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Intro	duction	2
Previ	ious requirements	3
OpenGnsys Configuration		4
1.	Classrooms	4
2.	Images	6
OpenGnsys integration in UDS		7
1.	Registration of service provider "OpenGnsys Platform Provider"	7
2.	Configure service based on "OpenGnsys Machines Service"	10
Creation of "Services Pools" for OpenGnsys		12
1.	Registration of user groups and transport	12
2.	Publication of the Service Pool	14
3.	Desktop access	23
Troubleshooting		25
Abou	ıt Virtual Cable	31



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Introduction

OpenGnsys is an Open Source project that brings together the joint effort of several Spanish public universities to build an application that allows a simple centralized management of computers and servers. With it, images of different operating systems can be distributed, installed and deployed.

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

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

- Reuse of underused physical computer equipment
- Centralized management and user access control
- Fast and automated deployments of VDI environments
- Secure and centralized access from any location with internet access
- Energy saving through equipment on / off control offered by OpenGnsys

The website of <u>OpenGnsys</u> It has all the project manuals, the complete code of the different versions, several discussion and help forums, documentation of the programming API, etc.



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Previous requirements

To carry out a correct integration between the OpenGnsys software and the UDS Enterprise connection broker in order to publish desktops or equipment so that they are accessible by users, you 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, accessible from the UDS Server appliance network.
- The OpenGnsys database server must have <u>enabled event calendar</u> (to enable the "Remote Access" option in the OpenGnsys administration).
- Credentials with administration permissions of the OpenGnsys environment.
- A classroom at OpenGnsys with active and available machines.
- All the equipment in the classrooms 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.
- OS images used for classroom computers must have the OpenGnsys agent (OGAgent) installed and configured.

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OpenGnsys Configuration

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

1. Classrooms

In the Classroom view you 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.



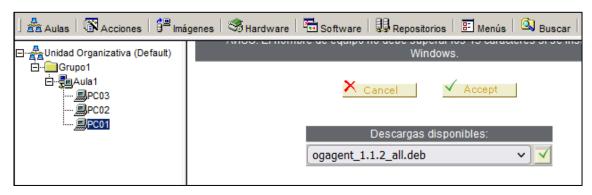
In order for UDS to be able to use the equipment in a classroom, they must have an OS recognized by OpenGnsys (these OSs are indicated with colors: yellow, blue, pink and orange). UDS may allow access to computers with Windows and Linux OS.



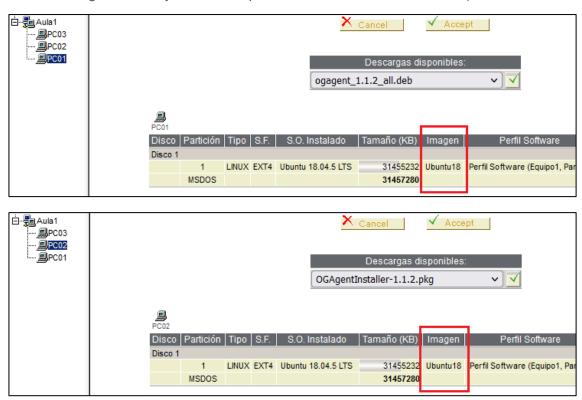


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In order for OpenGnsys to have a connection with these computers and to display their status correctly, it will be necessary to install and configure the OpenGnsys agent (OGAgent). It is available in the properties of each computer.



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 from each other).





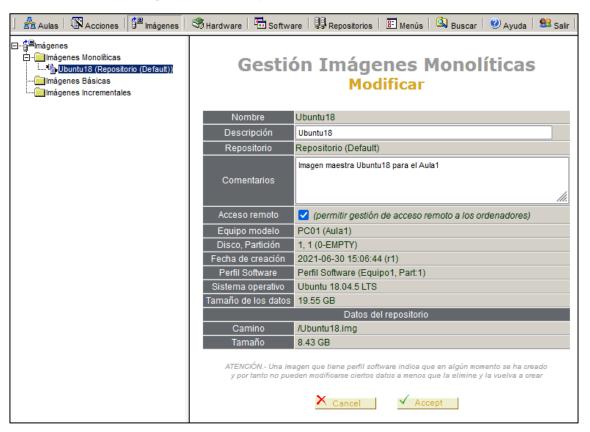
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2. Images

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

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

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



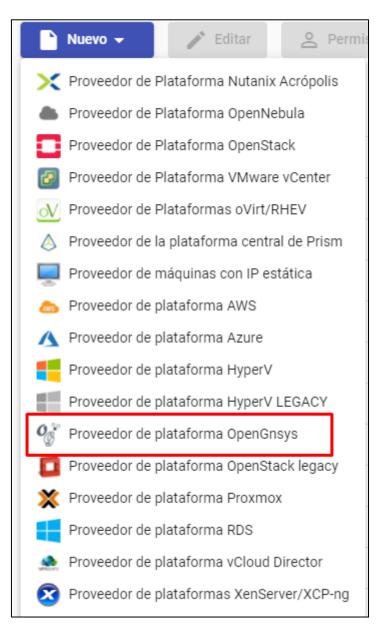
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OpenGnsys integration in UDS

To integrate an OpenGnsys environment with UDS Enterprise and that can 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:

Registration of service provider "OpenGnsys Platform Provider"

In the "Services" section, click on the "New" button and select in the drop-down "OpenGnsys Platform Provider":



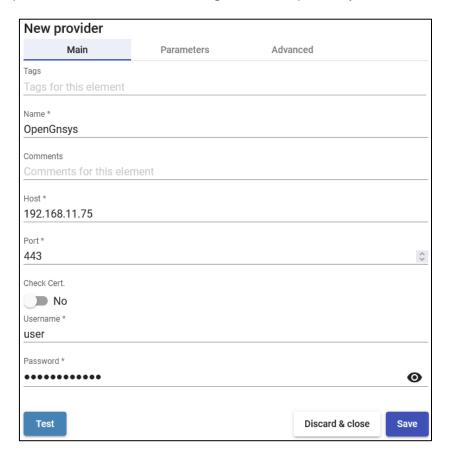


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In order to configure the platform **"OpenGnsys Platform Provider"** The minimum parameters to configure are:

o Main:

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



Parameters:

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

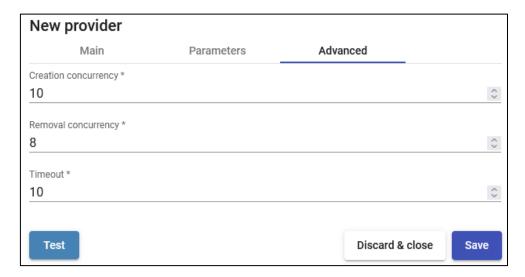




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Advanced:

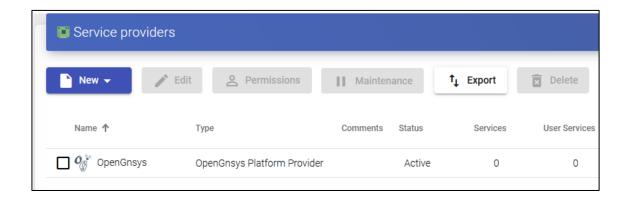
Total number of simultaneous desktop creation tasks at the provider ("Creation concurrency" field), total number of simultaneous desktop removal tasks at the provider ("Removal concurrency" field) and "Timeout" time in connection with the OpenGnsys server.



The "Test" button will check that the connection is made correctly.

Save and you will have a valid "Service Provider" to start creating base services in the OpenGnsys provider.

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



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

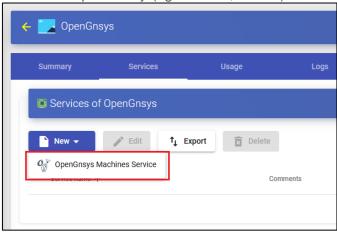
Using the "Enter Maintenance Mode" button you can pause all operations executed by the UDS server on a service provider. It is recommended to put a service provider into maintenance in cases where communication with that service provider has been lost or a maintenance outage is planned.



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Configure service based on "OpenGnsys Machines Service"

To create base services of the "OpenGnsys Machines Service" type, access the "Service Providers" created previously (right button, details) and click on "New".



In an "OpenGnsys Machines Service" the minimum parameters to configure are:

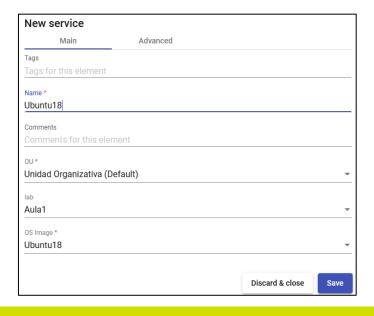
o Main:

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 teams that will be assigned to users are located.

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

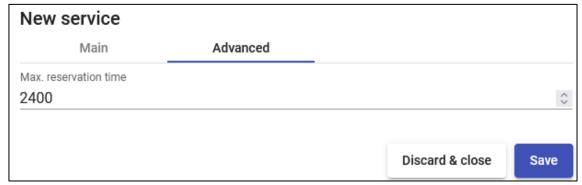




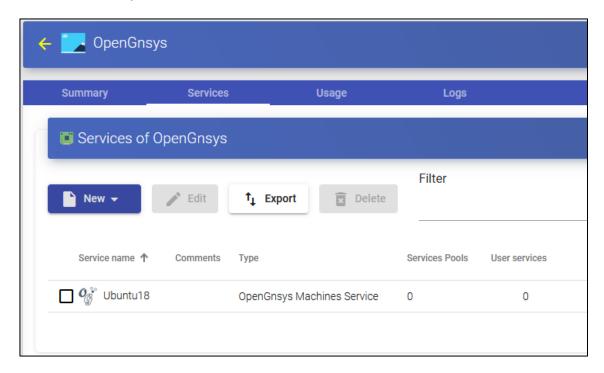
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Advanced:

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



Save and You will have a valid "OpenGnsys Machines Service" in the OpenGnsys Provider. You will be able to register all the "OpenGnsys Machines Service" that you need in the UDS platform.





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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 each services.

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

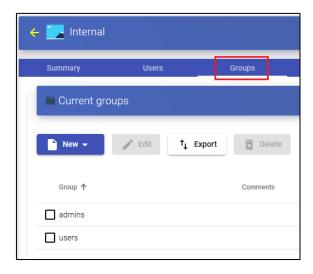
1. Registration of user groups and transport

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

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



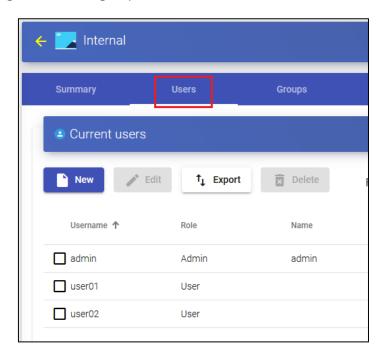
And let's make sure you have user groups created:



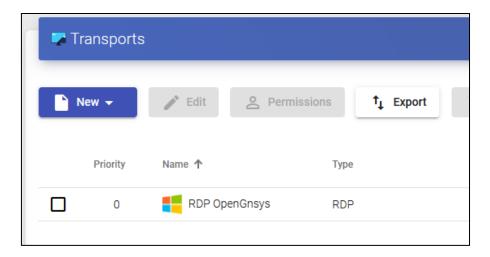


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And users assigned to those groups:



Confirm that you have a valid transport to be able to assign to the service pool:



Within the transport you can configure the access credentials to the desktops, the quality of the connection, devices that you 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 <u>UDS Enterprise</u>, where the creation of each element is detailed.

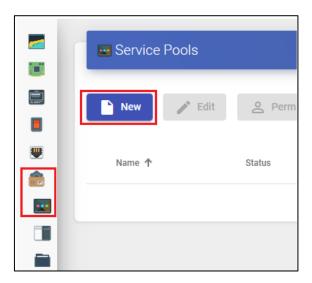


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2. Publication of the Service Pool

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

To create a "Service Pool" you 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.

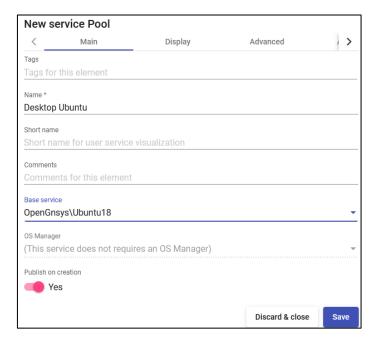
Base Service: Consisting of a service provider \ service, previously configured within the service provider.

OS Manager: It is not necessary when you use an OpenGnsys type service provider.

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



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Advanced:

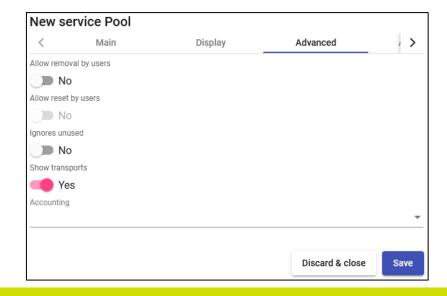
Allow removal by users: If enabled, users will be able to remove the services assigned to them. Only the assignment will be removed and a new one will be assigned on the next connection.

Allow reset by users: It does not apply to OpenGnsys.

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

Show transports: 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 displayed.

Accounting: Assigning a service to a previously created "**Accounts**" ("**Pools**" - "**Accounts**")





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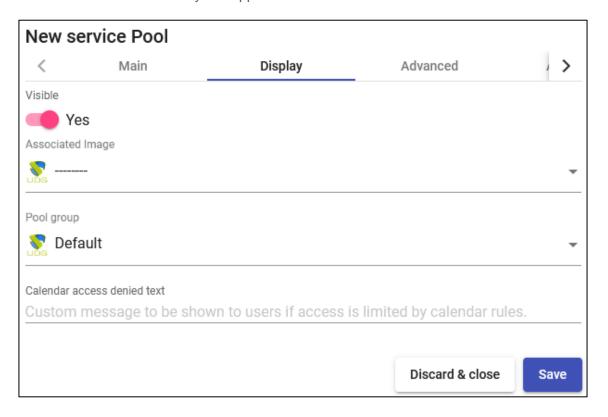
Display:

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 with the service. It has to be previously 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.



Availability:

Initial available services: Minimum number of computers that will be turned on and prepared at the creation of the service.

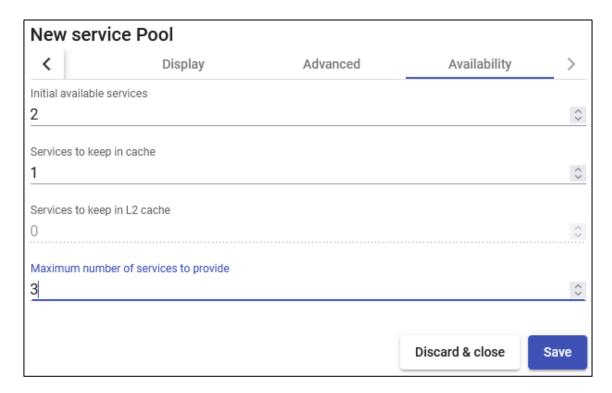
Services to keep in cache: Number of equipment available. These will always be on and ready to be assigned to a user (they will automatically turn on until the maximum number of machines indicated in the "**Maximum number of services to provide**" field is reached).

Services to keep in L2 cache: It does not apply to OpenGnsys.

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



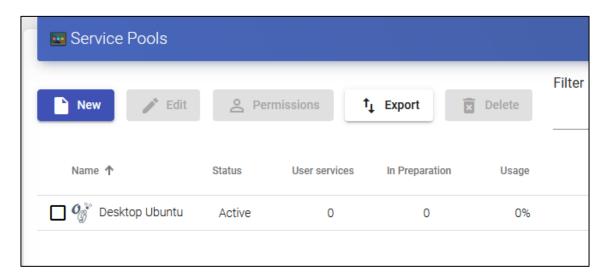
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NOTE: In the configuration indicated in the example, initially there will always be two computers on and available. When those two computers are assigned to users, the system will turn on a new one to fulfill the cache data (there is always a computer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

Save the new "Service Pool" and the system will start preparing the computers (turning them on) based on the configured cache and the available computers in the OpenGnsys classroom ("Availability" tab).

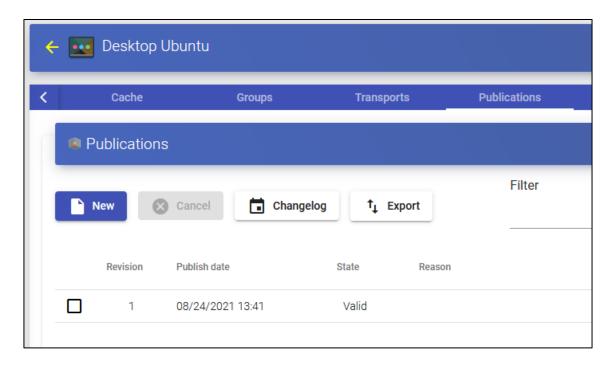
Using the "**Delete**" button you can completely delete a "**Service Pool**" and with "**Edit**" you can modify it.





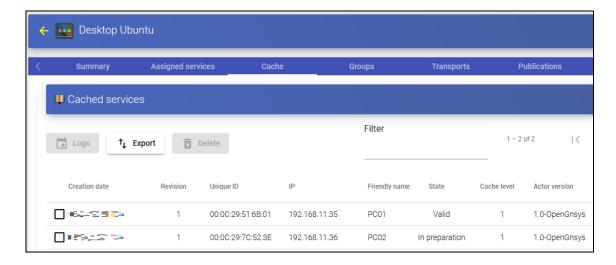
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If you enter the "**Publications**" section of the Pool created, and if you have marked the "**Publish on creation**" option, the system will automatically make the first publication of the service.



Once you have created a "Service Pool", upon accessing you will have the following control and configuration menus:

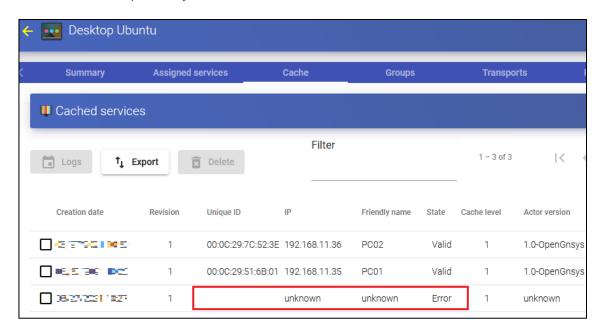
- Cache: Desktops available for user connection (the number of desktops generated will be the one indicated in the "Availability" tab). These desktops will go through different states:
 - In Preparation: In this state the virtual desktops are being started by OpenGnsys.
 - Valid: When a desktop is in this state, it is available for a user to access.



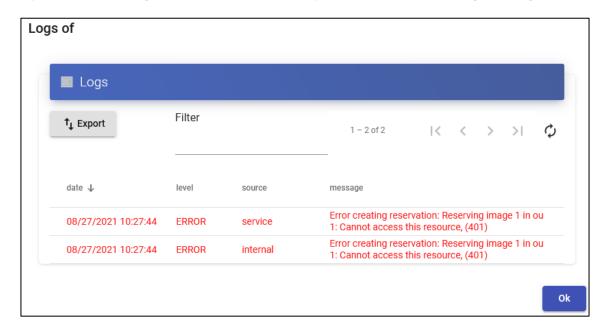


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If you see that the system begins to generate machines with "Error" status and that they do not have an IP or MAC address, it may mean that there are no more computers available in the OpenGnsys classroom.



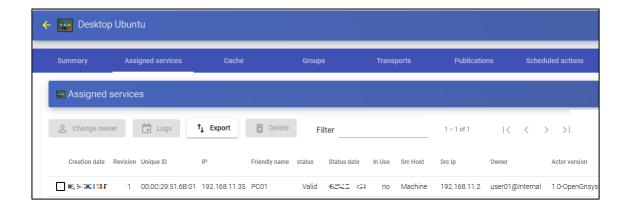
If you look at the log in the service with error, you can see the following message:



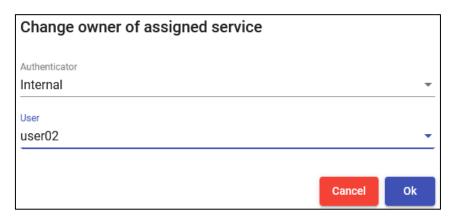
Assigned Services: Desktops assigned to users. Displays information about the creation date of the desktop, the revision (or publication) number on which the desktop is generated, the MAC address of the VM's network card, the DNS name and IP of the virtual desktop, the status of the desktop, if it is in use, the name and IP of the connection client, the owner of the machine and the version of the UDS agent installed.



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By marking the desktop and clicking on "Change owner", you can change the user assigned to the desktop.

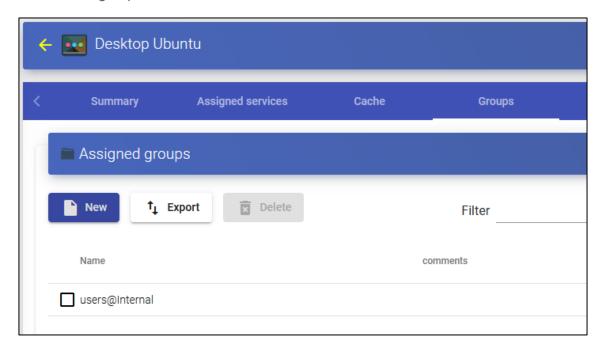


By clicking on "Delete", with the desktop marked, you can delete it manually.

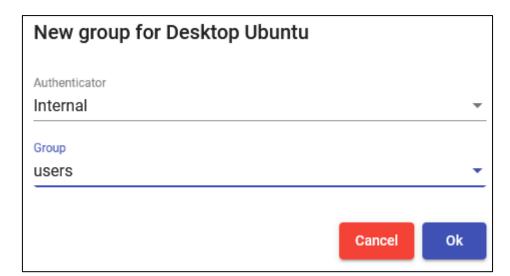


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Groups: To allow users to connect, it is necessary to assign access groups or metagroups. These groups or metagroups must be created in the "Authenticators" section and you can assign one or more access groups or metagroups to each "Service Pool"



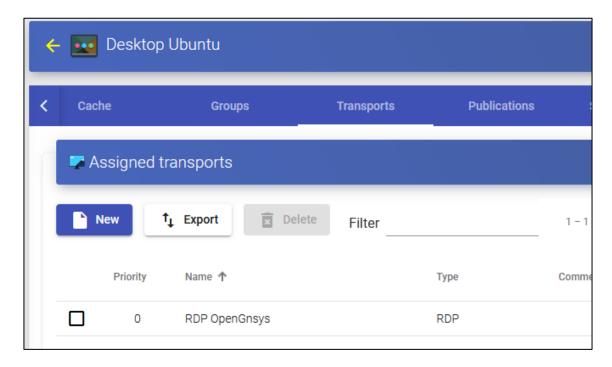
Select the "Authenticator" and based on your choice you choose the "Group Name".



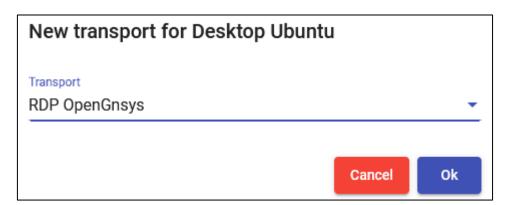


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Transports: The "Transports" will be indicated to make the connection with the desktop (previously added in the "Transports" section). The "Transport" with the lowest priority will be the one that the system configures by default. To use the rest of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



Select the "Transport" that you want to use in this "Service Pool" and save.



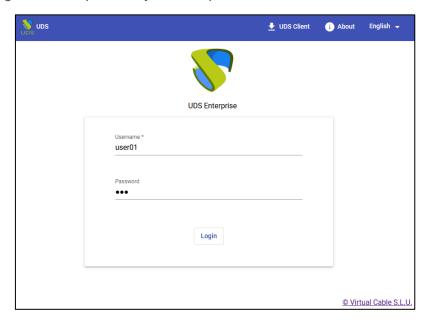


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3. Desktop access

Once you have desktops (in the cache section) in a valid state within the service pool created with the OpenGnsys provider, and you have at least one group and one transport assigned to said pool, you can now access.

In the UDS login screen you will indicate the credentials of a user that belongs to the group configured in the previously created pool of services.

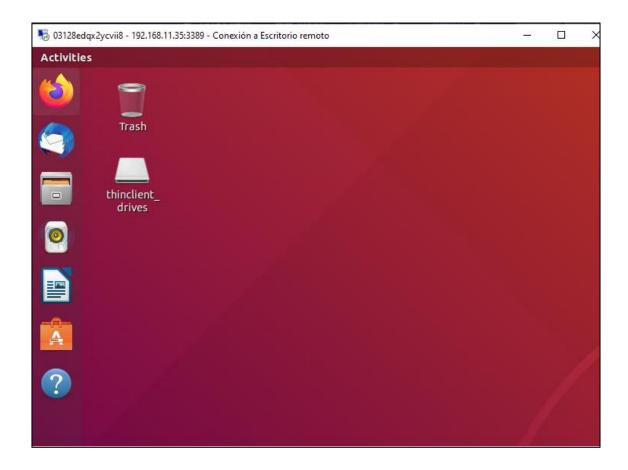


Once the credentials have been validated, you can click on the service to connect to the desktop.





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When a user logs off their desktop, UDS will remove the assignment of this service and will indicate to OpenGnsys that it is available to reapply the indicated configuration and that it will be free to be used by another user again.



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Troubleshooting

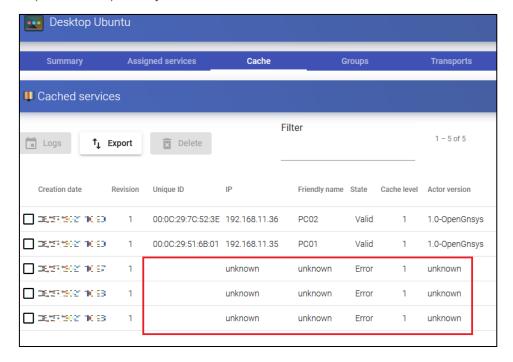
Here are some errors displayed by the platform and that may be due to misapplied configurations.

Restricted service pool



When a pool of services enters 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 "restrainTime" (default value = 600), if 3 errors occur in less than 600 seconds (10 minutes), the system enters "Restrained".



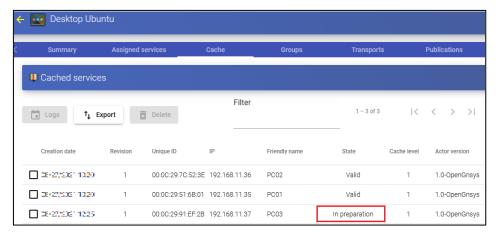
Once those 10 minutes have passed without errors, the pool will exit restricted mode and continue normal operation. If the errors occur again, the service will be restricted again.



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Service in state "In preparation"

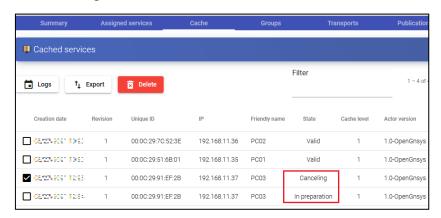
You can find that when UDS configures a service, it remains in "In preparation" state for a long time and if this state is not updated, the service is automatically eliminated between 1 - 2 hours (this time is the default. modify, it will be necessary to change the value of the parameter "maxInitTime" 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 start 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" (required status to allow users to connect to the machine).

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

For example, with the default value of the parameter "maxInitTime" (3601 seconds), 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:





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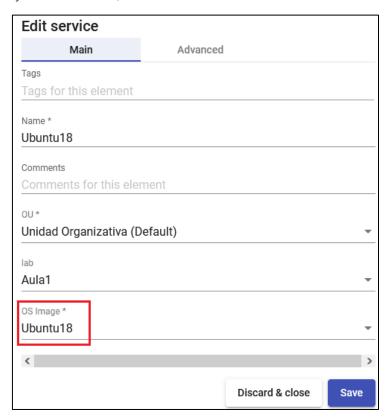
If you look at the log of the canceled service, you can see the following message:



Computers with different assigned image

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

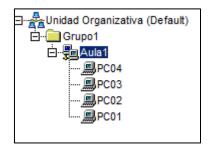
You must indicate the image that all the classroom computers must have in the definition of the OpenGnsys base service, within the UDS administration:



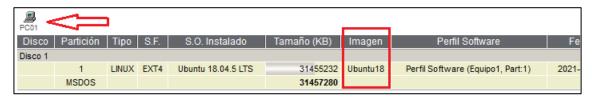


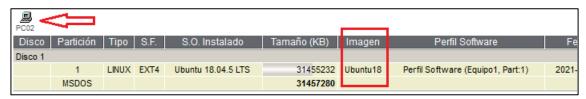
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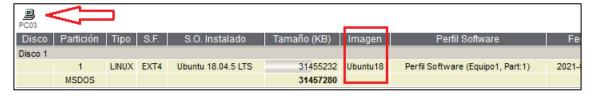
In the following example, a classroom with 4 computers is shown:



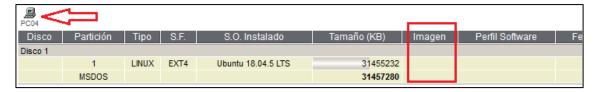
Of the 4 machines, 3 of them are based on the same image:







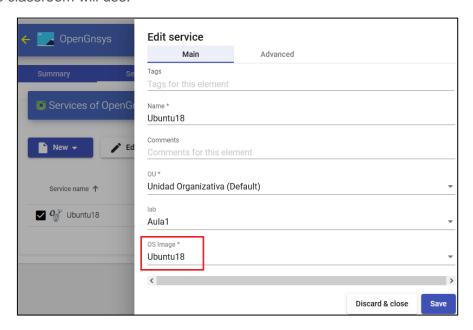
And one of them does not have the image associated with it:





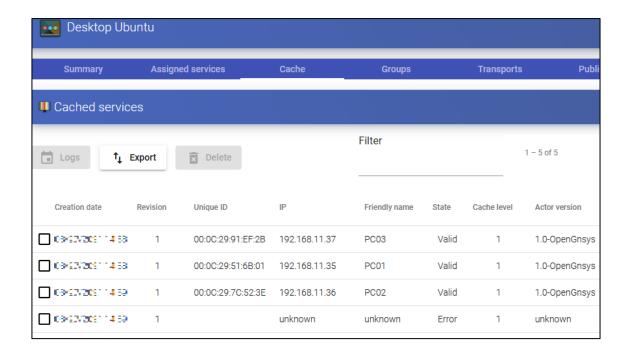
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In the UDS administration, when you create the base service you must indicate the image that the classroom will use:



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

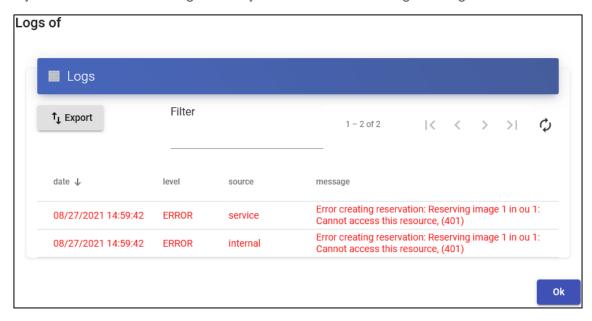
If you have indicated that all the machines in the classroom be prepared (4), the creation of this last machine will give an error, since there are no more machines in the classroom (since pc04 will not be a valid machine)



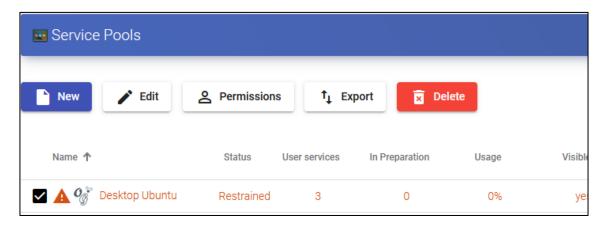


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If you look at the service log in error you will find the following message:



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





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About Virtual Cable

Virtual Cable develops and markets UDS Enterprise through a subscription model by number of users that includes support and updates.

In addition, Virtual Cable offers professional services to install and configure UDS Enterprise.

For more information visit www.udsenterprise.com or email us at info @ udsenterprise.