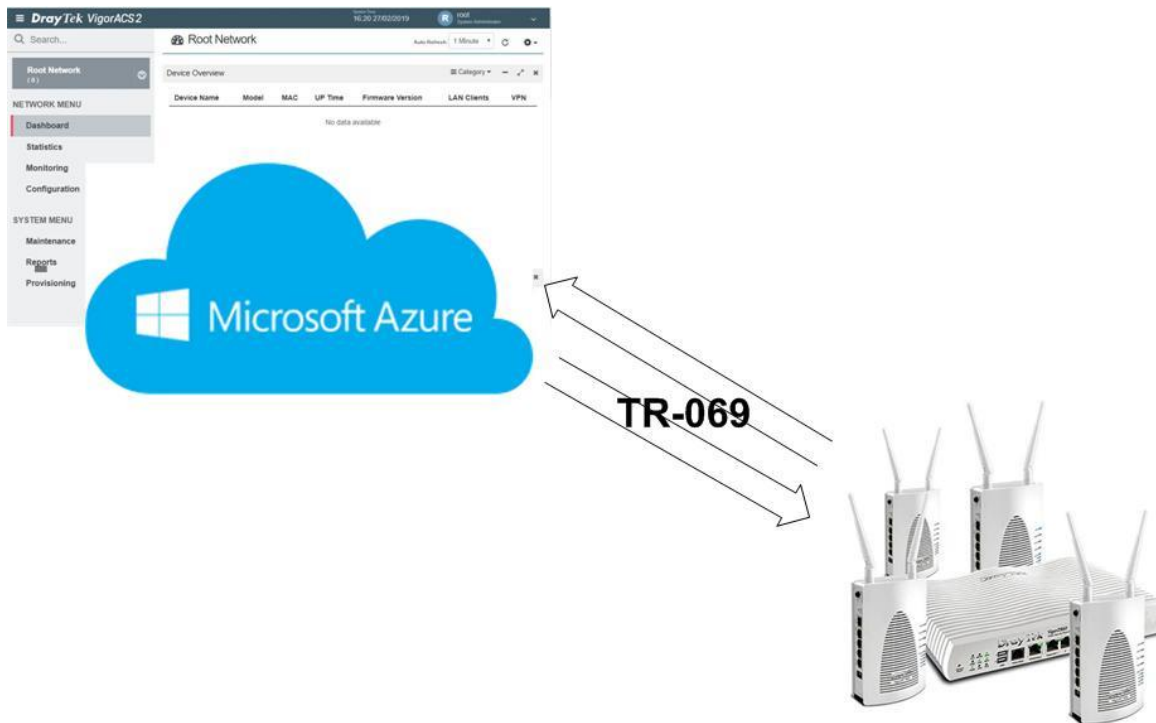


How to install Vigor ACS2 in Microsoft Azure

VigorACS 2 is a TR-069 based centralised management system for DrayTek's Vigor devices. It is a management tool that would help Network Engineers and Systems Integrators to configure, monitor and manage DrayTek devices remotely from the comfort of their offices or homes.

Microsoft Azure allows you to set up a cloud-based management system running VigorACS 2.

This guide shows you on how to install VigorACS 2 in Linux CentOS 7.6 using Microsoft Azure as our infrastructure server.



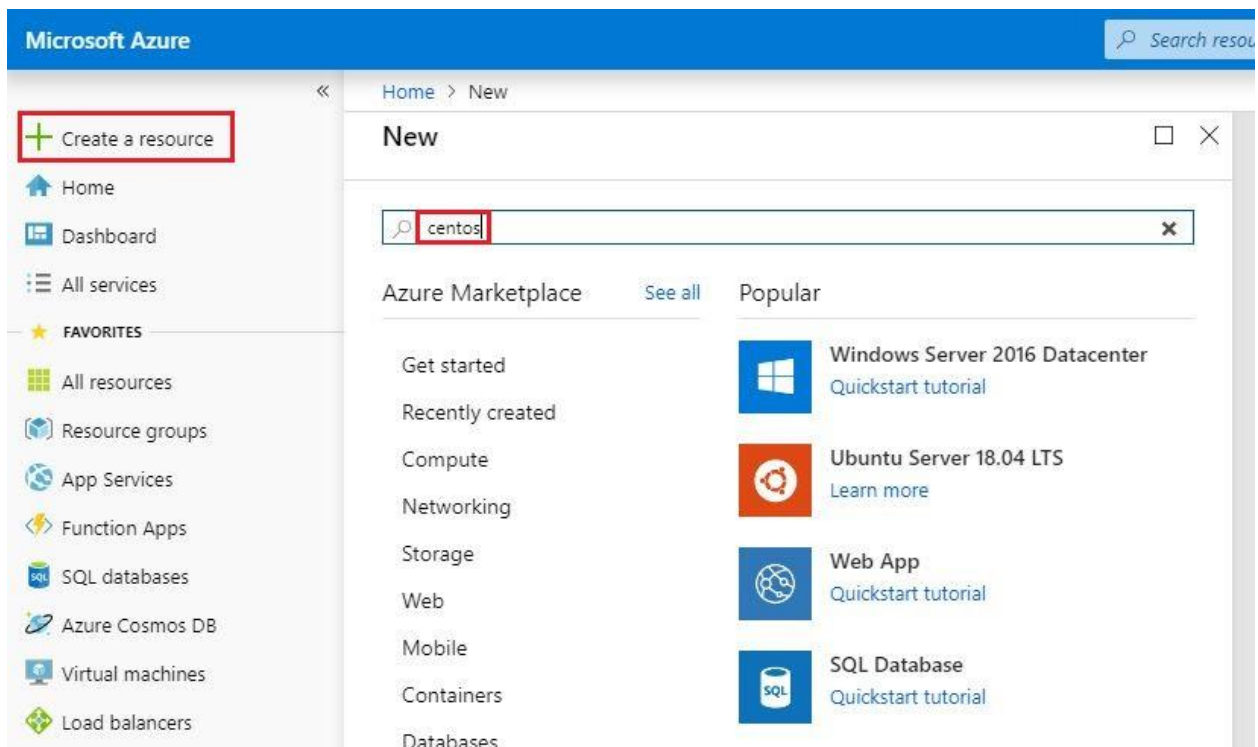
- I. Accessing Microsoft Azure.
 - a. Go to **<https://portal.azure.com/#home>**.



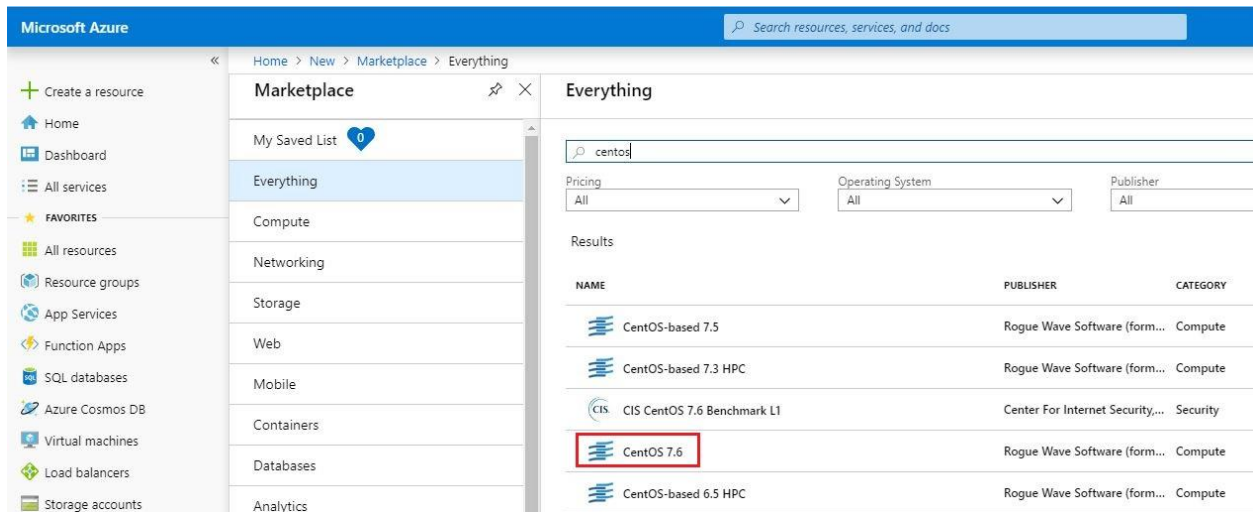
- b. Login using your Microsoft Azure account.



- II. Creating a Virtual Machine Instance.
 - a. Select **“Create a resource”** and search **“centos”**.



- b. Select **“CentOS 7.6”**.



- c. Enter the following below:
 - Subscription: **Free Trial**
 - Resource group: **VigorACS2**
 - Virtual machine name: **vigoracs2**
 - Region: Australia Southeast
- d. Select **“Change size”** to allocate vcpus and memory.
- e. Select **“Password”** and enter username/password, then select **“Next:Disks”**.

Microsoft Azure Search resources, services, and docs

Home > New > Marketplace > Everything > CentOS 7.6 > Create a virtual machine

Create a virtual machine

Warning: Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

your resources.

- * Subscription: Free Trial
- * Resource group: (New) VigorACS2 [Create new](#)

INSTANCE DETAILS

- * Virtual machine name: vigoracs2
- * Region: Australia Southeast
- Availability options: No infrastructure redundancy required
- * Image: CentOS 7.6 [Browse all images and disks](#)
- * Size: **Standard B2s**
2 vcpus, 4 GB memory. [Change size](#)

ADMINISTRATOR ACCOUNT

Authentication type: Password SSH public key

- * Username: support_ilan
- * Password:
- * Confirm password:

INBOUND PORT RULES

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

* Public inbound ports: None Allow selected ports

[Review + create](#) [Previous](#) [Next : Disks >](#)

f. Select OS disk type as **“Standard HDD”** and click **“Next:Networking”**.

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Disks' step. The breadcrumb navigation at the top reads: Home > New > Marketplace > Everything > CentOS 7.6 > Create a virtual machine. The left sidebar contains navigation options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area has tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Advanced', 'Tags', and 'Review + create'. Below the tabs, there is a text block explaining that Azure VMs have one operating system disk and a temporary disk, and that the VM size determines the storage type and number of data disks. The 'DISK OPTIONS' section includes a dropdown menu for 'OS disk type' set to 'Standard HDD', with a note that premium disks are recommended for high IOPS workloads. Below this is a radio button selection for 'Enable Ultra SSD compatibility (Preview)' set to 'No'. The 'DATA DISKS' section includes a table with columns for LUN, NAME, SIZE (GiB), DISK TYPE, and HOST CACHING, and two buttons: 'Create and attach a new disk' and 'Attach an existing disk'. An 'ADVANCED' section is partially visible with a radio button for 'Use managed disks' set to 'Yes'. At the bottom, there are three buttons: 'Review + create', 'Previous', and 'Next: Networking >', with the 'Next' button highlighted by a red box.

- g. Under **“Public inbound ports”**, select **“Allow selected ports”** and choose **HTTP, HTTPS, SSH** and then **“Next: Management”**.

Microsoft Azure Search resources, services, and docs

Home > New > Marketplace > Everything > CentOS 7.6 > Create a virtual machine

Create a virtual machine

Basics | Disks | **Networking** | Management | Advanced | Tags | Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

NETWORK INTERFACE
When creating a virtual machine, a network interface will be created for you.

CONFIGURE VIRTUAL NETWORKS

* Virtual network **(new) VigorACS2-vnet** ▼
[Create new](#)

* Subnet **(new) default (10.0.0.0/24)** ▼

Public IP **(new) vigoracs2-ip** ▼
[Create new](#)

NIC network security group None **Basic** Advanced

* **Public inbound ports** None **Allow selected ports**

* Select inbound ports **HTTP, HTTPS, SSH** ▼

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

Accelerated networking On Off The selected VM size does not support accelerated networking.

LOAD BALANCING
You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution? Yes No

[Review + create](#) [Previous](#) [Next: Management >](#)

h. Leave everything in default settings and select **“Next:Advance”**.

Create a virtual machine

Basics Disks Networking **Management** Advanced Tags Review + create


Configure monitoring and management options for your VM.

AZURE SECURITY CENTER



Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

✔ Your subscription is protected by Azure Security Center basic plan.


MONITORING

Boot diagnostics  On Off

OS guest diagnostics  On Off

* Diagnostics storage account  
[Create new](#)

IDENTITY

System assigned managed identity  On Off

AUTO-SHUTDOWN

Enable auto-shutdown  On Off

BACKUP

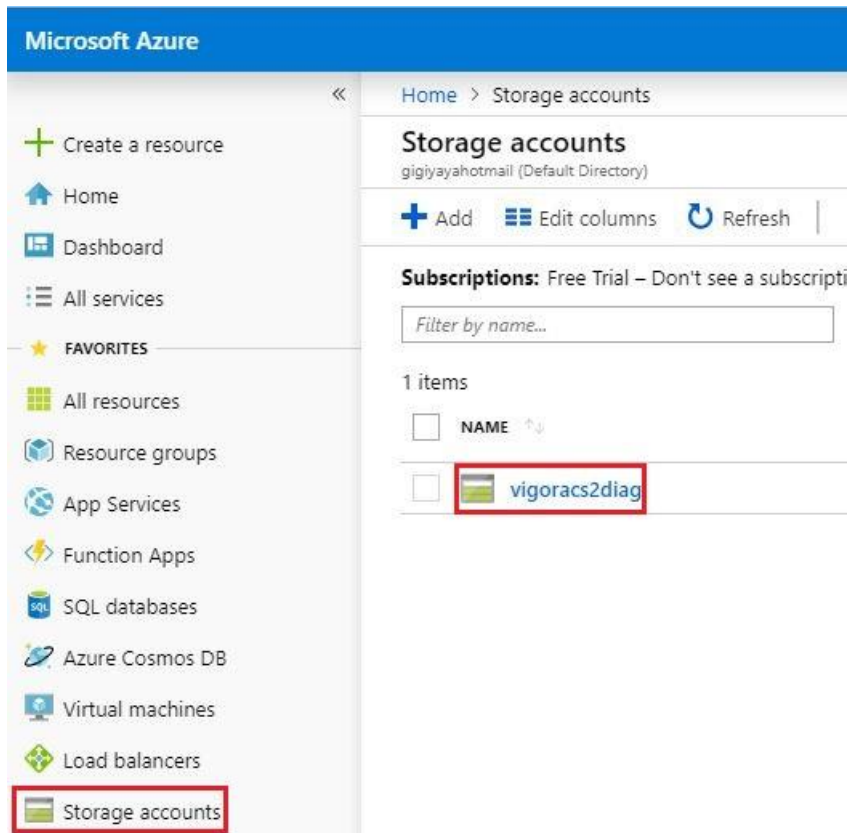
Enable backup  On Off

Review + create

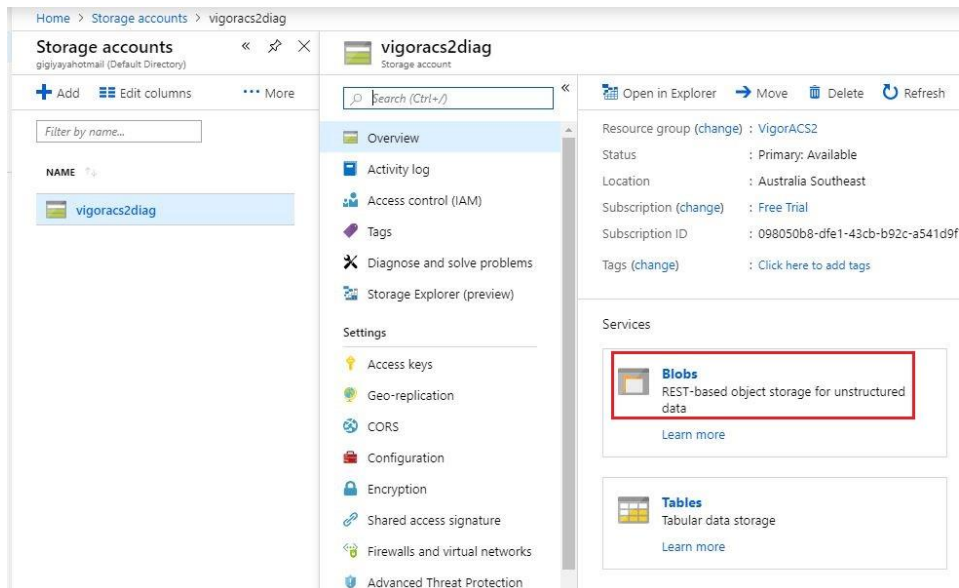
Previous

Next : Advanced >

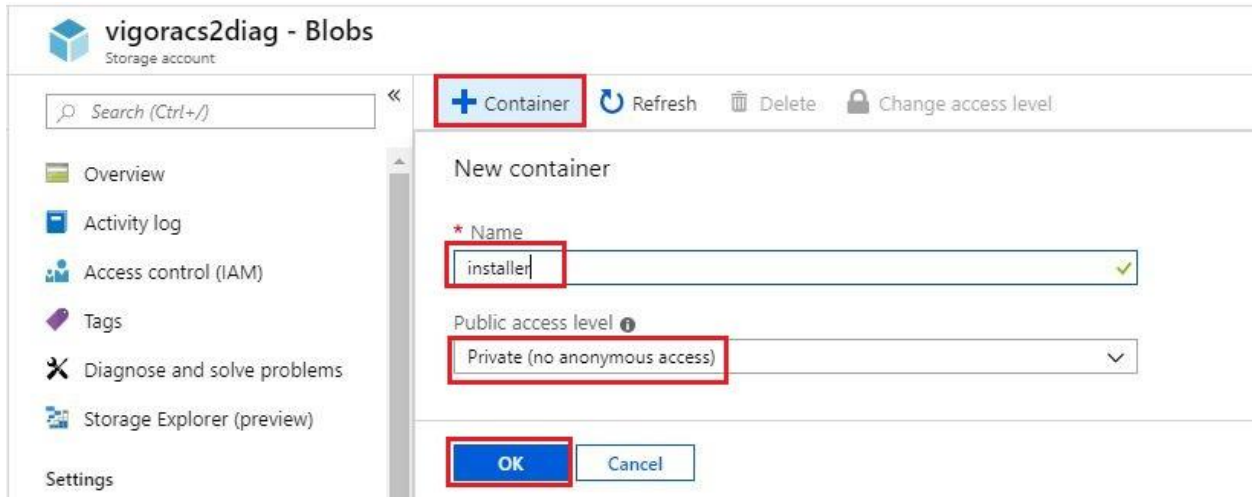
- III. Creating a storage Blob in Microsoft Azure and upload Vigor ACS2 installer.
 - a. Go to **Storage accounts**>>**vigoracs2diag**



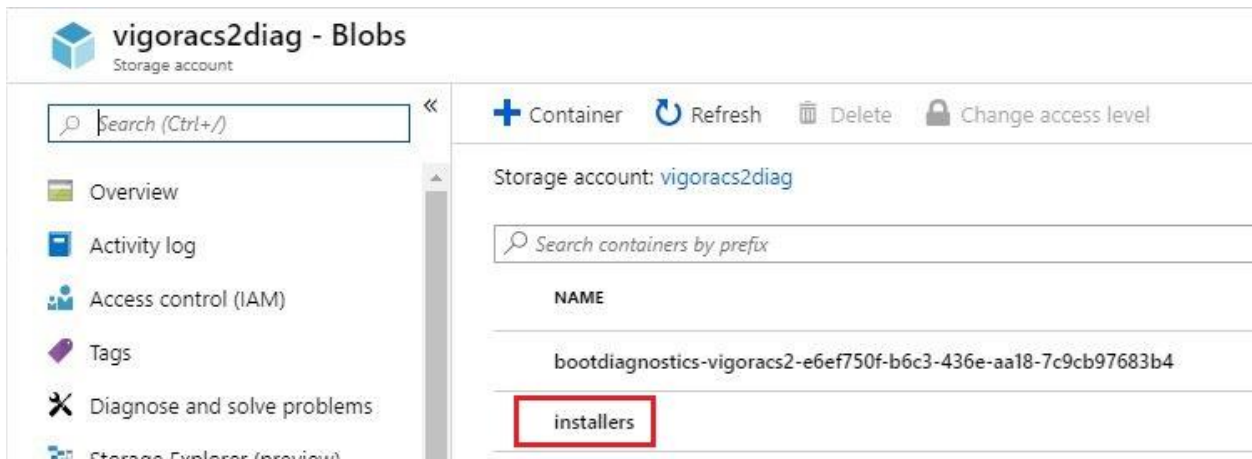
b. Select **“Blob”**.



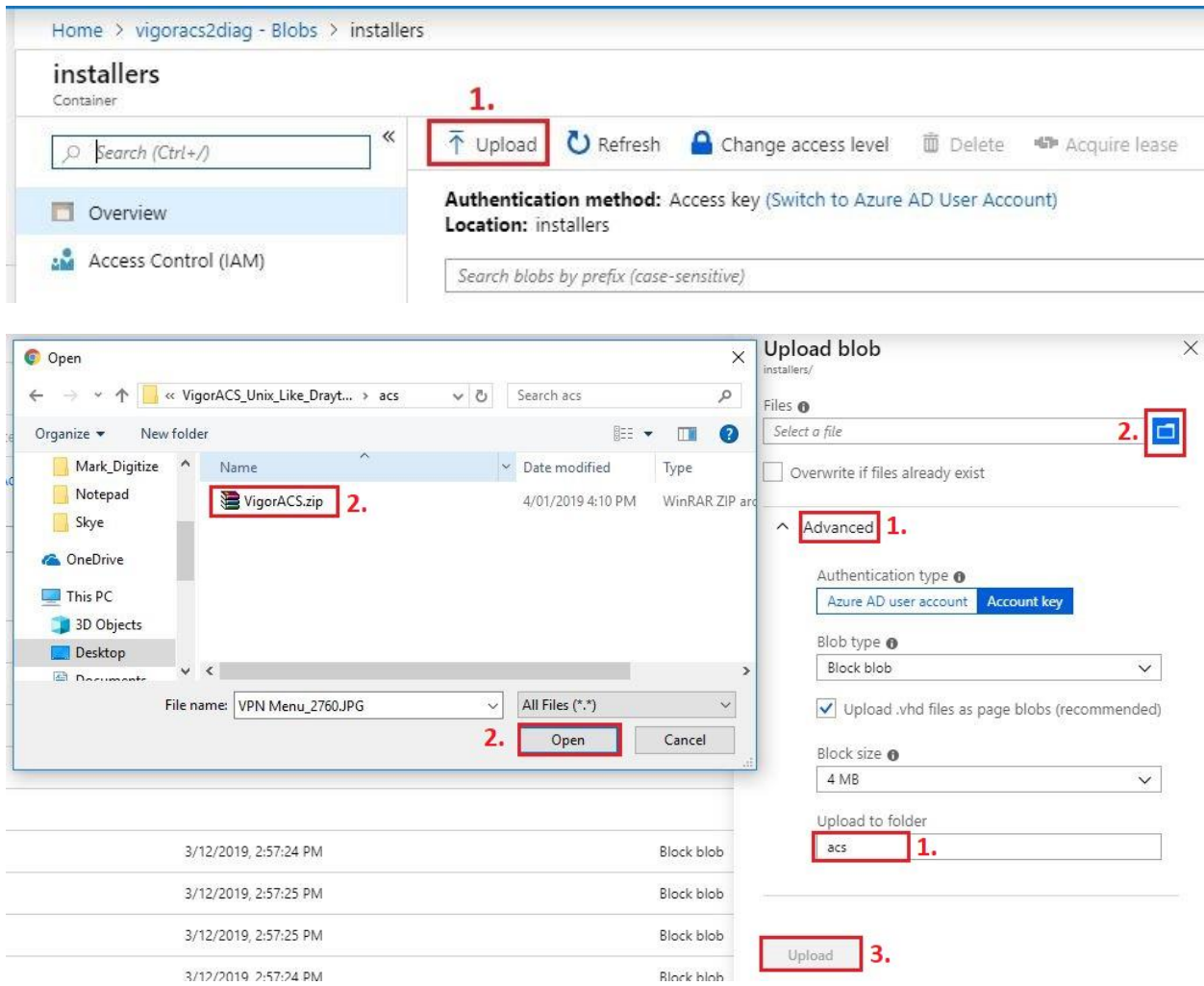
- c. Select **“Container”**, enter name as **“installer”** and select **“Private (no anonymous access)”**.



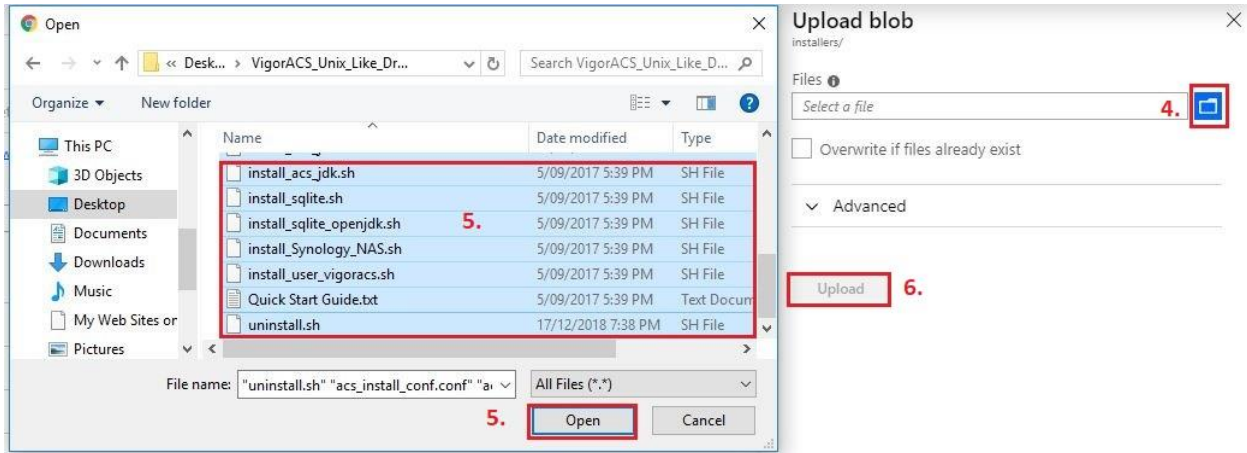
- d. Select **“installers”**.



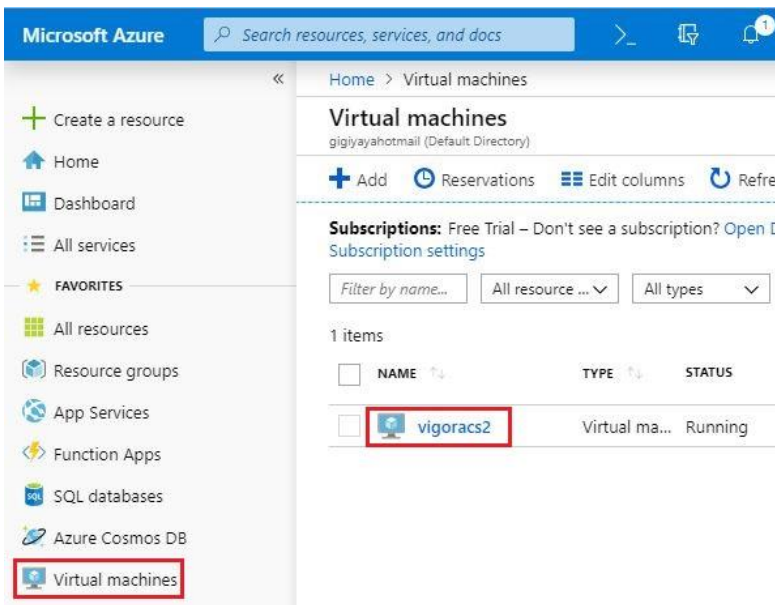
- e. To upload the files inside a folder, we will need to create the same folder name in the Blob container.
1. Select **“Upload”**, **“Advance”** and enter the folder name **“acs”**.
 2. Click the **folder icon** to browse the files to be uploaded. Select the file inside acs folder from your local computer and click **“Open”**.
 3. Click **“Upload”** to create the folder **“acs”** and to save the files inside the folder.



- f. To upload files into the Microsoft Azure container:
4. Click the *folder icon* to browse the files to be uploaded.
 5. Select the files and click **“Open”**.
 6. Click **“Upload”**.



- IV. Set the VM instance IP address to static.
 - a. Go to **Virtual machines** and select **vigoracs2**.



- b. Select **“Networking”** and IP address **52.x.x.x**.

Home > vigoracs2 - Networking

vigoracs2 - Networking
Virtual machine

Search (Ctrl+/)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Settings

- Networking**
- Disks

Attach network interface Detach network interface

Network Interface: vigoracs2904 Effective security rules Topology

Virtual network/subnet: VigorACS2-vnet/default Public IP: 52.231.10.10 Private IP: 10.0.0.4

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group vigoracs2-nsg (attached to network interface: vigoracs2904)
Impacts 0 subnets, 1 network interfaces

PRIORITY	NAME	PORT
300	HTTP	8844
320	HTTPS	8443

c. Select **“Static”** and **“Save”**.

Home > vigoracs2 - Networking > vigoracs2-ip - Configuration

vigoracs2-ip - Configuration
Public IP address

Search (Ctrl+/)

- Overview
- Activity log
- Access control (IAM)
- Tags

Settings

- Configuration**
- Properties
- Locks
- Export template

Support + troubleshooting

- New support request

Save Discard

Assignment

Dynamic **Static**

IP address 52.231.10.10

Idle timeout (minutes)

DNS name label (optional)

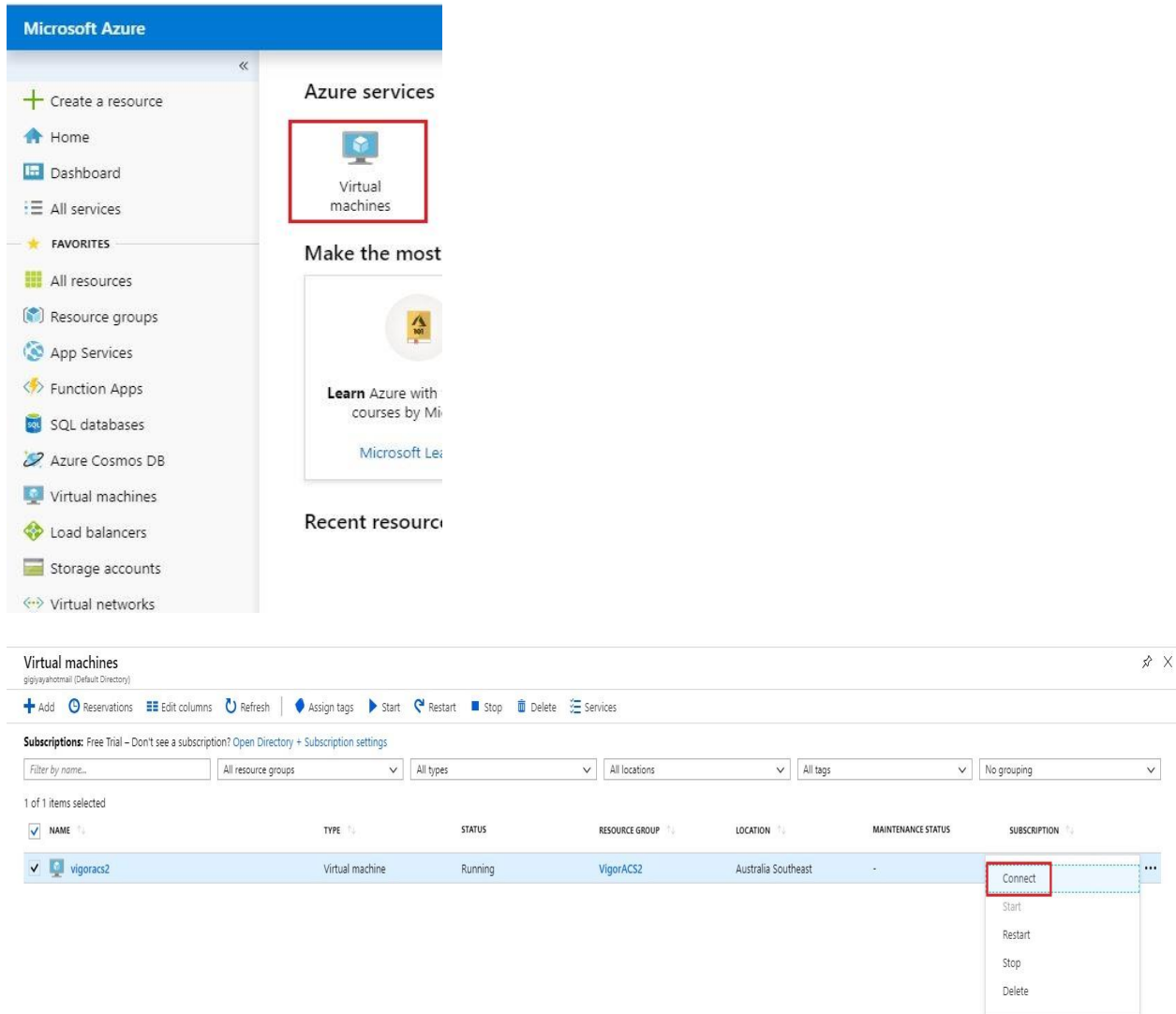
Alias record sets

Want to closely track this Public IP address? Create an alias record

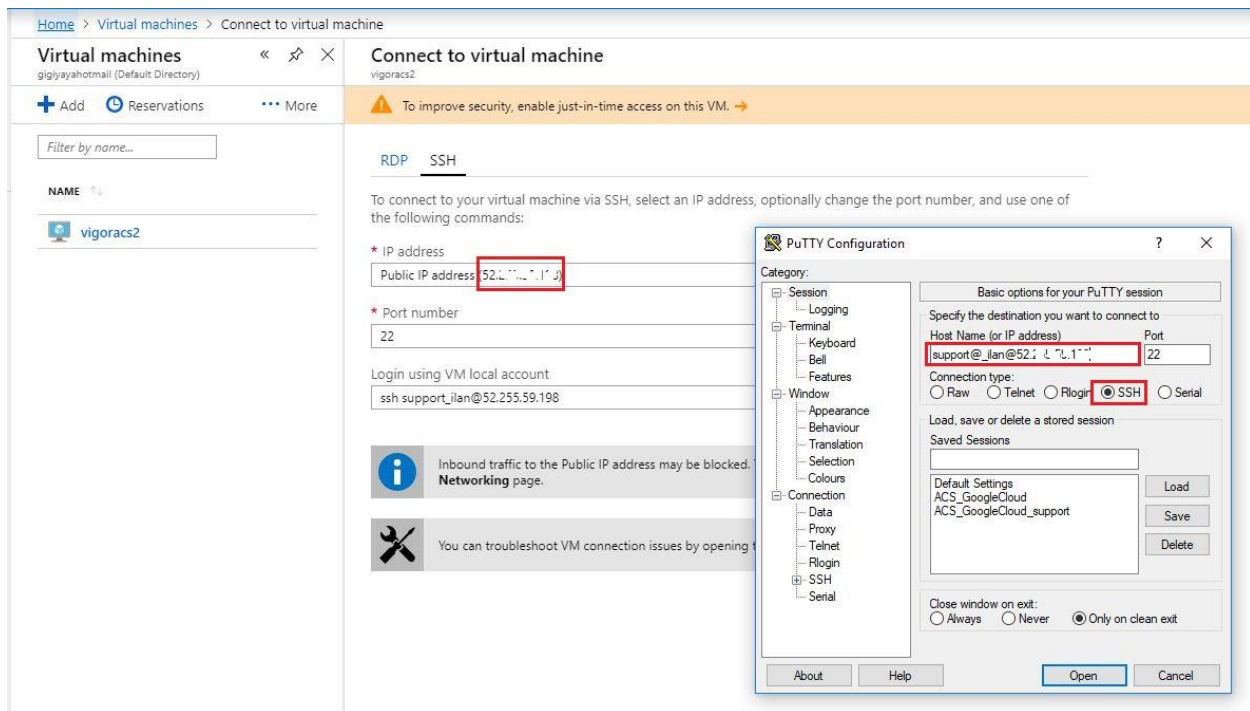
+ Create alias record

SUBSCRIPTION	DNS ZONE
No results.	

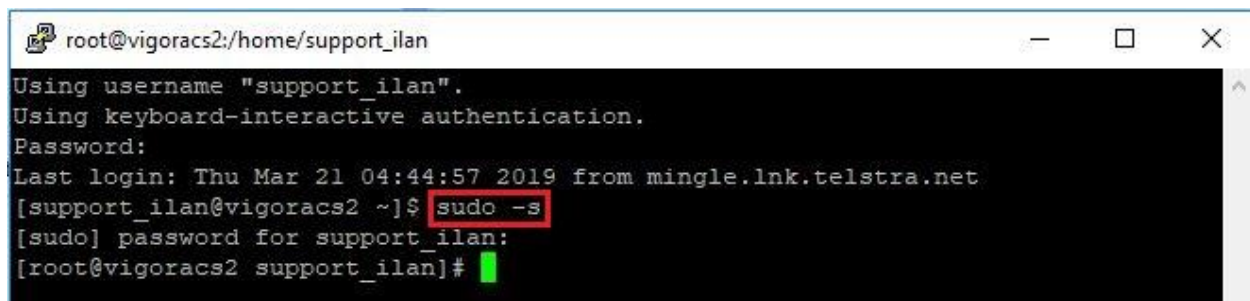
- V. Manage the VM instance via SSH.
a. Go to **Virtual machines** and select **Connect**.



- b. Copy the public IP address on your virtual machine and use Putty software to establish SSH connection.

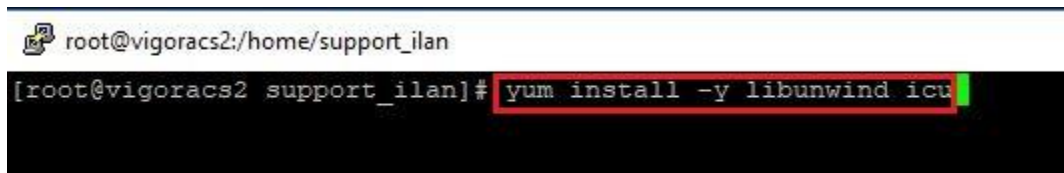


- VI. Copy the Vigor ACS2 installer from the Blob container to the VM instance.
 - a. Install AzCopy Utility to Linux CentOS 7.6.
 1. Change user to root by entering the command **sudo -s**.



2. Install ICU and libunwind dependencies by entering the command below:


```
Yum install -y libunwind icu
```



3. Download and extract Azcopy by entering the command below:
Wget -O azcopy.tar.gz <https://aka.ms/downloadazcopylinuxrhel6>
tar -xf azcopy.tar.gz
4. Install AzCopy using the command ***./install.sh***

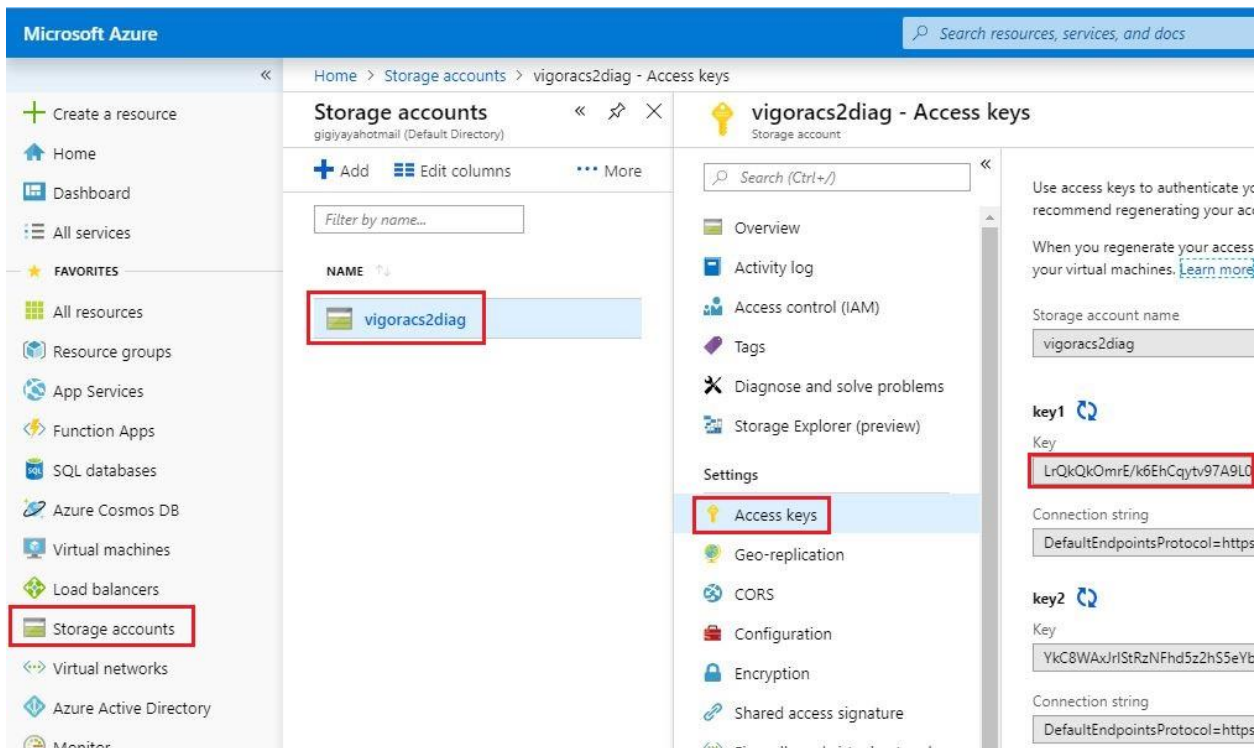
```

root@vigoracs2:/home/support_ilan
[root@vigoracs2 support_ilan]# wget -O azcopy.tar.gz https://aka.ms/downloadazcopylinuxrhel6
--2019-03-14 05:35:08-- https://aka.ms/downloadazcopylinuxrhel6
Resolving aka.ms (aka.ms)... 23.51.138.73
Connecting to aka.ms (aka.ms)|23.51.138.73|443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://azcopy.azureedge.net/azcopy-7-2-0/azcopy_7.2.0-netcore_rhel.6_x64.tar.gz [following]
--2019-03-14 05:35:09-- https://azcopy.azureedge.net/azcopy-7-2-0/azcopy_7.2.0-netcore_rhel.6_x64.tar.gz
Resolving azcopy.azureedge.net (azcopy.azureedge.net)...
2019-03-14 05:35:11 (64.4 MB/s) - 'azcopy.tar.gz' saved [68425453/68425453]

[root@vigoracs2 support_ilan]# tar -xf azcopy.tar.gz
[root@vigoracs2 support_ilan]# ./install.sh

```

- b. Copy the source key from your storage account.
 - Go to **Storage Accounts>>vigoracs2diag>>Access keys**.
 - Copy source **Key 1**.



- c. Create an AzCopy script to copy the installer from the blob container to your VM instance, use the source key from the storage account.

Example script:

```
azcopy \  
--source https://vigoracs2diag.blob.core.windows.net/installers \  
--destination /home/support_ilan/installers/Vigoracs2_2.4.1 \  
--source-key LrQkQkOmrE/k6EhCqytv97A10 \  
--recursive
```

```
sent 176,186,945 bytes received 5,021 bytes 117,461,310.67 bytes/sec  
total size is 176,128,020 speedup is 1.00  
[root@vigoracs2 support ilan]# azcopy \  
> --source https://vigoracs2diag.blob.core.windows.net/installers \  
> --destination /home/support_ilan/vigoracs2 \  
> --source-key LrQkQkOmrE/k6EhCqytv97A10 \  
=> \  
> --recursive  
[2019/03/14 05:35:53][ERROR] https://vigoracs2diag.blob.core.windows.net/installers/linux: Failed to open  
file /home/support_ilan/vigoracs2/linux: Access to the path '/home/support_ilan/vigoracs2/linux' is deni  
ed..  
Finished: 26 file(s), 358.847 MB; Average Speed:67.18 MB/s.
```

- VII. Installing dependencies, database and Vigor ACS2.
 - a. Enter the command `“cd installers/VigorACS2_2.4.1/”`
 - b. Allow root to execute install.sh file by entering the command `“chmod 755 install.sh”`
 - c. Enter command `“./install.sh”` to run the Vigor ACS2 installer.
 - d. Type `“y”` to proceed with the installation.

```
Connected, host fingerprint: ssh-rsa 0 A2:DB:BA:08:DB:1C:BF:84:C0:BD:44:01:A4:99  
:BF:69:68:AA:90:C1:06:C6:7E:AC:96:12:89:93:82:E1:7E:AC  
Last login: Thu Feb 28 14:34:49 2019 from 74.125.41.103  
[support@vigoracs2 ~]$ su  
Password:  
[root@vigoracs2 support]# cd installers/VigorACS2_2.4.1/  
[root@vigoracs2 VigorACS2_2.4.1]# chmod 755 install.sh  
[root@vigoracs2 VigorACS2_2.4.1]# ./install.sh  
ping IPv4 address success  
entering /home/support/installers/VigorACS2_2.4.1/linux.....  
We'll install the following packages for showing captcha (For some Linux version e.g. CentOS, Red Hat):  
- epel-release  
- curl  
- cabextract  
- xorg-x11-font-utils  
- fontconfig  
Install now (y/n)?  
y
```

- e. Install the following below:
 - **press 1 and enter** to install mysql/mariadb
 - **press 3 and enter** to install influxdb
 - **press 4 and enter** to install or upgrade Java
 - **press 5 and enter** to install VigorACS


```

* base: centos.melbourneitmirror.net
* epel: sg.fedora.ipserverone.com
* extras: mirror.lagoon.nc
* updates: mirror.ventraip.net.au
Package epel-release-7-11.noarch already installed and latest version
Nothing to do
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
* base: centos.melbourneitmirror.net
* epel: sg.fedora.ipserverone.com
* extras: mirror.lagoon.nc
* updates: mirror.ventraip.net.au
Package curl-7.29.0-51.el7.x86_64 already installed and latest version
Package cabextract-1.5-1.el7.x86_64 already installed and latest version
Package 1:xorg-x11-font-utils-7.5-21.el7.x86_64 already installed and latest version
Package fontconfig-2.13.0-4.3.el7.x86_64 already installed and latest version
Nothing to do
Loaded plugins: fastestmirror
msttcore-fonts-installer-2.6-1.noarch.rpm | 29 kB 00:00:00
Examining /var/tmp/yum-root-5GQXzM/msttcore-fonts-installer-2.6-1.noarch.rpm: msttcore-fonts-installer-2.6-1.noarch
/var/tmp/yum-root-5GQXzM/msttcore-fonts-installer-2.6-1.noarch.rpm: does not update installed package.
Error: Nothing to do

You must restart this ACS Server manually to finish the installation process

Notice:
* Installation ACS Server requires root privileges.
* After installing the ACS server, need to configure the Firewall to Allow HTTP and HTTPS port

[1] Install mysql/mariadb
[2] Change root password and security configuration of mysql/mariadb ( Default root password is blank )
[3] Install influxdb
[4] Install or Upgrade java
[5] Install VigorACS ( It will build one mysql/mariadb database : tr069 )
[6] Upgrade VigorACS ( It will upgrade local tr069 database )

*****For Remote Database Only*****
[7] Redirect the database path of VigorACS to remote host ( It will not upgrade remote database )

[8] Exit
input select num :

```

- f. Type “y” and **press enter** to continue creating ACS database.
- g. Type “1” and **press enter** to select Local side database.
- h. Type “1” and **press enter** to use ACS for Mysql.
- i. **Press enter** to use blank password for MySQL/MariaDB.
- j. Type “y” and **press enter** to test password for MySQL/MariaDB.

```

[Install VigorACS]
[Warning] It will clear the existing ACS database and create a new one.Do you want to continue? (y/n)
y
Do you want to use remote/local database? (1: Local side database, 2: Remote side database, Enter for Local side database)
1
Which Mysql do you want to use ? (1: ACS , 2: OS default, Enter for ACS mysql)
1
Starting vigoracsmysqld (via systemctl): [ OK ]
Please keyin password of root of MySQL/MariaDB.

Do you want to test password now?(y/n)
y
Access Database Success
Restarting influxdb (via systemctl): [ OK ]
Start to install VigorACS....
Archive: VigorACS.zip
  creating: VigorACS/server/default/deploy/ACSServerAPP.ear/
  creating: VigorACS/server/default/deploy/ACSServerAPP.ear/ACSServer.war/

```

- VIII. Starting database and ACS2.
- a. Start mysql/mariadb, influxdb and VigorACS2.
 - **press 1 and enter** to start mysql/mariadb
 - **press 3 and enter** to start influxdb
 - **press 5 and enter** to start VigorACS

```
[root@vigoracs2 support]# cd /usr/local/vigoracs/VigorACS/bin
[root@vigoracs2 bin]# ./vigoracs.sh

Mysql process id : 4778 4866
Influxdb process id : 5654
Vigoracs process id : 6243

1. start mysql/mariadb
2. shutdown mysql/mariadb
3. start influxdb
4. shutdown influxdb
5. start VigorACS
6. shutdown VigorACS
7. edit bind IP of VigorACS Server (please keyin IP or servername)
8. set the MAX. and MIN. memory value of running java (It will be valid after restarting VigorACS )
9. view the MAX. and MIN. memory value of running java
10. exit
input select num :
```

- b. Enter the following bellow after selecting 5 (start VigorACS).
 1. Bind IP to **0.0.0.0**
 2. Optional: enter http port **8844** instead of 80.
 3. Optional: enter https port **8443** instead of 443.
 4. **Press enter** to select default ports **347** and **514** for stun and syslog.
 5. **Press enter** to accept default **max memory** and **minimum memory**.

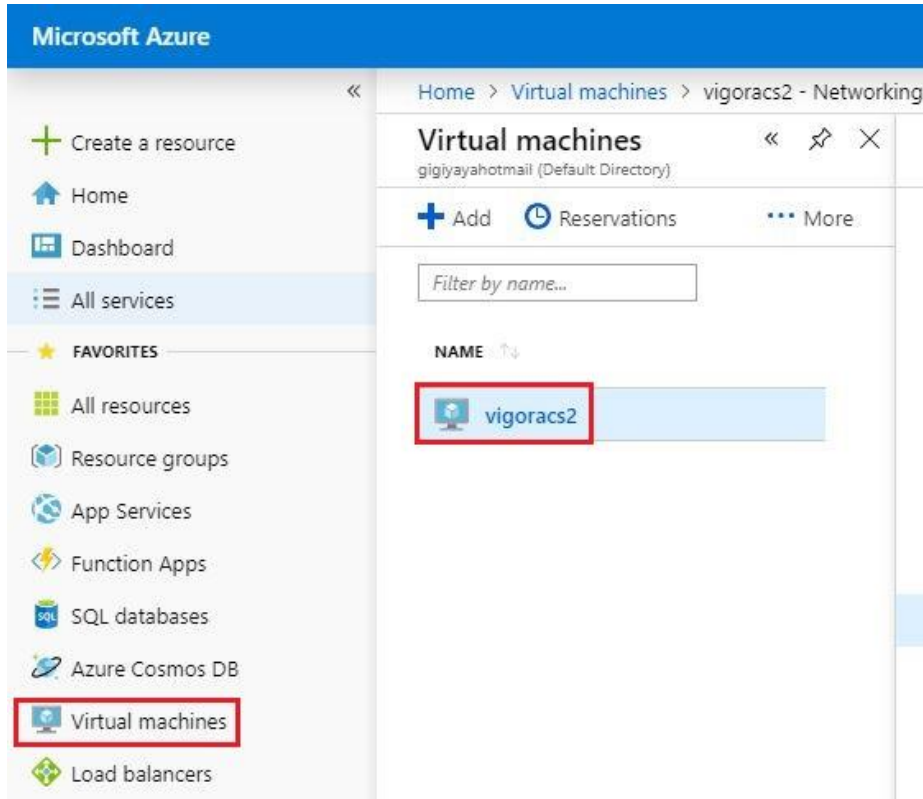
```
Vigoracs process id :

1. start mysql/mariadb
2. shutdown mysql/mariadb
3. start influxdb
4. shutdown influxdb
5. start VigorACS
6. shutdown VigorACS
7. edit bind IP of VigorACS Server (please keyin IP or servername)
8. set the MAX. and MIN. memory value of running java (It will be valid after restarting VigorACS )
9. view the MAX. and MIN. memory value of running java
10. exit
input select num :
5
Which ip address do you want to bind for VigorACS service ( x.x.x.x or Enter for bind 0.0.0.0 address)?
0.0.0.0
Which http port do you want to bind for VigorACS service ( port number or Enter for 80 port)?
8844
Which https port do you want to bind for VigorACS service ( port number or Enter for 443 port)?
8443
Which stun port do you want to bind for VigorACS service ( port number or Enter for 3478 port)?
347
Which syslog port do you want to bind for VigorACS service ( port number or Enter for 514 port)?
514
How many memory do you want to set for VigorACS service? (Enter for default MAX Memory is 1024, MIN Memory is 900 MB)
MAX Memory What you want? (Unit: MB)
MIN Memory What you want? (Unit: MB)

Starting vigoracs:
[OK]

Mysql process id : 2882 3121
Influxdb process id : 6136
Vigoracs process id :
```

- IX. Allowing and editing ports http, https and tr-069 in Microsoft Azure firewall.
- a. Go to **Virtual machines**>>**vigoracs2**.



- b. Select **“Networking, HTTP** and enter **“8844”** for **Destination port ranges**, then click **“Save”**.

vigoracs2 - Networking
Virtual machine

Attach network interface Detach network interface

Network Interface: vigoracs2904 Effective security rules Topology
Virtual network/subnet: VigorACS2-vnet/default Public IP: 52.255.59.198 Private IP: 10.0.0.4 Accelerated networking: Disabled

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group vigoracs2-nsg (attached to network interface: vigoracs2904)
Impacts 0 subnets, 1 network interfaces

PRIORITY	NAME	PORT
300	HTTP	8844
320	HTTPS	8443
340	SSH	22
350	tr-069_8069	8069
65000	AllowVnetInBound	Any
65001	AllowAzureLoadBalancerInBound	Any
65500	DenyAllInBound	Any

HTTP
vigoracs2-nsg

Save Discard Basic Delete

* Source: Any

* Source port ranges: *

* Destination: Any

* Destination port ranges: 8844

* Protocol: Any TCP UDP

* Action: Allow Deny

* Priority: 300

* Name: HTTP

Description

- c. Do the same for the https, but enter port **8443**.
- d. To add tr-069 port, select **"Add inbound port rule"**.

vigoracs2 - Networking
Virtual machine

Attach network interface Detach network interface

Network Interface: vigoracs2904 Effective security rules Topology
Virtual network/subnet: VigorACS2-vnet/default Public IP: 52.255.59.198 Private IP: 10.0.0.4 Accelerated networking: Disabled

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group vigoracs2-nsg (attached to network interface: vigoracs2904)
Impacts 0 subnets, 1 network interfaces

Add inbound port rule

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
300	HTTP	8844	TCP	Any	Any	Allow
320	HTTPS	8443	TCP	Any	Any	Allow
340	SSH	22	TCP	Any	Any	Allow
350	tr-069_8069	8069	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

- e. Enter the following below and click **"Add"**.
 - Destination port ranges: **8069**
 - Name: **tr-069_8069**

Add inbound security rule ✕

vigoracs2-nsg

Basic

* Source ⓘ
Any

* Source port ranges ⓘ
*

* Destination ⓘ
Any

* Destination port ranges ⓘ
8069 ✓

* Protocol
Any TCP UDP

* Action
Allow Deny

* Priority ⓘ
360

* Name
Portr-069_8069 ✓

Description

Add

- X. Accessing the Vigor ACS2 web interface and activating the trial license.
 - a. Type the **public IP address, port number** and enter **username** as " **root**" and **password** as "**admin123**".

Login to VigorACS 2

User Name

Password

Validation Code **5218**

Remember me

Login

Copyright © 2017-2019 DrayTek Corp. All Rights Reserved.

- b. After selecting **“Activate”** the VigorACS2 will redirect us to the **MyVigor** website to register our VigorACS and activate the 30 days trial license.

License Warning : Your license is invalid or expired.
Please go to license server to activate your license.

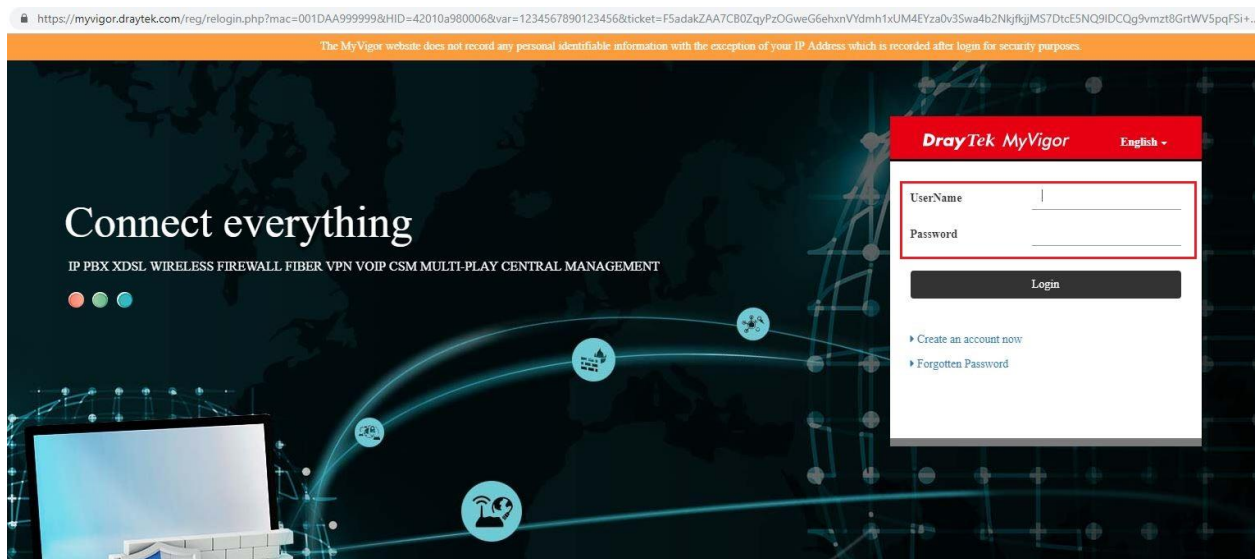
Activate

7147 **7147**

Remember me

Login

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c. Select **“On”** under Status and **“Login to ACS”**.

My Information - My Products

Device Information

Device Name : ACSGC-2445
Host ID : ACS190200051
Model : VigorACS 52 Series

Rename Add Main Key ACS License Help Transfer Back

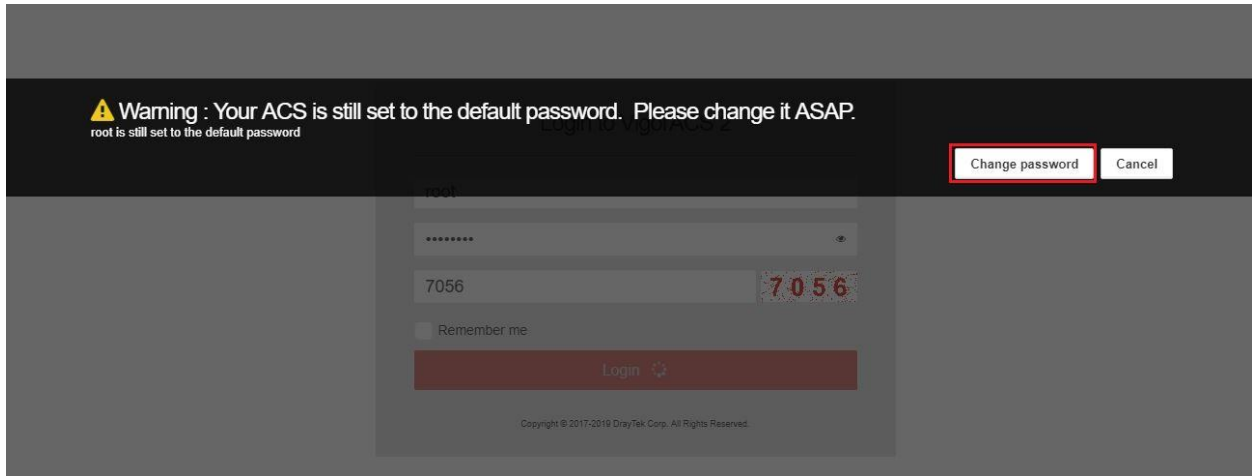
Service	Provider	Action	Status	Start Date	Expired Date	Nodes	Note
ACS	DT-ACS-2	Add Main Key	On	2019-02-26	2019-03-28	20	-

VigorACS License Information

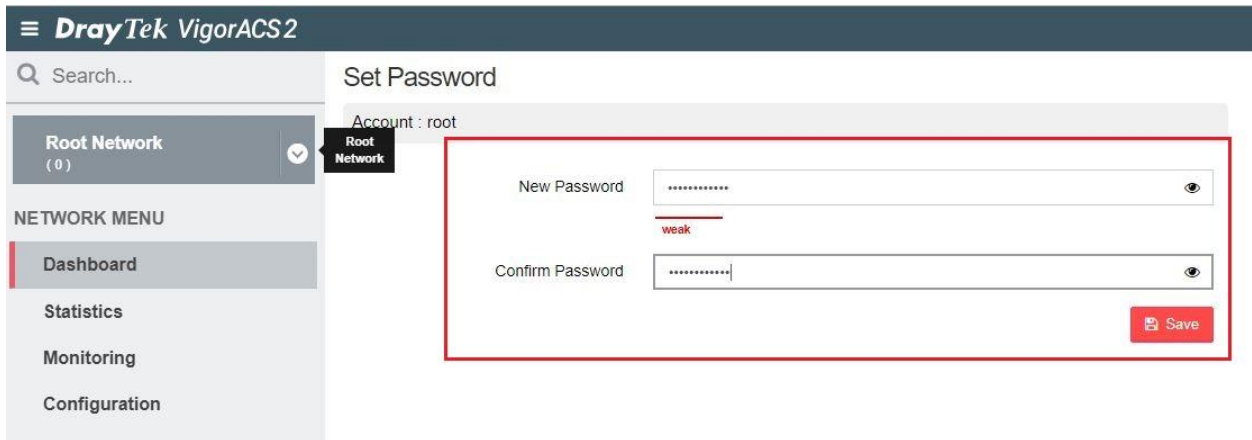
Operation 1000 : License Key OK
License id 00024e59
Start date 2019-02-26
Expire date 2019-03-28
Max node 00000020
Trial license Yes

Login to ACS

d. Select **“Change password”** for security purposes.



e. **Enter new password** and confirm new password.



f. Go to **“About”**, to verify the License information on VigorACS2.

The screenshot shows the DrayTek VigorACS2 web interface. On the left is a navigation menu with sections for NETWORK MENU and SYSTEM MENU. The 'About' menu item is highlighted with a red box. On the right, the 'License Information' page is displayed, also highlighted with a red box. The page contains the following information:

License Information	
Host ID	ACS190200051
License ID	00024e59
License Type	Trial
Start Date	2019-02-26
Expire Date	2019-03-28
Max Node	20
Activate License	+ Click here to activate license

- XI. Change the time zone to **AEDT (Australian Eastern Daylight Time)**.
- Enter the command **"date"** to verify the time zone.
 - Enter the command **"mv /etc/localtime /etc/localtime.bak"**.
 - Enter the command **"ln -s /usr/share/zoneinfo/Australia/NSW /etc/localtime"**.
 - Enter again the command **"date"** to verify the time zone – should be set to **AEDT**.

```
[root@vigoracs2 bin]# date
Wed Feb 27 03:41:14 UTC 2019
[root@vigoracs2 bin]# mv /etc/localtime /etc/localtime.bak
[root@vigoracs2 bin]# ln -s /usr/share/zoneinfo/Australia/NSW /etc/localtime
[root@vigoracs2 bin]# date
Wed Feb 27 14:42:11 AEDT 2019
[root@vigoracs2 bin]#
```