

CloudBuilder Technical Documentation

CloudBuilder allows you to have all the infrastructure you need to create your own virtual data centre.

Below you'll find a description of some of the elements and services included in your Control Panel.

Servers:

With CloudBuilder, you can create as many servers as you need, which you'll be able to manage quickly and easily from the "servers" section.

There are two types of servers: standard and premium. The following table lists the main features of each type of server.

Features	Standard	Premium
Minimum resources you can buy for each server	1 vCPU, 0.5 GB RAM, 50 GB Disk space	1 vCPU, 0.5 GB RAM, 50 GB Disk space
Maximum resources you can buy for each server	4 vCPU, 8 GB RAM, 500 GB Disk space	8 vCPU, 128 GB RAM, 2000 GB Disk space
Storage with service level	No	Yes
Hot-add resources	No	Yes*
Service Availability	High	Excellent
Clone server	No	Yes
Hot-create server virtual appliance	No	Yes
Upgrade disk space	Yes	Yes
Snapshots	Once every day	Once every 3 days
Include in Private Network	No	Yes

* If the OS supports it.

When creating a server, you'll be able to select the following parameters:

- **vCPU** or Virtual CPU: is the measurement of the server's processing power. Each vCPU is equal to a 2010 2GHz Intel Xeon processor.
- **RAM**: the RAM you want for your server. Available in increments of 512 MB.
- **Hard Disk** for your server: size (measured in GB) of the configured hard disk. The minimum disk size is 50 GB.
- **Service Level**: represents the performance of the hard disk. The higher the performance, the more read/write operations per second are supported by the disk. Only available for Premium servers.
- **Virtual Appliances**: With more than 100 virtual appliances, you'll be able to deploy the server in minutes.

Virtual Appliances:

CloudBuilder has more than 100 virtual appliances, enabling you to deploy your servers quickly. These virtual appliances include the leading Operating Systems on the market.

- Windows 2008 32-bit and 64-bit versions.
- Windows 2003 32-bit.
- CentOS 5 32-bit and 64-bit versions.
- CentOS 6 32-bit and 64-bit versions.
- Debian 5 32-bit and 64-bit versions.
- Debian 6 32-bit and 64-bit versions.
- Fedora 14 32-bit and 64-bit versions.
- RHEL 5 32-bit and 64-bit versions.
- RHEL 6 32-bit and 64-bit versions.
- Ubuntu 10.10 32-bit and 64-bit versions.

These OS include a wide range of pre-installed software, with open source software packages (MySQL, Zabbix, Moodle, Ruby on Rails, etc.) and paid software such as SQLserver and plesk.

As well as these virtual appliances, which have been created by Arsys, you'll be able to create your own virtual appliances from your existing servers, so you can use them later to deploy new ones.

Virtual Appliance Architecture:

As well as basic virtual appliances, CloudBuilder comes with predefined virtual appliances consisting of complete architectures, i.e. virtual appliances that consist of several servers, load balancers, pre-configured firewall rules and, in general, all the settings required for an architecture to be completely operational.

The following architectures are available in Windows and Linux versions:

- Monolithic architecture. Consists of a single server.
- Semi-distributed architecture. Consists of two servers, one acting as a frontend and the other as a backend.
- Distributed architecture. Consists of a load balancer, 2 servers (two acting as a frontend and the other as a backend) and a shared storage repository acting as a storage filer.

Public IP Management:

CloudBuilder allows you to create new public IPs to assign to your servers or load balancers.

Server Groups:

Server grouping allows for a logical organisation of your CloudBuilder servers. This will make it easier to manage your infrastructure.

You can also create groups and subgroups to classify and organise your servers. You can create groups to distinguish machine roles (frontend, backend, etc.) and to distinguish servers for different clients or configurations, etc.

Connection Groups:

CloudBuilder connection groups make it easy for you to connect your servers. All servers in the same connection group can be interconnected without firewall filters.

Firewall Policies:

With CloudBuilder, you can easily create FW policies and then apply them to one or several servers. You can assign rules for IP ranges and allow access to one IP, all IPs or a range of IPs. The supported protocols are TCP, UDP and ICMP.

Load Balancers:

With CloudBuilder, you can create load balancers to distribute the traffic load across your servers.

You can establish the load balancer for TCP and UDP protocols, among others, and also set conditions:

- Health-check based on: HTTP, TCP port scanning, no scanning option.
- Set persistence.
- Load balancing method: Least connections or Round Robin.

Backup:

CloudBuilder allows you to make complete backup copies of your machines and/or shared storage disks.

There are a number of types to choose from:

- **Weekly:** a backup copy of the server is made on a daily basis and kept for a week. It means you can restore your server to how it was on any of the previous seven days.
- **Monthly:** a backup copy of the server is made on a daily basis and kept for a month. It means you can restore your server to how it was on any of the previous thirty days.
- **Annual:** a backup copy of the server is made on a daily basis and kept for a year. It means you can restore your server to how it was on any of the previous thirty days; for periods longer than this only one copy for each month will be kept.

Dedicated Hardware:

CloudBuilder allows you to have dedicated hardware for your virtual infrastructure. You can request Host servers, load balancers, firewalls and disks cabinets where only your infrastructure will be deployed and which won't be shared with other clients.

Hybrid Cloud:

Hybrid CloudBuilder allows you to integrate servers in the Cloud with others which may be in the arsys.es Data Centre or in-house. That is, you can integrate virtual CloudBuilder servers and physical servers into the same infrastructure.

With Hybrid CloudBuilder, your databases could be on dedicated physical servers and you could connect them to a data cabinet with iSCSI technology. In terms of communications, connections can be made to your cloud platform through a dedicated line or a VPN. This

means you can enjoy all the possibilities of traditional outsourcing and all the benefits of a Cloud solution.

VPN:

With CloudBuilder, there are 4 different types of VPN to secure communications between your CloudBuilder servers.

SSL VPN:

With this VPN you'll be able to connect to your servers securely without the need for any additional hardware through the OpenVPN software. You'll need to install OpenVPN and some certificates that can be downloaded from the panel on to the computer you use to access your CloudBuilder servers securely. Once correctly installed, you'll be able to connect to the servers through an encrypted tunnel.

IPSec VPN:

With this VPN you'll be able to create an encrypted tunnel between your office and the servers housed in the arsys.es Data Centres. To do so you will need a tunnel end point in your offices which must be configured with the parameters arsys.es provides. This is the VPN we recommend if you want all your computers on a single network to connect to CloudBuilder servers with encryption.

Network VPN:

With this VPN you'll be able to create a secure, encrypted network between your servers housed in your office and those in the arsys.es Data Centres. You'll manage the IP addressing of the machines and see them as if they were also in your offices. You will need a tunnel end point in your offices which must be configured with the parameters arsys.es provides. This VPN is the one we recommend for those who want CloudBuilder servers to behave like servers on their own network, able to print on your printers, share folders with computers in your office...

MPLS VPN:

With this VPN you'll be able to interconnect your offices securely through an isolated, reliable, independent Internet network. The MPLS VPN also allows you to establish a QoS to prioritise certain traffic (e.g. VoIP). This service is installed and configured on each one of your sites by Arsys, so you don't need to worry about any set up or maintenance tasks.

Shared Storage:

With CloudBuilder, you can easily create shared storage volumes. These volumes are available in NFS or CIFS technologies and SATA and Fibre Channel disks. The disks can be created with sizes ranging from 500 GB to 2 TB.

Private Network:

With CloudBuilder, you can create private networks (dedicated VLANs) to provide your servers with an additional private network interface. You manage the interface's IP address.

Monitoring:

CloudBuilder allows you to have a monitoring service for your servers.

There are two types of monitoring:

Standard Monitoring: a free service to monitor the server's state (on/off) and the CPU, RAM and Data Transfer resources. You will be notified through the panel whenever an alert is generated. You will also receive an email notification when the server is turned on/off. In the panel, you'll be able to see the current state of each of the resources, a graph section with the time pattern and an event history of events generated over the last month. The alert generation limits cannot be changed and are defined as:

	Warning	Critical
CPU	90%	95%
Memory	90%	95%
Data Transfer	1000 Kbps	1500 Kbps

Advanced Monitoring: a paid service that adds Disk Monitoring, Sever Process Monitoring and Monitoring of any Port (TCP) to the Standard Monitoring features. You can also manage the alert limits (Warning and Critical) and the parameters that generate them (whether the port responds or not and whether the process is running or not). In the panel, you'll be able to see the current state of each of the resources, ports and processes, a graph section with the time pattern and an event history of events generated over the last year.

Action Engine:

CloudBuilder has a powerful action engine that allows you to carry out actions based on predefined conditions.

For example, you can create simple rules such as setting the RAM on one of your servers to be increased if its RAM usage exceeds 80% for more than 15 minutes, but also much more complex rules such as creating a new server, including it in a load balancer, increasing RAM and CPU.

API:

CloudBuilder has an API that lets you perform the main actions available from the Control Panel.

To use the API, you will need to create a user account. This user will have an APIkey or password, which will be necessary to run operations. To ensure maximum security, you'll also need to indicate the authorised IP addresses from which the user will connect to run the operations. If the user connects from an unauthorised IP address, the connection will be denied while this IP is not included in the list.

The scripts with the operations to perform will be programmed on the SOAP protocol, so you will be able to use any programming language that supports it. We offer examples in the following programming languages: PHP, C#, Python, Perl.

Activity Logs:

The activity log allows you to track actions, the percentage of progress for each one and confirmation of their completion.

The activity log has two views.

Basic View: This view is a pop-up window that displays basic information about the processes which can be accessed from anywhere in the Control Panel. This window only displays actions that have been performed recently. They can be displayed or hidden at will.

Detailed View: This view is accessed from an option in the "Data Centre" section of the Control Panel. The default setting shows the last 5 actions on the current date, but up to 100 actions can be displayed at once and you can also select a specific period, setting the start and end date and a time frame. The list of actions can be exported in CSV format should you want to perform a detailed analysis.

When selecting a process, this section shows more detailed information about it. This detailed information shown depends on the action.

Visual Cloud:

With CloudBuilder you can view a logical representation of the infrastructure deployed in a CloudBuilder panel. This makes it quick and easy for you to consult the elements of your Control Panel and basic information about them.

Users and Roles:

With CloudBuilder, you have easy and flexible control over the users and permissions you wish to create.

By creating roles, you can assign permissions to groups or individually, for virtually every action available in the Control Panel.

You can create as many roles as you need. By default, there are 4 pre-created roles:

Administration: This role allows users to perform any type of operation in the panel, including managing permissions.

Read/Write: This role allows users to access and perform any operation in the control panel, except managing permissions.

Creation: This role allows users to access (except permission management) and create elements in the panel, but they will not be able to modify or remove them.

Read: This role allows users to access all areas of the panel (except permission management), but they will not be able to perform any operations or export data.

Usage:

In the "Usage" section, you can view a detailed breakdown of how your CloudBuilder infrastructure is billed.

You can view your usage statistics in a number of ways: per day, per period, per server, per hour, and also export the data to perform a detailed analysis.

The Platform's Hardware Features

CloudBuilder uses the leading brands in terms of hardware and software:

- IBM servers
- HP 3PAR storage cabin
- VMware vSphere virtualisation technology