clearswift
RUAG Cyber Security

SECURE Email Gateway with Microsoft Azure
Installation Guide

Version 4.10.0

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Contents

1. About this guide

This guide provides information for administrators installing the Clearswift SECURE Email Gateway onto a virtual machine. It covers the procedures and requirements necessary for a full installation.

1.1 Who is this guide for?

This guide is intended for use by:

- Customers installing SECURE Email Gateway 4.10.0 on the Microsoft Azure platform.

2. Before installing

This section outlines prerequisites and considerations you need to make before installing the cloud-hosted Clearswift SECURE Email Gateway.

The Gateway runs on 64 bit Red Hat Enterprise Linux (RHEL 6.8).

2.1 Types of installation

You can install the SECURE Email Gateway on a virtual machine using Microsoft Azure.

> This guide covers the installation of a new instance of the Gateway on a Microsoft Azure platform only. It does not cover installation on the Azure Classic Portal.
>
> For alternative installation types, please refer to the *Clearswift SECURE Email Gateway Installation & Getting Started Guide*.

> The use of online repositories to update your system will download packages. Microsoft will charge your Azure account for these transfers.

> To install Personal Message Manager (PMM) you must install a separate network interface controller. This process requires different installation steps, which are covered at the end of this document. Please start from the Appendix: Configuring Multiple NICs on Azure.

2.2 Prerequisites

Before installing, you should check that you have the following:

- A valid Microsoft Azure account
- Your subscription details

Browser support

The Clearswift Gateway supports connections using TLS 1.2 ciphers and has been tested with the following browsers:

- Internet Explorer IE10 (Windows 7)
- Internet Explorer IE11 (Windows 7 , Windows 8)
- Mozilla Firefox 17, 24, 30, 36+
- Google Chrome 40+
- Microsoft Edge (Windows 10)

3. Configuring a Virtual Machine with Microsoft Azure

The following steps show you how to create the Azure Virtual Machine (VM) required to host the Clearswift Gateway using the Azure portal.

> (!) For more detailed instructions on using the Microsoft Azure Management Portal, please refer the appropriate documentation. Clearswift is not responsible for changes to any of the procedure steps described.

3.1 Create the Virtual Machine

1. Sign in to the [Azure Management Portal](#).

2. On the hub menu, click the **New (+)** button and select **Virtual Machines** from the MARKETPLACE.

3. Search for **Red Hat Enterprise Linux 6.8** and select this option.

> (i) You can select a later version of Red Hat Enterprise Linux 6.x if available. However, Clearswift does not currently support compatibility with version 7 or later.

Microsoft legal and pricing information is displayed. Please note that this cost is not associated with Clearswift but is required for an installation on Microsoft Azure.

For further information on Azure's legal and pricing options, please refer to Microsoft's up-to-date documentation at https://azure.microsoft.com.

4. Click **Create**.

You can now configure your VM settings.

3.2 Configure basic settings

Use the **Basics** menu to configure the details of your Virtual Machine.

Notes:

- You cannot change the **Name** of your Virtual Machine later.
- **VM disk type** impacts the performance of your system and the subscription cost.
- Select a memorable **User name**.

- **Authentication type** requires a strong password or your SSH public key. You will need this to log in to the machine later.

> Microsoft requires passwords between 12 and 72 characters with three of the following: 1 lower case character, 1 upper case character, 1 number, 1 special character.

- Use Resource Groups to maintain your resources in organized groups, for example, *VMs, networks, disks.*
- Use your nearest data center for your **Location**. You will need this information in order to log in to the machine later.

Use the **Size** menu to select the Virtual Machine Size. We recommend **D2_V2**.

> Some regions might have limitations on available disk types and disk sizes. For more information on what is available, see https://azure.microsoft.com/en-us/regions/

3.3 Configure VM Settings

Use the **Settings** menu to configure your disk, networking and security.

Notes:

- We recommend creating a *Storage Account* and then renaming it for your configuration.
- Set **Replication** according to your organization's disaster recovery plan or business continuity policy.
- We recommend creating a *Virtual Network* and then renaming it for your configuration.
- The default network location is 10.0.0.0/24. This is used internally and is not the public IP address that you will use to access your virtual machine. This is specified by **Public IP Address**, which enables you to customize a name for access to the machine.
- Use your *Virtual Network* as your subnet.
- We recommend using Dynamic IP Addresses as a **Public IP Address** rather than Static IP Addresses.
- We recommend adding a *minimum* of two **Network Security Group** (Firewall) rules, configured as follows:

Rule	Name	Priority	Source	Service
SSH Access (TCP/22)	allow-ssh-in	1010	Any	SSH
HTTPS Access (TCP/443)	allow-https-in	1020	Any	HTTPS

Please refer to the specific Clearswift product documentation to configure the Firewall ports and protocols for the product you are installing.

- We also recommend the following, although you should refer to your organization's policy in each case:
  - **Extensions**: No extensions
  - **High availabilty**: None
  - **Boot Monitoring**: Enabled
  - **Guest OS Diagnostics**: Disabled

Use the **Summary** menu to check that your settings are correct and that validation has passed.

3.4 Increase Disk Size

Microsoft Azure Virtual Machines are automatically given a disk size of 30GB.

> (i)   The Gateway requires a minimum of 100GB to operate efficiently.

When you have created and configured your Virtual Machine using the Azure Management Portal, you need to stop the VM and resize the disk.

You must wait for Provisioning to finish.

Azure displays the details of configured VMs in the **Virtual Machines** section.

1. Click your *VM name* and view its Overview page.
2. Click **Stop**. Azure stops the machine and deallocates resources.
3. On the SETTINGS menu, click **Disks**.
4. Select the OS DISK you created when configuring the VM.
5. Set the **Size (GB)** to at least *100* and click **Save**.

When the disk is resized, you can **Restart** the VM.

3.5 Add your DNS name

You can configure a DNS name label in order to access the VM remotely without specifying its IP address.

By default, the **Public IP address/DNS name label** is set to *none.* Use the Public ID address configuration page to add a **DNS name label (optional)**.

Save the configuration.
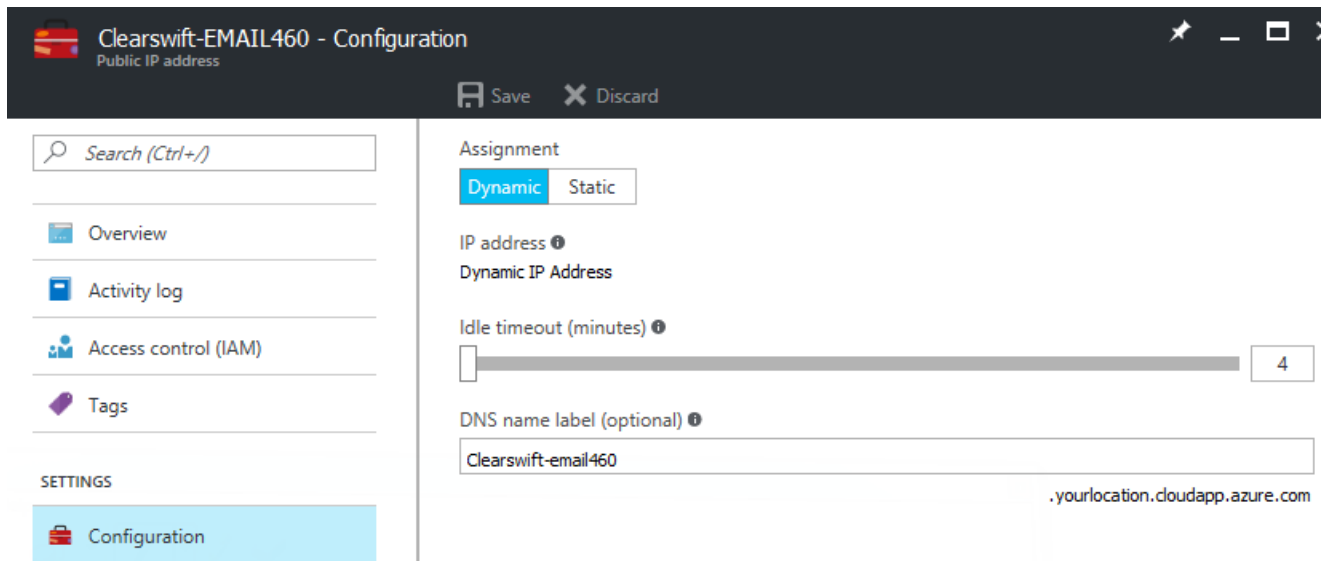
For example, **DNS name label (optional)**: *Clearswift-email490*.

You can now connect to your VM using SSH. For example:

ssh *username@domain.location.cloudapp.azure.com*

where,

- *username* is the **User name** you selected earlier.
- *domain* is the **DNS name label** (*Clearswift-email490*).
- *location* is the data center you selected earlier. This is displayed in the Microsoft UI (*yourlocation*).

3.6 Enlarge the OS Partition

You will also need to resize the OS partition to match the VM disk size.

Connect to the VM using SSH:

username@domain.location.cloudapp.azure.com

1. Assume root role at the command line.
2. Check your partition and disk information using the commands:

   ```
   [...]$ df -h
   ```

   ```
   [root@clearswift-email460 ~]# df -h
   Filesystem      Size  Used Avail Use% Mounted on
   /dev/sda2        29G  2.3G   25G   9% /
   tmpfs           3.5G     0  3.5G   0% /dev/shm
   /dev/sda1       477M   69M  383M  16% /boot
   /dev/sdb1        99G  2.1G   92G   3% /mnt/resource
   ```

   or `[...]$ fdisk -l` to display more detailed information.

- 10 -

3. Run `fdisk/dev/sda`

```
[root@clearswift-email460 ~]# fdisk /dev/sda

WARNING: DOS-compatible mode is deprecated. It's strongly recommended to
         switch off the mode (command 'c') and change display units to
         sectors (command 'u').

Command (m for help):
```

4. Execute the following commands:
   - `d` (deletes existing partition). Press Enter.
   - `2` (specifies the 2nd partition, sda2) Press Enter.
   - `n` (creates new partition) Press Enter.
   - `p` (specifies new partition as the primary partition) Press Enter.
   - `2` (specifies the 2nd partition, sda2) Press Enter.

   Press Enter (default start first free cylinder)

   Press Enter (default end (end of the disk))

   - `w` (writes changes to partition table). Press Enter.

   > (i) A warning is displayed indicating that the partition table has been altered. You must reboot in order to refresh the partition table.

5. When the system has rebooted, assume root role at the command line and run the following command to complete the resizing:

   `resize2fs/dev/sda2`

   Use df -h or fdisk -l to check the disk sizing information.

```
[root@clearswift-email460 ~]# resize2fs /dev/sda2
resize2fs 1.41.12 (17-May-2010)
Filesystem at /dev/sda2 is mounted on /; on-line resizing required
old desc_blocks = 2, new_desc_blocks = 13
Performing an on-line resize of /dev/sda2 to 52299871 (4k) blocks.
The filesystem on /dev/sda2 is now 52299871 blocks long.

[root@clearswift-email460 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2       197G  2.4G  184G   2% /
tmpfs           3.5G     0  3.5G   0% /dev/shm
/dev/sda1       477M   69M  383M  16% /boot
/dev/sdb1        99G  2.1G   92G   3% /mnt/resource
```

```
[root@clearswift-email460 azureadmin]# fdisk -l

Disk /dev/sdb: 107.4 GB, 107374182400 bytes
255 heads, 63 sectors/track, 13054 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disk identifier: 0x26d02d68

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1               1       13055   104855552   83  Linux

Disk /dev/sda: 214.7 GB, 214748364800 bytes
255 heads, 63 sectors/track, 26108 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x00041681

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1   *           1          64      512000   83  Linux
Partition 1 does not end on cylinder boundary.
/dev/sda2              64       26108   209199486   83  Linux
```

4. Installing the Clearswift Gateway

You must install the Gateway software from the online repository:

1. Assume root role at the command line.

2. Manually install the cs-email-repo-conf package. The cs-email-repo-conf package configures your system to be ready for you to install the Clearswift SECURE Email Gateway:

```
rpm -ivh http://repo.clearswift.net/rhel6/gw/os/x86_
64/Packages/cs-email-repo-conf-3.4.1-2526.x86_64.rpm
```

3. Forcibly remove postfix, rsyslog and samba V3:

```
yum remove -y postfix rsyslog samba-common sendmail --disablerepo=*
```

4. Install the required product using the following command:

```
yum install -y cs-email --disablerepo=* --enablerepo=cs-*
```

This command enables access to external repositories and ensures that only Clearswift repositories are subsequently used to install the Gateway.

> (i) If Step 5 fails due to additional conflicts, you might need to remove additional packages during Step 4.

5. Log out completely, and log back in as cs-admin. Refer to Running the First Boot Console to continue.

4.1 Running the Clearswift First Boot Console

> (!) Setting the network configuration in First Boot Console is a critical step that must align your *internal IP address* with the configuration in the Azure Portal. Please follow the steps carefully and in order.

Complete the following steps in the *First Boot Console*:

1. Log in as cs-admin using the default credentials:
   - Login: **cs-admin**
   - Password: **password**

   The *First Boot Console* appears and you can start the configuration process.

2. Follow the on-screen instructions to select:

- **Locale Configuration**
- **Keyboard Configuration**
- **Timezone Configuration**

> ⚠ The Gateway derives its system time and locale settings from the selections made at this point. It is important that you set these correctly during installation as you cannot change system time and locale later.

3. On the **Network Configuration** page update the following settings:
   - System Hostname: Enter the new Hostname and press **Save**.
   - Network Adapters: Select a network adapter and press **Edit**. Press **IPv4 Addresses** and then **Edit** your selected IP address. After you have made your edits, press **Save**.

   > ⓘ Azure's default gateway IP address is always the *first IP address* in the configured network range.

   - DNS Servers: Select a DNS entry and press **Edit**. Add **Search Domains** if required or leave blank.

     After you have made your edits, press **Save**.

   > ⓘ If you are installing the Gateway on a hosted Microsoft Azure platform, we recommend reviewing the section on [How to change your network settings](#)

4. Configure your repository settings on the **Repository Configuration** page.

   > ⓘ Use **Online** repositories when installing your Gateway in an Azure environment.

5. On the **cs-admin password** page enter a new password for your cs-admin account. The complexity of this password depends on the password policy that is being enforced. The Clearswift password policy applies by default to standard installations from the ISO image. This policy requires you to set

passwords that are a minimum of eight characters in length, do not resemble dictionary words (example: Pa55word), do not include sequences (example: 1234), and include at least one from three of the following:

- Uppercase letters
- Lowercase letters
- Digits
- Symbols

See Clearswift password policy requirements in the online help for more information, including examples. The online help also provides information on how to disable the password policy.

6. Apply your settings and confirm to reboot the server.

> (i) While rebooting, navigate to the Azure Portal:
> Use the Azure Portal UI to set a static IP address to match the configuration.

7. Following the reboot, open a browser and navigate to the Gateway IP address:

https://*<ip-address>*/Appliance

> To check your IP address, log in to the console using the default credentials.
> Select **View System Status** and click **OK**.

The *Clearswift SECURE Email Gateway* installation wizard is displayed.

Clearswift SECURE Email Gateway   clearswift

Thank you for choosing **Clearswift.** The setup process consists of a few easy steps, during which you will be asked to provide information on your network configuration.

You will have been supplied with a license key and serial number by your supplier. Please enter these details now.

Company Name : [   ]
License Key : [   ]
Serial Number : [   ]

[Next]

4.2 Enabling or disabling access to the Clearswift online repositories

In Clearswift First Boot Console, you selected updates to be applied from either the online Clearswift repositories or your (offline) local media.

Clearswift online repositories are normally disabled by default after installation. This indicates updates are to be taken from the local media. However, if you have access to the Internet you might want to receive updates from the Clearswift online repositories by selecting **Online Mode**.

> (i) If you are using Microsoft Azure, you should note that the use of online repositories will download updates to your system and you will be charged by Microsoft for this download.

You can change the source for the online repositories later, if required. To do this:

Click **Configure System** > **View and Apply Software Updates** > **Enable/Disable use of Online Repositories**.

Switching from offline to online repositories gives access to Red Hat security fixes normally within 24 hours of their publication. We recommend this for most installations. However you should only do this if you intend to also use online repositories for future Clearswift product upgrades.

> (i) Switching *from online to offline* is not supported and could lead to updating issues in the future.

To be confident that your system is up-to-date, you must apply system or product upgrades using Server Console. If you attempt to upgrade using the command line, it will report 'no updates available'.

4.3 How to change your network settings

1. Use Server Console to configure an IP address.
2. Deploy network changes.
3. Use the Azure Management Portal UI to set a static IP address to match the configuration.
4. Try to reconnect to your system after a few minutes.

Notes:

- The IP Address must belong to the *Virtual Network* range you created earlier.
- Double check your settings before applying network configuration as it is possible to lose connection with your Virtual Machine. Please contact Clearswift Technical Support if this occurs.
- Deploy network changes in Server Console first, before replicating them in the Azure Management Portal UI.
- The first IP address in your *Virtual Network* range is your network gateway.
- After modifying your VM's IP address in the Azure Management Portal, allow up to five minutes for Azure to apply the change. Azure might reboot your Virtual Machine during this process.

Appendix A: Configuring multiple NICs on Azure

You might require your installation to use multiple Network Interface Controllers (NICs). At present, you cannot configure this directly with the Microsoft Azure Management Portal.

However, you can install multiple NICs using Azure's *CLI for PowerShell*. This software communicates with the Azure Portal using PowerShell.

You can download Azure's CLI for PowerShell from the MS GitHub Page. Look for *Precompiled Installers*.

> (!) Please note that Clearswift is not responsible for the content provided in external resources, such as the Microsoft Azure Management Portal or the MS GitHub Page. It is possible that the following instructions might not match the relevant procedures if they have been updated since publication of this document.

The installation process is as follows:

1. Collect the resources you need to build a suitable virtual network.
2. Add in your Network Interface Controllers and associate them with your resources.
3. Configure the deployment of the operating system and Virtual Machine.
4. Start the Virtual Machine and install the Gateway.

Log in

When you have installed Azure's CLI for PowerShell, use the following procedure to log in to Azure.

Using a Windows Powershell Session:

1. Execute `azure login`. PowerShell displays a URL and a code.
2. Navigate to a web browser to the given URL and use the code provided.
3. Click **Continue** to log in to the *Microsoft Azure Cross-platform Command Line Interface*.

   When connected, Azure displays either a log-in screen, or indicates that you are already connected.

Collect and configure your resources

To create and start a suitable virtual machine which handles multiple NICs, you need to gather specific resources and configure them appropriately using the Azure Portal.

1. Add a new **Virtual Network**. Your virtual network will contain the resources required for your virtual machine.

   a. From the hub menu, click **(+) New** > **Networking** > **Virtual Network**.

   b. Add a **Name**, an **Address Range** and a **Subnet**.

   c. Select your **Subscription** details.

   d. Add a **Resource Group** if required.

   > (i) Resource Groups are containers for your virtual network resources.

   e. Select a **Location**. This should be the data center nearest to you.

   f. Click **Create**.

   Azure displays **Deployments succeeded** if your settings have been successfully deployed.

2. Create your **Network interface cards**.

   a. From the hub menu, click **(+) New** and search for *Network interface* in the search box. Select and create your first network interface.

   b. Add a suitable **Name**, for example *NIC1*.

   c. Select your **Virtual Network**. Azure gathers your **Subnet** information and populates the field.

   d. Select a **Dynamic** address.

   e. Leave **Network security group** configured as **None**.

   f. Add your **Subscription** details, **Resource Group** and **Location**.

   g. Click **Create**.

   Azure displays **Deployments succeeded** if your settings have been successfully deployed.

   h. Repeat the process by clicking **(+) New** > **Network interface**. Create your second network interface using the same Virtual Network you selected for the first. Add a suitable **Name**, for example, *NIC2*.

   i. Click **Create**.

   Azure displays **Deployments succeeded** if your settings have been successfully deployed.

3. Configure a **Network security group**. This enables you to add firewall rules to your virtual environment.

a. Add a suitable **Name**.

b. Add your **Subscription** details, **Resource Group** and **Location**.

c. When deployed, use the **(+) Add** button to add **Inbound Security Rules** to allow SSH and HTTPS requests.

> (i) Each Inbound Security Rule requires a **Name** and a **Priority**. The priority controls the order in which the rules are applied. We recommend the Source is set to **Any**.

d. Select either an **Allow** or **Deny** action for each rule as required.

e. Click **Create**.

4. Associate each **Network interface** with your **Network security group**.

a. From the SETTINGS menu in the Network security group, select **Network interfaces**.

b. Click the **(+) Associate** button and select your primary NIC.

Azure informs you that it is saving the network interface. Your NIC is then added to the list of associated Network interfaces.

c. Click the **(+) Associate** button and select your second NIC.

Azure informs you that it is saving the network interface. Your NIC is then added to the list of associated Network interfaces.

> You can associate a SubNetwork (containing all your network interfaces) with your Network security group.

5. Create a **Public IP Address**. The Public IP Address configures how external users connect with your virtual environment.

a. From the hub menu, click **(+) New** > **Networking** > **Public IP Address**.

b. Add a suitable **Name**.

c. Select either a **Dynamic** or **Static** address, according to your requirements.

d. Add a **DNS label**.

e. Add your **Subscription** details, **Resource Group** and **Location**.

f. Click **Create**.

Azure displays **Deployments succeeded** if your settings have been successfully deployed.

6. Associate your **Public IP Address** with your primary Network interface.

   a. From the hub menu, open your **Public IP Address** and click the **Associate** button above the Essentials window.

   b. Use the **Resource type** menu to select Network Interface Card from the drop-down.

   c. Select your primary Network interface.

   d. Click **OK**.

7. Create a **Storage Account**. The storage account is a container for all your required disks and data.

   a. From the hub menu, click **(+) New** > **Storage account**.

   b. Add a suitable **Name**.

   c. Select the **Account kind** as *General purpose* and the **Performance** as *Standard.*

   d. Configure **Replication** and **Storage service encryption** according to your policy.

   e. Add your **Subscription** details, **Resource Group** and **Location**.

   f. Click **Create**.

      Azure displays **Deployments succeeded** if your settings have been successfully deployed.

Create your Virtual Machine

When you have gathered all your resources, you need to configure the Virtual Machine which will host your installation of the SECURE Email Gateway. The software runs on Red Hat Enterprise Linux version 6.8.

You need the following information to complete this process:

Parameters Required

- **Location**: the location of the data center you selected earlier, for example, *UKSouth.*
- **Publisher**: RedHat
- **Offer**: RHEL
- **ID**: 6.8
- **Virtual Network Name**: the name you assigned to your Virtual Network
- **Subnet Name**: the name you assigned to your subnet
- **Resource Group Name**: The name you assigned to your Resource Group
- **NIC1**: the name you assigned to your primary Network interface

- **NIC2**: the name you assigned to your second Network interface
- **Storage Account Name:** The name you assigned to your Storage Account

Red Hat Images and Sizing

1. Use PowerShell to gather all the versions of Red Hat 6.8 available in your Location.

```
azure vm image list Location RedHat RHEL 6.8
```

PowerShell displays a list of available images. The **Urn** column displays the unique reference of the latest available images.

```
PS C:\Users\     > azure vm image list uksouth RedHat RHEL 6.8
info:      Executing command vm image list
+ Getting virtual machine images (Publisher:"RedHat" Offer:"RHEL" Sku: "6.8" Location:"uksouth")
data:      Publisher   Offer   Sku   OS      Version          Location   Urn
data:      ---------   -----   ---   -----   --------------   --------   -------------------------------
data:      RedHat      RHEL    6.8   Linux   6.8.20160921     uksouth    RedHat:RHEL:6.8:6.8.20160921
data:      RedHat      RHEL    6.8   Linux   6.8.20161014     uksouth    RedHat:RHEL:6.8:6.8.20161014
data:      RedHat      RHEL    6.8   Linux   6.8.20161028     uksouth    RedHat:RHEL:6.8:6.8.20161028
data:      RedHat      RHEL    6.8   Linux   6.8.20161213     uksouth    RedHat:RHEL:6.8:6.8.20161213
info:      vm image list command OK
```

2. Make a note of the latest **Urn** version (as shown) for later use. You will need all the characters after the final colon, for example: RedHat: RHEL: 6.8:**6.8.20161213**
   - **Urn string:** 6.8.20161213

3. Use the following PowerShell command to find available disk sizes for your region:

```
azure vm sizes --location Location
```

```
PS C:\Users\     > azure vm sizes --location UKSouth
info:      Executing command vm sizes
+ Listing virtual machine sizes available in the location "uksouth"
data:      Name            CPU Cores   Memory (MB)   Max data-disks   Max data-disk Size (MB)   Max OS-disk Size (MB)
data:      ------------    ---------   -----------   --------------   ----------------------   ---------------------
data:      Standard_A0     1           768           1                20480                    1047552
data:      Standard_A1     1           1792          2                71680                    1047552
data:      Standard_A2     2           3584          4                138240                   1047552
data:      Standard_A3     4           7168          8                291840                   1047552
data:      Standard_A5     2           14336         4                138240                   1047552
data:      Standard_A4     8           14336         16               619520                   1047552
data:      Standard_A6     4           28672         8                291840                   1047552
data:      Standard_A7     8           57344         16               619520                   1047552
data:      Basic_A0        1           768           1                20480                    1047552
data:      Basic_A1        1           1792          2                40960                    1047552
data:      Basic_A2        2           3584          4                61440                    1047552
data:      Basic_A3        4           7168          8                122880                   1047552
data:      Basic_A4        8           14336         16               245760                   1047552
data:      Standard_D1_v2  1           3584          2                51200                    1047552
data:      Standard_D2_v2  2           7168          4                102400                   1047552
data:      Standard_D3_v2  4           14336         8                204800                   1047552
data:      Standard_D4_v2  8           28672         16               409600                   1047552
data:      Standard_D5_v2  16          57344         32               819200                   1047552
data:      Standard_D11_v2 2           14336         4                102400                   1047552
data:      Standard_D12_v2 4           28672         8                204800                   1047552
data:      Standard_D13_v2 8           57344         16               409600                   1047552
data:      Standard_D14_v2 16          114688        32               819200                   1047552
data:      Standard_D15_v2 20          143360        40               286720                   1047552
```

Make a note of the size you require, for example:
   - **VM Size:** Standard_D2_v2

4. Use the following PowerShell command to collect the resources you

configured in the Azure Portal:

```
$Network="$(azure network vnet subnet show --resource-group
Resource_Group_Name --vnet-name Virtual_Network_Name --name
Subnet_Name | grep Id)".Split(":")[2].Trim()
```

> 💡 Enter the Resource Group, Virtual Network Name and Subnet Name *exactly* as you configured them in the Azure Portal.

This command creates a new variable (*Network*) which includes a trimmed summary of all of your network information, as configured in the Azure Portal UI.

Create the Virtual Machine using your Parameters

1. Create the Virtual Machine using all of the resources you have collected and prepared, including the **Urn string** and **VM Size** you recorded earlier. You also need to decide:

   - *Virtual Machine Name*: A suitable unique name for your Virtual Machine.

   - *Container Name*: A suitable unique name for the container for your storage account.

   - *VMVHD Name*: The unique VHD filename of your VM. This parameter must end with the extension .vhd

   - *Admin User Name*: A suitable administrator user name. This must not match any existing Clearswift user names such as cs-admin.

   - *Secure Admin Password*: This must be a strong password containing a minimum of 8 characters, a lower case character , an upper case character, a number character and a special character.

   Use the following command:

```
azure vm create --resource-group Resource_Group_Name --name
Virtual Machine Name --location Location --vm-size VM_Size -
-subnet-id $Network --disable-boot-diagnostics --os-type
linux ==nic-names "NIC1,NIC2" --storage-account-name
Storage_Account_Name --storage-account-container-name
Container Name --os-disk-vhd VMVHD Name --admin-username
Admin User Name --admin-password Secure Admin Password --
image-urn RedHat:RHEL:6.8:Urn_string
```

PowerShell looks up your resources based on the configuration in the Azure Portal, and begins the creation process. It might take a few minutes to deploy your Virtual Machine.

When complete, PowerShell displays:

```
vm create command OK
```

Check Azure displays your Virtual Machine

1. From the hub menu in the Azure Portal, click **Virtual Machines**. Your Virtual Machine Name is displayed with a status:

   - **Creating**: PowerShell is still creating the virtual machine.
   - **Running**: The Virtual Machine has been successfully created and is running.

2. Follow the process from *Installing the Clearswift Gateway* in the *Clearswift SECURE Email Gateway with Microsoft Azure Installation Guide* to complete the installation of the software.