Version 4.03.020702

ARTICA v4.x DOCUMENTATION

DRAFT UNDER CONSTRUCTION

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INSTALLING ARTICA

REQUIREMENTS

Artica 4 is compatible **Debian 9.x on a 64-bit system i686**.
Product **is not compatible** with ARM systems and on Redhat families systems (CentOS, Fedora, Red Hat, Open SuSe **are not supported**).

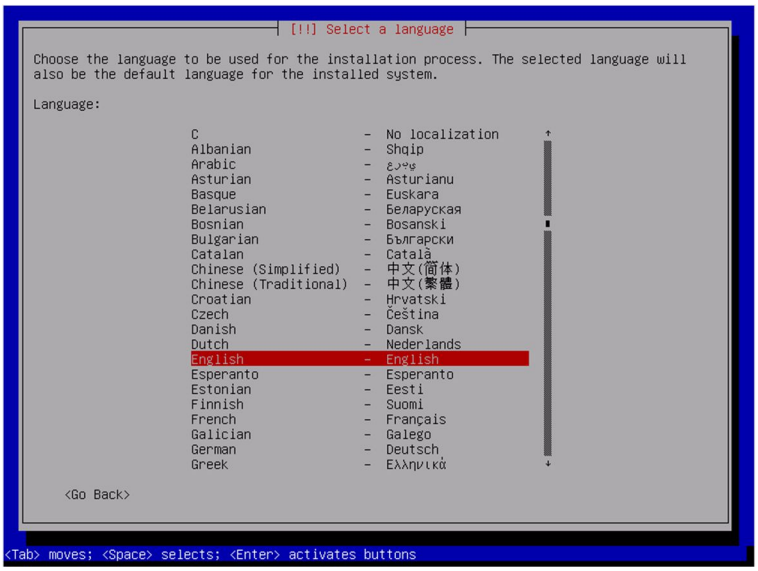
Product is “Virtualization aware” . It can be installed on modern virtualization systems such as VMWare ESXi, Microsoft HyperV, Citrix XenServer, Nutanix, KVM, Proxmox…

To install Artica, you have 2 ways:

USING THE ISO

Download the ISO file at http://articatech.net/betas4.php
The ISO file has been tested in both physical servers and virtual environment (ESXi, HyperV, XenServer, Nutanix, KVM).
The ISO is in charge to install both the system and Artica framework, in all environments, the procedure is the same

Boot from the ISO, a welcome screen must appear

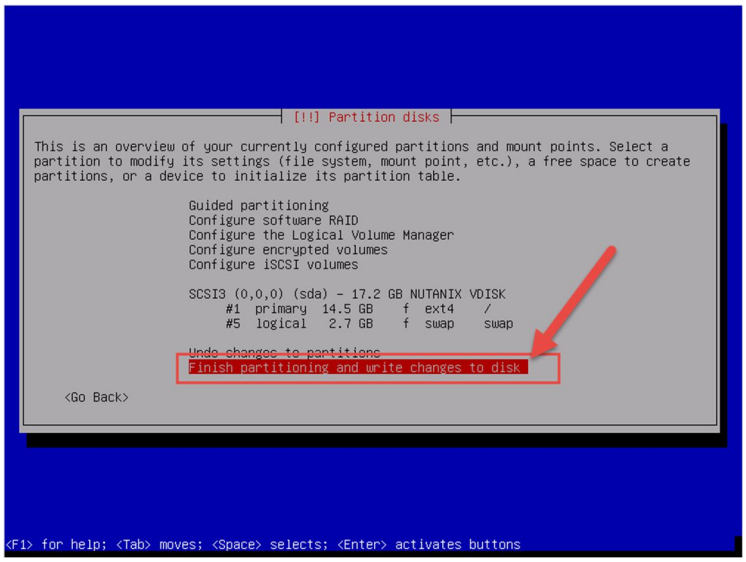


Select your system language, country and the language of the keyboard.

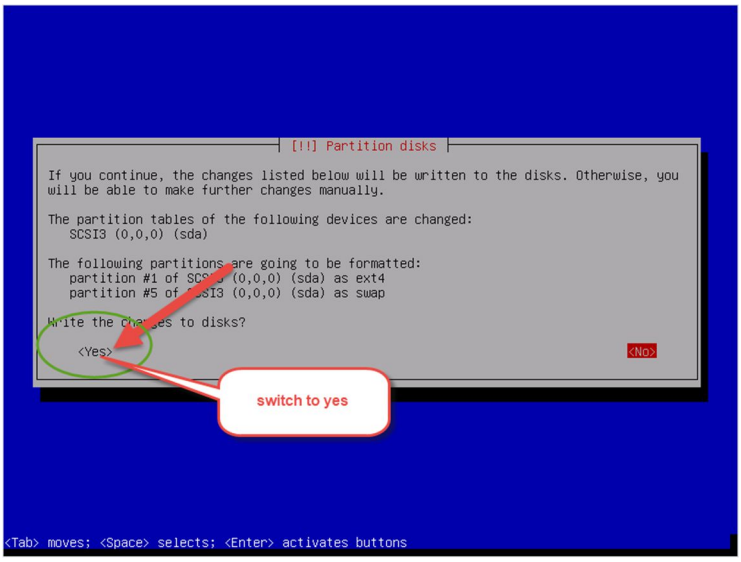
The ISO installer is DHCP client by default it will try to find an IP address through the DHCP. If there is no DHCP, it will ask to enter the IP address.

The TCP settings will not be saved after the reboot, you will have to re-enter it after the reboot.

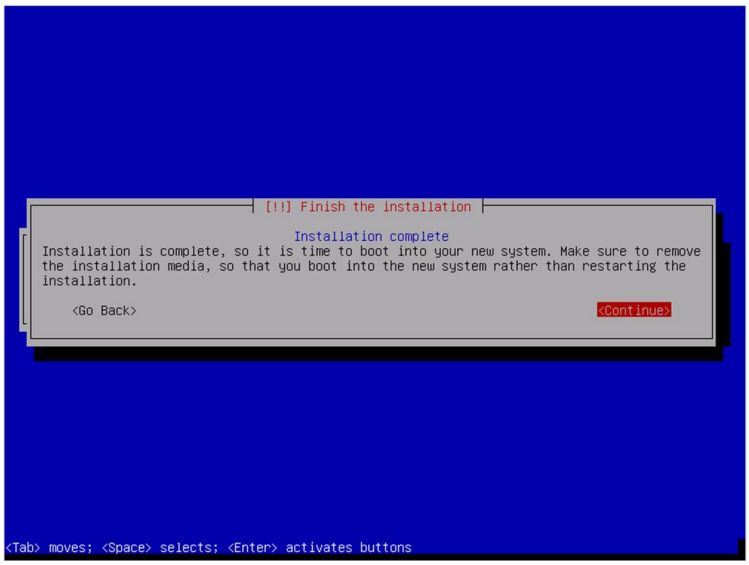
."



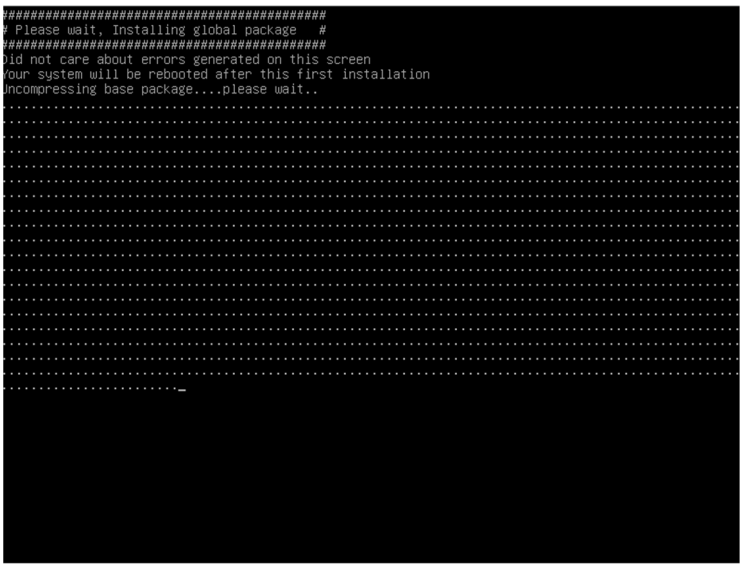
By default, the install tool will create system partitions



Just approve it automatically by type Enter key on the "**Finish partitioning and write changes to disk**



At the end of the installation, type Enter key to continue message in order to reboot the server.



During the first boot, Artica is extracted and installed on the system

The computer will be rebooted again.

USING THE INSTALL SCRIPT.

You must understand that Artica is a product that skin, modify the Linux system according to its needs.
It is not intended to install Artica on an already production server.
Uninstalling of Artica is not possible.

If you need to install Artica on an already Debian 9 system, you can use this procedure:
Open a terminal on your installed system.
Run these commands:

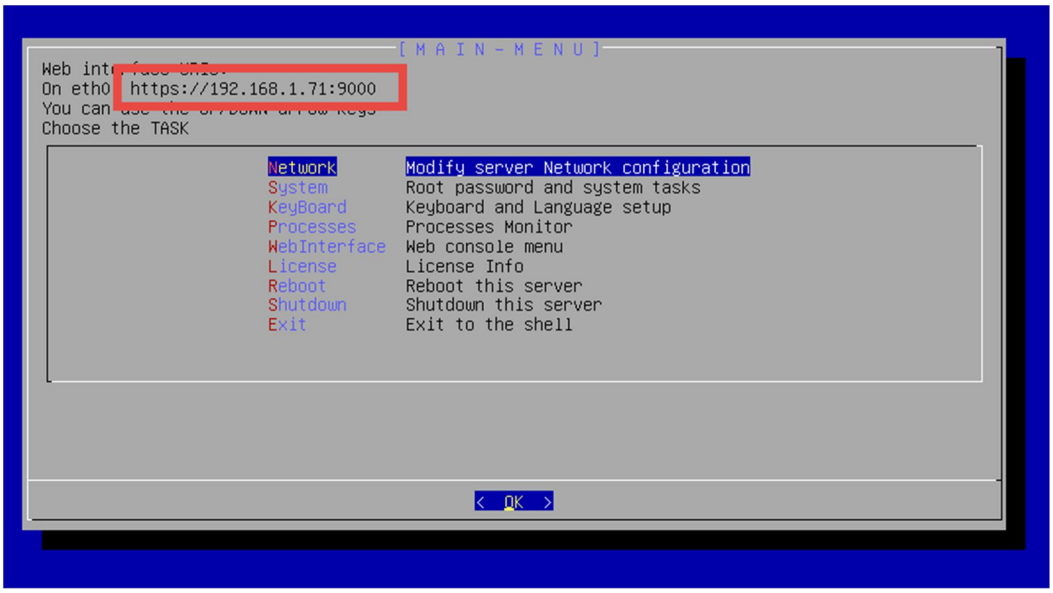
```
wget http://articatech.net/download/v4/install-manuall.sh
chmod 0755 install-manuall.sh
./install-manuall.sh
```

The install-manuall script will be able to download and install all the required packages.

After installing all packages, reboot the system

THE MENU CONSOLE.

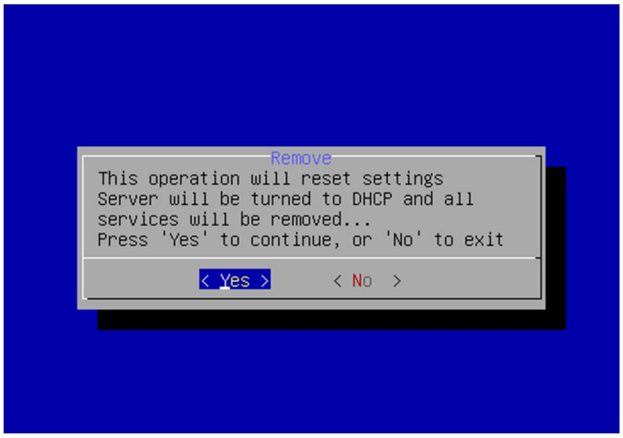
After the installation and on each reboot, a menu console is displayed.
This menu allows you to modify the network configuration, change passwords and set the keyboard language.
On the TOP-left section, the console displays the address to open the Artica Web console



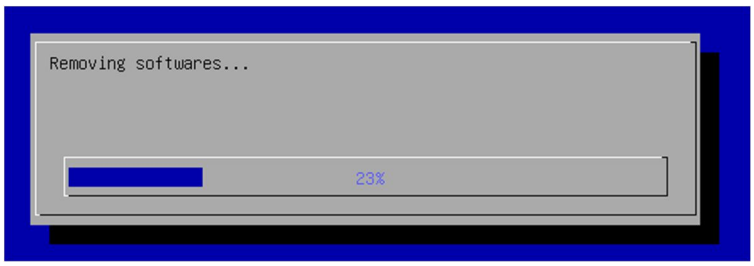
Reset the configuration

If you want to restart Artica from scratch and reset settings, you can reset the configuration in the “System” and choose **Reset parameters**

Confirm the operation to remove all services and parameters.



A progress bar will show you the execution task.

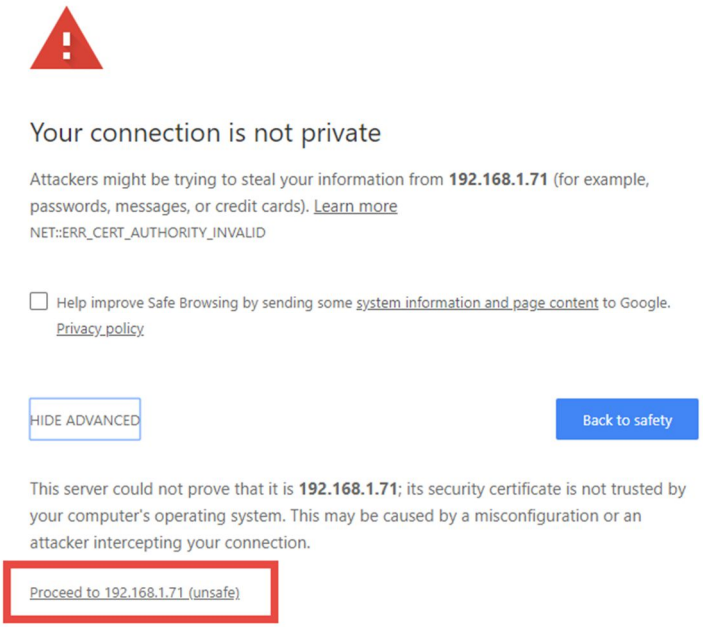


THE WIZARD

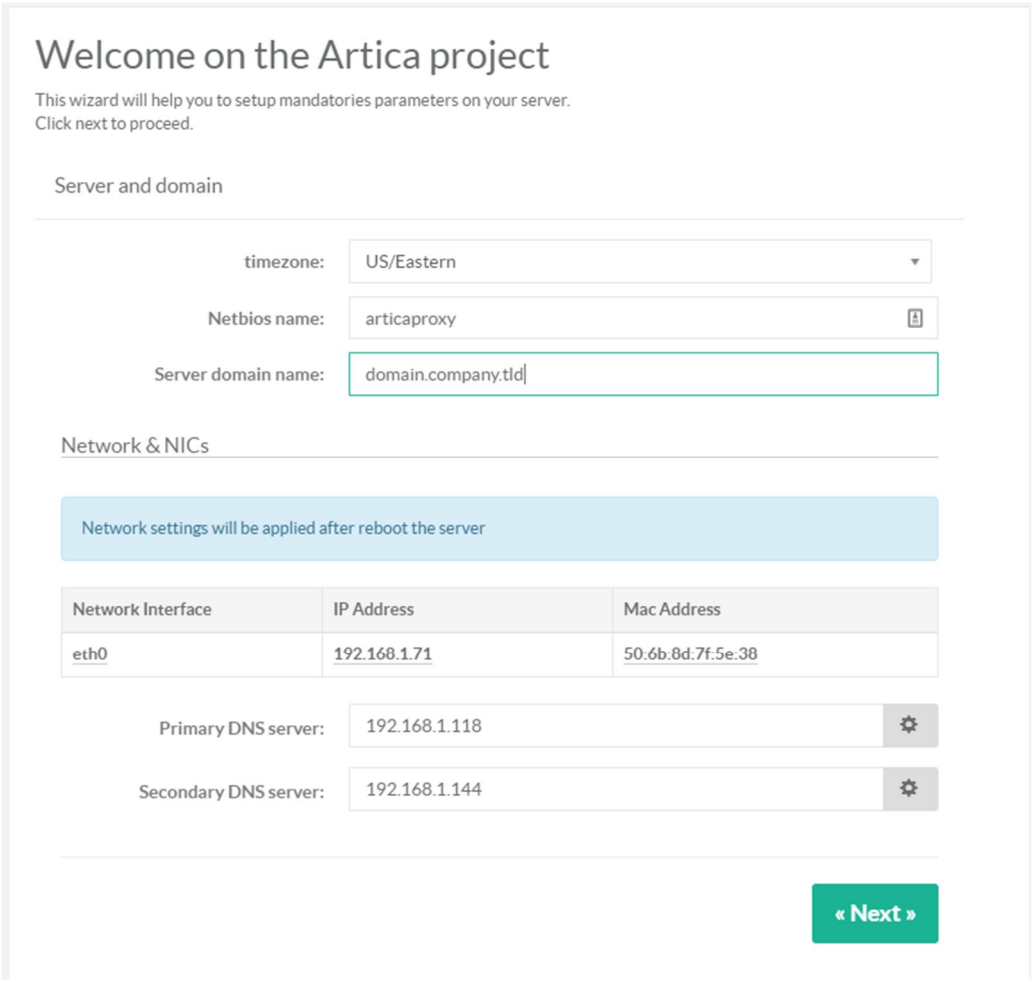
After connecting to the default web page (https://your-server-address:9000) a browser alert is displayed.

This behavior is normal because the certificate generated by Artica is a self-signed certificate.

Ask to the browser to continue anyway.

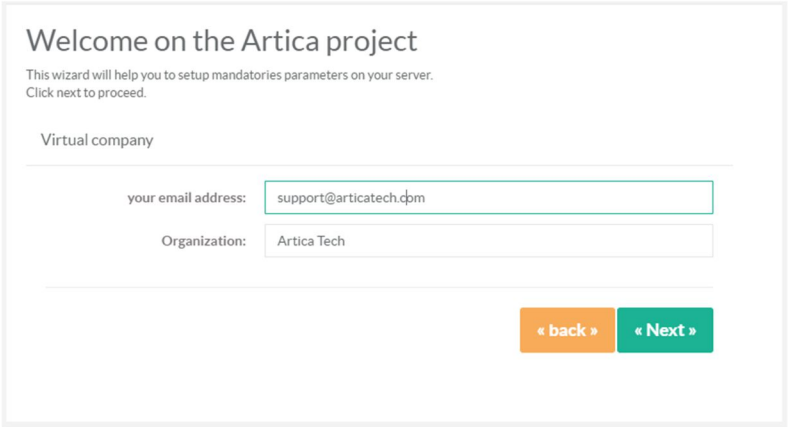


The first wizard page needs you to confirm network parameters such as host name, DNS, network interfaces parameters.

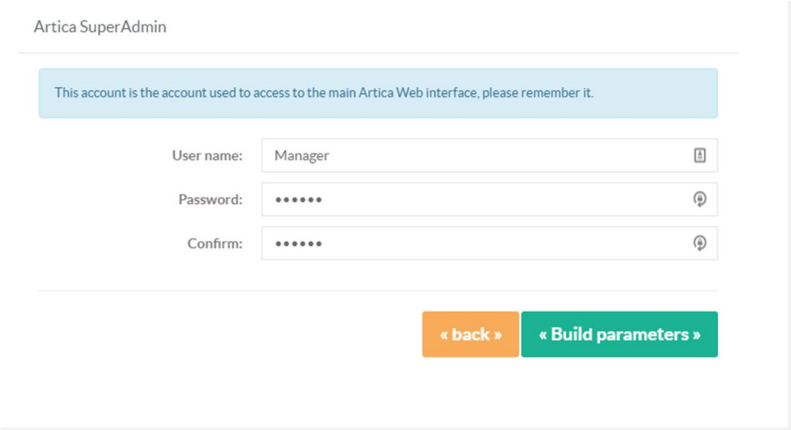


The second step will ask you a "**Virtual information**" such as:

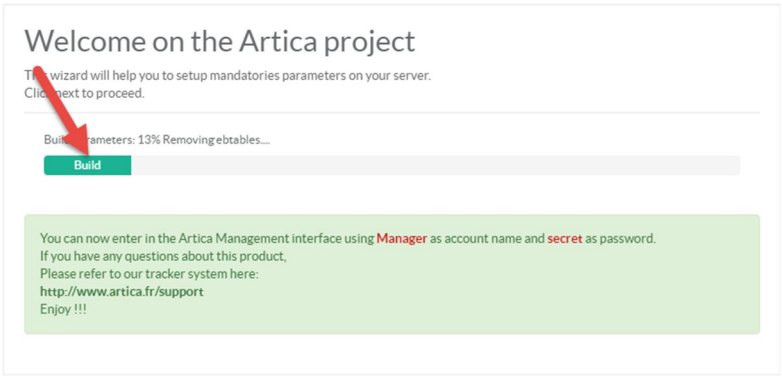
1) The eMail address that will be used by default on all services that require to inform an Administrator.
2) The Organization (company name) that will be displayed on the login screen and on some elements that communicate with your users.



The final step allows you to define the "**Manager**" account username and password.
The Manager account is a Super-Administrator that has full right on the system (except SSH service)



After clicking on the "**Build parameters**" button, a progress bar shows you the installation progress of your new Artica server.



After the installation, you will be redirected to the login screen.

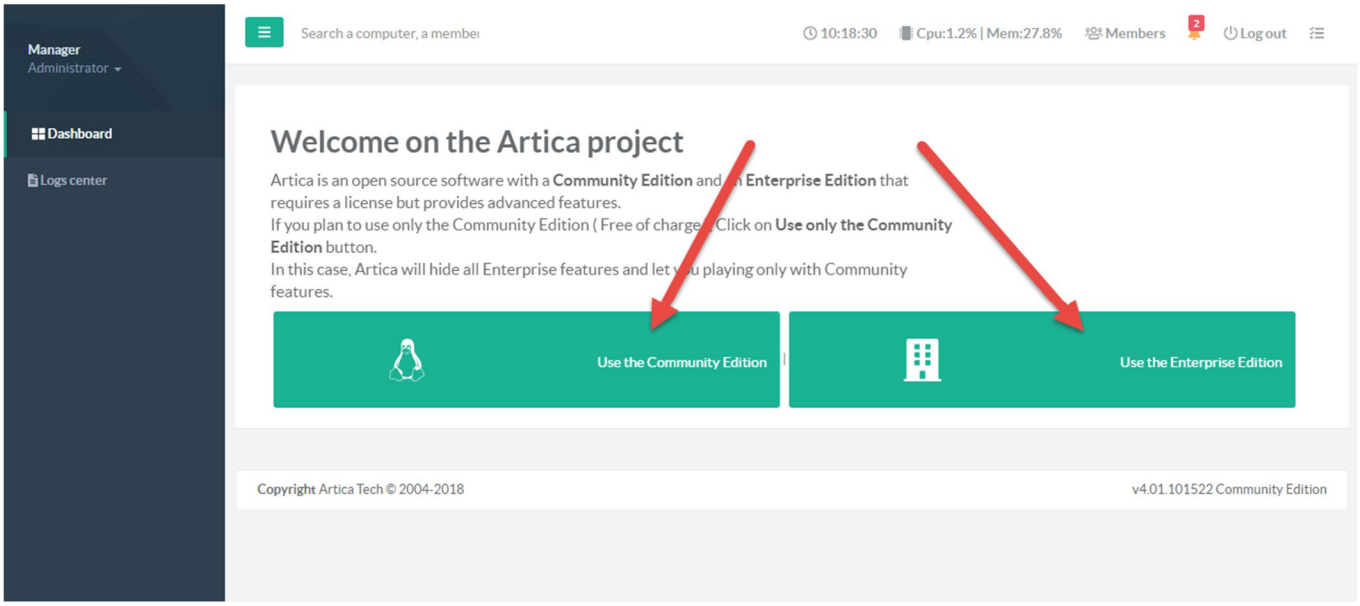
COMMUNITY OR ENTERPRISE EDITION?

After logins for the first time the Artica Web console ask to you if you want to use Artica in Community Edition or Enterprise Edition.

The difference between the Enterprise and Community edition is the Community Edition is "**Enterprise Features**" limited.
Some components or some options will not be available in Community Edition.
The Community Edition is free of charge and will never expire.
A licensed Artica server can run Enterprise features with a subscription.
When the Enterprise License period is expired, the Artica server will automatically return back to the Community Edition.

In any cases, Artica will never shut down a main service for an expired Enterprise license.

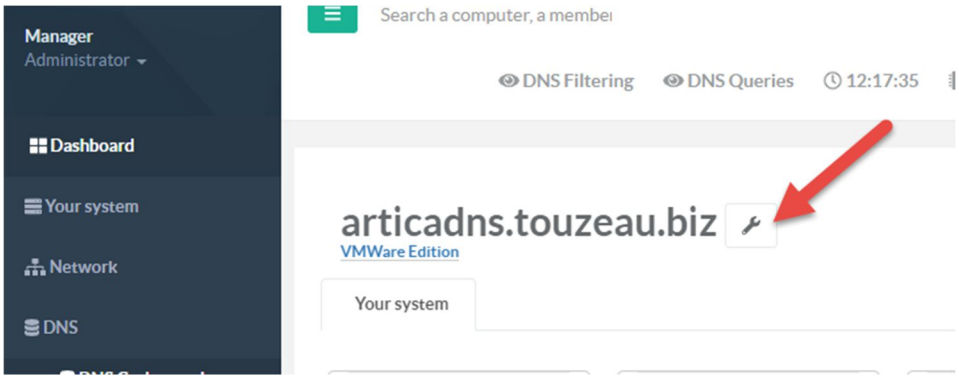
The whole documentation specifies if the feature is available only with Enterprise License



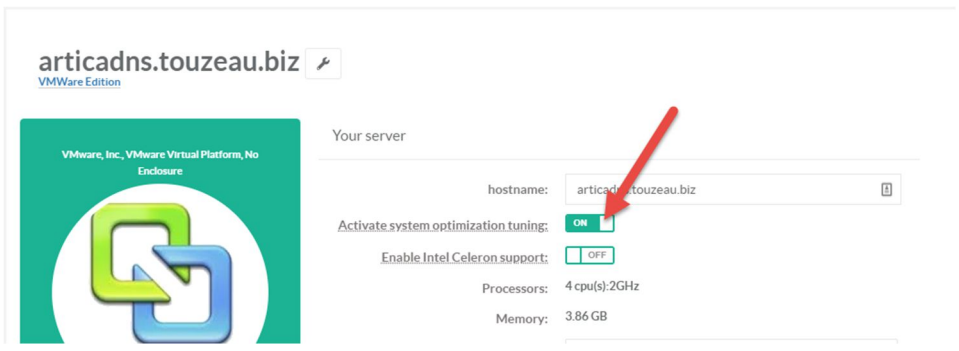
Artica was tested and is fully compatible with ESXi 6x, HyperV, XenServer 5.x, KVM, Proxmox, Nutanix Acropolys (and above)
After installing Artica on a virtual machine, for better performances, you need to enable optimizations

Optimizations

- On the Dashboard, click on the button near the hostname.



- Turn on the "**Activate system optimization tuning**"
- Click on Apply button.



THE CERTIFICATES CENTER

The certificate center allows you to store and generates all certificates generates to build crypted SSL protocols.
It can be used to enable HTTPS on the proxy and web services, SMTPs and the SMTP service….

The certificate center is compatible with Let's Encrypt that allows you to generates a free of charge public certificate.

BUILDING A LET'S ENCRYPT CERTIFICATE.

To build Let's Encrypt certificate **your server needs to be contacted by the Let's Encrypt public web servers** in order to verify that you are the owner of the domain.

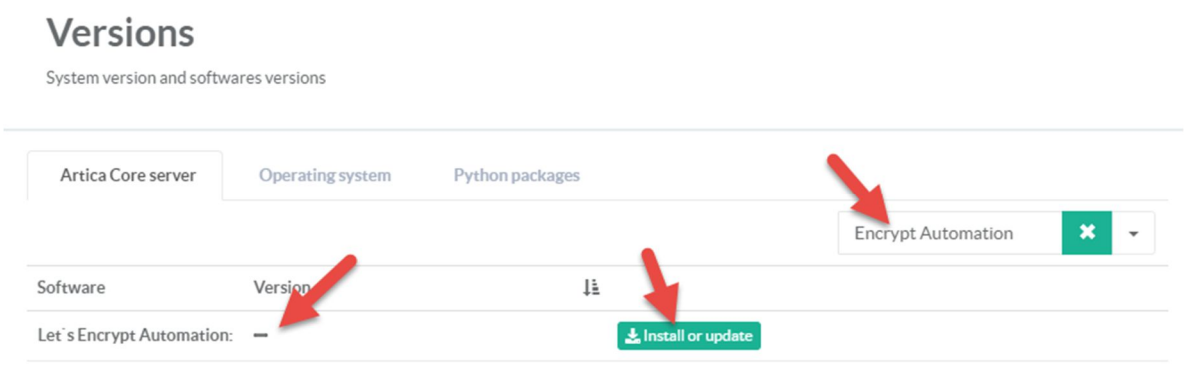
Let's Encrypt is not designed to be used on Internal servers.

During the building certificate, the Web service and the Firewall will be shut down in order to let the process running a micro web server to allow Let's Encrypt public servers validating your domain.

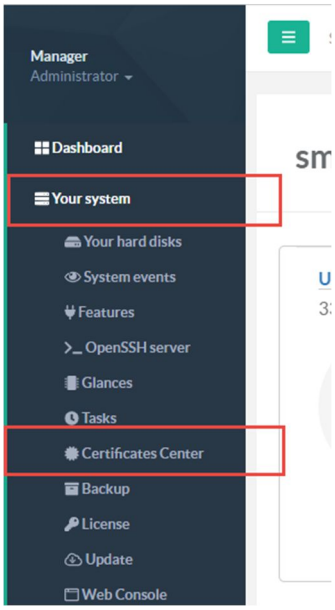
Verify the Let`s Encrypt Automation installation

On the left menu, click on "**Your system**" item and "**Versions**"
On the search field, type **Encrypt Automation**" filter

If no version is displayed on the "**Let's Encrypt Automation**" row, this mean it is not installed.
Click on the "**Install or update**" button.

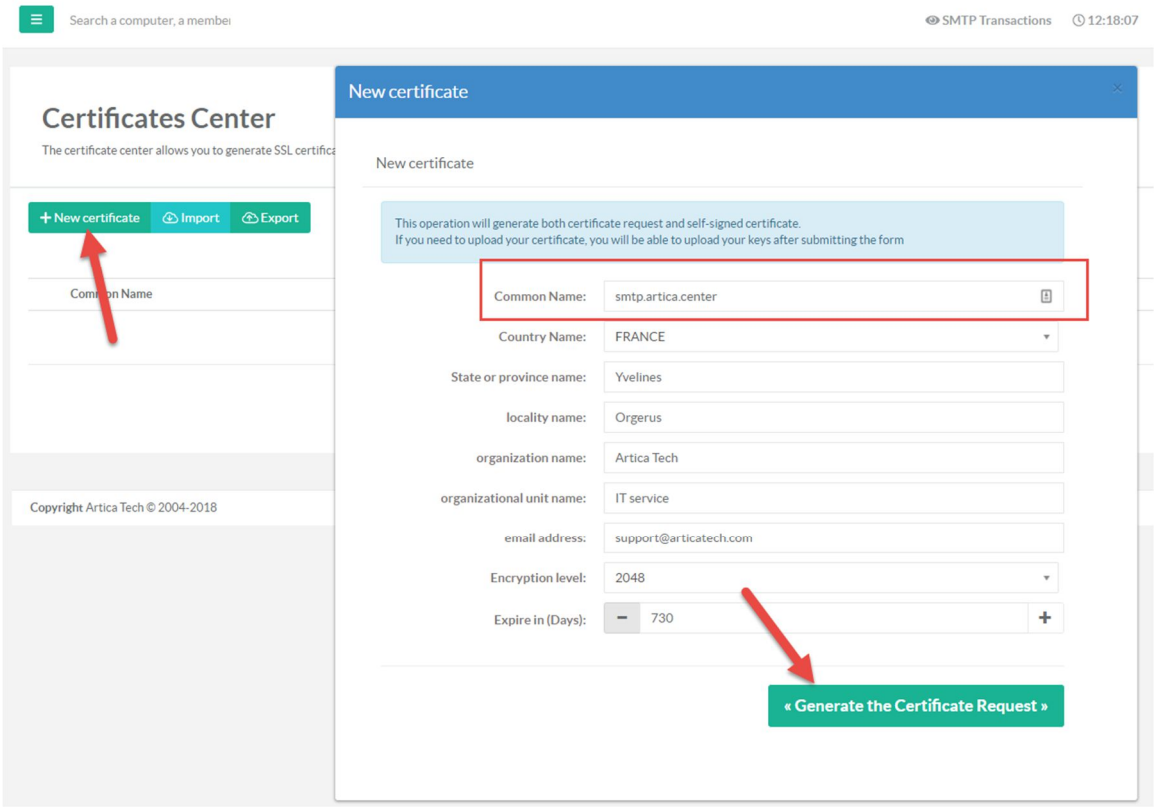


Generate the certificate



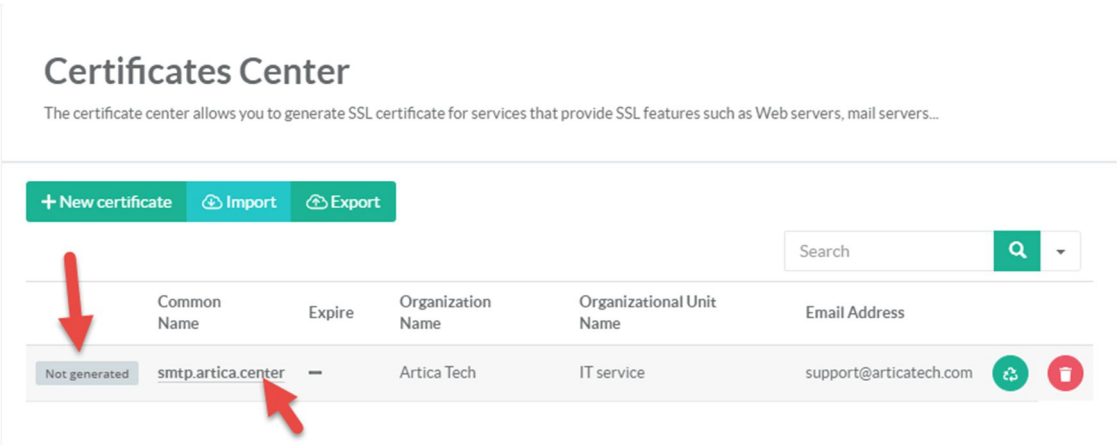
On the left menu, click on "**Your system**" item and "**Certificates Center**"

- ✓ On the table, Click on "**New Certificate**"
- ✓ In the Common Name field, set the domain or the fully qualified hostname of your server. In our case we want to reach the https://smtp.artica.center URL, our domain will be "smtp.artica.center"
- ✓ Fill correctly information on the form
- ✓ Select 2048 for the encryption Level.
- ✓ After finish, click on the "**Generate the Certificate Request**"



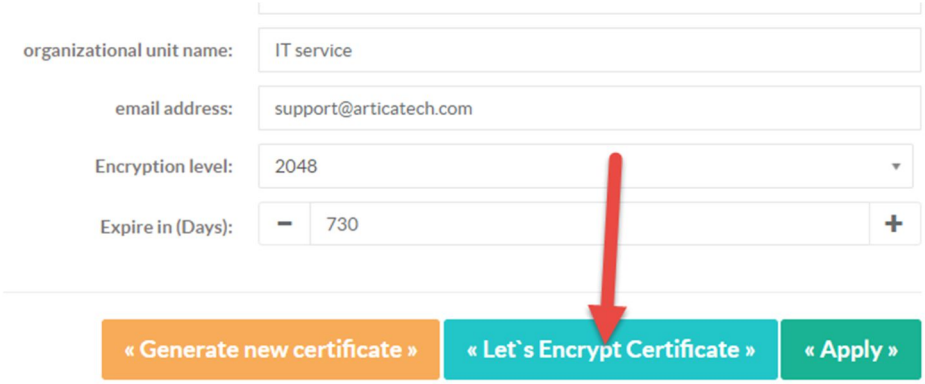
You will see in the table your certificate but it is not generated.
This means only the CR (Certificate Request) is generated.

Click on the certificate name on the table.

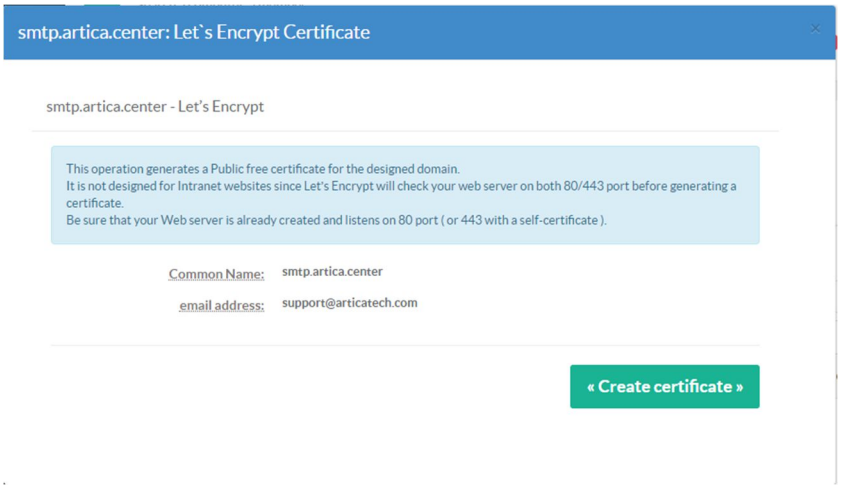


- ✓ At the bottom of the form (if Let`s Encrypt Automation is installed) you should see the "Let's Encrypt Certificate" button.

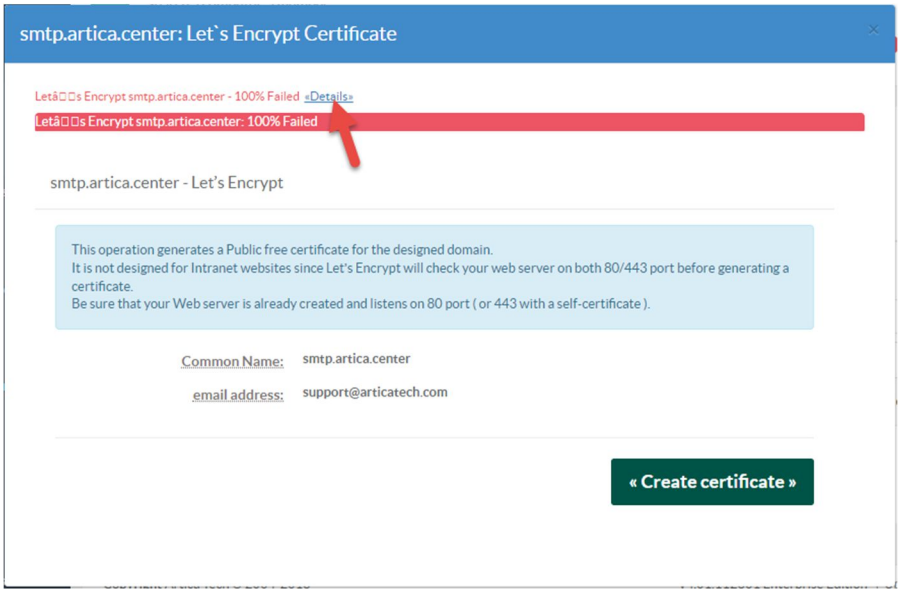
✓ Click on this button.



✓ A confirmation message is displayed.
✓ Click on the “Create Certificate” button.



✓ If the generate is failed the progress will be turned in red.
✓ You can click on the details link to see events.

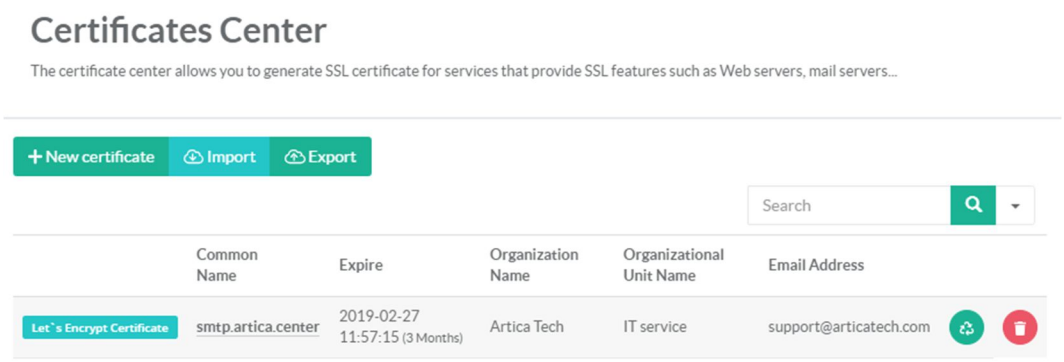


In most cases, you will see this error

```
"Failed authorization procedure. your.server.com (http-01): urn:acme:error:connection :: The server could not
connect to the client to verify the domain :: Fetching http://your.server.com /.well-known/acme-
challenge/G3RoBDc6pX55EqbZrJr6pihcBKIe8A4m2XZAv6dlojk:
Timeout during connect (likely firewall problem)"
```

This means the Let's Encrypt servers could not reach the HTTP 80 port of your server.
You have to check your Firewall rules in order to access

If the generation task is a success, your certificate will have a "Let's Encrypt Certificate" stamp in the table.



You will see that the certificate is only for 3 months.
You can perform the same procedure to renew it.

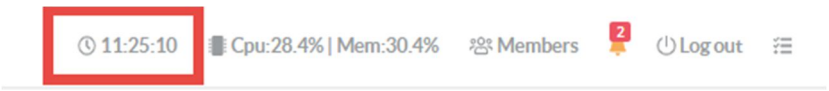
MANAGE THE SYSTEM

TIME AND CLOCK

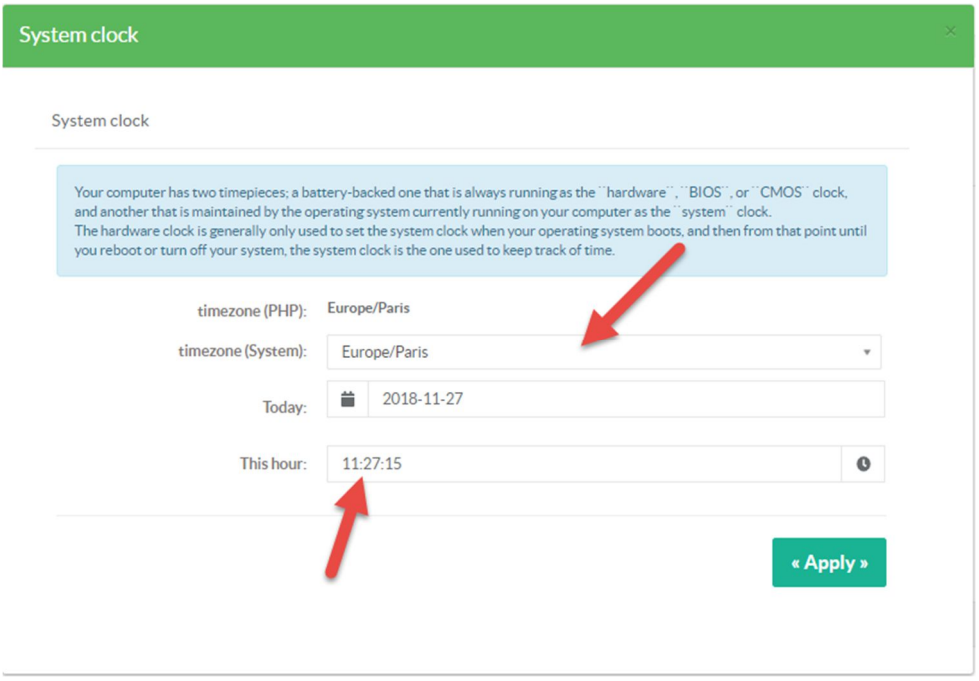
Set the time is important for Artica, events and statistics are based on the system time.

Set the Time zone and clock

A time zone is a region where the same standard time is used,
On the top menu, click on the displayed time



The system clock section is displayed and allows you to change the Time zone country and the system Clock.

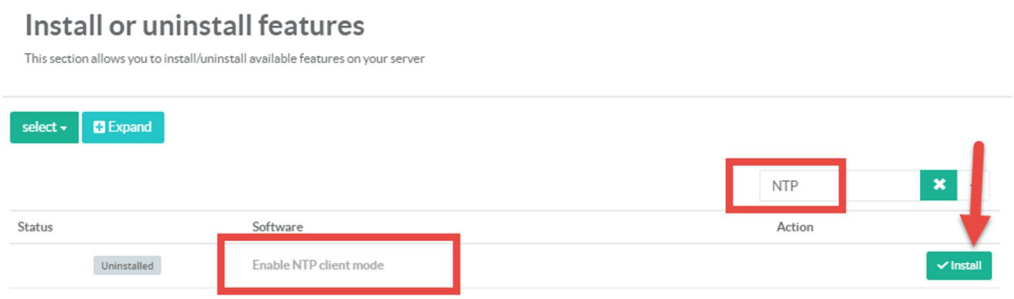


Basically, Artica can act as a time server for your network or a time client.

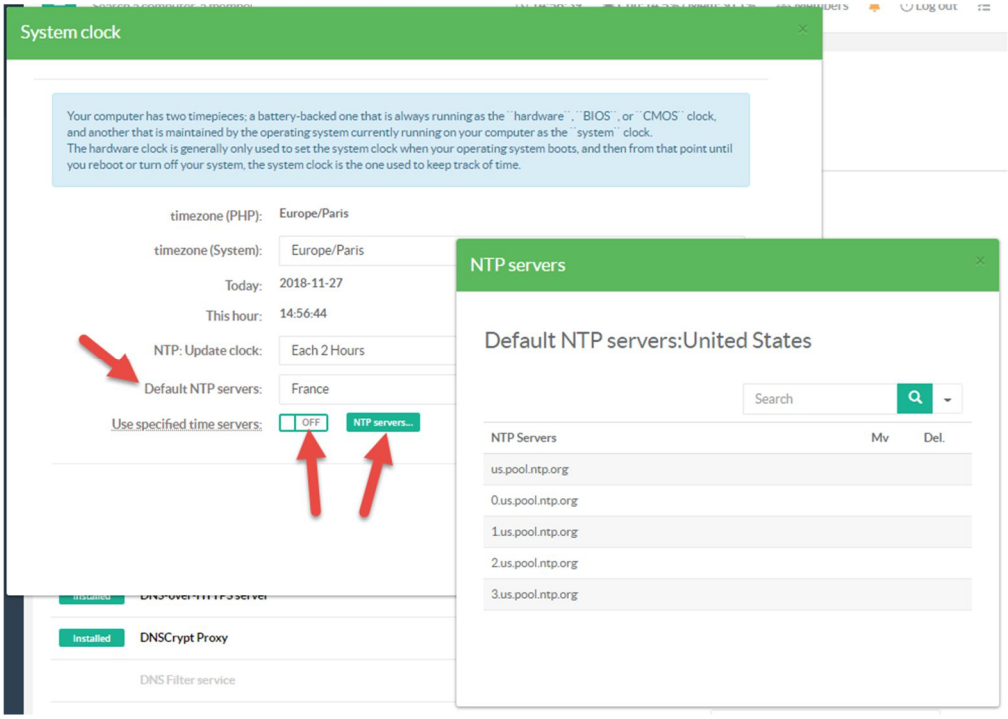
Set Artica as An NTP time client.

When installing the Time client, your Artica server is designed to be synchronized automatically with a set of time servers.
This is the reason you did not have to manually change the clock when turning Artica to an NTP Time Client
On the Features section search the entry “NTP”.

Click on the **Install** button under the **Enable NTP client mode**

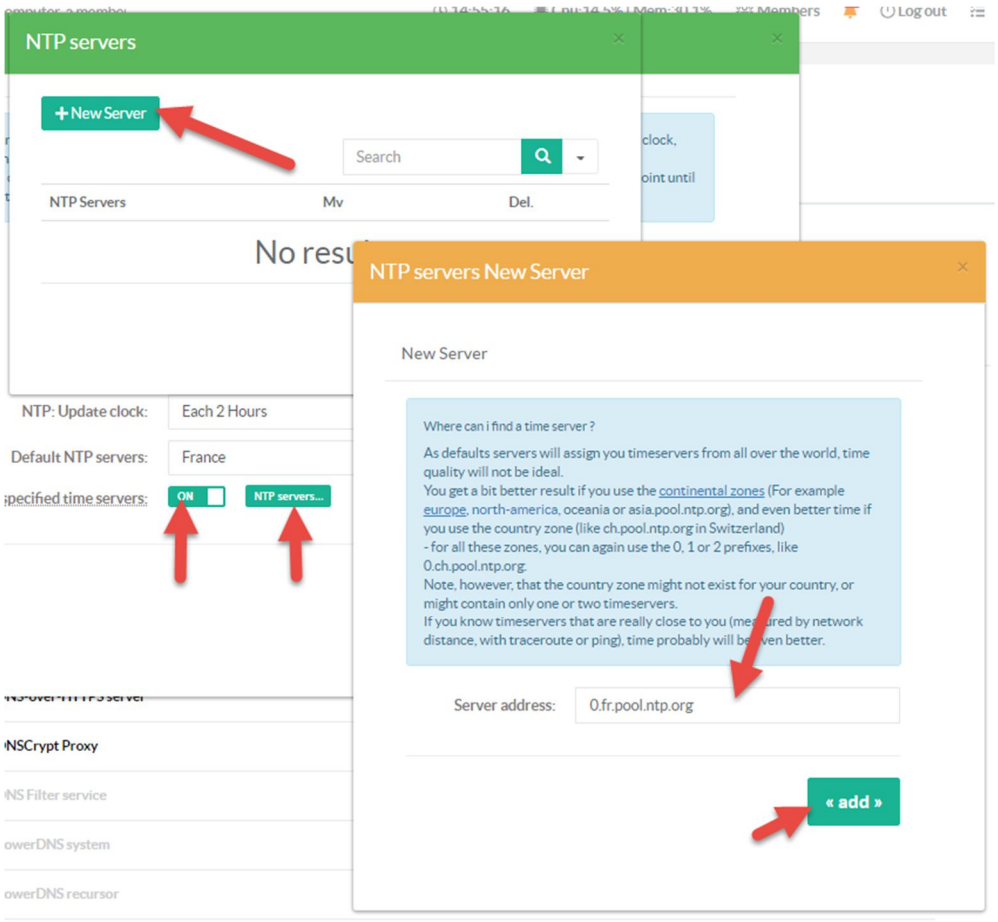


- ✓ After installing the NTP client, return to the top menu, click on the displayed time
- ✓ You can modify the schedule to synchronize the clock (by default each 2 hours)
- ✓ If “**Use Specified time servers**” is **off**, the NTP client will choose a public list of time servers according to the chosen country in the “Default NTP servers” list.
- ✓ You can see the list by clicking on the “NTP servers” mini-button.

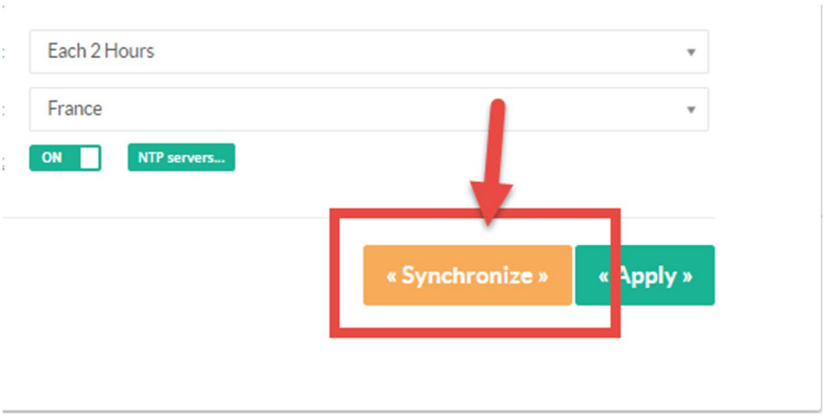


- ✓ If "**Use Specified time servers**" is **ON**, the NTP client will choose a list of time servers you have to define.
- ✓ You can manage the list by clicking on the "NTP servers" mini-button.

The NTP servers section allows you to add an Internal or Public NTP server

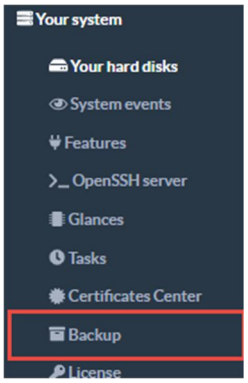


After added your NTP servers, you can click on Synchronize to update your server's clock



BACKUP/RESTORE CONFIGURATION.

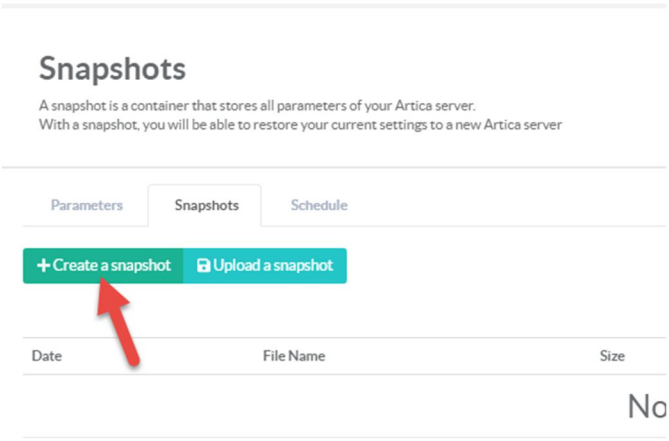
THIS FEATURE IS AVAILABLE IN ENTERPRISE EDITION.



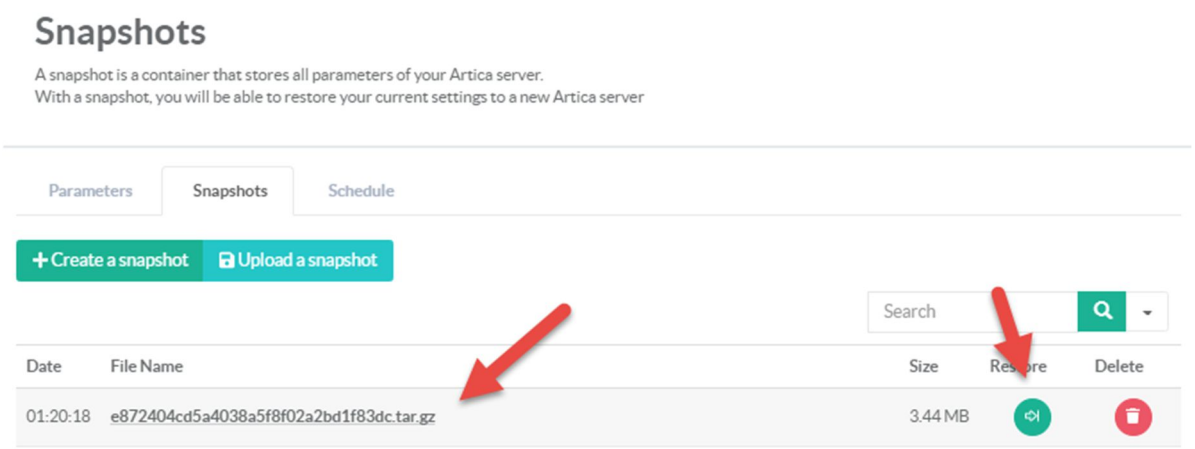
Artica produce container called “snapshot” . A snapshot is a container that stores all settings that allows you to rebuild the configuration or duplicate the current settings to a new server.
Snapshots can be generated manually or can be scheduled.

Create a snapshot

On the left menu, open “**Your system**” and “**Backup**” link
Select **Snapshots** tab
Click on **Create a snapshot** button



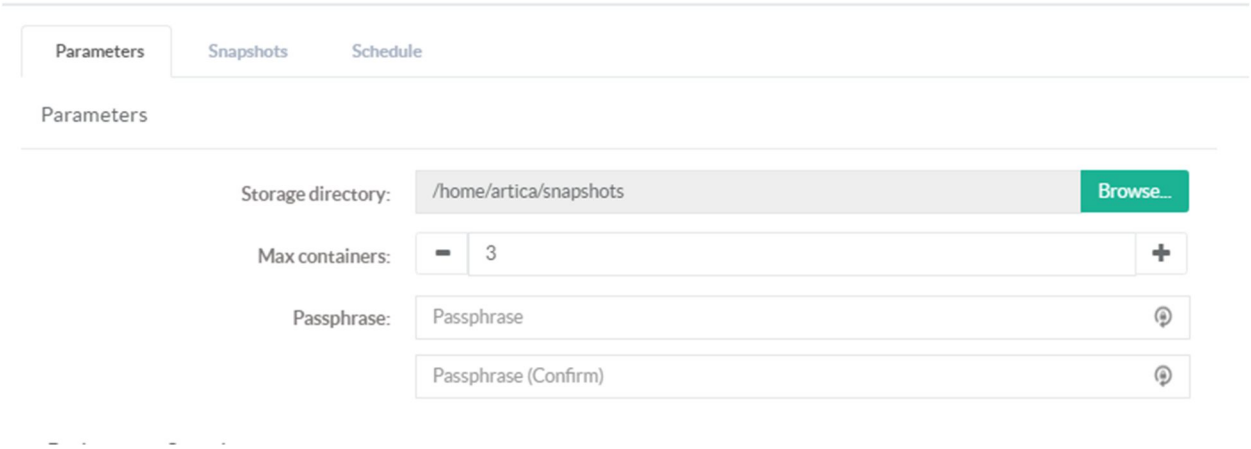
- ✓ After created, you can see the snapshot container in the table
- ✓ The snapshot can be locally restored by click on the restore column or downloaded by clicking on the link.



Snapshot parameters

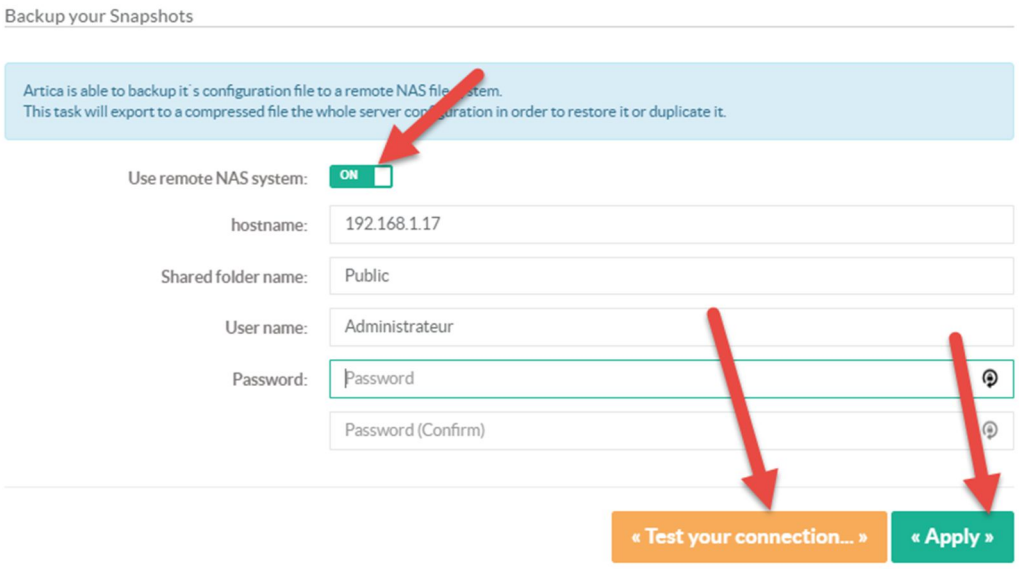
The parameters section allows you to

- ✓ Modify the **storage directory** where your snapshots are stored on the local disk.
- ✓ The **Max containers** allows you to specify how many containers you want to keep in the storage directory
- ✓ If you define a **passphrase**, snapshot container will be crypted using aes256



Backup your snapshots on a remote NAS

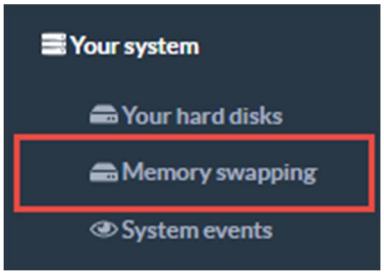
- ✓ You can store your snapshots outside the Artica appliance using an SMB connection to a NAS file system.
- ✓ Fill the form with the credentials that allows Artica to create directories in the shared folder.



- ✓ Artica will create a folder with its hostname and “snapshots” directory.
- ✓ In our example, the target directory will be \\192.168.1.17\Public\artica.domain.tld\snapshots

THE SYSTEM SWAP

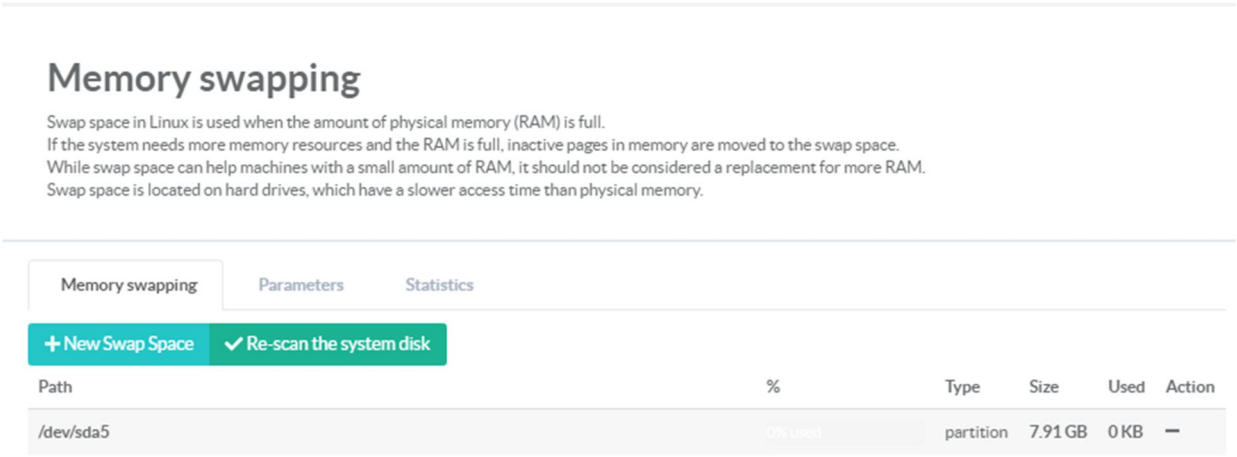
Swap space in Linux is used when the amount of physical memory (RAM) is full.
If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space.
While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM.
Swap space is located on hard drives, which have a slower access time than physical memory.



When installing Artica with the ISO file, the system did not create any SWAP space

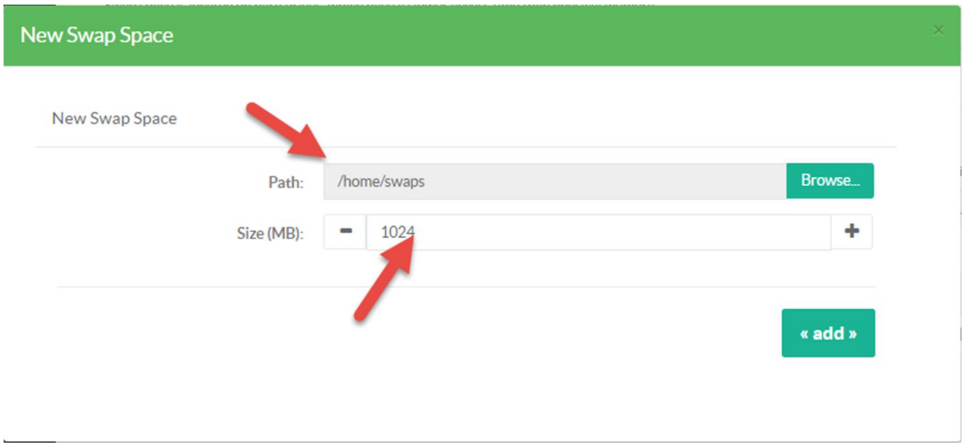
The SWAP can be managed using the left menu under "**Your System/Memory swapping**"

The section will show you the current swap space configured on your system.
if "Munin" feature is installed you can show statistics of your system SWAP



Adding Swap Space

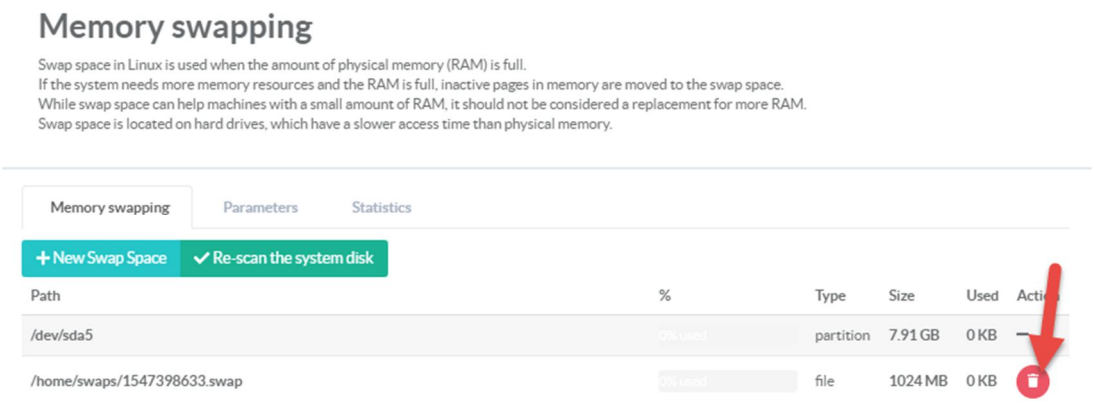
Click on the button "**New Swap Space**"
Define the directory that will store the swap file and set in MB the available space.
Click on **Add** button



Removing a SWAP space

SWAP space using a disk partition cannot be removed

Click on the trash icon on the swap row you want to remove.



RESTful API

List all swap spaces

```
GET https://192.168.1.1:9000/api/rest/system/swap/list
```

Return a json with all swap spaces details.

Create a new swap space

```
POST https://192.168.1.1:9000/api/rest/system/swap/new
```

With POST values:

```
path=directory where to store swap file.
size=size in MB of the swap space.
```

Delete a swap space

```
POST https://192.168.1.1:9000/api/rest/system/swap/delete
```

With post values

```
path=full path where the swap file is stored.
```

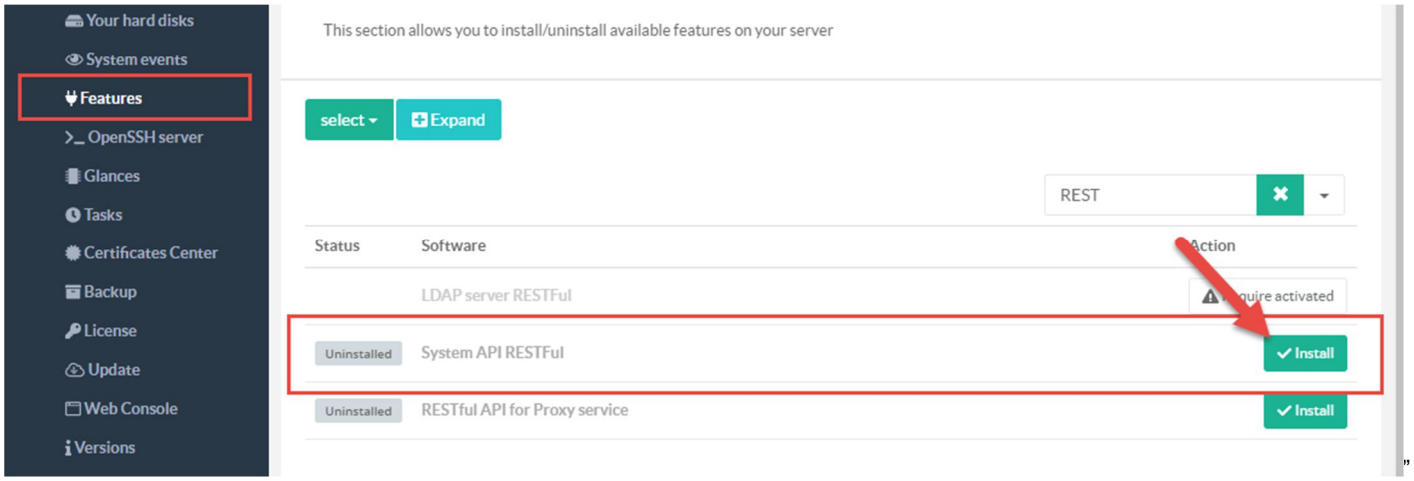
Clean all swap spaces

```
GET https://192.168.1.1:9000/api/rest/system/swap/clean
```

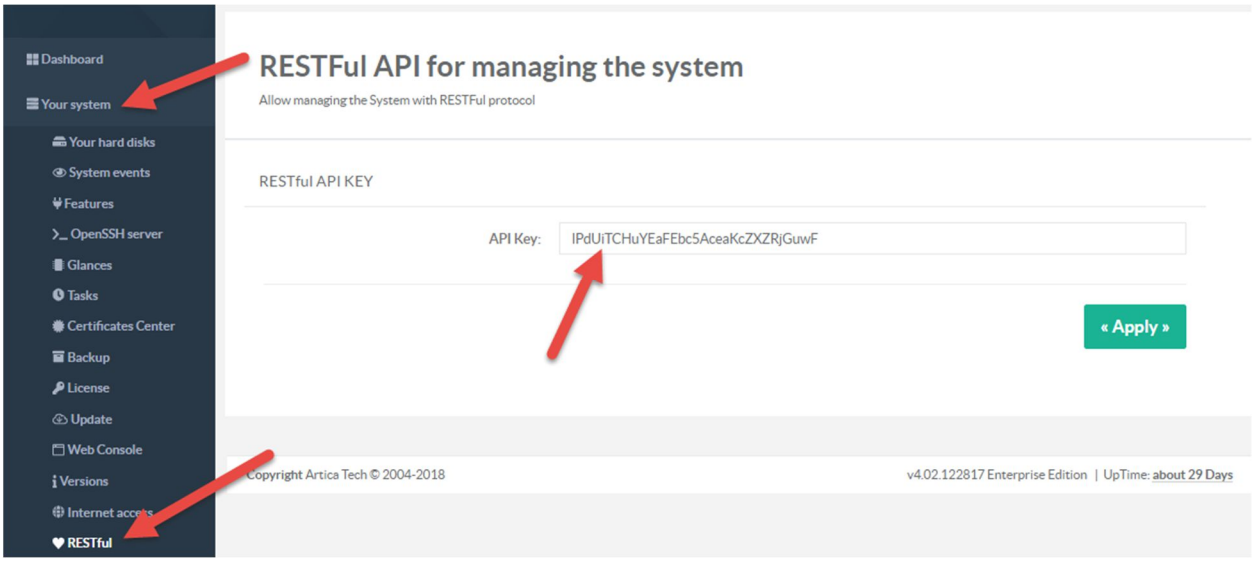
This action will reset the swap to 0

RESTful API service

The RESTful API allows you to perform system tasks using RESTful commands. (The REST API service is available with Enterprise Edition).
Install the System RESTful service.
On the "**Your system**" and "**Features**", search RESTful term.
Install the feature "**System API RESTful**"



After installing the RESTful feature, display or edit the REST API KEY in the "**Your System"** and **Restful** section.



This REST API Key can be used to allow query/set all RESTful API section (LDAP database, proxy, categories…)

System information

```
GET https://192.168.1.1:9000/api/rest/system/info
```

Produce an array of system information such as CPU percentage, Memory percentage, memory infos, hardware infos…

Network interface

Change a network interface parameter

```
POST https://192.168.1.1:9000/api/rest/system/interface/[ifname]
```

Where [ifname] is the interface name

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: kyM6ixXavn8sE7P9GoBYgX3by6ZaRCc5";

//Change the Interface settings of eth0

$MAIN_URI="https://192.168.1.173:9000/api/rest/system/interface/eth0";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);


$POSTz= array(
"IPADDR"=>"192.168.1.23",
"NETMASK"=>"255.255.255.0",
"GATEWAY"=>"192.168.1.1"
"BROADCAST"=>"192.168.1.255",
"METRIC"=>"1",
"DEFAULT_ROUTE"=>"1");

curl_setopt($ch, CURLOPT_POSTFIELDS, $POSTz);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){
    echo "Error $errno\n".curl_error($ch)."\n";
    curl_close($ch);
    die();
}

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
    echo "Error $CURLINFO_HTTP_CODE\n";
    die();
}
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";
```

Apply network configuration to the system

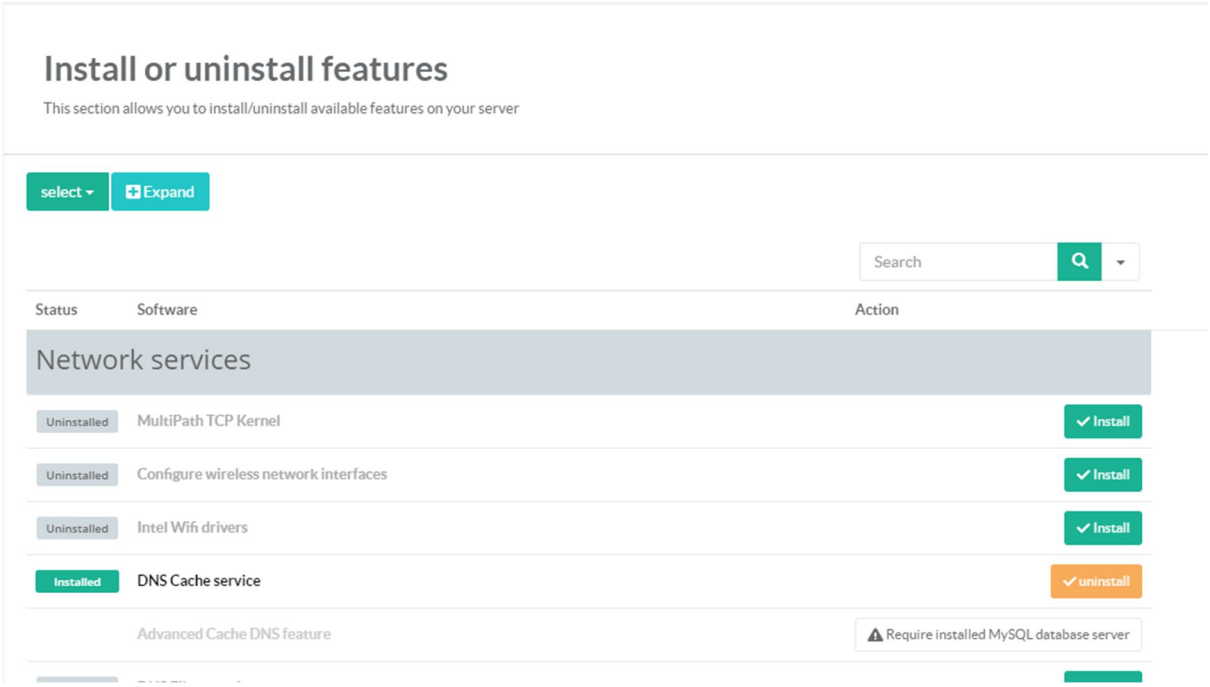
```
GET https://192.168.1.1:9000/api/rest/system/interface/reconfigure
```

Change the server hostname

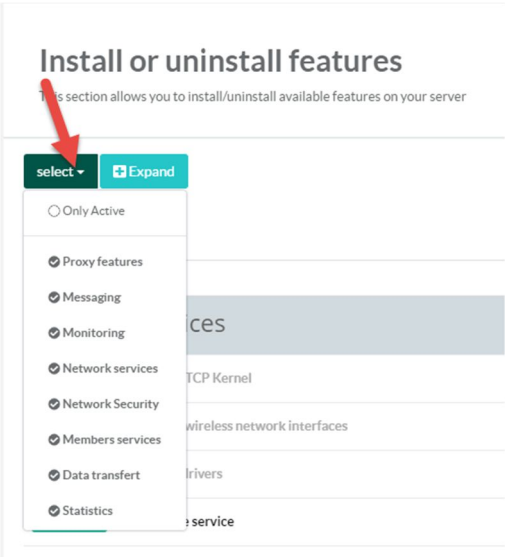
```
GET https://192.168.1.1:9000/api/rest/system/hostname/srvprox01.acme.corp
```

THE FEATURES SECTION

The features section (located in "**Your System/Features**") is the central point that helps you to create your Artica server behavior. It lists available software that can be installed and managed on your system.



The table store 8 features you can filter with the "select" button:



Proxy features: Is the main part of the HTTP/SQL/Load-balancing proxy and can switch your server to an "Artica Proxy" server.
You will find here the Web-filtering feature, the Web-application-Firewall feature…

Messaging: Is the main part of the SMTP/IMAP service that can switch your server to an SMTP relay with Anti-SPAM and mailboxes servers.

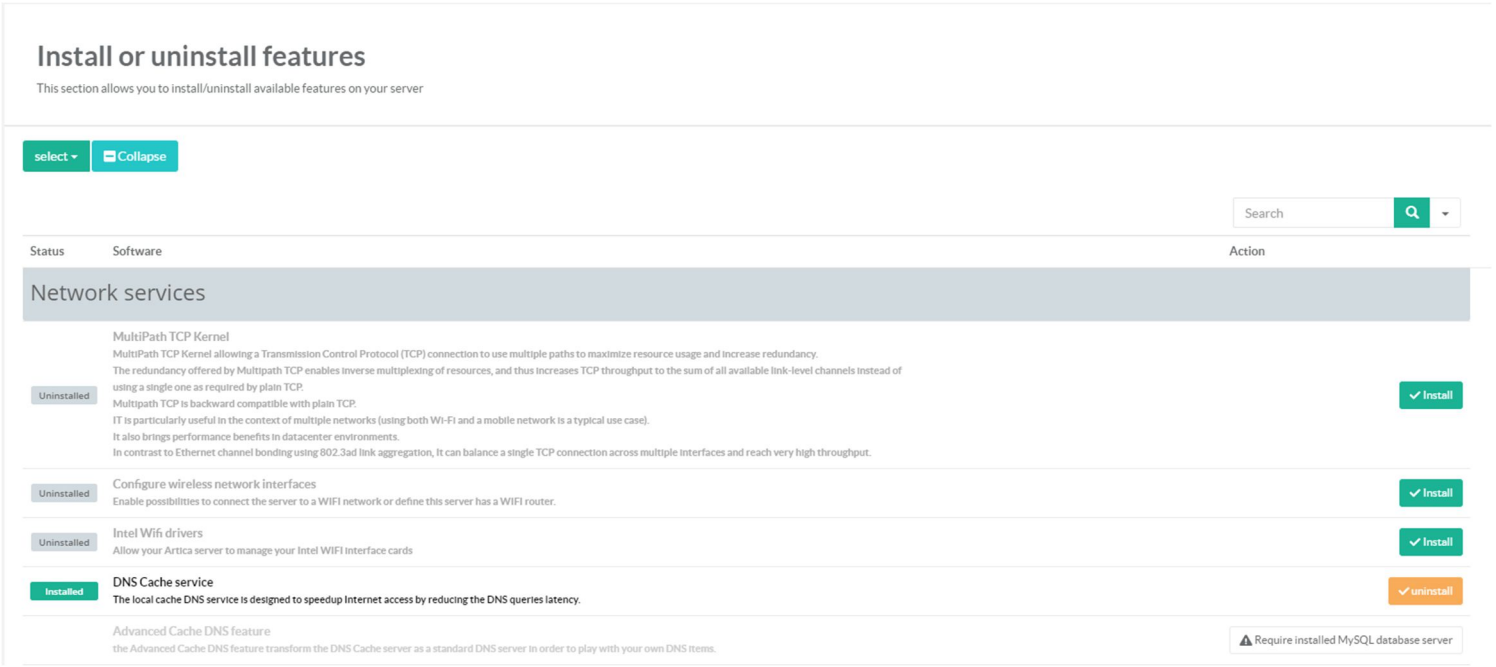
Monitoring: Allows you to install service to help you monitor your Artica server performance.

Network service: Allows you to install all services related to a gateway such, the DHCP service, the DNS service, the reverse and Web service, the VPN service…

Network security: Allows to securize a network or the Artica Network with the Firewall, the Universal Proxy server,the antivirus, the IDS…

Members services: Allows you to install "Members databases" such has MySQL service and the local OpenLDAP database.

The **Expand/Collapse** button allows you to display/hide the description of each available service.



The expanded table display a description of each available service.

RESTful API

The RESTful API of the features section allows you to query available features and order ARTICA to install/uninstall features.

Get the list of available features:

```
GET https://192.168.1.1:9000/api/rest/system/features/list
```

Return a json with “features” keys

The “features” keys are array of features in this way:

```
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";

$features=$json->features

// $KEY_FEATURE will be used to install/uninstall the feature
foreach($features as $KEY_FEATURE=>$infos){
   $productName=$infos->TITLE // Feature name
   $productDescription=$infos->EXPLAIN // Description of the feature
   $productInstalled=$infos->INSTALLED // True of False.
   $EngineStatus=$infos->INFO // Installed/Uninstalled or the reason of unavailable feature.
   $available_feature=$infos->AVAILABLE //True of False if the feature is allowed to be installed.
}
```

Install a feature

```
GET https://192.168.1.1:9000/api/rest/system/features/install/$KEY
```

$KEY is the main key found in the feature list, for example to install the proxy service:

```
GET https://192.168.1.1:9000/api/rest/system/features/install/proxy_service
```

Return a status code 200 if the command is accepted and executed

Uninstall a feature

```
GET https://192.168.1.1:9000/api/rest/system/features/uninstall/$KEY
```

$KEY is the main key found in the feature list, for example to uninstall the proxy service:

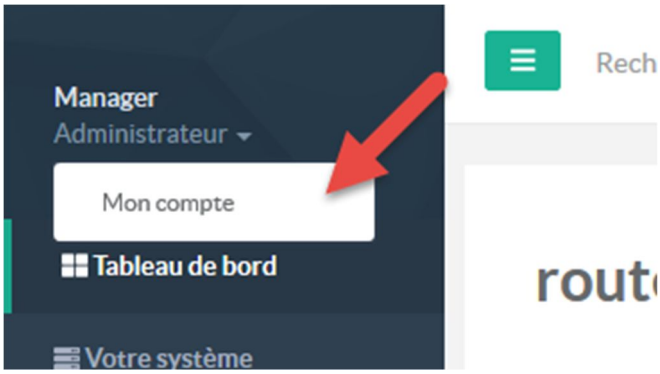
```
GET https://192.168.1.1:9000/api/rest/system/features/uninstall/proxy_service
```

Return a status code 200 if the command is accepted and executed

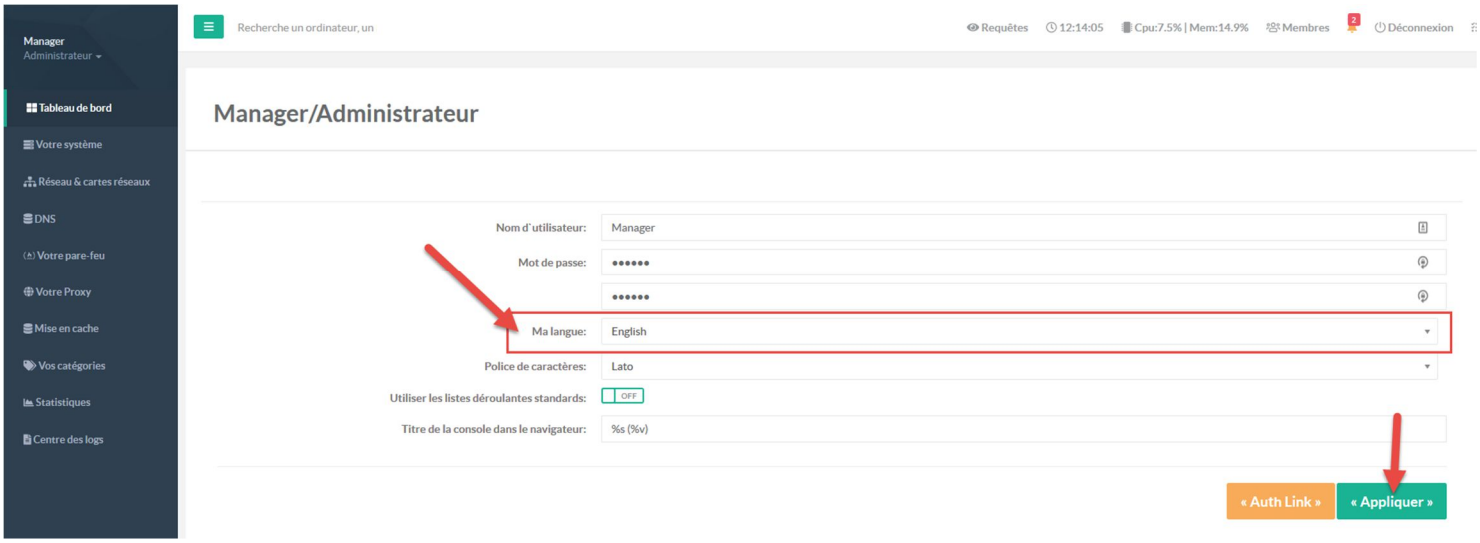
ARTICA WEB CONSOLE

CHANGE THE WEB CONSOLE LANGUAGE

Language can be modified by created account.
After logging on the Web console
On the left menu click on the member name.



On the “language” drop-down list, select the desired language and click on apply button

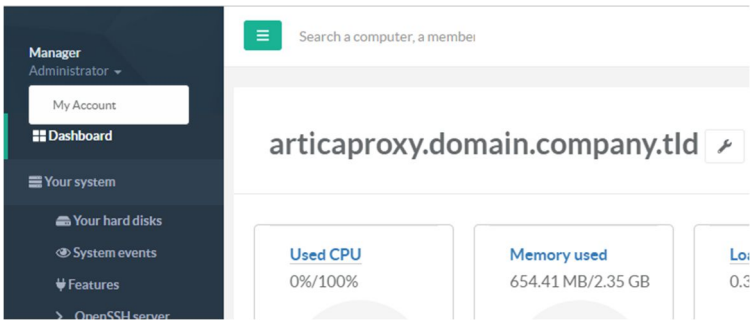


(Not all parts of the web page will be modified, if you want to change all the web page part, click on the F5 key in order to refresh totally the web console.)

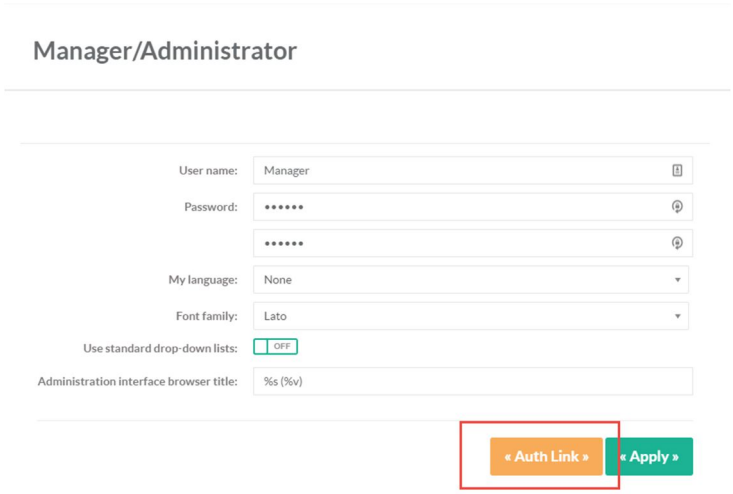
AUTH LINK

AUTH Link allows you to enter the Artica Web console without need to login. It creates a link that automatically sends your credentials to the Artica system.

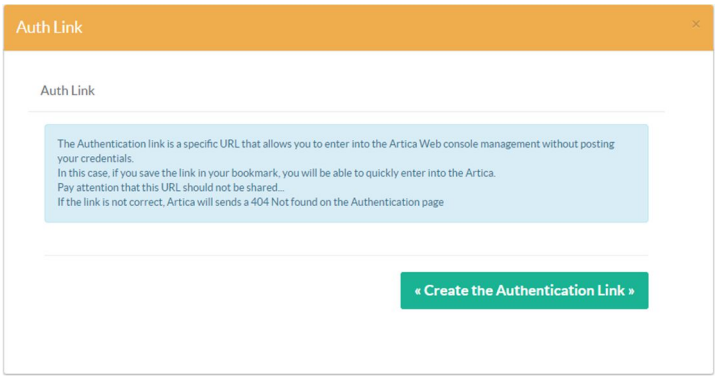
On the left menu, open **Your Account**



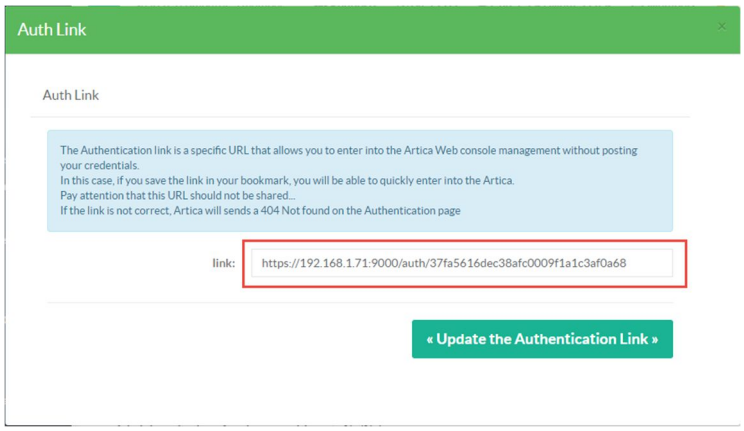
Select the button “**Auth Link**”



Click on the button "**Create the Authentication Link.**"



Copy the link, disconnect from the console and type this new link on your browser, you will be logged automatically.

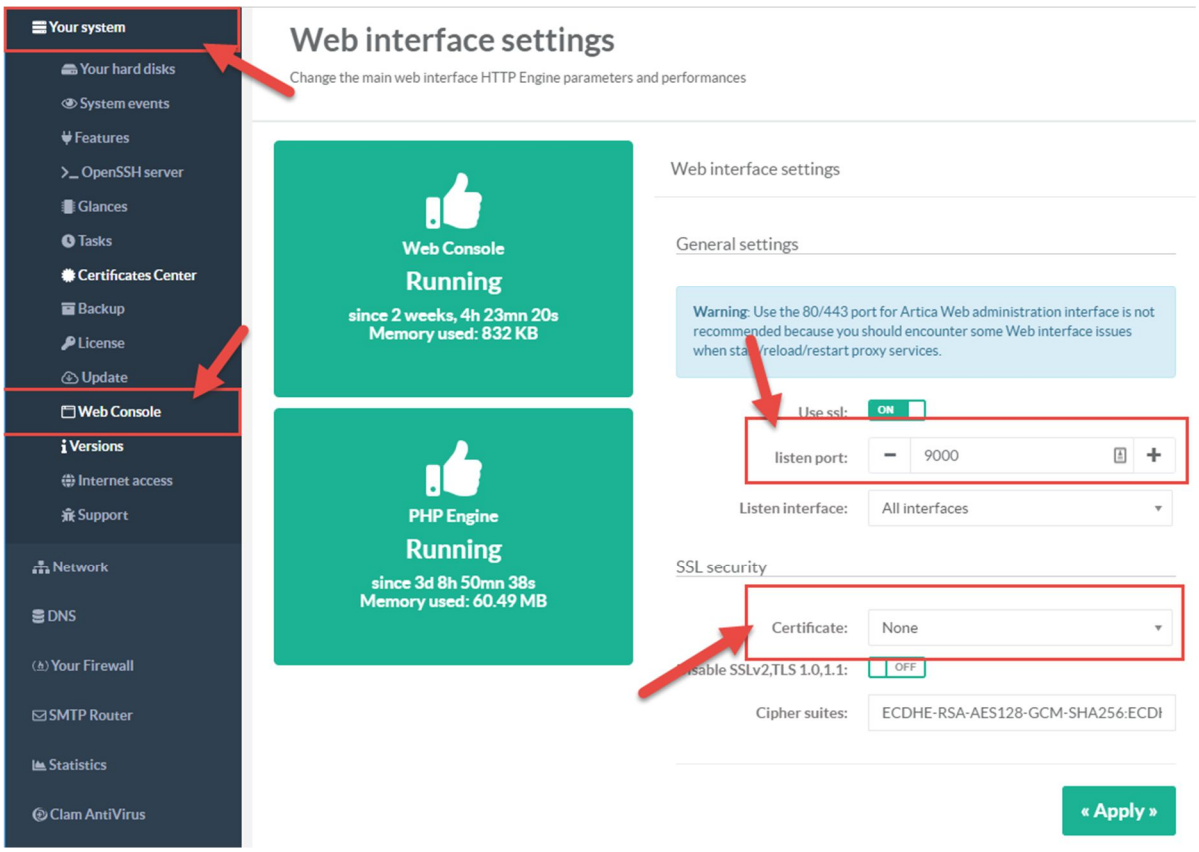


ARTICA WEB CONSOLE LISTEN PORT AND CERTIFICATE

If you want to run the Artica Web console on the 443 port and use an official certificate (Let's encrypt for example):

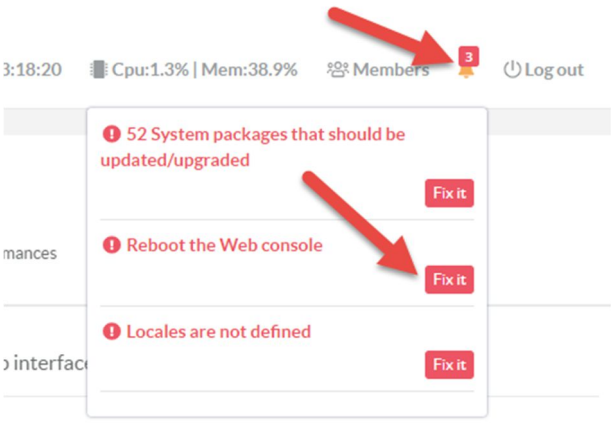
On the left menu, select "**Your system**" and "**Web console**"

Modify the listen port to 443 and select the desired certificate.



If your Web console listens the 443 port, be carrefull if you using the Web service “NgInx”, you should encounter a port conflict issue

o use the 2 services on the same port, use 2 networks Interfaces in order to bind each service to the specific Interface.
An other way is to let the 9000 port open on the Web console and use the reverse-proxy feature in order to redirect the Web console requests to the loopback interface on the 9000 port.



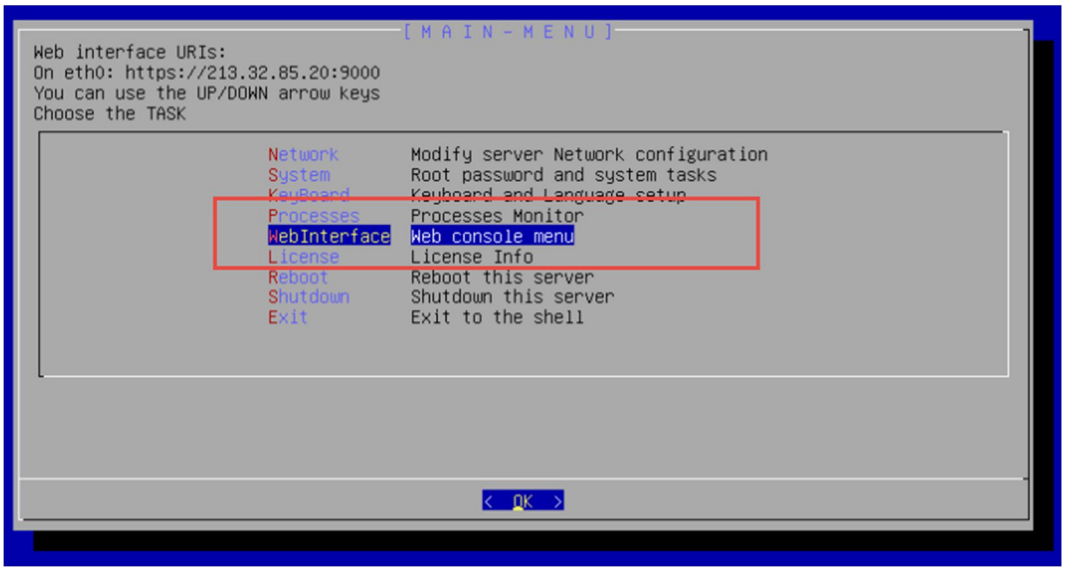
After apply settings the top icon will display a notification to reboot the Web console.

After reboot the console, change to the defined port on your browser to access again to the Artica Web console.

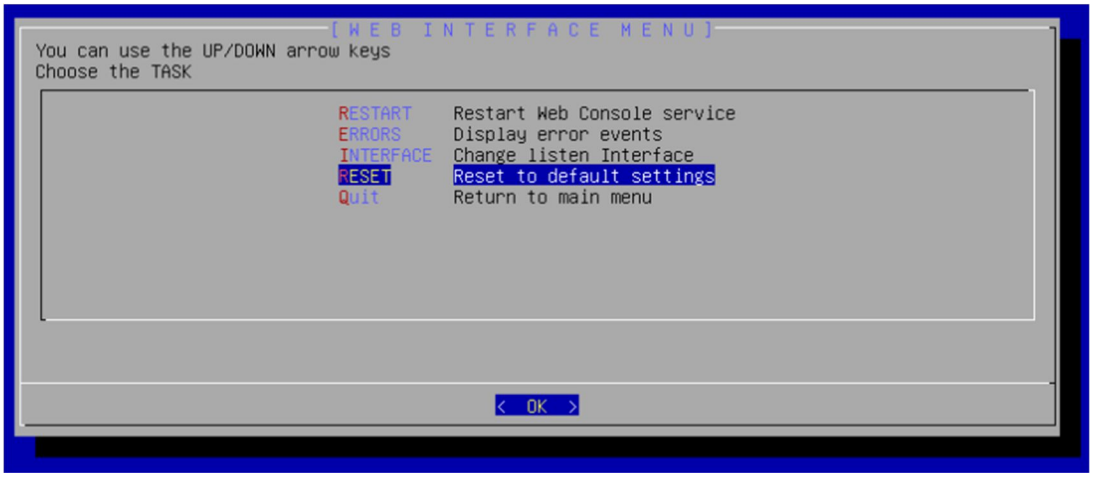
RESET TO DEFAULT SETTINGS

If your Artica Web console is unavailable and you want to reset all settings to the default open the system console.

- ✓ Select the **WebInterface** menu.



- ✓ Choose “RESET” menu in order to return back to the 9000 port and self-signed certificate.



MONITORING THE SYSTEM

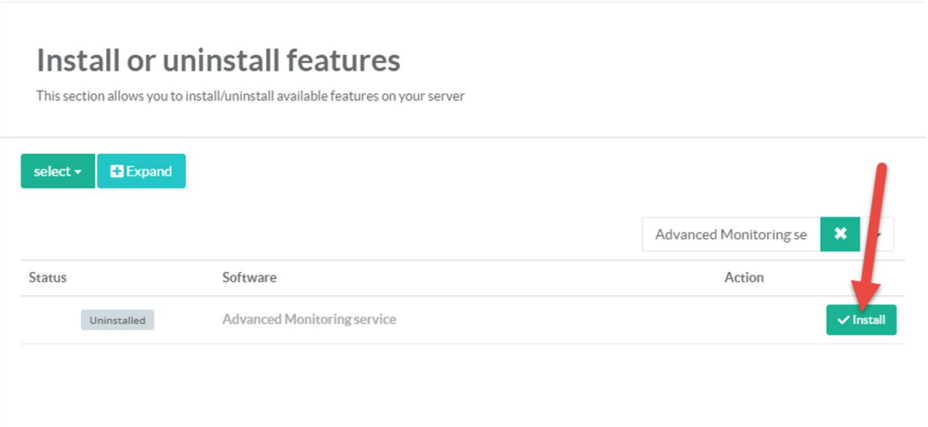
THE ADVANCED MONITORING SERVICE

The Advanced Monitoring service (aka Netdata) is a system for distributed real-time performance and health monitoring.

It provides unparalleled insights, in real-time, of everything happening on the systems it runs (including containers and applications such as web and database servers), using modern interactive web dashboards.
A Demo is available here http://london.my-netdata.io/default.html#menu_system_submenu_cpu;theme=slate

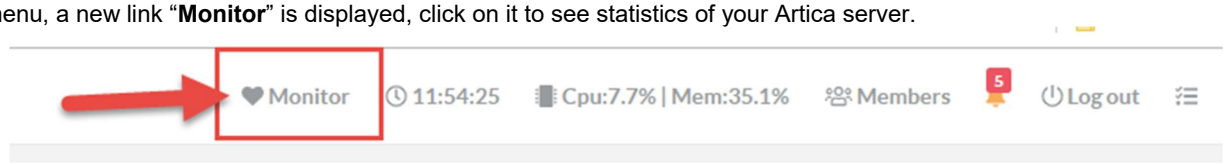
Installing the service

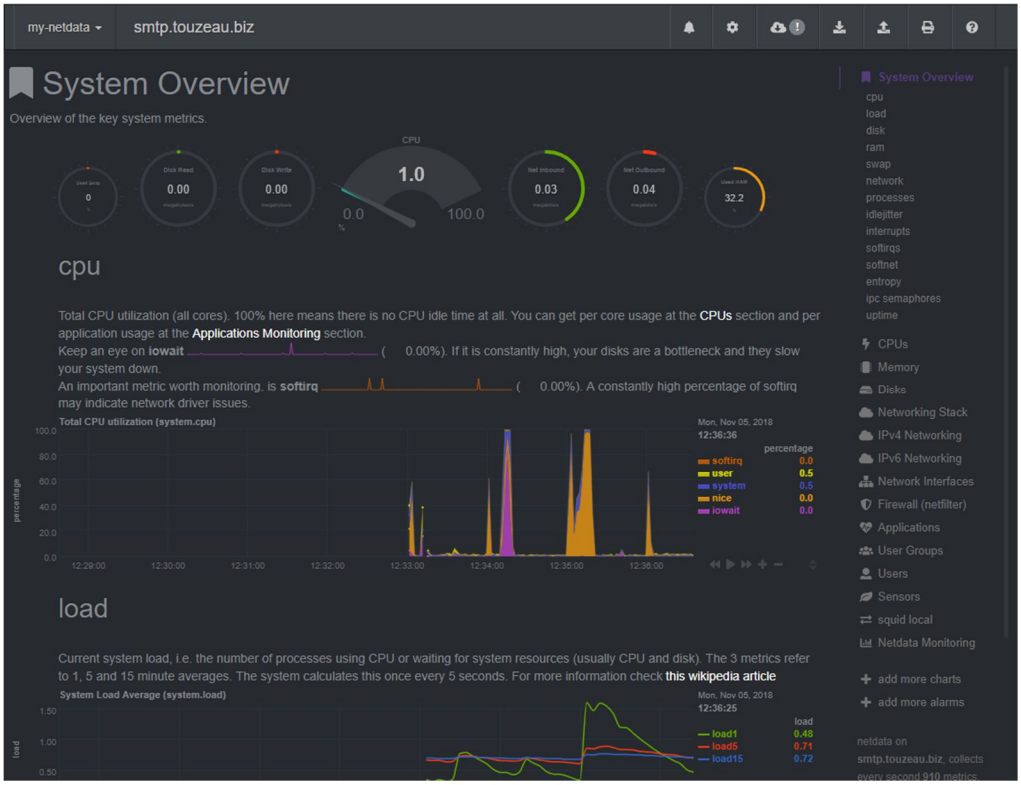
On **Your system**, select "**Features**", type "**Advanced Monitoring service**" in the search field.



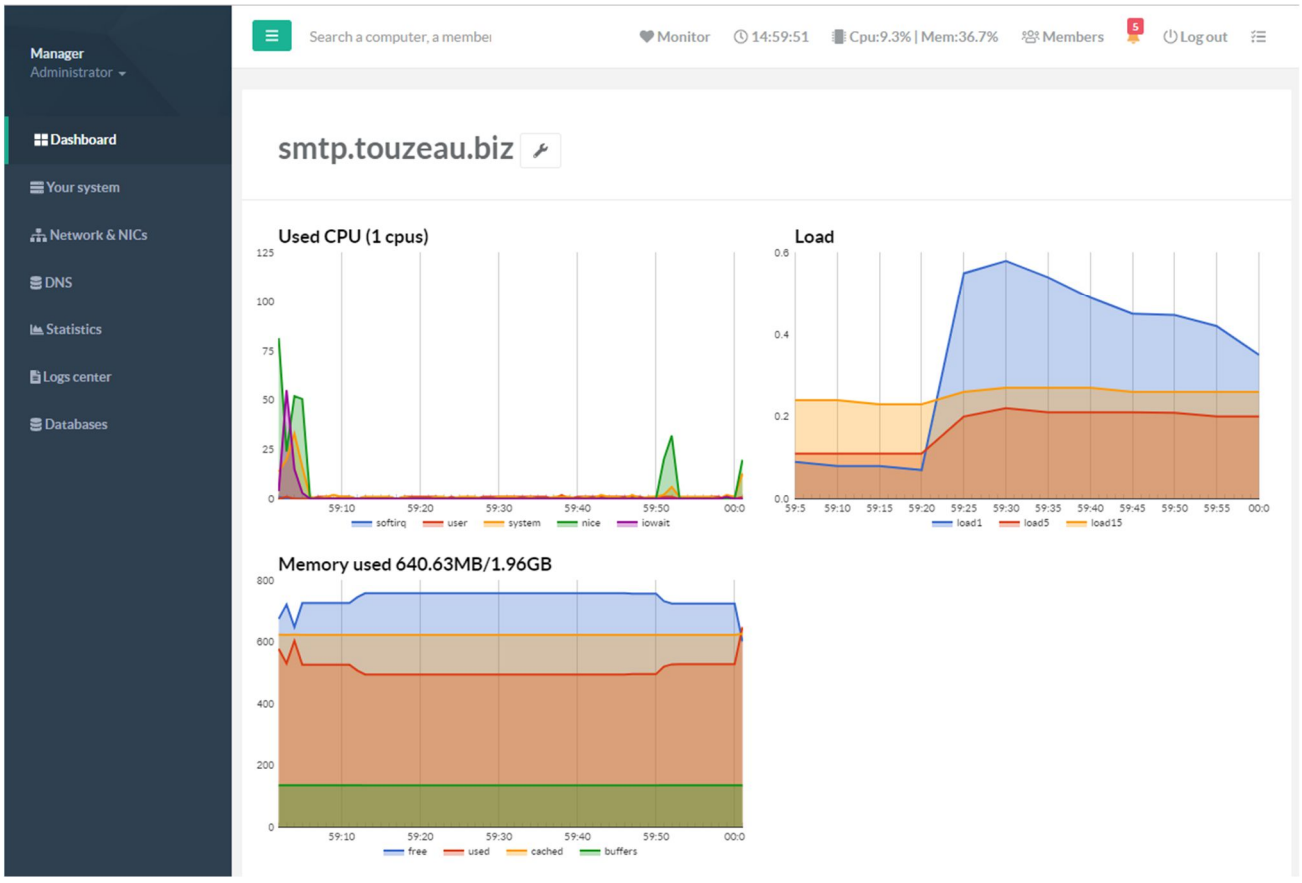
Access to statistics

On the TOP menu, a new link "**Monitor**" is displayed, click on it to see statistics of your Artica server.





The dashboard will be switched to new realtime graphs:



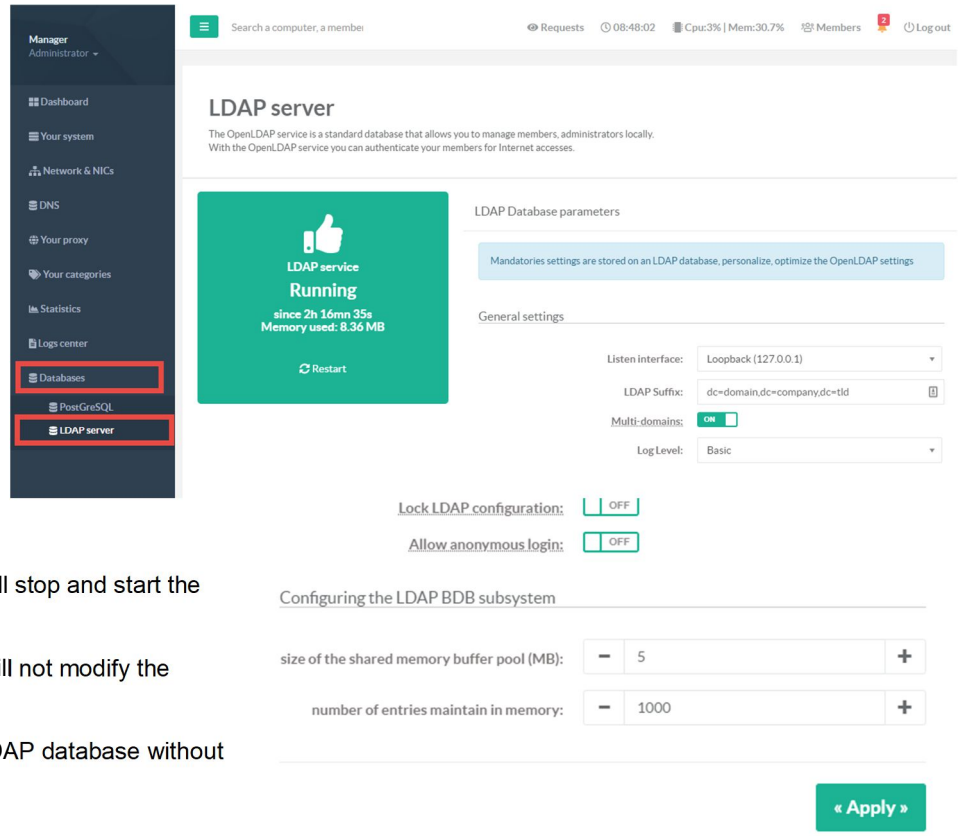
THE LDAP SERVER SERVICE

The LDAP database is used by Artica in order to manage members.
This database can be used by the proxy service (SEE LDAP Authentication), the messaging service, the file-sharing service and the Artica Web console itself to manage administrators privileges.

The LDAP service can be installed in the Features section
in “Members services/LDAP Server.”

OPENLDAP SERVICE PARAMETERS.

Main settings of the LDAP service can be displayed on the left menu “**Databases/LDAP server**.”



Listen Interface: By default the LDAP server serves only the loop back address because all services used by Artica don’t need to access the database externally

LDAP suffix: Is the main LDAP branch used to store users

Multi-Domains: If enabled, Artica will use the eMail address has the login username. In this case, users need to put their eMail address to log in to all services that use LDAP.

Log level: is the trace level used for the LDAP service (logs are stored in syslog)

Restart periodically OpenLDAP service: If turned on then Artica will restart OpenLDAP service at 6h30,12h30,3h30

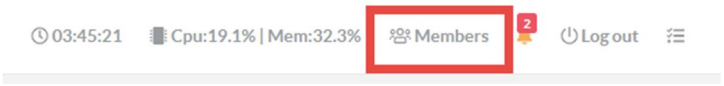
Restart service each: Define the period that will stop and start the LDAP service in order to refresh memory.

Lock LDAP configuration: If enabled, Artica will not modify the /etc/ldap/slpad.conf and let you change it.

Allow anonymous login: Permit to read the LDAP database without need to be logged as a member.

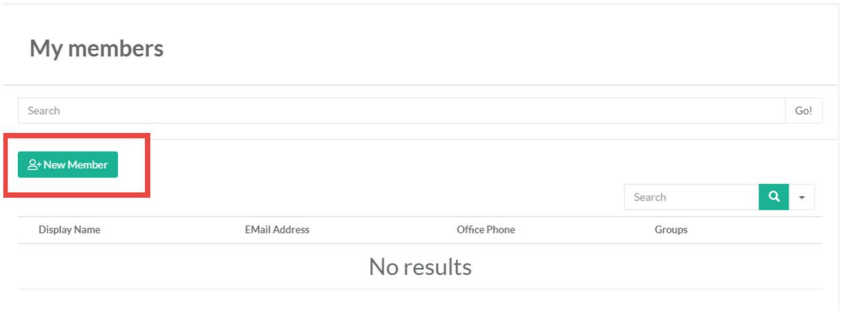
MANAGE LDAP MEMBERS/GROUP

On the TOP menu, you will find a link called “Members” that allows you to manage Members items.

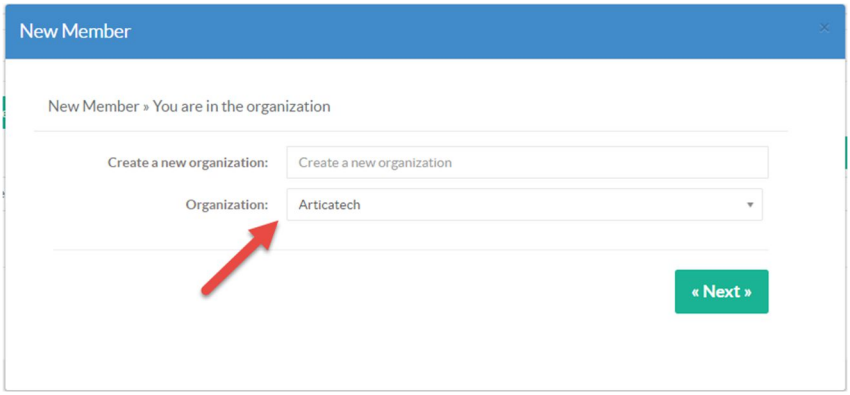


A table is displayed and allows you to search for members and groups.

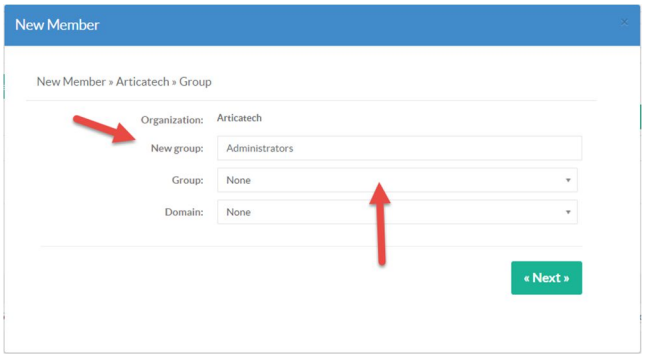
to create a user, click on the button “New member”



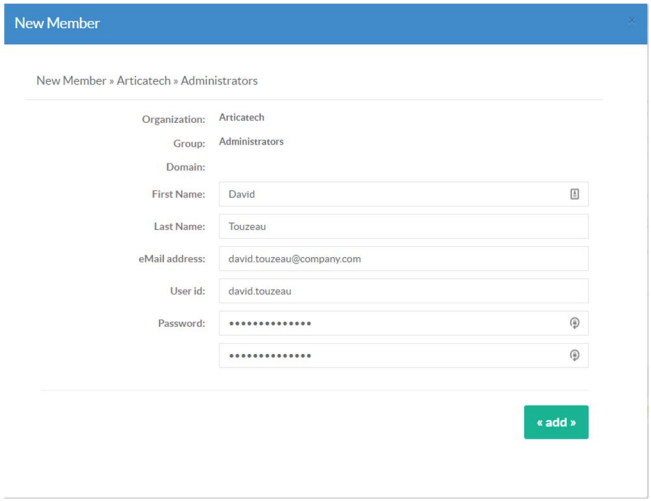
A wizard is displayed and ask to you in which organization the member must be stored.
You can choose in the drop-down list an already organization or you can create a new organization by adding the new organization name in the “Create a new organization” field.



Define the group that will store the user
You can create a new group. Set the group name in the “new group” field or select an already created group by choosing it in the “Group” drop-down list.

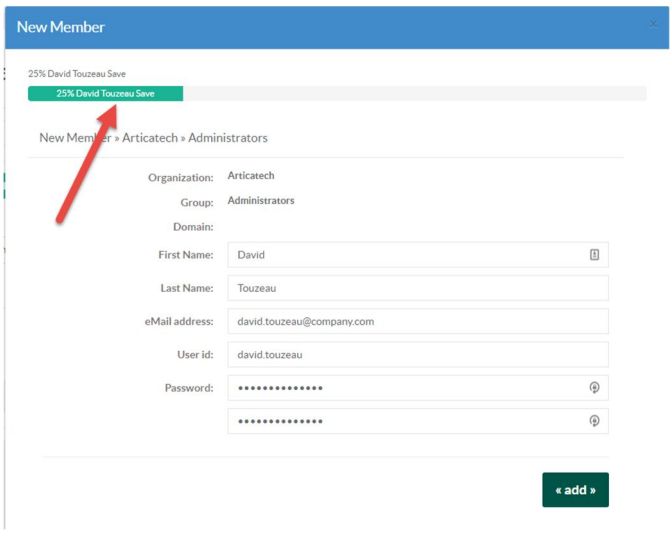


- Set the first name and last name of the new member.
- Set the email address
- **The user id:** is the account that the user will use to be logged on services that use LDAP authentication.
  If you did not see this field, it means the login name using the eMail address.
- Set the user password.

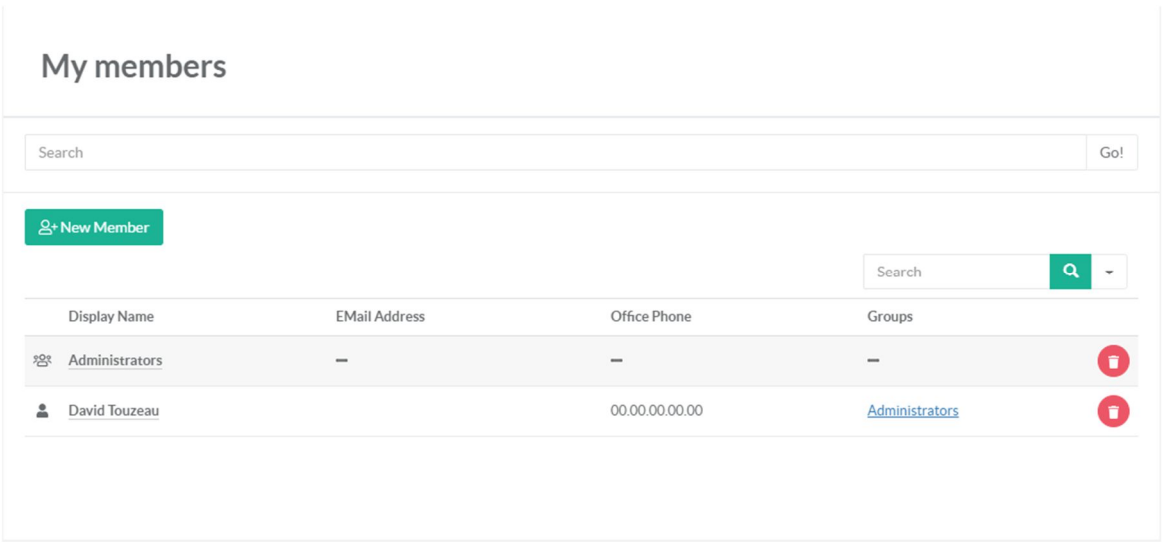


By default the LDAP database is OpenLDAP service parameters.enabled (SEE OPENLDAP SERVICE PARAMETERS.) That enables the eMail address has the login user.

After click on the Add button, a progress bar is displayed that shows you the progress of creating the user.

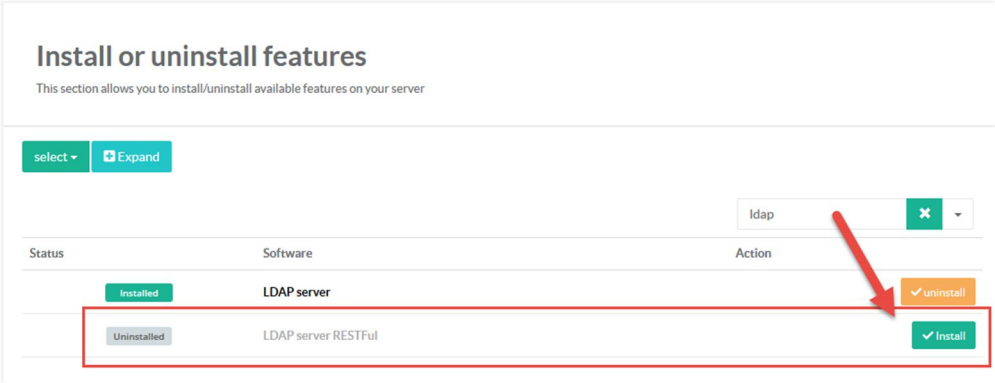


The table will display your new member and the created group.

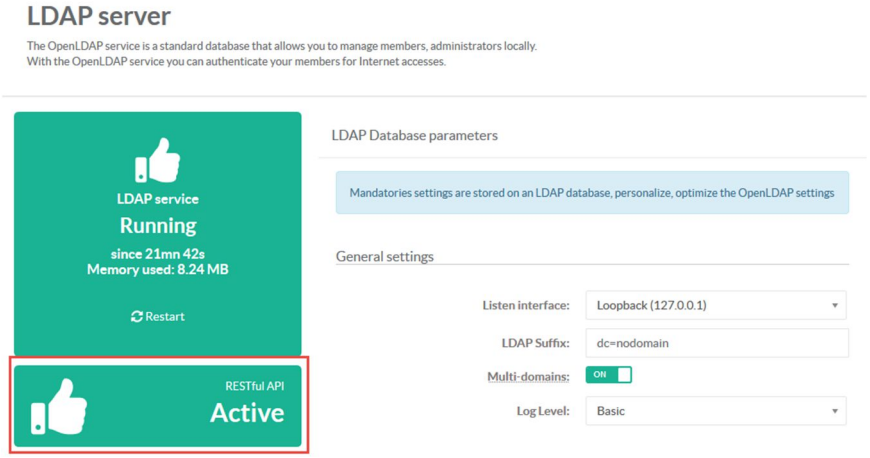


RESTful API for managing LDAP users.

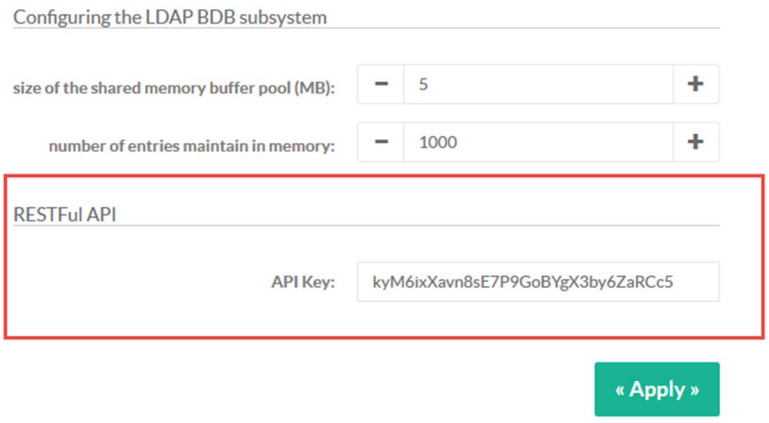
Artica provides RESTful API in order to manage LDAP members (THE REST API SERVICE IS AVAILABLE WITH ENTERPRISE EDITION).
To manage members and groups with REST API, you need to enable the feature thought features service



After installing the feature, on the left menu, use "**Databases/LDAP server"**
You will see that the Restful API is active in the satus.



On the right side, in the form you can see the RESTful API Key. You can modify it if you want.



This api key must be added in the HTTP header of the request, the header name is "ArticaKey"
Using curl, you need to run :

```
curl --header "ArticaKey: kyM6ixXavn8sE7P9GoBYgX3by6ZaRCc5" https://192.168.1.250:9000/api/rest/ldap/[function]
```

The response will be a json and a boolean field status (true/false) is sent to indicate if the command is a success.

Manage organizations

List LDAP organizations

```
GET: https://server:9000/api/rest/ldap/organization/list
```

Create MyCompany organization:

```
POST: https://server:9000/api/rest/ldap/organization/create + field= "name"
```

PHP example width curl:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: kyM6ixXavn8sE7P9GoBYgX3by6ZaRCc5";

$MAIN_URI="https://192.168.1.173:9000/api/rest/ldap/organization/create";


curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);
$POSTz=array("name"=>"MyCompany"); // Create the MyCompany Orgnization

curl_setopt($ch, CURLOPT_POSTFIELDS, $POSTz);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){
   echo "Error $errno\n".curl_error($ch)."\n";
   curl_close($ch);
   die();
}

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
   echo "Error $CURLINFO_HTTP_CODE\n";
   die();
}
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";
```

Delete MyCompany organization:

```
GET: https://server:9000/api/rest/ldap/organization/delete/MyCompany
```

List members inside MyCompany organization:

```
GET: https://server:9000/api/rest/ldap/organization/MyCompany/members
```

Manage Groups inside an Organization

List groups in MyCompany

```
GET: https://server:9000/api/rest/ldap/organization/MyCompany/groups/list
```

Create a group inside MyCompany

```
POST: https://server:9000/api/rest/ldap/organization/MyCompany/groups/create + field= "name"
```

Delete the group Administrator inside MyCompany with gidnumber 500

```
GET: https://server:9000/api/rest/ldap/organization/MyCompany/groups/delete/500
```

Y

Create a member **Jhon.doo** inside **MyCompany** and the group with gidNumber **500**

```
POST: https://server:9000/api/rest/ldap/organization/MyCompany/groupJKUIs/500/add + fields
```

PHP example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: kyM6ixXavn8sE7P9GoBYgX3by6ZaRCc5";

$MAIN_URI="https://192.168.1.173:9000/api/rest/ldap/organization/MyCompany/groups/500/add";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);
$POSTz=array(
    "uid"=>"Jhon.doo",
    "DisplayName"=>"Jhon doo Mhain",
    "givenName"=>"Jhon",
    "name"=>"doo Mhain",
    "password"=>"123456"

);
curl_setopt($ch, CURLOPT_POSTFIELDS, $POSTz);
$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){
    echo "Error $errno\n".curl_error($ch)."\n";
    curl_close($ch);
    die();
}

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
    echo "Error $CURLINFO_HTTP_CODE\n";
    die();
}

$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";
```

Unlink **Jhon.doo** inside **MyCompany** from the group with gidNumber **500**

```
POST: https://server:9000/api/rest/ldap/organization/MyCompany/groups/500/unlink + field= "uid"
```

Link user **Jhon.doo** inside **MyCompany** to the group with gidNumber **500**

```
GET: https://server:9000/api/rest/ldap/organization/MyCompany/groups/500/Jhon.doo
```

Manage members

Get **Jhon.doo** member information

```
GET: https://server:9000/api/rest/ldap/member/Jhon.doo
```

Remove **Jhon.doo** from database

```
GET: https://server:9000/api/rest/ldap/member/Jhon.doo/delete
```

Update **Jhon.doo** informations

```
POST: https://server:9000/api/rest/ldap/member/Jhon.doo/update
```

Fields are:

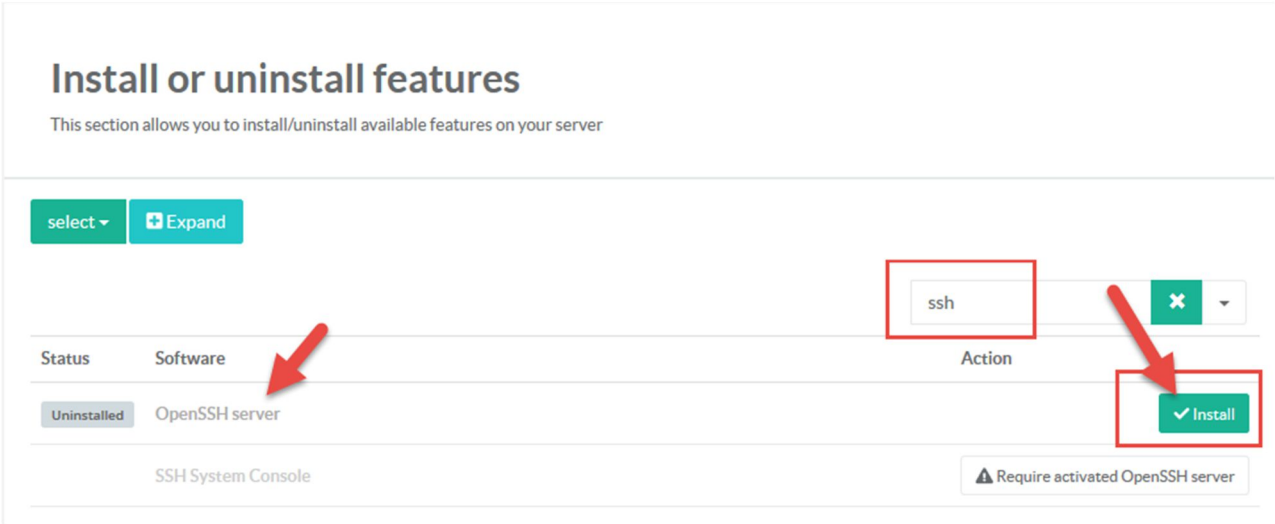
```
    "uid"=>"Jhon.doo",
    "DisplayName"=>"Jhon doo Mhain",
    "givenName"=>"Jhon",
    "name"=>"doo Mhain",
    "password"=>"123456"
```

SSH SERVICE

INSTALL THE SSH SERVICE

If you need to enter the Artica system using SSH, you have to install the OpenSSH server.
On the left menu, use "**Your system**" and "**features**" option to open the features section.

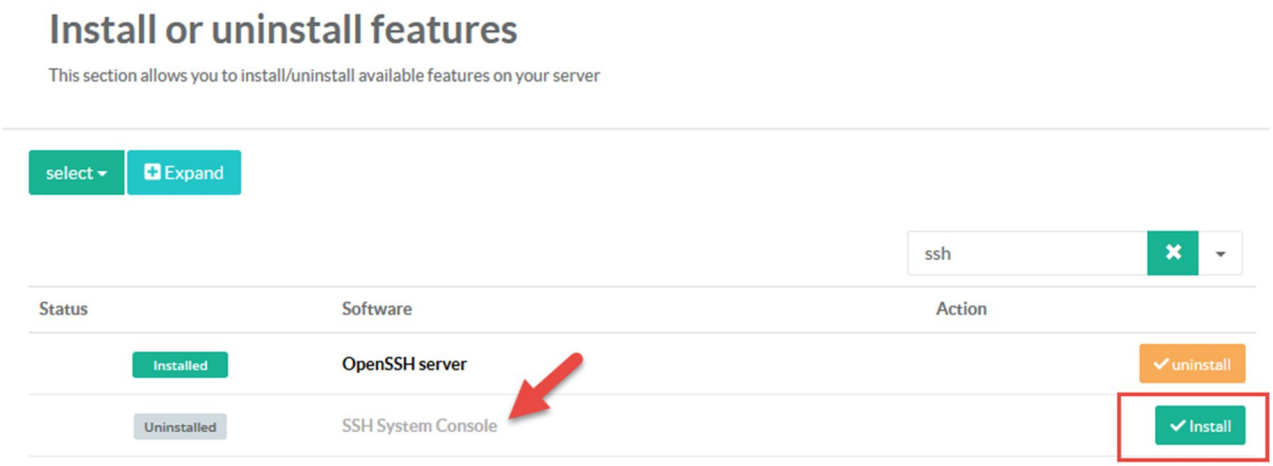
In the search box, type "ssh" and click on the button "Install" under the "OpenSSH server" row.



This feature allows you to enter into the system with "root" account and "artica" as the default password with an SSH client.

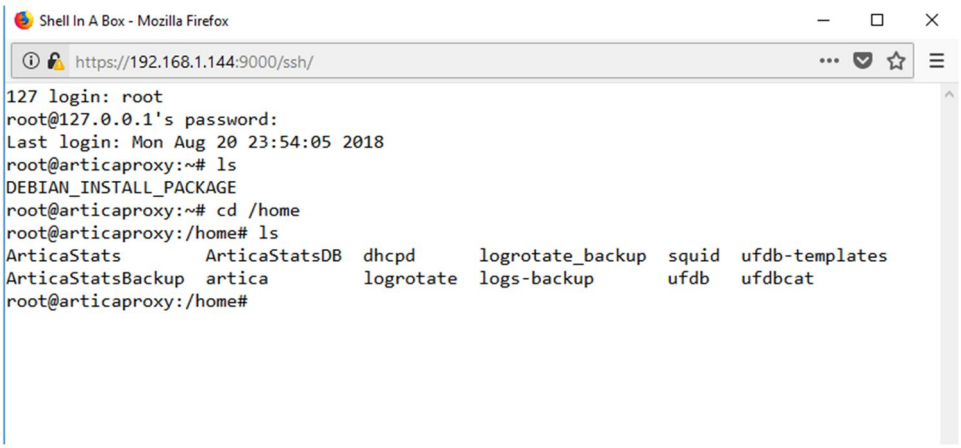
THE SSH WEB CONSOLE

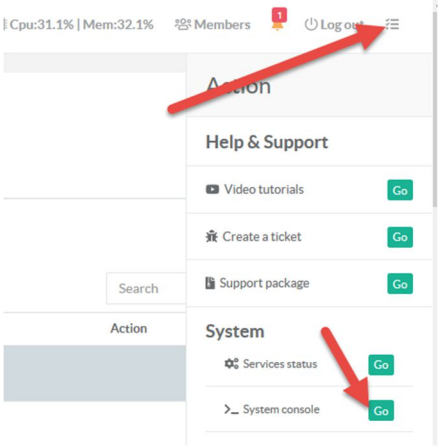
If you want to enter into the system using SSH web console, after installing the OpenSSH server, install the "**SSH system console**".



The Web SSH console is available using the right menu and "**System console**" menu.

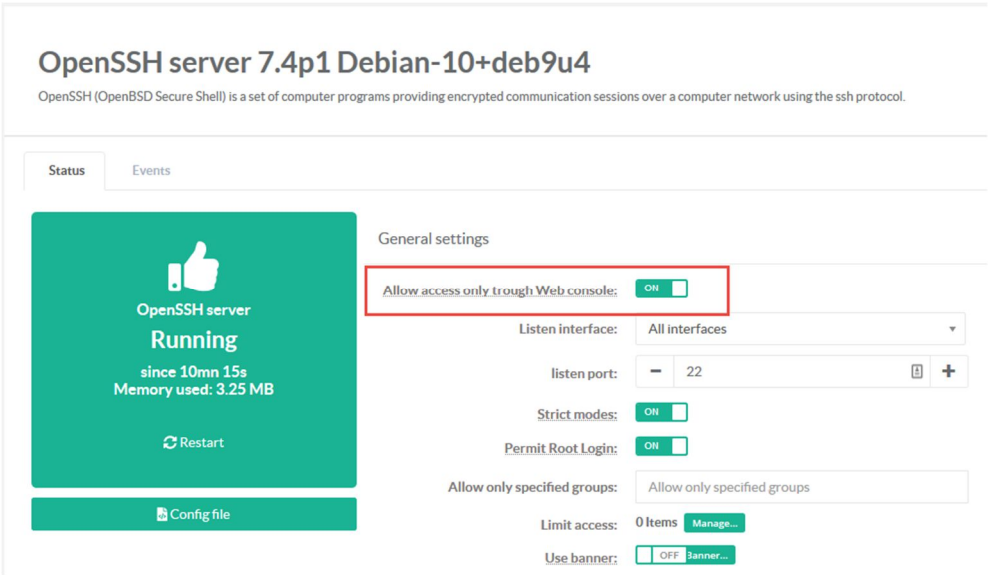
This will open a web console that simulates a connection using SSH client.





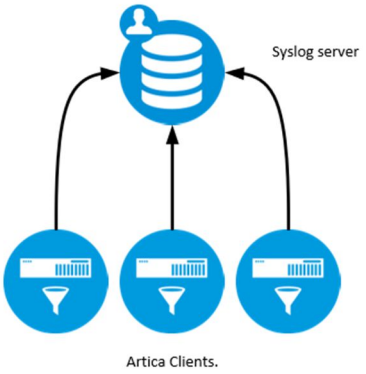
Restrict the SSH access to the Web console.

If you did not want to open the TCP 22 port and keep access to the Artica system using only the Web console, on the left pan, choose "**Your System**" and "**OpenSSH server**" menu.
Under the "**General settings**" section, turn on the "**Allow access only through Web console**" and click on "**Apply**" button.



This option will force the OpenSSH server to run only on the loop back interface for the SSH Web console.
Access externally to the SSH server will not be possible.

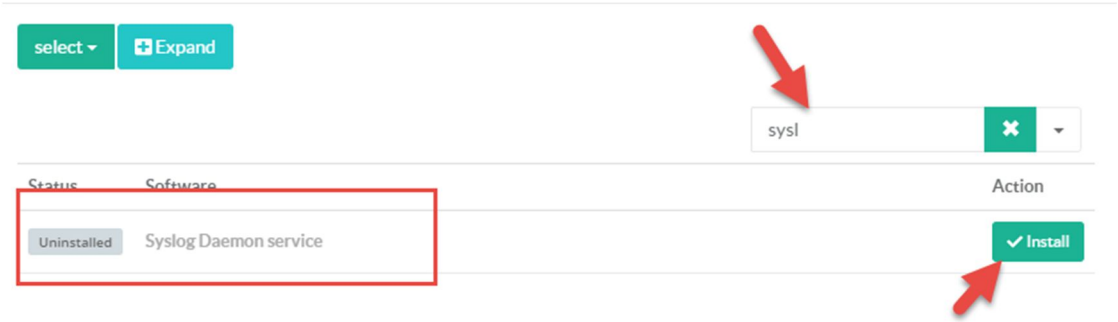
THE SYSLOG SERVICE



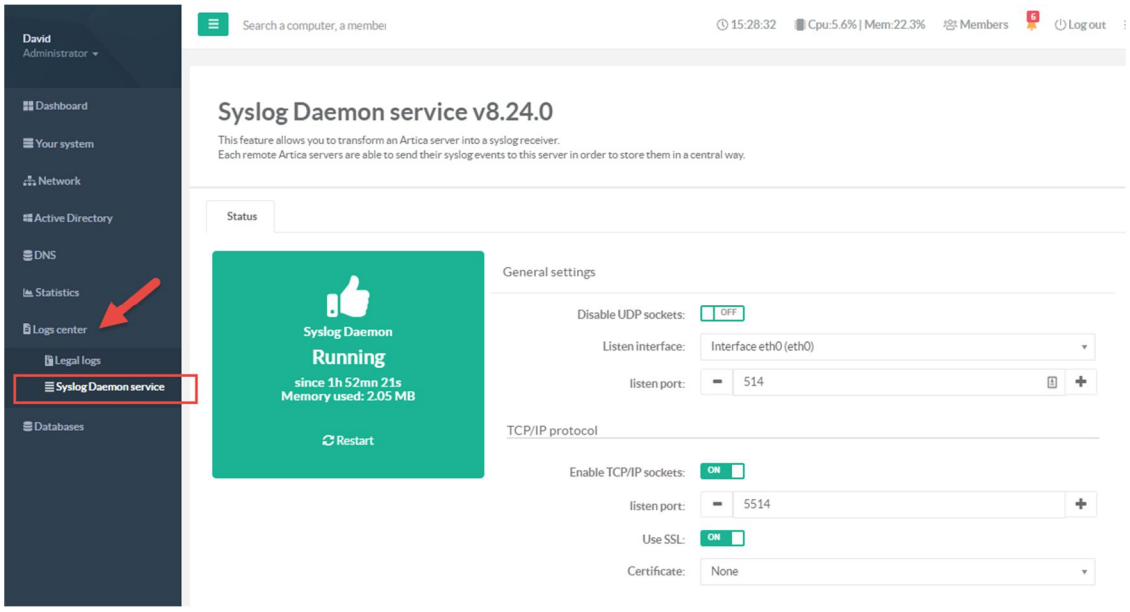
The syslog service is able to receive events from any Linux/Artica servers in order to store them and perform a central syslog server.
By default, Artica use the local syslog service in order to store local events.
Enable this service allows you to transform your Artica server into a syslog receiver.

INSTALL THE SYSLOG FEATURE

- Go into the feature section
- On the search field, type "**syslog**"
- Click on Install button on the **syslog Daemon service** row



- By default, the syslog service wait data on the 514 UDP port.
- You can manage the syslog service by using the left menu "**Logs center**" and "**Syslog Daemon service**"



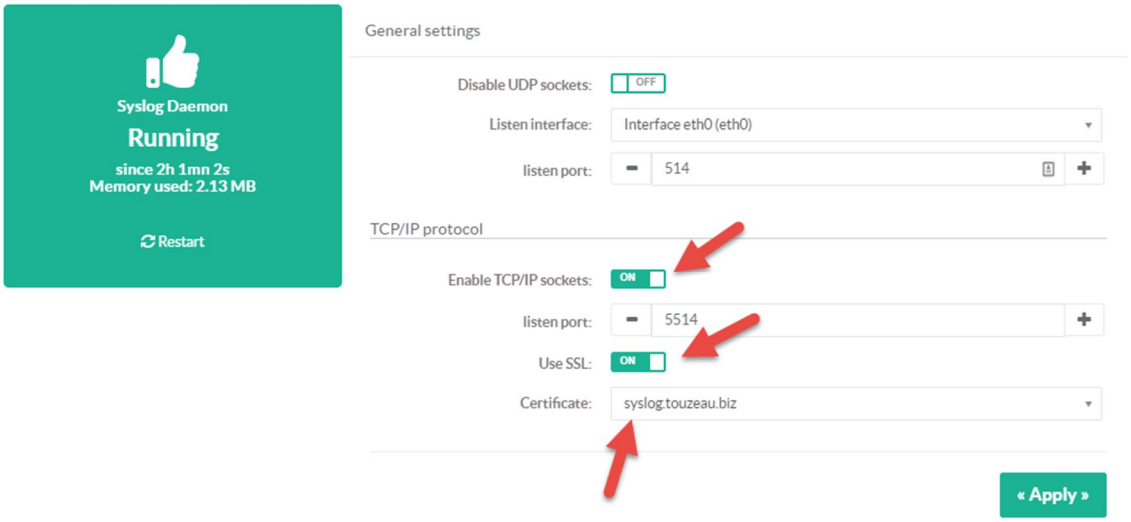
SECURING YOUR SYSLOG SERVER WITH TLS (SSL)

You should want to enable encryption on the syslog stream since private information, including credentials, could be getting passed from client to server in the logs. In this document, we will be using self-signed certificates, including a self-generated CA certificate

- Go to **System** / **certificates center** and generate a new self-signed certificate.

On the syslog service parameters:

- Turn on the Enable TCP/IP sockets option.
- Define the port in the listen port field
- Turn ON "**Use SSL**" option
- On the drop-down list, choose the generated self-signed certificate.
- Click on **Apply**



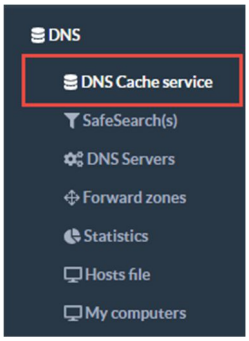
DNS SERVICES.

Artica offer 2 main services for providing DNS services.

1. The PowerDNS system:
   Is a complete DNS service used by many ISPs and claim to be a Public DNS server.

2. The DNS Cache service:
   Is a simpler DNS service used to cache DNS items.
   It provides DNS filtering features and DNS crypt filtering feature.
   It is designed to be an Internal DNS as a real friend of a Windows DNS service.

THE DNS CACHE SERVICE



The DNS Cache service (aka Unbound)) is used to accelerates DNS answers for your Artica server or your internal network. It is a very secure validating, recursive, and caching DNS server.
It uses a strong cache system and a prefetch feature in order to prepare DNS answers.
The DNS Cache service is installed and enabled by default when installing Artica for the first time.

The DNS cache service can be extended with the DNS Filter feature.
With this filter feature you can fake resolutions of unwanted sites according categories.

Enable logging.

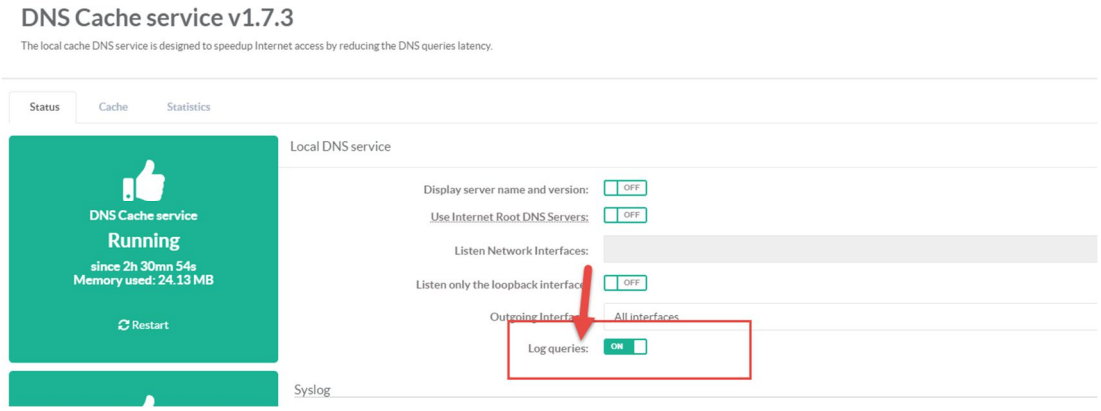
By default, queries are not logged, if you want to get an history of all DNS queries you have 2 ways.

1. Write to a local file.
2. Send queries to a syslog daemon.

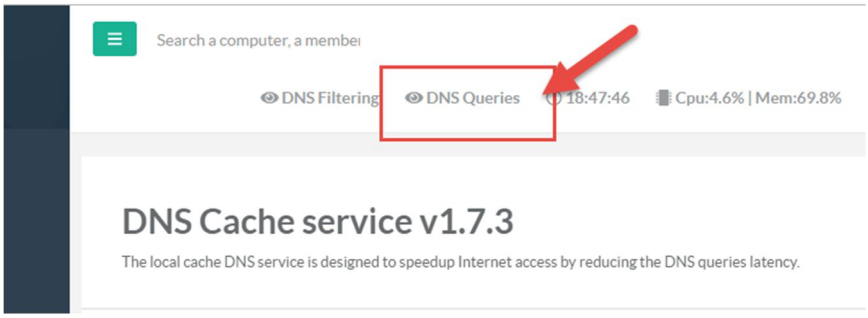
In both ways (log to a file and send to syslog) events will be stored in /var/log/unbound.log file.

Write to a local file

On the DNS Cache service main section, turn ON the “log queries” option.
When using this option, Artica will be able to keep old logs and to store them according to the “Legal logs” feature.



This option will display a new top menu called “DNS Queries”. It allows you to search events and display the last DNS queries from your Network.



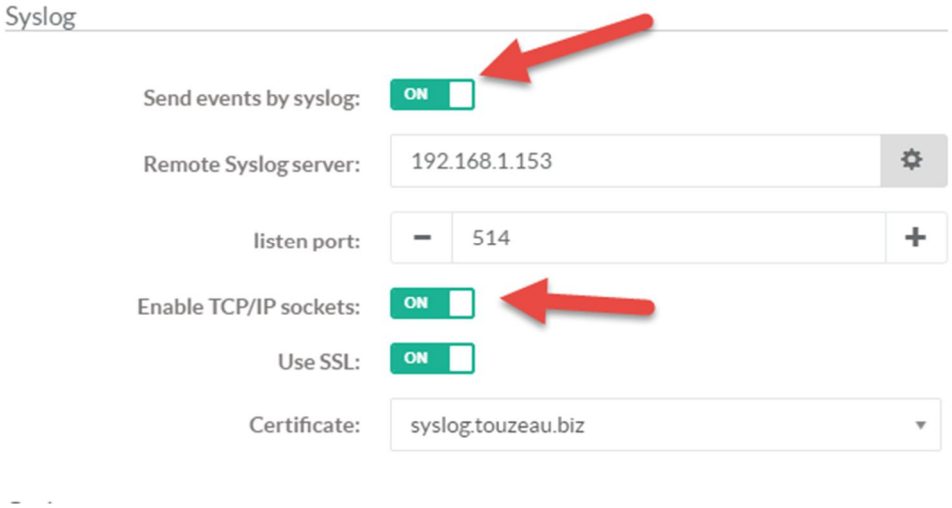
Send to a syslog server.

If you have a valid corporate license, you are able to send DNS queries to a Syslog server.

Turn on the **"Send events by Syslog**" option
Set the IP address and the UDP port of the remote Syslog server.
If you turn on the "**Enable TCP/IP**" sockets option, events will be sent using TCP instead of UDP.
If TCP/IP is enabled, you can use SSL to send events by enabling the **Use SSL** option.

In this case, select the certificate from the **certificate center** that stores the **Certificate Authority** of your **remote Syslog server**.

If you only need to store log on the remote Syslog server and not on the local server, turn on the "**Do not store events locally**" option.

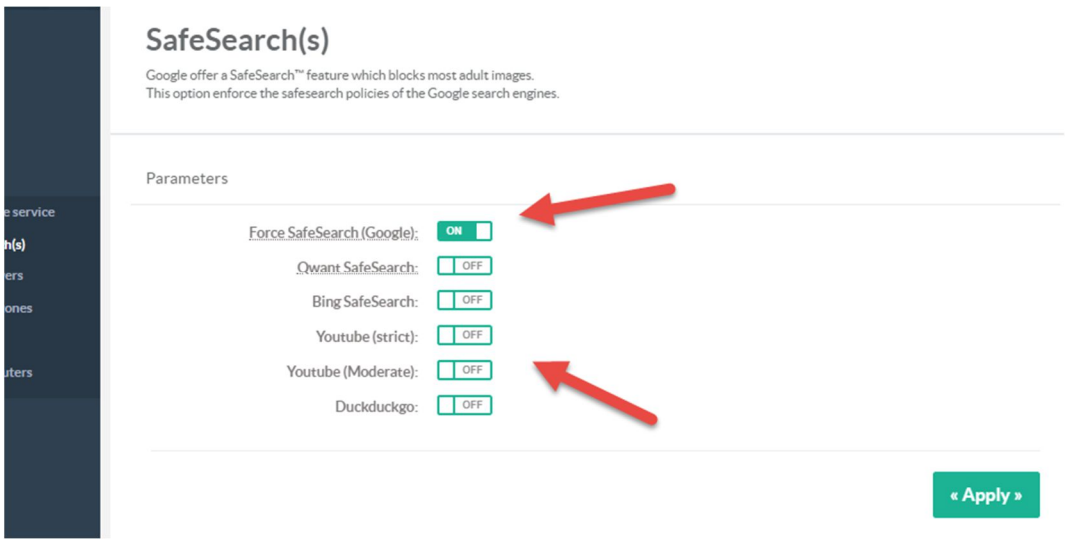


SafeSearch(s)

If you use the DNS cache service, you can enable SafeSearch(s) on the major Web search services. (need a valid Corporate License)
Currently Artica is able to enable SafeSearch for **Google, Qwant, Bing, YouTube, Duckduckgo**
SafeSearch(s) is in the left menu under DNS/SafeSearch(s).
SafeSearch(s) is designed to modify the DNS answer of **your workstations** (if you plan to use Artica as the Internet DNS service) or **your proxy service** if the proxy uses the DNS cache service to resolve the Internet.

The modified DNS answers force search engines to ban any porn, hacking, malware, suspicious indexed Web sites.

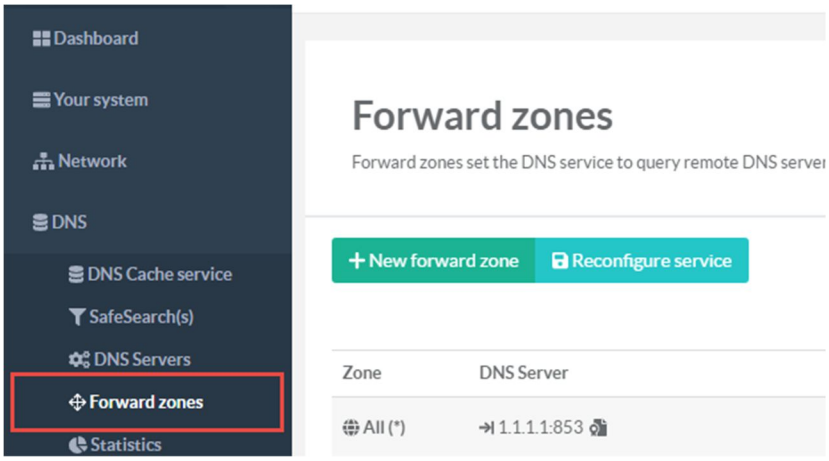
On the main section, choose the Search engine you want to filter and click on **Apply**



Reverse lookup private zone

By default, the DNS Cache service did not perform reverse lookup for your internal network.
To add the reverse lookup on the DNS cache service:

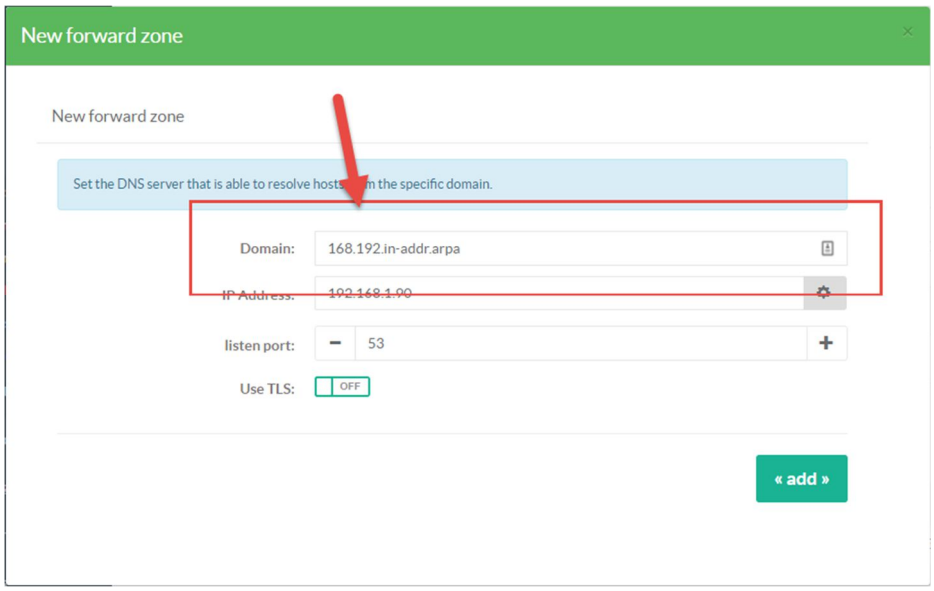
Go into the **Forward zones** section
Click on **New forward zone** button.



Add the inversed network mask with the in-addr.arpa domain.

For examples:

If your network is 192.168.0.0/16, add 168.192.in-addr.arpa
If your network is 192.168.1.0/24 add 1.168.192.in-addr.arpa
If your network is 192.168.2.0/24 add 2.168.192.in-addr.arpa
If your network is 10.10.0.0/16, add 10.10.in-addr.arpa



Set the remote server and port that should receive the reverse DNS lookup query
Click on "**Add**" button.
Click on "**Reconfigure service**" button

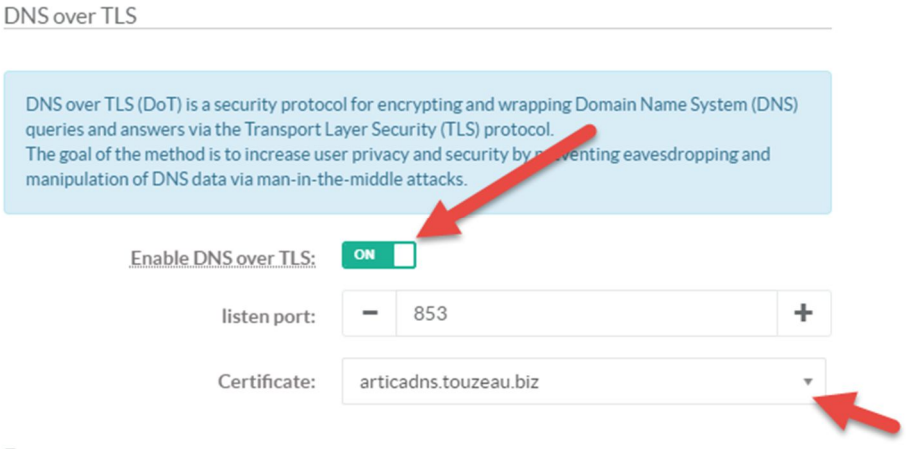
Secure DNS over TLS

By default, DNS is sent over a plaintext connection.
DNS Over TLS is one way to send DNS queries over an encrypted connection.
This feature adds a DNS over TLS option to your DNS Cache service.
For example, Cloudflare supports DNS over TLS on 1.1.1.1 and 1.0.0.1 on port 853

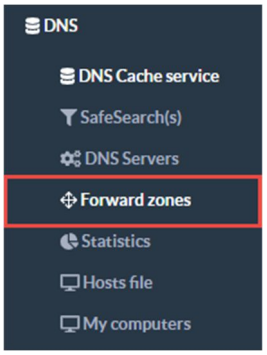
Create a DNS over TLS service. (Server mode)

1) **Create a certificate**:
   Go into the certificate center and add/create your certificate.

2) On the main settings; Enable the **DNS over TLS** checkbox and select the generated **certificate**.



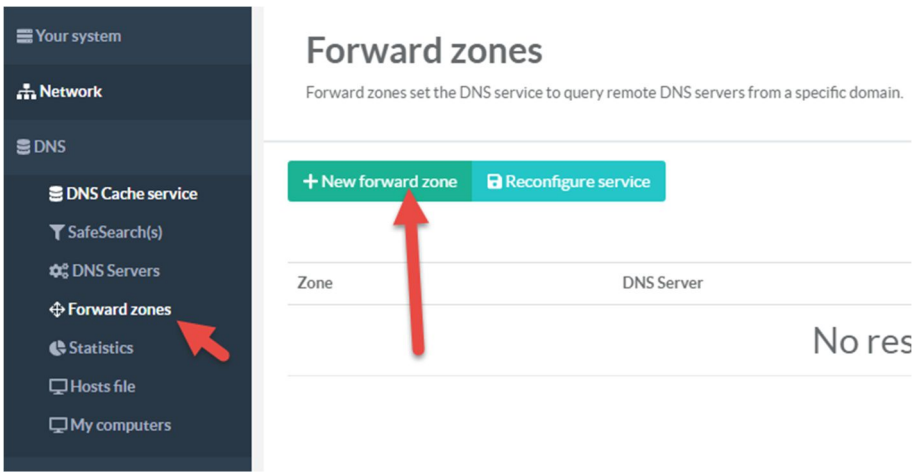
Query DNS over TLS servers.



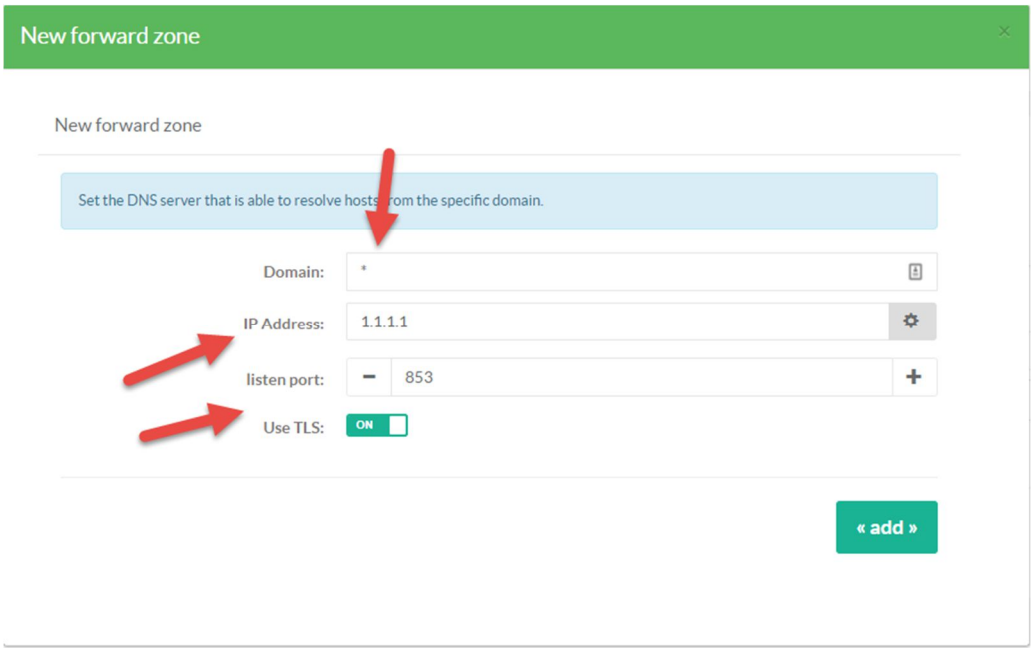
Some free public ISP offers DNS Over TLS public DNS:

- Quad9: 9.9.9.9:853 or 9.9.9.10:583
- Cloudflare: :853 or 1.0.0.1:853
- Google: 8.8.8.8:853 or 8.8.4.4:853
- CleanBrowsing Security Filter: 185.228.168.9:853 and 185.228.169.9:853
- CleanBrowsing Family Filter: 185.228.168.168:853 and 185.228.169.168:853
- CleanBrowsing Adult Filter: 185.228.168.10:853 and 185.228.169.11:853
- Adguard defaiult: 176.10 176.103.130.132 or 176.103.130.134 3.130.130 or 176.103.130.131
- Adguard Family: 176.103.130.132 or 176.103.130.134

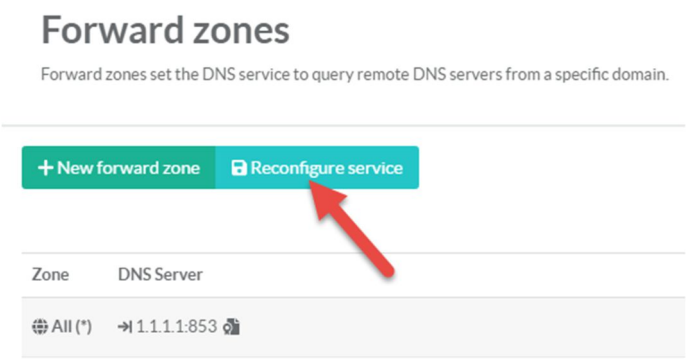
To use these IP address, on the left menu, get **DNS/Forward zones**.
Click on "**New forward zone**"



- Set the domain as “star” “*”
- Set the **IP address** and **port** of the DNS Over TLS server
- Turn on the “**Use TLS**” option
- Click on **Add** button.



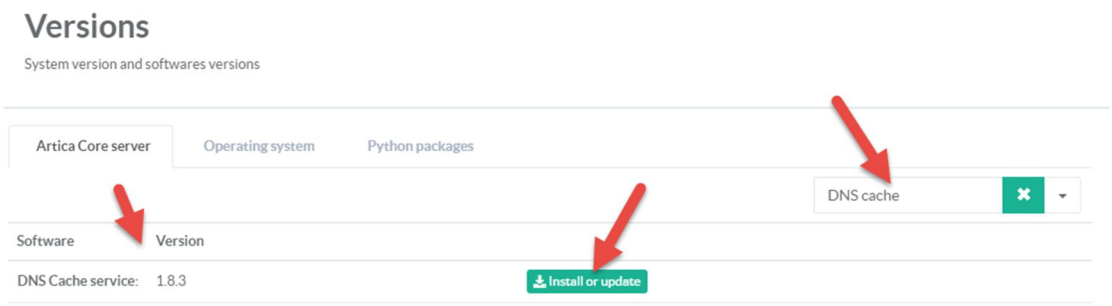
- Click on **reconfigure service** button in order to make rules in production mode.



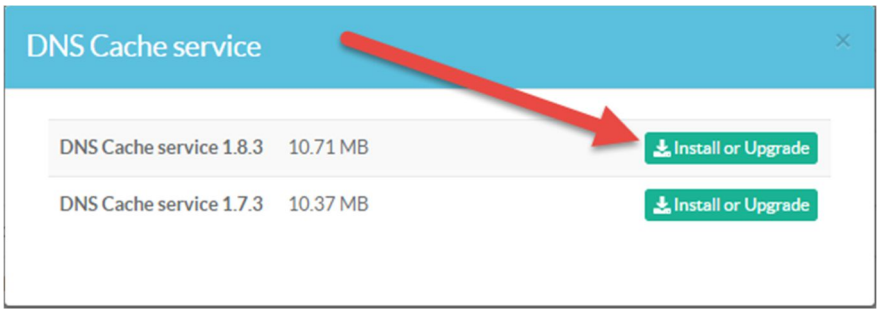
Update the DNS Cache service Software

Regularly, Artica team provide new releases of the DNS Cache service.
To update the Cache DNS Core software, on the left menu, click on **Your System** and **Versions**

- On the search field, type “DNS Cache”
- You can see the current version in production mode.
- Click on the “Install or update” button.



- A new screen lists all available versions.
- Click on the button “**Install or Upgrade**” on the desired version



POWERDNS

The PowerDNS is a strong DNS server. It is used by many ISPs.
It uses MySQL database engine as backend and provide REST API in order to be fully controlled.

Installing the PowerDNS system.

To understand, the PowerDNS system use 3 components:

- The MySQL database: used to store records.
- The PowerDNS system: used to answer queries only stored in the MySQL database.
- The PowerDNS recursor: used to forward queries to external resolvers if domains are not stored in the MySQL database.

Go into the **features** section and install first the **MySQL database**, then, install the **Power DNS system** in order to get a local DNS system.

If you want your Artica server as a real DNS system (means resolve foreign domains) ,
you have to install the PowerDNS recursor.

Enable the RESTful API.

The RESTful API allows you to send commands and get status of the PowerDNS system using REST protocol.
The PowerDNS Authoritative Server features exposes a JSON/REST API.
This API allows for controlling several functions, reading statistics and modifying zone content, metadata and DNSSEC key material

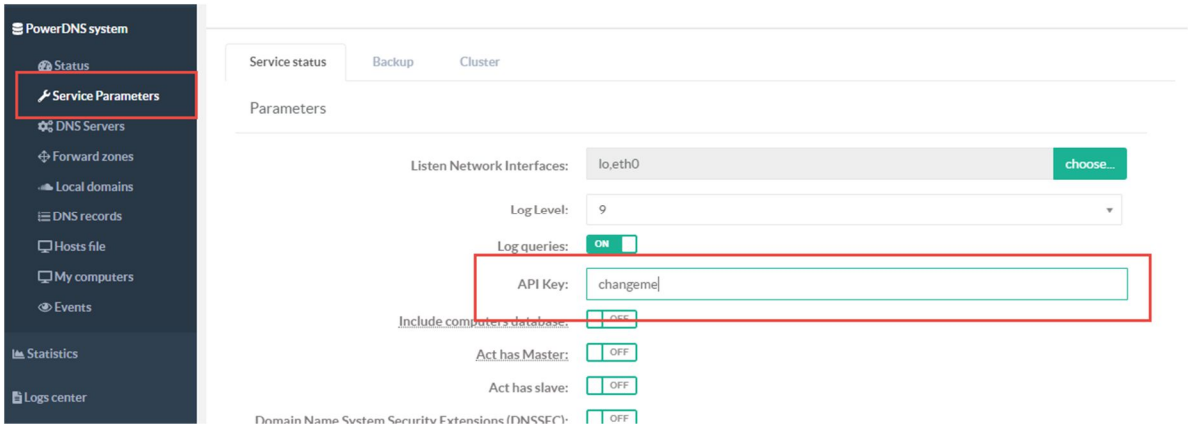
To Enable the ReSTful API, go into the **features** section and install the **RESTful API for PowerDNS**

After installing, you should open the page

```
https://192.168.1.1:9000/pdnsapi/
```

This page allows you to see statistics of your DNS server.

- Select the **PowerDNS system** and **Service parameters** on the left menu.
- Set a passphrase in the **API Key** field.



With the passphrase you need to authenticate the REST by adding the X-API-Key request header:

```
curl -v -H 'X-API-Key: changeme' https://192.168.1.1:9000/pdnsapi/api/v1/servers/localhost | jq .
curl -v -H 'X-API-Key: changeme' https://192.168.1.1:9000/pdnsapi/api/v1/servers/localhost/zones | jq
```

For the full list of REST commands, see the documentation here: https://doc.powerdns.com/authoritative/http-api/index.html#

Reverse DNS

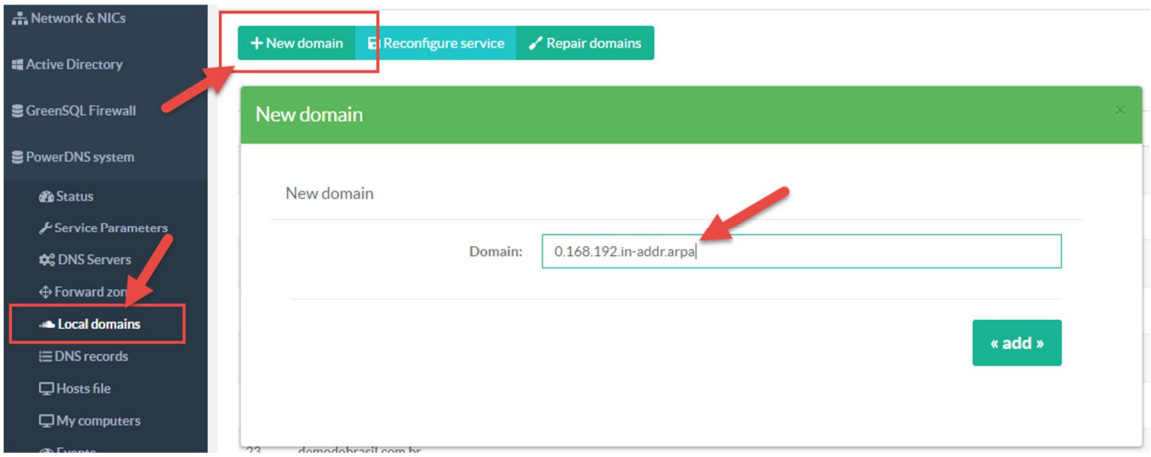
Creating a reverse DNS domain

For the following example we shall assume that we are configuring reverse DNS for an internal network using IP addresses in the 192.168.0.0/24 range. With this in mind the first task is to create an entry in the Internal domains.

Select the "**Local domains**" section and create a new domain.

192.168.0.0/24 will be inversed to 0.168.192 and the **in-addr.arpa** domain.(matches 192.168.0.1 to 192.168.0.255)
Examples:

- ✓ **10.in-addr.arpa** for 10.0.0.0/8
- ✓ **16.172.in-addr.arpa** for 172.16.0.0/12
- ✓ **168.192.in-addr.arpa** for 192.168.0.0/16



Creating SOA and NS records for a reverse DNS domain

In the same way that a forward zone requires an SOA record to indicate that this domain name server has authority to respond on behalf of a zone a reverse zone requires a very similar record.
When creating a new domain, Artica creates automatically the associated SOA but you need to personalize your SOA*

Select the "**DNS records section**" and search your **SOA** entry.

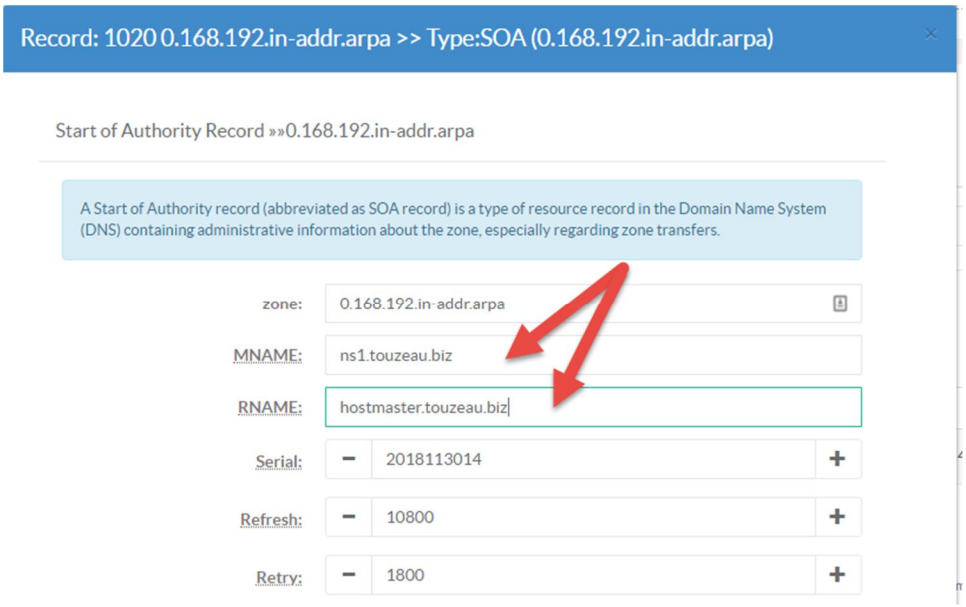
The search engine uses a defined syntax
You can search using "*****" character and "**type**" to select the family of the record,

For example:

```
0.168.* type soa
0.168.* type=soa
0.168.* and type soa
0.168.192* type soa
0.168.192* where type soa
```

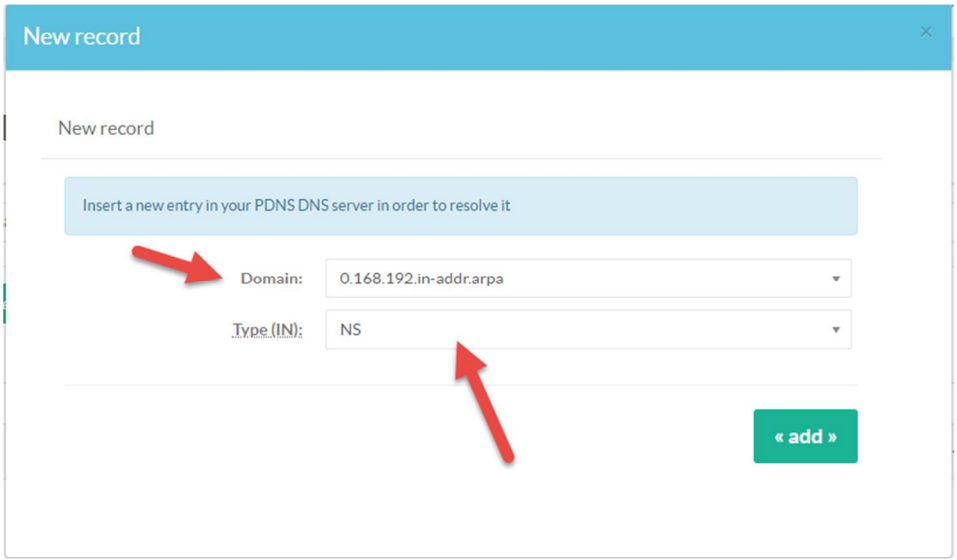
After found the record, click on the link

Modify the MNAME (NS record) and the RNAME with the main domain used by your "A" records (in our case our domain is "Touzeau.biz")

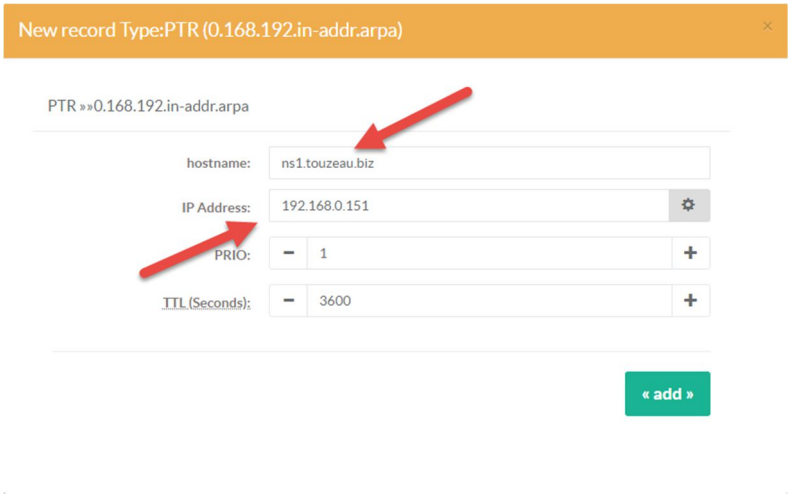


- ✓ The MNAME (NS record) needs a record.
  This record is primarily used to delegate reverse zones to other name servers although every reverse zone, delegated or not, still requires one.

- ✓ On the DNS Records section create a new record
- ✓ In the new record form, choose your **reverse DNS domain** and select **NS** in the type drop-down field.

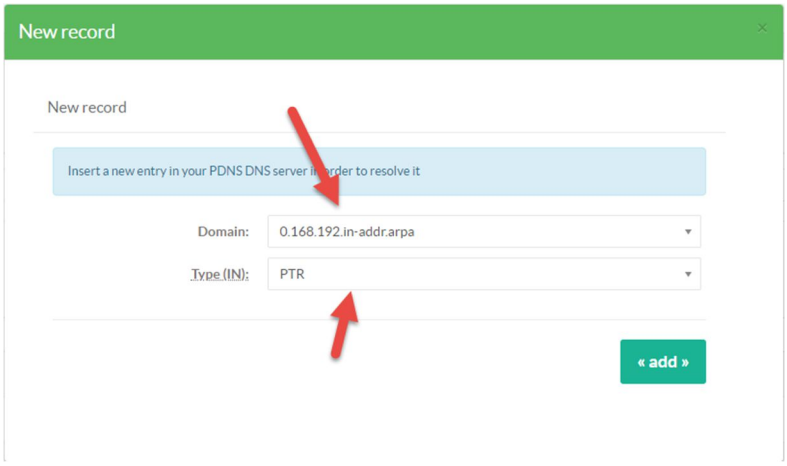


In the value field, set the MNAME you have defined in the SOA for the reverse domain.

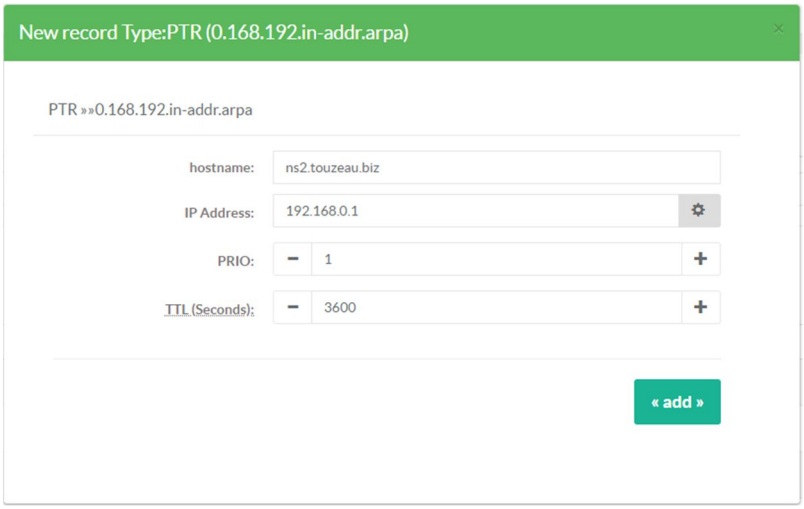


Creating PTR records for a reverse DNS domain

- ✓ In the new record form, choose your **reverse DNS domain** and select **PTR** in the type drop-down field and click on Add button



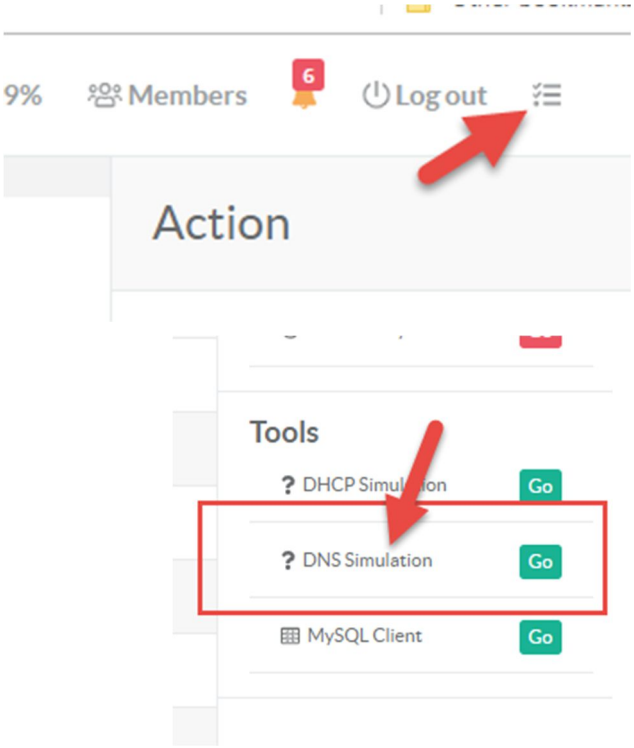
- ✓ In the hostname field, set the fully qualified name of the host you want the PTR to be resolved.
- ✓ In the IP address field, set the IP address of your hostname.
- ✓ Artica will turn your IP address to a valid PTR format.
- ✓



Testing our configuration

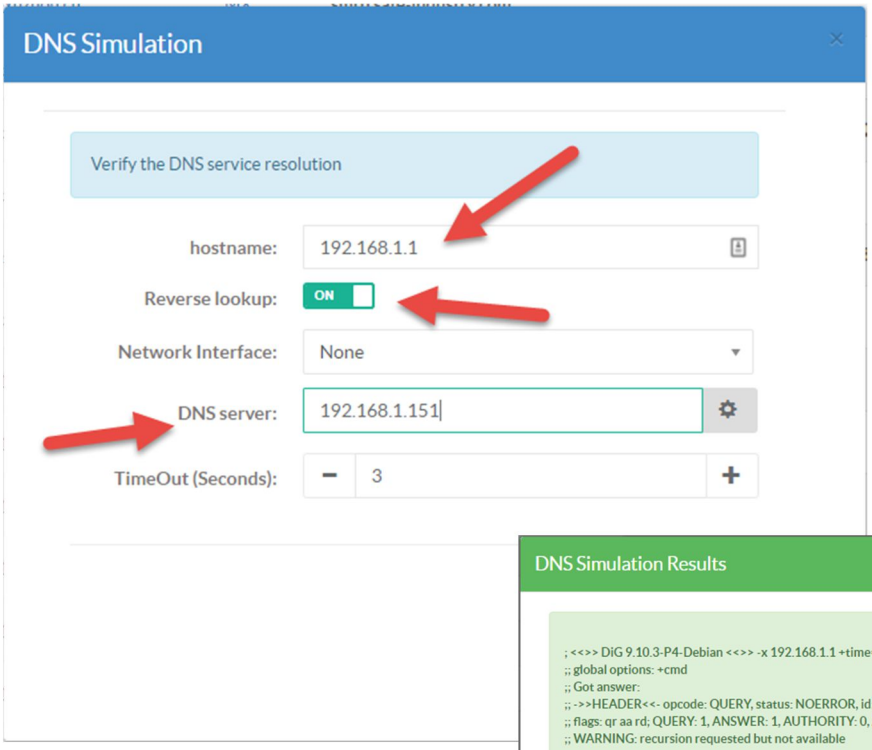
Now that we have a complete configuration, albeit another rather minimal one, we are ready to test to see if our new DNS server is correctly answering reverse DNS queries for our network.

- ✓ On the top menu, click on the icon near the Log out in order to display the right menu.

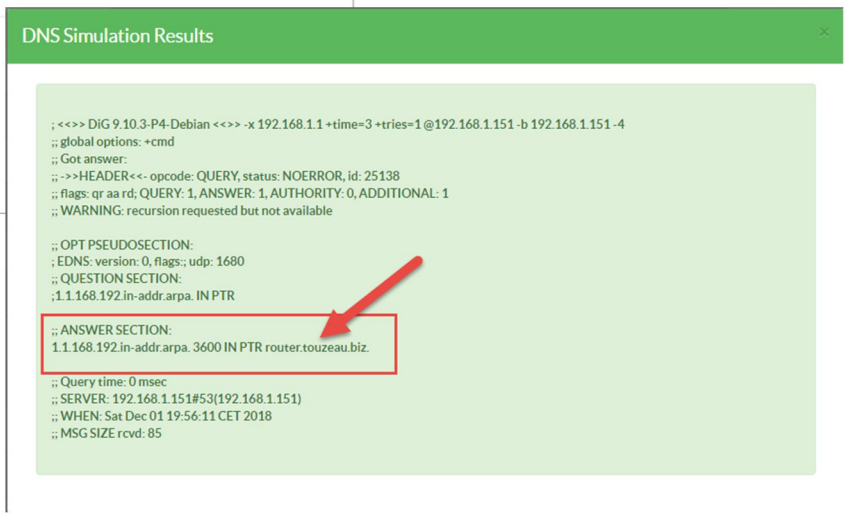


- ✓ Down to “Tools”
- ✓ Click on the “DNS Simulation” item.

- ✓ On the hostname set the IP address of your created item.
- ✓ Turn on the Reverse Lookup switch.
- ✓ On the DNS server, set the IP address of your Artica server.
- ✓ Click on the Run icon.



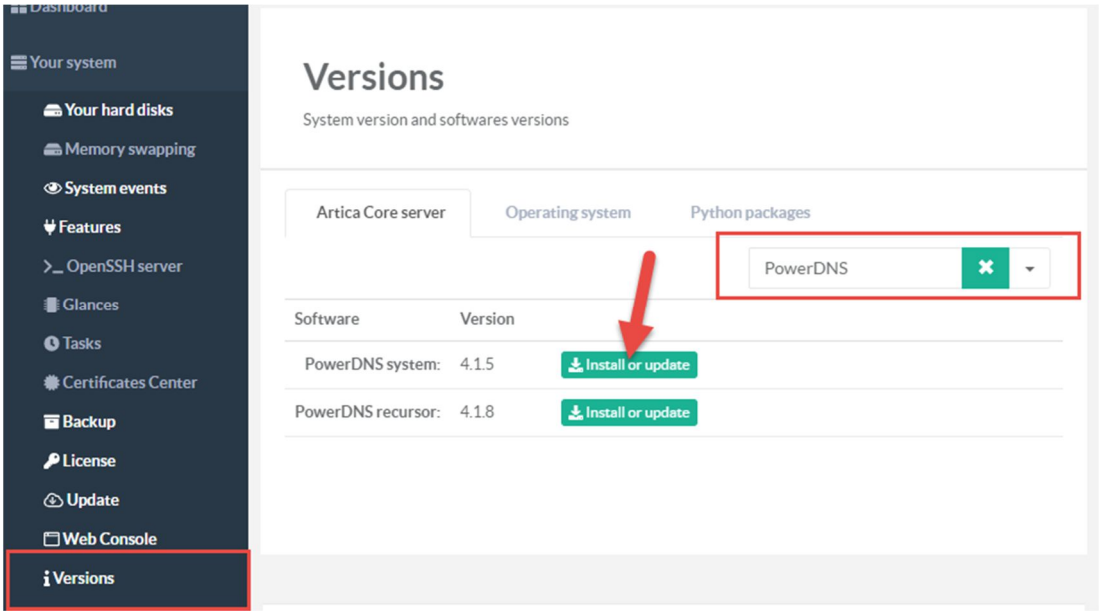
You should see the correct PTR entry in the DNS response.



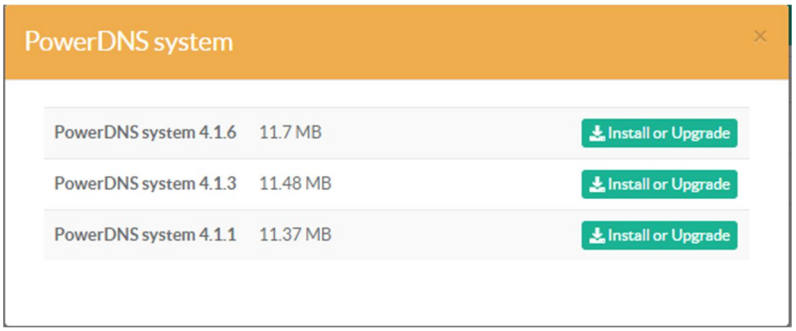
Update the PowerDNS core software.

On the left menu, select “**Your system**” / “**Versions**”

On the search field, type “**PowerDNS**”
Under the **PowerDNS system** row, click on **Install or update** button.

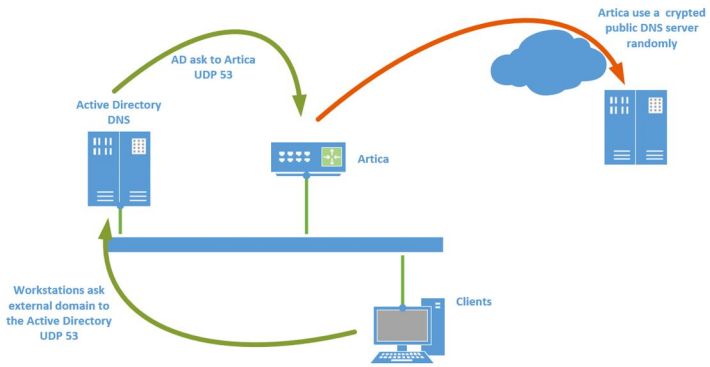


- A new screen is displayed and shows you the list of supported versions.
- Click on the “**Install or Upgrade**” button on the desired version to update it.



THE DNSCRYPT SERVICE.

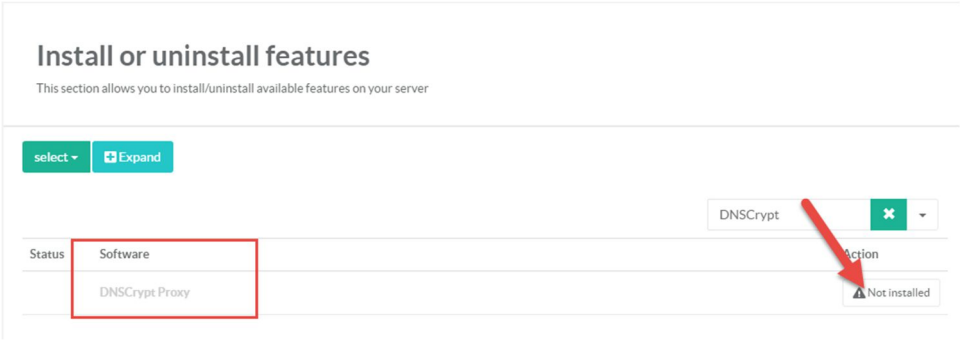
The DNSCrypt service is designed to hide DNS requests from the Internet.
In the same way the SSL turns HTTP web traffic into **HTTPS** encrypted Web traffic, DNSCrypt turns regular DNS traffic into encrypted HTTPS DNS traffic that is secure from eavesdropping and man-in-the-middle attacks.



It doesn't require any changes to domain names or how they work, it simply provides a method for securely encrypting communication between your Artica server and Public DNS servers stored in the Internet.

Technically the DNSCrypt service turn your Artica server to a DOH client (DNS Over HTTPS)

To use DNSCrypt service you have to **enable the Cache DNS service first**.
On the features section, type **DNSCrypt** in the search box.
Click on **Install** button.

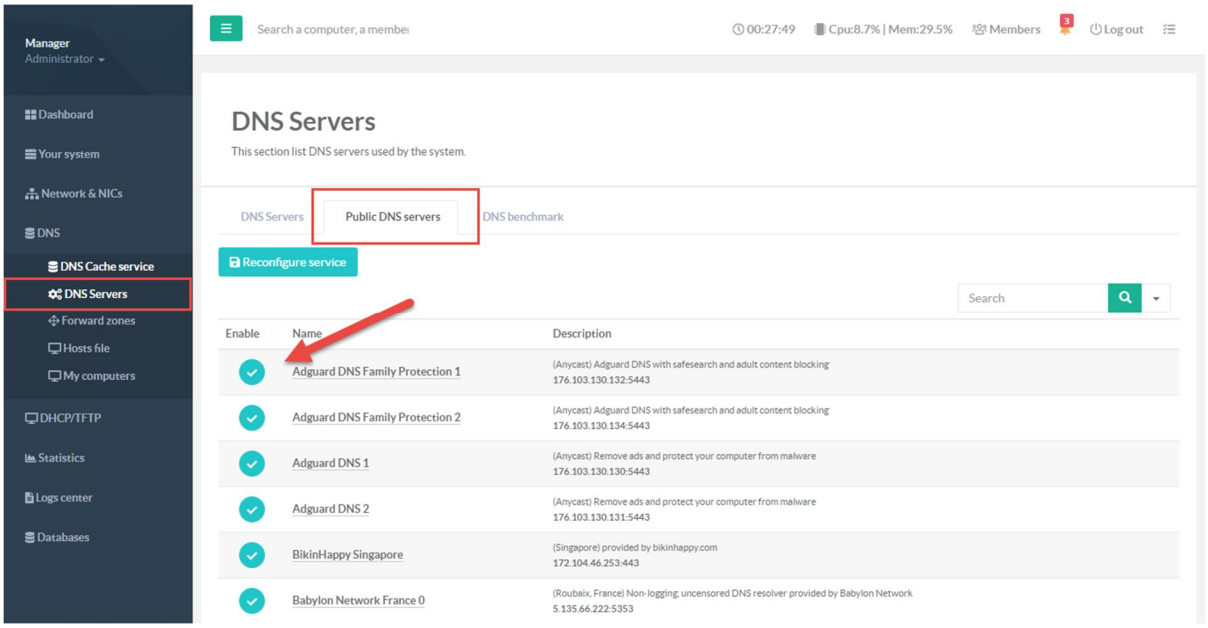


Multiple providers

After installing the **DNSCrypt** service, on the left menu, go into the DNS and DNS servers sub-menu.
Click on "Public DNS servers" tab.

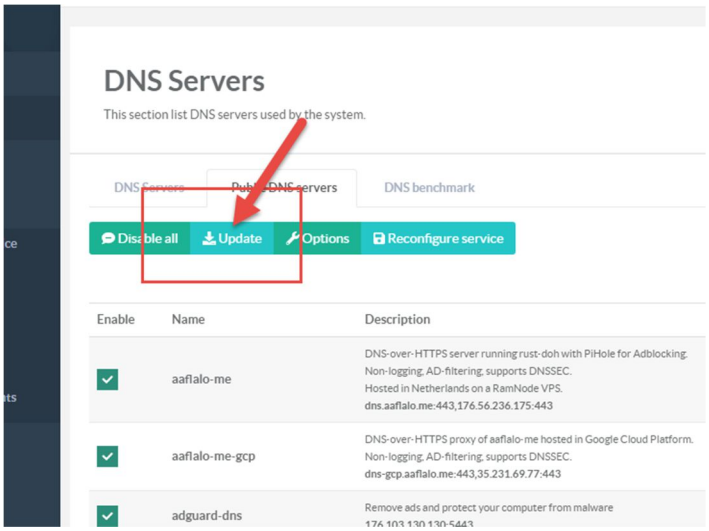
You will see a list of Public Crypted DNS servers used by the DNSCrypt Proxy these servers are chosen randomly from the list.
You can enable or disable some servers to force DNSCrypt Proxy to not use the disabled Public DNS.

Warning: You have to select a minimal of **10 serve**rs to make it run,
if the service turn into error, this means there are no available server to choose, use the "**Unique Provider**" method.



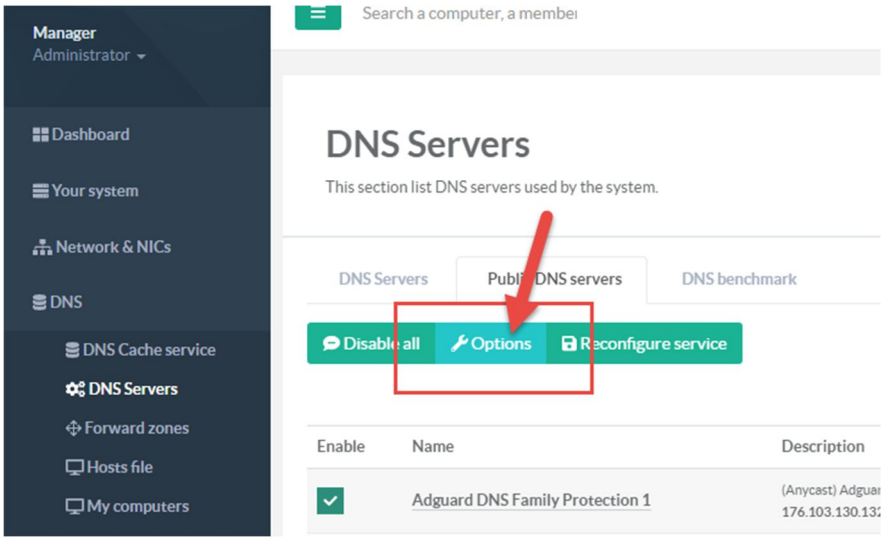
Update the list

The providers list can be updated by clicking on the "**Update**" button.
In this case, new providers that support DoH will be added automatically.

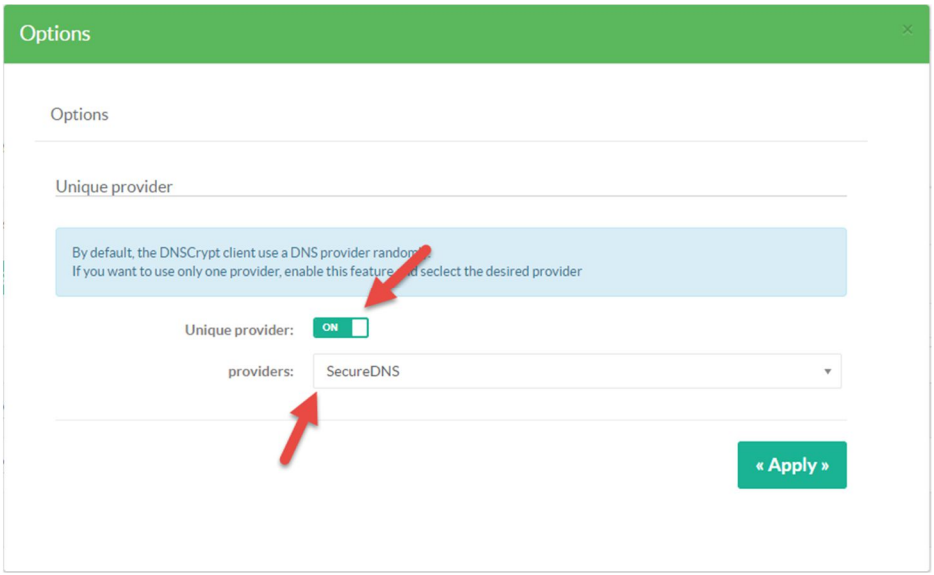


Unique Provider

If you want to select only one service, click on the **option** button



Turn on the option "**Unique Provider**" and select the single provider in the drop-down list.



THE DNS OVER HTTPS SERVICE

The DNS OVER HTTPS service (aka DOH) enable your Artica server act has a DOH DNS service for your clients.
DNS over HTTPS (DoH) is a protocol for performing remote Domain Name System (DNS) resolution via the HTTPS protocol.
A goal of the method is to increase user privacy and security by preventing eavesdropping and manipulation of DNS data by man-in-the-middle attacks.
As of March 2018, Google and the Mozilla Foundation are testing versions of DNS over HTTPS.

This service can be installed only if you have a DOH client that is able to use your DNS trough HTTPs.
Some clients on Microsoft Windows are already DOH compatible:

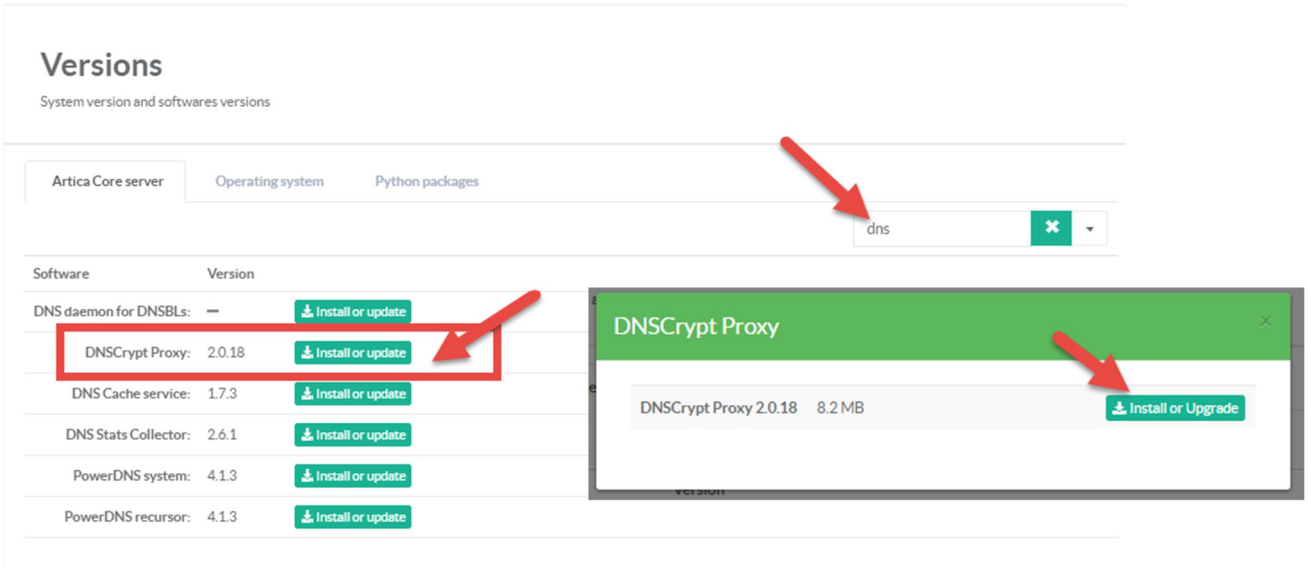
- ✓ Firefox since Version 62 and later.
- ✓ DNSCrypt-proxy
- ✓ Technitium DNS forwarder
- ✓ Google Chrome start to implement it.

Install the DNS Over HTTPs service

Update to the latest version

Artica TECH provide a special package called DNSCrypt-Proxy.
The DNSCrypt-proxy package includes the DOH-Server HTTP plugin, the DOH Client to resolve DNS queries and the DOH forwarder.
On the “Your system” left menu, choose “Versions”

On the search field, type “**dns**”



Under the **DNSCrypt Proxy** row, click on "**Install or update**" button
Choose your desired version and click on "**Install or upgrade.**"

Install the service

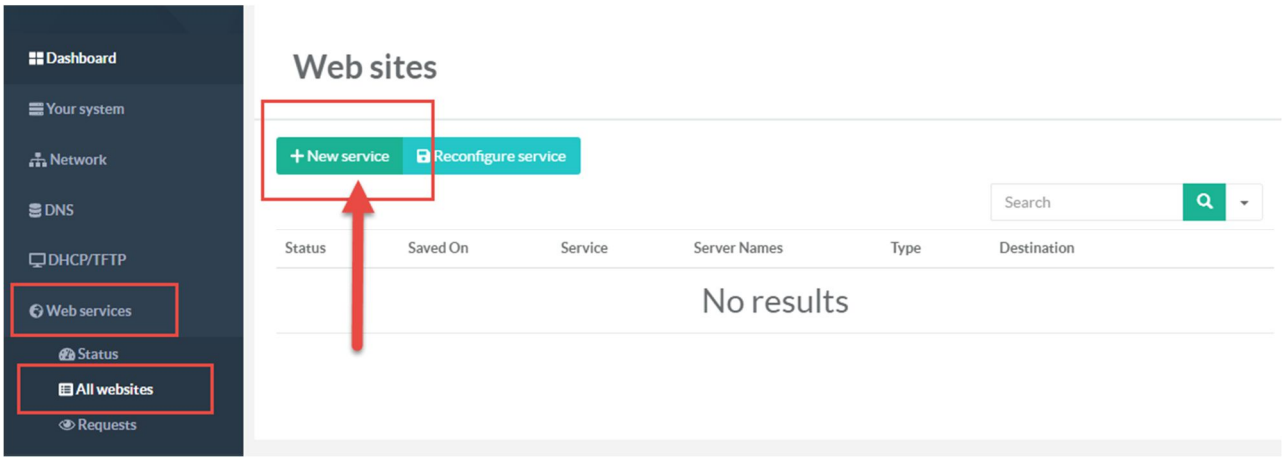
To enable the DNS Over HTTPs, you need to enable first these 2 services using the "**Features**" section:

1. **DNS Cache service.**
2. **Nginx Web engine**

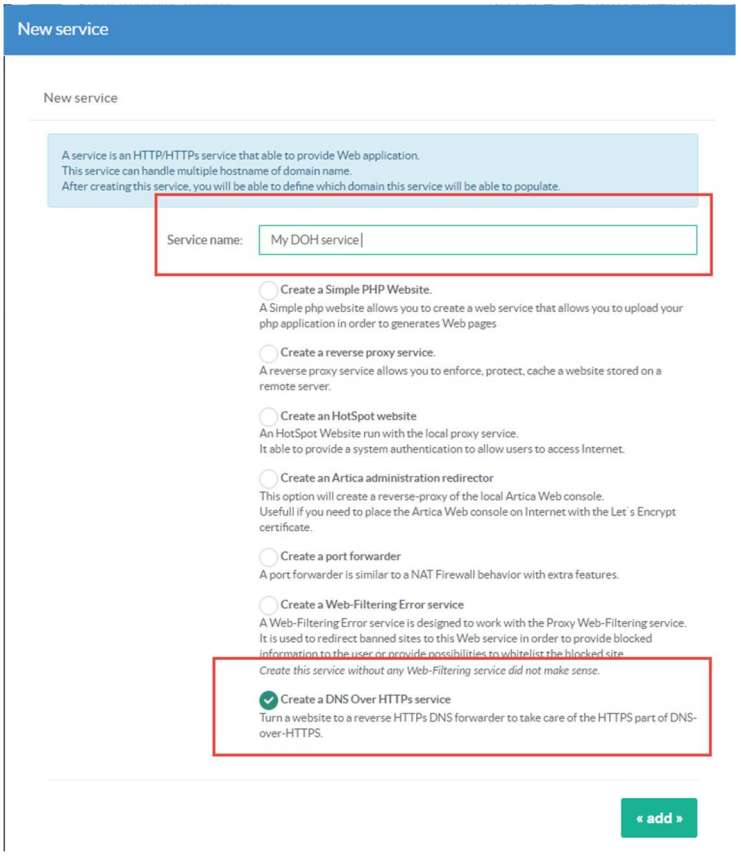
Create the HTTPs service

After installing these 2 services, search the entry "DNS" in the feature's search field.

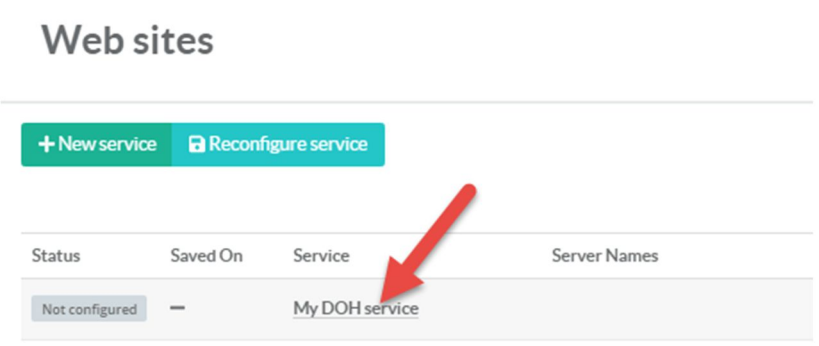
- ✓ Click on "**Install**" button on the **DNS Over HTTPS** server row
- ✓ Create **a new certificate** using the **Certificate Center**
- ✓ On the left, menu choose "**Web services**" and **All websites**.
- ✓ Click on the button "**New service**"



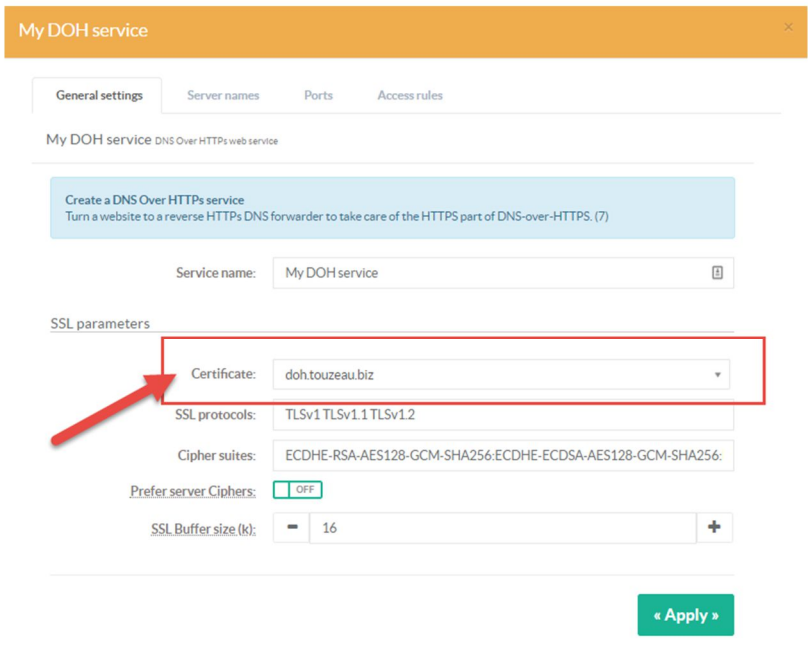
- ✓ Set a name of the HTTP service
- ✓ Select the option "**Create a DNS Over HTTPs service**".
- ✓ Click on **Add** button



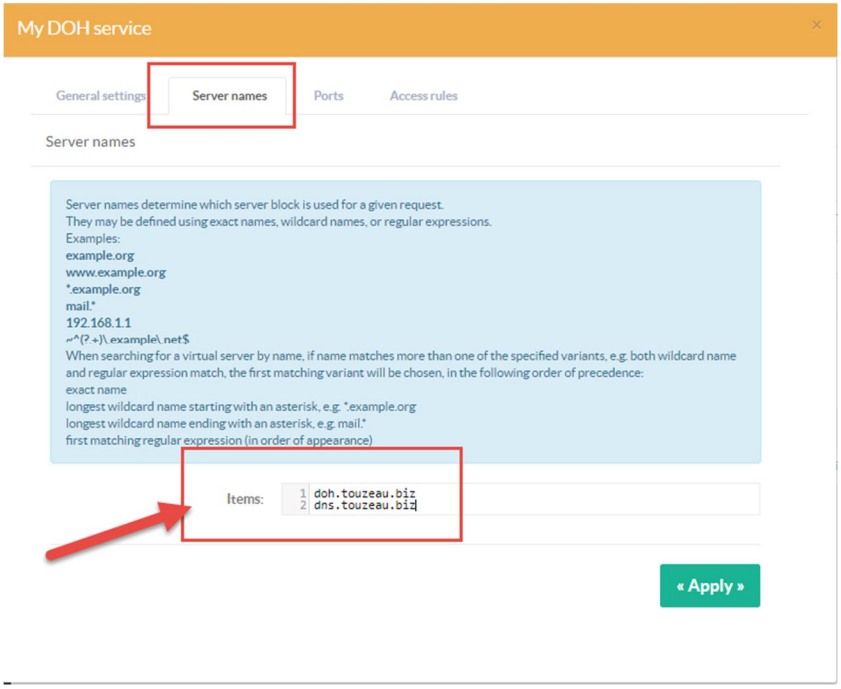
Select your new web service in the table.



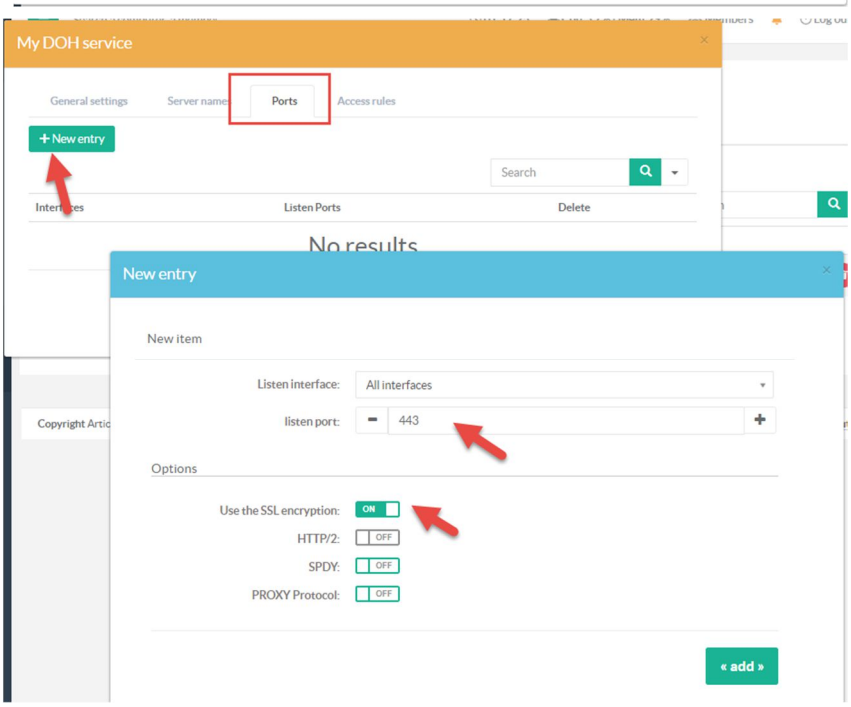
On the general settings, choose the certificate created in **The Certificates Center**The Certificates Center.



On the server names section, set hostnames that will be used for this web service.

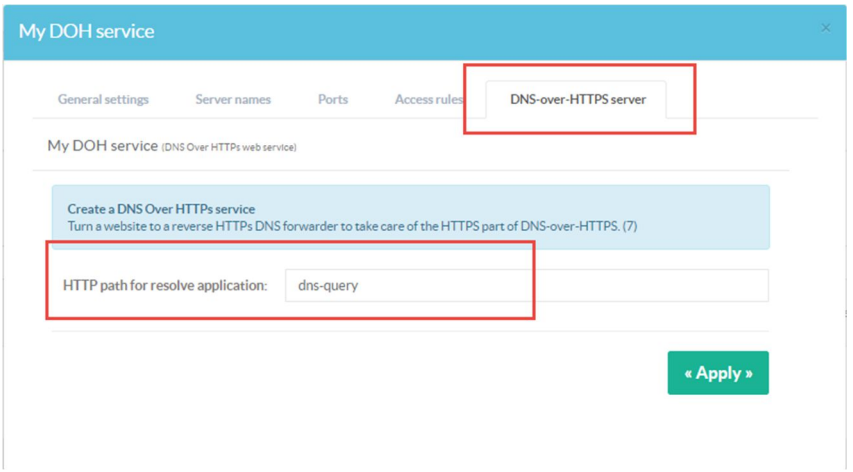


On the Ports section, create a new 443 port and enable the **Use SSL encryption** option.

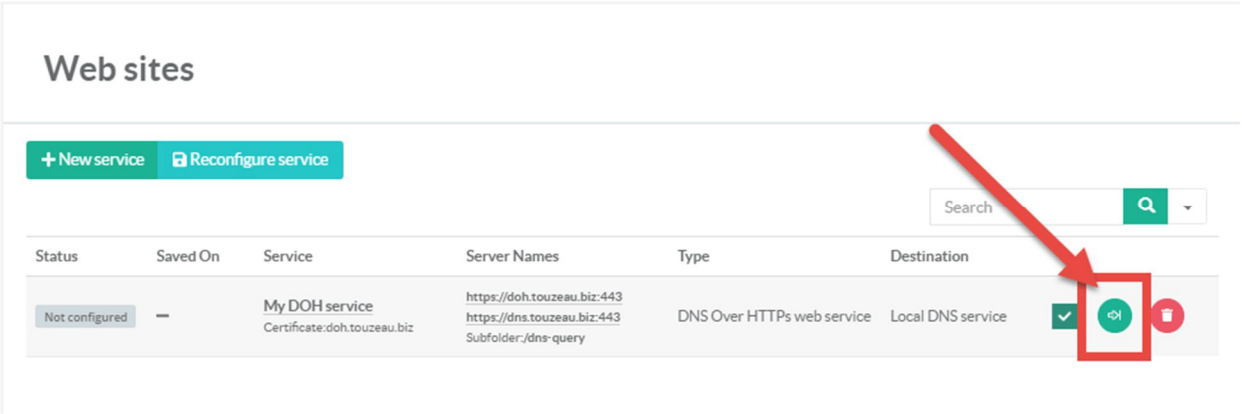


Select the **DNS over HTTPs server** tab.

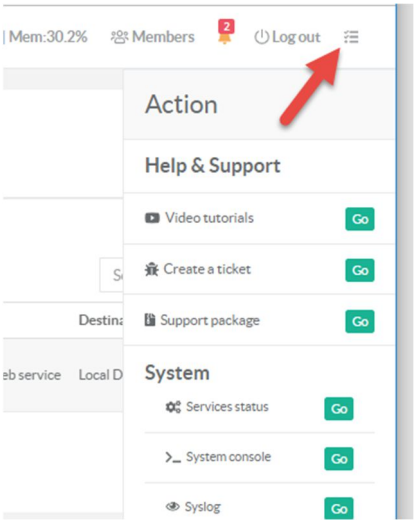
Define the path that will be used by clients to send HTTPs queries and click on **apply**



On the table, you see that your web service is “Not configured”, to make the website available, click on the run icon on the right side.

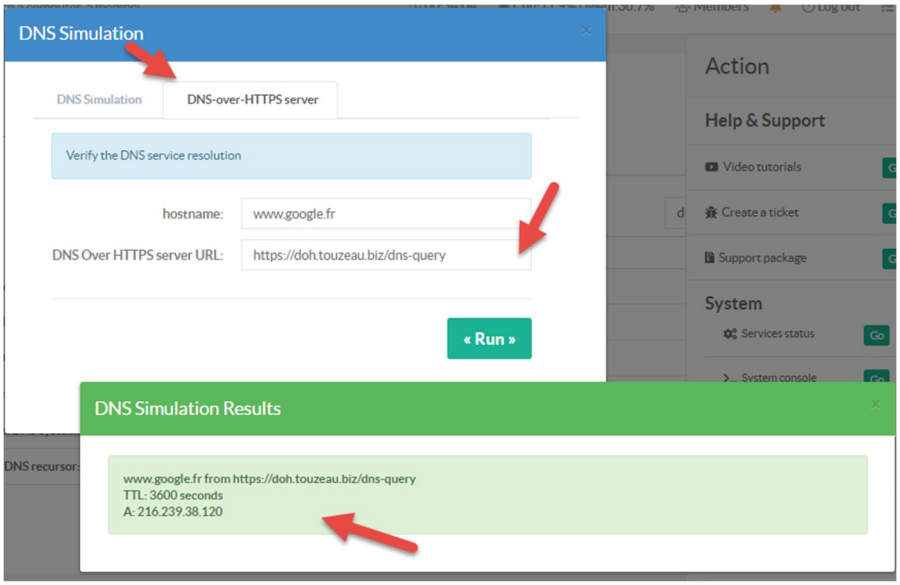


Testing your DOH server resolution



- On the top menu, click on the top-right icon in order to open the right pan.
- Down to the “**DNS Simulation**” link

- Choose the “DNS over HTTPS server” tab
- Set the DNS Over HTTPs URL and click on run.
- The result should be a success that demonstrates your DOH server works as expected.



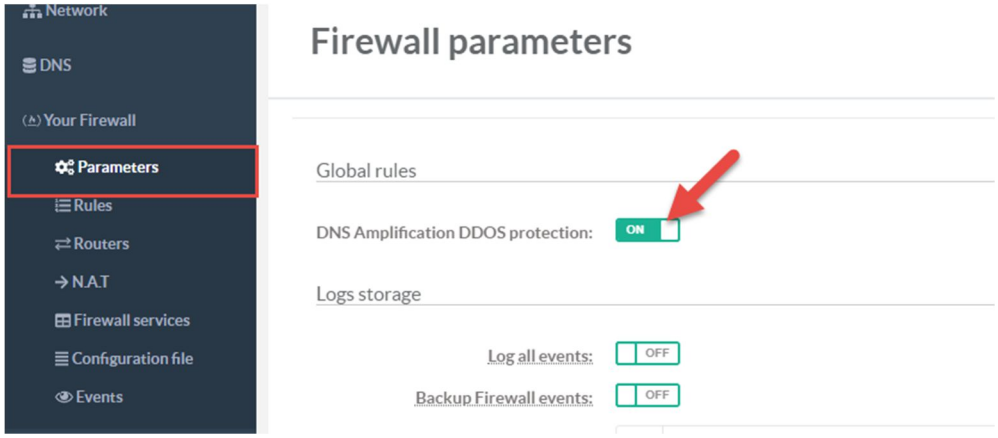
DNS AMPLIFICATION DOS ATTACKS PREVENTION

If you are running a DNS server, then you need to check it is not being co-opted into 'DNS amplification attacks'.
Random nasty servers (typically part of virus created bot-nets) send your DNS server a short request but use a fake source IP address.

1. Your DNS server then sends a (typically) long reply back to that fake source IP address.
2. The fake source IP address gets a lot of traffic from your DNS server.
3. You get abuse complaints.
4. Your server uses a ton of bandwidth

To prevent this behavior, you have to enable the Firewall service using the features section.
In the left menu go to "**Your Firewall**" and "**Parameters**" section.

Under the **Global rules**, turn on the "**DNS Amplification DDOS protection**"



When enabling this option, the firewall will limit the size and the number of requests sent by a remote server.
Usually this prevention will not decrease the DNS answer rate but limit remote systems that try to amplify DNS requests.

Each hour, Artica will update the firewall with a list of bad known domains to be attackers

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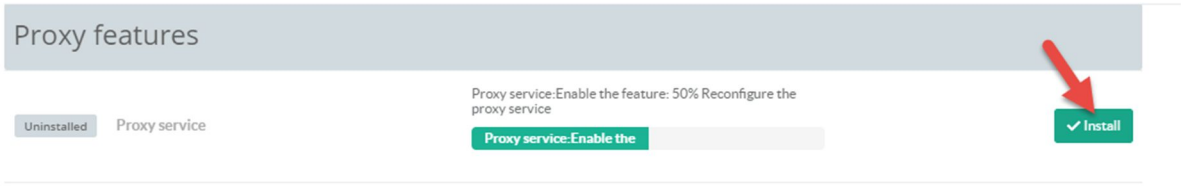
Local networks defined in "**Your networks**" will be not impacted by these rules.

THE HTTP/HTTPS PROXY

The proxy service is designed to handle the HTTP/HTTPs and FTP over HTTP protocols.
With the proxy service you will be able to secure browser connections through the Internet, manage the bandwidth, authenticate users, use the Web-filtering service, use the Web Application Firewall service (WAF)…
The proxy service can be enabled in the "**Features**" service (SEE

) under the “**Proxy features/ Proxy service.**”



AUTHENTICATE MEMBERS

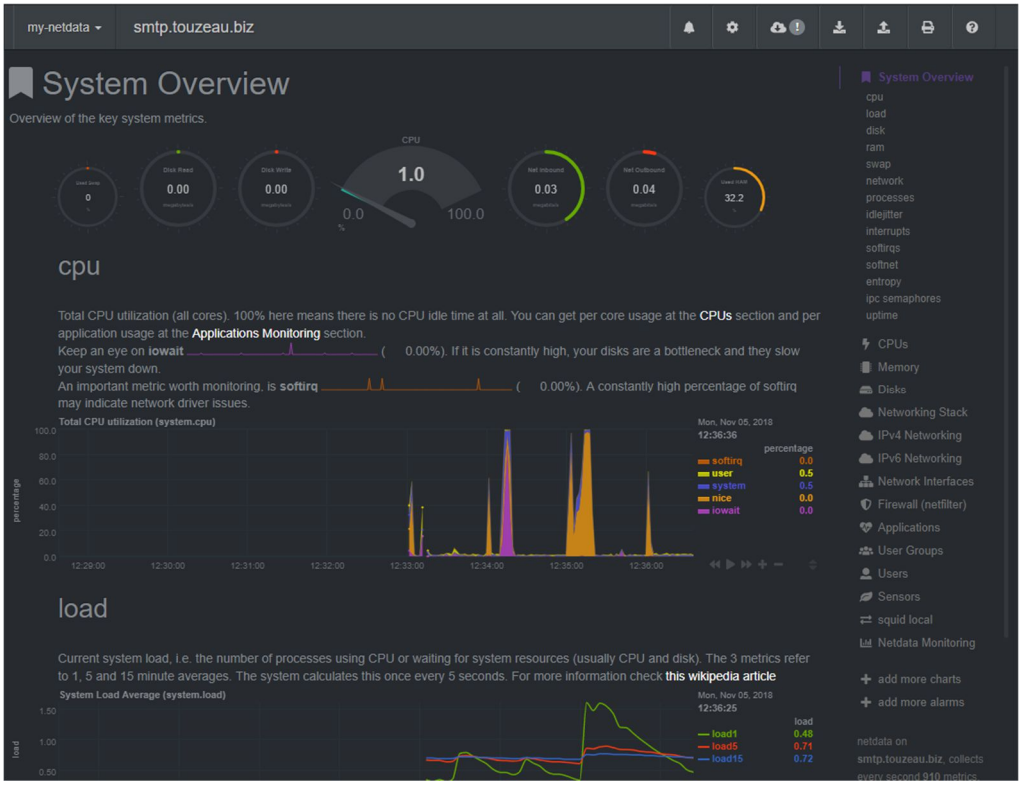
When authenticating users, the proxy is able to trace all requests with the username logged to the system.

LDAP Authentication

Artica supports LDAP v3.
An LDAP directory consists of a simple tree hierarchy.
An LDAP directory might span multiple LDAP servers. In LDAP v3, servers can return referrals to other servers back to the client, allowing the client to follow those referrals if desired.
Directory services simplify administration; any additions or changes made once to the information in the directory are immediately available to all users and directory-enabled applications, devices, and Artica.
Artica supports the use of **external LDAP database servers** or the **local OpenLDAP server** to authenticate and authorize users on a per group.
LDAP group-based authentication for Artica can be configured to support any LDAP-compliant directory
Artica also provides the ability to search for a single user in a single root of an LDAP directory information tree (DIT), and to search in multiple Base Distinguished Names (DNs).

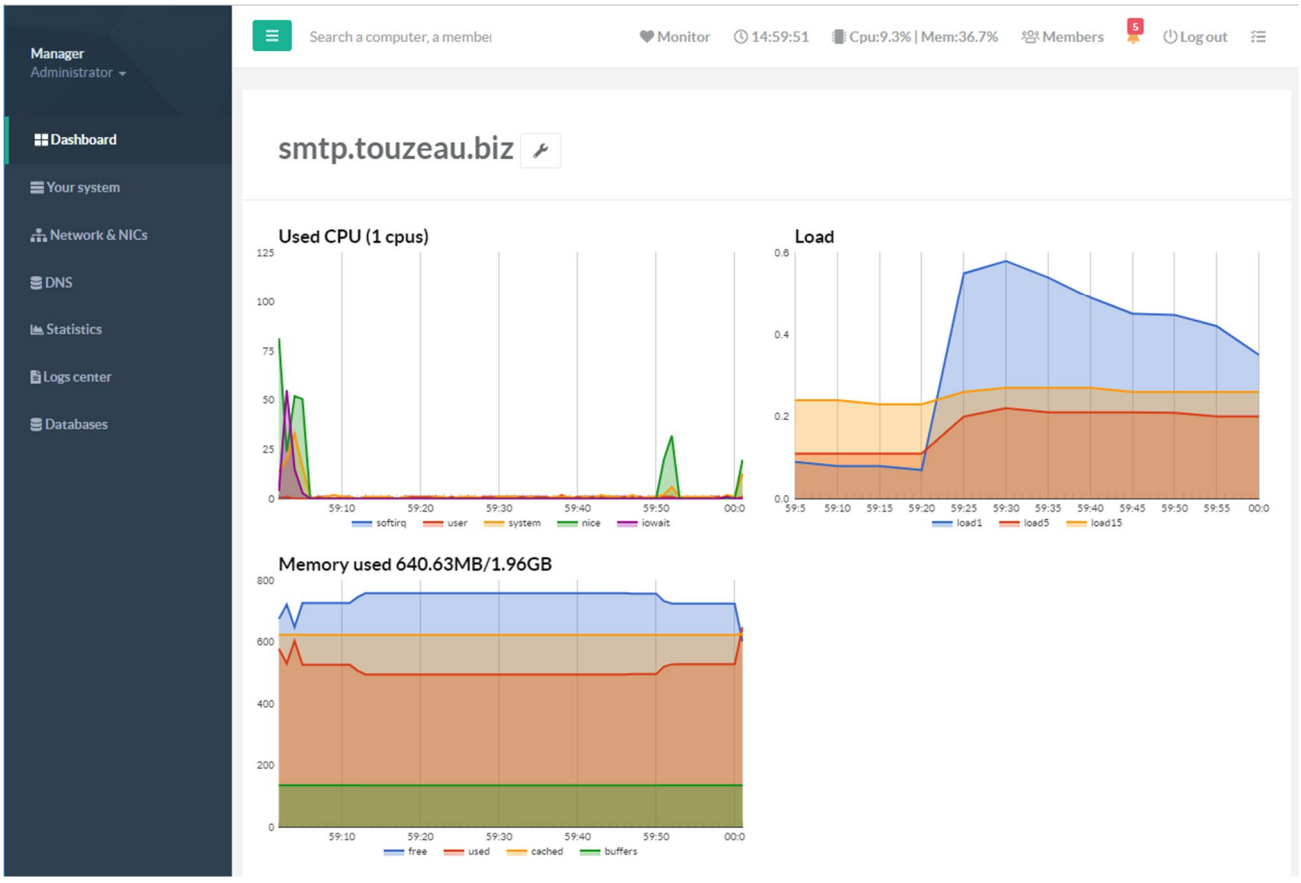
Use the Artica LDAP service.

The Artica LDAP service is an OpenLDAP server using for several services such has the proxy but also for the messaging service or the file-sharing service.
Artica offers groups and members administration like a full user’s management system.
Ensure the Local LDAP service is installed
On the “**Features**” (SEE



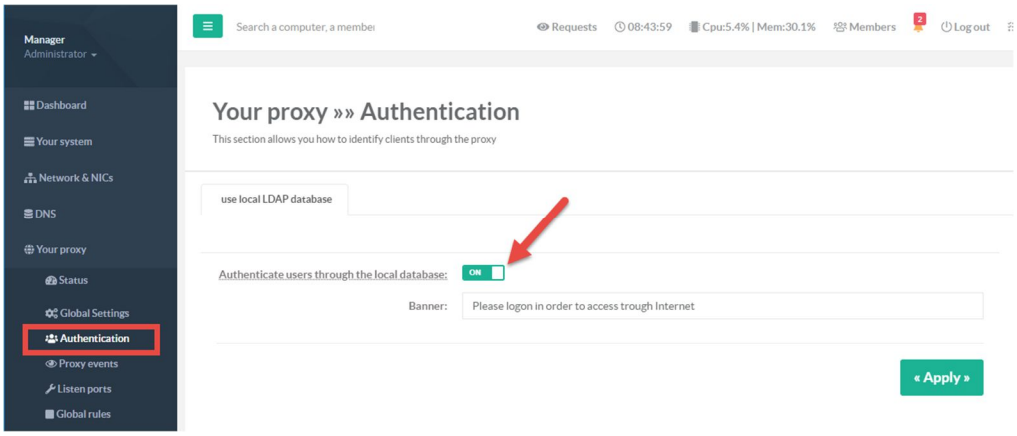
) section ensure that the **LDAP server** (SEE

The dashboard will be switched to new realtime graphs:



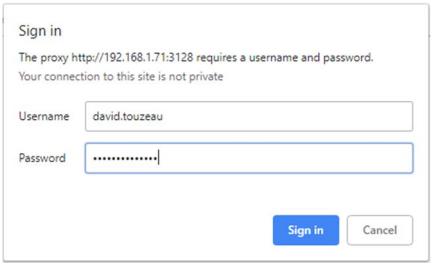
The LDAP server service) is installed inside the “**Members service**” section.

On the left menu, choose “**Your Proxy/Authentication**”, turn on the “**Authenticate users through the local database**” option.

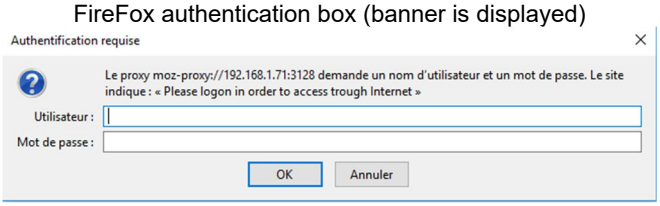


Set the message that will be displayed in the authentication box in the “**Banner**” field

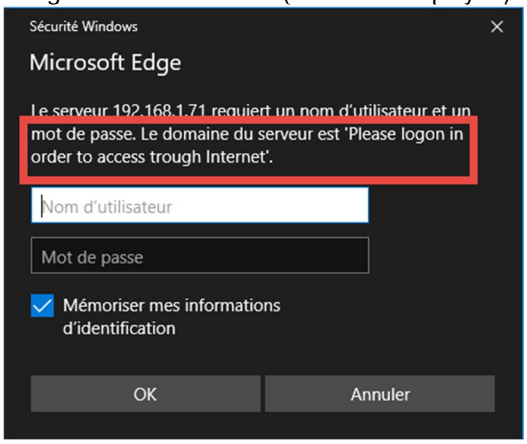
Chrome authentication box (no banner displayed)



FireFox authentication box (banner is displayed)

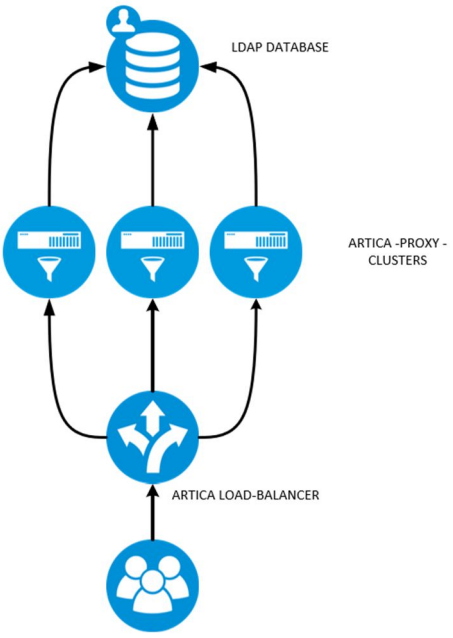


Edge authentication box (banned is displayed)



Use a Remote LDAP Database

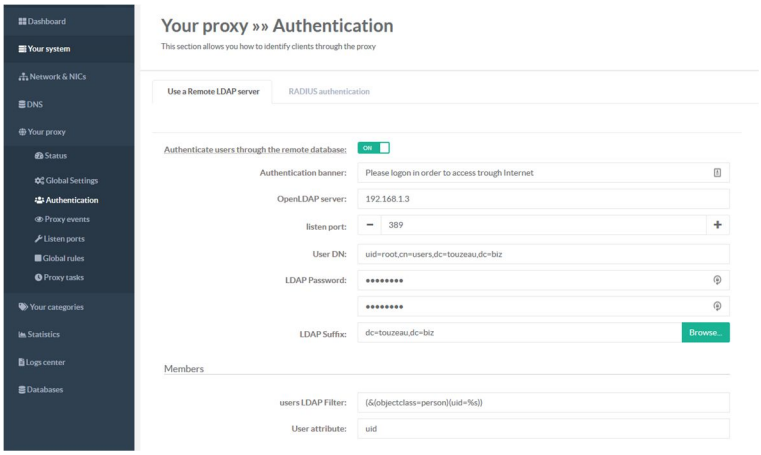
A remote LDAP server is useful when you need to add Artica servers in cluster mode. In this case, all Artica server share the same user's database in order to authenticate users.



If you use a remote LDAP database, this means you did not need the Local LDAP Service.
To access to remote LDAP database authentication, you need to uninstall the LDAP server with in the features section (see

)

On the left menu, choose “**Your Proxy/Authentication**” and click on the “**Use Remote LDAP server.**”



You can use the tool LdapAdmin to browse your LDAP server in order to find the correct information.
Turn ON the “**Authenticate users through the remote database**.”

You have to help Artica to find item using the %s (search string), %u (login user name).

- Define the remote server address and LDAP port.
- **Authentication banner**: The message that will be displayed in the authentication box.
- **User DN**: The LDAP DN for the user that has privileges to read the entire database.
- **LDAP Password**: The LDAP Password for the user that has privileges to read the entire database.
- **LDAP Suffix**: The LDAP database main branch (suffix). If you did not know which "suffix," click on Browse.
- **Users LDAP Filter**: The search pattern to find the user based on its login name.
- **User attribute**: The LDAP attribute that stores the login name.
- **Search members in groups**: The search pattern to find users in the group entry.
- **Attribute**: the LDAP attribute to find the member in the search pattern.
- **Groups search filter**: the LDAP pattern to find the group based on its group’s name.
- **Group attribute**: The LDAP attribute to find the group name.

Example: Synology LDAP server

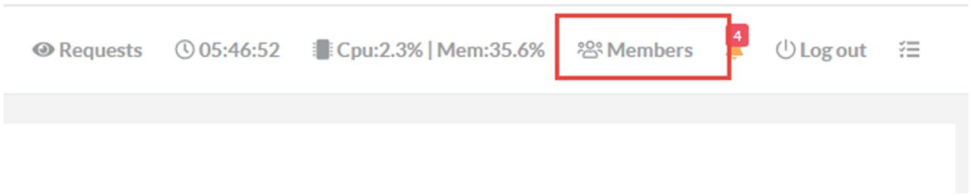
Field	Value
User DN:	uid=root,dc=company,dc=com
Users LDAP Filter:	(&(objectclass=person)(uid=%s))
User attribute:	uid
Search members in groups:	(&(memberUid=%u)(member=*))
Attribute:	member
Groups search filter:	(&(objectclass=posixGroup)(cn=%s))
Group attribute:	cn

Example: Like Active Directory

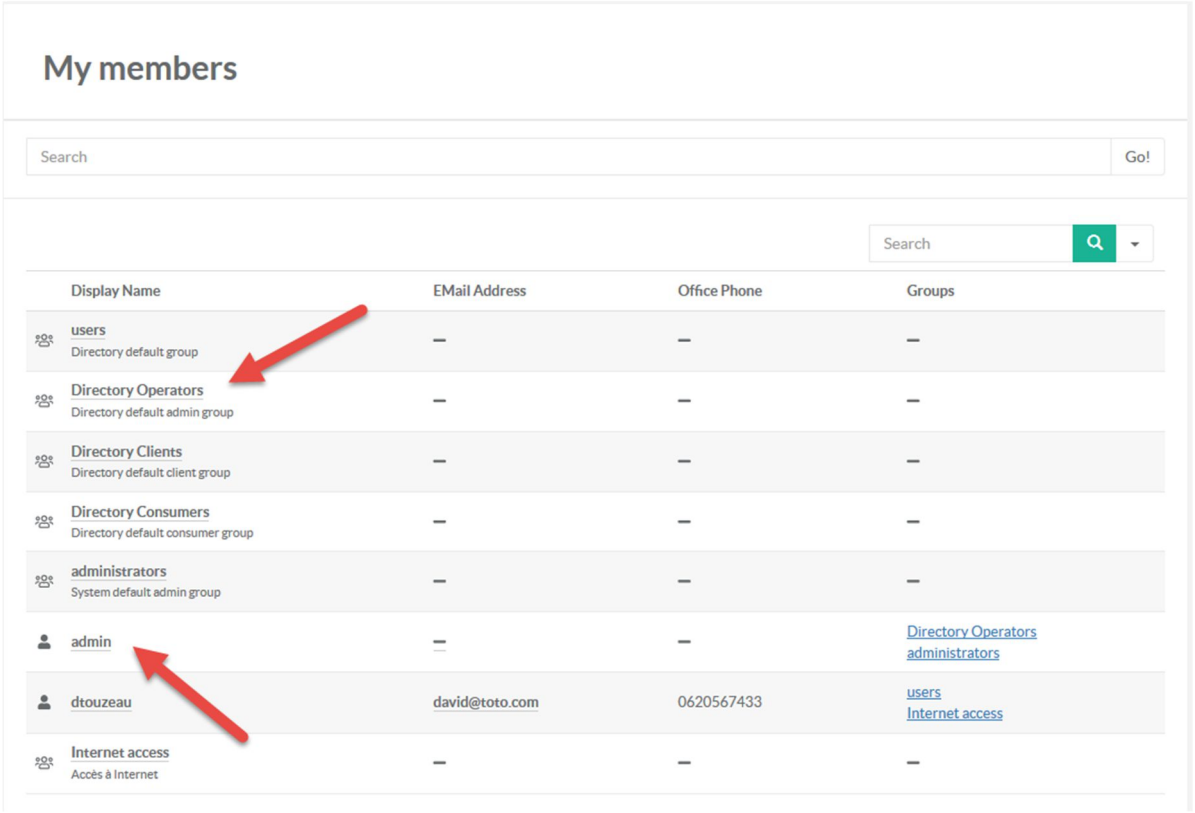
Field	Value
User DN:	root@company.com
Users LDAP Filter:	sAMAccountName=%s
User attribute:	sAMAccountName
Search members in groups:	(&(objectclass=person)(sAMAccountName=%u)(memberof=*))
Attribute:	memberof
Groups search filter:	(&(objectclass=group)(sAMAccountName=%s))
Group attribute:	sAMAccountName

Verify your LDAP patterns

When enabling the Remote LDAP server option, the TOP menu display a “**Members**” option.



This “**Members section**” display a table that parses your remote LDAP server in order to find users and groups.

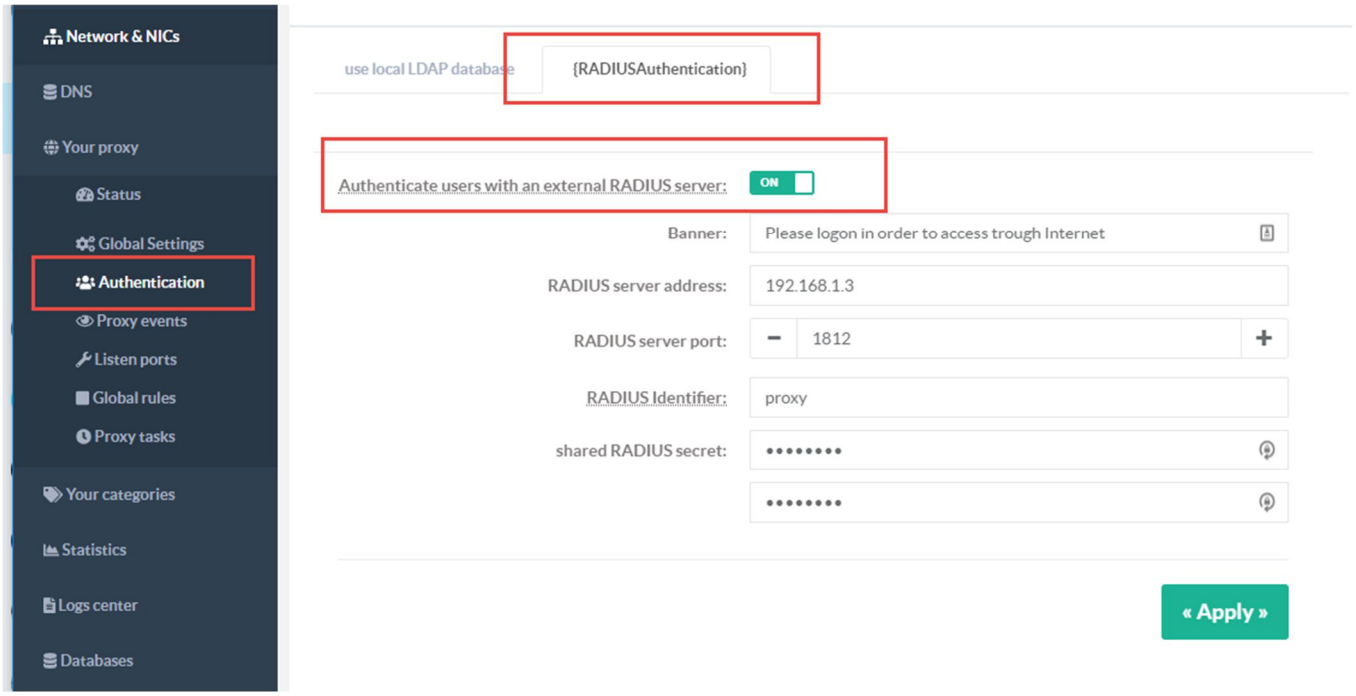


Views are only in read-only mode but if you see correctly your users and groups, this means your LDAP search patterns parameters are correct.

RADIUS Authentication

If you have a RADIUS server, you can connect the Artica proxy to your RADIUS server in order to authenticate users before accessing the Internet.
An authentication popup will be displayed (same as LDAP authentication).
When user sends its credentials, the proxy asks to the radius if the member/password is correct.

On the left menu, choose “Your Proxy/Authentication” and click on the Radius Authentication tab.
Enable the Authenticate users with an external RADIUS server option



- Set the message that will be displayed in the authentication box in the “**Banner**” field
- **RADIUS server address:** specifies the name or address of the RADIUS server to connect to.
- **RADIUS server port:** Specifies the port number or service name where the proxy should connect. (default to 1812)
- **RADIUS identifier:** specifies what the proxy should identify itself as to the RADIUS server.
  This directive is optional.
- **Shared RADIUS secret:** specifies the shared RADIUS secret.

Use Active Directory

Artica is compatible Active Directory on Microsoft Windows 2000,2003,2008,2012,2016 (THIS FEATURE REQUIRE AN ENTERPRISE LICENSE).
The main benefit using the Active Directory is the “silent authentication” means the browser automatically sends the Windows session credentials to the proxy using NTLM or Kerberos method.
In this case, the user did not have to put its credentials in a login box.

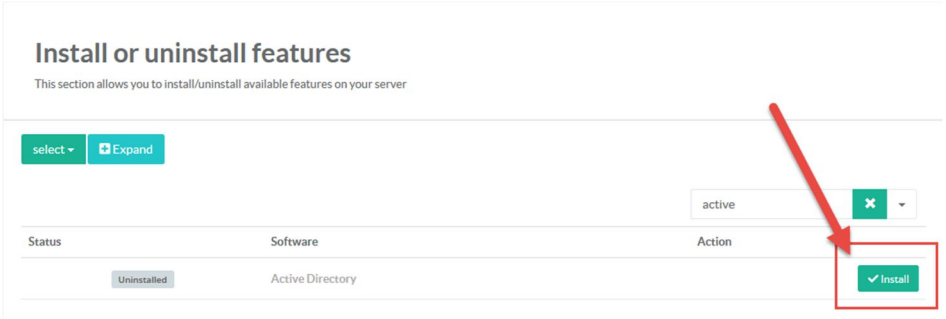
How to join Artica to your Active Directory server?

You need to follow these requirements:

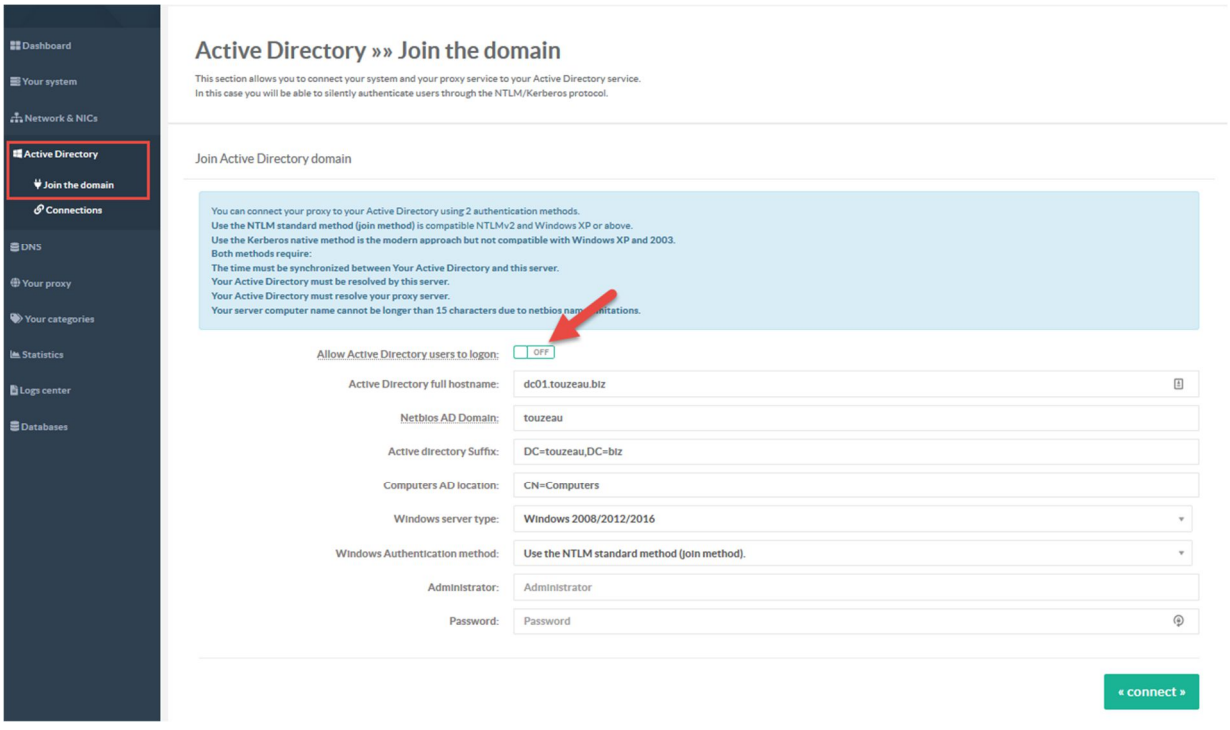
- The Artica server hostname must be fewer than 16 characters.
- The server domain name must be the same of your Active Directory domain.
- The Artica server must correctly resolve the Active Directory domain (in most cases the first DNS used by Artica is the Active Directory server).
- The time must be the same between the Artica server and the Active Directory server name.
- The Account used must have "join" domain privileges.

Join the Microsoft domain.

After checking all these topics, go to the “**Your system/Features**” on the left menu, search the item “**Active directory**”
Click on “**Install**” to enable the feature.



After enable the feature, a new “**Active Directory**” menu is displayed, select the “**Join the domain**” menu option.



Note: To obtain all required information, with PowerShell on your Active Directory server, type “`Get-ADDomain`”

- **Allows Active Directory users to logon**: Allow users to be connected to the Artica Web console using their Windows credentials
- **Active Directory full hostname**: Set the Active Directory full server name
- **Netbios AD domain**: Set the Windows workgroup displayed on the network
- **Suffix**: The Active Directory LDAP suffix.
- **Computers AD location**: Which LDAP branch to store the Artica server
- **Windows server type**: Your version of your Active Directory server.
- **Windows Authentication method**: Which method to link Artica to the domain (see above)
- **Administrator**: The user that have join workstation privileges to the domain.

Kerberos or NTLM ?

There are differences between these 2 methods.

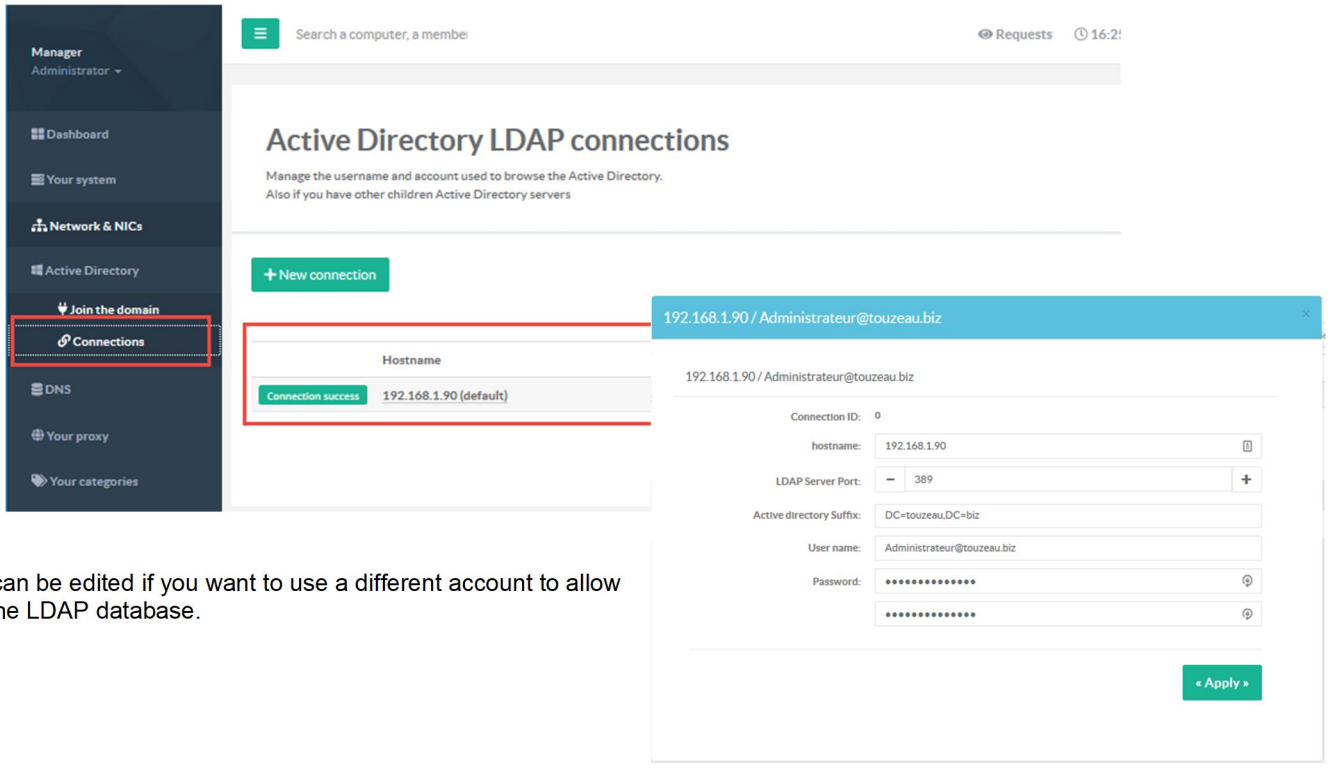
Kerberos native authentication method
Basically, Kerberos Authentication is the modern method to join the domain.

- It is not compatible with Windows XP and Windows 2003.
- On browsers settings you must define the full proxy hostname (not the IP address)
- See (https://docs.microsoft.com/en-us/windows/desktop/secauthn/microsoft-kerberos)

NTLM standard method:

Is a very old method used to communicate in the Microsoft domain
It is compatible with all systems.
It is less secure (password is in clear text when sniffing the network).
See (https://docs.microsoft.com/en-us/windows/desktop/secauthn/microsoft-ntlm)

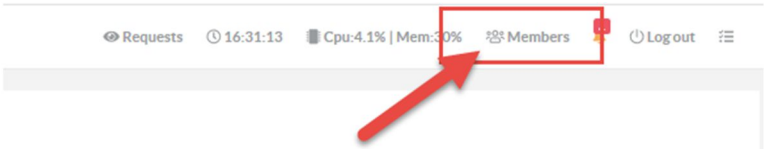
After connecting to the Active Directory domain, open the menu "**Connections**"
This section lists the "**LDAP connections**" to the Active Directory.
It helps Artica to retrieve groups and members thought your Active Directory LDAP service (389 port).
Your Active Directory connection is listed here and must be "success".

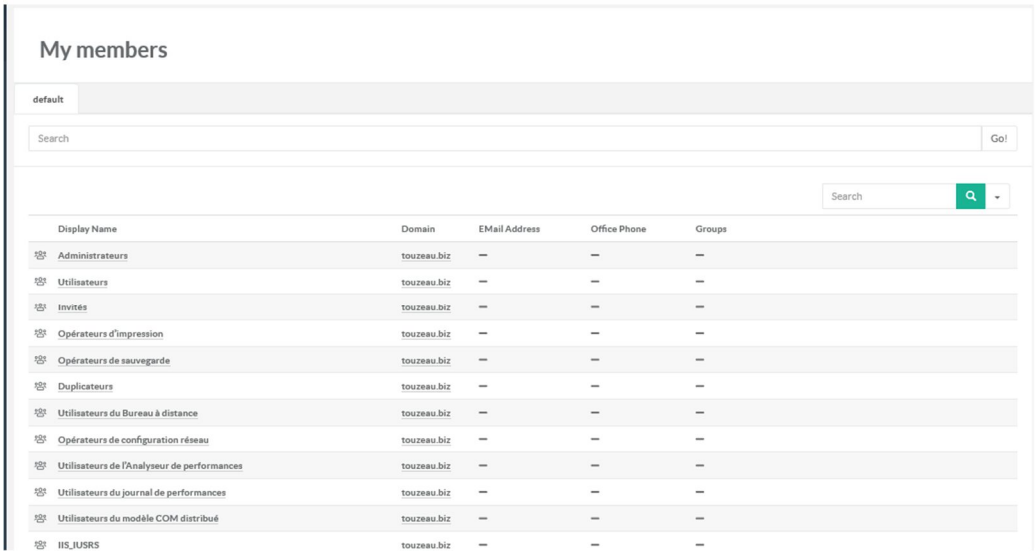


This connection can be edited if you want to use a different account to allow Artica browsing the LDAP database.

Active Directory users and groups

On the TOP menu, click on the “Members” link.
This section allows you to browse the Active Directory database in “read-only” mode.

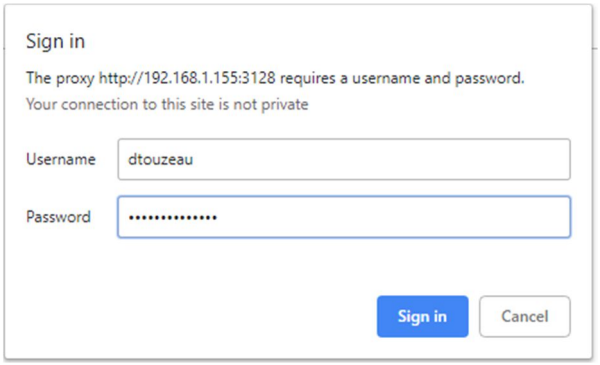




What about users outside the Windows domain?

By default, the proxy is defined in “Mixt mode”, Kerberos/NTLM for workstations joined to the Microsoft domain and basic authentication with computers outside the domain such has Linux/Unix boxes/workstations.

User just needs to put its login name and password like this screenshot, do not use DOMAIN\USER or DOMAIN/user or user@domain



Restful API

If the RESTful API is enabled on the “system” section, you can send a REST command to turn ON the Active Directory.
This command adds Active Directory settings and join the Artica server to the domain.

```
POST https://192.168.1.1:9000/api/rest/system/activedirectory/settings
```

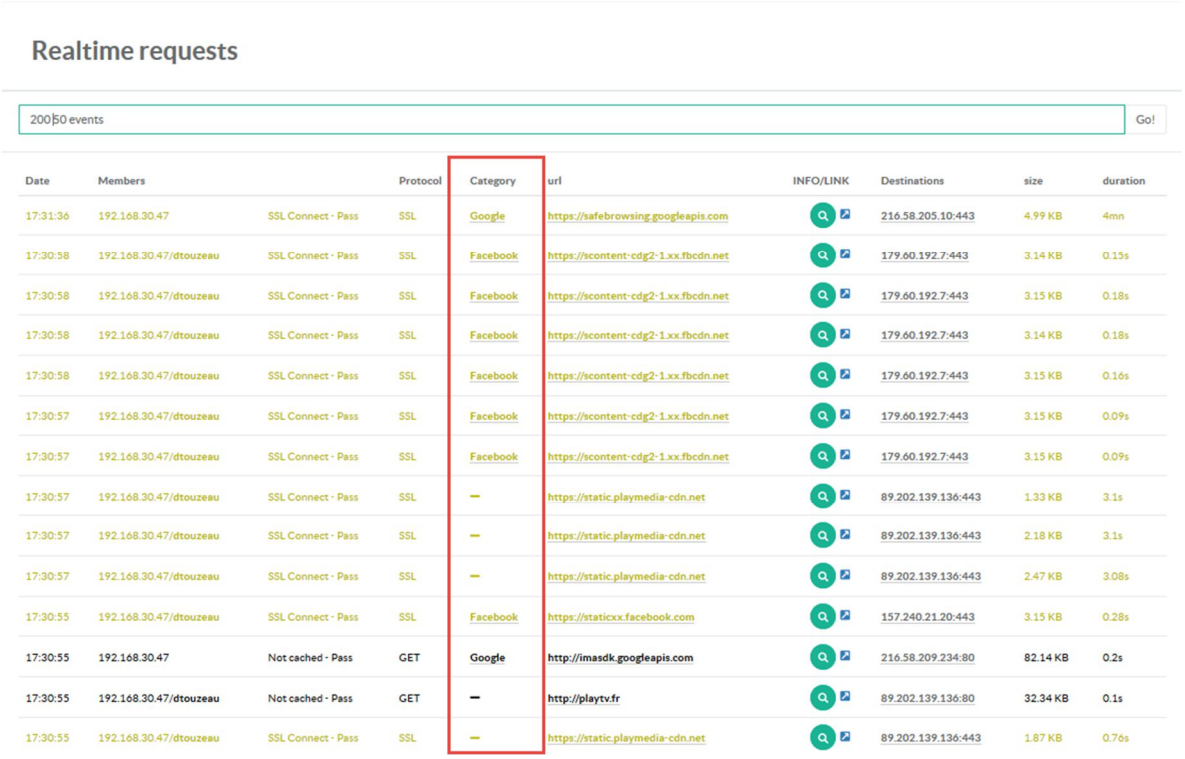
Inside the POST, define an array like this example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: kyM6ixXavn8sE7P9GoBYgX3by6ZaRCc5";

$MAIN_URI="https://192.168.1.173:9000/api/rest/system/activedirectory/settings";


curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

//WINDOWS_SERVER_TYPE: WIN_2003 or WIN_2008AES for 2008 > 2016
//WindowsActiveDirectoryKerberos 1 = Full kerberos, 0 = NTLM


$POSTz= array("
WINDOWS_SERVER_TYPE"=>"WIN_2008AES",
"ADNETBIOSDOMAIN"=>"LABO",
"ADNETIPADDR"=>"192.168.1.23"
"fullhosname"=>"dc01.labo.corp",
"WINDOWS_SERVER_NETBIOSNAME"=>"dc01",
"WINDOWS_DNS_SUFFIX"=>"labo.corp",
"COMPUTER_BRANCH"=>"cn=computers",
"WINDOWS_SERVER_ADMIN"=>"Administrator",
"WINDOWS_SERVER_PASS"=>"Password",
"WindowsActiveDirectoryKerberos"=>0);



curl_setopt($ch, CURLOPT_POSTFIELDS, $POSTz);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){
   echo "Error $errno\n".curl_error($ch)."\n";
   curl_close($ch);
   die();
}

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
   echo "Error $CURLINFO_HTTP_CODE\n";
   die();
}
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";
```

CATEGORIZATION

Categorization on the proxy is an important topic, Artica team try to categorize all web sites but it is a hard task.
Currently, Artica is able to categorize more than 35.000.000 of main domains/Public IP addresses.

When using the real-time logs, you can see that sometimes a category is associated with a domain.
By default, only a few domains can be categorized, TOP 50 of Internet sites are hard coded inside the Artica engine.



Benefits

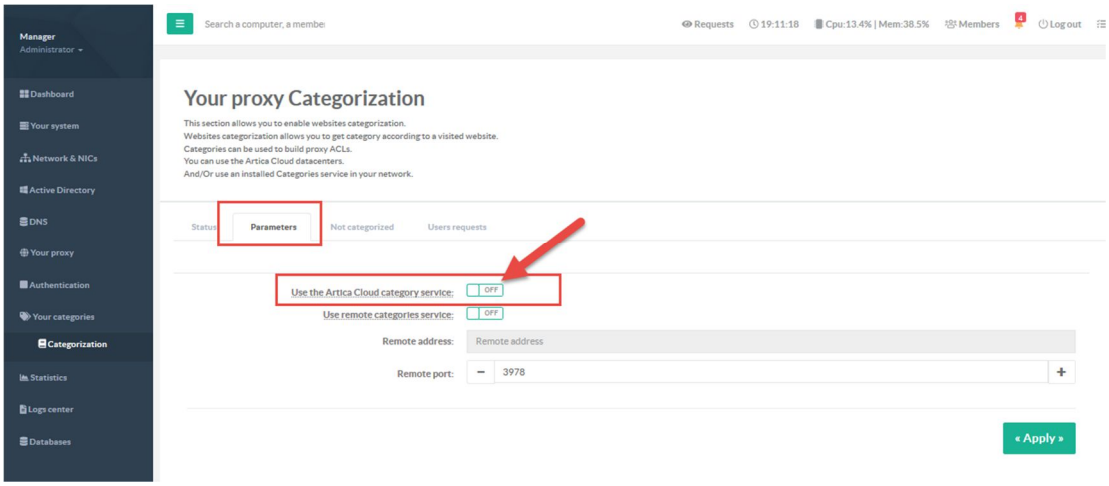
Using categories provide 3 benefits:

1) **For statistics purpose**: You can extract statistics according bandwidth/requests/users per category.
2) **For ACLS in the Web Application Firewall**: You can create deny/allow rules according categories.
3) **For Bandwidth limit**: You can limit bandwidth according categories.

You can increase the categorization rate using 2 methods, **passive** method and **active** method.

The passive method

The passive method (REQUIRE ENTERPRISE LICENSE) use the Artica RESTful API to retrieve the category for each visited site.
In this method, your Artica server use only the “read-only” mode.
Your Artica server request to our servers based on the Internet which category is associated to the current requested site.
To enable the passive method, go to the “**Your categories/categorization**” on the left menu.
Select the “**Parameters**” tab
Enable the option “**Use the Artica Cloud category service**”



The Active Method

The Active method allows your Artica to query categories from a local service.
In this way, you are able to create your own categories.
The local service will be in charge of respond first with your categories and query Artica databases if your categories did not store the queried domain.

Using a local service requires:

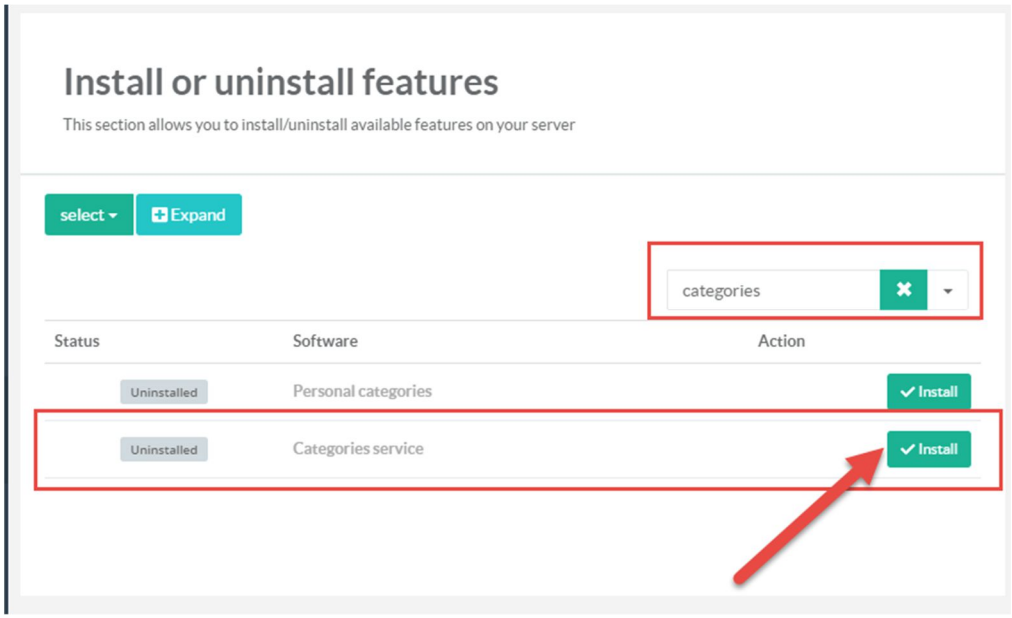
- At least 700 MB memory free. *If you plan to use Artica Databases the service should handle 3 GB of memory.*
- Download ARTICA databases periodically *if you plan to use Artica Databases.*

Benefits:

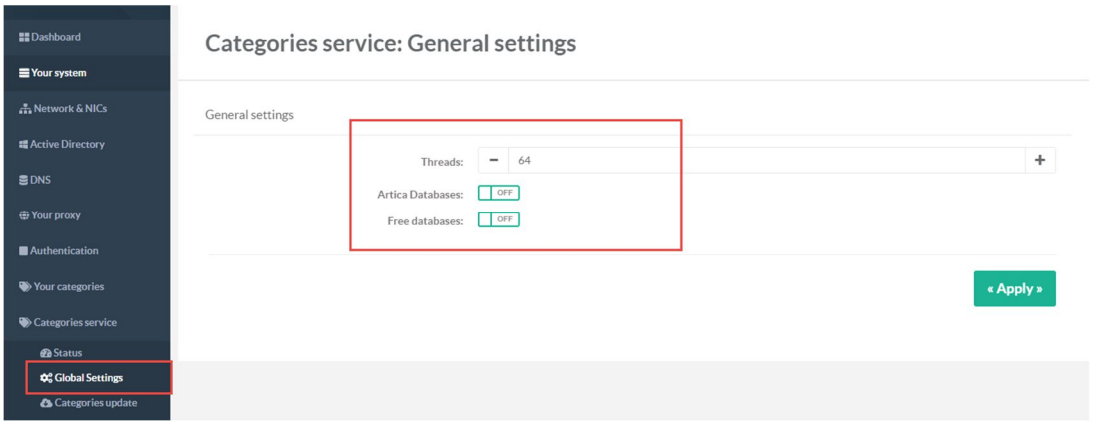
- Retrieve categories is faster than using the Artica cloud service.
- If you have other Artica servers, you can provide a local categories service shared between Artica servers.
- You can create and share your own categorization.

Install the category service.

On the "**features**" section, type "**Categories**" in the search engine.
Install the feature "**Categories service**"



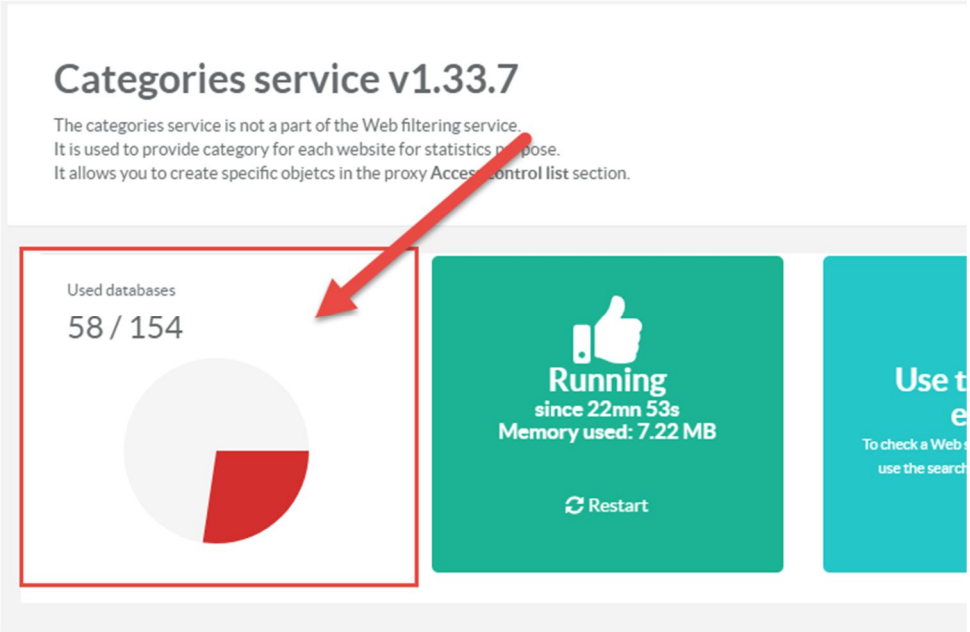
After installing the feature, the service is running using 0 database.
On the left menu, choose "**Categories service**" and "**Global Settings**"



You have to choose which databases you want to add into your category service:

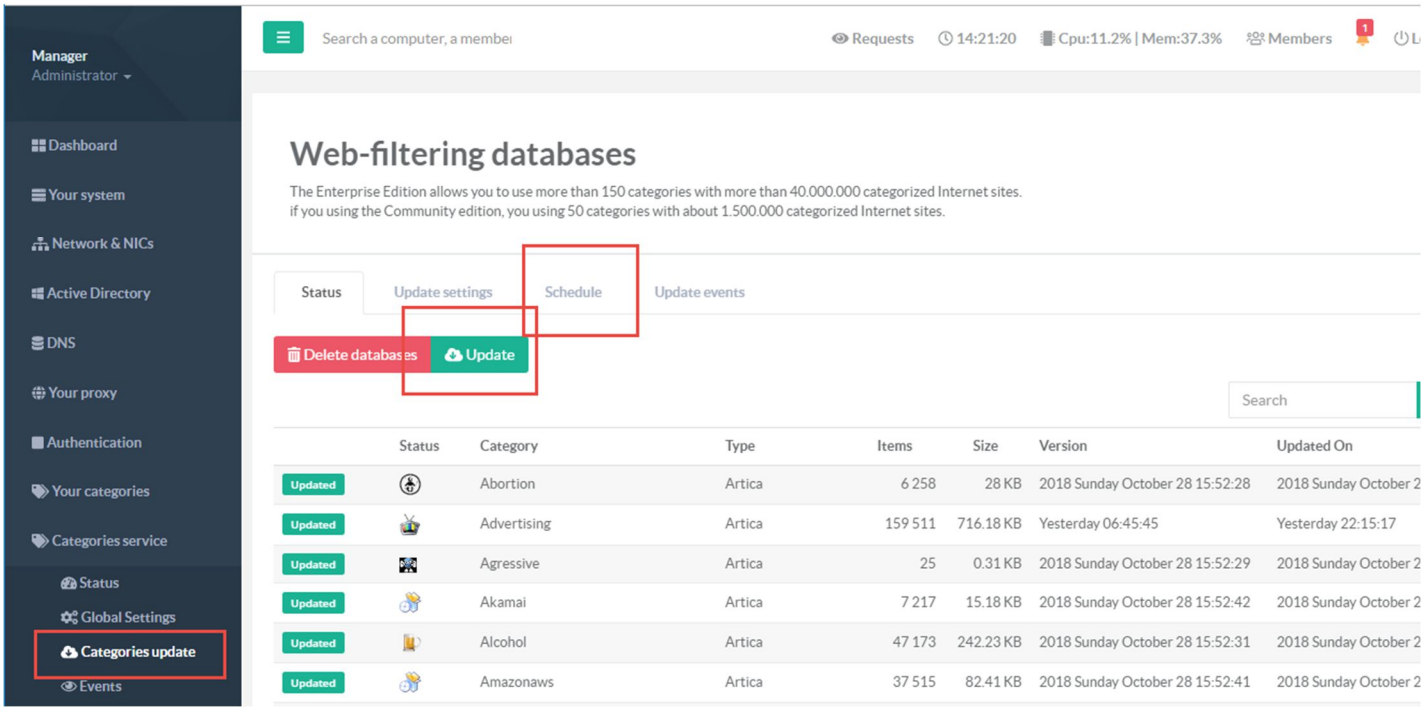
- **Artica database**: 150 categories, 55.000.000 of categorized websites - require 2.7GB of free memory (AVAILABLE WITH A CORPORATE LICENSE)
- **Free database**: 58 categories, 3.000.000 categorized websites - require 700 MB of free memory.

After enabling public databases, the status displays the number of categories used on your server.



Define the schedule for updating database.

Select the menu "**Categories Update**".
The status tab displays all databases downloaded from your server.
By default, Artica updates databases **each day at 03:00 AM**, you can change it inside the "**Schedule**" tab.
If you need to perform update now, click on the "**Update button**"



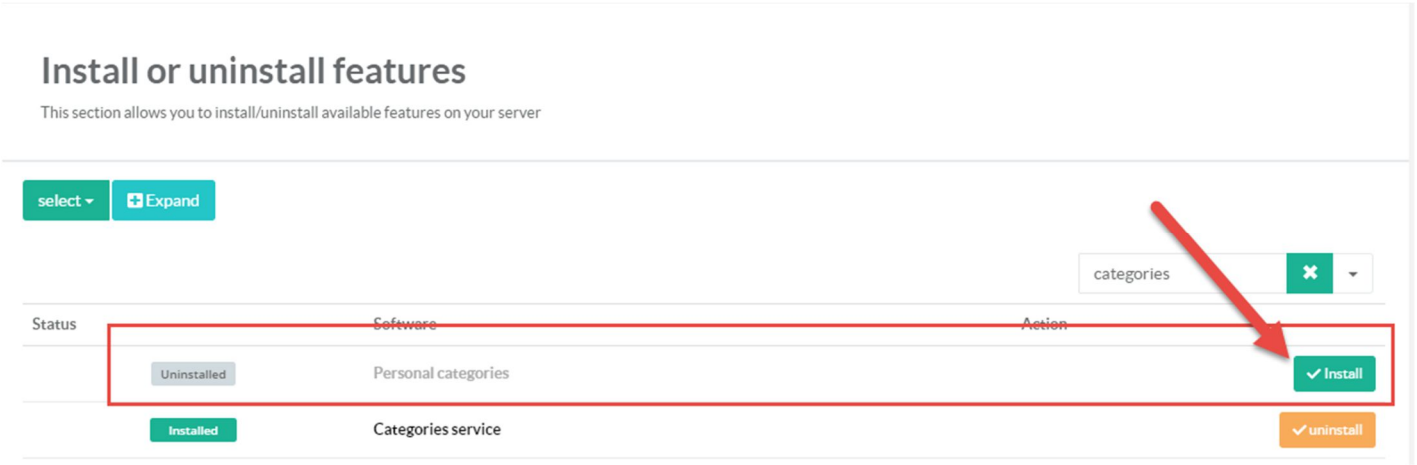
Create your own categories

With Artica you're allowed to build your own categories.
This feature adds several benefits for your Categorization/DNS filter/Web-Filtering service:

1. Your categories overload the public databases, you are able to enforce a website to be categorized in another category.
2. You can categorize a website without need to wait Artica Team to release a new public database.
3. You can manage your categories thought RESTful API.

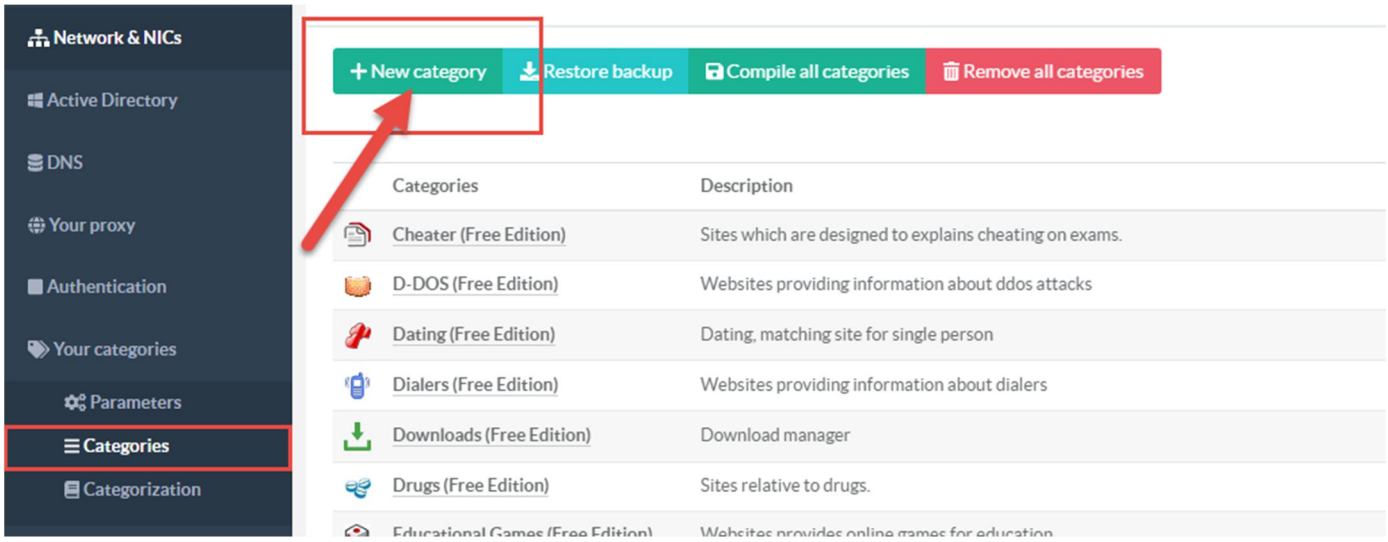
Install the personal categories feature

To enable personal categories, go into the **features** section and install the "**Personal categories**" feature (THIS FEATURE REQUIRES AN ENTERPRISE LICENSE).

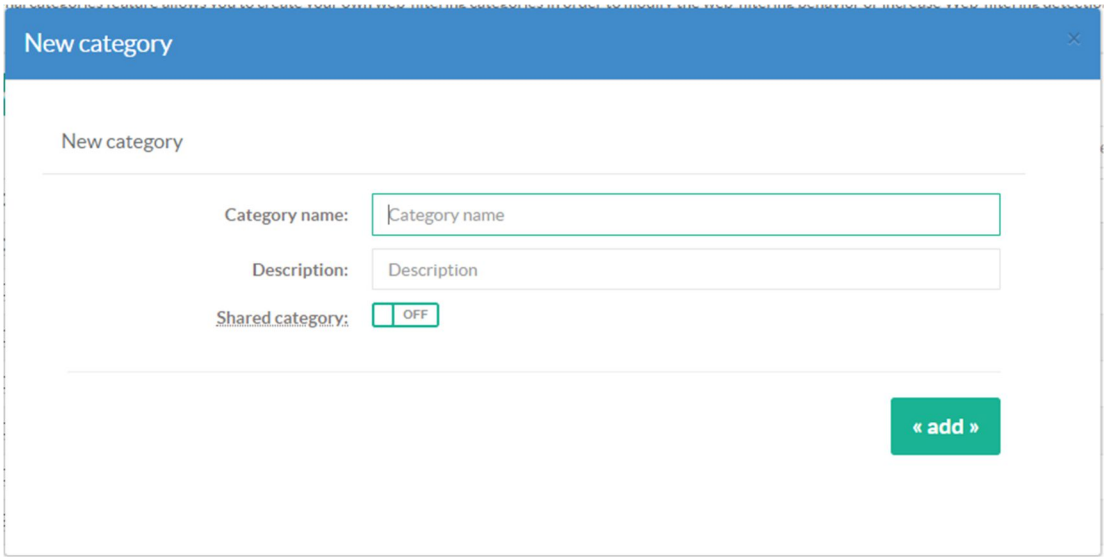


Create your first category

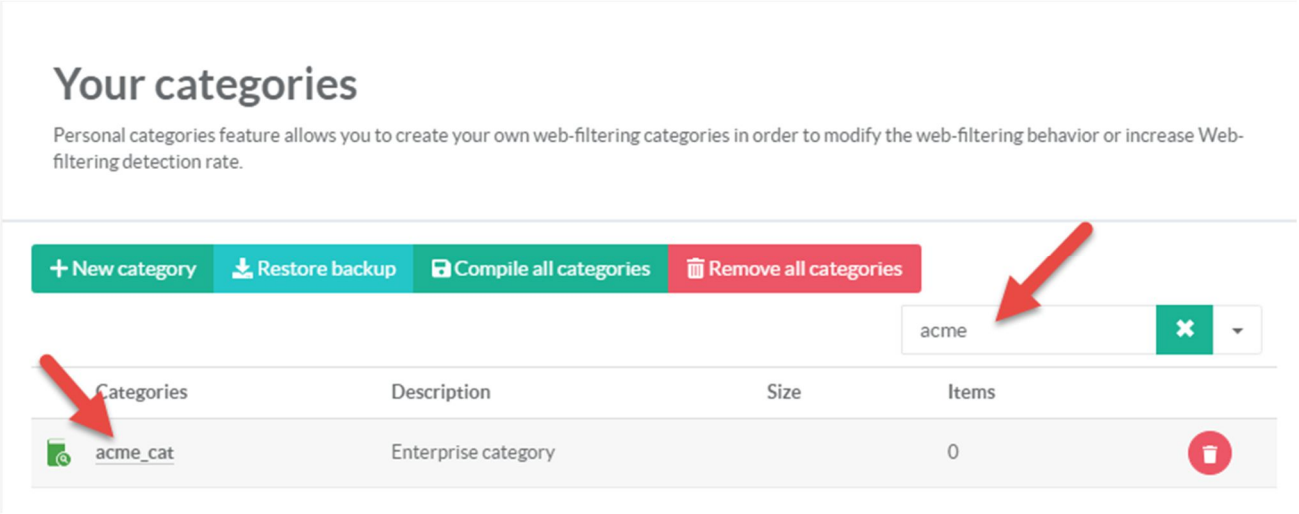
After installing the Personal categories, on the left menu, choose "**Your categories**" and "**Categories**".
In this section, Artica lists all available categories.
When creating a new category, ensure its name will not the same in officials' categories.
If you want to remove officials' categories, go into "Your Categories" and parameters, enable the checkbox "**Hide officials' categories in the main list.**"



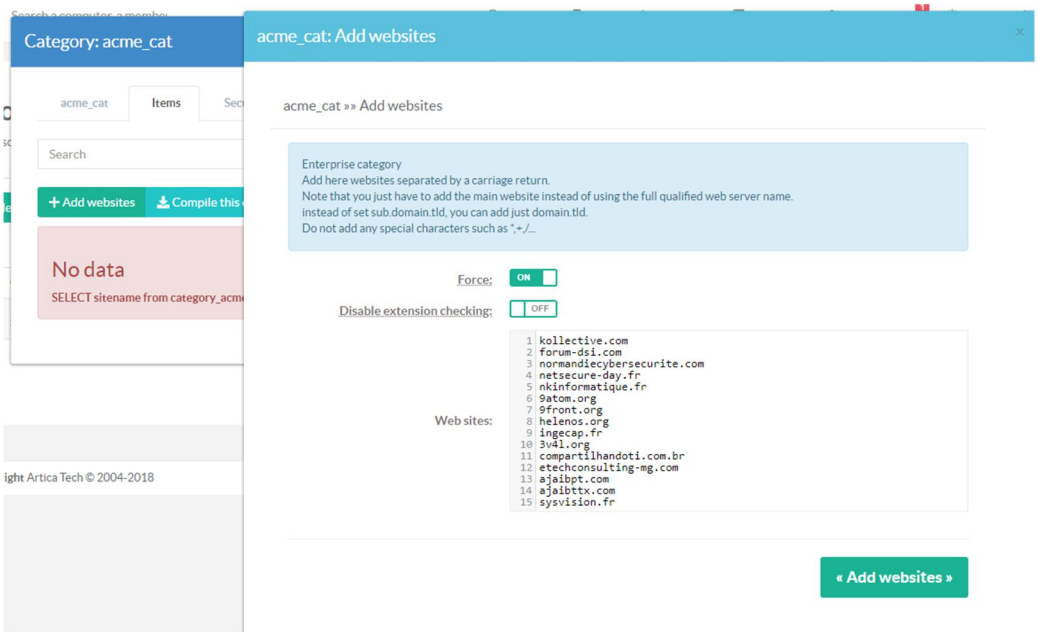
Give the **category name** and the **description**.
The "**Shared**" category allows your members to add/remove items inside this category.



After creating your category, search it inside the table and click on it.

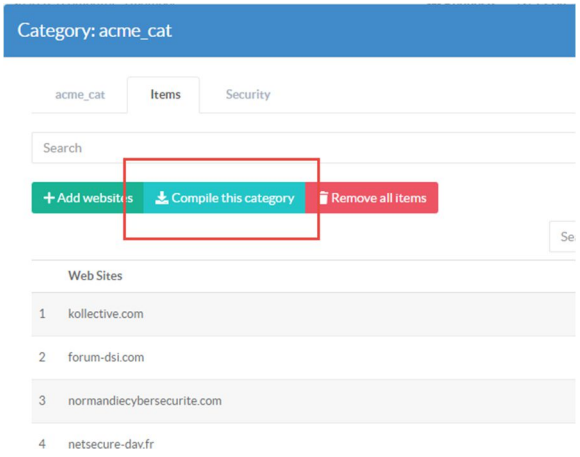


- Select the “Items” tab.
- Click on Add websites.
- You can add several websites by separate them with a carriage return.
- The **Force** option enforce saving an already categorized website inside the category
- **Disable extension checking** force to store a website without an extension (.com, .fr, .de, .it….)



Compiling your categories.

Add websites inside a category doesn't add them to the Web-Filtering service or the Categories services.
Websites are stored inside the local PostgreSQL database and must be saved on disk inside a preformatted file.
For compiling your categories, you have 3 ways:



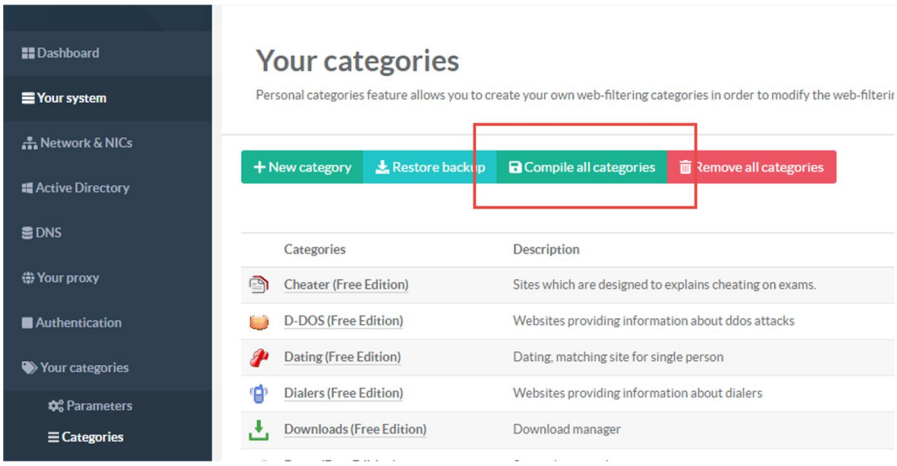
Compiling a defined category

On the category section, click on the button "**Compile this category**".
Artica will compile your category and reconfigure your category service and reload your Web-filtering service.

Compiling all categories

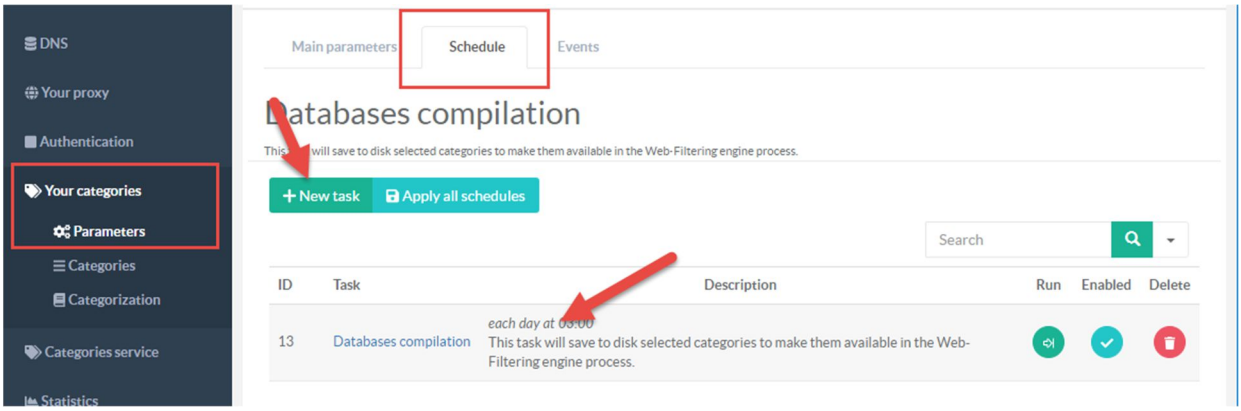
On the list of all available categories, click on the button "**Compile all categories.**"

This task compiles all categories even though there are not changes in your categories.



Compilation Schedules

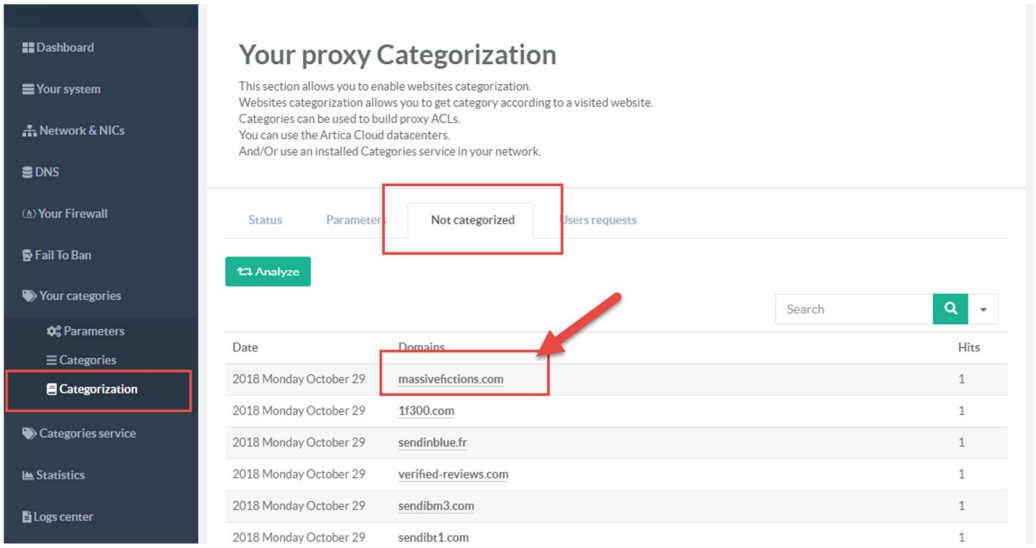
"**Your Categories**" and **Parameters** click on **schedule** tab.
The scheduled compilation compiles only modified categories, in this case, you are able to create an hourly schedule.
Only modified categories will be compiled. If there is no changes, the task will do nothing.



Uncategorized websites

If your server act as Categories server for others Artica proxies, your server is able to store all websites that are uncategorized.
To define an uncategorized website, your category server request the categories on Artica Cloud (if enabled), on the second categories server and on your categories service.

- On the left menu, click on "**Your categories**" and "**Categorization**".
- Select the "**Not categorized**" tab
- You will see the list of uncategorized websites and you are able to categorize it.



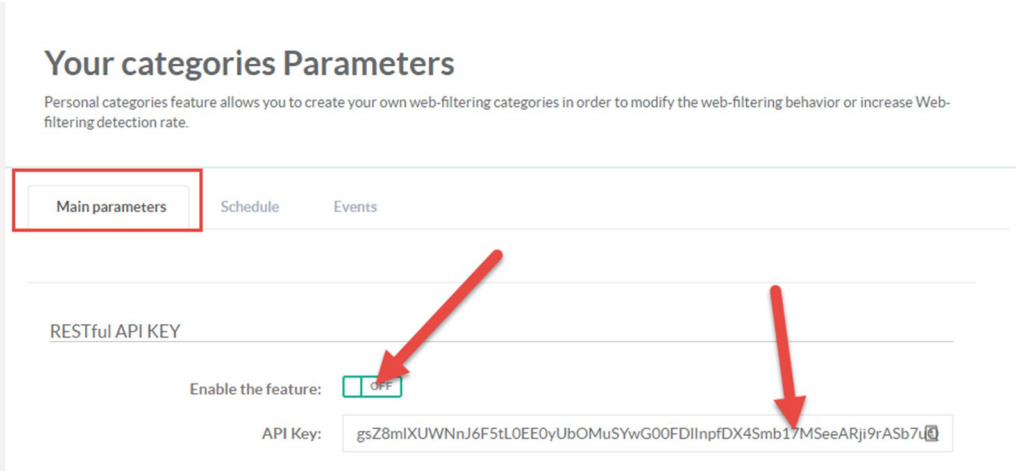
This section is available by RESTFul API (see above).

RESTful API for categories

You can offer RESTful API in order to Add/remove/compile your categories.
In this case, any software compatible with RESTful will be able to maintain your categories in your Artica server.

Enable the RESTFul service for categories.

On the left menu, choose "**Your categories**" and "**Parameters.**"



1. On the Main parameters, turn on the "**Enable feature**" on the RESTful API KEY section.
2. Change or validate the API Key defined.
3. After Apply the configuration, you can use these commands to manage your categories.

RESTful commands for categories.

List available categories

```
GET https://192.168.1.1:9000/api/rest/category/list
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV28l4wro1eCU4UHL";
$MAIN_URI="https://192.168.1.1:9000/api/rest/category/list";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){ echo "Error $errno\n".curl_error($ch)."\n$response\n"; curl_close($ch); die(); }
$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));
if($CURLINFO_HTTP_CODE<>200){ echo "Error $CURLINFO_HTTP_CODE\n"; die(); }
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success, retreive the list of categories\n----------------------------\n";

foreach ($json->categories as $category_id=>$line){
   //NAME category Name, KEY: Category Key
   echo "[ID:$category_id]: {$line->NAME}, ({$line->KEY})\n";
}
```

Create a new category

```
    POST https://192.168.1.1:9000/api/rest/category/add
    Field: name: Name of category
    Field: desc: Description of the category
    Return array: status (true/false), message (message error), category_id ( new category ID)
```

Example

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV28l4wro1eCU4UHL ";
$MAIN_URI="https://192.168.1.1:9000/api/rest/category/add";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$POSTz=array("name"=>"My New category","desc"=>"This is my description");
curl_setopt($ch, CURLOPT_POSTFIELDS, $POSTz);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){ echo "Error $errno\n".curl_error($ch)."\n$response\n"; curl_close($ch); die(); }
$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));
if($CURLINFO_HTTP_CODE<>200){
   echo "Error $CURLINFO_HTTP_CODE\n";
   $json=json_decode($response);
   if(!$json->status){echo "Failed $json->message\n";die();}
   die();
}
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}

echo "New category id $json->category_id created...\n";
```

Categorize a Web site “oep.org.bo” into the category “My new Category” ID 223

```
GET https://192.168.1.1:9000/api/rest/category/223/oep.org.bo
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV28l4wro1eCU4UHL ";
$MAIN_URI="https://192.168.1.1:9000/api/rest/category/223/oep.org.bo";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);

if($errno>0){ echo "Error $errno\n".curl_error($ch)."\n"; curl_close($ch); die(); }

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE==503){
    // Already categorized, get the current category in json
    $json=json_decode($response);
    echo "Already categorized Category id $json->category_id\nServer said: $json->message\n";
    exit;
}

if($CURLINFO_HTTP_CODE<>200){
    echo "Error $CURLINFO_HTTP_CODE\n";
    $json=json_decode($response);
    if(!$json->status){echo "Failed $json->message\n";die();}
    die();
}
$json=json_decode($response);
if(!$json->status){
    echo "Status Return, Failed with message: $json->message\n";
    die();
}
echo "Success category $json->category_id $json->message\n";
```

Move Website oep.org.bo from category number 223 to category number 228

```
GET https://192.168.1.1:9000/api/rest/category/228/oep.org.bo/223
```

Delete Website oep.org.bo from category number 228 (put 0 after /category/)

```
GET https://192.168.1.1:9000/api/rest/category/0/oep.org.bo/228
```

List last 250 Websites from category number 223

```
GET https://192.168.1.1:9000/api/rest/category/223/list
```

List last 250 Websites from category number 223 where websites like *.com.br

```
GET https://192.168.1.1:9000/api/rest/category/223/list/.com.br
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV28l4wro1eCU4UHL";

$MAIN_URI="https://192.168.1.1:9000/api/rest/category/223/list/.com.br";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){ echo "Error $errno\n".curl_error($ch)."\n"; curl_close($ch); die(); }

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
   echo "Error $CURLINFO_HTTP_CODE\n";
   $json=json_decode($response);
   if(!$json->status){echo "Failed $json->message\n";die();}
   die();
}
$json=json_decode($response);

if(!$json->status){
   echo "Status Return, Failed with message: $json->message\n";
   die();
}

$count=$json->count;
for($i=0;$i<$json->count;$i++){
   echo "site:".$json->sites[$i]."\n";
}

echo "Success\n";
```

Get the category of oep.org.bo

```
GET https://192.168.1.1:9000/api/rest/category/get/oep.org.bo
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV2814wro1eCU4UHL ";
$MAIN_URI="https://192.1368.1.1:9000/api/rest/category/get/oep.org.bo";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){ echo "Error $errno\n".curl_error($ch)."\n"; curl_close($ch); die(); }

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE==404){
    echo "Not categorized $json->message\n";
    exit;
}

if($CURLINFO_HTTP_CODE<>200){
    echo "Error $CURLINFO_HTTP_CODE\n";
    $json=json_decode($response);
    if(!$json->status){echo "Failed $json->message\n";die();}
    die();
}
$json=json_decode($response);
if(!$json->status){echo "Status Return, Failed with message: $json->message\n";die();}
echo "Success Category:$json->category_id message from server: $json->message\n";
```

Compile all categories

```
GET https://192.168.1.1:9000/api/rest/category/compile
```

Compile only category 228

```
GET https://192.168.1.1:9000/api/rest/category/compile/228
```

Get the list of last 250 uncategorized websites (order by hits)

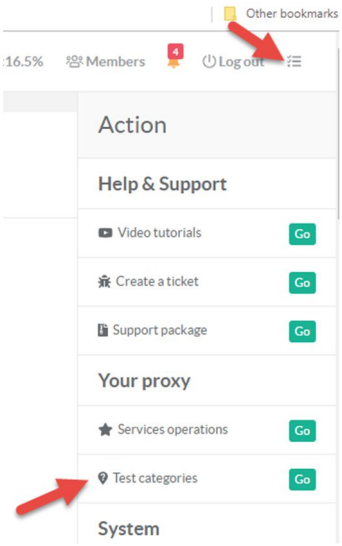
```
GET https://192.168.1.1:9000/api/rest/category/uncategorized
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: HgMQCyaRV2814wro1eCU4UHL";
$MAIN_URI="https://192.168.1.1:9000/api/rest/category/uncategorized";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){ echo "Error $errno\n".curl error($ch)."\n"; curl close($ch); die(); }

$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
   echo "Error $CURLINFO_HTTP_CODE\n";
   $json=json_decode($response);
   if(!$json->status){echo "Failed $json->message\n";die();}
   die();
}
$json=json_decode($response);
//Get the number of items;
$items=$json->count;
echo "$items elements\n";

for($i=0;$i<$items;$i++){
   $sitename=$json->websites[$i]->SITENAME;
   $requests=$json->websites[$i]->RQS;
   $saved_date=$json->websites[$i]->DATE;
   echo "$sitename saved on $saved_date requests:$requests\n";

}
```

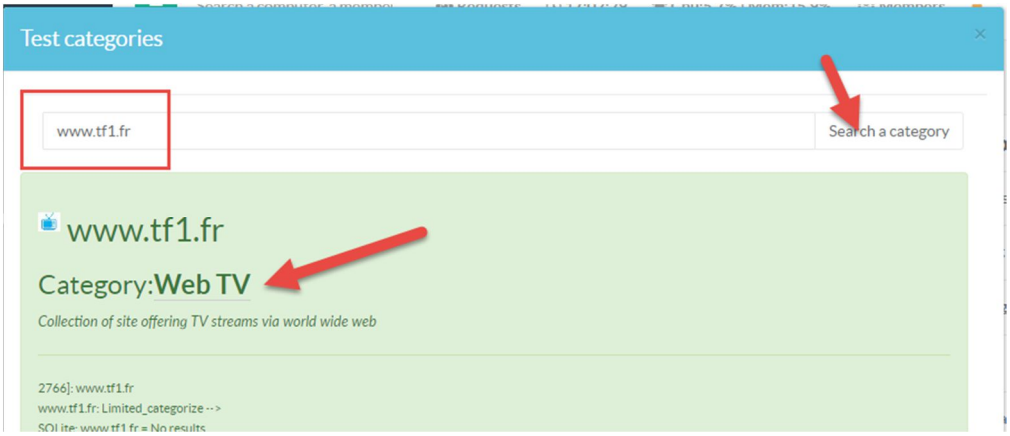
Testing categories

If you are using passive mode or active mode, you can query a category from a website.
Click on the button on the top-right webpage (near the “Log out”)
On this right menu, choose “**Your Proxy**” and “**Test categories.**”



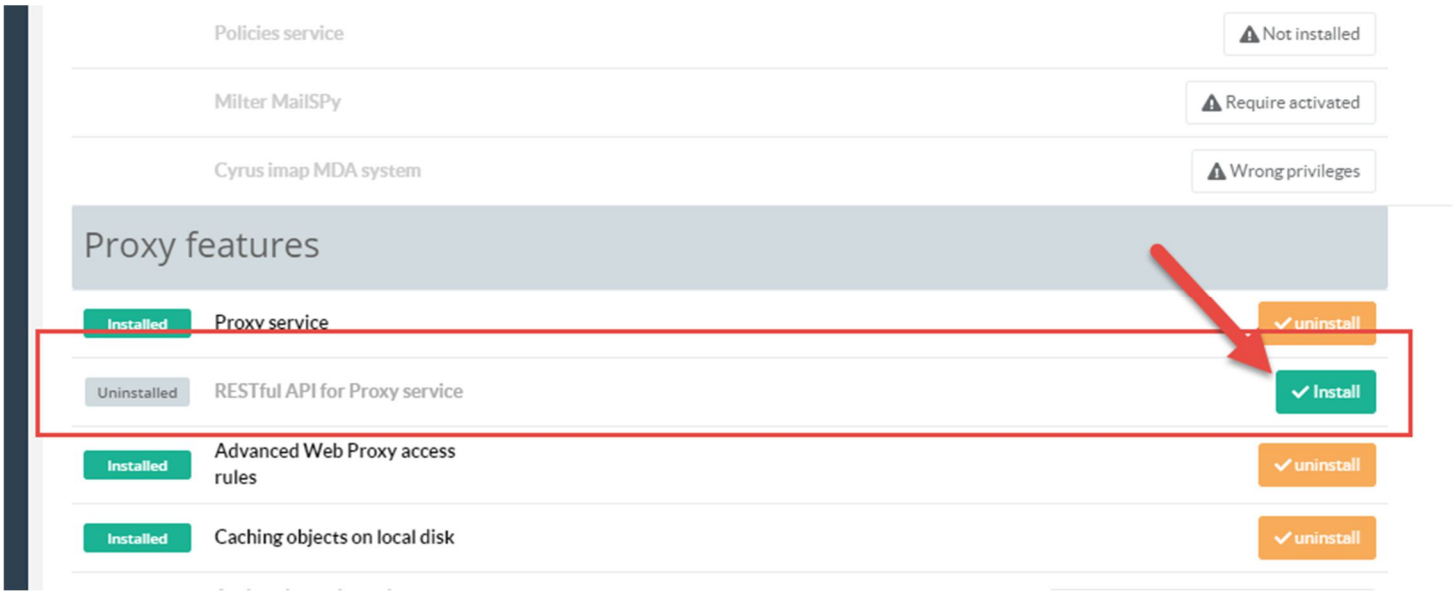
A new form is displayed

It allows you to ask which category is associated with the queried domain.

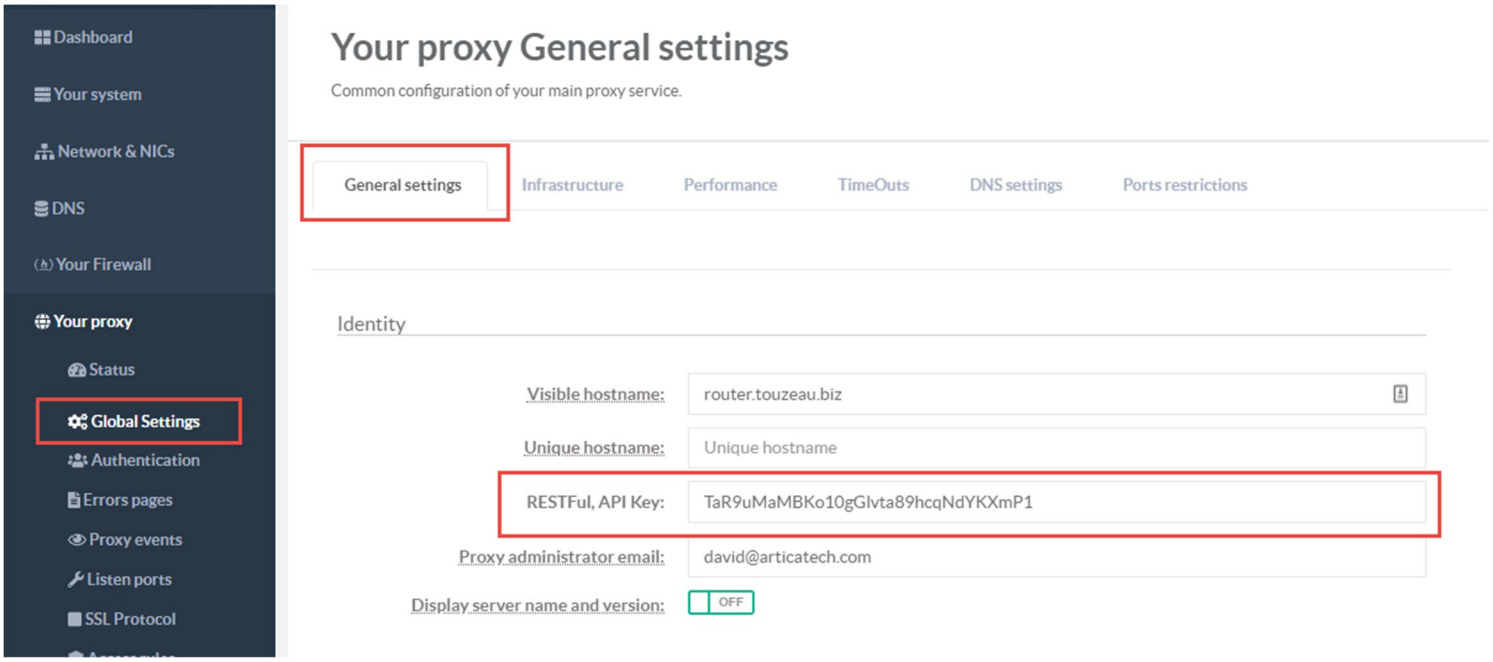


PROXY RESTFUL API

If you want to manage proxy features using RESTful API, you need to install the RESTful API under the features. (THE REST API SERVICE IS AVAILABLE WITH ENTERPRISE EDITION).



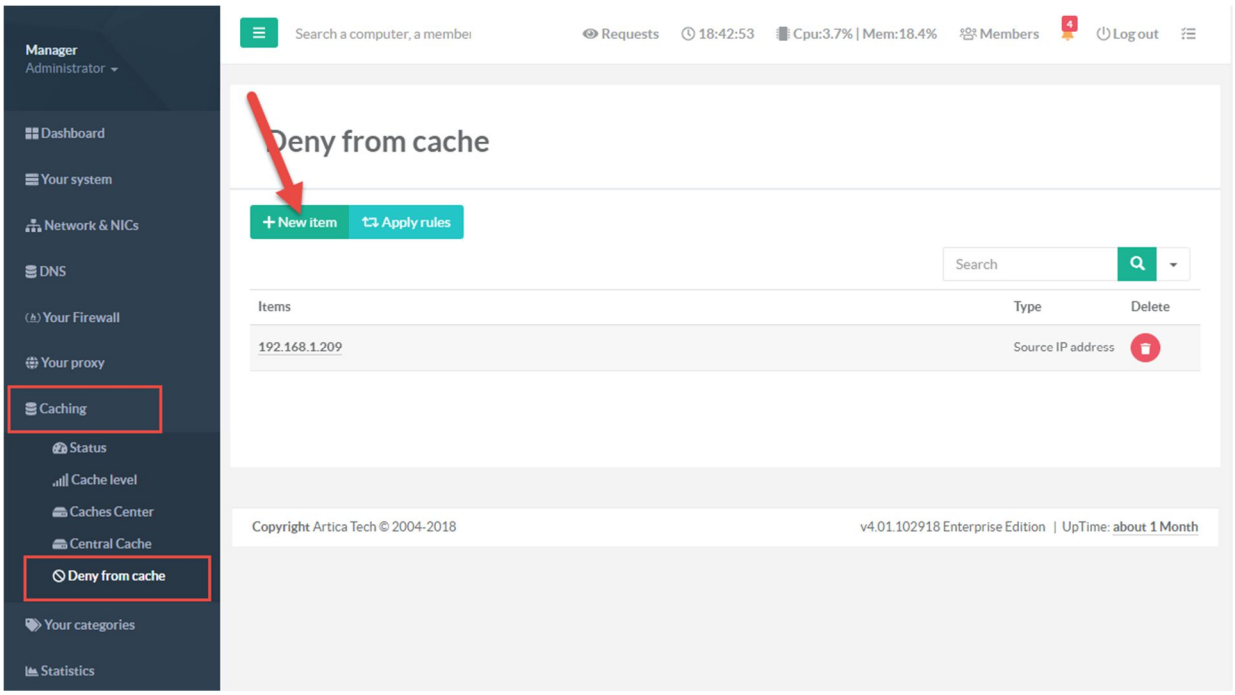
After the RESTFul API for proxy service installed, on the left menu, go to "**Your Proxy**", "**Global Settings.**"
A field "**RESTful, API key**" is displayed and allows you to modify the default API key to manage your server.



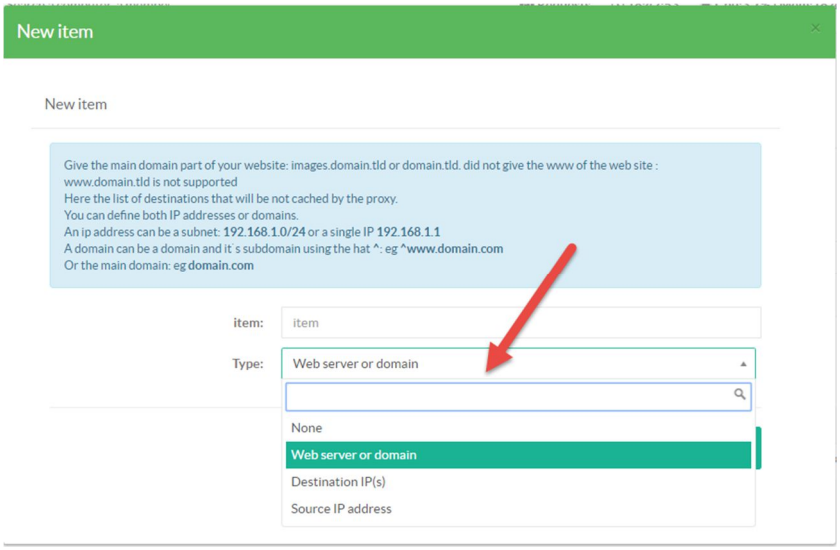
CACHING

Exclude from caching

In some cases, you need to exclude the proxy to store objects from its cache according items.
The section: "**Caching**" and "**Deny from cache**" allows you to create simple rules to force proxy not to store objects.



You can add a rule according 3 types of element.



1. **Web server of domain**: Deny from cache based on a domain name.
2. **Destination IP(s)**: Deny from cache according to a range/subnet/IP address of an Internet site.
3. **Source IP address**: Deny from cache according to a range/subnet/IP address of a local computer client.

RESTFul API:

If the RESTful API is enabled for the Proxy service, you can use these commands to manage the “No cache section”
The RESTFul api needs to add the ArticaKey: API Key in the HTTP request header

List “Deny cache rules”

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/list
```

Example:

```
$ch = curl_init();
$CURLOPT_HTTPHEADER[]="Accept: application/json";
$CURLOPT_HTTPHEADER[]="Pragma: no-cache,must-revalidate";
$CURLOPT_HTTPHEADER[]="Cache-Control: no-cache,must revalidate";
$CURLOPT_HTTPHEADER[]="Expect:";
$CURLOPT_HTTPHEADER[]="ArticaKey: TaR9uMaMBKo10gGlvta89hcqNdYKXmP1";
$MAIN_URI="https://192.168.1.1:9000/api/rest/proxy/cache/deny/list";

curl_setopt($ch, CURLOPT_HTTPHEADER, $CURLOPT_HTTPHEADER);
curl_setopt($ch, CURLOPT_TIMEOUT, 300);
curl_setopt($ch, CURLOPT_URL, $MAIN_URI);
curl_setopt($ch, CURLOPT_RETURNTRANSFER, 1);
curl_setopt($ch,CURLOPT_SSL_VERIFYHOST,0);
curl_setopt($ch,CURLOPT_SSL_VERIFYPEER,0);

$response = curl_exec($ch);
$errno=curl_errno($ch);
if($errno>0){
    echo "Error $errno\n".curl_error($ch)."\n$response\n";
    curl_close($ch);
    die();
}
$CURLINFO_HTTP_CODE=intval(curl_getinfo($ch,CURLINFO_HTTP_CODE));

if($CURLINFO_HTTP_CODE<>200){
    echo "Error $CURLINFO_HTTP_CODE\n";
    die();
}
$json=json_decode($response);
if(!$json->status){echo "Failed $json->message\n";die();}
echo "Success\n";

foreach ($json->results as $index=>$line){
    echo "[$index]: {$line->items}, ({$line->ztype})\n";
}
```

Add a new deny cache rule

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/add/[TYPE]/[item]
```

Where [TYPE] is an integer of

0: A destination domain
1: A destination IP address or CDIR.
2: A source IP address or CDIR

And [item] is the value.

Example: do not cache **clubic.com** website

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/add/0/clubic.com
```

Example: do not cache 23.38.11.195 public IP address

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/add/1/23.38.11.195
```

Delete a deny cache rule:

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/del/[item]
```

Where [item] is the IP address or the domain to remove.

Apply deny cache rules to the proxy server and make them in production

```
GET https://192.168.1.1:9000/api/rest/proxy/cache/deny/apply
```

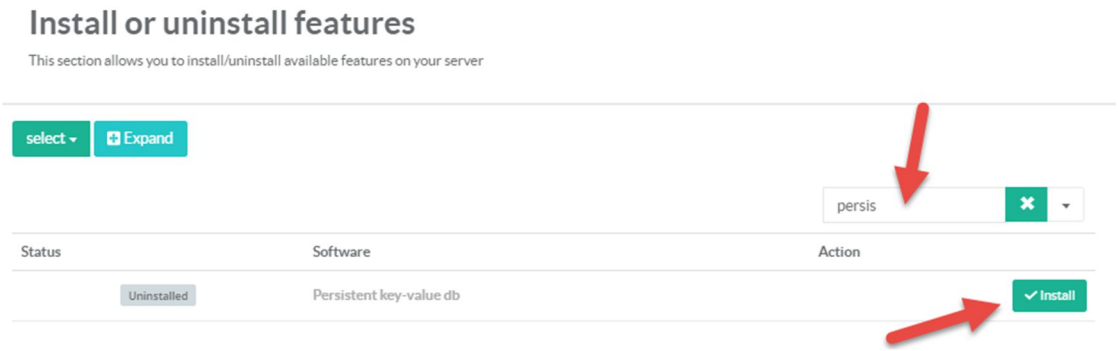
REALTIME STATISTICS.

It is important to know whats happening in the Internet flow. If need to answer about who uqing the proxy now, what bandwidth is used, what is the website using the bandwidth…

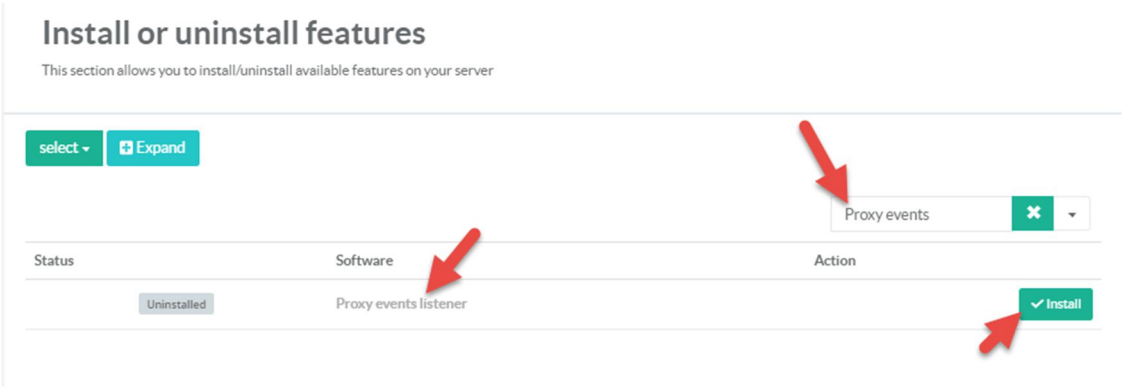
Enable the Realtime statistics

To enable the realtie statistics, you need to install the Persistent Key-value database service and the

- On the feature section, in the search field, type the **Persistent** word
- Click on Install button on the **Persistent key-value DB** row.



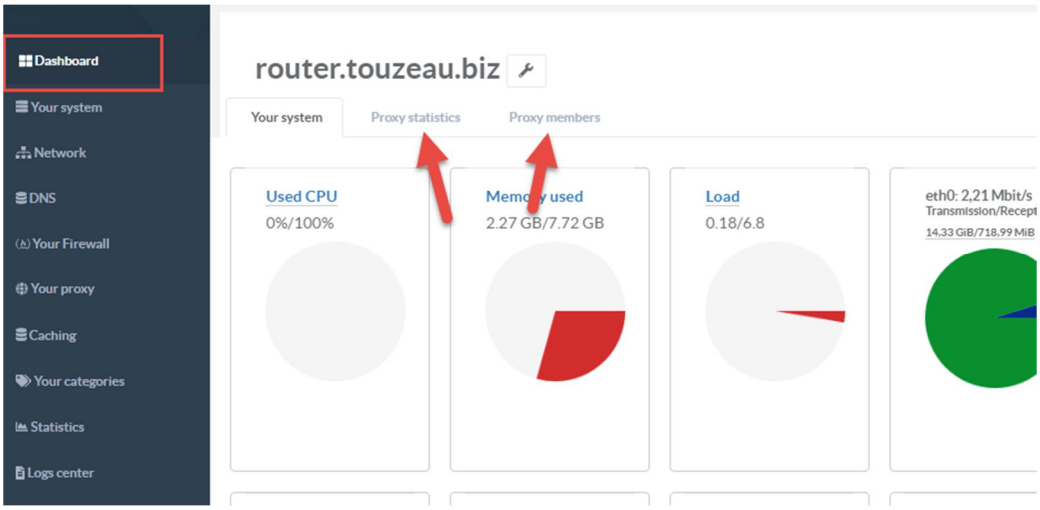
- Search the field "**Proxy events**"
- Click on **install** button on the "**Proxy Events listener**" row



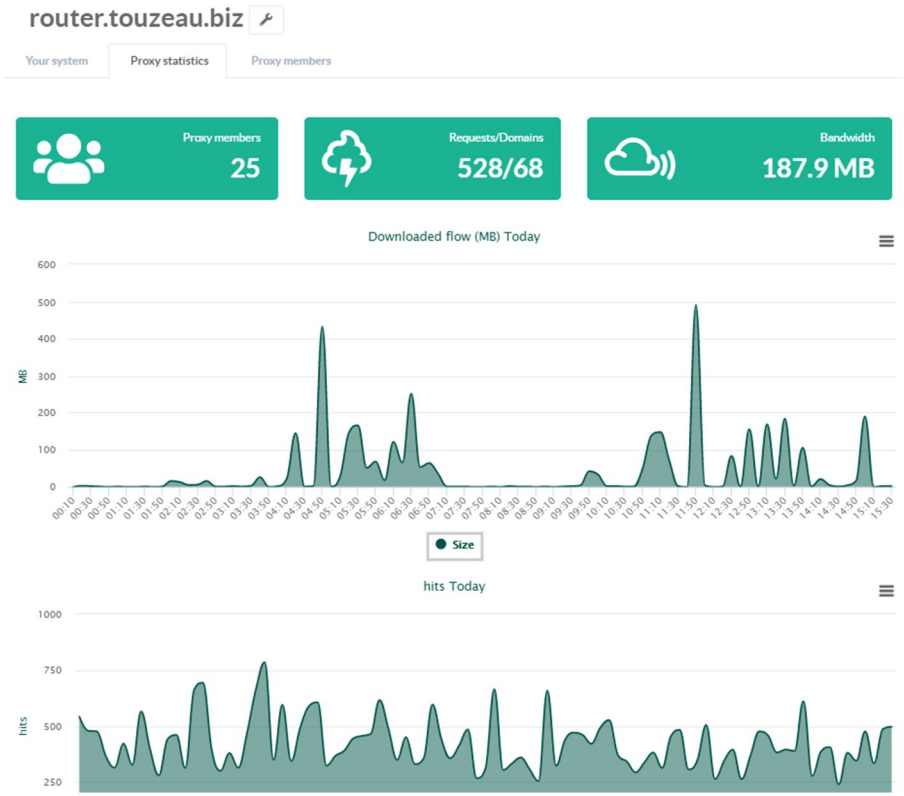
Display proxy statistics

This feature groups statistics each 10minutes, after installing the 2 features, wait about 10minutes.

- On the Dashboard, you will see new tabs: **Proxy statistics** and **Proxy Members**



Proxy Statistics



The 3 green box shows you for a period of **10 minutes:**

1. The number of Members that using your proxy service
2. The number of requests and visisted domains.
3. The bandwidth usage.

3 graphs are displayed for the current day.

- The bandwidth usage each 10minutes.
- The number of requests each 10minutes.
- The number of users using the proxy each 10mn

Proxy Statistics: RESTFul API

Produce data to build current day bandwidth,requests, members data

```
GET https://192.168.1.1:9000/api/rest/proxy/stats/today
```

Produce information of the 10 minutes period.

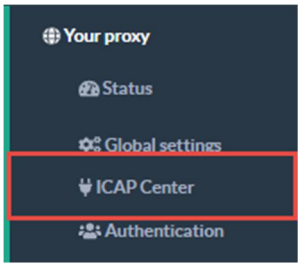
```
GET https://192.168.1.1:9000/api/rest/proxy/stats/status
```

ICAP Center

The ICAP center allows you to plug ICAP remote services to your Artica Proxy.
The Internet Content Adaptation Protocol (ICAP) is a lightweight HTTP-like protocol specified in RFC 3507 which is used to extend transparent proxy servers, thereby freeing up resources and standardizing the way in which new features are implemented.

ICAP is generally used to implement virus scanning and content filters in transparent HTTP proxy caches.
Content adaptation refers to performing the particular value-added service (content manipulation) for the associated client request/response.

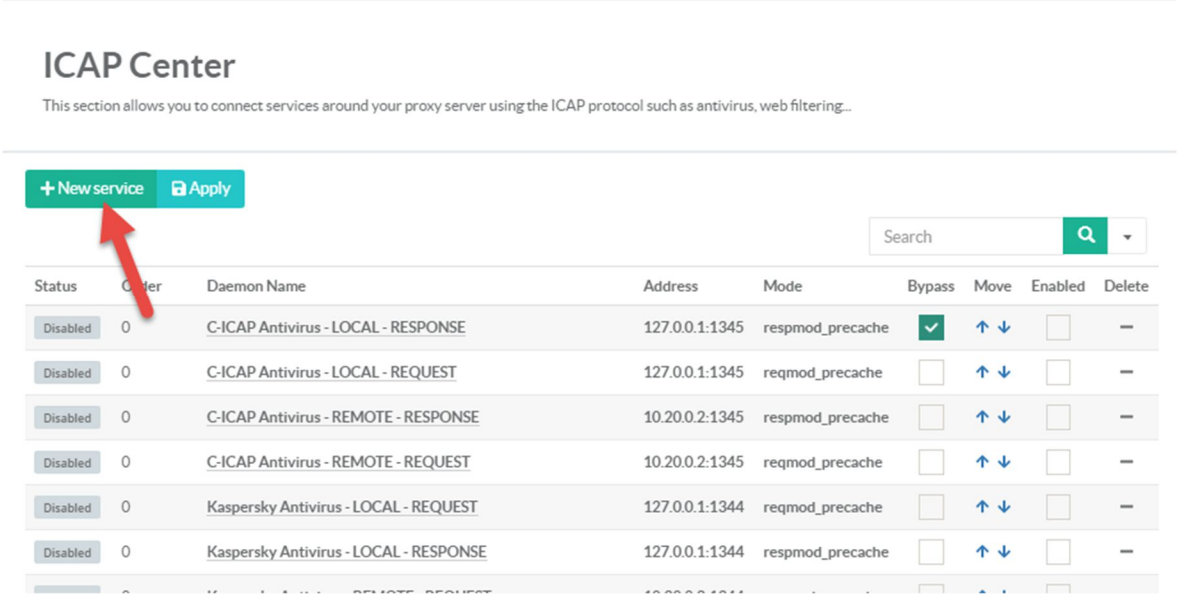
ICAP concentrates on leveraging edge-based devices (caching proxies) to help deliver value-added services.
At the core of this process is a cache that will proxy all client transactions and will process them through web servers.



These ICAP servers are focused on a specific function, for example, ad insertion, virus scanning, content translation, language translation, or content filtering.

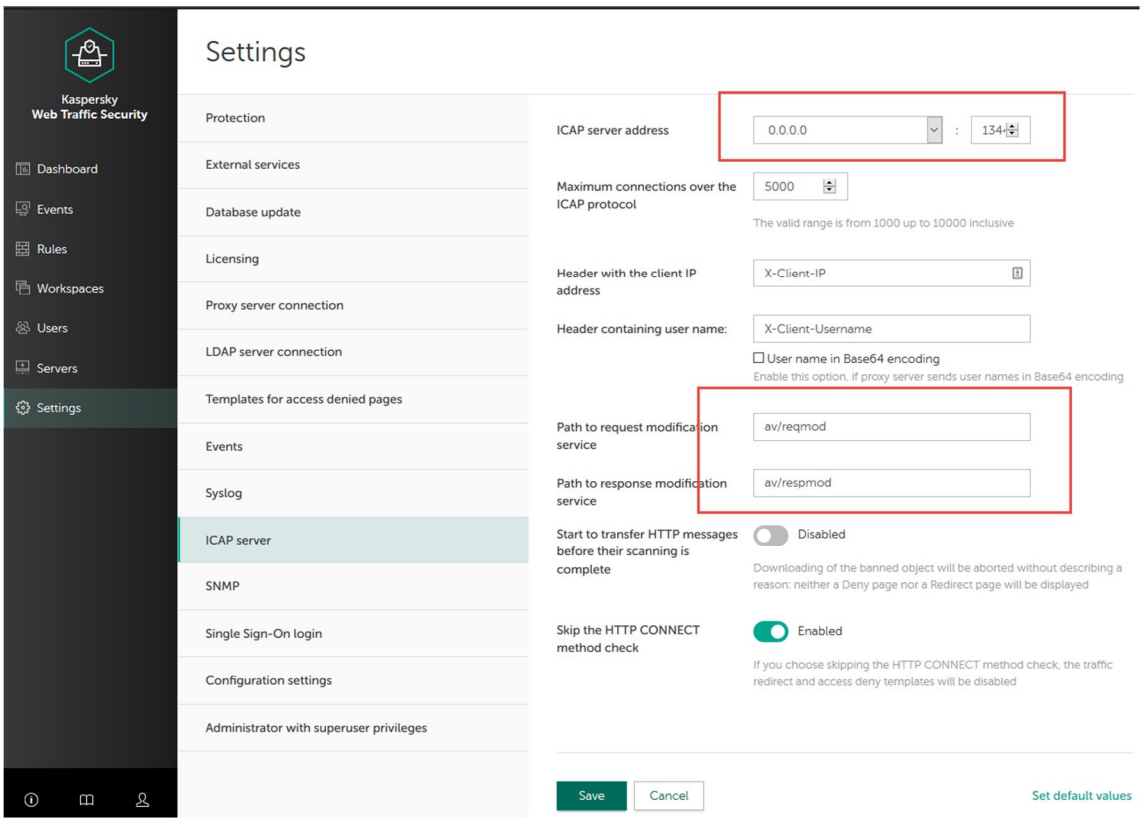
Off-loading value-added services from web servers to ICAP servers allows those same web servers to be scaled according to raw HTTP throughput versus having to handle these extra tasks.

- ✓ On the left menu, choose "**Your Proxy**" and "**ICAP Center**"
- ✓ A table is displayed and show you a list of pre-defined ICAP services examples.
- ✓ The "**Bypass**" column allows the proxy to continue processing requests if the ICAP service is down or failed.
  If enabled, then the proxy can bypass the ICAP service.
  If disabled, then the proxy sends an error page and stop processing requests.

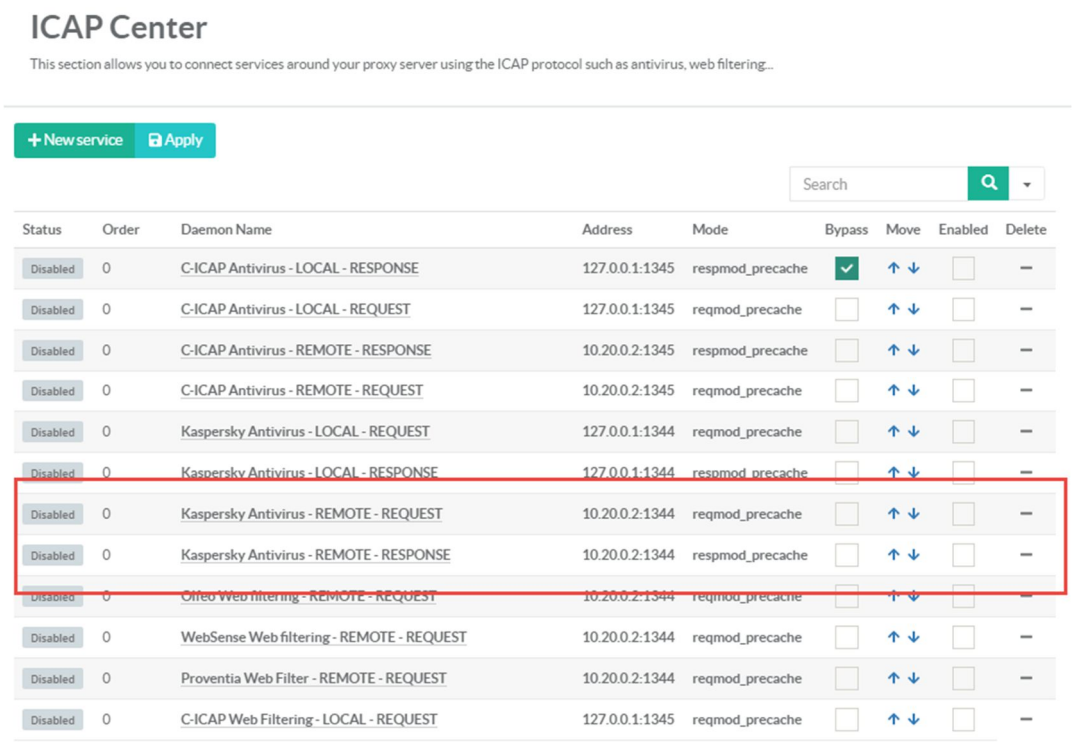


EXAMPLE: CONNECT TO THE KASPERSKY WEB TRAFFIC SECURITY ICAP SERVER

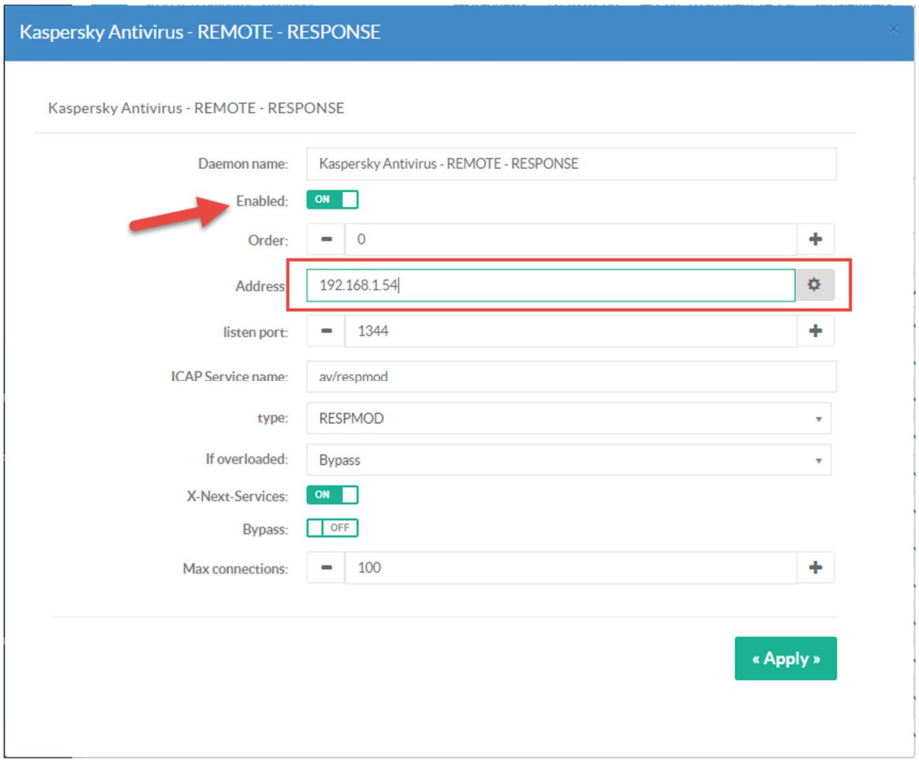
- ✓ On the Kaspersky Web traffic Security console, open the “Settings”/”ICAP server” menu.
- ✓ Ensure the ICAP server Address listen the 0.0.0.0 (means all IP addresses of the server)
- ✓ Take a look of the listen port (1344 by default), the path to request modification and the path to response modification service



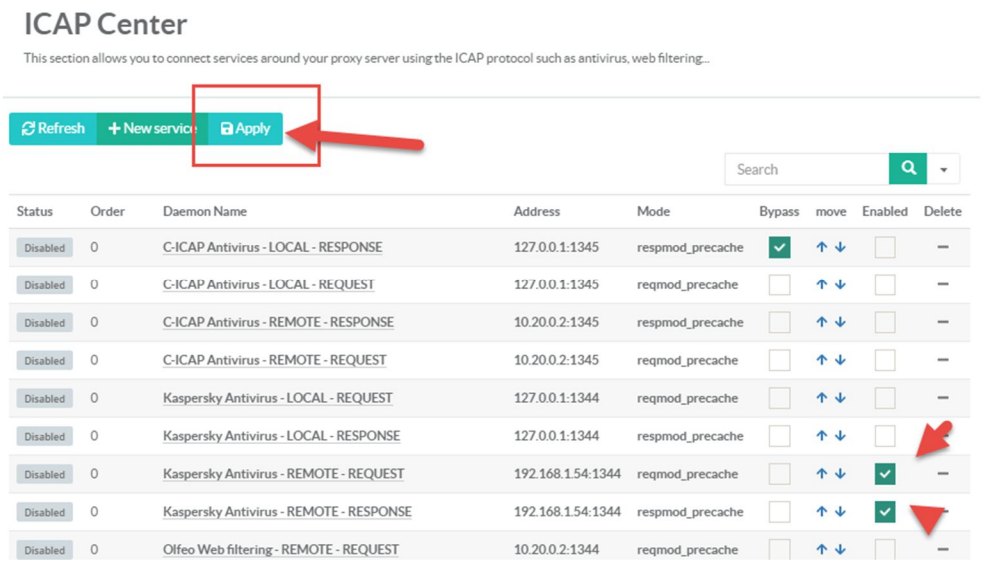
On Artica, search the Kaspersky Antivirus – REMOTE REQUEST and Kaspersky Antivirus – REMOTE RESPONSE
Click on each service.



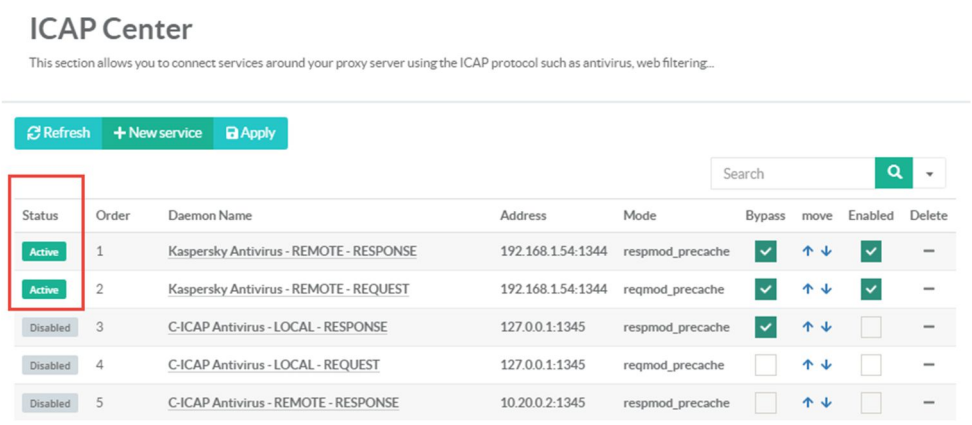
Turn ON the **Enabled** option and modify the **Address** to the IP address used by your Kaspersky Web traffic Security server. Click on **Apply**



After modify the 2 entries, click on Apply button on the main table to link your proxy to enabled ICAP services.



After few seconds, status must be turned to “Active”



KASPERSKY WEB TRAFFIC SECURITY

Kaspersky Web Traffic Security is a solution (hereinafter also referred to as "application") for protecting HTTP, HTTPS, and FTP traffic passing through your Artica proxy server using the ICAP protocol.

The application protects users of a corporate network when accessing Internet resources.
For example, it deletes malware and other threats from the data stream that enters the corporate network via the HTTP(S) and FTP protocols, blocks infected and phishing websites, and controls access to Internet resources based on Internet resource categories and content types.

The application has been developed for corporate users.

Features

- Protects the IT infrastructure of your organization from most **modern malware and encrypting ransomware** thanks to **machine-learning algorithms** and operating system data emulation technology.
- Blocks access to **infected** and **phishing** websites.
- Uses Kaspersky Security Network data to obtain information about the **reputation of files** and Internet resources, ensure that Kaspersky Lab applications react to threats faster without waiting for an application database update, and reduce the likelihood of false positives.
- Performs **content filtering of incoming and outgoing files** based on the **URL**, file name, MIME type, size, type of source file (the application can determine the true format and type of the file, regardless of its extension), and checksum (MD5 or SHA256).
- Lets you **restrict access** to various **categories** of Internet resources, for example: Gambling, lotteries, sweepstakes; Adult content; Internet for children; Prohibited by legislation of the Russian Federation.
- Lets you **monitor** the application operating status, the network traffic processed by the application, the number of scanned and detected objects, most recent threats, blocked users and URLs in the application web interface.
- Lets you **create workspaces** for configuring individual rules for processing traffic of departments of organizations or managed organizations (for Internet service providers).
- Lets you configure **access permissions of administrators** for working with managed organizations.
- Adjusts **traffic processing conditions** in cases when traffic processing does not match the defined rules.
- Integrates with **Microsoft Active Directory** to assign roles and manage access and protection rules. Supports NTLM- and Kerberos authentication in Active Directory for access to the web interface.
- Publishes application events to a **SIEM** system that is already in use in your organization over the Syslog protocol. Relays information about each event as a separate syslog message in CEF format.
- Lets you access application information over the **SNMP** protocol.

Kaspersky Web Traffic Security is compliant with the **General Data Protection Regulation** (GDPR) and applicable European Union laws on confidential information, personal data, and data protection

Install Kaspersky Web traffic Security

To install Kaspersky Web Traffic Security, you need:

- A valid Kaspersky License (serial number)
- Install the **Ngnix Web service**.

Downloading the package from your Artica server

FIREWALL PROTECTION

AUTOMATIC PROTECTION – FAIL TO BAN

The Fail to Ban (aka fail2ban) service is an intrusion prevention software framework that protects your Artica servers from brute-force attacks
Most commonly it is used to block selected IP addresses that may belong to hosts that are trying to breach the system's security.
It can ban any host IP address that makes too many login attempts or performs any other unwanted action within a time frame defined by the administrator.

Install the Fail to ban service.

Go to the features section, in the search box, type “fail to”

Click on **Install** button on the “Fail To Ban” service.

MANAGE ITEMS

When create a group inside a rule, you can manage several items.

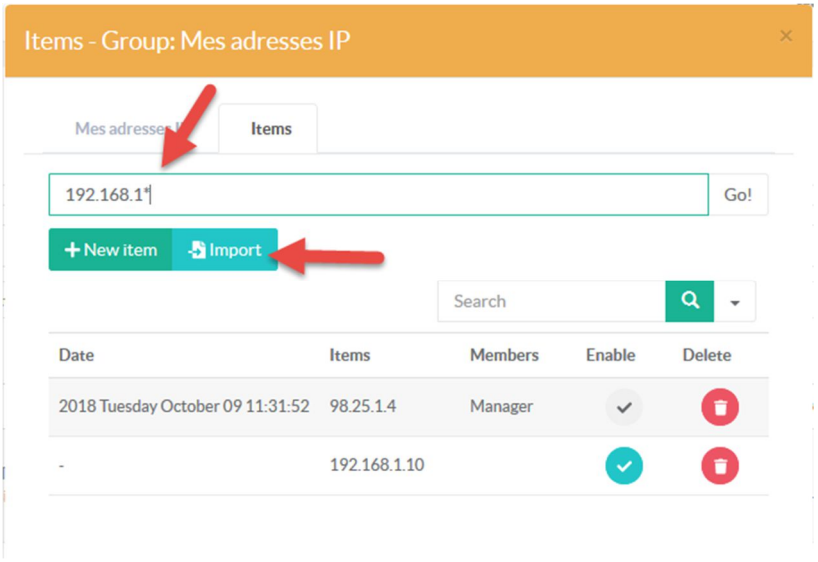
A search engine (the first search field) allows you to find the item.
The interface list is limited to 150 rows, if your item is not displayed in the first rows you have to use the search engine.

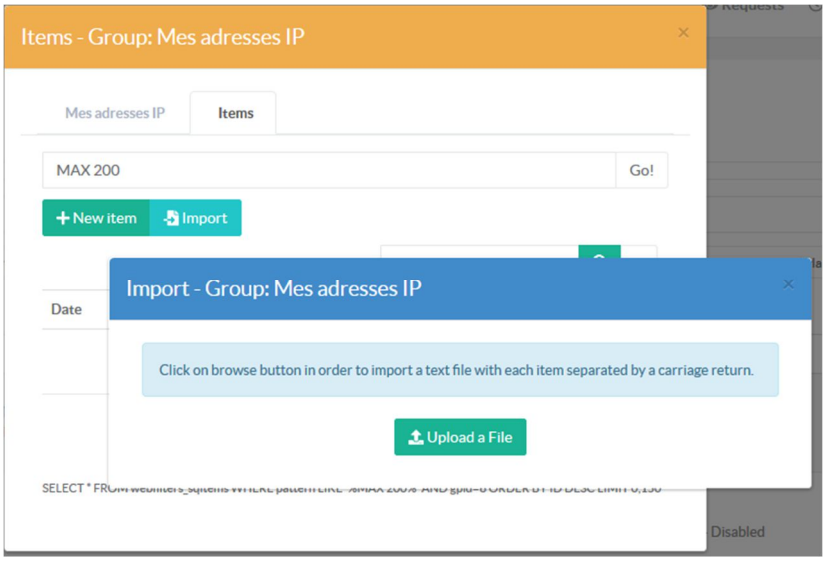
An item can be enabled or disabled, when the item is disabled, it will be not add into the FireWall rules but still available on the Web interface.

Bulk importation.

The Import button allows you to massively import items in the group.
Items must be stored in a text file separated by a carriage return.

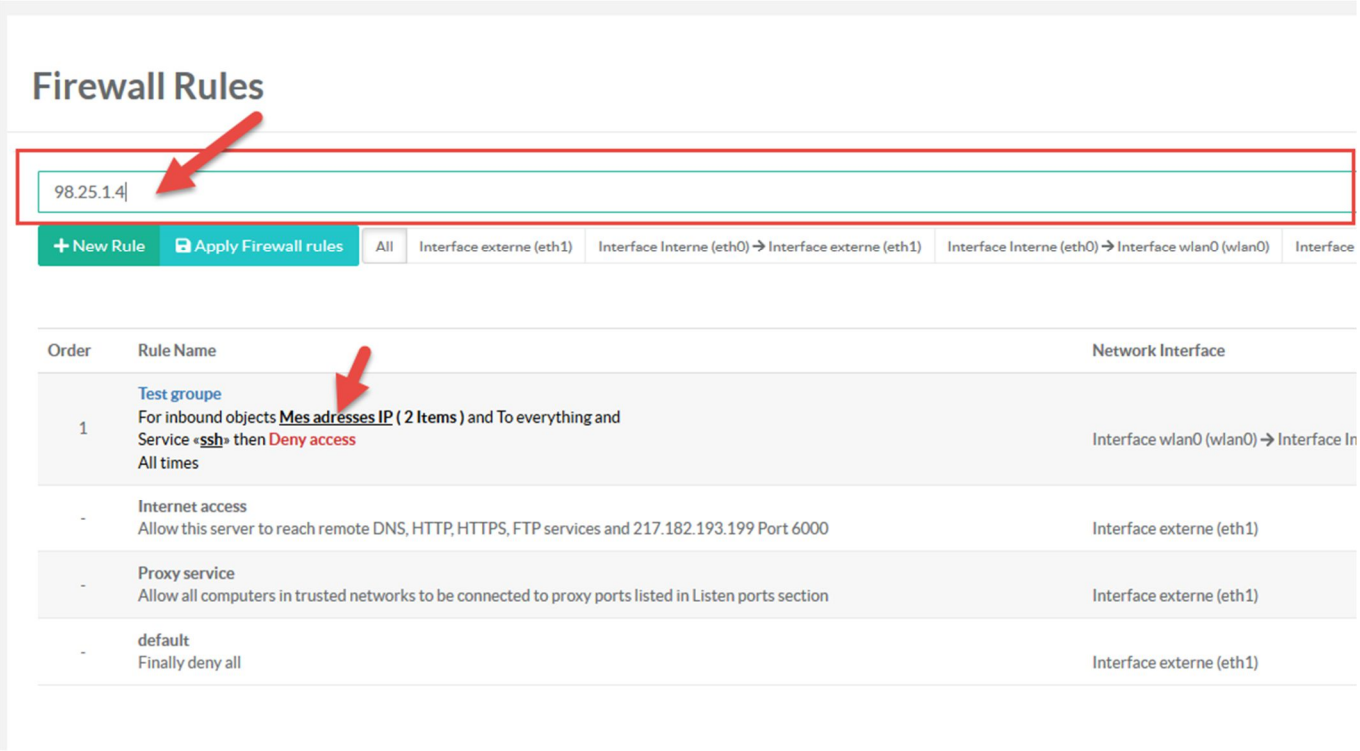
A group has no item limits, you just have to think about memory used by the firewall according to 25,000 elements takes up about 350k of memory.





Find a rule based on an item

The global search engine on the firewall-rule list allows you to find a rule according to a defined item.
The wildcard is supported, if you need to find a specific IP string or subnet, the table will display rules that stores the group with the desired item.



THE SMTP SERVICE

The Artica SMTP service is designed to provide an advanced SMTP routing service and/or Anti-Spam/Antivirus service.

FEATURES

Anti-spam

Artica implements a number of techniques to detect, filter and block spam.
It combining artificial intelligence algorithms and constantly adapts to identify the ever-changing techniques of spammers.
ArticaTech provide advanced antivirus patterns to detects SPAM and phishing.

Protection

Artica is able to fight against phishing, ransomwares, malware, crypto locker and other threats.

Anti-virus

The antivirus service is able to checks all incoming messages for viruses, worms, macro and suspicious attachments with potentially dangerous contents.

Quarantine

Artica offers a simple way to review quarantine lists

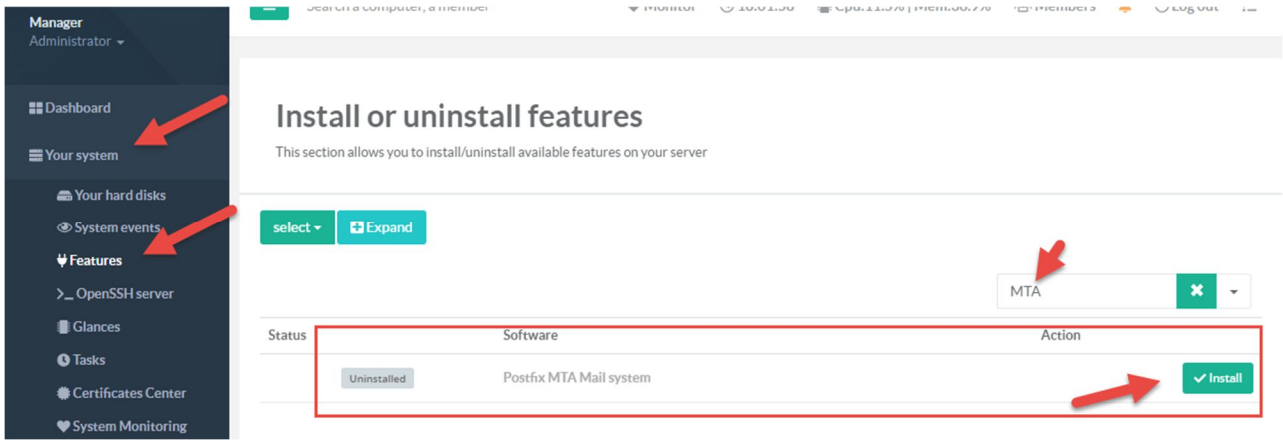
Powerful management

The administrator can keep control of all system settings.
Detailed traffic and filtering reports give the administrator a clear vision of network and mail activity.

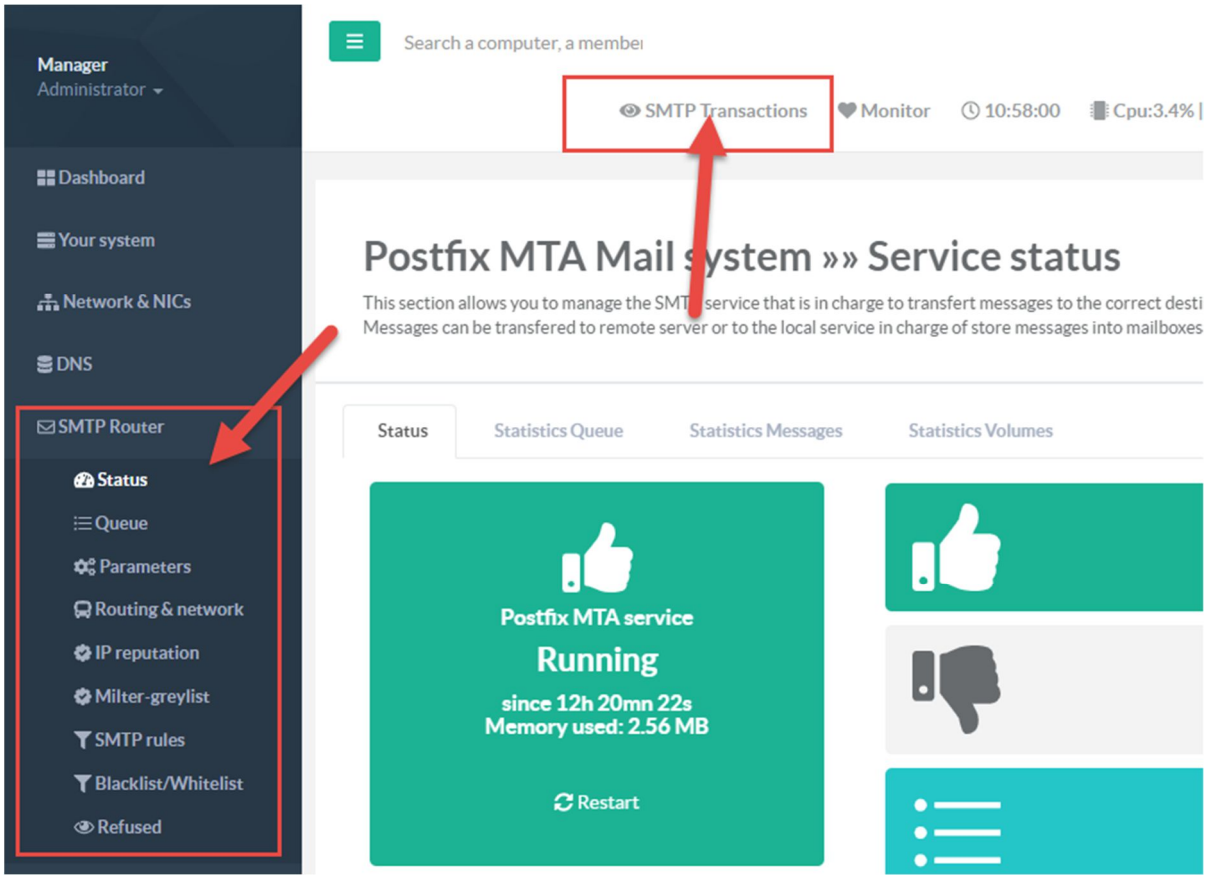
INSTALL THE SMTP SERVICE

The SMTP service is a **designed appliance**, after installing this service.
All "**Appliance services**" will be removed and hidden in the Features section.

- On **Your system/Features** in the Search box, type "**MTA**"
- Click on Install on the "**Postfix MTA Mail system**" row.



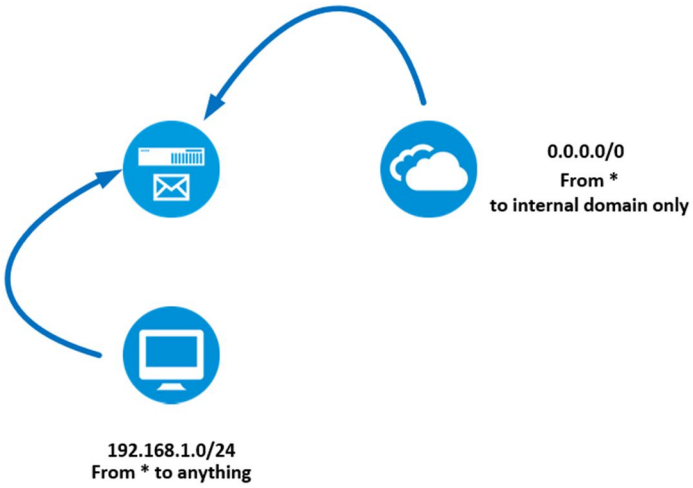
After installing the service, you will be able to show the menu "**SMTP Router**" that displays available options.
On the TOP Menu, a new item "**SMTP Transactions**" is added.
This option is designed to display routed messages in realtime.



First step, set your authorized networks.

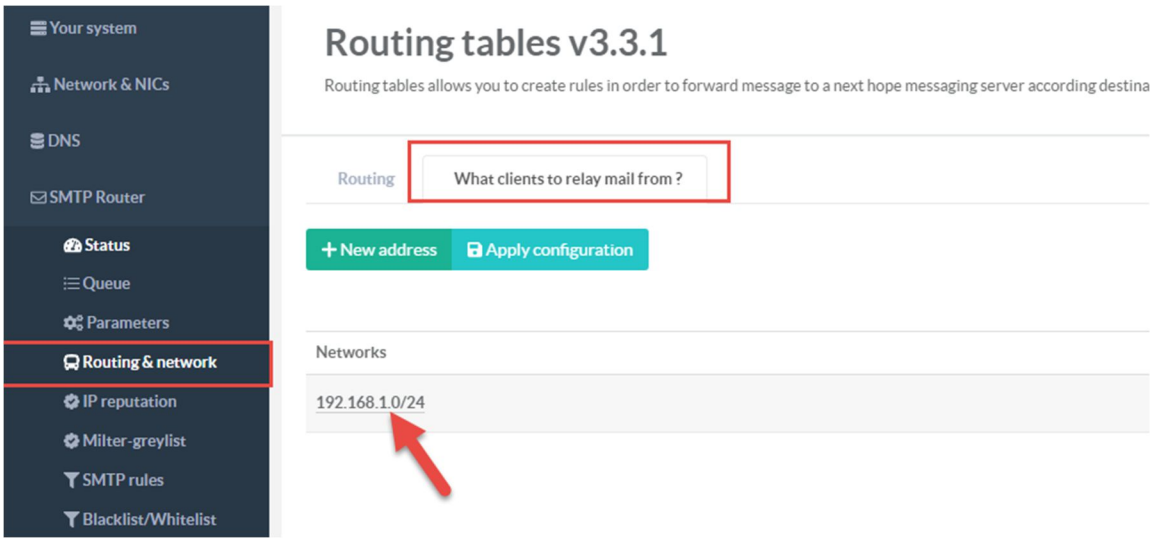
It is important for your MTA service to define which network is allowed to send messages to Internet (any)

To perform this behavior, the MTA service needs to know which computer is able to send a message to be forwarded to foreign domains.



On the **SMTP Router**, **Routing & network**, selec the "**What clients to relay mail from**" tab.

Add all networks or IP addresses of the computers/servers that will be able to send messages to Internet.

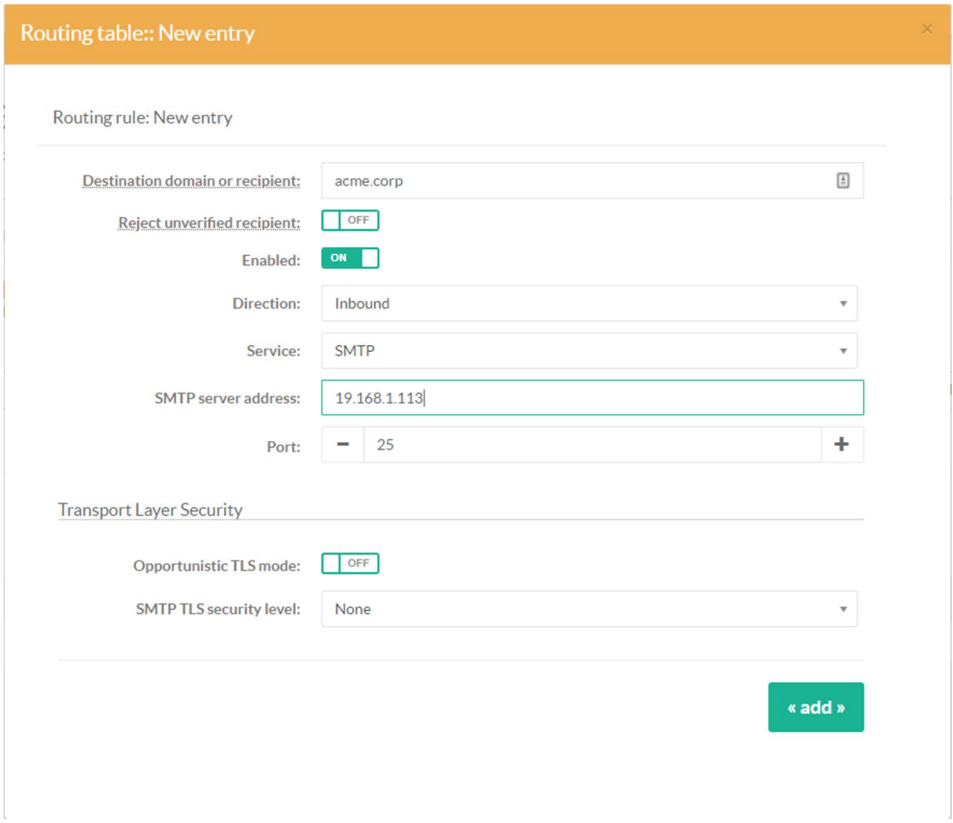


THE ROUTING TABLE

On the **SMTP Router**, **Routing & network**, selec the "**Routing**" tab.

This section instruct the SMTP service where to forward messages according sender email or sender domain or recipient email or recipient domain.
In most cases you want to relay messages according to the destination domain.

Click on **new rule** in order to create a routing rule



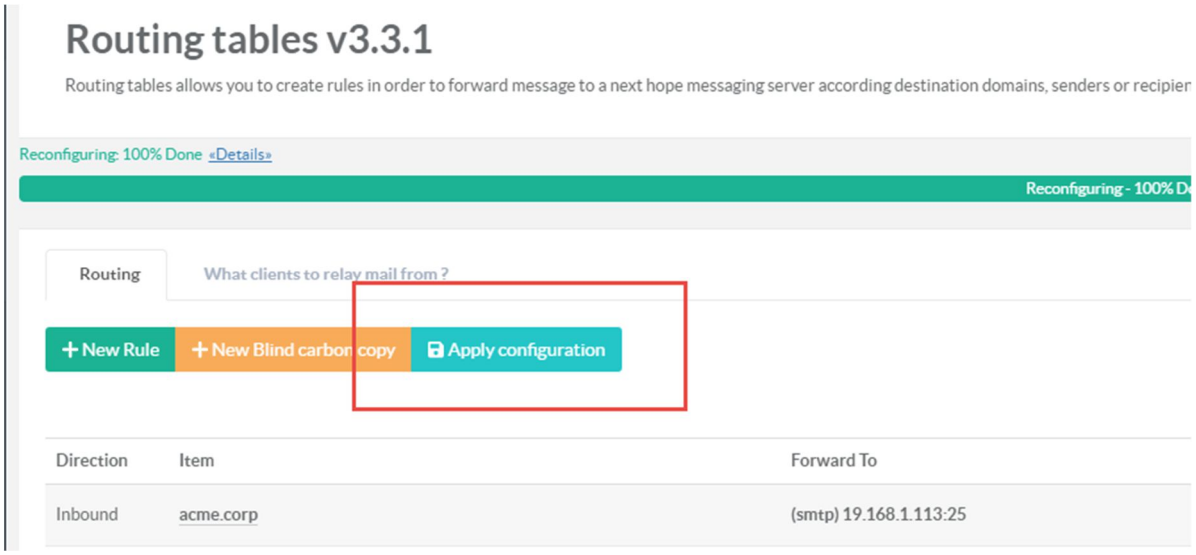
Destination domain or recipient:.
If the option"**Direction**" is "**Inbound**" then this field is the destination address.
It should be:
"dummy@domain.tld or domain.tld or .domain.tld"

If the option "Direction" is "Outbound", then this filed is the sender address.
It should be
"dummy@domain.tld or domain.tld or .domain.tld"

The service
The router service that will be in charge to forward the message from the mail queue.
In most cases this will be the **SMTP** service

The SMTP server address and port:
The hostname or IP address of the destination server.

Opportunistic TLS mode.
If turned to ON your Artica server will try to forward the message using TLS/SSL, you can define the TLS verification method that your Artica server should use.



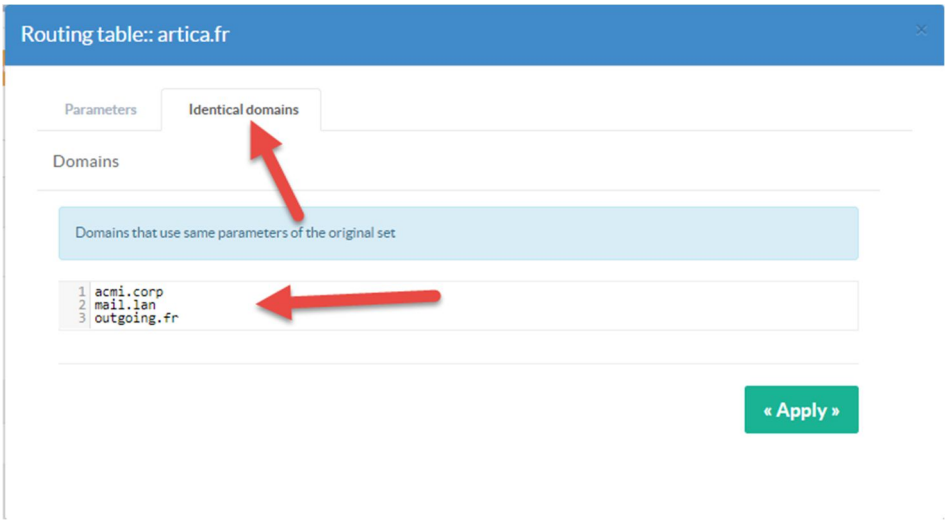
Did not forget to "Apply configuration" after creating all rules.

Many domains in the same routing rule

If you have several SMTP domains that should use the same routing parameters, open the first routing rule you have created.

Open the tab Identical domains.

In the text area, add all domains that will use the same configuration.



Transfert messages to Exchange 2010 using TLS on port 587

QA: SSL ? Get Exchange 2010 Server to listen for SMTP on port 465?
Yes, you can make any SMTP virtual server or Receive connector listen on port 465, but that will not achieve your goal of secure SMTP (SMTPS).

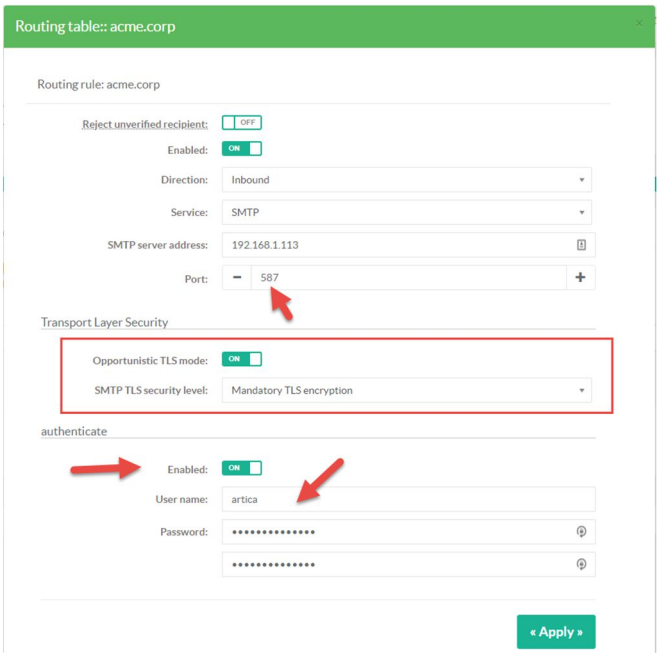
1. Create a user/mailbox like “Artica”
2. Start the Exchange Management Console.
3. In the console tree, click **Recipient Configuration**.
4. In the result pane, select the mailbox for which you want to grant the **Send As permission**.
5. In the action pane, under the mailbox name, click **Manage Send As Permission**. The Manage Send As Permission wizard opens.
6. On the Manage Send As Permission page, click **Add**.
7. In Select User or Group, select the user (artica) to which you want to grant the Send As permission, and then click OK.
8. Click **Manage**.

On the Exchange PowerShell, type this command

```
Get-ReceiveConnector "Name of Connector" | Add-ADPermission -user "ACME\artica" -ExtendedRights "ms-Exch-SMTP-Accept-Any-Sender"
```

On the routing rule

1. Define the target port as 587
2. Enable the TLS method
3. Turn on the Authenticate method
4. Set the username and passord of the user with “Send As permission”



Transfert all outgoing messages to an SMTP relay with authentication.

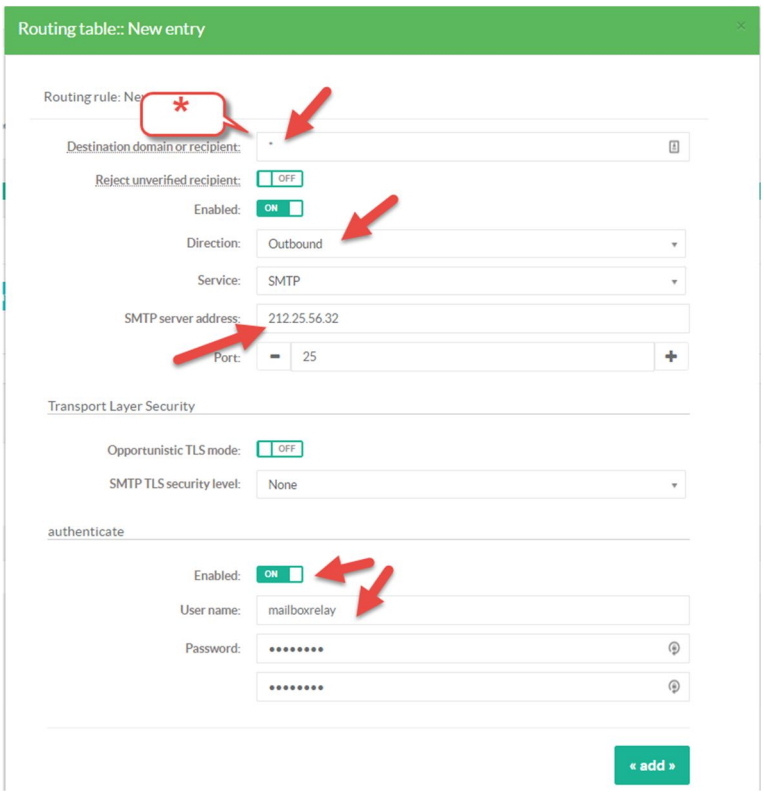
If Artica is designed to be an Internal hub and must forward all outgoing messages to a dedicated SMTP relay with authentication.

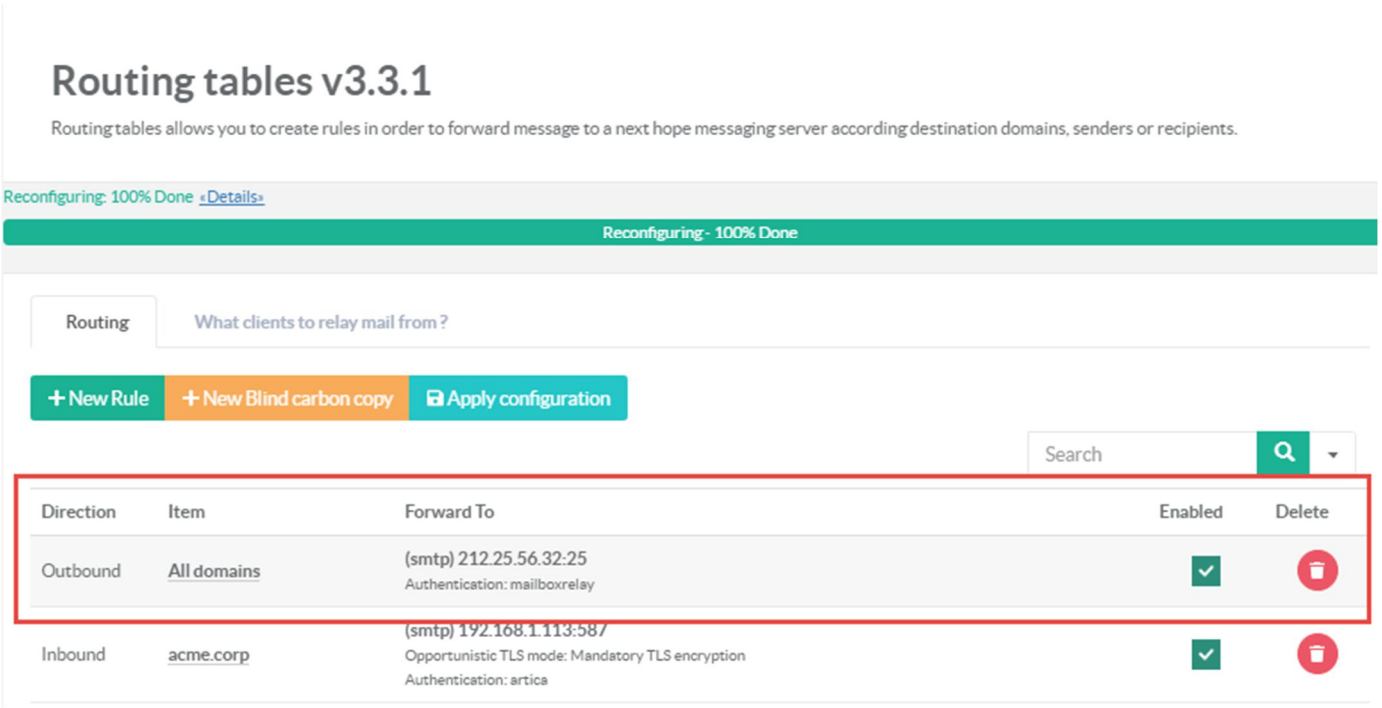
Create an outgoing routing rule with the wild-card “*” character has destination domain.

Select the direction as “Oubound” value.

Set the address of the outgoing relay.

Enable the Authenticate feature and give the username and password to enable your Artica server to authenticate the SMTP session.

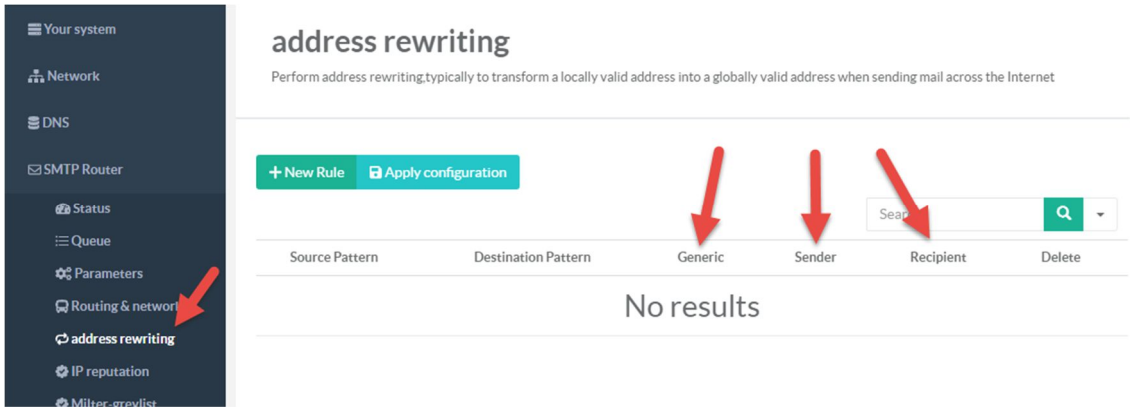




ADDRESSES REWRITING

Adresses Rewritting allows you to perform address rewriting
The menu "**SMTP router"/Addresses Rewriting** allows you to create rules according to 3 methods.

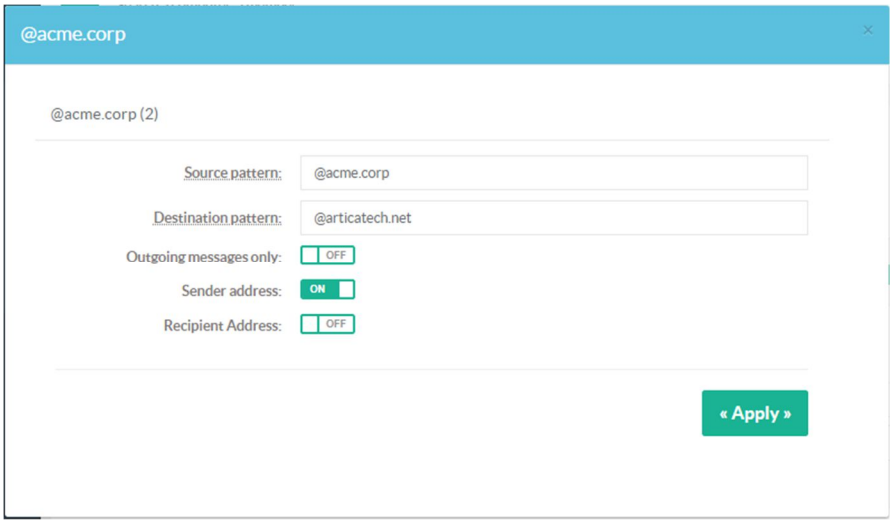
- ✓ **Generic**: Typically to transform a locally valid address into a globally valid address when sending mail across the Internet.
  Generic, means no direction but only for outgoing messages, addresses can be for sender or recipients. If found, it will be replaced.
  This is needed when the local machine does not have its own Internet domain name, but uses something like *localdomain.local* instead.



- ✓ **Sender**: You want to rewrite the SENDER address "user@ugly.domain" to "user@pretty.domain", while still being able to send mail to the RECIPIENT address user@ugly.domain
  Note: This option is processed before **Generic**.

- ✓ **Recipient**: Optional address mapping for envelope and header recipient addresses.
  Note: This option is processed before **Generic**.

Click on **New Rule** to open the Rewriting form.



Source patterns are tried in the order as listed below:

- ✓ **user@domain** address
  Replace user@domain by address.
  This form has the highest precedence

- ✓ **user address:**
  Replace user@site by address when site is equal to hostname, when site is listed in domains

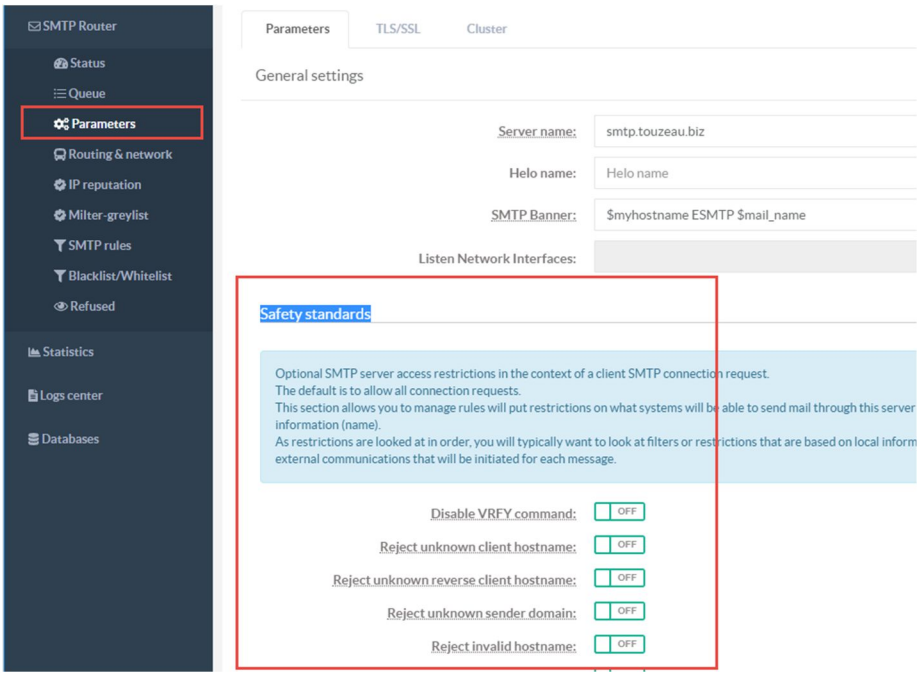
- ✓ **@domain address**:
  Replace other addresses in domain by address.
  This form has the lowest precedence

Examples:

```
his@localdomain.local >> hisaccount@hisisp.example
her@localdomain.local >> heraccount@herisp.example
@localdomain.local >> hisaccount+local@hisisp.example
@localdomain.local >> @validDomain.com
```

SAFETY STANDARDS

If your router is in front of Internet, you should enable some features that enforce SMTP security
On the left menu, select **SMTP router** and **parameters** link.
On the parameters, take a look on "**Safety standards**" section.



Enable these features enforce SMTP senders to be compliance with the SMTP protocol, this force remote service to be real SMTP server.

Disable VRFY command:

The VRFY command can lead to a remote attacker gaining the first and last name registered to any given email account.
This can aid an attacker in social engineering attack.

Reject unknown client hostname:

Reject the client when:

- The client IP address=name mapping fails,
- The name=address mapping fails,
- The name=address mapping does not match the client IP address

Reject unknown reverse client hostname

Reject the SMTP connection when the client IP address has no address=name mapping.
This is a weaker restriction than the reject unknown client hostname rule, which requires not only that the address=name and name=address mappings exist, but also that the two mappings reproduce the client IP address

Reject unknown sender domain

Reject the request when the SMTP service is not final destination for the sender address, and the MAIL FROM address has no DNS or MX record, or when it has a malformed MX record such as a record with a zero-length MX hostname

Reject invalid hostname

Reject the request when the client has a bad hostname syntax

Reject non fqdn sender

Reject the request when the MAIL FROM address is not in fully-qualified domain form, as required by the RFC
This specifies the response code to rejected requests (default: 504)

Enforce restrictions in the HELO

If enabled, the SMTP service will force to correctly send the HELO command and reject if the hostname is not in fully-qualified domain or address literal form or the hostname has no DNS A or MX record

Reject forged emails:

Reject emails that pretend to be sent from your domains but not authenticated and not listed in your network list

Enable Generic rDNS Clients check:

this feature rejects generic reverse DNS patterns covering a large section of ISPs in the US, Canada, Europe, and elsewhere more than 1.600 patterns will try to block mails from computers trying to send mails behind Public ISPs

Reject Internal and External non-existent domains:

Domains with no DNS A or MX record are rejected

Reject senders' domains not listed in local database:

If you turn on this feature **only internals domains are allowed to send mails through this server**.
This means you turn this server to an outgoing mail server only because senders Internet domains such has gmail.com, hotmail. * or yahoo. * will not allowed to send email to this server

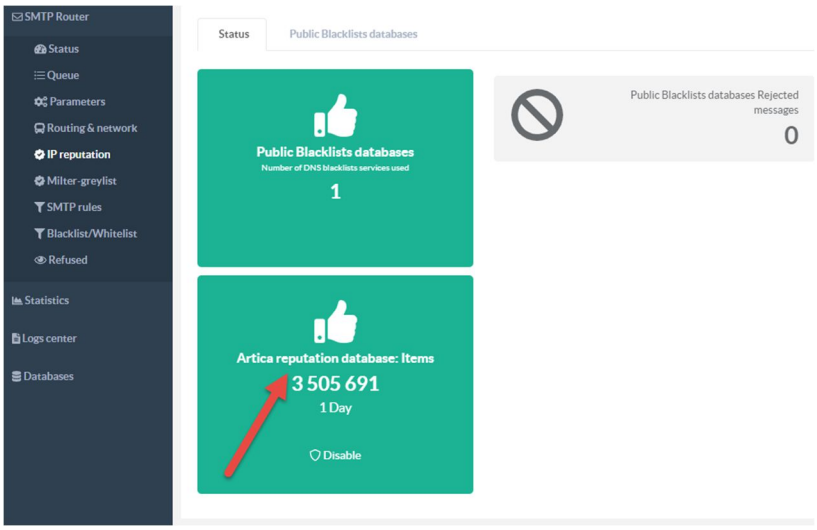
IP REPUTATION.

If your server is in front of internet, using a reputation database increase dramatically the anti-spam rate and decrease the usage of "content filtering".
An IP reputation database (aka RBL, DNSBL) is a cloud server that stores a list of blacklisted IP addresses.
These IP addresses are known to send SPAMs.
If a sender IP address is listed on these databases, the SMTP connection will be automatically refused.

Use the Artica reputation database:

The Artica reputation database is available with an Enterprise License Edition. It allows you to query a database that stores more than 4.000.000 blacklisted IP addresses and 100.000 whitelisted IP addresses.

To use the Artica reputation database, on the left menu choose "**SMTP Router**" and **IP Reputation**.
On the status page, click on the "**Enable**" in the "**Artica reputation database**" widget.



Public Blacklists databases.

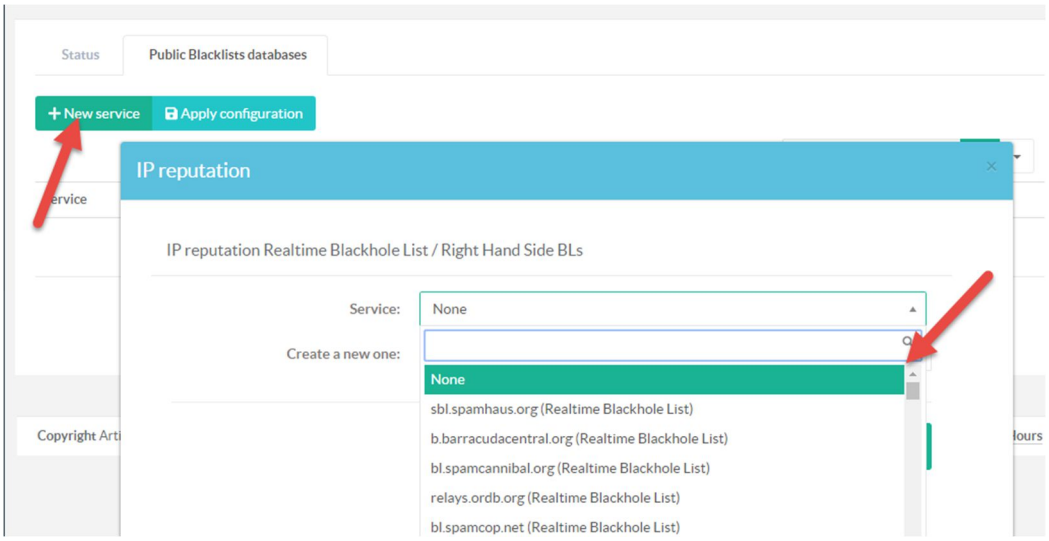
There is a little difference between Public Blacklists databases and Artica reputation database. Public Blacklists databases just offer “Blacklisting” as Artica reputation database leads whitelisting too.

Public Blacklists databases are free of charge databases (RBLs and DNSBLs) available on Internet.
You can use several services your server can query to detects if an SMTP sender is blacklisted or not.

On the IP reputation section, select the “**Public Blacklists databases**” tab

To add a new public service, click on “**New service**”

You can select a pre-defined service in the drop-down list or add your own service using the “**Create a new one**” field.



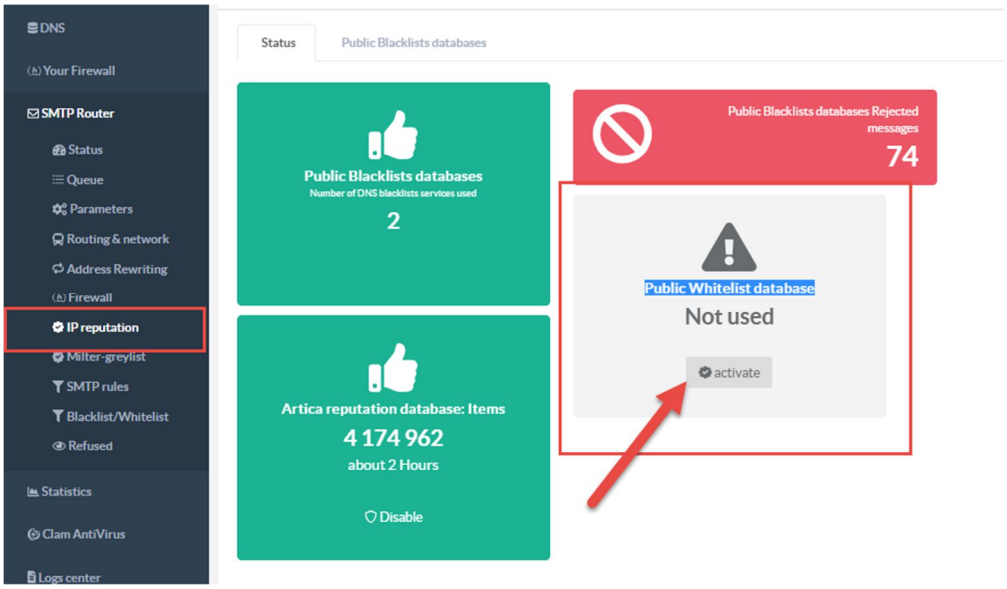
Public Whitelist database

This feature allows Artica server to query dnswl.org.
This organization is active in the anti-spam community.
The editors and administrators of dnswl.org data and systems are located in the UK, the US, Germany, Austria and Switzerland. Former active members came from Sweden, Finland, France, Netherlands, and had various contributors from an even more diverse set of geographies.

It maintains a database of IP addresses (net ranges) which are grouped into "DNSWL Records" (identified by a DNSWL Id, which is just an arbitrary number). This data is maintained through a combination of manual and automated actions.

Basically, the DNSWL database stores only “**good SMTP servers**” and claim to **avoid false positives from public blacklists databases**.

To enable the use of DNSWL, on the IP reputation section, click on Activate on the grey “**Public Whitelist database**” section.

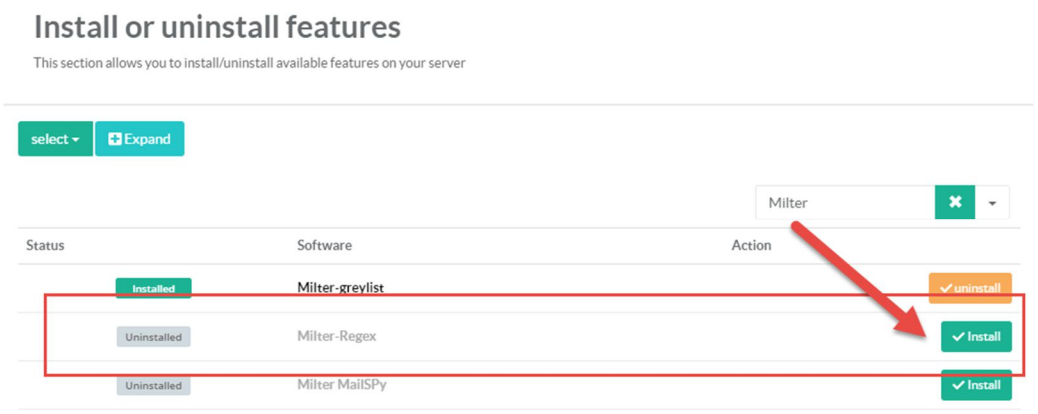


THE MILTER-REGEX MODULE FOR BLACKLISTING PERFORMANCE.

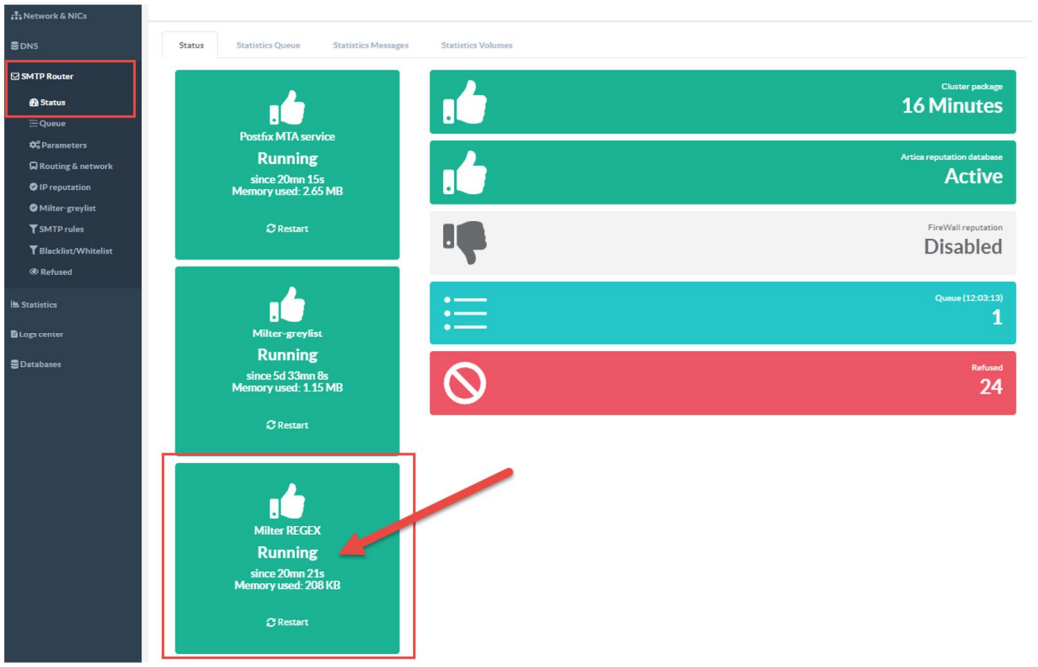
Sometimes you need to blacklist the sender email address or some words in the subject.
The blacklist reputation cannot deny everything came from office365, Gmail, Yahoo and other large ISP that provides free mail accounts.

In this case, you need to trust the sender IP address but deny the sender.
Spammers usually **use sequences on the mail from address** for example johnspamer234@gmail.com, johnspamer456@gmail.com.
The milter-regex module will be able to catch these sequences because it matches sender email addresses using regular expressions.
In this case, johnspamer234@gmail.com will be denied using johnspamer[0-9]+@gmail\.com.
This module is designed to scan a large list of rules using a minimal memory/CPU footprint.

On the **Features** section, in the search field, find the entry "**Milter**"
Click on the Install button on the "**Milter-regex**" row.



After installing the milter-regex module, you should see on the SMTP Router/Status the status of the milter-regex service.



In the Blacklist and whitelist rules you can create a rule with 3 new items:

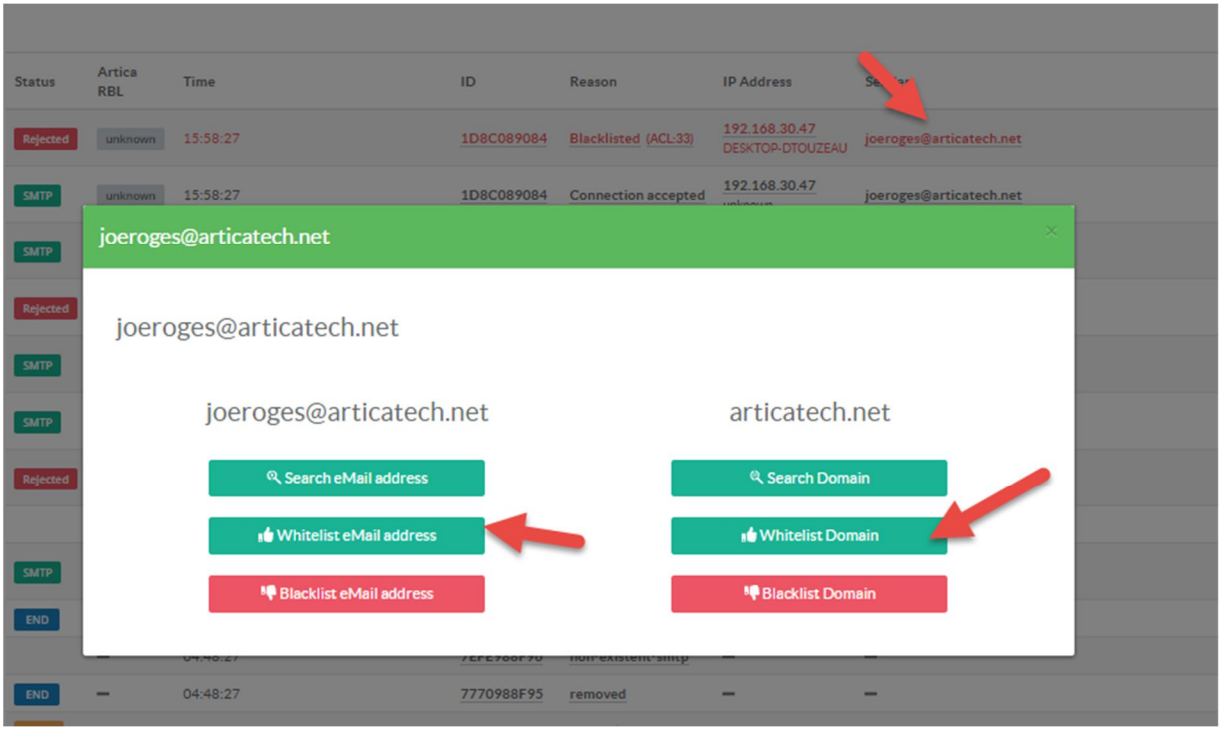
- **Sender: Regular expression**
- **Subject: Regular expression,**
- **Body: Regular expression**

BLACKLISTS AND WHITELISTS RULES

Blacklists rules and Whitelists rules are designed to refuse or allow any SMTP transaction from specifics items.

Basically, you can fill automatically this list from the **SMTP transactions list**

When clicking on the sender email address in the SMTP transactions, you can deny or allow the sender email address or the sender domain address.

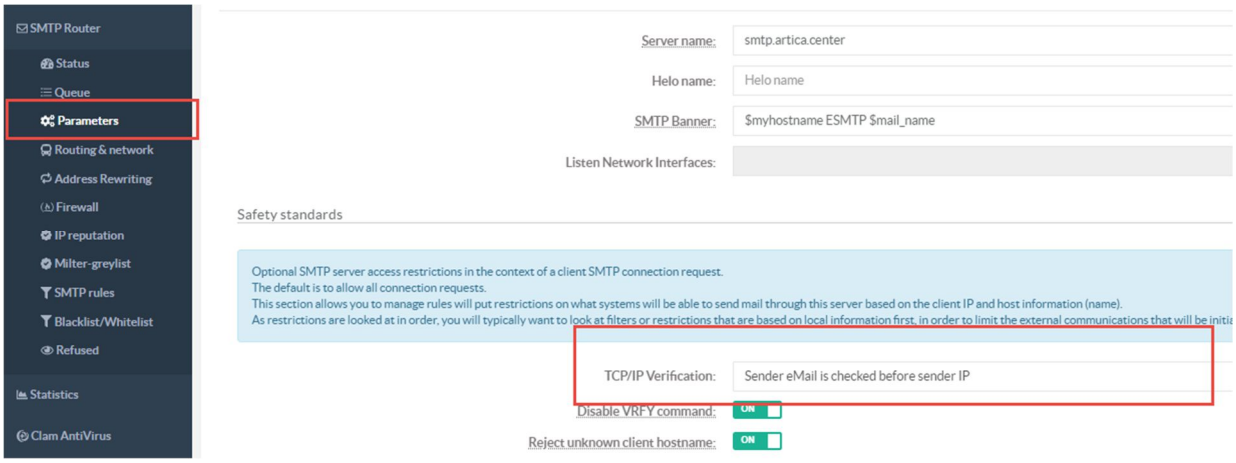


Whitelist checking

By default, the Artica SMTP server checks is a remote connection before any SMTP protocol task.
This means reverse hostname, reverse sender domain name, reputations servers are checked before checking sender eMail address
.
If you need to whitelist a sender eMail address that will not pass connection checking, the message will still be refused.

If you want to trust the sender eMail address, you need to reverse the IP checking method.
This way could be dangerous because the sender domain and eMail address can be easily compromise.

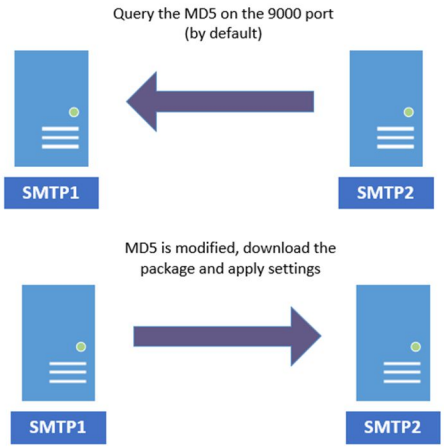
To reverse the IP checking methods, go to "**SMTP router**" and "**Parameters**" section.
Under "Safety standards", switch **TCP/IP verification** dropdown list to "**Sender eMail is checked before sender IP**"



In this case, whitelisted eMails will be not checked against IP addresses and messages will pass all tests.

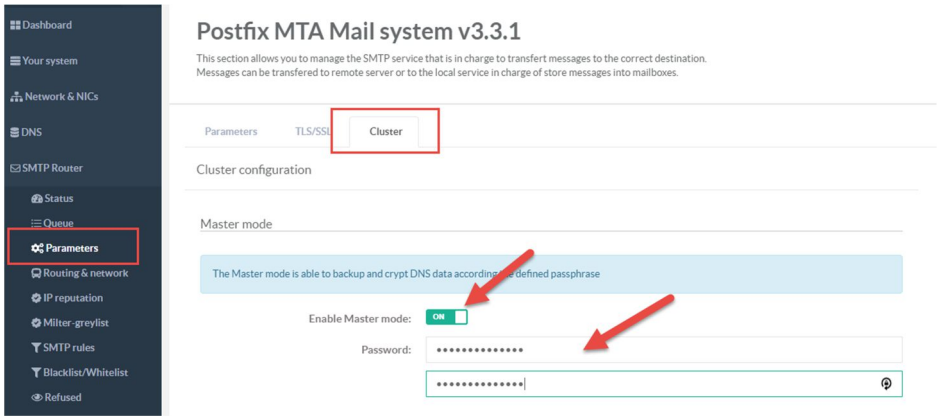
CLUSTER CONFIGURATION.

Cluster configuration allows a slave SMTP server to replicate configurations from a master server.
When administrator modify a parameter on the master, the master create a configuration package with an index file that stores the MD5 of the parameters.
The slave pool periodically the MD5 configuration package to see if there are changes.
If the MD5 is modfied, then the slave download the package and apply the whole settings.

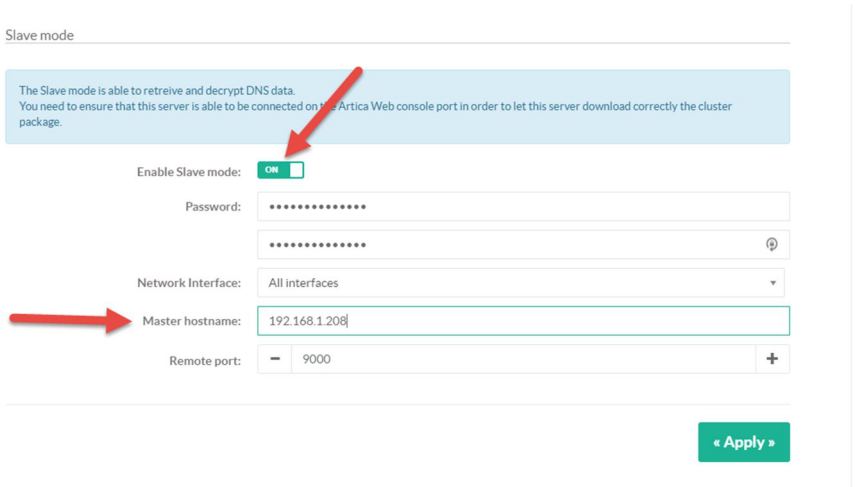


Replication is made trought the Artica Web interface (SSL).
The replication package is crypted with a defined password.

On the Artica server as "**Master server**", select "**SMTP Router**" and "**Parameters**" on the left menu.
Choose "**Cluster**" tab.
Turn on the "**Enable Master mode**"Set a **password** to encrypt the replication package.

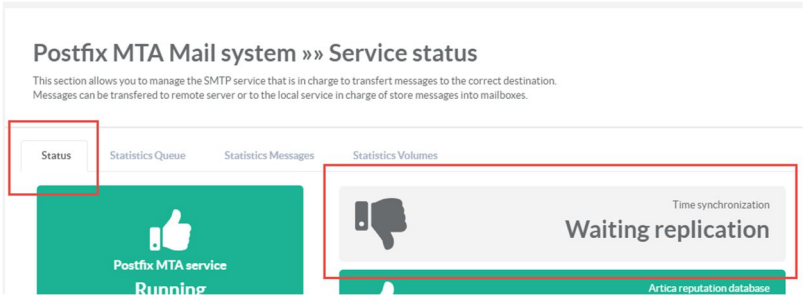


On the **Artica slave**, select "**SMTP Router**" and "**Parameters**" on the left menu.
Choose "**Cluster**" tab.
Turn on the "**Enable Slave mode**"
Set a **password** to decrypte the replication package (the same defined on the master)
Network Interface: If you have several Network interfaces, choose the right one that allow Artica to reach the master.
Master hostname: Set the address of the master server.
Remote port: Set the Web Artica interface port (default 9000).

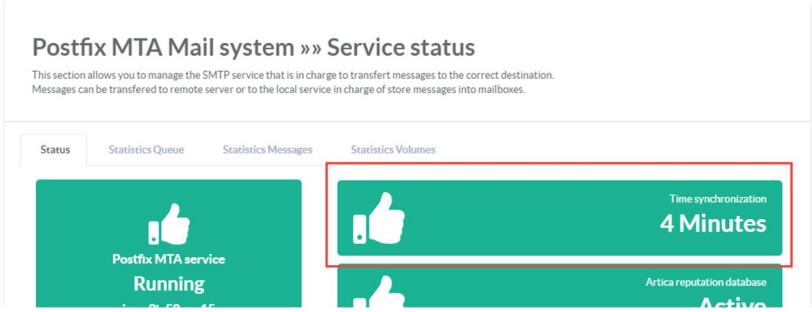


On the Slave, select “**SMTP Router**” and “**Status**” on the left menu.

You should see “**Waiting replication**” status.
This means the slave wait the schedule to synchronize data from the master.



Wait several times (5 minutes), you should see the synchronization delay

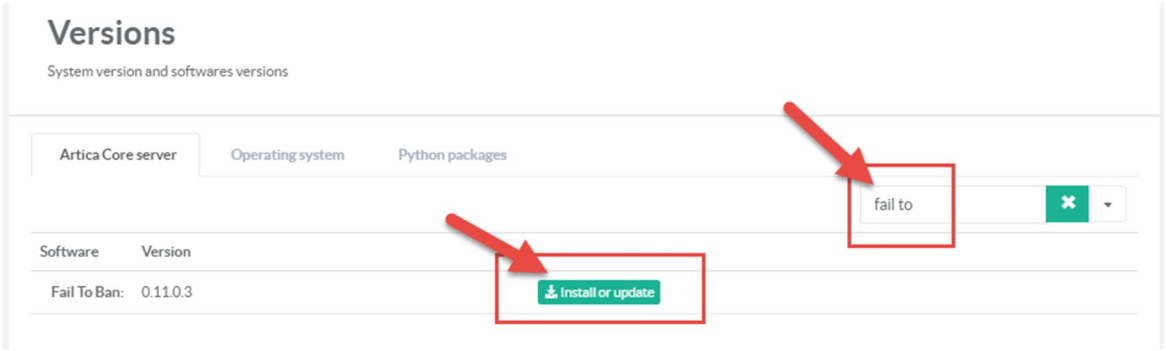


AUTOMATICALLY BAN IP IN FIREWALL BASED ON EVENTS.

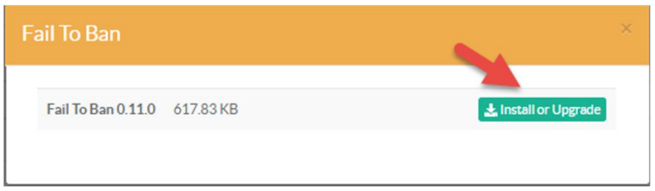
Many spammers did not checks that your server refuse connections according to enabled filters.
You have possibility to directly ban remote addresses during a defined period when the remote IP address is refused multiple times.
The service that is in charge of this feature is called “Fail2ban” .

Install the latest version

- ✓ On the Left menu, choose “**Your System**” and “**Versions**” on left menu.
- ✓ On the search field, type “Fai To”
- ✓ Click on **Install or update** button.

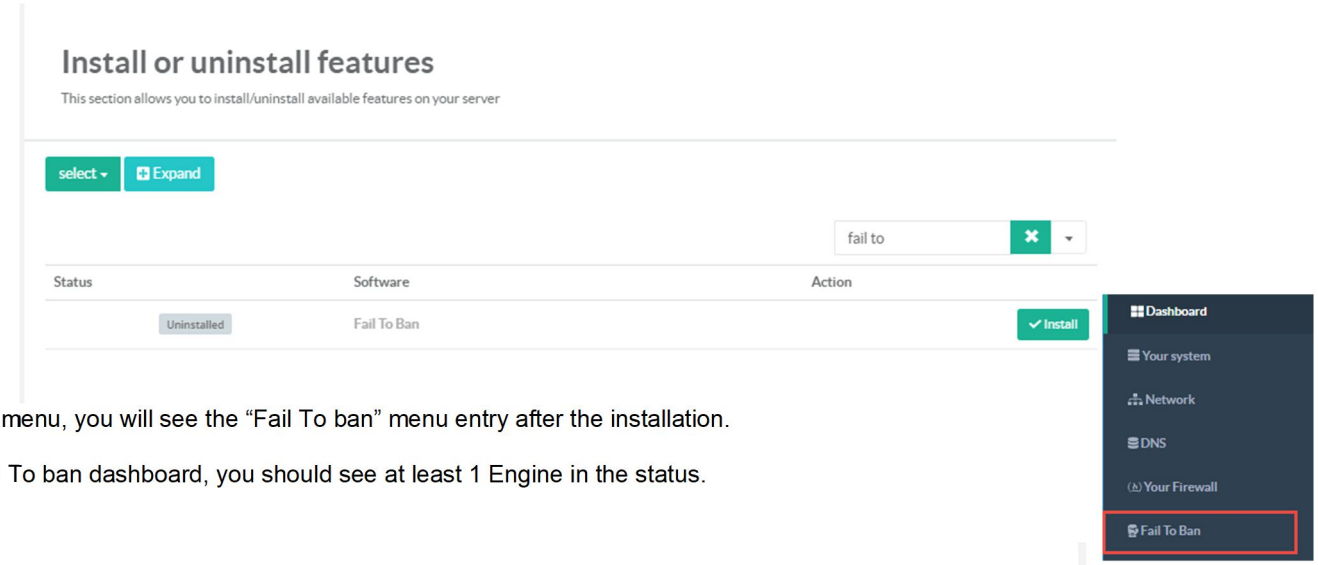


Click on “**Install or Upgrade**” on the desired version.

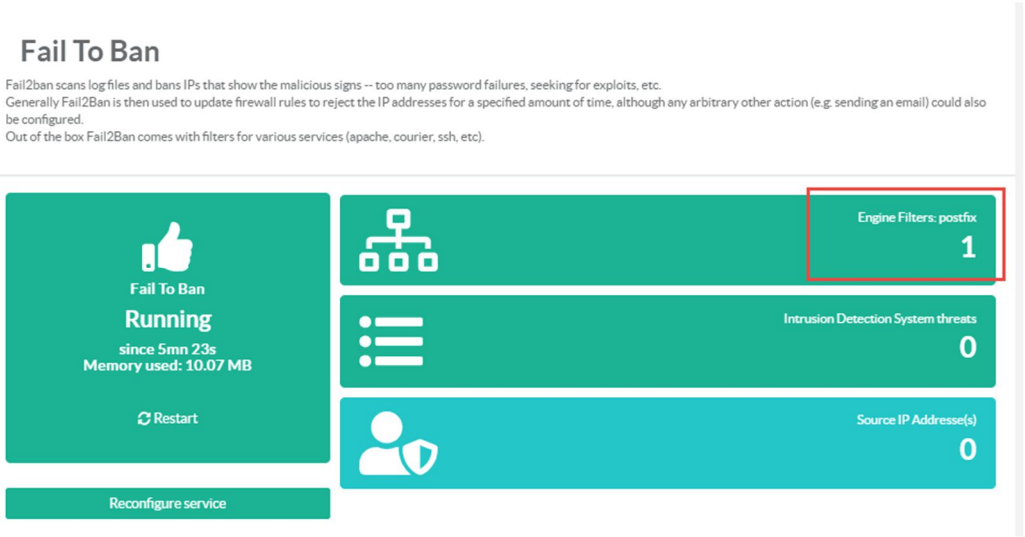


Install the Fail To Ban service

On the "**Features**" section search the entry "**fail to**" and click on "**Install**" button on the "**Fail To Ban**" row.



- ✓ In the left menu, you will see the "Fail To ban" menu entry after the installation.
- ✓ In the Fail To ban dashboard, you should see at least 1 Engine in the status.



- ✓ Basically you did not have to setup something, the service is automatically defined and setup in order to protect your SMTP service.

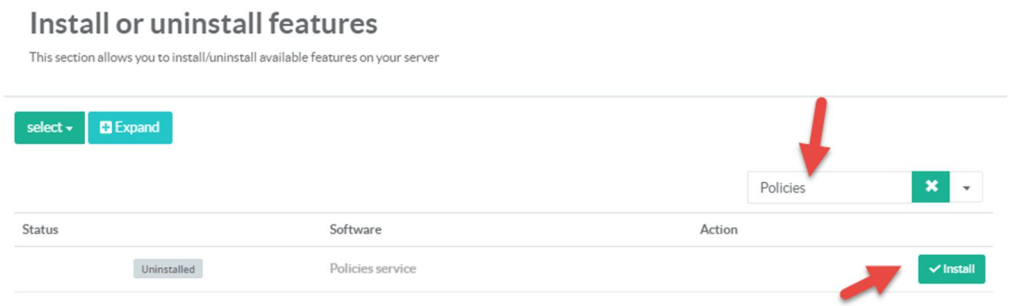
THE POLICIES SERVICE (ANTI-SPAM, ANTIVIRUS…)

The Policies service is a Milter that hook the MTA. It is designed to analyze content messages in order to find spam or malwares.
This service require a valid Corporate License.
It allows you to :

- ✓ Scan messages for Malwares.
- ✓ Scan messages for Anti-Spam.
- ✓ Perform backup messages in the fly.
- ✓ Add disclaimers in messages.
- ✓ Auto-compress messages

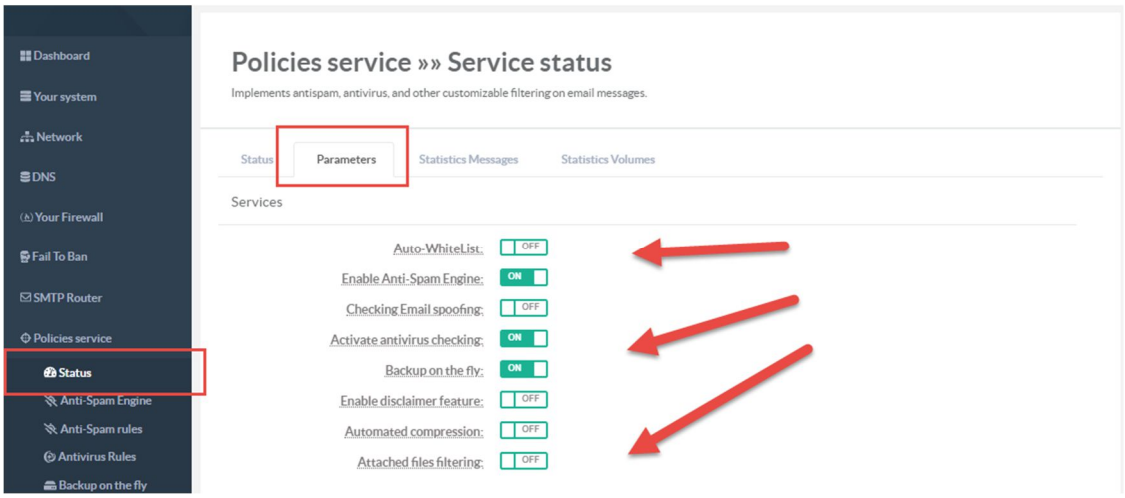
Install the Polcies services.

- ✓ On the feature section, in the search field, type "**Policies**"
- ✓ Click on "**Install**" button under the "**Policies service**" row.



Enable SMTP content features.

- ✓ On the left menu, click on **Policies service** and **status**.
- ✓ Select the "**Parameters**" tab.

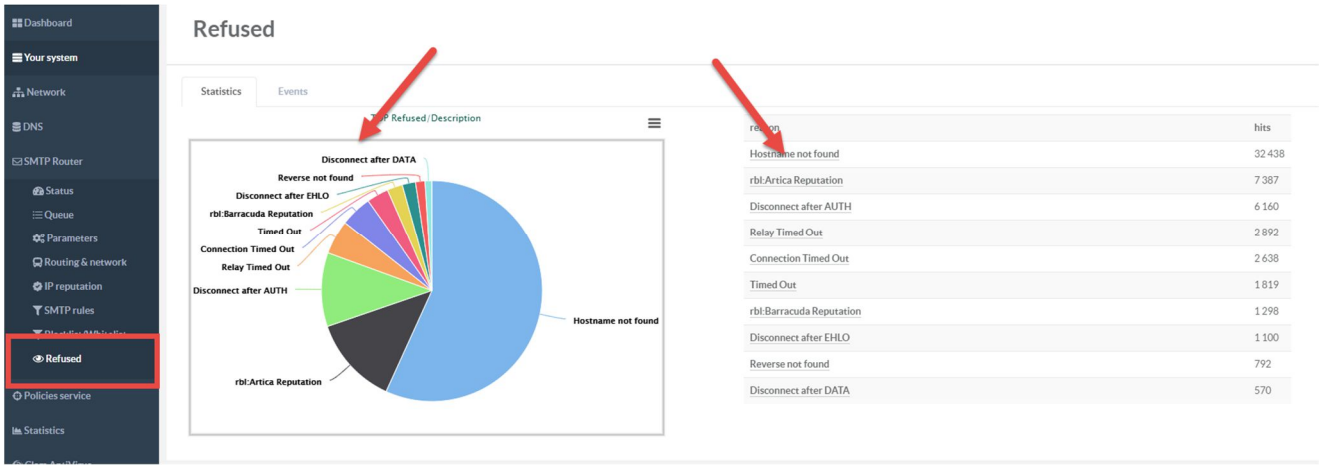


- ✓ **Auto-Whitelist**: Automatically add recipient email address to Whitelist database when your users send an eMail.
- ✓ **Enable Anti-Spam Engine**: Add the bayesien and scoring content Anti-spam engine.
- ✓ **Check eMail spoofing**: A foreign sender cannot use your internal domains to send eMail to your users.
- ✓ **Activate antivirus checking**: Scan message for malwares.
- ✓ **Backup on the fly**: Backup all messages that are forwarded by the SMP relay.
- ✓ **Enable disclaimer feature**: Allows you to add a disclaimer according SMTP rules.
- ✓ **Automated compression**: Allows the SMTP relay to zip compress attachments according SMTP rules.
- ✓ **Attached files filtering**: Remove unwanted files according files extensions.

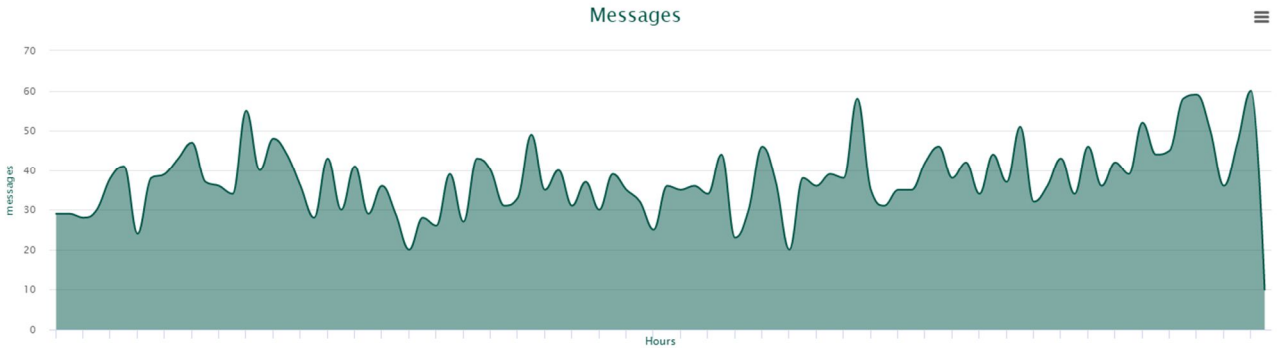
SMTP STATISTICS

Refused messages

- ✓ You can display graphs on refused messages in order to analyze your SMTP security rules.
- ✓ On the left menu, click on SMTP router and refused menu.
- ✓ The first tab allows you ti see a pie chart about the top 10 of blocked reason.
- ✓ On the right side, the table display the number of messages blocked.
- ✓ If you click on the link, you can display all messages that matches the specified blocked reason.



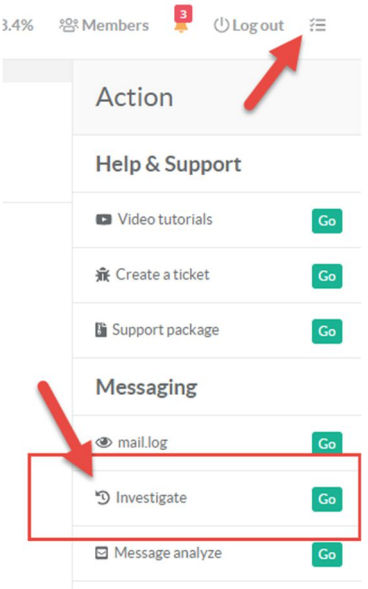
- ✓ You will see a chart that display bloced messages per hour for the current week



SMTP INVESTIGATION

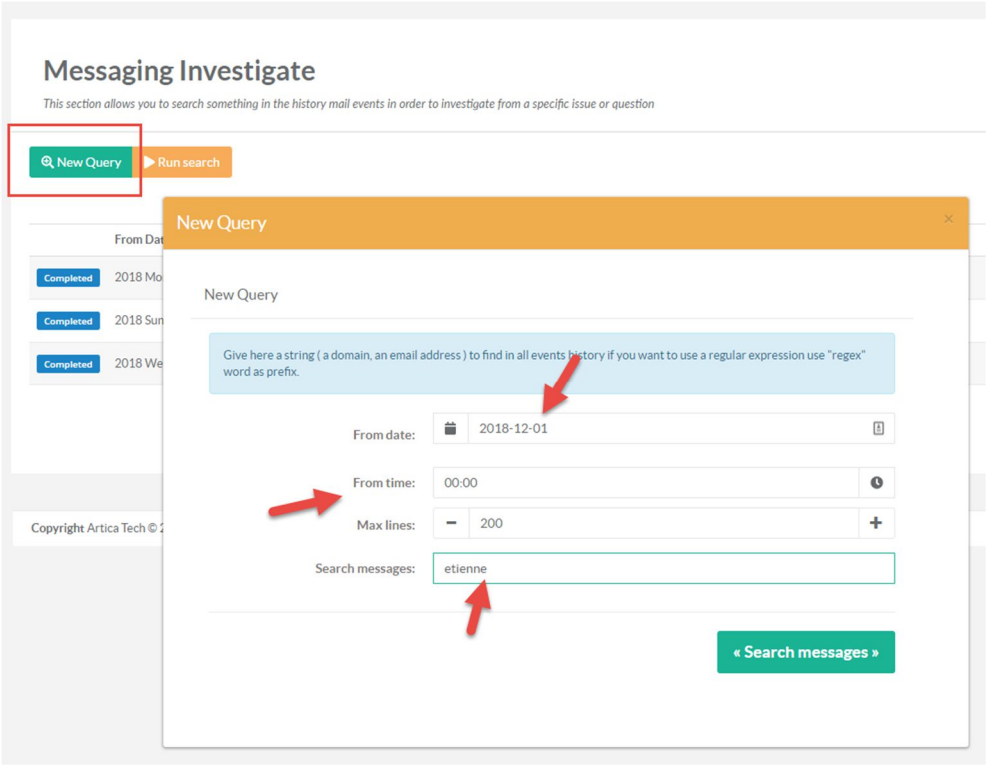
Each day the SMTP events log is saved in the backup logs directory.
If you need to retreive the history of some SMTP transaction you can use the tool “Investgate”

On the top menu, click on the icon near the log out item.



Under the “**Messaging**” section, select the “**Investigate**” option.

You can create a **new query** that allows you to parse events in current and backuped logs



- ✓ Set the start date of your query and the time start.
- ✓ Define the max number of lines
- ✓ In the search messages, put a string that you want to find in events.
- ✓ This should be a name, an email address, a domain…(the “*” character is supported)
- ✓ If you want to put a regular expression, use “**regex**” suffix

Examples:

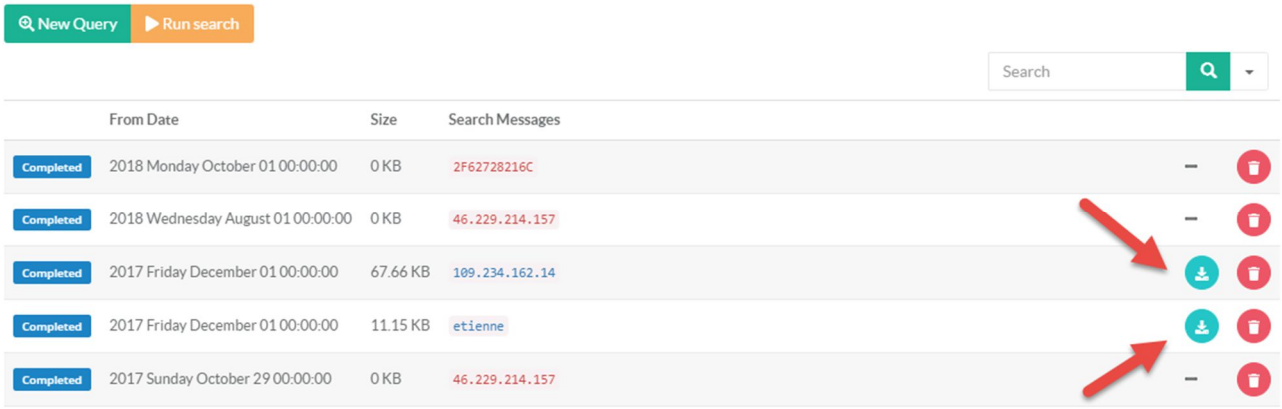
```
dummy@domain.tld
@domain.tld
*.domain.tld
regex domain.[a-z]+
```

After run the query, a download icon can be displayed in your query history.

Your search pattern is turned to **blue**.

This means you have found events in history and you can download the extracted events.

If the search pattern is “**red**”, it’s means nothing was found in your query.



WORDPRESS ADMINISTRATION.

Artica is able to manage Wordpress web sites.
With Artica your are able to easily install/backup/restore Wordpress websites.

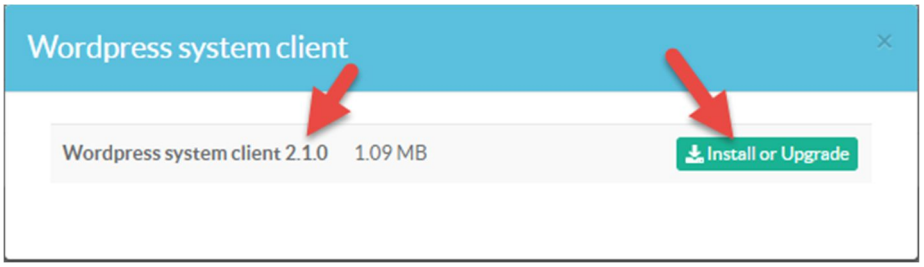
PREPARE ARTICA FOR WORDPRESS

You need to install Wordpress system client, MySQL database, Nginx Web service and finally enable the Wordpress Artica feature

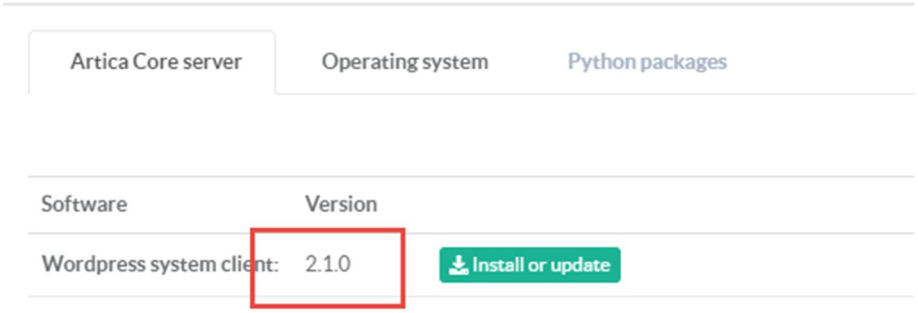
Install Wordpress system client

- On the left menu, go to **Your System/Versions**
- Search the item "**Wordpress**"
- Click on "**Install or update**" button on the Wordpress system client row

- Choose the latest version and click on **"Install or Upgrade**" button

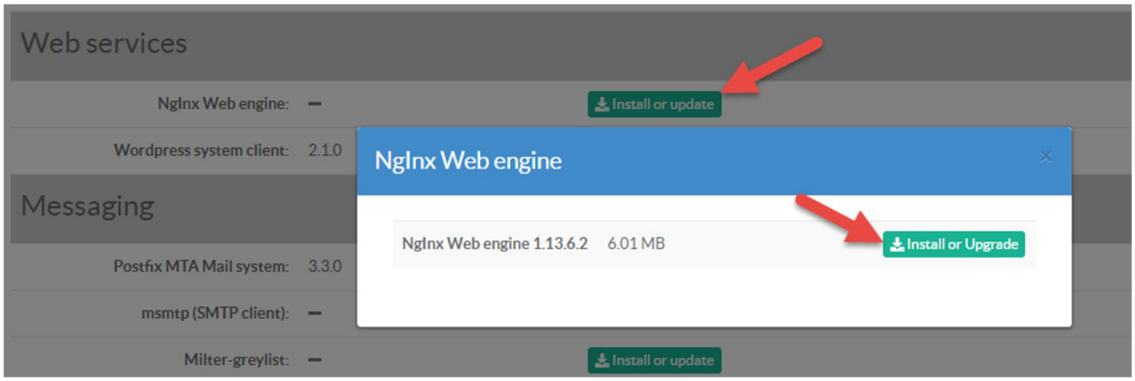


- You should see the version number in the Wordpress system client row

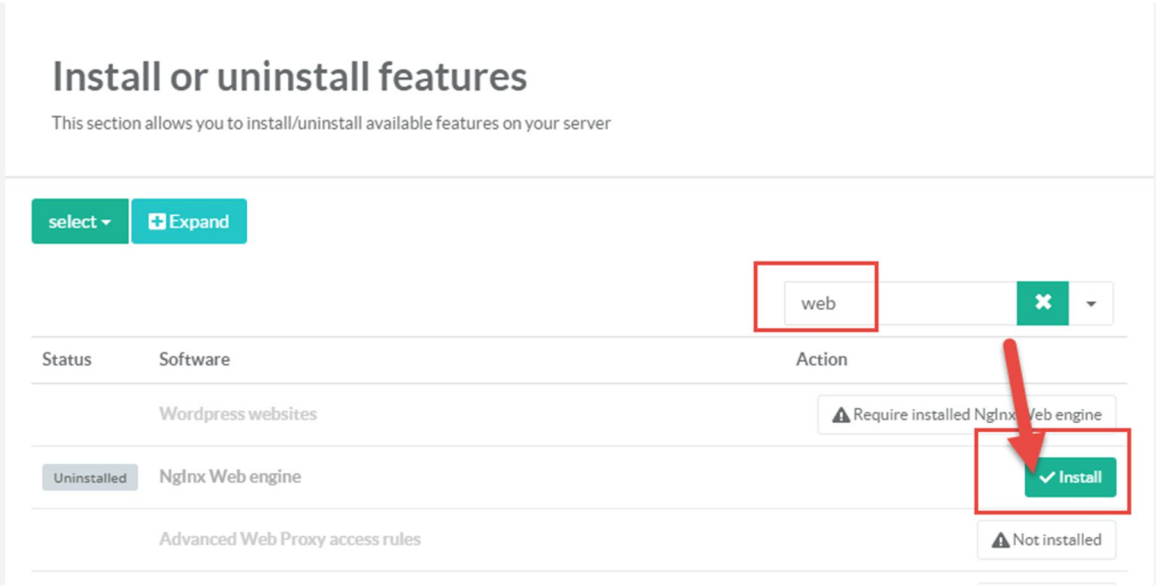


Install the NgInx Web engine

In the same way of the Wordpress client, checks the "**NgInx Web engine**" version and installation



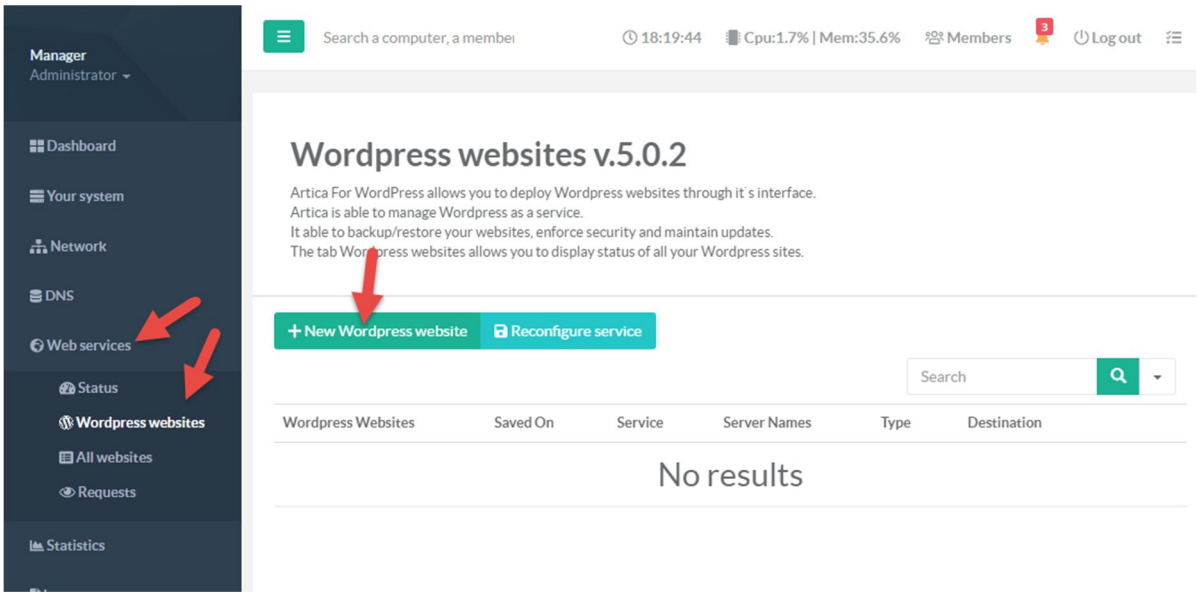
- On the left menu, go into Your **System/Features**
- On the search field, type the word "**web**"
- Click on "**Install**" On the "**Nginx Web engine**" row



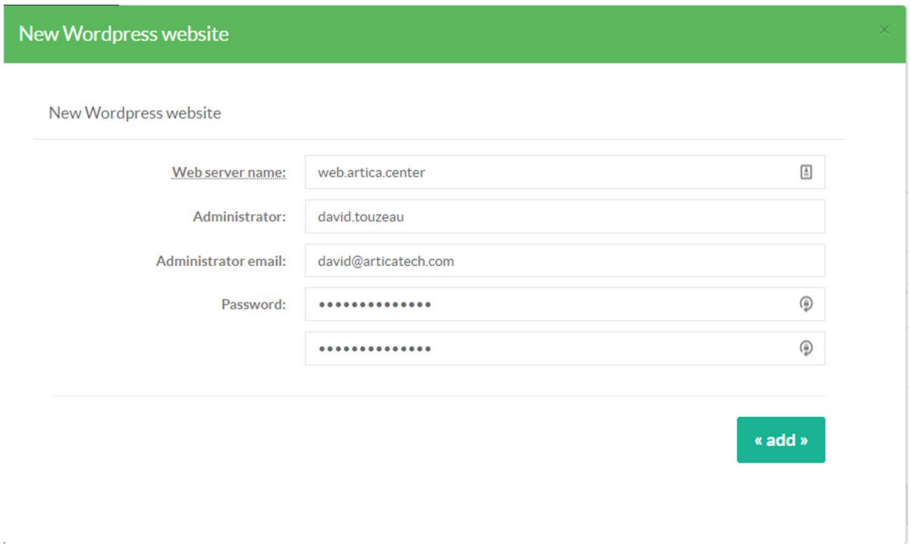
- Click on **Install** on the **Wordpress Websites** row

CREATE YOUR FIRST WORDPRESS WEBSITE

- On the left menu, go to **Web services / Wordpress websites**
- Click on the button "**New Wordpress website**"



- Set your web site name in Web server name field.
- Define the administrator of the new web site name.
- Set it's email in order to create certficate or notifications.



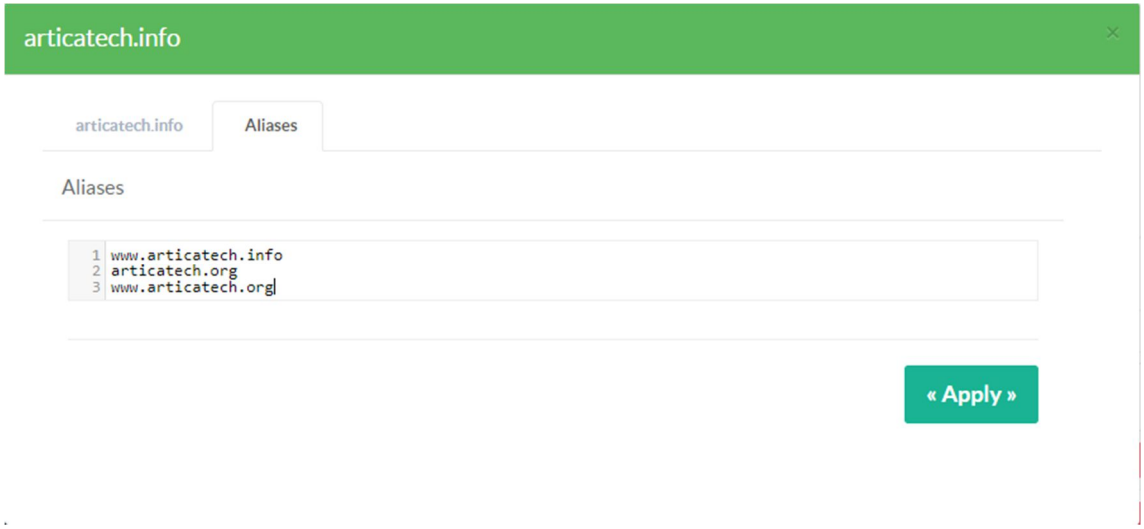
The Wordpress Administrator password is re-defined each time you configure the Web site, in this case you did not have to modify it trough the Wordpress Web console.
In this way, modify the password in this section helps you to recovery your Wordpress adminisrator password.

DOMAINS ALIASES

If you plan to accept multiple domains for your wordpress site :

- Click on the sitename in the table.
- Open the aliases tab

Set all domains you want your Wordpress accept.



ENABLE OR DISABLE A WEBSITE

Enable or disable a website make it available or unavailable on the Net.
You can enable/disable by check/unckeck the checkbox in the enabled column.

After enabled or disabled your select websites, click on the “Reconfigure service” button in order to make your changes in production mode.