnet -VM \$myVM PS > New-AzureVM -ServiceName \$ServName -VNetName \$Network -VMs \$myVM

Note: In order for the use of \$Subnet and \$Network variables noted in the example above you will have to define them:

Example: \$network = "Group SWIENG-Dev-CentralUS SWIENG-DevNet-CentralUS" \$subnet = "subnet0"

The commands to create the VM can be used as written: (Set-AzureSubnet, New-AzureVM).

Note: InstanceSize should be the Azure Instance Size you selected for your region or storage type. For example: "Standard_DS2".

Azure VM Image Sizes

# of devices	Azure instance size [Virtualized Azure]	Optimal performance for up to		
1000 or less	Basic A2	1,000 Agents		
1,000 - 3,000	Standard A4 (8 Cores, 14 GB memory)	3,000 Agents		
3,000 - 6,000	Standard DS4 (8 Cores, 28 GB memory)	6,000 Agents		

Checkpoint VM Creation

Query the status of the new VM and allow a few minutes for the VM to appear in the cloud. Note the *IpAddress* and *DNSName* variables for reference when connecting to this server.

The following is an example of the typical output:



	✓ Collapse source
PS > Get-AzureVM -ServiceNam	ne \$ServName -Name \$vmName
DeploymentName	: ncentralserv0
Name	: ncentralvm0
Label	:
VM	: Microsoft.WindowsAzure.Commands.ServiceManagement.Model.PersistentVM
InstanceStatus	: ReadyRole
IpAddress	: 172.16.0.4
InstanceStateDetails	:
PowerState	: Started
InstanceErrorCode	:
InstanceFaultDomain	: 0
InstanceName	: ncentralvm0
InstanceUpgradeDomain	: 0
InstanceSize	: Large
HostName	:
AvailabilitySetName	:
DNSName	: http://ncentralserv0.cloudapp.net/
Status	: ReadyRole
GuestAgentStatus	: Microsoft.WindowsAzure.Commands.ServiceManagement.Model.GuestAgentStatus
ResourceExtensionStatusList	: {}
PublicIPAddress	:
PublicIPName	:
NetworkInterfaces	: {}
VirtualNetworkName	: Group SWIENG-Dev-CentralUS SWIENG-DevNet-CentralUS
ServiceName	: ncentralserv0
OperationDescription	: Get-AzureVM
OperationId	: cd77b2c331f3ce81a0dbb6e0e74417e2
OperationStatus	: OK

5. Configure the endpoints for the VM:

Azure VM Endpoints

```
PS > $myVM = Get-AzureVM -ServiceName $ServName -Name $vmName
PS > Add-AzureEndpoint -VM $myVM -Name "SSH" -Protocol "tcp" -PublicPort 22 -LocalPort 22 | Update-AzureVM
PS > Add-AzureEndpoint -VM $myVM -Name "HTTPS" -Protocol "tcp" -PublicPort 443 -LocalPort 443 | Update-AzureVM
PS > Add-AzureEndpoint -VM $myVM -Name "HTTP" -Protocol "tcp" -PublicPort 80 -LocalPort 80 | Update-AzureVM
PS > Add-AzureEndpoint -VM $myVM -Name "N-Able" -Protocol "tcp" -PublicPort 10000 -LocalPort 10000 | Update-AzureVM
```

Note:

- Set a reserved IP address for the VM. This reserves the VIP assignment if the VM powers off and de-allocates.
- Set an instance IP. This IP is the IP you want to use publically and to set in N-central. It **does not** use the Azure load balancer and allows full traffic to flow, including ICMP, which is not allowed using the VIP assignment/public DNS:

Instance level IP:

Get-AzureVM -ServiceName "fvc-cloud" -Name "fvc-noc" | Set-AzurePublicIP -PublicIPName instanceIp1 | Update-AzureVM



- Microsoft Azure wrantala@swiengineering.onmicrosoft.com ncentralvm2 Ø 42 DASHBOARD MONITOR ENDPOINTS CONFIGURE • DISK WRITE BYTES/SEC 2 MORE V RELATIVE V 7 DAYS 5.01 % CPU PERCENTAGE O DISK READ BYTES/SEC ~ U -00 Ð DB Jul 07 Jul 08 Jul 09 Jul 10 Jul 11 Jul 12 Jul 13 Jul 14 NAME SOURCE MIN MAX AVG TOTAL ALERT R... D P 4.43 % 4.71 % CPU Percentage ncentralvm2 5.01 % Not Configured \odot Disk Read Bytes... ncentralvm2 0 B/s 9.3 B/s 0.86 B/s Not Configured ----Disk Write Byte... ncentralvm2 21.48 KB/s 29.46 KB/s 25.54 KB/s Not Configured ₿Ъ 📀 Network In 13.88 MB 78.22 MB 321.04 KB 559.63 MB Not Configured ncentralvm2 Network Out 18.6 MB 79.31 MB 403.64 KB 703.61 MB X ncentralvm2 Not Configured ÷ NEW ?
- 6. After the VM is created in Azure, the Azure portal monitors the VM state, as shown below.

- 7. After you have everything set up in Azure, activate the N-central Server.
- 8. You must also set the Appliance Setting in your N-central instance for the probe/agent communication and to propagate any changes made to your Azure storage account.

To make the required change in N-central, navigate to **Administration** \rightarrow **Defaults** \rightarrow **Appliance Settings** and add the Azure VM URL produced in Step 5 (specifically from the DNSName variable).

The following is an example of this change:



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SYSTEM		💲 APPLIANCE SET	TINGS			
Views	× ^ Comm	unication Settings Upgra	des Credentials	Network	Agent Probe	Mobile Agent
Active Issues All Devices Job Status Attended Remote Cont	CON Proto	IMUNICATION SETTIN	GS	Propag	ate 🝞	
⑦ Dashboards	>	ADD DELETE	ntralserv6.cloudapp.net	~		
	•		128.6			
🗄 Reports	•					
🕐 My Links				~		
© Configuration	> Port N	Number: 443				
Administration	~ Proxy	Settings:				
Branding Certificate Managemen Custom Device Propert Defaults Appliance Settings Backup and SNMP Defaults Backup Share Customized System Data Retention Device Defaults Discovery Defaults Network Share Notification Templa	t ies Email					

Note: If the VM is powered off in Azure, it will be unallocated. Powering it back up will cause N-central to require re-activation.

Licensing and Support Information

Agent/Probe Installation Software

N-central 10.x uses the 7-Zip file archiver for installing agents and probes. 7-Zip is free software redistributed under the terms of the GNU Lesser General Public License as published by the Free Software Foundation. For more information, see <u>http://www.7-zip.org</u>.

Customer Support

Toll Free: 1-866-302-4689

Web Page: <u>www.n-able.com</u>

Technical Support Self-Service Portal: http://www.n-able.com/support/

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About SolarWinds N-able

SolarWinds N-able is the global leader in remote monitoring and management software for managed service providers and IT departments. SolarWinds N-able's award-winning N-central platform and complementary toolsets, backed by best-in-class business and technical services, are proven to reduce IT support costs, improve network performance and increase productivity through the proactive monitoring, management and optimization of IP-enabled devices and IT infrastructure. SolarWinds N-able is 100% channel-friendly and maintains operations in North America, the U.K., the Netherlands and Australia.