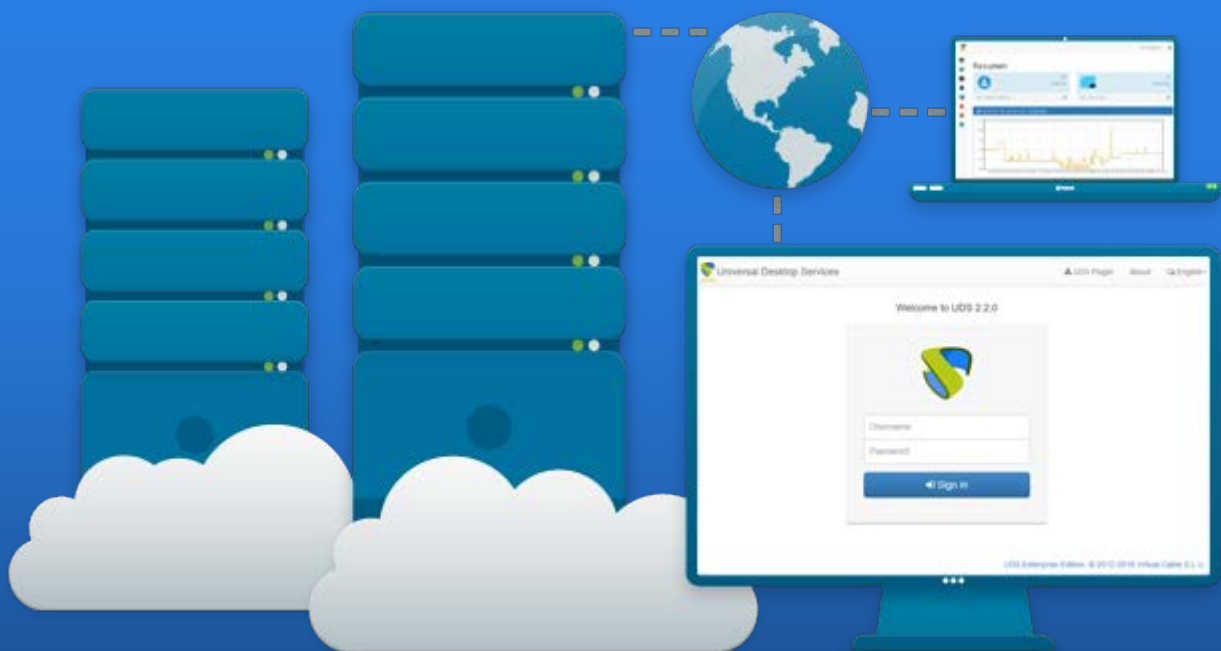


VDI with UDS Enterprise & Microsoft Azure





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Introduction

Azure is a proprietary platform developed by Microsoft that offers services in the cloud. Some of its advanced features include the ability to run virtual machines, virtual applications, databases, backup copies and many other tasks. It integrates an infinity of services in the cloud that are necessary to develop, test, implement and manage virtual machines (VM).

The **VDI with UDS Enterprise & Microsoft Azure** guide will help you learn the procedure to implement and configure the UDS Enterprise components on such platform. This document shows real examples on how to create resource groups, storage accounts, containers and the necessary resources so that UDS Enterprise can implement virtual desktops in this platform.

In addition, we detail one of the procedures to create virtual machines (to be used as a machine or base template), the steps to migrate machines from an existing environment (VMware, Hyper-V, etc.) to Microsoft Azure and the simplest one: how to convert a VM disk to .vhd format (disk format recognized by Azure).



UDS Enterprise in Microsoft Azure

Before performing the integration, it is advisable to invest time in knowing the parts related to UDS Enterprise (for more information, visit our [website](#), in the [Documentation](#) section you will find the Installation, administration and user manual of UDS Enterprise). Two of them are the **Service Providers** and the **Authenticators**, elements of great importance for the configuration of Azure in UDS Enterprise.

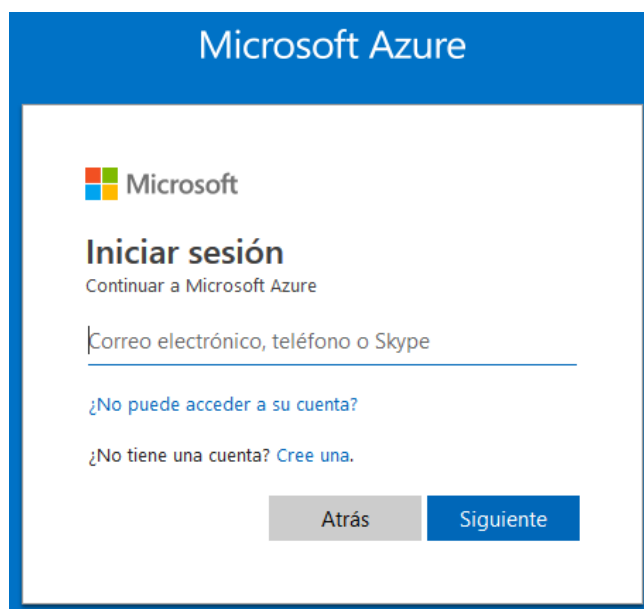
UDS Enterprise will allow the deployment of self-generated virtual desktops and virtual application sessions on the Microsoft Azure platform.

To install and configure UDS Enterprise you should request the Appliances (MySQL, Server and Tunneler) and the serial number (Free / Evaluation / Enterprise) to VirtualCable.

You must have a valid Azure subscription on which to deploy UDS Enterprise components, virtual desktops, or Windows / Linux application servers.

Where do I start?

First, you must have an account with administrator privileges on the Azure platform. If you already have it, log in to the [portal](#).



When you log in and before loading the UDS Enterprise Appliances, you will need a series of items available on the Azure platform (Resource Groups, Storage Accounts, Container, Network Security Groups).

Below, we have included examples on how to create and configure these elements for the proper functioning of UDS Enterprise on an Azure platform.



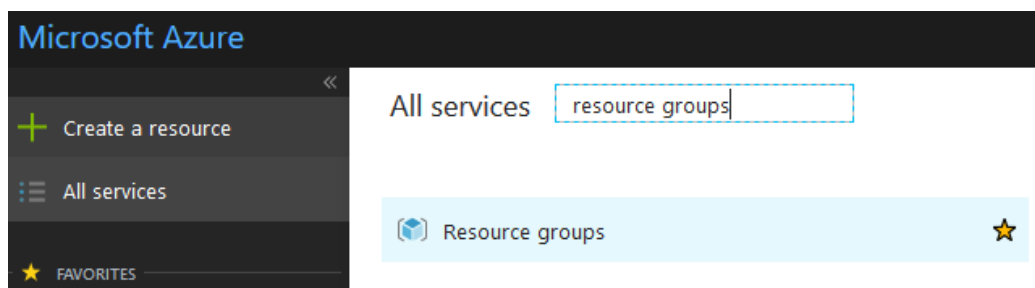
Required elements in Azure

- Resource Groups

A “Resource Group” in Azure groups a collection of assets into logical groups for provisioning, monitoring and access control easily or even automatically, for more effective administration.

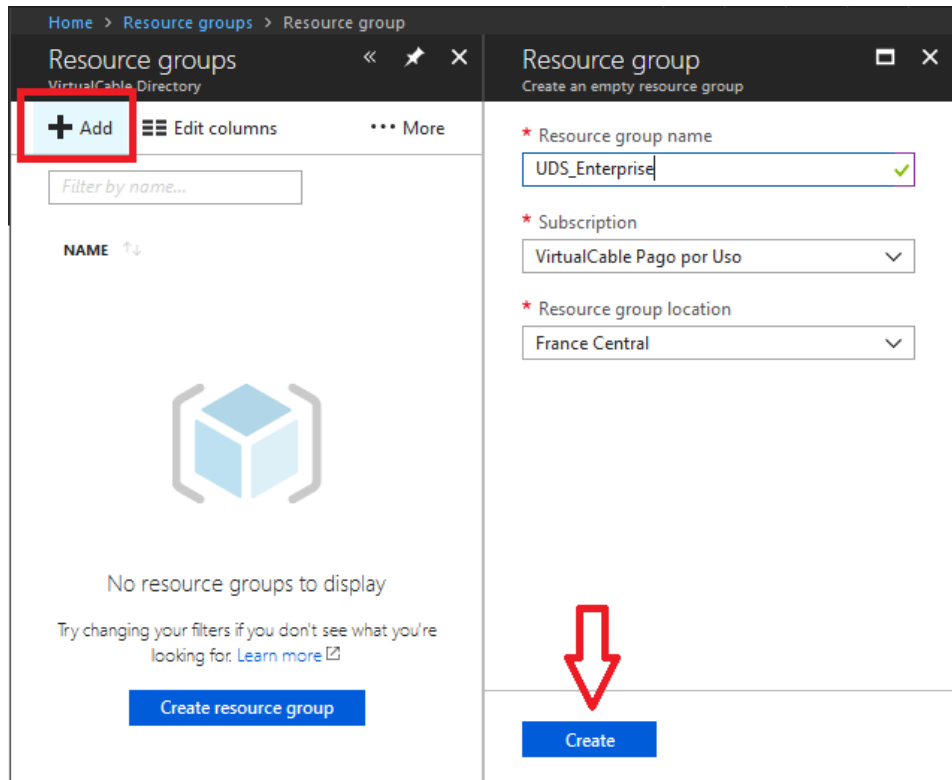
We will need to have at least one "Resource Group" on which deploying and configuring all UDS Enterprise requirements and components. If you do not have one, you can create it following these steps:

1. In the list of “Services”, we look for “Resources Group” (it is recommended to add it to your favorites list) and click on it.

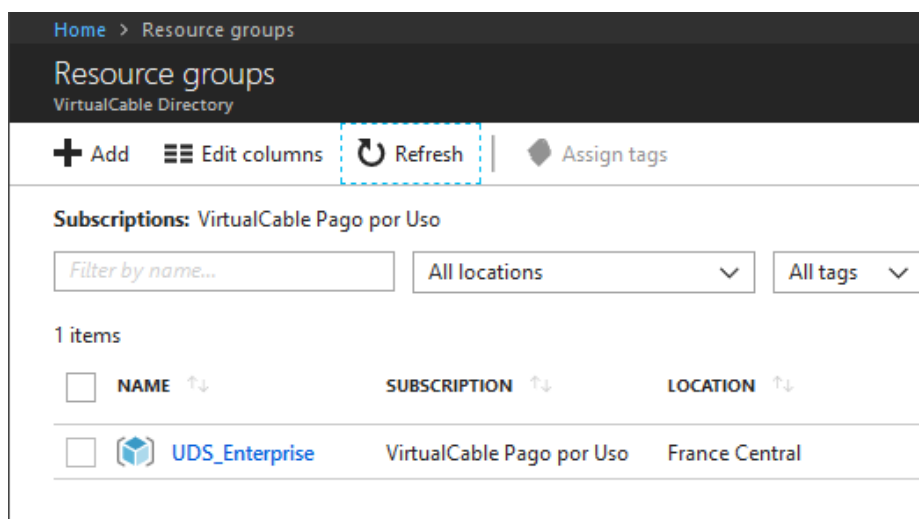




2. Once inside, click “add” to create a new one. We indicate a descriptive name, we select the subscription in which it will be registered and we select a "Location of the group of resources". Finally, click on “Create”.



3. We confirm that the “Resource Group” has been correctly created.



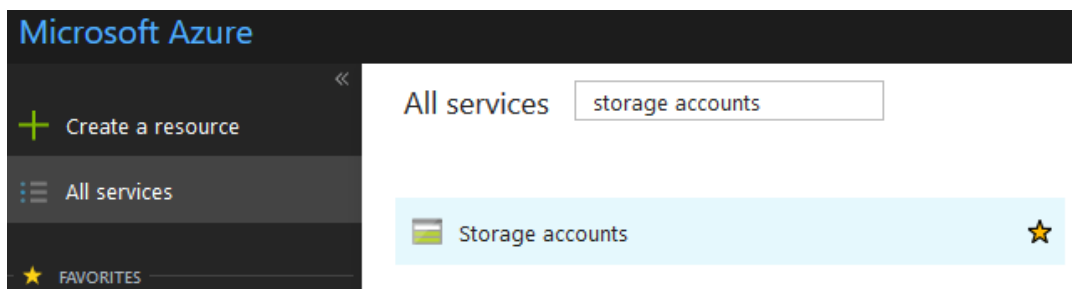


■ Storage Accounts

The next item we will need is a "Storage Accounts". This element will allow us to import the UDS components and generate the virtual disks to later implement the UDS virtual servers.

If you do not have one, you can create it by following these steps:

1. In the list of "Services", we look for "Storage accounts" (it is recommended to add it to your favorites list) and click on it:





2. Once inside, click “add” to create a new one. We indicate a descriptive name, select the subscription in which it will be registered and select the "Resource Group" created above. Finally, click on “create”.

Home > Storage accounts > Create storage account

Storage accounts

VirtualCable Directory

+ Add Edit columns More

Filter by name...

NAME ↑↓

No storage accounts to display

Create a storage account to store up to 500TB of data in the cloud. Use a general-purpose storage account to store object data, use a NoSQL data store, define and use queues for message processing, and set up file shares in the cloud. Use the Blob storage account and the hot or cool access tiers to optimize your costs based on how frequently your object data is accessed. [Learn more](#)

Create storage account

Create storage account

The cost of your storage account depends on the usage and the options you choose below. [Learn more](#)

* Name ⓘ
storageeuds ✓
.core.windows.net

Deployment model ⓘ
Resource manager Classic

Account kind ⓘ
Storage (general purpose v1) ▾

* Location
France Central ▾

Replication ⓘ
Locally-redundant storage (LRS) ▾

Performance ⓘ
Standard Premium

* Secure transfer required ⓘ
Disabled Enabled

* Subscription
VirtualCable Pago por Uso ▾

* Resource group
☐ Create new ☒ Use existing
UDS_Enterprise ▾

Virtual networks
Configure virtual networks ⓘ
Disabled Enabled

Data Lake Storage Gen2 (preview)
Hierarchical namespace ⓘ
Disabled Enabled

Create Automation options



The choice of other options available when creating a “Storage Account” (“Account Type”, “Location”, “Replication” and “Performance”) does not affect the operation/implementation of UDS, but may affect the final cost.

3. We confirm that the “Storage account” has been correctly created.

NAME	TYPE	KIND	RESOURCE GROUP	LOCATION	SUBSCRIPTION
storageeuds	Storage account	Storage	UDS_Enterprise	France Central	VirtualCable Pago por Uso

■ Container

Once we have a valid “storage account”, we will need a “container” to load the disk images of the UDS servers.

If you do not have one, you can create it by following these steps:

1. We select the “Storage account” where we’ll upload the UDS images. In the “BLOB SERVICE” menu, select “Blobs” and click on “Container”:

NAME	LAST MODIFIED
storageeuds	



2. We indicate a descriptive name for the new “Container” and select the “Public access level” appropriate to our needs. Let's click on “ok” to finish the creation.

Container Refresh Delete

New container

* Name

uds-container ✓

Public access level ⓘ

Private (no anonymous access) ▼

OK Cancel

3. We confirm that the “Container” has been correctly created:

Container Refresh Delete

Storage account: [storageuds](#)

Search containers by prefix

NAME	LAST MODIFIED	PUBLIC ACCESS LEVEL	LEASE STATE
uds-container	10/20/2016 10:07:17 AM	Private	Available

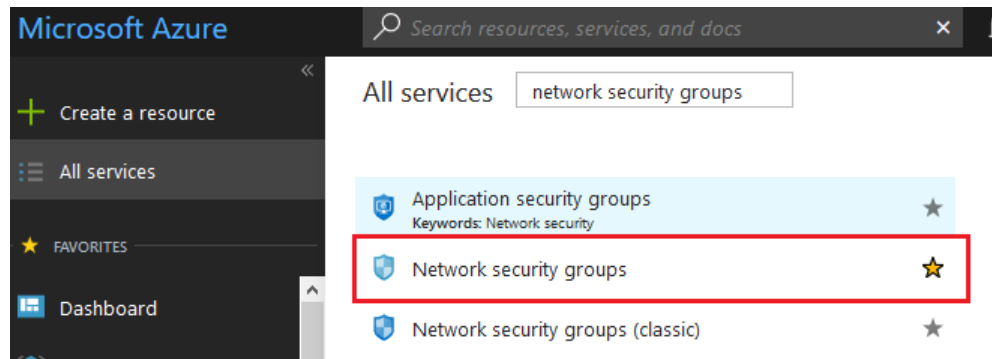
▪ Network security groups

Another element necessary for the deployment of UDS will be the “Network Security Groups”, which will perform the firewall function.

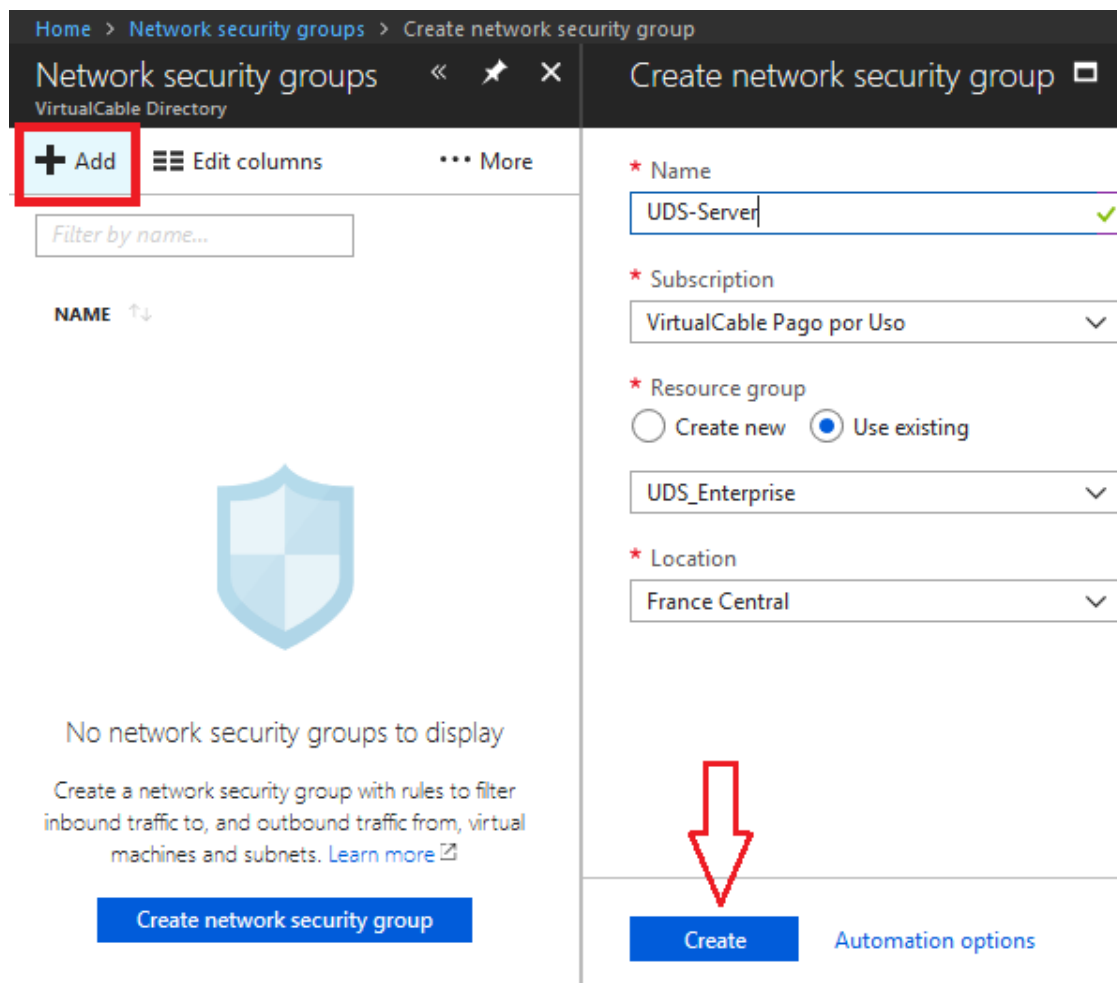
For the different elements of UDS, specific ports will be required. Below are the ports that must be configured for the proper functioning of UDS:



1. In the list of “Services”, we look for “Network security groups” (it is recommended to add it to your favorites list) and click on it:



2. Once inside, click “add” to create a new one. We indicate a descriptive name, select the subscription where it will be registered, select the “Resource Group” previously created and the “Location”. Finally, click on “create”.





3. Confirm that the “Network Security Group” has been correctly created (it will be necessary to create two, one for the UDS server and another for the UDS Tunneler server):

Home > Network security groups

Network security groups

VirtualCable Directory

+ Add Edit columns Refresh Assign tags

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All locations All tags

1 items

NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
UDS-Server	UDS_Enterprise	France Central	VirtualCable Pago por Uso

4. Access the new “Network Security Group” created by clicking on its name. In the “CONFIGURATION” menu, select “Entry security rules” and click “add” to create the necessary access rules:

Home > Network security groups > UDS-Server - Inbound security rules

UDS-Server - Inbound security rules

Network security group

Search (Ctrl+/) << + Add Default rules

Access control (IAM) Tags Diagnose and solve problems SETTINGS Inbound security rules Outbound security rules Network interfaces

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoad...	Any	Any	AzureLoadBal...	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

5. We will have to configure two “network security groups”; one for UDS Server and one for UDS Tunneler, each with its corresponding rule in “Rules of entry security”. In the following table you can verify the ports needed to access the UDS components and the service they will offer:

COMPONENT	PORT	FUNCTION
UDS SERVER	443	Access login panel
UDS TUNNELER	443, 10443	Access services and HTML5



- a) **UDS-Server:** We must create a UDS Server access rule where we allow traffic through port 443 TCP:

Add inbound security rule

UDS-Server

Basic

* Source ⓘ

Any

* Source port ranges ⓘ

*

* Destination ⓘ

Any

* Destination port ranges ⓘ

443

* Protocol

AnyTCPUDP

* Action

AllowDeny

* Priority ⓘ

100

* Name

UDS_Server

Add

Once we have indicated the data as shown in the screenshot, we will click on “add” to create the rule and confirm its correct creation:

+ Add

Default rules

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
100	UDS_Server	443	TCP	Any	Any	✓ Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNet...	VirtualNet...	✓ Allow	...
65001	AllowAzureLoadBalanc...	Any	Any	AzureLoad...	Any	✓ Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	✗ Deny	...



- b) **UDS Tunneler:** We must create an access rule to access the UDS Tunneler server where we allow traffic through TCP port 443 and 10443:

Add inbound security rule

UDS-Tunnel

Basic

* Source ⓘ

Any

* Source port ranges ⓘ

*

* Destination ⓘ

Any

* Destination port ranges ⓘ

443,10443

* Protocol

Any

TCP

UDP

* Action

Allow

Deny

* Priority ⓘ

100

* Name

UDS_Tunnel

Add

Once we indicate the data shown in the screenshot, we will click on “add” to create the rule and confirm its correct creation:

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
100	UDS_Tunnel	443,10443	Any	Any	Any	✓ Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNet...	VirtualNet...	✓ Allow	...
65001	AllowAzureLoadBalanc...	Any	Any	AzureLoad...	Any	✓ Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	✗ Deny	...



Implementing UDS servers on the Azure platform

Below you can find an example of how to deploy the servers that make up the UDS Enterprise environment on an Azure platform. This guide details the steps to upload and create the UDS Server component. The same tasks must be performed for the UDS Tunneler server.

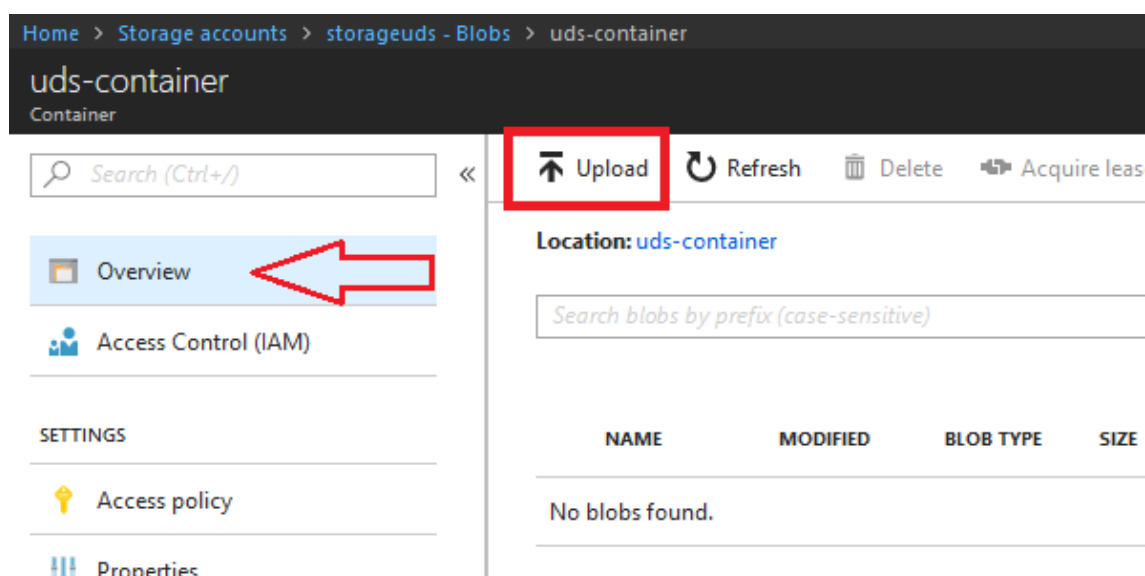
If the UDS version to be installed is Enterprise, you should also load the MySQL database server on the platform (remember that with UDS Free Edition and UDS Evaluation Edition it is not necessary to have a database server).

The VirtualCable team will provide the UDS servers in disk image format (.vhd)

■ Uploading disk images

The first task we will perform is importing the disk image of the UDS server. To do this, we must have a "Container" and the disk image of the UDS Server in .vhd format

1. Access the "Container" ("Storage accounts", in the "BLOB SERVICE" section, select "Blobs" and click on the "Container") and click on "Upload":





2. We indicate the image of the disk in the “Files” section. In “Blob type” we select “Page blob” and click on “Upload”

Upload blob ×

uds-container/

Files ⓘ

"UDS-Server-2.2.vhd"

☐ Overwrite if files already exist

Blob type ⓘ

Page blob ▼

☒ Upload .vhd files as page blobs (recommended)

Block size ⓘ

4 MB ▼

Upload to folder

Upload

3. The image will begin to be imported and we will have to wait until the loading process finishes. Once finished, we will proceed to the next task, which will consist on the generation of a disk from the image.

Current uploads

Dismiss: [Completed](#) [All](#)

UDS-Server-2.2.vhd	5 GiB / 5 GiB	...
--------------------	---------------	-----

Note: Depending on the size of the disk images and the speed of the connection, this process may take several minutes.

It will be necessary to repeat this process with the UDS Tunneler component and, in case of having an Enterprise version, with the MySQL database server.




Finally, we will see that we will have the UDS images available within the “Container”.



Upload Refresh Delete Acquire lease Break lease View snapshot

Location: [uds-container](#)

Search blobs by prefix (case-sensitive)

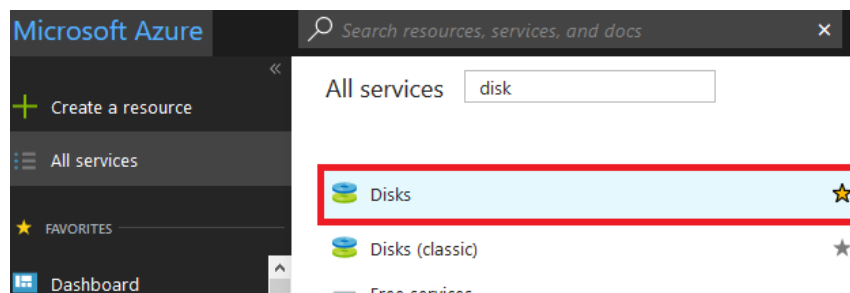
NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
 Mysql-disk1.vhd	[REDACTED]	Page blob	8 GiB	Available
 UDS-Server-2.2.vhd	[REDACTED]	Page blob	5 GiB	Available
 UDS-Tuneler-2.2.vhd	[REDACTED]	Page blob	10 GiB	Available

Creation of disks

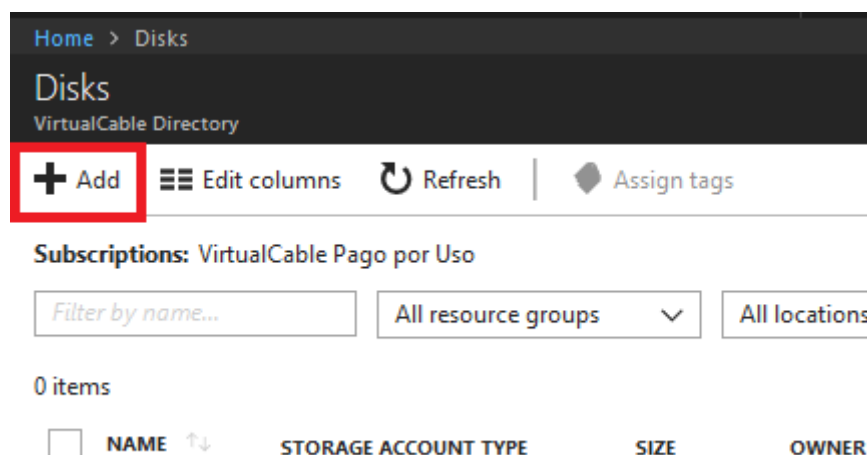
When we have the images of the different UDS components uploaded to the Azure platform, we will proceed to implement virtual disks based on these images.

From the virtual disks that we will create next, we will generate the virtual machines that will form the UDS environment.

1. In the list of "Services", we search for "disk" (it is recommended to add it to your favorites list) and click on it:



2. Click on "Add" to add a new disk.





3. We indicate a descriptive name and a subscription, select the “Resource Group” for UDS, “Location” and the “Type of account” according to the required performance:

Disks > Create managed disk

Create managed disk

* Name
UDS-Server-Disk

* Subscription
VirtualCable Pago por Uso

* Resource group
☐ Create new ☒ Use existing
UDS_Enterprise

* Location
France Central

Availability zone ⓘ
None

* Account type ⓘ
Standard HDD

* Source type ⓘ
Storage blob

* Source blob ⓘ
 ! [Browse](#)

In “Source type” we should choose “Storage Blob”. To indicate the image, click on “Browse” and select the “Storage account” created above:

Storage accounts

+ Storage account Refresh

Search storage accounts

NAME	TYPE	RESOURCE GROUP
storageuds	Standard-LRS	UDS_Enterprise

Once inside, we select the “Container” created above:

Containers

storageuds

+ Container Refresh

Search containers by prefix

NAME	LAST MODIFIED	PUBLIC ACCESS L...	LEASE STAT
uds-container		Private	Available



And finally we select the image imported in the previous step (in this case for the UDS server) and click on “Select”.

uds-container
Container

Upload Refresh

Location: [uds-container](#)

☐ Show deleted blobs

NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
Mysql-disk1.vhd		Page blob	8 GiB	Available
UDS-Server-2.2.vhd		Page blob	5 GiB	Available
UDS-Tuneler-2.2.vhd		Page blob	10 GiB	Available

Select

In “OS Type” we will indicate that it is “Linux” and we will enter the size of the disk in the “Size” field (we will always assign 1 GB more than the size of the image) and we will finish by clicking on “Create”.

* Source type ⓘ

Storage blob

* Source blob ⓘ

[Browse](#)

* OS type ⓘ

Windows

Linux

None (data disk)

* Size (GiB) ⓘ

ESTIMATED PERFORMANCE ⓘ

IOPS limit

500

Throughput limit (MB/s)

60

Create

[Automation options](#)



NOTE: The sizes of the disks for the different components of UDS Enterprise 2.2 will be the following:

COMPONENT	SIZE IN GB
UDS SERVER	5
UDS TUNNELER	11
MYSQL	9

4. We will wait for the disk to be created and, once the task is finished, we will see what we have available to generate the virtual machines later:

The screenshot shows the 'Disks' section of the VirtualCable interface. At the top, there's a breadcrumb 'Home > Disks' and a title 'Disks' with the subtitle 'VirtualCable Directory'. Below this are action buttons: '+ Add', 'Edit columns', 'Refresh' (highlighted with a dashed blue box), and 'Assign tags'. A subscription notice 'Subscriptions: VirtualCable Pago por Uso' is visible. Below the notice are filter controls: 'Filter by name...', 'All resource groups', 'All locations', and 'All tags'. A summary line indicates '1 items'. The main table has columns: NAME, STORAGE ACCOUNT TYPE, SIZE, OWNER, and RESOURCE GROUP. The table contains one row with the disk 'UDS-Server-Disk' of type 'Standard HDD', size '6 GiB', owner '-', and resource group 'UDS_Enterprise'.

NAME	STORAGE ACCOUNT TYPE	SIZE	OWNER	RESOURCE GROUP
UDS-Server-Disk	Standard HDD	6 GiB	-	UDS_Enterprise



5. Repeat the process with the UDS Tunneler component and, if you have an Enterprise version, also with the MySQL database.

Disks
VirtualCable Directory

+ Add Edit columns Refresh Assign tags

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All locations All tags

3 items

<input type="checkbox"/>	NAME ↑↓	STORAGE ACCOUNT TYPE	SIZE	OWNER	RESOURCE GROUP ↑↓
<input type="checkbox"/>	UDS-MySQL-Disk	Standard HDD	9 GiB	-	UDS_Enterprise
<input type="checkbox"/>	UDS-Server-Disk	Standard HDD	6 GiB	-	UDS_Enterprise
<input type="checkbox"/>	UDS-Tunneler-Disk	Standard HDD	11 GiB	-	UDS_Enterprise

NOTE: Once the disks are shown, we can remove the images from the “Container” to avoid unnecessary costs:

Upload Refresh Delete Acquire lease Break lease

Location: [uds-container](#)

Search blobs by prefix (case-sensitive) ☐ Show details

	NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
<input checked="" type="checkbox"/>	Mysql-disk1.vhd	...	Page blob	8 GiB	Available
<input checked="" type="checkbox"/>	UDS-Server-2.2.vhd	...	Page blob	5 GiB	Available
<input checked="" type="checkbox"/>	UDS-Tuneler-2.2.vhd	...	Page blob	10 GiB	Available

Delete blob(s)

Are you sure you would like to delete the selected blobs?

1. Blobs in leased state are locked for deletion and will be skipped.
2. Folder deletion is not supported and any selected folders will be skipped. To delete a folder, delete all containing blobs.
3. In order to delete a blob, all snapshots must be deleted.

☒ Also delete blob snapshots

OK Cancel

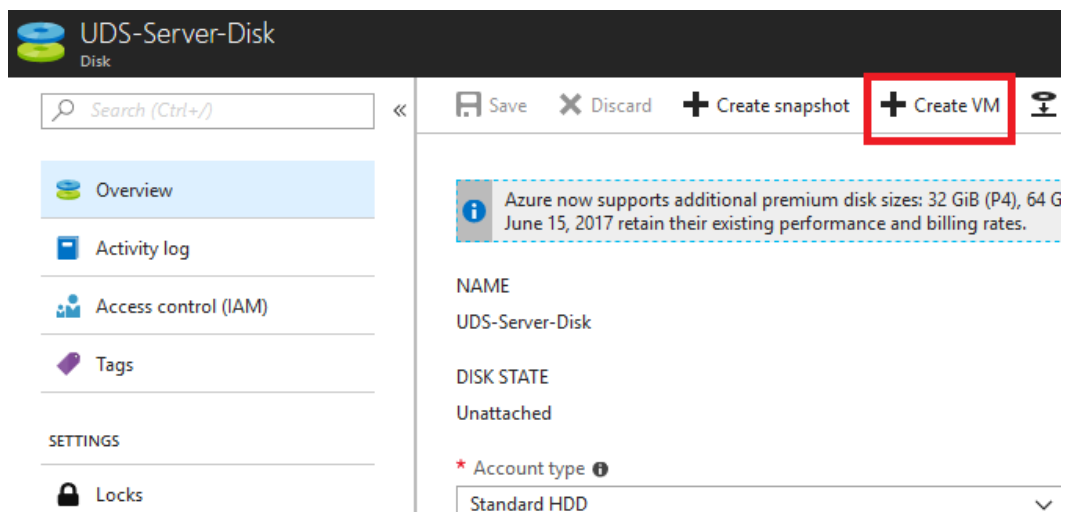


■ Creation of UDS virtual servers

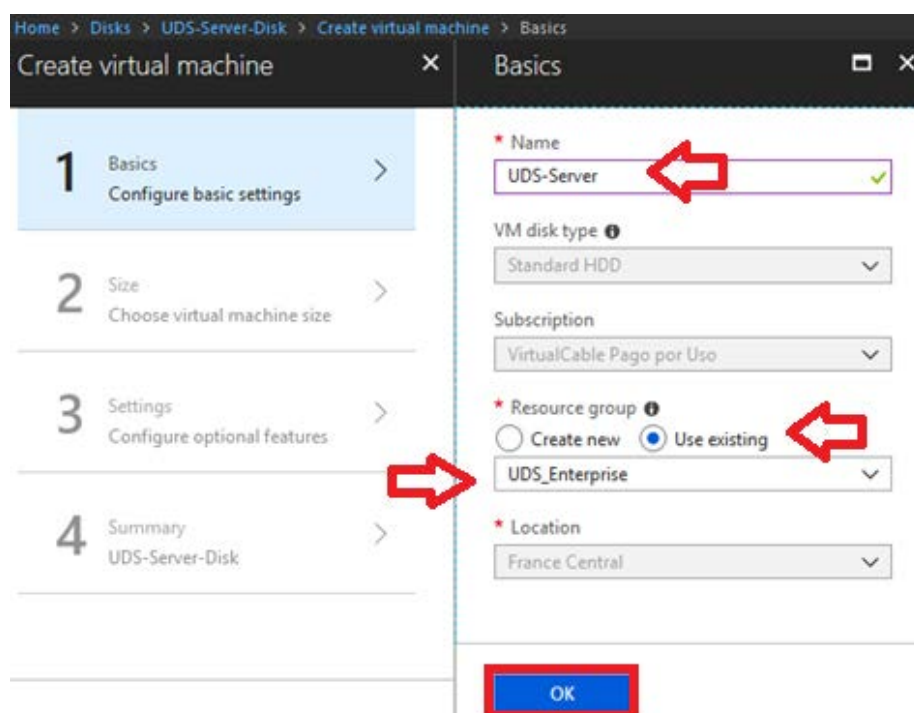
The last task we will perform in the process of importing / creating the UDS components will be the creation of the virtual machines based on the disks created in the previous step.

We will create the machines from the disks themselves:

1. Select the previously created disk (from the “Disk” service) and click on “Create virtual machine”:



2. In the first step of the creation assistant, we will indicate the name of the virtual machine and select the “Resource Group” to which we have assigned all the UDS services. Click on “OK”.





3. In the second step we select the type of machine and the resources it will have. We mark the type and click on “Select” (in this example we will select for the UDS Server and UDS Tunneler the type B2s and for the MySQL server the type B1s).

RECOM...	SKU	TYPE	COMPUTE T...	VCPUS	GB RAM
Available					
	B1s	Standard	General purpose	1	1
	B1ms	Standard	General purpose	1	2
	B2s	Standard	General purpose	2	4
	B2ms	Standard	General purpose	2	8

The minimum resources of the UDS components are shown in the following table:

COMPONENT	VCPU	VRAM
UDS SERVER	2	1
UDS TUNNELER	2	2
MYSQL	1	1

NOTE: UDS Tunneler server resources will be the only ones that tend to increase depending on the number of concurrent users (with the resources indicated in the table, a Tunneler server can reach between 30 and 50 users / concurrent connections with a medium profile use).

NOTE: We can assign the type B1s to the MySQL database.

4. In the third step we will indicate the following necessary data in the Network section:
 - a. **Virtual network:** If we already have a “virtual network” to connect the machines, we select it. Otherwise, we allow the system to create a new one (we can leave the name by default or indicate another). The rest of the components (UDS Tunneler and the MySQL database, must be assigned to the same network)
 - b. **Subnet:** If we already have a “subnet” that assigns IP addresses to the virtual machines, we select it. Otherwise, we let the system create a new one (we can leave the “default” or indicate a specific one)



- c. **Public IP address:** We will let the system assign a public IP address to the server. This default IP address will be dynamic, although once the VM is created, we can generate a DNS name associated to this IP or even force the machine to have a static public IP (the UDS Tunneler component must also have a public IP assigned, but for the MySQL database it won't be necessary, so in this case we will select "None")
- d. **Network Security Group:** We must select the "Advanced" option and assign the "Network Security Group" defined above for the UDS Server or UDS Tunneler component (in the case of the MySQL database server, we can select the "None" option, since access from outside the system is not necessary)

The screenshot shows the 'Create virtual machine' wizard in Azure, specifically the 'Settings' step. The left sidebar shows the progress: 1 Basics (Done), 2 Size (Done), 3 Settings (Current step), and 4 Summary (UDS-Server-Disk). The 'Settings' step is expanded, showing 'Configure optional features'. The 'High availability' section is expanded, showing 'Availability zone' set to 'None'. The 'Network' section shows 'Virtual network' set to '(new) UDS_Enterprise-vnet', 'Subnet' set to 'default (10.0.0.0/24)', 'Public IP address' set to '(new) UDS-Server-ip', and 'Network Security Group' set to 'Advanced' with 'UDS-Server' selected. Red arrows point to the 'Availability set', 'Virtual network', 'Subnet', 'Public IP address', 'Network Security Group', and 'Network security group (firewall)' fields.

Step	Section	Status
1	Basics	Done
2	Size	Done
3	Settings	Configure optional features
4	Summary	UDS-Server-Disk

High availability

Availability zone **None**

* Availability set **None**

Storage

Use managed disks **No** **Yes**

Network

* Virtual network **(new) UDS_Enterprise-vnet**

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

* Public IP address **(new) UDS-Server-ip**

Network Security Group **Basic** **Advanced**

* Network security group (firewall) **UDS-Server**

Extensions



In step 3 it will also be necessary to activate the “Boot diagnostic” option in the “Monitoring” section, which will allow us to see a screenshot of the start and the subsequent status of the virtual machine. In addition, this option is necessary to access the “Serial console” (to enable “Boot diagnostics” it will be necessary to indicate a “Storage account”, in this case we select the one previously created to avoid the creation of a new one). Click “OK” to complete step 3:

Create virtual machine

1 Basics Done ✓

2 Size Done ✓

3 Settings Configure optional features >

4 Summary UDS-Server-Disk >

Settings

Network Security Group ⓘ

Basic Advanced

* Network security group (firewall) ⓘ >

UDS-Server

Extensions

Extensions ⓘ >

No extensions

Auto-shutdown

Enable auto-shutdown ⓘ

Off On

Monitoring

Boot diagnostics ⓘ

Disabled Enabled

Guest OS diagnostics ⓘ

Disabled Enabled

* Diagnostics storage account ⓘ >

storageuds

Managed service identity

Register with Azure Active Directory ⓘ

No Yes

OK



5. Finally, in step 4, we will verify that all the configuration is correct and click “OK” to create the virtual machine.

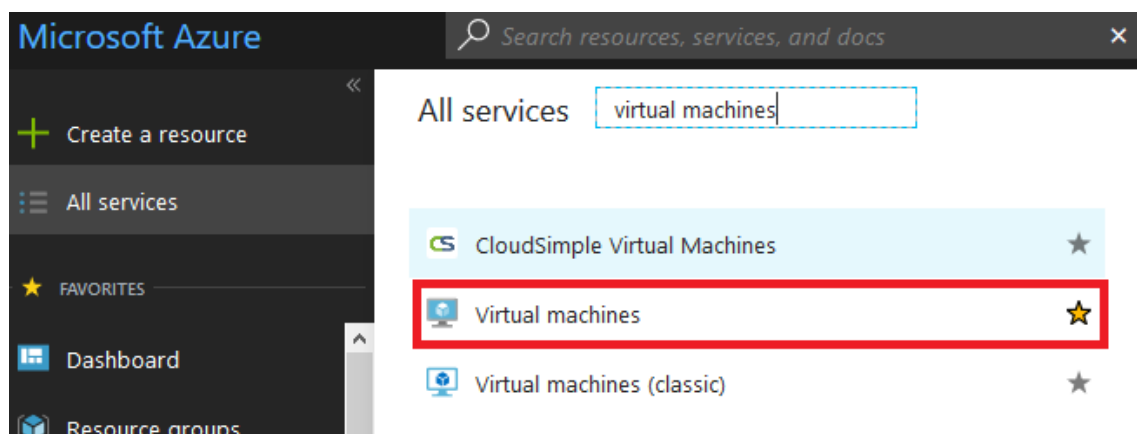
Create virtual machine	
1 Basics Done	✓
2 Size Done	✓
3 Settings Done	✓
4 Summary UDS-Server-Disk	>

Summary
Validation passed

Basics	
Subscription	VirtualCable Pago por Uso
Resource group	UDS_Enterprise
Location	France Central
Settings	
Computer name	UDS-Server
Disk type	Standard HDD
Size	Standard B2s (2 vcpus, 4 GB memory)
Managed	Yes
Private disk	UDS-Server-Disk
Virtual network	(new) UDS_Enterprise-vnet
Subnet	(new) default (10.0.0.0/24)
Public IP address	(new) UDS-Server-ip
Network security group (firew...	UDS-Server
Availability set	None
Guest OS diagnostics	Disabled
Boot diagnostics	Enabled
Diagnostics storage account	storageuds
Auto-shutdown	Off

OK Download template and parameters

6. Once the creation process of the new virtual machine is finished, we will verify that we already have the new machine in the “Virtual Machines” service. In order to check it we will have to look in the list of “Services”, “Virtual machines” (it is recommended to add it to your favorites list) and click on it:





We will see the new virtual machine created and turned on:

Home > Virtual machines

Virtual machines

VirtualCable Directory

+ Add Edit columns Refresh Assign tags Start Restart Stop

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All types All locations

1 items

	NAME	TYPE	STATUS	RESOURCE GROUP	LOCATION	
<input type="checkbox"/>	UDS-Server	Virtual machine	Running	UDS_Enterprise	France Central	-

- Repeat the process with the UDS Tunneler component and if you have an Enterprise version also with the MySQL database.

Home > Virtual machines

Virtual machines

VirtualCable Directory

+ Add Edit columns Refresh Assign tags Start Restart Stop

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All types All locations

3 items

	NAME	TYPE	STATUS	RESOURCE GROUP	LOCATION	
<input type="checkbox"/>	UDS-MySQL	Virtual machine	Running	UDS_Enterprise	France Central	
<input type="checkbox"/>	UDS-Server	Virtual machine	Running	UDS_Enterprise	France Central	
<input type="checkbox"/>	UDS-Tunneler	Virtual machine	Running	UDS_Enterprise	France Central	

■ UDS server configuration

Once we have all the UDS components deployed as virtual machines, we will proceed with their configuration.

To do this, we will access the “Virtual Machines” service and, in case of having an Enterprise version of UDS, we will start with the MySQL component (if we are going to implement a Free or Evaluation Edition, we will not need to have a database, since the UDS Server component automatically enables a local database).



MySQL configuration

If you are using the MySQL database provided by the VirtualCable team, it will be pre-configured and you only need to verify that it has IP connectivity (by default the network is configured by DHCP).

This MySQL server has created a BBDD instance ready to use with UDS Enterprise with the following data:

Instance name: uds

User: uds

Password: uds

In order to confirm that the server has a valid IP assigned via DHCP, we will have to connect via “Serial console”. We will access the “Virtual machines” service, select the virtual machine that contains the MySQL database and in the “Support + troubleshooting” menu we will select “Serial console (Preview)”.

The screenshot shows the UDS Enterprise web interface. On the left, the 'Virtual machines' section lists three VMs: 'UDS-MySQL', 'UDS-Server', and 'UDS-Tunneler'. A red arrow points to 'UDS-MySQL'. In the center, a sidebar menu under 'Support + troubleshooting' has 'Serial console (Preview)' highlighted with a red box. On the right, the 'Serial console (Preview)' window displays a terminal output showing system boot logs for a Debian GNU/Linux 9 mysql ttyS0 environment, including network configuration and service startup messages.

NOTE: The connection will take a few seconds and once connected, we must place the mouse inside and press the “enter” key.



We will validate in the MySQL server with the following data:

User: root

Password: uds

It will directly indicate the assigned IP address and relevant information about security and the configuration of the server itself.

```
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

IMPORTANT NOTES:
* This machine is provided as a very basic mysql server, without any security add-on.
* Change root password (ssh root login is disabled by default)
* Protect access to this machine, because it contains defaults that are publicly available, such as root password and database passwords.
* By default, cockpit is installed and available at https://SERVER_IP:9090. You can uninstall it if desired with apt-get remove cockpit
* Consider updating the software (using apt, dselect, etc..) as a first step before using it in any environment (production or not)
* Update the keyboard layout if needed: use dpkg-reconfigure keyboard-configuration, then service keyboard-setup restart for this. Default keyboard lang is Spanish
* THIS MACHINE IS INTENDED ONLY TO BE USED IN AN INTERNAL AND TRUSTED LAN.

You will need to take security actions (such as changing passwords, enabling firewall, etc...) in order to secure this machine.

Default mysql root password: uds
Default uds database password: uds
Default listen address of mysql server: 0.0.0.0 (all addresses)

Default network mode: DHCP

Detected IP: 10.0.0.6
Cockpit interface is at https://10.0.0.6:9090
root@mysql:~#
```

If we want to confirm that the network configuration is correct, we can use the command:

ip a

```
root@mysql:~# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UP
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc default qlen 1000
    link/ether 00:0d:3a:95:11:d5 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.6/24 brd 10.0.0.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::b49:dd3a:eecd:54a3/64 scope link
        valid_lft forever preferred_lft forever
root@mysql:~#
```



Once we confirm that we have network connectivity, we will proceed to configure the UDS server component.

NOTE: The use of static IP addresses is recommended for all UDS components

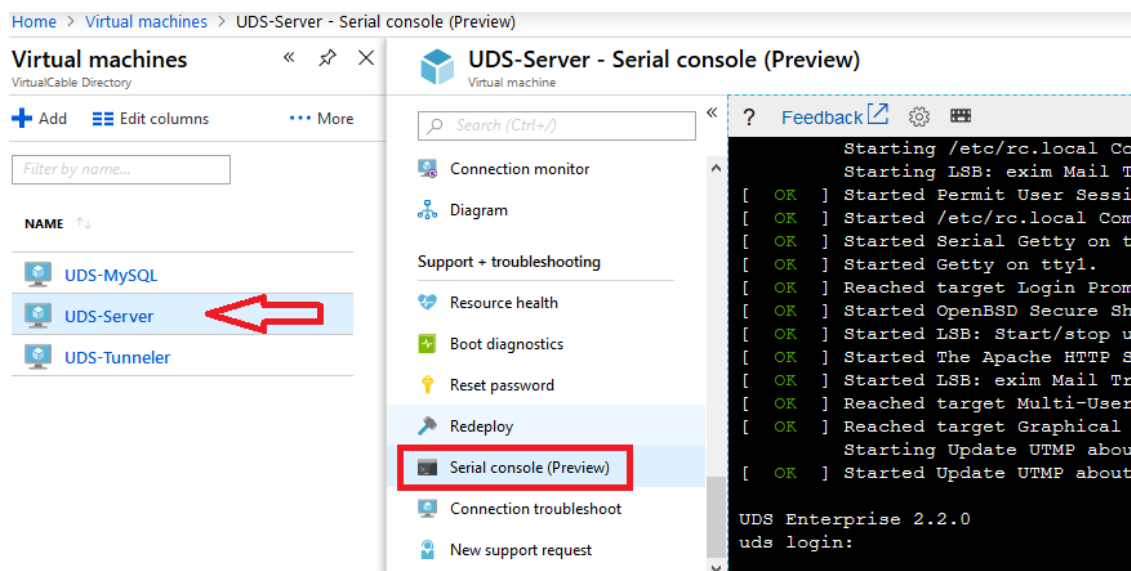
○ UDS Server Configuration

The UDS Server component is the main element of the UDS environment. It has a configuration wizard that we will execute automatically. For this it will be necessary to indicate a series of data in the configuration file of the server.

NOTE: If you are configuring an Enterprise version of UDS, you must have a previously configured MySQL database server (with network connectivity through port 3306 and with a preconfigured database instance).

NOTE: To configure any version of UDS (Enterprise, Free or Evaluation) it is necessary to have a valid serial number provided by the VirtualCable team).

To access and execute the UDS server configuration wizard, we will have to connect through the “serial console”. We will access the service “Virtual machines”, select the virtual machine that contains the UDS server and in the “Support + troubleshooting” menu we will select “Serial console (preview)”.



NOTE: The connection will take a few seconds and once connected, we must place the mouse inside and press the “enter” key.

We will validate on the UDS Server with the following credentials:

User: root

Password: uds





Once validated, we will confirm that in the /root directory we have an example configuration file with the name: "simple-cloud-unattended.json"

```
UDS Enterprise 2.2.0
uds login: root
Password:
Last login: xxxxxxxxxx on ttyS0
Linux uds 4.9.0-6-amd64 #1 SMP Debian 4.9.88-1+deb9u1 (2018-05-07) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@uds:~# ls
sample-cloud-unattended.json
root@uds:~#
```

We will create a copy of this file and name it as: config.uds

cp sample-cloud-unattended.json config.uds

```
root@uds:~# cp sample-cloud-unattended.json config.uds
root@uds:~# ls
config.uds  sample-cloud-unattended.json
root@uds:~#
```

Once the new file is created, we will edit it and indicate the new configuration data:

- **lang:** language of keyboard layout
- **dbPort:** connection port with the MySQL database (default 3306)
- **dbPassword:** password of the user configured in the MySQL database (default uds)
- **dbUsername:** user configured in MySQL database (default uds)
- **adminPassword:** password of the super-administrator of the UDS web environment and the root of the UDS Server virtual machine (default uds)
- **adminUsername:** name of the super-administrator of the UDS web environment (default: root)
- **dbDatabase:** name of the instance configured in MySQL (default: uds)
- **serial:** Serial number of the UDS Subscription (the serial can be for the UDS Enterprise version, UDS Enterprise Free Edition and UDS Enterprise Evaluation Edition)
- **dbServer:** IP address or name of the MySQL database



```
GNU nano 2.7.4      File: config.uds      Modified
{
  "lang": "es",
  "dbPort": "3306",
  "dbPassword": "uds",
  "dbUsername": "uds",
  "adminPassword": "uds",
  "adminUsername": "root",
  "dbDatabase": "uds",
  "serial": "C0000000-0000-0000-0000-000000000000",
  "dbServer": "10.0.0.6"
}
```

^G Get Help ^O Write Out ^W Where Is ^R Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line

NOTE: If we are going to configure a UDS Enterprise Free or Evaluation Edition version, the data related to the MySQL database will not need to be configured (the system will ignore them).

We save the changes in the config.uds file and proceed to its execution. To do this we should launch the following command:

SetupUDS.sh --unattended /root/config.uds --skipNetworkConfig



```
root@uds:~# SetupUDS.sh --unattended /root/config.uds --skipNetworkConfig
Unattended installation
Setting keyboard map to es
UDS ENTERPRISE edition
Configuring database
MySQL connection params server:10.0.0.6 port:3306, db:uds username:uds
Operations to perform:
  Apply all migrations: uds, sessions
Running migrations:
  Rendering model states... DONE
  Applying sessions.0001_initial... OK
  Applying uds.0001_squashed_0016_auto_20150617_0741... OK
  Applying uds.0017_calendar_calendarrule... OK
  Applying uds.0018_auto_20151005_1305... OK
  Applying uds.0019_auto_20160210_0144... OK
  Applying uds.0020_auto_20160216_0509... OK
  Applying uds.0021_auto_20160405_0429... OK
  Applying uds.0022_dbfile_owner... OK
  Applying uds.0023_transport_allowed_oss... OK
  Applying uds.0024_auto_20171025_1405... OK
  Applying uds.0025_deployedservice_ignores_unused... OK
  Applying uds.0026_auto_20180302_0525... OK
  Applying uds.0027_deployedservice_allow_users_reset... OK
Database configured
Cleaning up
Cleaning up UDS
Cache...
Releasing schedulers...
Resetting UDS Theme (setting to html5)...
UDS Cleaned UP
Storing support information
Storing security information
Configuration done. Remember to reboot in order to apply changes.
Setup done
root@uds:~#
```

Once the configuration process is correctly finished, **we must restart the server to apply the new configuration** and we can now configure the last UDS component, UDS Tunneler server.

○ UDS Tunneler configuration

The UDS Tunneler component is the element that will provide secure access to virtual desktops through the Internet. He will also be responsible for establishing the HTML5 connection (HTML5 Transport for desktops and vApps). It has a configuration wizard that we will run automatically. To do this it will be necessary to indicate a series of data in the configuration file of the server.

NOTE: To make a valid configuration of the UDS Tunneler server, it is necessary to have a valid UDS server with connectivity. The communication between these two components will be made through port 80 by default. If you want to use port 443, it will be necessary to have a valid certificate on both servers.

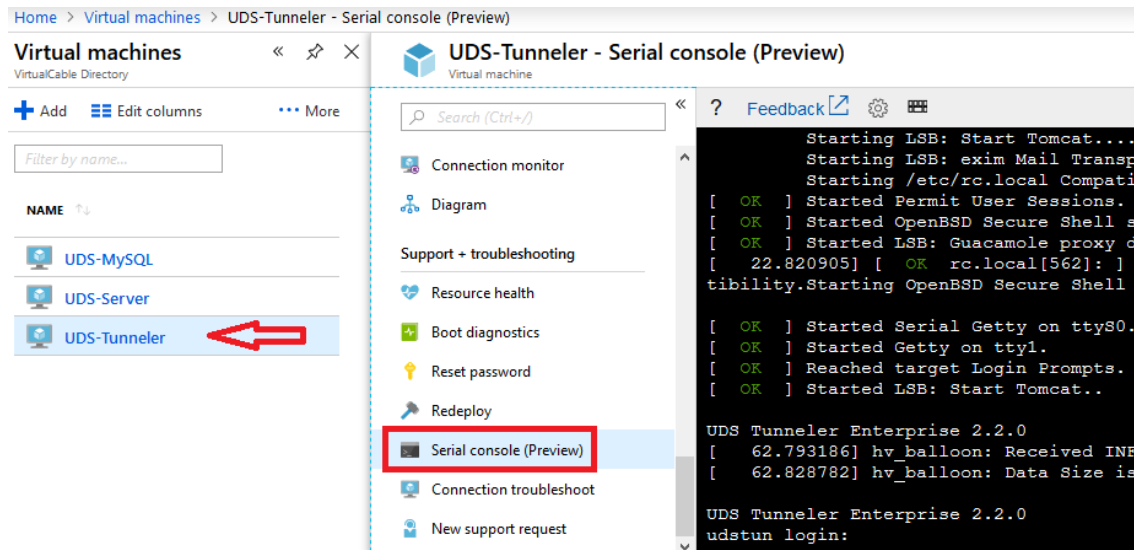
NOTE: The UDS Tunneler server can be connected against any version of UDS (Enterprise, Free or Evaluation).



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In order to access and execute the configuration wizard of the UDS Tunneler we will have to connect via “Serial console”. We will access the “Virtual machines” service, we will select the virtual machine that contains UDS Tunneler and in the “Support + troubleshooting” menu we will select “Serial console (Preview)”.



NOTE: The connection will take a few seconds and once connected, we must place the mouse inside and press the “enter” key.



We will validate on the UDS Server with the following credentials:

User: root

Password: uds

Once validated, we will confirm that in the /root directory we have an example configuration file with the name: "simple-cloud-unattended.json".

```
UDS Tunneler Enterprise 2.2.0
udstun login: root
Password:
Last login: [REDACTED] on ttyS0
Linux udstun 4.9.0-6-amd64 #1 SMP Debian 4.9.88-1+deb9u1 (2018-05-07) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@udstun:~# ls
sample-cloud-unattended.json
root@udstun:~#
```

We will create a copy of this file and name it like: config.uds

cp sample-cloud-unattended.json config.uds

```
root@udstun:~# cp sample-cloud-unattended.json config.uds
root@udstun:~# ls
config.uds  sample-cloud-unattended.json
root@udstun:~#
```

Once the new file is created, we will proceed to edit it and indicate the new configuration data:

- **lang:** Language of keyboard layout
- **brokerPort:** connection port with the UDS Server component (default 80)
- **brokerUseSSL:** enable or disable the use of SSL (default false)
- **brokerServer:** IP address or name of the UDS Server component
- **adminPassword:** UDS Tunneler virtual machine root password (default uds)



```
GNU nano 2.7.4      File: config.uds      Modified
{
  "lang": "es",
  "brokerPort": "80",
  "brokerUseSSL": false,
  "brokerServer": "10.0.0.4",
  "adminPassword": "uds"
}

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

We save the changes in the file config.uds and proceed to its execution. To do this we must start the following command:

SetupUDS.sh --unattended /root/config.uds --skipNetworkConfig

```
root@udstun:~# SetupTunneler.sh --unattended /root/config.uds --skipNetworkConfig
Unattended installation
Setting keyboard map to es
Configuring broker
Storing security information
Configuration done. Remember to reboot in order to apply changes.
Setup done
root@udstun:~#
```

Once the configuration process has been successfully completed, **we must restart the server to apply the new configuration.**

■ **Creating virtual machines as a base machine or template for UDS in Microsoft Azure:**

In order for UDS to implement virtual desktops in the Azure platform, it is necessary to have a machine or base template on which the new self-generated desktops by UDS will be based. We can implement this base machine in different ways. Next, we will show a procedure that will allow us to migrate templates already installed and configured in other virtual platforms (vSphere, KVM, etc.) to the Azure platform.

The first thing to do is to have a disk image of the base virtual machine in .vhd format. There are many free tools. (like StarWind converter, qemu-img, etc...) that allow us to convert disks of different formats (vmdk de vmware, qcow2/raw de KVM, etc...) to .vhd format. It is very important to keep in mind that the disk image has to be with the total size (Fixed Size), format "Thin" is not supported (Dynamically Expanding).



Before migrating the template machine, it is important that we make sure that it has a valid access mode (SSH or RDP type) in order to access it once it is hosted on the Azure platform (this platform does not have a console to be able to manage, configure, modify the machines). The base machine used in this example has enabled/installed access via SSH and RDP.

Another important point to keep in mind is the configuration of the network. It must be configured to carry the IP address through DHCP. In templates with S.O. Windows, it is necessary to have installed the valid network driver so that it is detected in the Azure platform (if the machine is exported from a Hyper-V platform it will already be integrated).

Once we have the disk image converted to the format supported by Azure (.vhd), we will load it into the platform and implement the new base machine. We will perform the following tasks described below (the procedure will be very similar to the one we use to implement the Appliances of UDS component):

- Uploading disk image .vhd to a “Container”

1. Access the “Container” (“Storage accounts”, in the “BLOB SERVICE” section, select “Blobs” and click on the “Container”) and click on “Upload”:

The screenshot shows the Azure portal interface for a storage container named 'uds-container'. The breadcrumb navigation at the top reads: Home > Storage accounts > storageuds - Blobs > uds-container. The main header area shows 'uds-container' and 'Container'. Below this is a search bar and a set of action buttons: 'Upload' (highlighted with a red box), 'Refresh', 'Delete', and 'Acquire lease'. On the left sidebar, the 'Overview' tab is selected, indicated by a red arrow. Below the sidebar, there are sections for 'Access Control (IAM)', 'SETTINGS' (including 'Access policy' and 'Properties'), and a table for 'Blobs'. The table has columns for 'NAME', 'MODIFIED', 'BLOB TYPE', and 'SIZE', and currently displays 'No blobs found.'



- We indicate the disk image in the “Files” section. In “Blob type” we select “Page blob” and click on “Upload”.

Upload blob ✕
uds-container/

Files ⓘ
"UDS_PLT_Ubuntu16.04.vhd"

☐ Overwrite if files already exist

Blob type ⓘ
Block blob ▼

☒ Upload .vhd files as page blobs (recommended)

Block size ⓘ
4 MB ▼

Upload to folder

Upload

- The image will start to be imported and we will have to wait until the upload process is finished. Once finished, we will proceed to the next task: the generation of a disk from the image.

Current uploads

Dismiss: [Completed](#) [All](#)

UDS_PLT_Ubuntu16.04.vhd	10 GiB / 10 GiB	...
-------------------------	-----------------	-----

NOTE: Depending on the size of the disk images and the speed of the connection, this process could take several minutes.

Finally, we will see that within the “Container” we will have available the disk image of our base/template machine.

Upload Refresh Delete Acquire lease Break lease View snaps

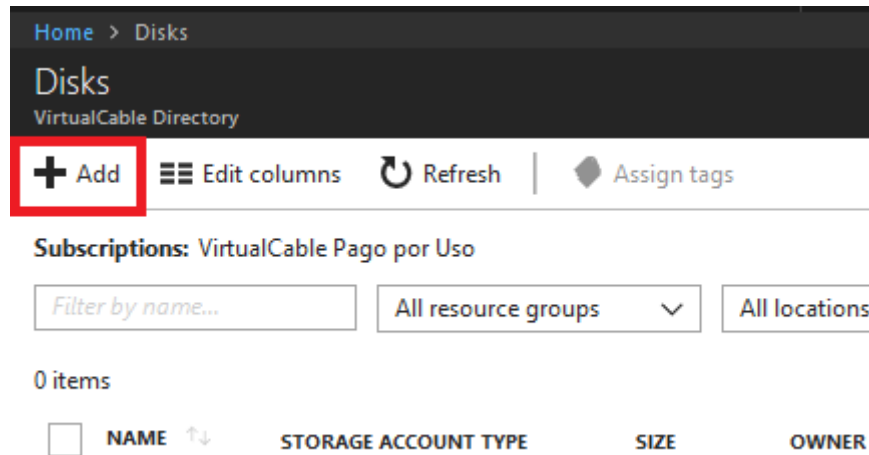
Location: [uds-container](#)

NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
UDS_PLT_Ubuntu16.04.vhd		Page blob	10 GiB	Available



- Virtual disk creation

1. Access the “Disk” service and click on “add” to add a new disk.



2. We indicate a descriptive name and a subscription, select the “Resource group” meant to UDS, “Location” and the “Account Type” based on the necessary performance:

Create managed disk

* Name

UDS-PLT-Ubuntu16.04-Disk

* Subscription

VirtualCable Pago por Uso

* Resource group

☐ Create new ☒ Use existing

UDS_Enterprise

* Location

France Central

Availability zone ⓘ

None

* Account type ⓘ

Standard HDD

* Source type ⓘ

Storage blob

* Source blob ⓘ



In “Source type” we must choose “Storage blob”. To indicate the image, click on “Browse” and select the “Storage accounts”:

Storage accounts

+ Storage account Refresh

NAME	TYPE	RESOURCE GROUP
storageeuds	Standard-LRS	UDS_Enterprise

Once inside, we select the “Container” where we have uploaded the image of the template:

Containers

+ Container Refresh

NAME	LAST MODIFIED	PUBLIC ACCESS L...	LEASE STAT
uds-container	[REDACTED]	Private	Available

Finally we select the image of the template and click on “Select”.

uds-container

Container

Upload Refresh

Location: uds-container

☐ Show deleted blobs

NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
UDS_PLT_Ubuntu16.04.vhd	[REDACTED]	Page blob	10 GiB	Available

Select



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We will indicate “OS type” (in this case “Linux”) and enter the size of the disk in the “Size” field (we will always assign 1 GB more than size of the image) and finish by clicking on “Create”.

* Source type ⓘ
Storage blob

* Source blob ⓘ

* OS type ⓘ

* Size (GiB) ⓘ

ESTIMATED PERFORMANCE ⓘ
IOPS limit 500
Throughput limit (MB/s) 60

[Automation options](#)

3. We wait for the disk to be created and, once the task is finished, we will see that we have it available to later generate the base/template machine using this virtual disk:

Home > Disks

Disks

VirtualCable Directory

+ Add Edit columns Refresh Assign tags

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All locations

4 items

	NAME ↑↓	STORAGE ACCOUNT TYPE	SIZE	OWNER	RESOURCE GROUP ↑↓
<input type="checkbox"/>	UDS-MySQL-Disk	Standard HDD	9 GiB	UDS-MySQL	UDS_Enterprise
<input checked="" type="checkbox"/>	UDS-PLT-Ubuntu16.04-Disk	Standard HDD	11 GiB	-	UDS_Enterprise
<input type="checkbox"/>	UDS-Server-Disk	Standard HDD	6 GiB	UDS-Server	UDS_Enterprise
<input type="checkbox"/>	UDS-Tunneler-Disk	Standard HDD	11 GiB	UDS-Tunneler	UDS_Enterprise

NOTE: Once the disk is deployed, we can delete the image of the “Container” to avoid generating unnecessary costs.



Upload Refresh Delete Acquire lease Break lease View snapshots

Location: [uds-container](#)

Search blobs by prefix (case-sensitive)

	NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
<input checked="" type="checkbox"/>	UDS_PLT_Ubuntu16.04.vhd	9/13/2018, 11:54:24 AM	Page blob	10 GiB	Available

Delete blob(s)

Are you sure you would like to delete the selected blobs?

1. Blobs in leased state are locked for deletion and will be skipped.
2. Folder deletion is not supported and any selected folders will be skipped. To delete a folder, delete all containing blobs.
3. In order to delete a blob, all snapshots must be deleted.

☒ Also delete blob snapshots

OK Cancel

Creating virtual machine base

The creation of the base machine/template will be done from the disk itself:

1. Select the previously created disk (from the "Disk" service) and click on "Create VM":

UDS-PLT-Ubuntu16.04-Disk
Disk

Search (Ctrl+/)

Overview Activity log Access control (IAM) Tags Settings Locks

Save Discard + Create snapshot + **Create VM** Export

NAME
UDS-PLT-Ubuntu16.04-Disk

DISK STATE
Unattached

* Account type ⓘ
Standard HDD

* Size (GiB) ⓘ
11



2. In the first step of the creation wizard we will indicate the name of the virtual machine (it **can not start with “UDS”**) and we will select the “Resource group” where we have assigned all UDS’ services. Click on “OK”.

Home > Disks > UDS-PLT-Ubuntu16.04-Disk > Create virtual machine > Basics

Create virtual machine

1 Basics
Configure basic settings >

2 Size
Choose virtual machine size >

3 Settings
Configure optional features >

4 Summary
UDS-PLT-Ubuntu16.04-Disk >

Basics

* Name
PLT-Ubuntu16 ✓

VM disk type ⓘ
Standard HDD ▼

Subscription
VirtualCable Pago por Uso ▼

* Resource group ⓘ
☐ Create new ☒ Use existing
UDS_Enterprise ▼

* Location
France Central ▼

OK

NOTE: The name of the template can't begin with the letters “UDS”. If it starts with these letters, it will not be displayed nor will it be available in the UDS administration to be used as “base machine”.



3. In the second step we select the type of the machine and the resources it will have. We choose the type and click on “Select” (in this example we will select for the template some minimum resources, B1s type).

Create virtual machine

1 Basics Done ✓

2 Size Choose virtual machine size >

3 Settings Configure optional features >

4 Summary UDS-PLT-Ubuntu16.04-Disk >

Choose a size
Browse the available sizes and their features

Search Compute type: Current generation

RECOM...	SKU	TYPE	COMPUT...	VCPUS	GB RAM
Available					
	B1s	Standard	General purpo	1	1
	B1ms	Standard	General purpo	1	2
	B2s	Standard	General purpo	2	4
	B2ms	Standard	General purpo	2	8

Prices presented are estimates in your local currency that include only Azure infrastructure

Select

4. In the third step we will indicate the following necessary information in the Network section:
- Virtual network:** If we already have a “virtual network” to connect the machines, we select it. Otherwise, we let the system create a new one (we can leave the name by default or indicate another).
 - Subnet:** If we have a “Subnet” that assigns IP addresses to the virtual machines, we select it. Otherwise, we let the system create a new one (we can leave the “default” or indicate a specific one).
 - Public IP address:** We will let the system assign a public IP address to the server. The main reason will be to be able to access the template via RDP or SSH, to be able to install new software (including the UDS Actor), maintenance or updates on the base machine. If the disk image already has the UDS Actor configured and you do not want to make any access, you can not indicate any public IP address by selecting “None”.
 - Network Security Group:** If we have assigned a “Public IP”. We must select the “Advanced” option and assign or create a “Network security group” to access the template. In this example, one that allows access through ports 22 (SSH) and 3389 (RDP) has been assigned.



Home > Disks > UDS-PLT-Ubuntu16.04-Disk > Create virtual machine > Settings

Create virtual machine

1 Basics Done ✓

2 Size Done ✓

3 Settings Configure optional features >

4 Summary UDS-PLT-Ubuntu16.04-Disk >

Settings

High availability

Availability zone ⓘ

None ▾

* Availability set ⓘ >

None

Storage

Use managed disks ⓘ

No Yes

Network

* Virtual network ⓘ >

UDS_Enterprise-vnet

* Subnet ⓘ >

default (10.0.0.0/24)

* Public IP address ⓘ >

(new) PLTUbuntu16ip463

Network Security Group ⓘ

Basic Advanced

* Network security group (firewall) ⓘ >

UDS-PLT_SSH-RDP

In step 3 we can also activate in the “Monitoring” section, the “Boot diagnostics” option, which will allow us to view a screenshot of the boot and subsequent status of the virtual machine. Click on “OK” to finish step 3:



Create virtual machine

- 1 Basics Done ✓
- 2 Size Done ✓
- 3 Settings Configure optional features >
- 4 Summary UDS-PLT-Ubuntu16.04-Disk >

Settings

Extensions

Extensions ⓘ
No extensions >

Auto-shutdown

Enable auto-shutdown ⓘ

Monitoring

Boot diagnostics ⓘ
 ←

Guest OS diagnostics ⓘ

* Diagnostics storage account ⓘ
storageeuds >

Managed service identity

Register with Azure Active Directory ⓘ

5. In step 4 and last, we will check that all the configuration is correct and click “OK” to create the virtual machine.



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Create virtual machine

1 Basics Done ✓

2 Size Done ✓

3 Settings Done ✓

4 Summary UDS-PLT-Ubuntu16.04-Disk >

Summary

Validation passed

Basics

Subscription VirtualCable Pago por Uso

Resource group UDS_Enterprise

Location France Central

Settings

Computer name PLT-Ubuntu16

Disk type Standard HDD

Size Standard B1s (1 vcpu, 1 GB memory)

Managed Yes

Private disk UDS-PLT-Ubuntu16.04-Disk

Virtual network UDS_Enterprise-vnet

Subnet default (10.0.0.0/24)

Public IP address (new) PLTUbuntu16ip463

Network security group (firewall) UDS-PLT_SSH-RDP

Availability set None

Guest OS diagnostics Disabled

Boot diagnostics Enabled

Diagnostics storage account storageuds

Auto-shutdown Off

OK

Download template and parameters

6. Once the process of creating the new VM is finished, we will check that we already have the new machine in the “Virtual machines” service. We will have to see the new virtual machine created and turned on:

Home > Virtual machines

Virtual machines

VirtualCable Directory

+ Add

≡ Edit columns

↻ Refresh

◆ Assign tags

▶ Start

↺ Restart

■ Stop

🗑

Subscriptions: VirtualCable Pago por Uso

Filter by name...

All resource groups ▼

All types ▼

All locations

4 items

<input type="checkbox"/>	NAME ↑↓	TYPE ↑↓	STATUS	RESOURCE GROUP ↑↓	LOCATION ↑↓
<input checked="" type="checkbox"/>	PLT-Ubuntu16	Virtual machine	Running	UDS_Enterprise	France Central
<input type="checkbox"/>	UDS-MySQL	Virtual machine	Running	UDS_Enterprise	France Central
<input type="checkbox"/>	UDS-Server	Virtual machine	Running	UDS_Enterprise	France Central
<input type="checkbox"/>	UDS-Tunneler	Virtual machine	Running	UDS_Enterprise	France Central

- Access and configuration of basic machine or template

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Once the virtual machine is deployed, we must be able to access it. To know what the public IP address of the machines is, we will click on it in the “Virtual machines” service. In the section “Overview” we will look at the value of “Public IP address”.

Home > Virtual machines > PLT-Ubuntu16

PLT-Ubuntu16
Virtual machine

Search (Ctrl+*/*)

Overview (selected) | Activity log | Access control (IAM) | Tags | Diagnose and solve problem... | Settings | Networking | Disks

Connect | Start | Restart | Stop | Capture | Delete | Refresh

Resource group (change)
UDS_Enterprise

Status
Running

Location
France Central

Subscription (change)
VirtualCable Pago por Uso

Subscription ID
[REDACTED]

Computer name
-

Operating system
Linux

Size
Standard B1s (1 vcpus, 1 GB m

Public IP address
40.89.139.239

Virtual network/subnet
UDS_Enterprise-vnet/default

DNS name
Configure

In this example we will connect through RDP to be able to perform the installation of the UDS Actor, although, as we indicated earlier, the “Network security group” assigned also allows us to connect through SSH:

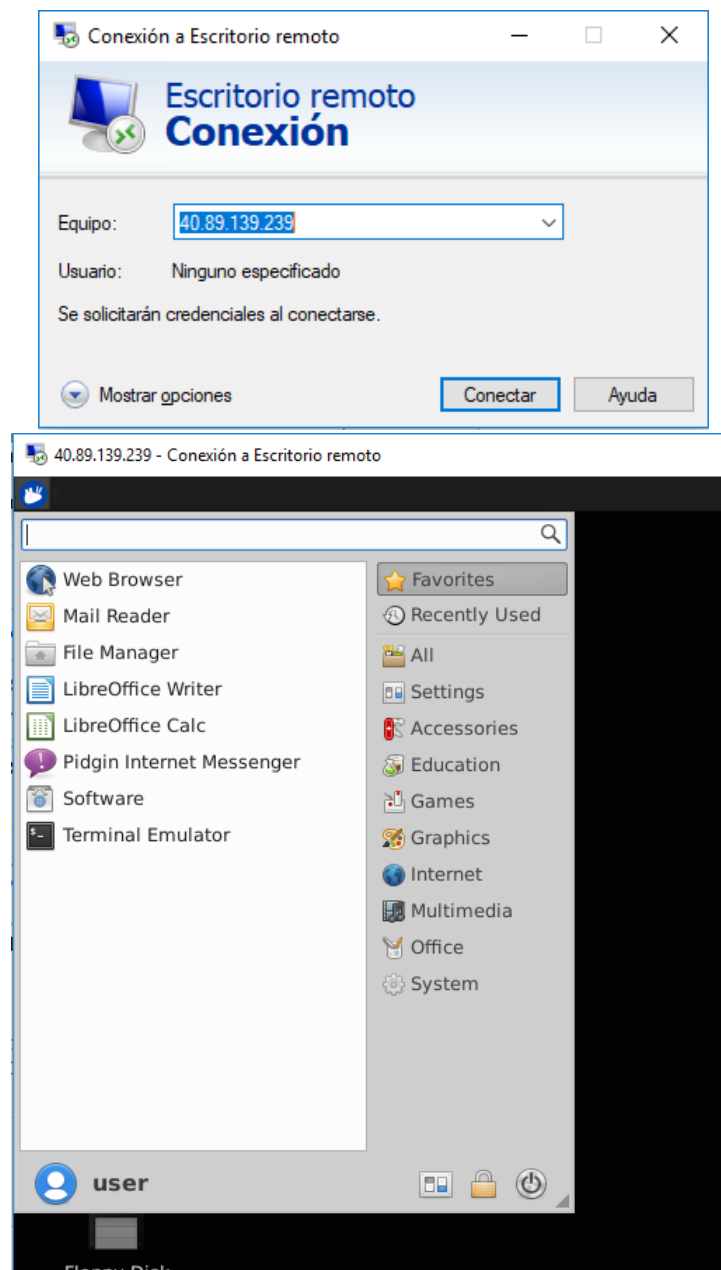
```
login as: user
user@40.89.139.239's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.4.0-101-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

Last login: [REDACTED] from [REDACTED]
user@ubuntu:~$
```

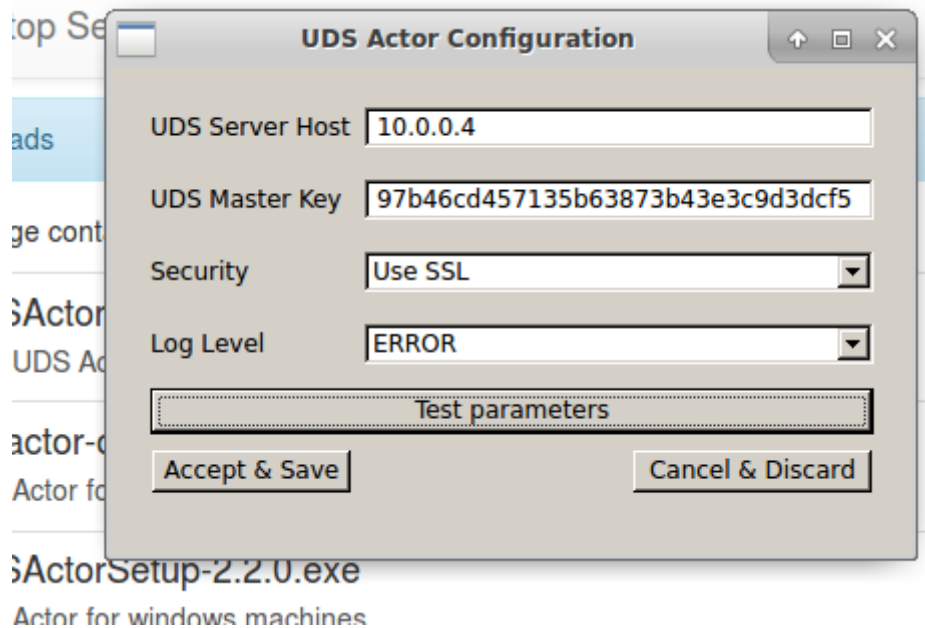
We access the template through RDP to install and configure the UDS Actor:



NOTE: You can consult the UDS Enterprise installation, administration and user manual in the [documentation](#) section of the UDS Enterprise website for more details on the installation of UDS Actor.

During the configuration of the UDS Actor, we can indicate in the connection data against UDS Server the address/local DNS name or also the IP or public DNS (in the case of using IP addresses instead of names, we must make sure that these addresses are not dynamic, since they can change with the on/off of the virtual machines).

In this example we will use the local IP address of the UDS Server:



NOTE: It is necessary to verify through the “Test parameters” option that the connection data against UDS Server is correct.

Once all these tasks are completed, we can now **turn off the base machine or template** to be used with UDS Enterprise (it is not possible to publish a service if the base machine or template is turned on).

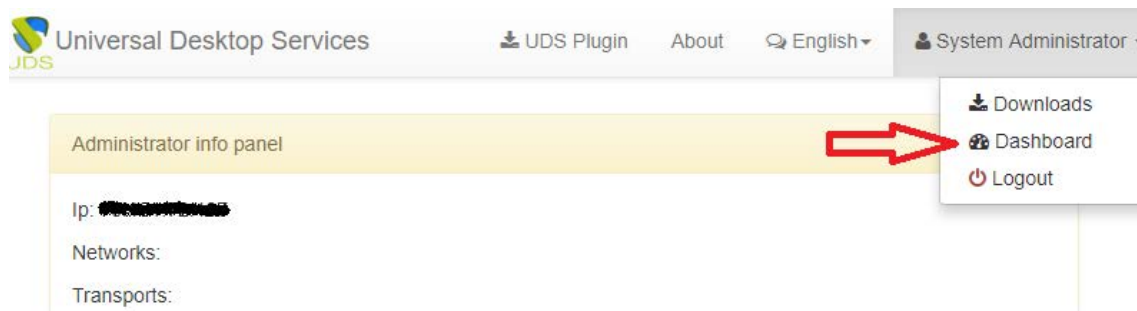


UDS Enterprise administration

Azure service provider integration

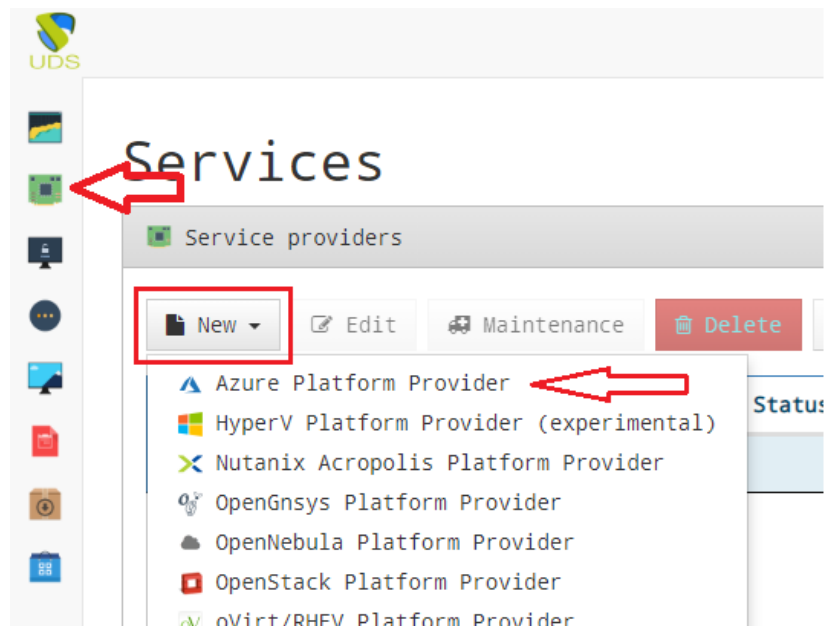
To perform the integration of Azure as a UDS Enterprise service provider, we should access the UDS administration dashboard. To do this, we access through web browser the public IP address or the name of the UDS Server using port 443. We log in with an administrator user (in this case we will use the administrator of the system user indicated in the configuration script of the UDS Server).

Once validated in the UDS access portal, we will access the “Dashboard” from the user's menu.





Within the UDS administration, we access the “Services” menu and click on “New” to register a new “Service provider”. We select “Azure Platform Provider”.



In order that UDS can connect to the Azure platform and be able to deploy virtual desktops automatically, it will be necessary to indicate a descriptive name and a series of data that we can obtain directly from this platform:

New services provider of type **Azure Platform Provider** ×

Main **Advanced**

Tags Add Tag...

Name

Comments

Tenant ID

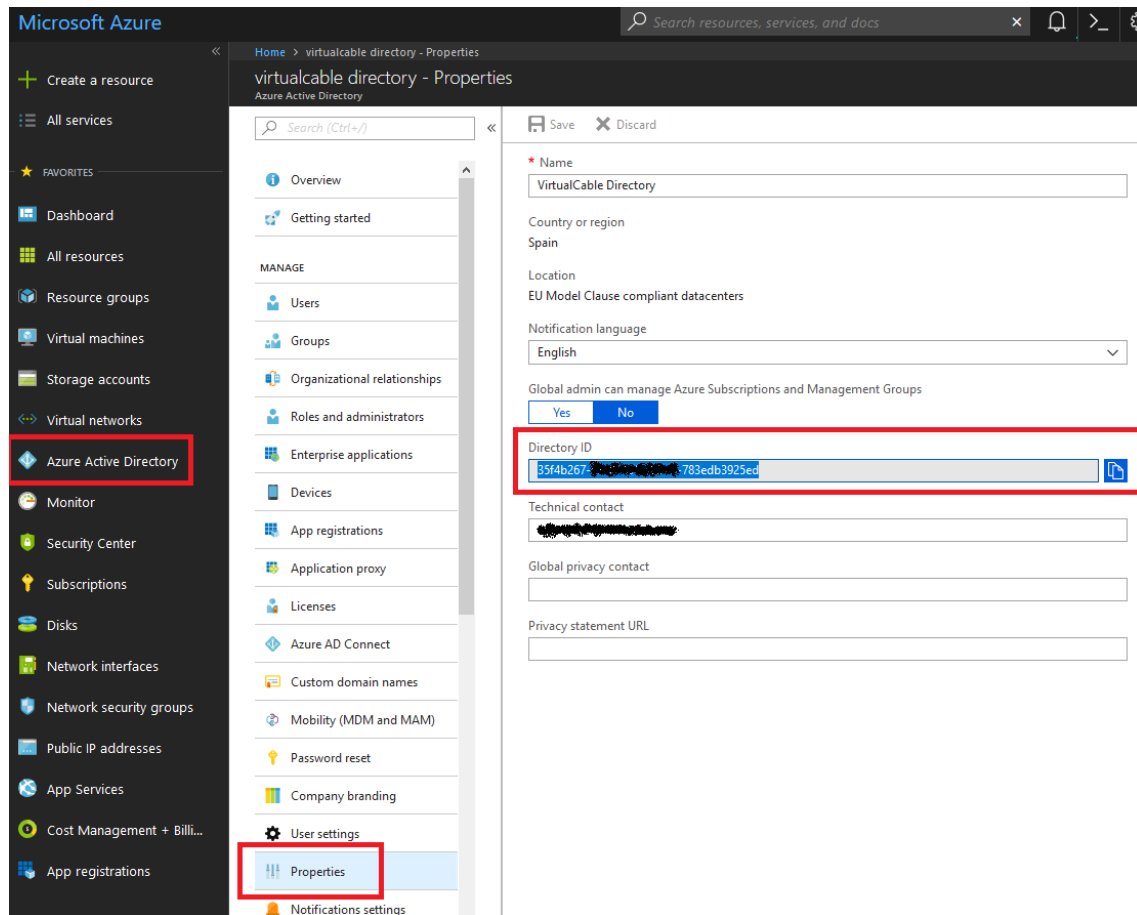
Client ID

Client Secret

Subscription ID



- **Tenant ID:** This value can be obtained from the service “Azure Active Directory”, “Properties”, “Directory ID”.



- **Client ID:** To obtain this value, it will be necessary to create a new “Application registrations” and give permission for our Azure subscription.

To register the application, we will go to the service “App registrations” and click on “New application registration”.



- **Name:** Name of the application
- **Application type:** We select “Web app / API”
- **Sign-on URL:** In this field we will indicate the access URL of UDS Server. We can obtain this URL from the virtual machine itself, in “Overview” – “DNS name”

Create

×

*

Name

?

UDS_Enterprise

✓

Application type

?

Web app / API

▼

*

Sign-on URL

?

https://uds.francecentral.cloudapp.azure.c...

✓

Create



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Home > Virtual machines > UDS-Server

UDS-Server
Virtual machine

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problem...

Settings

Networking

Disks

Connect Start Restart Stop Capture Delete Refresh

Resource group (change)
UDS_Enterprise

Status
Running

Location
France Central

Subscription (change)
VirtualCable Pago por Uso

Subscription ID
[REDACTED]

Computer name
-

Operating system
Linux

Size
Standard_DS1_v2

Public IP address
40.89.140.98

Virtual network/subnet
UDS_Enterprise-vnet/default

DNS name
uds.francecentral.cloudapp.azure.com

Once indicated all data of the application, we will click on “Create” and we will verify that it has been correctly created (if we do not see it, we will click on “View all applications”):

Home > App registrations > UDS_Enterprise

App registrations
Azure Active Directory

+ New application registration Endpoints Troubleshoot

To view and manage your registrations for converged applications, please visit the [Microsoft Application Console](#).

Search by name or AppID

All apps

DISPLAY NAME	APPLICATION TYPE	APPLICATION ID
UD UDS_Enterprise	Web app / API	ec148935-0f89-4941-844c-0e1bc0ef37ff

The column “APPLICATION ID” will indicate the “Client ID” that we will have to copy in UDS. In order to have a valid Client ID that can be used by UDS, we must give it permission on our subscription. To do this, we select our subscription of Azure (service “Subscriptions”) and in the option “Access control (IAM)” click on “add”.

Home > Subscriptions > VirtualCable Pago por Uso - Access control (IAM)

VirtualCable Pago por Uso - Access control (IAM)
Subscription

Search (Ctrl+/)

+ Add Remove Roles Refresh Help

Overview

Access control (IAM)

Diagnose and solve problems

Security (Preview)

Name

Search by name or email

Type

All

Scope

All scopes

Group by

Role

9 items (7 Users, 2 Service Principals)

NAME	TYPE	ROLE
------	------	------



We indicate the role (in this case Contributor), we select that the access will be for “Azure AD user, group, or application” and we write the beginning of the application name registered in the previous step. Once it appears as available, we select it and click on “Save”

Add permissions

×

Role ⓘ

Contributor


Assign access to ⓘ

Azure AD user, group, or application

Select ⓘ

UDS_E ✓

Selected members:

 UDS_Enterprise [Remove](#)

Save

Discard

We can see the App with the assigned role:

+ Add

Remove

Roles

Refresh

Help

Name ⓘ

Search by name or email

Type ⓘ

Apps

Role ⓘ

2 selected


Scope ⓘ

All scopes

Group by ⓘ

Role

Showing a filtered set of results. Total number of role assignments: 10

<input type="checkbox"/>	NAME	TYPE	ROLE	SCOPE
CONTRIBUTOR				
	UDS_Enterprise	App	Contributor ⓘ	This resource ...

- **Client Secret:** This value will be obtained from the previously registered application. Click on it (in the “App registration”) and access “settings”.



UDS_Enterprise

Registered app

Settings

Manifest

Delete

Display name

UDS_Enterprise

Application ID

ec148935-0f89-4941-844c-0e1bc0ef37ff

Application type

Web app / API

Object ID

ff90920c-7e5f-44a7-9d93-daccc1ad610f

Home page

[https://\[redacted\].cloudapp.azure.com](https://[redacted].cloudapp.azure.com)

Managed application in local directory

UDS_Enterprise

Inside “Settings” click on “Keys”. In the section “Passwords” we will indicate a description, we will select when it expires and we will click on “save” to copy the “key”:

Settings

Keys

Save

Discard

Upload Public Key

GENERAL

Properties

Reply URLs

Owners

API ACCESS

Required permissions

Keys

TROUBLESHOOTING + SUPPORT

Troubleshoot

Filter settings

GENERAL

Properties

Reply URLs

Owners

API ACCESS

Required permissions

Keys

TROUBLESHOOTING + SUPPORT

Troubleshoot

Passwords

DESCRIPTION	EXPIRES	VALUE
UDS key	Never expires	Value will be displayed on save
Key description	Duration	Value will be displayed on save

Public Keys

THUMBPRINT	START DATE
No results.	

Once saved, it will allow us to copy the value (once this window is closed we will not be able to copy this value again, although we will be able to generate a new one if necessary) and we can use it as a Client Secret in UDS.

Keys

Save

Discard

Upload Public Key

Copy the key value. You won't be able to retrieve after you leave this blade.

Passwords

DESCRIPTION	EXPIRES	VALUE
UDS key	12/31/2299	mztcP496N2dQJk73WkaVC4UdJevRZ//Pr/Uo8w91w3w=
Key description	Duration	Value will be displayed on save

- **Subscription ID:** To obtain this value, we will access the “Subscriptions” service. We will identify our subscription and copy the value of “SUBSCRIPTION ID”:



Microsoft Azure

Home > Subscriptions

Subscriptions

VirtualCable Directory

+ Add

Showing subscriptions in virtualcable directory. Don't see a subscription? [Switch directories](#)

My role ⓘ

7 selected

Apply

☒ Show only subscriptions selected in the [global subscriptions filter](#) ⓘ

Search to filter items...

SUBSCRIPTION	SUBSCRIPTION ID
VirtualCable Pago por Uso	d0e72996-45d99f9b5c88

Once all the fields are filled in, we will click on “Test” to verify that all the data are correct and we will save the parameters.

Message

Test passed successfully

Ok

Name	Azure
Comments	Comments for this element
Tenant ID	35f4b267-98e0-4a45-9bd2-783edb3925ed
Client ID	ec148935-0f89-4941-844c-0e1bc0ef37ff
Client Secret	mztcp496N2dQJk73WkaVC4UdJevRZ//Pr/Uo8w91w3w=
Subscription ID	d0e72996-45d99f9b5c88

Test Close Save

NOTE: Even if the test is not correct, we can save the provider and thus not lose the indicated data. Later you can check which of the values is the wrong one (the “Client Secret” will only be visible during its creation).



UDS English System Administrator

Services

Service providers

New Edit Maintenance Delete Xls Permissions Filter

	Name	Comments	Status	Services	User Services
<input type="checkbox"/>	Azure	-	Active	0	0

Creation of base service

When we have a valid “Service provider” connected to the Azure platform, we can create services based on templates. To do this, we select the provider, open the “Services” tab and click on “New” – “Azure Clone Service”.

Services

Service providers

New Edit Enter maintenance Mode Delete Xls Permissions Filter

	Name	Comments	Status	Services	User Services
<input checked="" type="checkbox"/>	Azure	-	Active	0	0

Records 1 to 1 of 1 Selected one row

Overview Services Usage Logs

Services of Azure

New Edit Information Delete Xls Filter

Azure Clone Service

	Comments	Type	Services Pools	User
Empty				



To create a base service of type “Azure Clone Service” we must indicate:

- Main:
 - **Name:** Descriptive name of the base service
 - **Resource Group:** We select the Azure “Resource Group” where we have our base machine or template
 - **Virtual Machine:** Base machine or template that we will use to deploy virtual desktops
 - **Machine Size:** Amount of resources that will have the virtual desktops automatically implement by UDS (this list will show all types of machines available in Azure, therefore, we must make sure that our Azure subscription supports the chosen type)
 - **Machine Names:** Root name of the virtual desktops generated by UDS
 - **Name Length:** Number of digits of the counter for UDS machines. These digits will be joined to the “machine names” to form the DNS name of the virtual desktops (with 1 digit you can create 9 machines, with 2, 99, with 3, 999, etc...)

New service of type **Azure Clone Service**

Main

Network

Advanced

Tags

Add Tag...

Name

Ubuntu16

Comments

Comments for this element

Resource Group

UDS_Enterprise

Virtual Machine

PLT-Ubuntu16

Machine size

B1s (Standard, 1 cores, 1.00 GiB, 2 max data disk

Machine Names

UbuntuDesk-

Name Length

3

+

-

Close

Save



- Network:
 - **Network:** Existing virtual network in the Azure environment to which the virtual desktops will connect (there must be connectivity to the UDS Server component)
 - **Subnet:** Existing subnet of the Azure environment to which the virtual desktops will connect
 - **Security Group:** We can indicate a “Security Group” to be assigned to the virtual desktops. In this example, when the UDS components and the automatically generated desktops are in the same network, we will select “None”, since we don’t want to apply any of them

New service of type **Azure Clone Service** ×

Main

Network

Advanced

Network

UDS_Enterprise-vnet

Subnet

default

Security Group

None

Close

Save

- Advanced:
 - **Caching policy:** Disk cache configuration
 - **Pricing tier:** Level of applied redundancy
 - **Accelerated network:** Enables the use of this technology (can not be used with most machines, only with: D/DSv3, E/ESv3, Fsv2 and Ms/Mms and S.O. Linux)



New service of type Azure Clone Service

Main Network Advanced

Caching policy

ReadWrite

Pricing tier

Standard_LRS

Accelerated network

No

Close

Save

Click on “Save” and we will have a valid base service to automatically deploy virtual desktops:

Overview Services Usage Logs

Services of Azure

New

Edit

Information

Delete

Xls

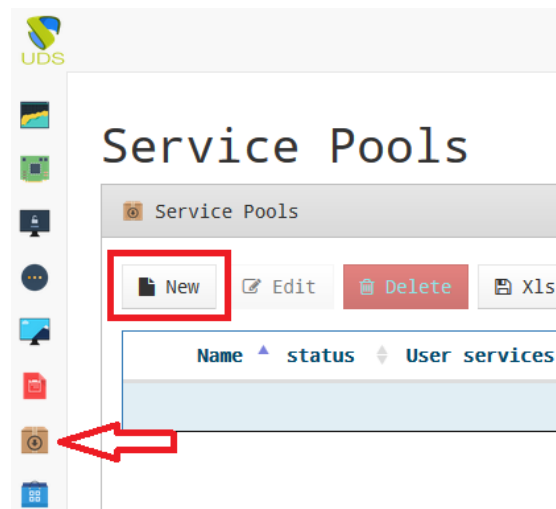
Filter

	Service name	Comments	Type	Services Pools	User services
<input type="checkbox"/>	Ubuntu16	-	Azure Clone Service	0	0

Service Pools creation

Before proceeding to create a group of services (to publish virtual desktops), it will be necessary to have at least one “Authenticator” (to validate and be able to assign services to users), an “OS Manager” (to indicate the operating system and the policy of persistence of the generated desktops) and a “Transport” (to make the connection to the desktops) previously configured. To see more details on how to configure these elements, you can access the UDS Enterprise Installation, Administration and User Manual in the [documentation](#) section of our website.

When the elements discussed above are ready (Authenticator, OS Manager and Transport) we can create “Service Pools”. To do this, we open the “Service Pools” tab and click on “New”.



In the “Main” tab we will indicate the name of the service (this name will be visible to users) and we will select the base service previously created (in this case, the Azure platform and the Ubuntu16 base service) and an existing “OS Manager” (in this example we will use one for the Linux operating system and the non-persistent type).

New service pool

Main Advanced Display Availability

Tags

Add Tag...

Name

Desktop Ubuntu

Short name

Short name for user service visualization

Comments

Comments for this element

Base service

Azure\Ubuntu16

OS Manager

Linux Non-Persistent

Publish on creation

Yes

Close

Save

In the parameters of the “Advanced” and “Display” tabs you can left the by default values. In the “Availability” tab we will indicate the initial desktops that UDS will generate and the ones in cache level 1 (In Azure the use of the L2 cache is not available).

In this example we will indicate that UDS is going to automatically create 2 desktops and we'll always have at least 1 available in cache.



New service pool

×

Main

Advanced

Display

Availability

Initial available services

2

+

-

Services to keep in cache

1

+

-

Services to keep in L2 cache

0

+

-

Maximum number of services to provide

10

+

-

Close

Save

NOTE: At the time of saving the configuration or publishing a new version, the base machine or template **must be turned off**.

When selecting “Service Pool” and opening the “Publications” tab, it will be verified if the publication has been generated correctly. When in a “Valid” state, the system will automatically start generating the virtual desktops indicated in the cache parameters.

Service Pools

New

Edit

Delete

Xls

Permissions

Name	status	User services	In Preparation	Shows transports	Po
<input checked="" type="checkbox"/> Desktop Ubuntu	Active	0	0	Yes	

Records 1 to 1 of 1 Selected one row

Overview

Assigned services

Cache

Groups

Transports

Publications

Scheduled actions

Publications

New

Cancel

Xls

Revision	Publish date	State
<input type="checkbox"/> 1		Valid



In the “Cache” tab we can see how the desktops start to be generated.

In this example, we have indicated that initially the system creates 2 virtual desktops:

Overview Assigned services Cache Groups Transports Publications Scheduled actions Access Calendars

Logs

Cached services

Delete Xls Filter

	Creation date	Revision	Unique ID	IP	Friendly name	State	Cache level	Actor version
<input type="checkbox"/>	[REDACTED]	1	00:0D:3A:95:5E:F7	unknown	UbuntuDesk-000	Waiting OS	1	unknown
<input type="checkbox"/>	[REDACTED]	1	-	unknown	UbuntuDesk-001	In preparation	1	unknown

In the Azure environment we will also see how virtual desktops are being created:

Home > Virtual machines

Virtual machines

VirtualCable Directory

+ Add Edit columns Refresh Assign tags Start Restart Stop Delete Ser

Subscriptions: VirtualCable Pago por Uso

Filter by name... All resource groups All types All locations All tags

6 items

	NAME	1	STATUS	RESOURCE ...	LOCATION	MAINTENA..
<input type="checkbox"/>	PIT-Ubuntu16	Virt...	Stopped (dea...	UDS_Enterprise	France Central	-
<input type="checkbox"/>	UDS_UbuntuDesk_000_v1_369e6...	Virt...	Running	UDS_Enterprise	France Central	-
<input type="checkbox"/>	UDS_UbuntuDesk_001_v1_369e60...	Virt...	Running	UDS_Enterprise	France Central	-
<input type="checkbox"/>	UDS-MySQL	Virt...	Running	UDS_Enterprise	France Central	-
<input type="checkbox"/>	UDS-Server	Virt...	Running	UDS_Enterprise	France Central	-
<input type="checkbox"/>	UDS-Tunneler	Virt...	Running	UDS_Enterprise	France Central	-

Once the desktops are in a “Valid” state (that is, the UDS Actor installed in the template has finished applying the necessary configurations), they will be available for users to access them.

NOTE: In order for users to see the service, the “Service Pool” created must have an assigned user group (“Groups” tab) and a transport (“Transports” tab).



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Overview Assigned services Cache Groups Transports Publications Scheduled actions
Access Calendars Logs

Cached services									
Delete		Xls		Filter <input type="text"/>					
<input type="checkbox"/>	Creation date	Revision	Unique ID	IP	Friendly name	State	Cache level	Actor version	
<input type="checkbox"/>	09/19/2018 19:35	1	00:0D:3A:95:5E:F7	10.0.0.9	UbuntuDesk-000	Valid	1	2.2.0	
<input type="checkbox"/>	09/19/2018 19:35	1	00:0D:3A:95:51:03	10.0.0.10	UbuntuDesk-001	Valid	1	2.2.0	

We will access the services window with a user (it is not possible to use the super-user system administrator, root by default) and we will see the available service.

Universal Desktop Services

Plugin UDS Acerca de Español javi

Panel de información del administrador

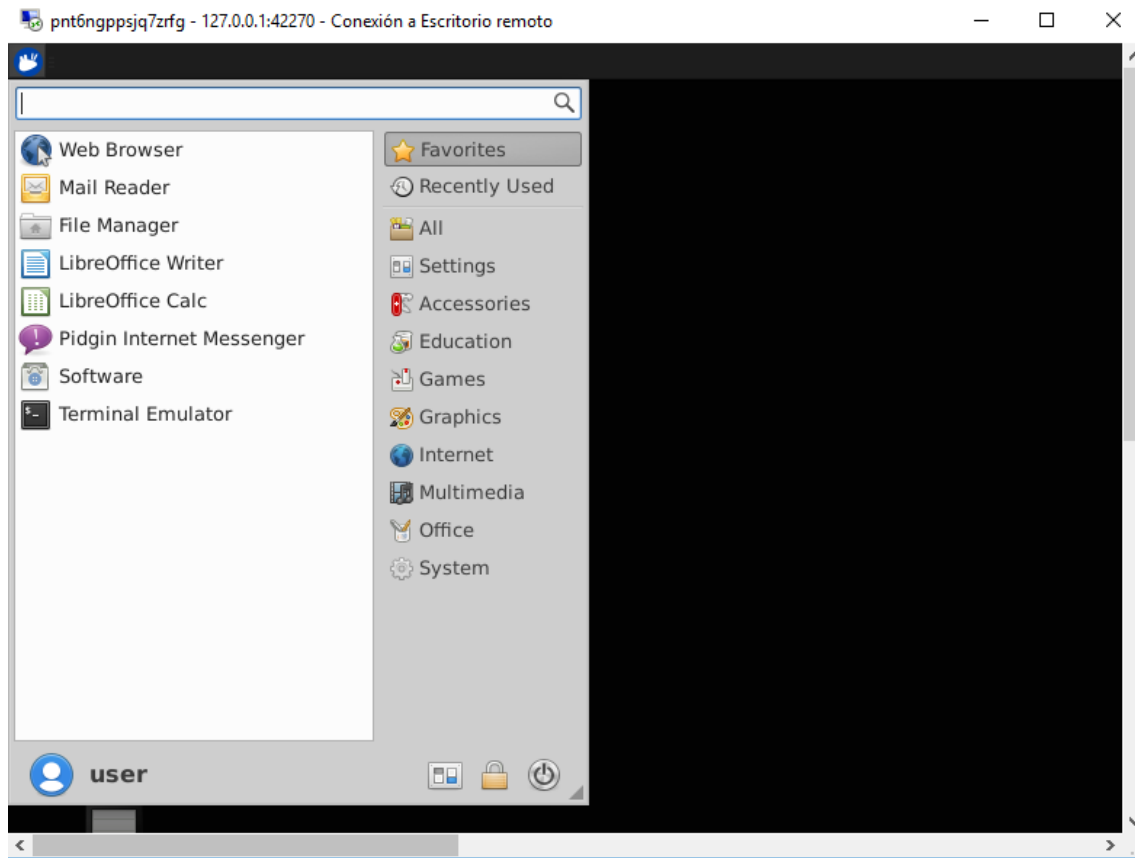
IP: 79.151.72.137
Redes:
Transportes: HTML5-Ubuntu16,RDP-Ubuntu16
Agente de usuario: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:62.0) Gecko/20100101 Firefox/62.0
SO: Windows



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Access it by clicking on the image (in this example, an RDP type transport has been configured).



NOTE: If we are outside the network configured in Azure, it will be necessary to use a Tunnelered transport (as you can see in the screenshot of the connection example, it is connecting to 127.0.0.1 since the connection is made through a Tunneler).



Integration of Azure AD as “Authenticator” of UDS Enterprise

UDS allows integration with the Azure authentication system, called “Azure Active Directory”. Through this integration, it will be possible to validate the users registered in this authenticator in the UDS login portal and allow their access to desktop services and virtual applications.

To allow the correct integration between UDS and “Azure Active Directory” it will be necessary to perform some previous tasks in Azure platform.

Tasks to be done in Azure

The first task we will perform in the Azure environment will be to create valid “App registrations” to allow UDS to access “Azure Active Directory”.

To register the application, we will go to the service “App registrations” and click on “New application registration”.

The screenshot shows the Microsoft Azure portal interface. On the left sidebar, the 'App registrations' option is highlighted with a red box. In the main content area, the 'App registrations' page is displayed. The 'New application registration' button is highlighted with a red box. Below this, there is a search bar and a dropdown menu set to 'All apps'. A table lists the registered applications:

DISPLAY NAME	APPLICATION TYPE	APPLICATION ID
UDS_Enterprise	Web app / API	99be5a65-b8ae-4

NOTE: In some cases it will be necessary to click on “View all applications” to view all existing ones.



In the creation assistant we will indicate:

- **Name:** Name of the application
- **Application type:** We select “Web app / API”
- **Sign-on URL:** In this field we can indicate any URL (it is not necessary that it exists), it will not be used by UDS

Create ☐ ☐

*** Name** ⓘ

UDS_AzureAD ☒

Application type ⓘ

Web app / API ☐

*** Sign-on URL** ⓘ

https://sample ☒

Create

Once all the application data is indicated, click on “create” and verify that it was created correctly (if we do not see it, click on “View all applications”):

Home > App registrations

App registrations

Azure Active Directory

+ New application registration

⋮ Endpoints

✕ Troubleshoot

To view and manage your registrations for converged applications, please visit the [Microsoft Application](#)

Search by name or AppID

All apps ☐

	DISPLAY NAME	APPLICATION TYPE	APPLICATION ID
UD	UDS_Enterprise	Web app / API	99be5a65-b8ae-4905-abfc
UD	UDS_AzureAD	Web app / API	796fd50c-83d6-4faa-9505



After checking that it has been correctly created, we will have to select the App, click on “Setting” and select in the menu “API ACCESS” the option “Required permissions”.

Home > App registrations > UDS_AzureAD > Settings

UDS_AzureAD
Registered app

Settings Manifest Delete

Display name: UDS_AzureAD
Application ID: 796fd50c-83d6-4faa-9505-e4e21f45f30a
Application type: Web app / API
Object ID: 116abe3a-5576-4b4c-96cd-4255db8dd1cd
Home page: https://sample
Managed application in local directory: UDS_AzureAD

Settings

Filter settings

GENERAL

Properties >
Reply URLs >
Owners >

API ACCESS

Required permissions >
Keys >

Now we will assign the necessary permissions so that UDS can read users and groups of the “Azure Active Directory” authenticator.

By default, one called “Windows Azure Active Directory” is added in the creation of the App. We can select it and delete it.

Required permissions

+ Add Grant permissions		
API	APPLICATION PERMI...	DELEGATED PERMISS...
Windows Azure Active Directory	0	1

Once deleted, we will click on “add” to add the permissions that UDS needs for its correct integration.



Home > App registrations > UDS_AzureAD > Settings > Required permissions

Settings

GENERAL

Properties >

Reply URLs >

Owners >

API ACCESS

Required permissions >

Keys >

Required permissions

+ Add Grant permissions

API	APPLICATION PERMISSIONS	DEL
No results.		

In step 1 of the wizard, we will select “Microsoft Graph” and click on “Select”.

Home > App registrations > UDS_AzureAD > Settings > Required permissions > Add API access > Select an API

Add API access

1 Select an API
Microsoft Graph >

2 Select permissions >

Done

Select an API

Windows Azure Active Directory

Microsoft Graph <

Azure Key Vault

Windows Azure Service Management API

Azure DevOps (Microsoft Visual Studio Team Services)

Office 365 Management APIs

Select

In step 2 we will indicate the necessary permissions that will be within the “APPLICATION PERMISSIONS” section. They will be: “Read all groups”, “Read directory data” and “Read all users’ full profiles”. Click on “select” once we have selected them.



Home > App registrations > UDS_AzureAD > Settings > Required permissions > Add API access > Enable Access

Add API access

1 Select an API
Microsoft Graph ✓

2 Select permissions
3 roles, 0 scope >

Done

Enable Access

Read contacts in all mailboxes	✓ Yes
Read and write contacts in all mailboxes	✓ Yes
<input checked="" type="checkbox"/> Read all groups ←	✓ Yes
Read and write all groups	✓ Yes
<input checked="" type="checkbox"/> Read directory data ←	✓ Yes
Read and write directory data	✓ Yes
Read and write devices	✓ Yes
<input checked="" type="checkbox"/> Read all users' full profiles ←	✓ Yes
Read and write all users' full profiles	✓ Yes

Select

Click on "Done" to finish the assistant.

Add API access

1 Select an API
Microsoft Graph ✓

2 Select permissions
3 roles, 0 scope ✓

Done

Finally, we will select "Microsoft Graph" and click on "Grant permissions" to apply them correctly.



Home > App registrations > UDS_AzureAD > Settings > Required permissions > Enable Access

Required permissions

+ Add **Grant permissions**

API	APPLICATION PERMI...	DELEGATED PERMISS...
Microsoft Graph	3	0

We will click on “yes” to apply.

Home > App registrations > UDS_AzureAD > Settings > Required permissions > Enable Access

Required permissions

+ Add **Grant permissions**

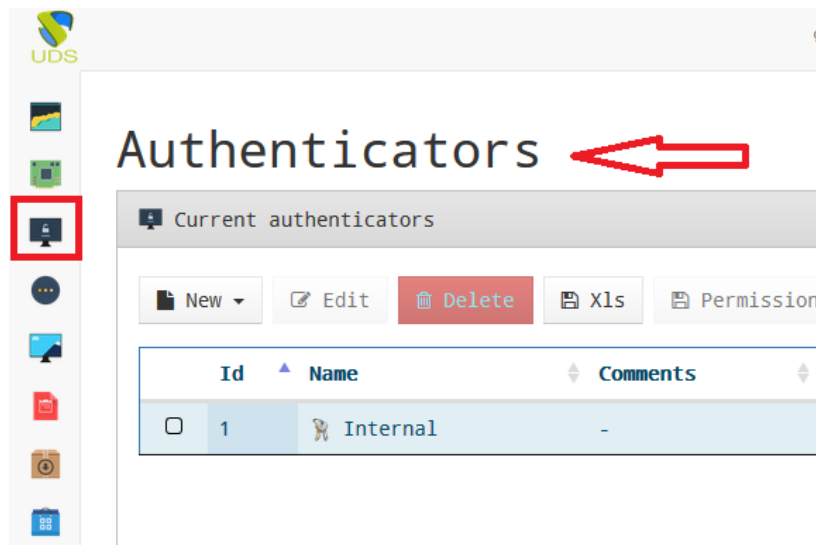
Do you want to grant the permissions below for UDS_AzureAD for all accounts in current directory? This action will update any existing permissions this application already has to match what is listed below.

Yes No

The next task of the integration process of “Azure Active Directory” with UDS will be done from the UDS administration itself.

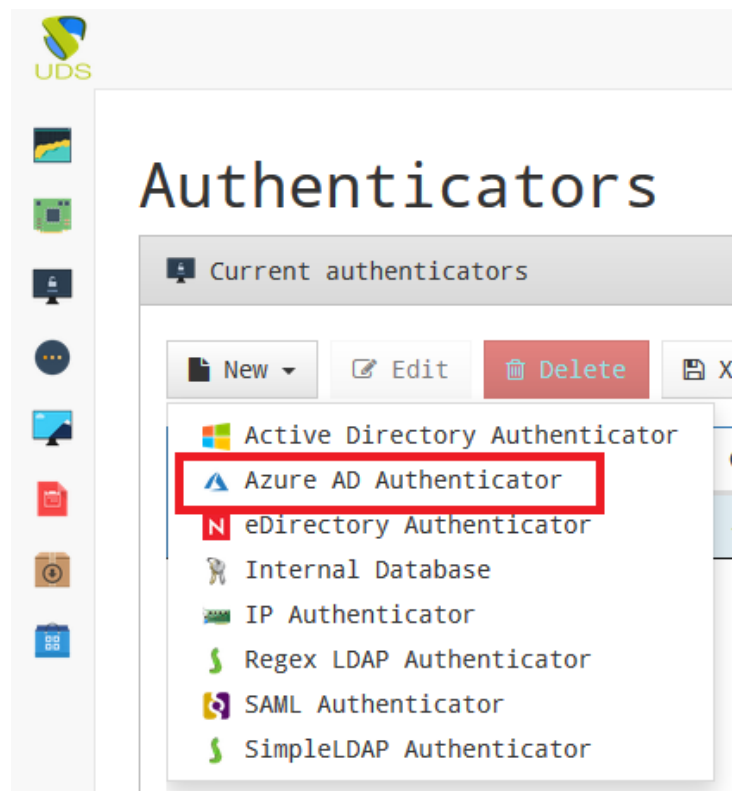
Tasks to be done in UDS Enterprise

From the UDS Enterprise administration dashboard, we will proceed to register the new authenticator “Azure Active Directory”. In order to do this, we will validate in the UDS login portal with a user with administration permissions and we will access the “Authenticators” section.



NOTE: In UDS we can have different types of authenticators registered in the system, the priority field will define which will be the authenticator that will be shown to the users by default.

Click on “New” and select “Azure AD Authenticator”.





Within the wizard we must indicate a series of necessary data:

- **Main:**
 - **Name:** Authenticator name
 - **Priority:** Priority of this authenticator in the list of available authenticators. The lower the priority, the greater will be in the list of available authenticators (of all the authenticators, the one with the lowest priority, including the negative values, will be the default authenticator)
 - **Label:** Label assigned to this authenticator. You must place it in the login URL to perform a direct validation without having to use the list of authenticators
 - **Tenant ID:** This value can be obtained from the service “Azure Active Directory”, “Properties” , “Directory ID”

The screenshot shows the Microsoft Azure portal interface. On the left sidebar, 'Azure Active Directory' is highlighted. The main pane shows the 'virtualcable directory - Properties' page. The 'Properties' tab is selected in the left navigation pane. The 'Directory ID' field is highlighted with a red box, showing the value '55f4b267-783edb3925ed'.



- **Client ID:** To obtain this value, it will be necessary to access the “Application registration” created above and copy the value of “Application ID”.

Home > App registrations

App registrations

Azure Active Directory

+ New application registration ≡ Endpoints ✕ Troubleshoot

To view and manage your registrations for converged applications, please visit the [Microsoft Application C](#)

Search by name or AppID All apps ▼

DISPLAY NAME	APPLICATION TYPE	APPLICATION ID
UD UDS_Enterprise	Web app / API	99be5a65-b8ae-4905-abfc-41ed77d14025
UD UDS_AzureAD	Web app / API	<u>796fd50c-83d6-4faa-9505-e4e21f45f30a</u>

- **Client Secret:** We will obtain this value from the previously registered application. Click on it (in the “App registrations” service) and access “settings”.

Home > App registrations > UDS_AzureAD

UDS_AzureAD

Registered app

⚙ Settings ✎ Manifest 🗑 Delete

Display name UDS_AzureAD	Application ID 796fd50c-83d6-4faa-9505-e4e21f45f30a
Application type Web app / API	Object ID 116abe3a-5576-4b4c-96cd-4255db8dd1cd
Home page https://sample	Managed application in local directory UDS_AzureAD

⬆



Within “Settings” click on “Keys”. In the section “Passwords” we will indicate a description, the date it expires and click on “save” to copy the “key”:

Home > App registrations > UDS_AzureAD > Settings > Keys

Settings X **Keys**

Filter settings

GENERAL

- Properties >
- Reply URLs >
- Owners >

API ACCESS

- Required permissions >
- Keys** >

TROUBLESHOOTING + SUPPORT

Keys

Save Discard Upload Public Key

Passwords

DESCRIPTION	EXPIRES	VALUE
UDS AzureAD	Never expires	Value will be c
Key description	Duration	Value will be c

Public Keys

THUMBPRINT	START DAT
No results.	

Once saved, it will allow us to copy the value (once this window is closed, we can't copy this value again, although we can generate a new one if necessary) and we can use it as a Client Secret in UDS Enterprise.

Home > App registrations > UDS_AzureAD > Settings > Keys

Keys

Save Discard Upload Public Key

Copy the key value. You won't be able to retrieve after you leave this blade.

Passwords

DESCRIPTION	EXPIRES	VALUE
UDS AzureAD	12/31/2299	f4HOTLWXXtLXTGbtIXX2iFE5bUFKTdXED85Fnohotw=
Key description	Duration	Value will be displayed on save



Once all the fields are filled in, we will click on “Test” to verify the correct integration.

New authenticator of type Azure AD Authenticator

Main

Advanced

Tags

Add Tag...

Name

Azure_AD

Comments

Comments for this element

Priority

2

+

-

Label

azure

Tenant ID

35f4b267-98e0-4a45-9bd2-783edb3925ed

Client ID

796fd50c-83d6-4faa-9505-e4e21f45f30a

Client Secret

f4HOTLWXXtLXTGbttlXX2iFE5bUFKtdXED85Fnohotw=

Test

Close

Save



Once verified the correct connection, press on “save” to save it.

Message



Test passed successfully

Ok

Name	Azure_AD	
Comments	Comments for this element	
Priority	2	+ -
Label	azure	
Tenant ID	35f4b267-98e0-4a45-9bd2-783edb3925ed	
Client ID	796fd50c-83d6-4faa-9505-e4e21f45f30a	
Client Secret	f4HOTLwXXtLXTGbt1XX2iFE5bUFKTdXED85Fnohotw=	

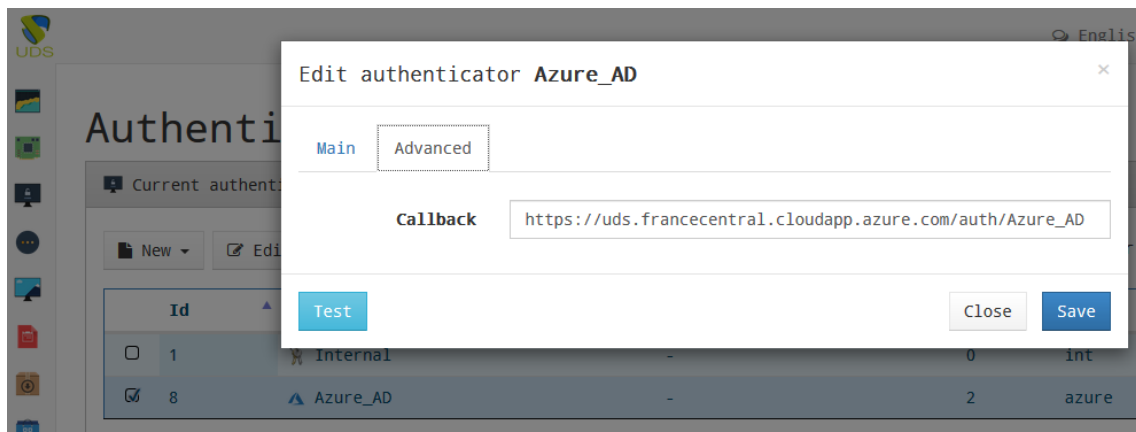
Test

Close Save

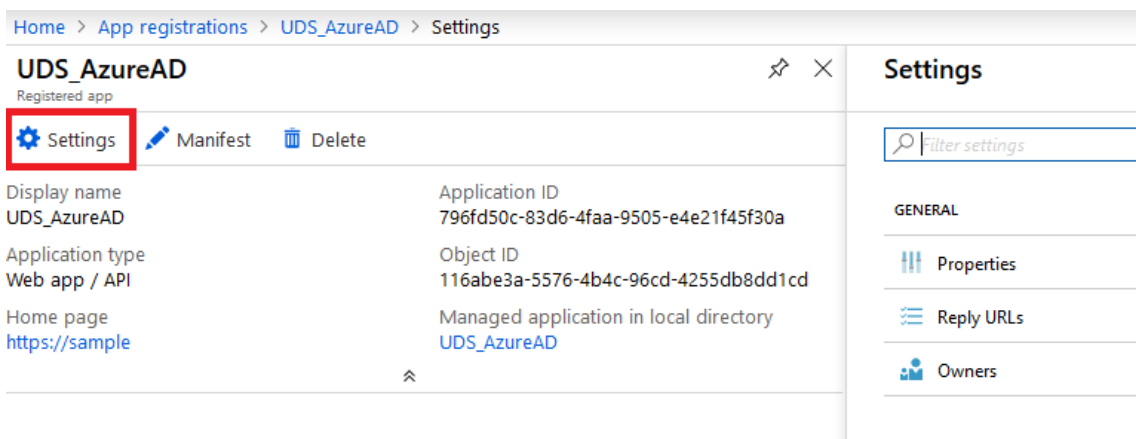
NOTE: If the test indicates that an error has occurred, you can save the connector by clicking “Save” to avoid losing data such as “Client Secret” and then review the causes of the connection error.

The last task to be performed in order to complete the integration of UDS with “Azure Active Directory” authenticator will be to indicate the access URL allowed in the Azure environment.

In the “Authenticators” section of the UDS administration dashboard, we select the authenticator previously created to edit it, accessing the “Advanced” tab. We will need to copy the value of the “Callback” field.



Once the value has been copied, we will access the Azure platform. In “App Registrations”, we select the application previously created for the integration of Azure AD with UDS and click on “Settings”.





Within “Settings” and under the “General” menu, we select “Reply URLs”. There we will have to paste the value copied from the UDS administration in the “Callback” field.

Home > App registrations > UDS_AzureAD > Settings > Reply URLs

Settings × **Reply URLs**

Filter settings

GENERAL

- Properties >
- Reply URLs** >
- Owners >

Save Discard

https://sample

https://uds.francecentral.cloudapp.azure.com/auth/Azure_AD

Click on “Save” to save the new “Reply URL”.

Home > App registrations > UDS_AzureAD > Settings > Reply URLs

Settings × **Reply URLs**

Filter settings

GENERAL

- Properties >
- Reply URLs** >

Save Discard

Update application urls
Successfully updated application

https://sample

https://uds.francecentral.cloudapp.azure.com/auth/Azure_AD

NOTE: The URL indicated in the creation of the application can be deleted. We select it, click on the access points to the action menu, select “Delete” and then “Save”.

Settings > Reply URLs

Reply URLs □ ×

Save Discard

https://sample Delete ...

https://uds.francecentral.cloudapp.azure.com/auth/Azure_AD ...

...

Once these steps are completed, users can now authenticate with the user credentials configured in an “Azure Active directory” authenticator.



About VirtualCable

VirtualCable markets UDS Enterprise through a subscription model, including support and updates, depending on the number of users.

In addition, VirtualCable offers professional services to install and configure UDS Enterprise and other virtualization technologies.

For more information, visit www.udsenderprise.com or send us an email to info@udsenderprise.com.