

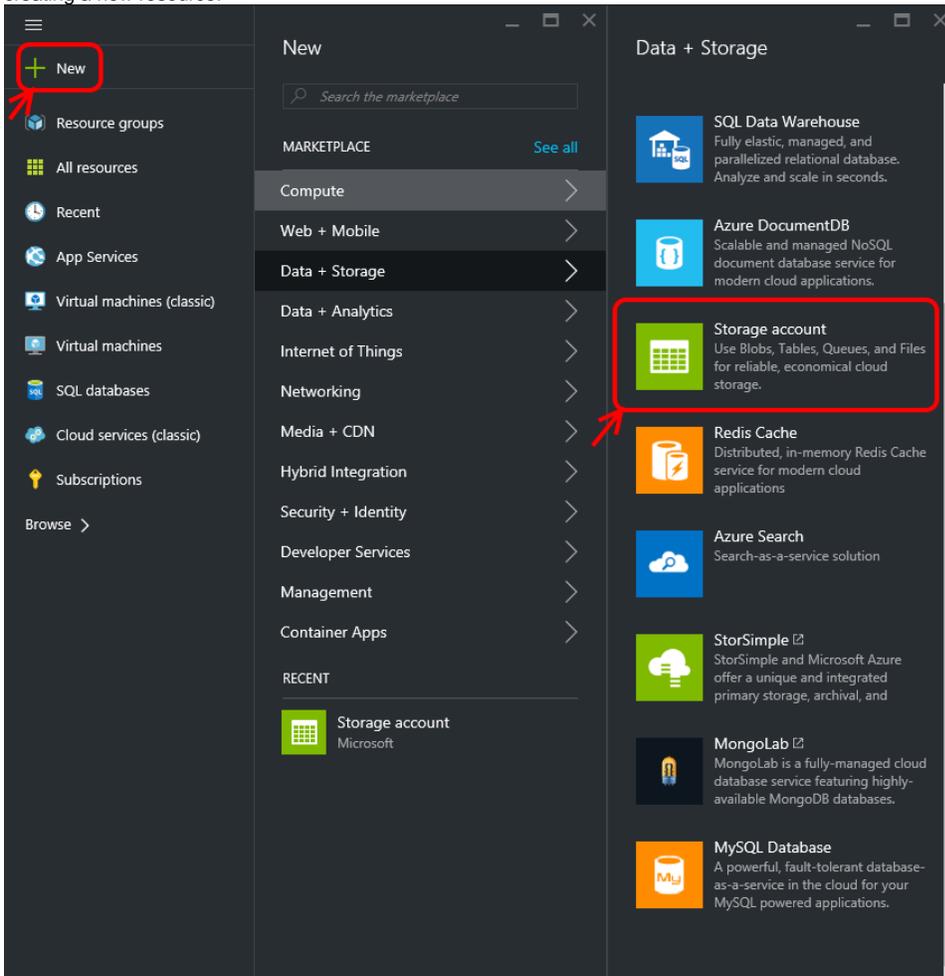
Deploy Nexthink in Azure

Introduction

In order to support the installation of Nexthink on Azure, Nexthink provides a VHD (Virtual hard disk) file of the Nexthink Appliance, some manual steps are required. The documentation heavily relies on Microsoft official documentation. Furthermore, it is **mandatory** to apply the Security Hardening guide once your appliance is running, because it will be Internet facing (beginning from 6.17, this step can be automated).

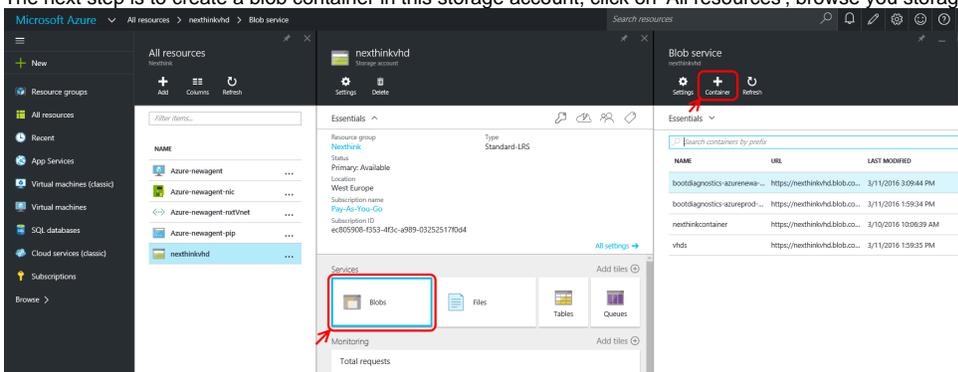
Setup your Azure account

- Your Azure account must have at least the 'Contributor' role in order to proceed with the installation, please check with the IT department of your organization to gain the appropriate rights.
- In order to access to Azure Portal, Microsoft recommends using Internet Explorer or Microsoft Edge, you may need to 'allow azure to use local storage' in your browser' if you are notified so
- Make sure you have a storage account for your subscription, and a blob container for this storage account , you can do that in the Azure Portal by creating a new resource:



- The storage container should be created with 'Account kind': General purpose

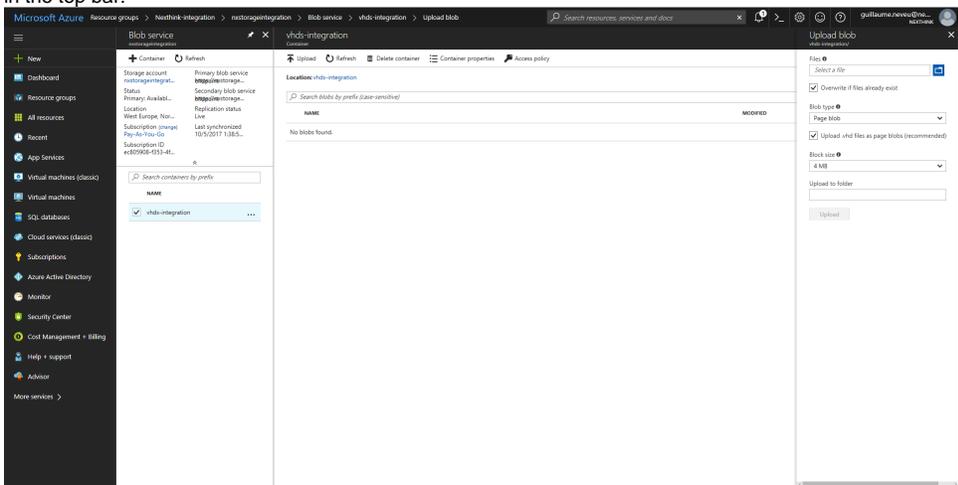
- The next step is to create a blob container in this storage account, click on 'All resources', browse you storage account and select 'add container':



- Choose a name , select Blob access type and press 'Create button'
- NB:** This is a basic first setup if you don't have already any Azure environment, in some infrastructures, it is possible to have several Resource groups depending on the resource type, see the script description below to configure that

Upload the Vhd

- To upload the VHD to azure, the easiest is to go through the Web UI of Azure:
- In the resource group you use for storage go to Resource_group_name > storage_account_name > container_name and click on Upload button in the top bar:



- Make sure Blob type is set to Page blob in the advanced properties and click on the Upload button

Instantiate one or several new VMs

It is now possible to create an Azure managed disk from a VHD directly from the Azure UI:

- From the [Azure portal](#), on the left menu, select All services.
- In the All services search box, enter disks and then select Disks to display the list of available disks.
- Click on Add to create a new managed disk
 - Select the resource group you just created
 - For The source type, choose Storage Blob and for Source blob browse to the VHD image you just uploaded
 - for OS type, choose Linux
 - Choose a disk size (this will be the disk size for the OS disk only, we recommend choosing at least 15GB).
- If you don't have already an existing one, create a new Virtual network <https://docs.microsoft.com/en-us/azure/virtual-network/quick-create-portal>
- If you don't have already an existing one, create a network Security group and ensure all the Nextthink required ports are configured: <https://docs.microsoft.com/en-us/azure/virtual-network/manage-network-security-group>
- Create a Network interface : <https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-network-interface>
 - you may choose Dynamic IP address assignment
 - Assign the desired Network security group (this can also be done at subnet level)
 - ensure it goes to the resource group that you created before
- Depending on your existing environment, you may have already VPN access to the Azure environment, if this is not the case and if the VM should be Internet-facing, Create a public IP address: <https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-public-ip-address>.
 - Nextthink recommends to use a static IP address
- create an Azure managed disk that will be used as a data disk: <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/attach-managed-disk-portal> (Don't go through the VM disk attach yet)
 - Select the resource group you just created
 - For the source type, select Empty
 - Choose a disk size (please refer to Nextthink Hardware requirements to determine the disk size)

- Now you have all the base elements to create the Virtual Machine, you can proceed to its creation by executing the steps from the section "Create a VM from a disk" on <https://docs.microsoft.com/en-us/azure/virtual-machines/windows/create-vm-generalized-managed>
 - Choose the Resource group you created previously
 - Select the VM size based on Nextthink Hardware requirements
 - In the Inbound port rules, leave None, we will select a more granular configuration in the network tab
 - On the "Disks" tab, select "Attach an existing disk" from the Data disks section and browse to the data disk you just created, make
 - On the "Networking" tab, select "Advanced" for NIC network security group and pick the Network security group you created previously
 - Configure the other tabs to your convenience, then click "Review+create", review your VM configuration and press "Create" to initiate VM creation

Repeat all those steps for any other Nextthink Appliance you want to instantiate.

- Nota bene:** It is worth noticing that by default all machines in same Vnet will be able to connect to each other, if you wish to put machines on different Vnet, you need to ensure the connectivity between the different virtual networks of your infrastructure, this is highly documented by Microsoft (please review [this article](#))

Extend the base OS disk

The VHD default size is restricted to its minimal value in order to make the file transfers faster, however, as specified in the previous section, we recommend using a disk of at least 15 GB for the OS disk, the main OS partition must be extended to take advantage of the maximum disk capacity, to do so:

- Run the lsblk command to identify the disk identifier of the OS disk, in most of the cases, it should be /dev/sda:

```
sda                8:0    0   15G  0 disk
|-sda1             8:1    0    1M  0 part
|-sda2             8:2    0 1000M  0 part /boot
`-sda3             8:3    0   6.9G  0 part
  `--nxt-root      253:0   0   6.9G  0 lvm  /
```

- What we want is to extend the main OS partition, which is here /dev/sda3 or nxt-root LVM volume, run the following commands sequence (given that the OS partition is number 3 on disk /dev/sda):

```
sudo parted --script /dev/sda resizepart 3 100%
sudo pvresize /dev/sda3
sudo lvresize -l +100%FREE /dev/nxt/root
resize2fs -p /dev/nxt/root
```

- You can now check the root partition disk is using the whole size of the disk by using lsblk:

```
sda                8:0    0   15G  0 disk
|-sda1             8:1    0    1M  0 part
|-sda2             8:2    0 1000M  0 part /boot
`-sda3             8:3    0   14G  0 part
  `--nxt-root      253:0   0   14G  0 lvm  /
```

Format the data disk to the VM

- Now that the VM was created, Azure should have allocated a public IP address to it, it is visible in the VM properties (ignore this if you use a VPN connection to your Azure environment):

The screenshot shows the Azure portal interface for a virtual machine. The left sidebar contains navigation options like 'Subscriptions', 'Activity log', and 'Access control (IAM)'. The main content area is divided into 'Essentials' and 'Monitoring'. Under 'Essentials', the VM's name is 'Nextthink', it is running in the 'West Europe' region, and has a public IP address of '52.166.199.176'. The 'Monitoring' section displays a 'CPU percentage' graph with a scale from 0% to 100%.

- Now login in SSH:

```
ssh nexthink@<VM public IP>
```

Alternatively, you can use your favorite SSH client in order to connect via SSH (e.g. PuTTY).

- Check the list of disks and partitions by running the command `'lsblk'`, the data disk `/dev/sdc` should appear having the size you specified:

```
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
fd0 2:0 1 4K 0 disk
sda 8:0 0 6G 0 disk -----> this should be the OS disk
sda1 8:1 0 1000M 0 part /boot
sda2 8:2 0 5G 0 part /
sdb 8:16 0 135G 0 disk -----> this should be swap disk automatically allocated by Azure
sdb1 8:17 0 135G 0 part /mnt/resource
sdc 8:32 0 40G 0 disk -----> here is your data disk
sr0 11:0 1 1.1M 0 rom
```

- The disk is created but it still has to be partitioned before being used, a script `formatDataDisk.sh` should be present in the `/root` folder of the Appliance (if it is not present there, it should be in the `/tmp` folder), run it:

```
sudo /root/formatDataDisk.sh /dev/sdc
```

- This script is doing the following:
 - create an empty partition on `/dev/sdc`
 - create a new LVM volume group and add the partition `/dev/sdc1` to this group
 - create a logical volume taking 100% of the free space of the newly created volume group
 - create an EXT4 filesystem on this new logical volume
 - add an entry in `/etc/fstab` file and mount the disk on `/var/nexthink`
- If everything completed normally, now when running the command `df -ah`, you should see the size of the data disk you created allocated in `/var/nexthink`: (30 GB in the below example)

Filesystem	Size	Used	Avail	Use%	Mounted on
rootfs	-	-	-	-	/
sysfs	0	0	0	-	/sys
proc	0	0	0	-	/proc
devtmpfs	1.7G	0	1.7G	0%	/dev
securityfs	0	0	0	-	/sys/kernel/security
tmpfs	1.7G	0	1.7G	0%	/dev/shm
devpts	0	0	0	-	/dev/pts
tmpfs	1.7G	8.3M	1.7G	1%	/run
tmpfs	1.7G	0	1.7G	0%	/sys/fs/cgroup
cgroup	0	0	0	-	/sys/fs/cgroup/systemd
pstore	0	0	0	-	/sys/fs/pstore
cgroup	0	0	0	-	/sys/fs/cgroup/cpu,cpuacct
cgroup	0	0	0	-	/sys/fs/cgroup/memory
cgroup	0	0	0	-	/sys/fs/cgroup/devices
cgroup	0	0	0	-	/sys/fs/cgroup/perf_event
cgroup	0	0	0	-	/sys/fs/cgroup/cpuset
cgroup	0	0	0	-	/sys/fs/cgroup/freezer
cgroup	0	0	0	-	/sys/fs/cgroup/hugetlb
cgroup	0	0	0	-	/sys/fs/cgroup/net_cls
cgroup	0	0	0	-	/sys/fs/cgroup/blkio
configfs	0	0	0	-	/sys/kernel/config
/dev/mapper/nxt-root	2.8G	2.1G	461M	83%	/
systemd-1	-	-	-	-	/proc/sys/fs/binfmt_misc
hugetlbfs	0	0	0	-	/dev/hugepages
debugfs	0	0	0	-	/sys/kernel/debug
mqueue	0	0	0	-	/dev/mqueue
/dev/sda2	969M	55M	848M	7%	/boot
/dev/mapper/nxtdatapool-nxtdata	30G	244M	28G	1%	/var/nexthink
binfmt_misc	0	0	0	-	/proc/sys/fs/binfmt_misc
/dev/sdb1	133G	2.1G	124G	2%	/mnt/resource
tmpfs	345M	0	345M	0%	/run/user/1000

- Your data disk is now mounted and usable

Configure static private IP

Although the public IP is created as static by default, we need to have a default dynamic private IP address for the VHD installation process. It as to be changed to Static private IP as a DHCP lease expiration for either Portal or Engine could result in problems with the federation or connectivity between the Portal and the Engine.

In order to do so:

- Select your VM from the Virtual machines tab
- go to Networking
- select the network interface of the machine
- select "IP configurations"
- select the default ip configuration assigned to this interface
- select "Static" and pick an IP address that belongs to the space of the vnet the network interface is connected (if you wish so can actually keep the same IP as the one that was given by the DHCP server)
- click on Save and wait few minutes for Azure to reconfigure the VM
- NB: you only set here
- **!WARNING!** : Do not edit the network configuration from the Webconsole as you would do on an onpremise installation, this can result in a total loss of connectivity of the machine, thus making it completely unusable as we only have SSH access to it

Install Nexthink on the VM

- Transfer the installation package '*Nexthink-offline-install-6.X.tgz*' to the VM using your favorite SCP client. Please visit [Nexthink Product Downloads page](#) to get the installation package **for Cloud**.
- now, unpack the installation package:

```
tar -xzf Nexthink-offline-install-6.X.tgz
```

- the script '*installNexthinkInCloud.sh*' takes two optional parameters: -p to install the Portal, -e to install the engine, depending on what you want on this Appliance:

```
sudo sh installNexthinkInCloud.sh -p -e
```

- Nexthink is now installed, you may wish to check if the components are up & running:
 - Engine:

```
nxinfo info
```

- Portal:

```
sudo systemctl status nxportal
```

- Or the Portal by connecting to <https://<your public ip>> (please note that Portal can take some that to start, you can monitor the logs in */var/nexthink/portal/logs* - you also need to ensure that port 443 was allowed in your network security group configuration).
- As written in the security hardening guide, you can now change the default password for the Webconsole and the Portal and make sure that all the steps of the guide are **strictly** followed.

Important configuration notes:

Compared to a standard installation of Nexthink, the fact that the Appliance(s) is(are) facing Internet on one side and facing an internal network on another side must be taken into account. Notably regarding the Portal Engine Configuration. The Internal IP/DNS Name of the machines must be used when configuring:

- Internal and External DNS in the webconsole parameters section
- Portal IP/hostname in the Engine's webconsole
- Engine hostname in the Portal Engine configuration tab (**here it must be a hostname such as this host will be resolved as the Engine's internal IP address by the Portal machine and it will be resolved as engine's external IP address on the machine using the Finder, this is important so that the Finder can have access to the engine - You can also configure the /etc/hosts file on the Portal machine to make the engine hostname resolve to the internal IP of the engine or use DNS servers**).

Security Hardening

Now that your Appliance is facing Internet, it is **mandatory** to change the password of the root account as well as for the nextthink account, this can be done using the CLI:

```
sudo passwd root
sudo passwd nextthink
```

Or simply after the first login on the webconsole, it will ask you to change the default webconsole password and also the password of the nextthink support account.

At this stage, main Nextthink ports are closed by default, thus you have to apply the security hardening, starting with 6.17, this step is automated, from the CLI , you must run:

```
sudo nxhardening
```

Current limitations

With the current version of Nextthink Product, we have the current limitations with respect to installations on Microsoft Azure:

- Some of the files that the Nextthink Solution is using are stored in a specific folder and, depending on the customer configuration, could end up in being very big (especially for the appliance running the Portal). As Azure comes with predefined configurations, it might happen that the customer needs to choose (and pay) for a configuration that is not adapted in terms of RAM and CPU just in order to cope with the requirement in terms of disk size.

Reference:

<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/create-vm-specialized-portal>