OpenGnsys provider integration with UDS Enterprise 3.6

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Introduction

OpenGnsys is an Open Source project that brings together the joint efforts of several Spanish public universities to build an application that allows a simple centralized management of computers and servers. With it you can distribute, install and deploy images of different operating systems.

OpenGnsys was created to respond to the need for a set of free and open tools that constitute a complete versatile and intuitive equipment management and cloning system, which can be used both in the management of computer rooms and to reinstall computers. and servers.

The union of OpenGnsys with the UDS Enterprise connection broker allows taking advantage of many of the functionalities of both products and making them available to administrators and users, achieving:

- Reuse of underused physical IT equipment

- Centralized management and user access control

- Fast and automated deployments of VDI environments

- Secure, centralized access from any location with internet access

- Energy saving through equipment on/off control offered by OpenGnsys

the website of [OpenGnsys](#) It has all the project manuals, the complete code of the different versions, several discussion and help forums, programming API documentation, etc.

Previous requirements

To carry out a correct integration between the OpenGnsys software and the UDS Enterprise connection broker in order to publish desktops or computers so that they are accessible by users, we must take into account the following requirements:

- Have a UDS Enterprise 3.0 or higher environment with at least one active UDS Server (any version of UDS being compatible: Free, Evaluation, Enterprise).

- At least one Authenticator (with groups and users) and one Transport registered in the UDS Enterprise Control Panel will be necessary to access the service.

- An OpenGnsys server of version 1.1.1c and later, accessible from the UDS Server appliance network.

- The OpenGnsys database server must have event calendar enabled (in order to enable the "Remote Access" option in the OpenGnsys administration).

- Credentials with administration permissions of the OpenGnsys environment.

- An OpenGnsys classroom with active and available equipment.

- All classroom equipment configured to be managed by UDS must be generated with the same image. In UDS, this image will be selected for each type of service to be deployed.

- The OS images used for classroom computers must have the OpenGnsys agent (OGAgent) installed and configured.

OpenGnsys Configuration

Next, the most important elements that will need to be configured in OpenGnsys are indicated for its correct operation with the UDS Enterprise environment.

1. Classrooms

In the Classroom view we will need to have at least one OU (Organizational Unit).

Although UDS can use all the available equipment of an OU, it is recommended to create classrooms to have more control of the equipment that will be managed by UDS.
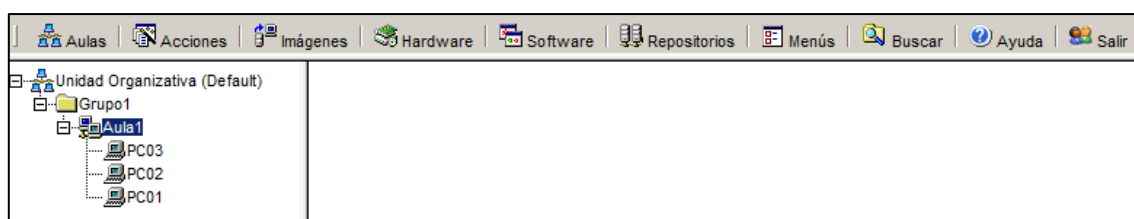

In order for UDS to be able to use the computers in a classroom, they must have an OS recognized by OpenGnsys (these OS are indicated with colors: yellow, blue, pink and orange). UDS may allow access to computers with Windows and Linux OS.

In order for OpenGnsys to have a connection with these computers and show their status correctly, it will be necessary to install and configure the OpenGnsys agent (OGAgent). It is available in the properties of each computer.
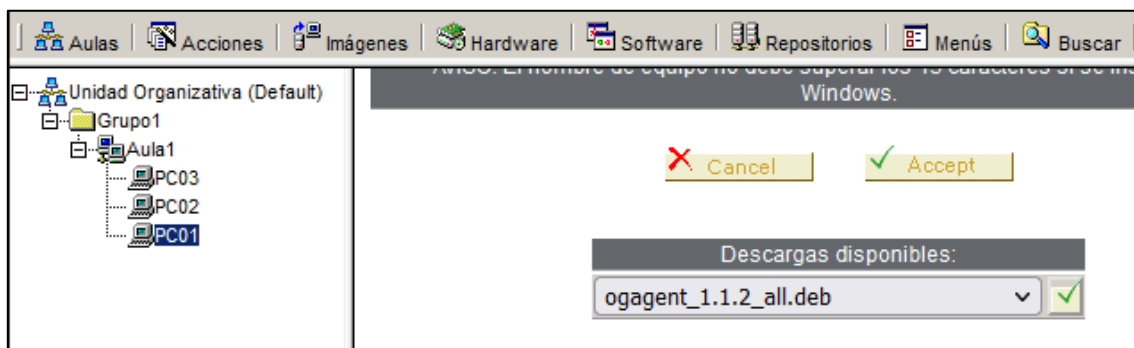
For UDS to manage and assign the classroom computers to the users, all of them have to be based on the same image (you can have different groups of services based on different images, but they will be independent services between them).
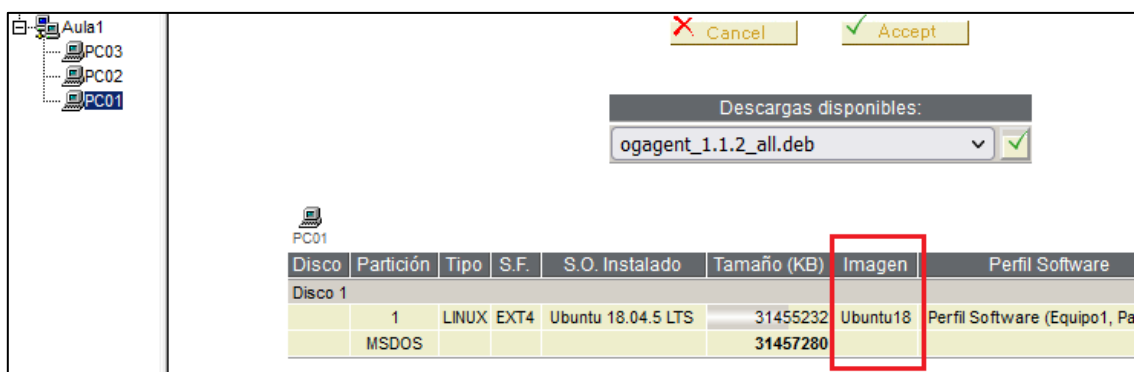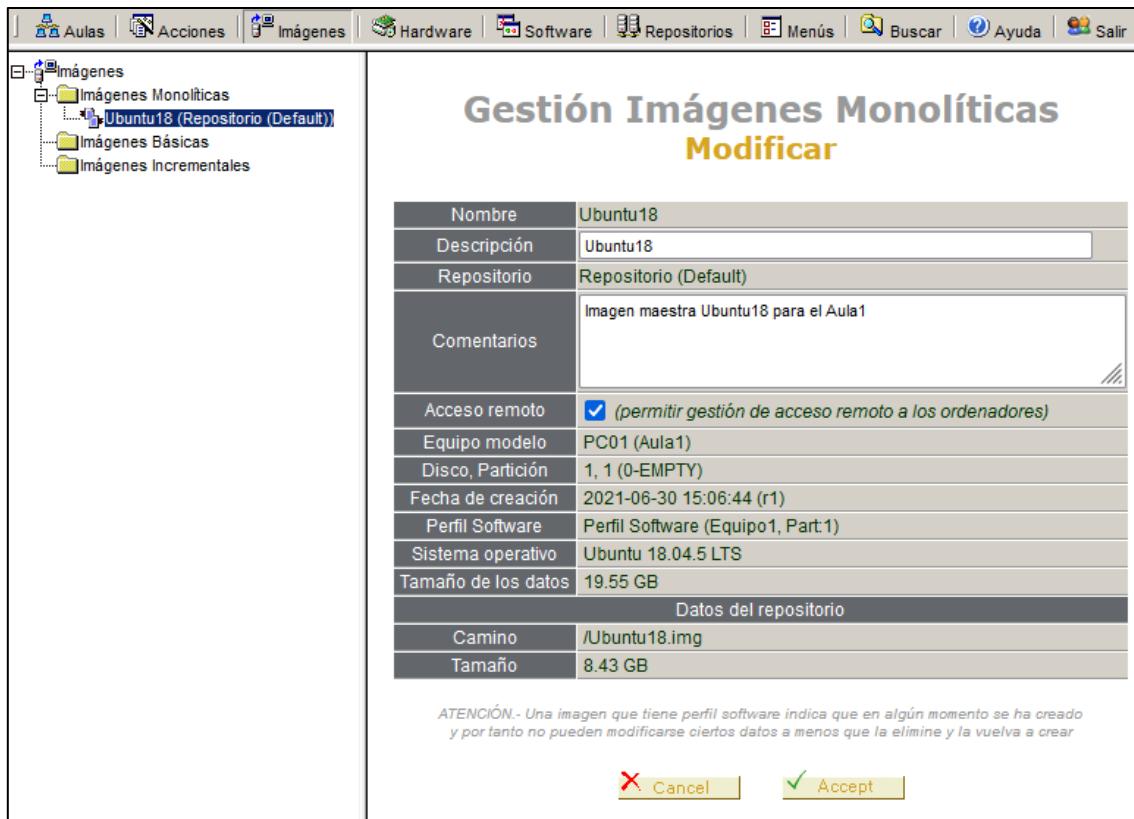
2. Images

OpenGnsys allows you to manage OS images, being able to create one based on an existing device or restore an image on different devices.

In the image view we can see all the images available and that can be applied to the computers in a classroom.

In order for the computers to be accessible through UDS, it is necessary that the box "allow management of remote access to the computers" is checked.

OpenGnsys integration in UDS

To integrate an OpenGnsys environment with UDS Enterprise and to be able to manage the physical equipment to assign them to users, it will be necessary to access the UDS control panel and create a new service provider:

1. Registration of service provider "OpenGnsys Platform Provider"

In the "Services" section, click on the "New" button and select "OpenGnsys Platform Provider" from the drop-down:
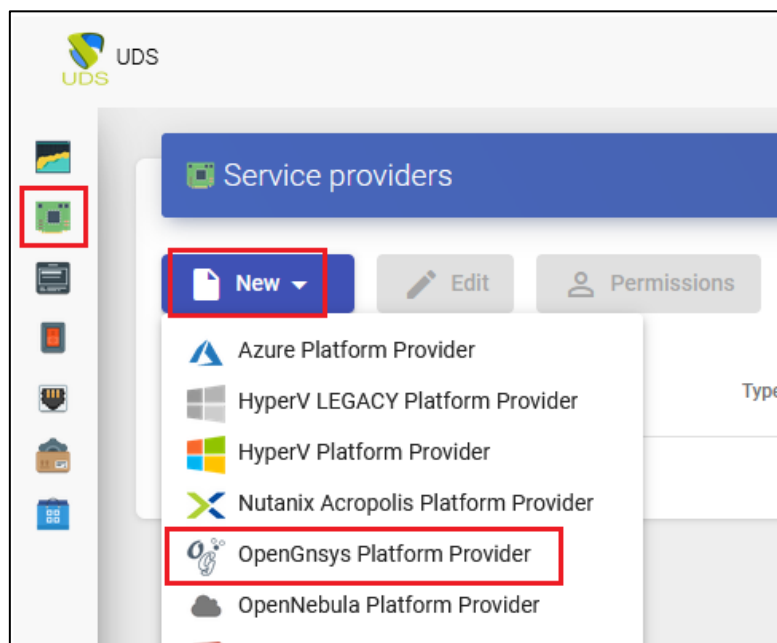
In order to configure the platform "**OpenGnsysPlatform Provider**" the minimum parameters to configure are:

- o Main:

  Name of the service provider, IP or name of the OpenGnsys server ("Host" field), connection port with OpenGnsys (default: 443) and a username and password with administration rights over the OpenGnsys environment.

- o parameters:

  IP address or name of the UDS server that will be integrated with OpenGnsys. This field will be completed automatically by UDS when the service is saved (it will be necessary for the OpenGnsys server to have communication with the UDS server through the indicated name or IP).

- o Advanced:

Total number of concurrent desktop creation tasks on the provider ("Creation concurrency" field), total number of concurrent desktop removal tasks on the provider ("Removal concurrency" field), and "Timeout" time on the connection to the provider OpenGnsys server.

Using the "Test" button we will verify that the connection is made correctly.

We save and we will have a valid "Service Provider" to start creating base services in the OpenGnsys provider.

We will be able to register all the "Service Providers" of the "OpenGnsys Platform Provider" type that we need in the UDS platform.

To modify any parameter in an existing "Service Provider", we will select it and click on the "Edit" button.

By means of the "Enter Maintenance Mode" button we will be able to pause all the operations executed by the UDS server on a service provider. It is recommended to put a service provider into maintenance in cases where communication with that service provider has been lost or a maintenance shutdown is planned.

2. Configure service based on "OpenGnsys Machines Service"

To create base services of the "OpenGnsys Machines Service" type, access the "Service Providers" previously created (right click, details) and click on "New".
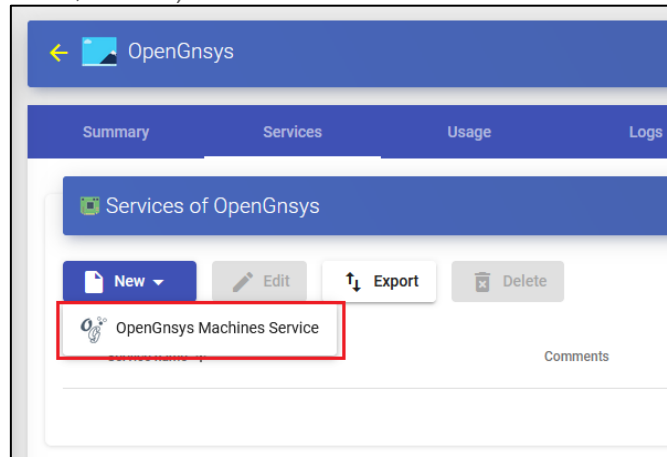
In an "OpenGnsys Machines Service" the minimum parameters to configure are:

- o Main:

    Yam: Name of the base service.

    OU: Organizational Unit where the classroom to be used in the service is located.

    Lab: Classroom that will manage UDS and where the equipment that will be assigned to the users is located.

    OS Image: Existing OS image in OpenGnsys that the classroom equipment must have for UDS to consider them as assignable to users.

o   Advanced:

Max. Reservation time: Indicates the maximum time in hours that the computers will be reserved in OpenGnsys

We save and have a valid "OpenGnsys Machines Service" in the OpenGnsys Provider. We will be able to register all the "OpenGnsys Machines Service" that we need in the UDS platform.

Creation of "Services Pools" for OpenGnsys
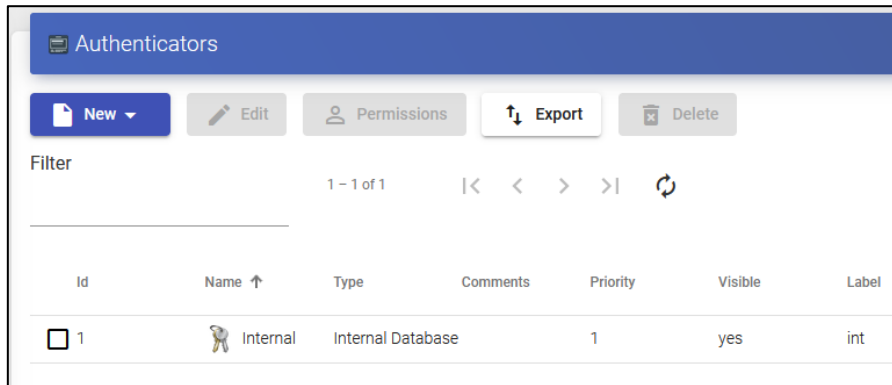
The creation of a "Service Pool" will allow the deployment of desktop services, which will be available for groups of users to access the UDS environment and connect to said services.

To create a new "Service Pool" it will be necessary to have a "Base Service" (composed of a service provider + a service created in it). Once created, we will have to assign one or more groups and one or more transports to enable user access.

1. Registration of user groups and transport
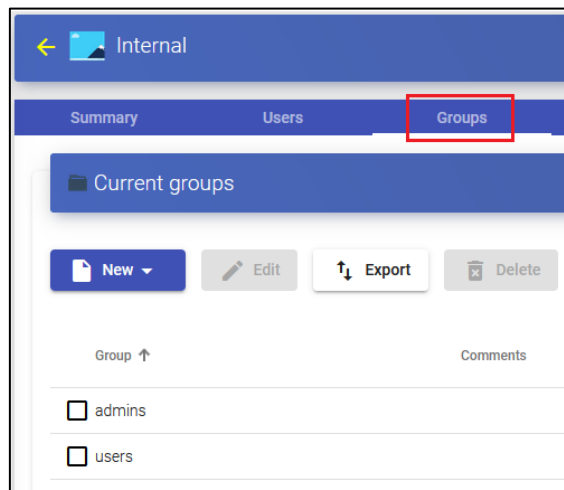
In order to fully configure a service pool, it will be necessary to have at least one group of users (with registered users) and a transport that provides access to the desktops provided by OpenGnsys.

We can define any type of authenticator (in this example we will use the "Internal Database" type):

And let's make sure you have user groups created:

And users assigned to those groups:
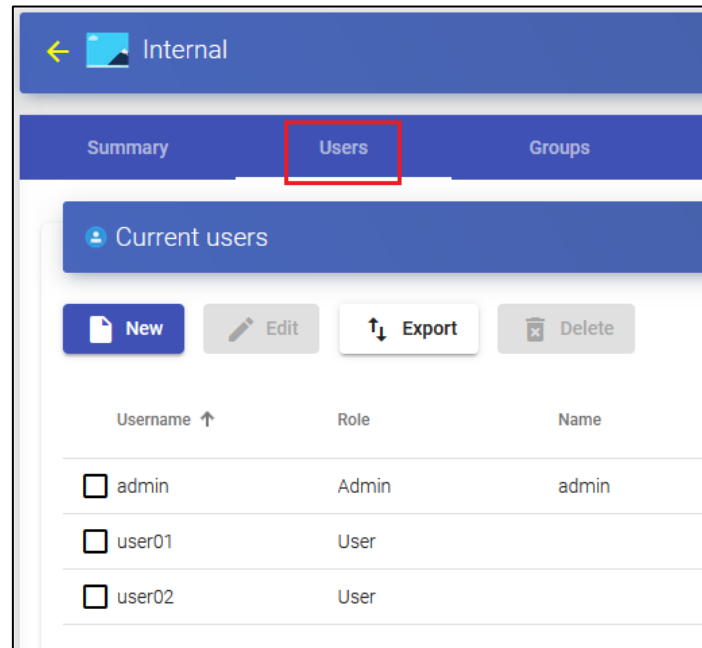
We will confirm that we have a valid transport to be able to assign to the service pool:
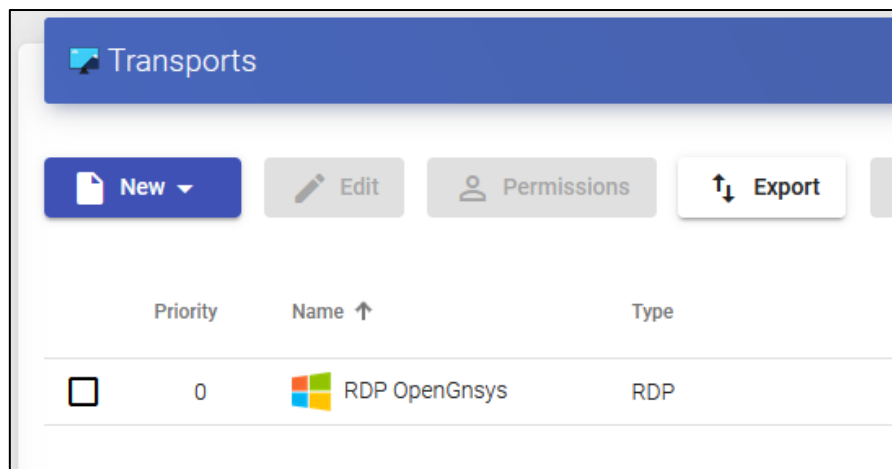
Within the transport we can configure the access credentials to the desktops, the quality of the connection, devices that we need to redirect, etc...

If you have any questions when creating and configuring these elements, you can consult the UDS Enterprise Installation, Administration and User Manual available on the website of UDS Enterprise, where the creation of each element is detailed.

2. Publication of the Services Pool

Once we have all the necessary elements, we will proceed to create and publish a pool of services.

To create a "Service Pool" we access the section "Pools" – "Service pools" and click on "New".
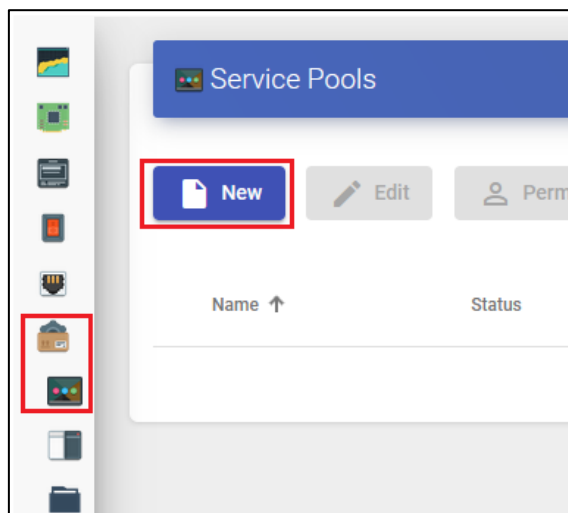
To configure a "Service Pool" it will be necessary to indicate:

o   Main:

Yam: Name of the "Service Pool" (this name will be the one that is shown to a user to access your service).

Short name: Short name of the service.

Basis Service: Made up of a service\service provider, pre-configured within the service provider.

OS Manager: It is not necessary when we use a service provider such as OpenGnsys.

Publish on creation: If this option is enabled, when we save the service pool the system will launch the first publication automatically. If it is not enabled, it will be necessary to launch the service publication manually (from the "Publications" tab).

o Advanced:

Allow removal by users: If enabled, users will be able to remove services assigned to them. Only the assignment will be removed and a new one will be assigned at the next connection.

Allow reset by users: Does not apply in OpenGnsys.

Ignore unused: If on, non-persistent user services that are not in use will not be removed.

Show transport: With this option activated, all transports assigned to the service will be displayed. If it is not activated, only the default transport with the highest priority (lowest number in the "priority" field of a transport) will be shown.

accounting: Assigning a service to a previously created "Accounts" ("Pools" – "Accounts")

o display:

Visible: If disabled, the "Service Pool" will not be shown as available to users on the UDS services page ("User mode").

Associated Image: Image associated to the service. Previously it has to be added to the image repository, accessible from the "Tools" – "Gallery" section.

Pool group: Allows you to group different services. In order to assign a "Pool group", it must be previously created in the "Pools" – "Groups" section.

Calendar Access denied text: Text that will be displayed when a service has access denied by the application of an access calendar.

o Availability:

Initial available services: Minimum number of computers to power on and prepare at service creation.

Services to keep in cache: Number of teams available. These will always be turned on and ready to be assigned to a user (they will turn on automatically until the maximum number of machines indicated in the "Maximum number of services to provide" field is reached).

Services to keep in L2 cache: Does not apply in OpenGnsys.

Maximum number of services to provide: Maximum number of computers available in the "Service Pool".

NOTE: In the configuration indicated in the example, initially there will always be two devices turned on and available. When those two computers are assigned to users, the system will turn on a new one to fulfill the cache data (that there is always a computer available). As there are only 3 teams in the classroom, the maximum number will be 3.

We save the new "Service Pool" and the system will begin to prepare the equipment (turning it on) based on the configured cache and the equipment available in the OpenGnsys classroom ("Availability" tab).

Using the "Delete" button we can completely delete a "Service Pool" and with "Edit" we can modify it.
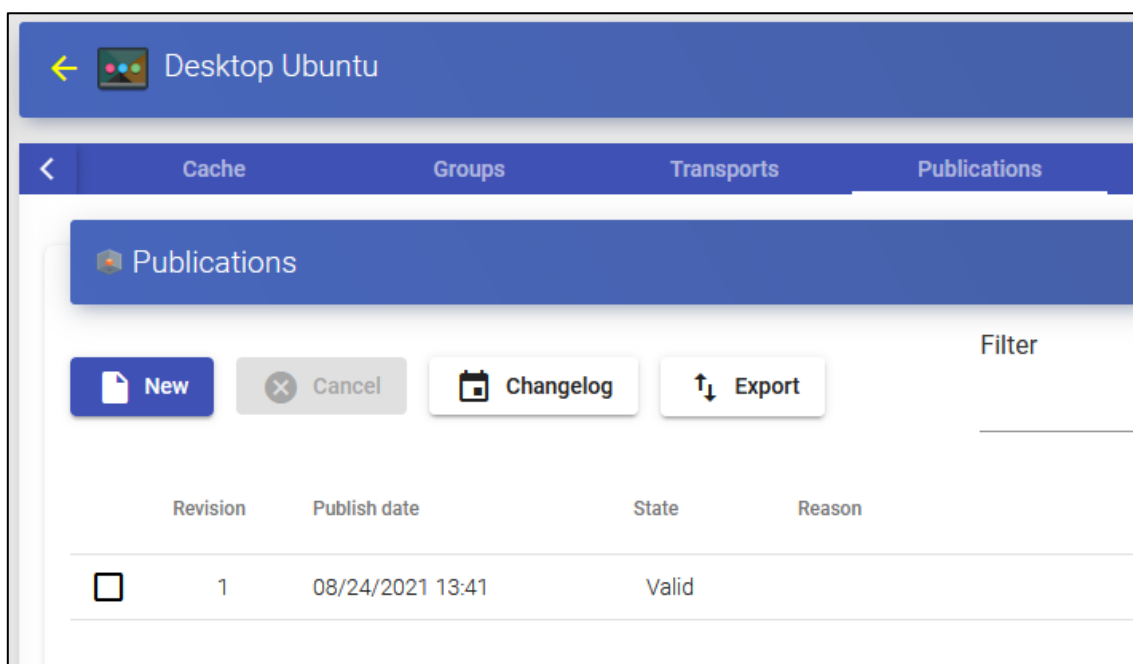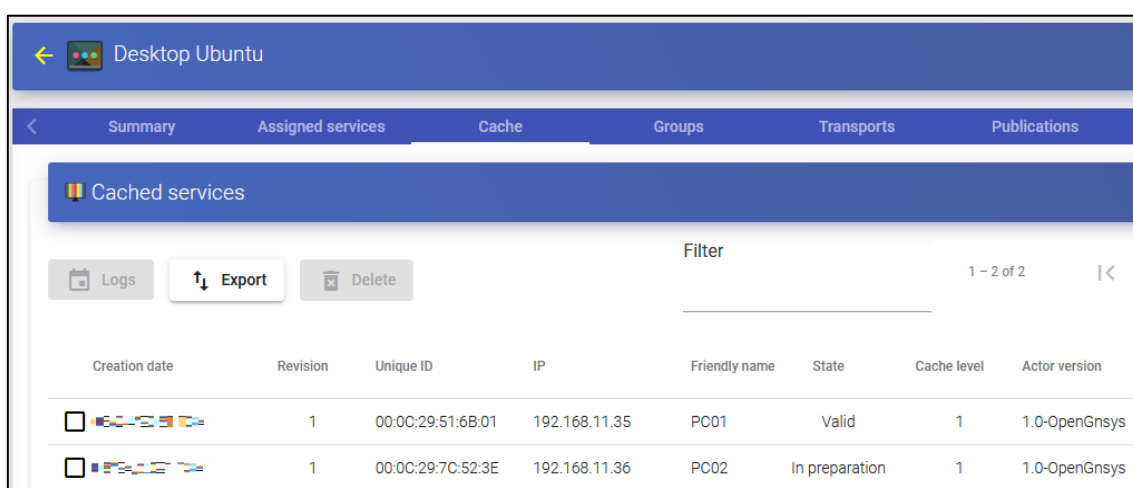
If we enter the "Publications" section of the created Pool, and if we have checked the "Publish on creation" option, the system will automatically publish the service for the first time.
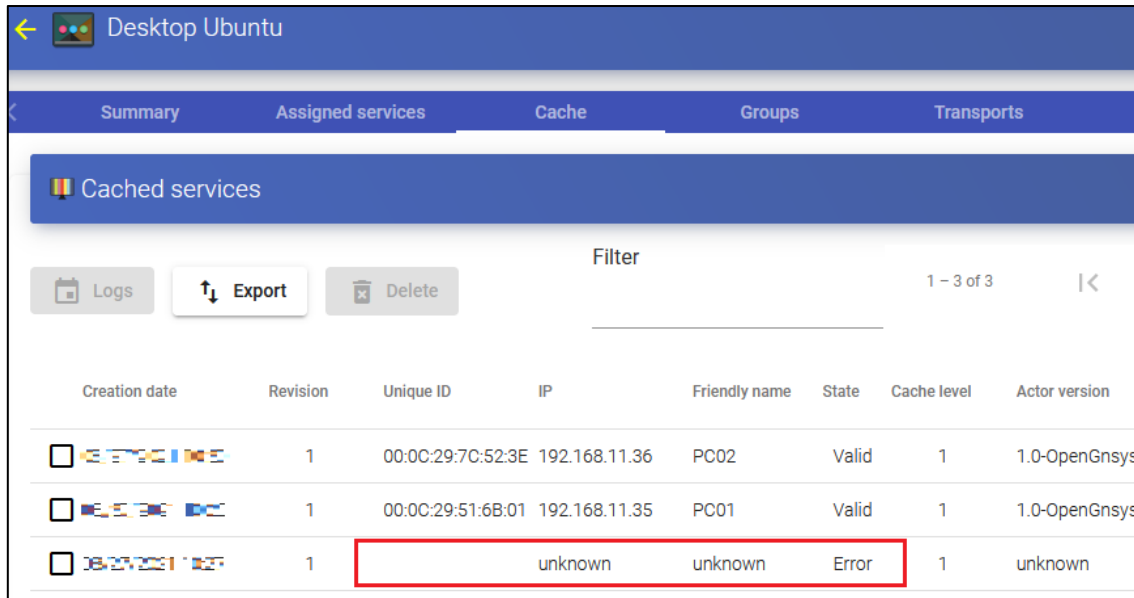
Once we have created a "Service Pool", when accessing we will have the following control and configuration menus:

- **Cache**: Desktops available for user connection (the number of desktops generated will be indicated in the "Availability" tab). These desktops will go through different states:

  o **in preparation**: In this state the virtual desktops are being started by OpenGnsys.

  o **valid:** When a desktop is in this state, it is available for a user to access.
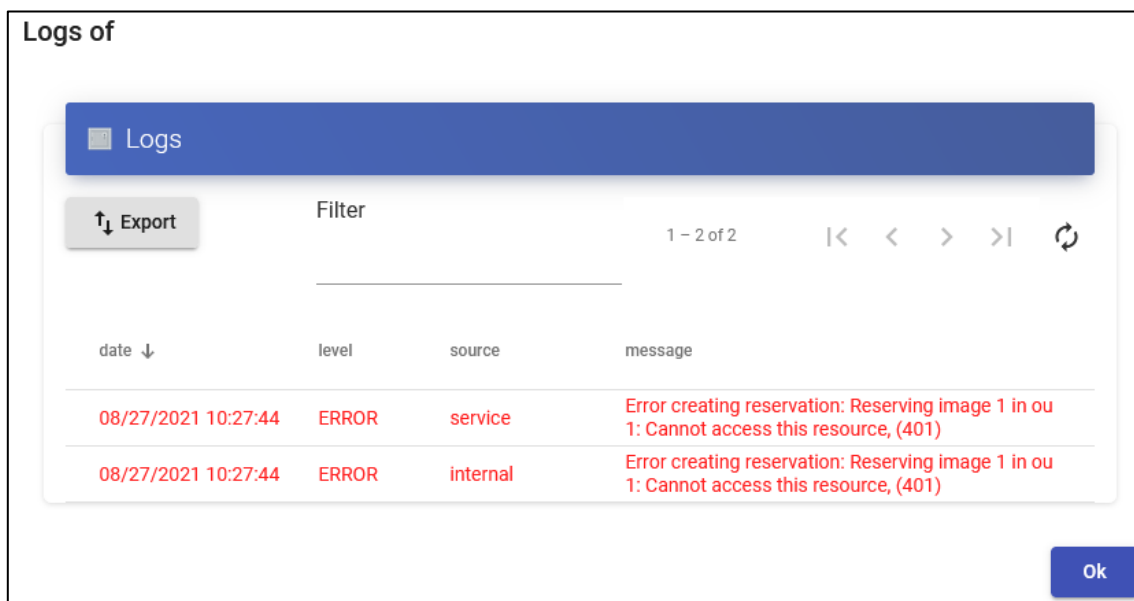
If we see that the system begins to generate machines with an "Error" status and that do not have an IP or MAC address, it may mean that there are no more computers available in the OpenGnsys classroom.
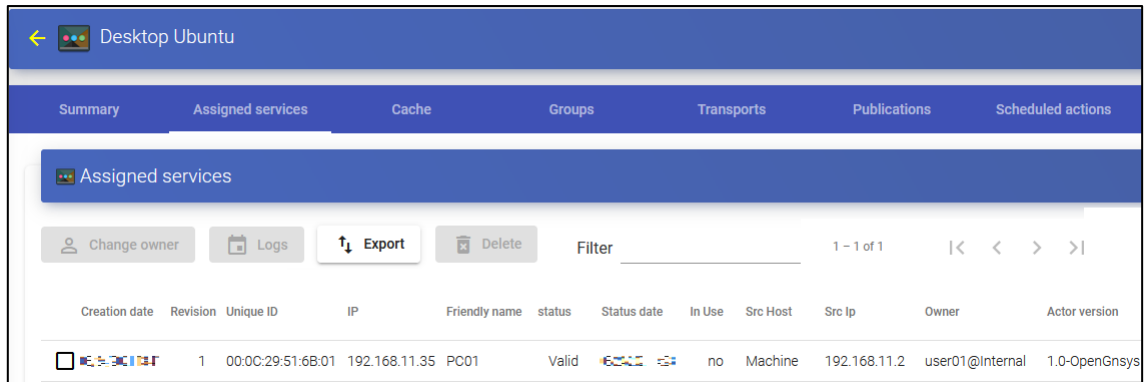
If we look at the log in the service with an error, we can see the following message:
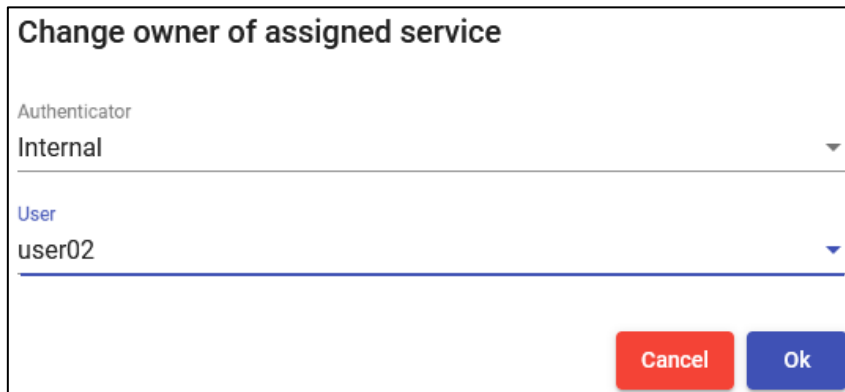
- ▪ **Assigned Services:** Desktops assigned to users. Displays information on the creation date of the desktop, the revision (or release) number on which the desktop is built, the MAC address of the VM's network card, the DNS name and IP of the virtual desktop, the status of the desktop, if it is in use, the name and IP of the connection client, the owner of the machine and the version of the UDS agent installed.

Marking the desktop and clicking on "Change owner", we can change the user assigned to the desktop.

By clicking on "Delete", with the desktop marked, we can delete it manually.

- **Groups:** To allow users to connect, it is necessary to assign access groups or metagroups. These groups or metagroups must be created in the "Authenticators" section and we can assign one or more access groups or metagroups to each "Service Pool"
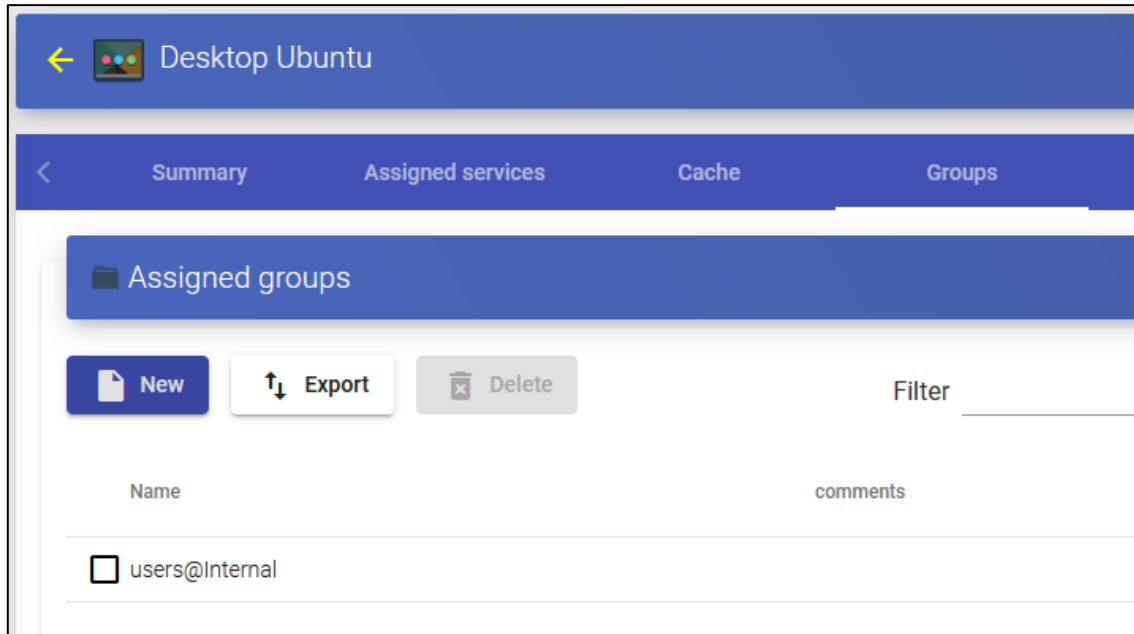
We select the "Authenticator" and based on your choice we choose the "Group Name".

▪ **Transportation:** The "Transports" will be indicated to make the connection with the desktop (previously added in the "Transports" section). The "Transport" with the lowest priority will be the one that the system configures by default. To use the rest of the transports, the user will have to open the drop-down on the access to services screen and select the one that corresponds.
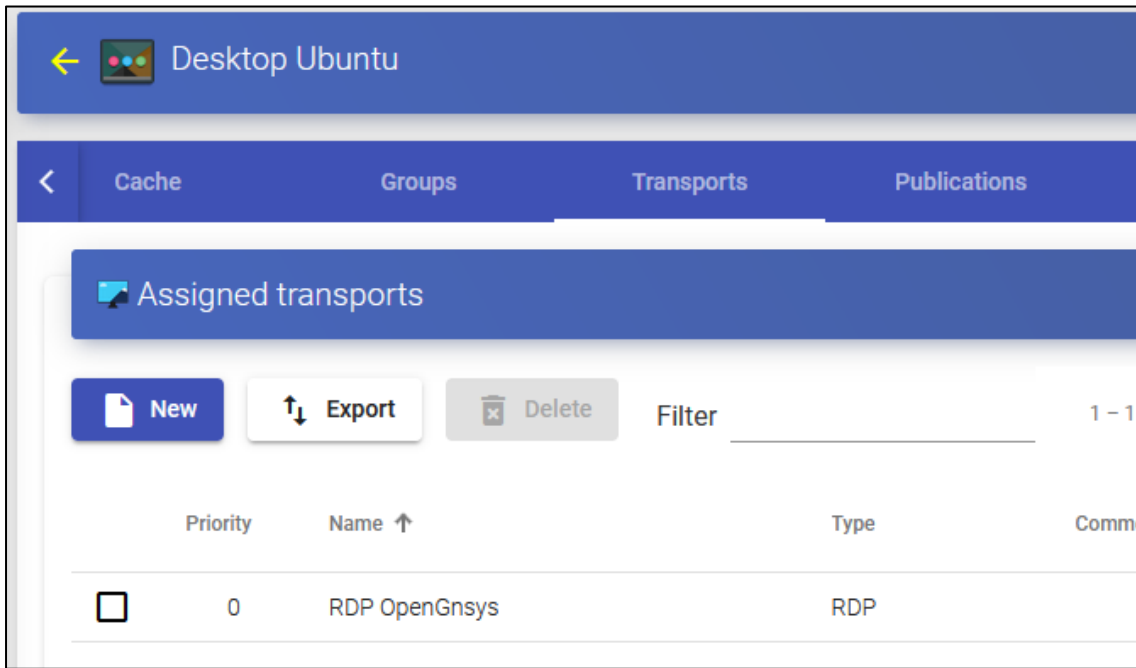
We select the "Transport" that we want to use in this "Service Pool" and save.
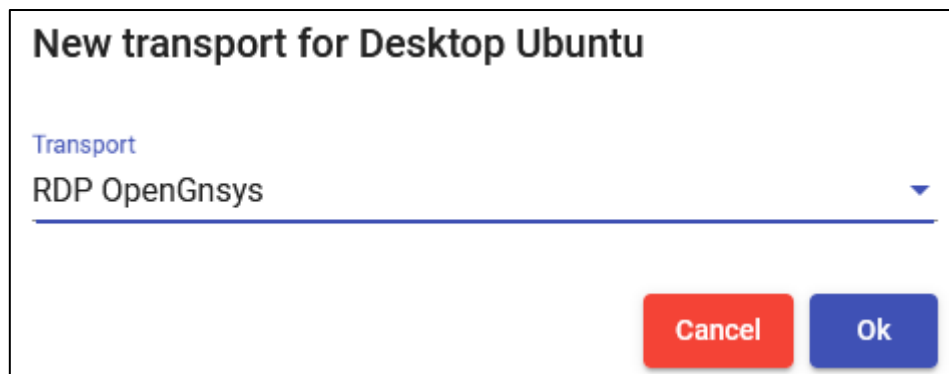
3. Desktop access

Once we have desktops (in the cache section) in a valid state within the service pool created with the OpenGnsys provider, and we have assigned at least one group and one transport to said pool, we will be able to access it.

In the UDS login screen we will indicate the credentials of a user who belongs to the group configured in the service pool previously created.
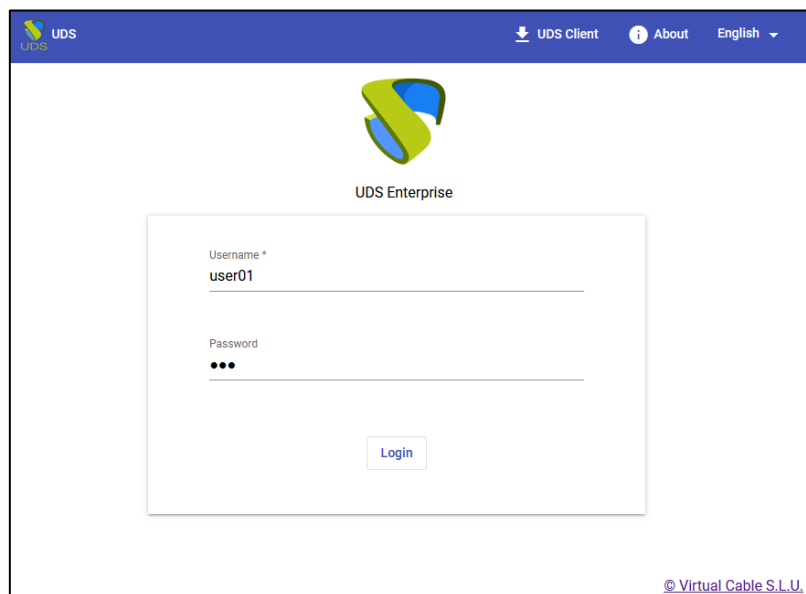
Once the credentials have been validated, we can click on the service to connect to the desktop.
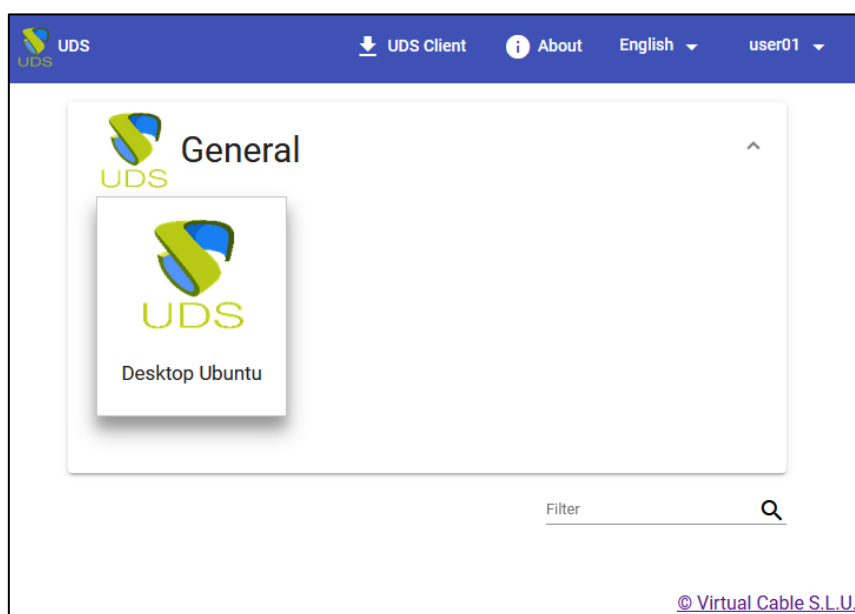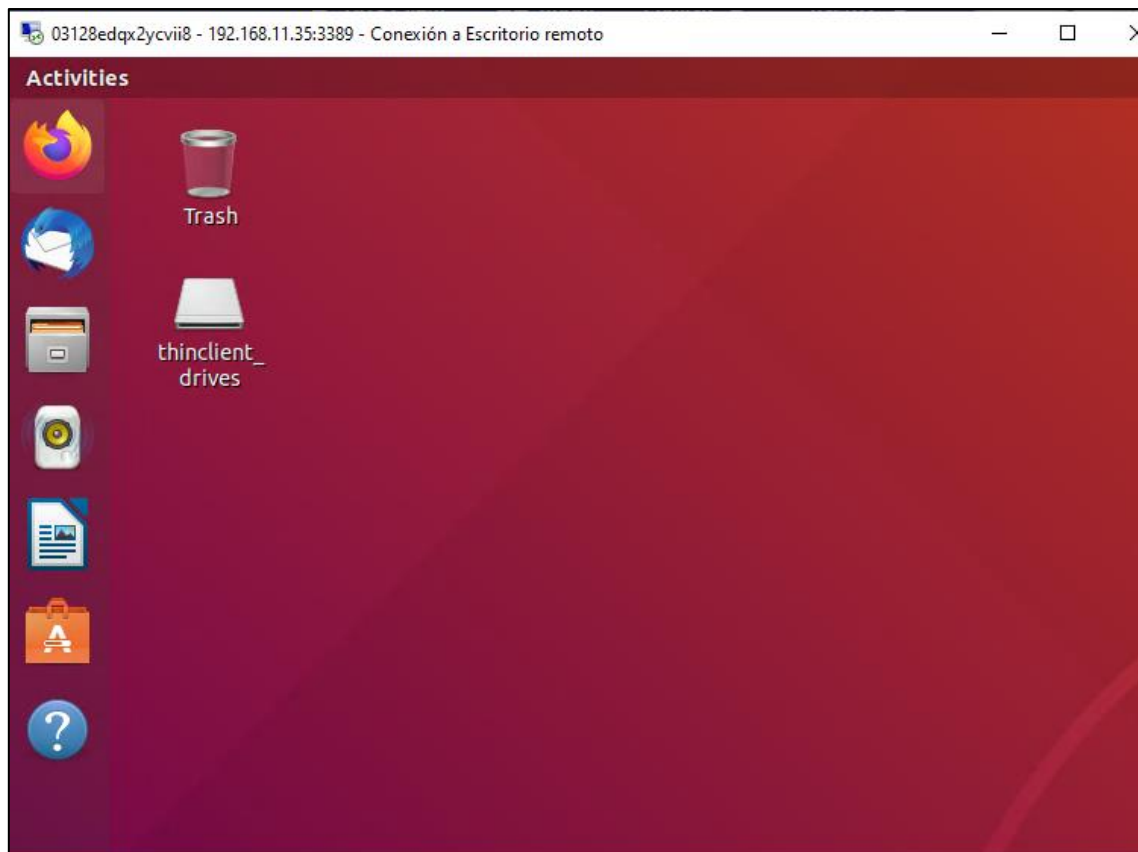
When a user logs out of their desktop, UDS will remove the assignment of this service and tell OpenGnsys that it is available to reapply the indicated configuration and make it free again to be used by another user.

Troubleshooting

Below are some errors displayed by the platform and that may be due to misapplied configurations.

- booking errors
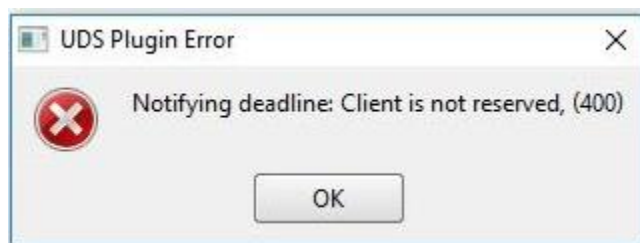
When the following error appears in UDS Client, we can additionally find the following error in the /var/server/uds.log file on the UDS Server appliance:

Exception: Notifying deadline: Client is not reserved, (400)

In order to solve this problem, we must perform the following tasks:

1- We will go to the UDS Enterprise administration and edit the OpenGnsys connector, to verify that we have a high reserve value since it is 24 by default.

NOTE: if we already have a Service Pool generated with this service, it will be necessary to set all the "initial" and "cache" services to zero, delete all the assigned services and publish again, once we are sure that there is no longer any service deployed and has finished publishing, new services can be redeployed.

2- We will go to the OpenGnsys server console and edit the file /opt/opengnsys/www/rest/remotepc.php on line 206 commenting the text $cmd->Execute();

It is recommended to perform step 1 first to release any reservations made.

- Error creating reservation: Notifying login/logout urls: Database error, (400)

This error occurs when generating new services in UDS Enterprise 3.x using an OpenGnsys service provider prior to version 1.2, as OpenGnsys has the urllogin and urllogout column of the remotepc table with a default limit of 100 characters, generating the following error in the service provider:

In order to expand the size of these two columns, we must perform the following operation:

1. Connect by ssh to OpenGnsys
2. Access MySQL to the ogAdmBD instance

3. In the case of not knowing the connection data to the database, we will consult the file /etc/ogserver.json

4. Once inside MySQL we will check the size of the columns with the command:

describe and the name of the **remotepc** table.

5. If the size is equal to 100, it will need to be enlarged, since the URLs it generates

UDS is around 110 characters. To extend it, we'll use the following commands:

• For the Column "urllogin": alter table remotepc modify urllogin varchar(255);

• For the Column "urllogout": alter table remotepc modify urllogout varchar(255);

6. Confirm that the column size has been changed
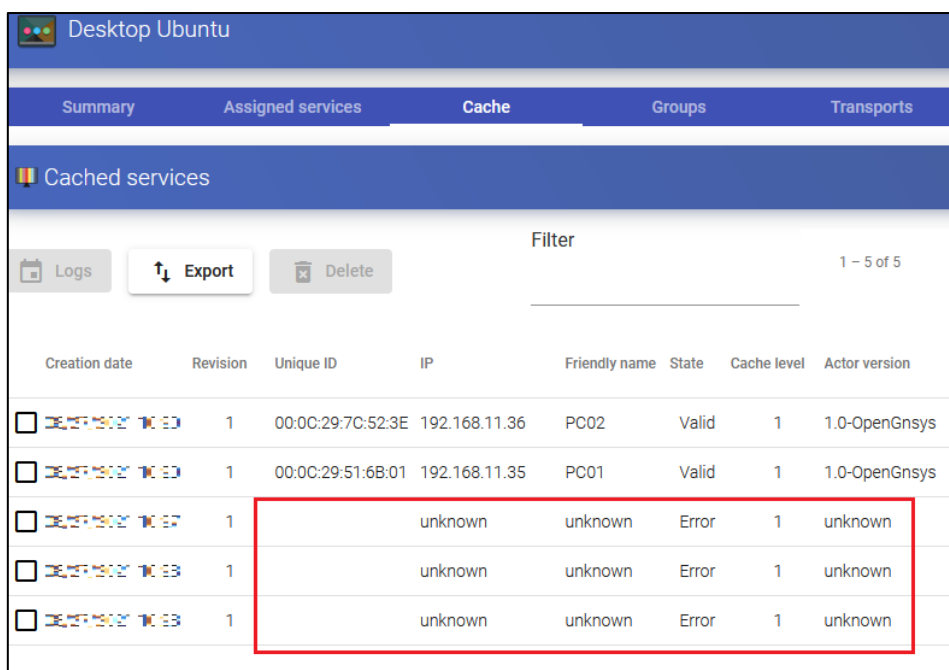
When you perform these steps and enlarge the size, you will no longer have the error indicated when generating new services with the OpenGnsys provider.

▪ Restricted service pool

When a service pool goes into restricted mode, it is because a number of errors have occurred in a predetermined time. The number of errors and the time are indicated in the advanced configuration of UDS (Tools – Configuration – UDS), parameters "restrainCount" (number of errors) and "restrainTime" (time indicated in seconds).

For example, if our UDS environment has default values in "restrainCount" (default value=3) and in "restrainTime" (default value=600), if 3 errors occur in less than 600 seconds (10 minutes), the system enters "Restrained".
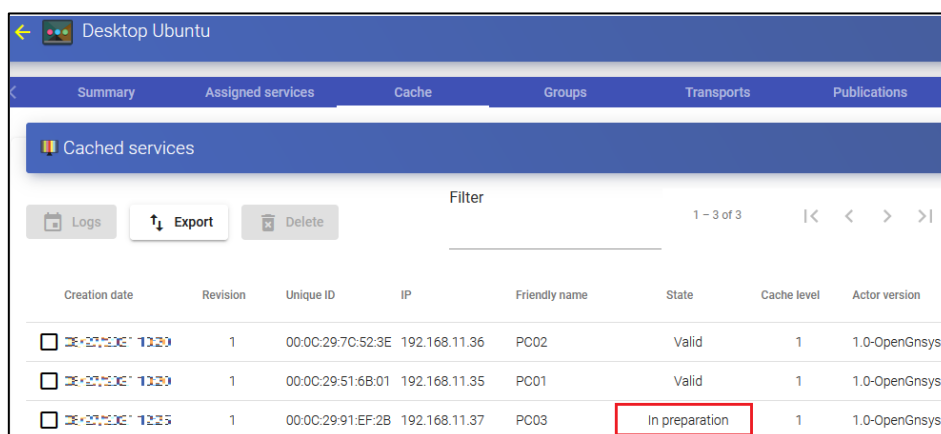
Once those 10 minutes pass without errors, the pool will exit restricted mode and continue its normal operation. If the errors occur again, the service will be throttled again.

- Service in "In preparation" status

We may find that when UDS configures a service, it stays in the "In preparation" status for a long time and if this status is not updated, the service is automatically removed within 1–2 hours (this time is the default. If desired modify, it will be necessary to change the value of the parameter "maxInitTime" within the advanced configuration of UDS).

When a service remains in this state for a long time ("In preparation"), it may be because there is a problem with the startup of the machine. That is, UDS gives the order to start the machine to OpenGnsys and it sends the WoL to start it. If it does not start, the status will never advance to "Valid" (status required to allow users to connect to the machine).

A service in the "In preparation" state will remain so until it starts correctly or until the time indicated in the "maxInitTime" parameter (located in the UDS advanced configuration) expires. This time can go up to double the indicated time, since this parameter indicates how often the status has to be checked.

For example, with the default value of the parameter "maxInitTime" (3601 seconds), the machines can be between one and two hours in this state. After that time, UDS cancels them and tries to configure other machines (in case there are more machines available) or even the same one again:

If we look at the log of the canceled service, we can see the following message:

- ▪ Computers with different assigned image

In order for UDS to be able to use all the existing equipment in a classroom, they must have the same image assigned. If any of them does not have it, it will not be considered as a valid team to be able to be assigned to a user, obtaining errors in the preparation and access.

We must indicate the image that all classroom equipment must have in the definition of the OpenGnsys base service, within the UDS administration:
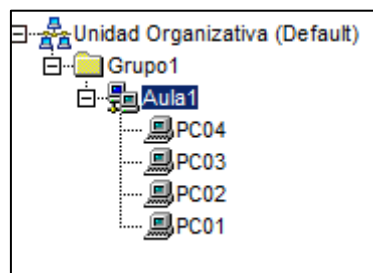
In the following example, we will have a classroom with 4 computers:

Of the 4 teams, 3 of them are based on the same image:

And one of them does not have the image associated with it:

In the UDS administration, when we create the base service we must indicate the image that the classroom will use:

In this scenario, UDS will be able to prepare and make available to users only the three computers that have the image assigned (pc01, pc02 and pc03). The fourth device (pc04), since it does not have the image associated, cannot be prepared.

If we have indicated that all the machines in the classroom (4) be prepared, the creation of this last machine will fail, since there are no more machines in the classroom (since pc04 will not be a valid machine)

If we look at the log of the service in error we will find the following message:

We will have to be careful with this scenario, since if we get several errors in a certain period of time (defined in the "restrainCount" and "restrainTime" parameters) due to the fact that there are no more computers available in the classroom, the pool of services can enter in restricted mode:

Service Pools

New | Edit | Permissions | Export | Delete

Name ↑	Status	User services	In Preparation	Usage	Visible
☑ ⚠ Desktop Ubuntu	Restrained	3	0	0%	ye

About VirtualCable

Virtual Cable is a company specialized in the digital transformation of the **workplace**. The company develops, supports and markets UDS Enterprise. Its team of experts has designed **VDI** solutions tailored to **each sector** to provide a unique user experience fully adapted to the needs of each user profile. Virtual Cable professionals have **more than 30 years of experience** in IT and software development and more than 15 in virtualization technologies. **Millions of Windows and Linux virtual desktops with UDS Enterprise are deployed all over the world every day**.