

GestióIP IPAM

v2.2.8

IP address management software

Documentation

v0.2

www.gestioip.net

Table of Contents

1 Introduction.....	5
2 Use.....	6
2.1 Access.....	6
2.2 Show networks.....	6
2.3 Show network entries.....	8
2.3.1 Host list view.....	8
2.3.2 Host overview.....	10
2.3.3 Host status view.....	11
2.3.4 Host check.....	11
2.4 Search functions.....	13
2.4.1 Quick search.....	13
2.4.2 Advanced network search.....	14
2.4.3 Advanced host search.....	15
2.5 History.....	15
2.6 Audit.....	15
3 Administration.....	19
3.1 Administration of host entries/IP addresses.....	19
3.1.1 Insert or edit host entries.....	19
3.1.2 Delete host entries.....	20
3.2 Network administration.....	21
3.2.1 New - add networks manually.....	21
3.2.2 Change/delete networks.....	24
3.2.2.1 Edit.....	25
3.2.2.2 Reserved ranges.....	25
3.2.2.3 Manual update against DNS.....	27
3.2.2.3.1 Generic rDNS entries.....	28
3.2.2.4 Manual host update via SNMP.....	30
3.2.2.5 Split.....	31
3.2.2.6 Clear.....	33
3.2.2.7 Delete.....	33
3.2.3 Join networks.....	33
3.2.4 Show free ranges.....	34
3.2.5 Subnet calculator.....	35
3.3 VLANs.....	36
3.3.1 Show.....	36
3.3.2 New.....	37
3.3.3 Unify.....	37

3.3.4 VLAN provider.....	38
3.3.4.1 Show VLAN provider.....	38
3.3.4.2 New VLAN provider.....	39
3.3.5 Import VLANs via SNMP.....	39
3.4 Manage GestióIP (global configuration parameters).....	40
3.4.1 Client independent configuration parameters.....	41
3.4.2 Client specific configuration parameters.....	41
3.4.3 Manage audit db.....	43
3.5 Clients.....	45
3.5.1 Manage clients.....	45
3.5.1.1 Add clients.....	46
3.5.1.2 Edit clients.....	46
3.5.1.3 Delete clients	47
3.6 Sites and categories.....	47
3.6.1 Sites.....	47
3.6.2 Network categories.....	48
3.6.3 Host categories.....	48
3.7 Custom columns.....	50
3.7.1 Predefined custom columns.....	50
3.7.2 Add columns.....	52
3.7.3 Delete columns.....	52
3.8 Statistics.....	53
4 Database initialization.....	54
4.1 Discovery.....	54
4.2 Import networks via SNMP.....	57
4.2.1 Manual import via SNMP.....	57
4.2.2 Script based network import via SNMP.....	59
4.3 Import from spreadsheet.....	60
4.3.1 Import networks from spreadsheets.....	60
4.3.2 Import hosts from spreadsheet.....	63
5 Advanced functions.....	65
5.1 Database configuration (ip_config).....	65
5.2 Authentication/access control.....	65
5.2.1 Default authentication.....	66
5.2.1.1 Create new accounts.....	66
5.2.1.2 Change users password.....	67
5.2.1.3 Delete accounts.....	67
5.3 Export networks or hosts to CSV.....	68

5.4 Add a new language.....	69
6 Automatic update.....	72
6.1 Script directory structure.....	73
6.2 Command line options.....	73
6.3 Configuration.....	75
6.4 Automatic execution with cron.....	77
6.5 Required Perl Modules.....	79
6.5.1 Manual installation of missing Perl modules.....	80
6.5.1.1 SNMP::Info and Netdisco MIBs.....	81
7 General information.....	82
7.1 Backup.....	82
7.2 Firewall rules.....	82
7.3 Java-script.....	83
7.4 Cookies.....	83
8 License.....	83
Appendix A.....	84

1 Introduction

GestióIP is an automated, web-based IP address management (IPAM) software. It is designed to collect information in an automated way, making its maintenance cost low. It offers web forms to import networks from spreadsheets or from the routing tables of SNMP-enabled devices and web-based synchronization of the networks against the DNS. It also allows for cron-scheduled automatic update of the host entries via SNMP, against the DNS or an OCS Inventory NG that ensures that GestióIP's database is always up to date (see 6).

Over 90% of the work with an IPAM system accounts for access to information. GestióIP is optimized in order to find easily and fast the desired information by featuring effective search functions which are accessible from every page, allowing the use of Internet-Search-Engine equivalent expressions (see 2.4).

Since the system disposes about customizable columns, GestioIP's network and host list views can be adapted to meet the specific needs for every organization (see 3.7).

However, it also depends on users. Users can introduce the information in user's field of responsibility which seems relevant for this user or for their colleagues: The windows admin can put e.g. comments like PDC domain XYZ, BDC... The database admin can introduce the SIDs... and the network admin can add a comment like "TFTP" or mark the administrative interfaces of the firewalls and routers. If this is done, GestióIP can be more than an overview of current networks and IP addresses. It is a knowledge base for the small things admin must remember every day.

2 Use

2.1 Access

Open the following URL to access GestióIP:

`http://servername/gestioip`

Replace "servername" with the DNS name or the IP address of the web server.

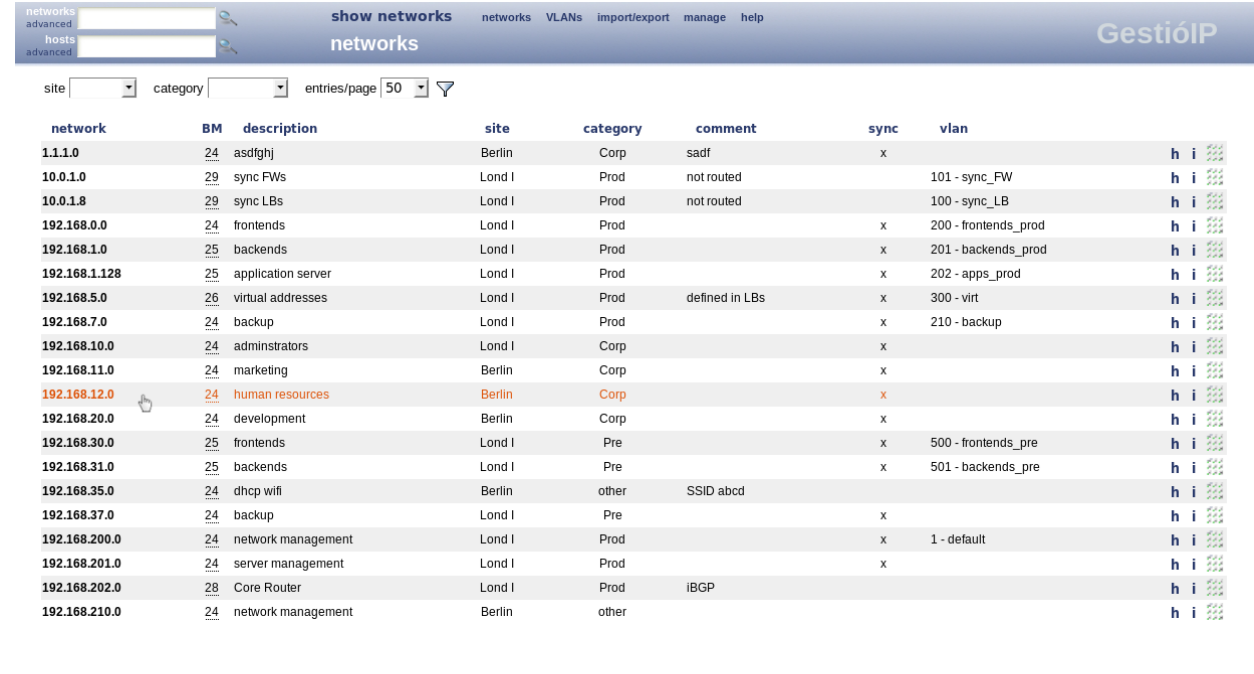
rw default user: gipadmin

ro default user: gipoper

Use the passwords which you introduced during the installation (using command `htpasswd`).

2.2 Show networks

The front page gives an overview of all networks.



The screenshot shows the GestióIP web interface. At the top, there are navigation tabs for 'networks', 'VLANs', 'import/export', 'manage', and 'help'. The main content area displays a table of networks with columns for network, BM, description, site, category, comment, sync, and vlan. The table lists various network configurations across different sites like Berlin and Lond I.


network	BM	description	site	category	comment	sync	vlan
1.1.1.0	24	asdfghj	Berlin	Corp	sadf	x	
10.0.1.0	29	sync FWs	Lond I	Prod	not routed		101 - sync_FW
10.0.1.8	29	sync LBs	Lond I	Prod	not routed		100 - sync_LB
192.168.0.0	24	frontends	Lond I	Prod		x	200 - frontends_prod
192.168.1.0	25	backends	Lond I	Prod		x	201 - backends_prod
192.168.1.128	25	application server	Lond I	Prod		x	202 - apps_prod
192.168.5.0	26	virtual addresses	Lond I	Prod	defined in LBs	x	300 - virt
192.168.7.0	24	backup	Lond I	Prod		x	210 - backup
192.168.10.0	24	administrators	Lond I	Corp		x	
192.168.11.0	24	marketing	Berlin	Corp		x	
192.168.12.0	24	human resources	Berlin	Corp		x	
192.168.20.0	24	development	Berlin	Corp		x	
192.168.30.0	25	frontends	Lond I	Pre		x	500 - frontends_pre
192.168.31.0	25	backends	Lond I	Pre		x	501 - backends_pre
192.168.35.0	24	dhcp wifi	Berlin	other	SSID abcd		
192.168.37.0	24	backup	Lond I	Pre		x	
192.168.200.0	24	network management	Lond I	Prod		x	1 - default
192.168.201.0	24	server management	Lond I	Prod		x	
192.168.202.0	28	Core Router	Lond I	Prod	IBGP		
192.168.210.0	24	network management	Berlin	other			

Fig. 1: Front Page

Click over the corresponding network to list all of it's IP addresses or access directly to

h *history* of this network

i *general information* about this network (% usage and subnet-calculator like information)

 *host overview* of this network

Hover over the bitmask (BM) of the networks to display the netmask and the maximal number of hosts.

192.168.20.0	24	development	Berlin	Corp
192.168.30.0	25	frontends	Lond I	Pre
192.168.31.0	25	backends	Lond I	Pre
192.168.35.0	24	other	Berlin	other
192.168.37.0	24	backup	Lond I	Pre

Fig. 2: Details shown by hovering over a BM entry

With the filters "site" and "category" you can list networks by *site* and/or by *category*. You can for instance list all networks from *site X*, all networks of the production environment or all networks from *site X* which are in the production environment.

Note

Use "network quick search" to locate individual networks. Search e.g. for "150" to find network 192.168.150.0 (see 2.4)

2.3 Show network entries

GestióIP offers different views of network: *host list view*, *host overview* and *host status view*.

2.3.1 Host list view

To list all IP address of a network, open the front page and click over the corresponding network.

IP	hostname	description	site	type	AI	comment
● 192.168.0.1	fw1-fw2_vrrp		Lond I	FW		
● 192.168.0.2	fw1		Lond I	FW		
● 192.168.0.3	fw2		Lond I	FW		
○ 192.168.0.4			Lond I			
● 192.168.0.5	jupiter.gestioip.net		Lond I	L2 device		
● 192.168.0.6	saturn.gestioip.net		Lond I	L2 device		
● 192.168.0.7	pluto.gestioip.net		Lond I	L2 device		
● 192.168.0.8	europa.gestioip.net		Lond I	L2 device		
● 192.168.0.9	io.gestioip.net		Lond I	L2 device		
● 192.168.0.10	atair.gestioip.net		Lond I	L2 device		
● 192.168.0.11	unknown		Lond I	L2 device		

Fig. 3: Host list view

Click “free” to show only unassigned or “used” to show only assigned IP addresses.

The colored point in front of the IP addresses shows the result of the last check via “ping” (see 6). By hovering over the point, date of last check will be displayed. Clicking the point executes the *host check*.


host list view offers at the end of each line furthermore links to

h access the *history* of this IP address


edit the entry


delete the entry


and links to the following network manipulation buttons at the top of the page.


 *edit* – to resize bitmask or edit description, site, category, comment or status of automatic synchronization (see 3.2.2.1)

 *reserved ranges* – to reserve or delete reserved IP address ranges (see 3.2.2.2)

 *manual update* – to synchronize the network entries against the DNS (see 3.2.2.3)

 *manual update via SNMP* – to synchronize the networks via SNMP (see 3.2.2.4)

 *split network* – to split network into smaller subnets (see 3.2.2.5)

 *clear network* – delete all entries of the network (entries of reserved ranges will be maintained) (see 3.2.2.2)

Note

Networks with a bitmask smaller than the value of "smallest_bm" cannot be listed (see 3.4). Default value: 16.

Note

Functions "reserved ranges", "manual synchronization", "network overview" and "host status view" are not available for networks with a BM smaller than 20.

2.3.2 Host overview

The *host overview* gives an overview about the host types of a network.

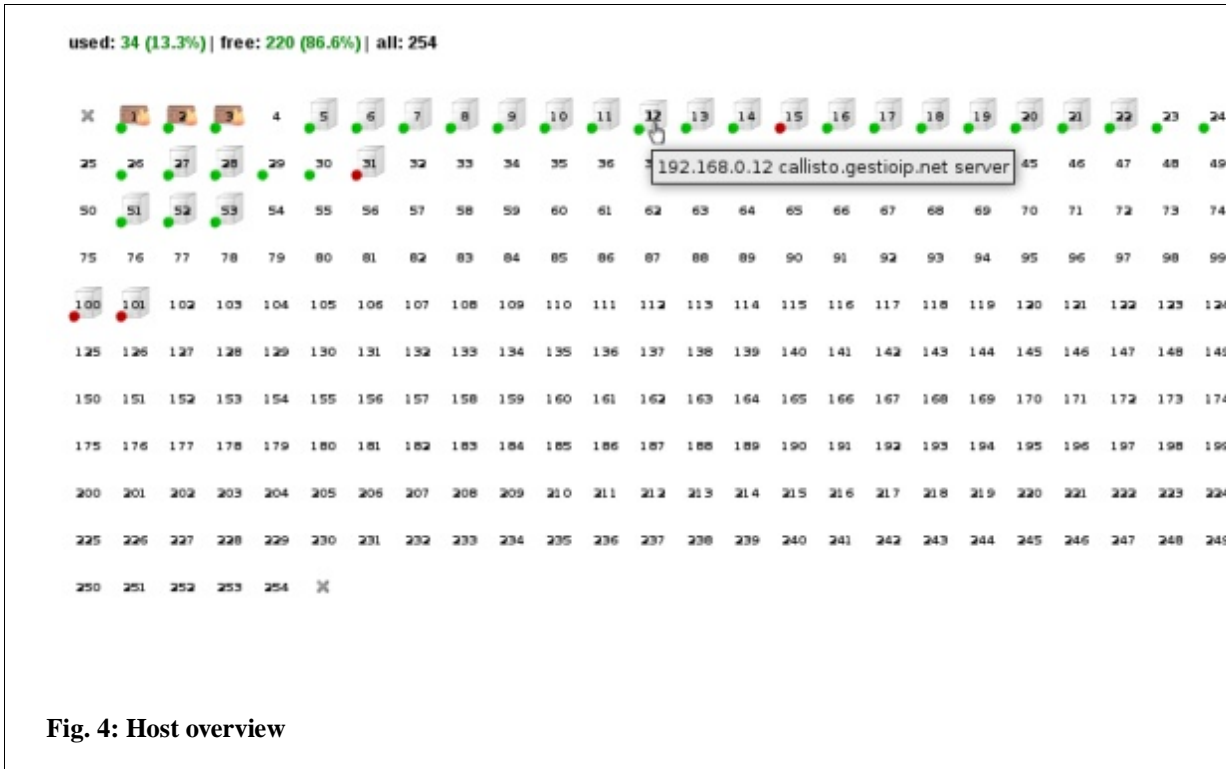
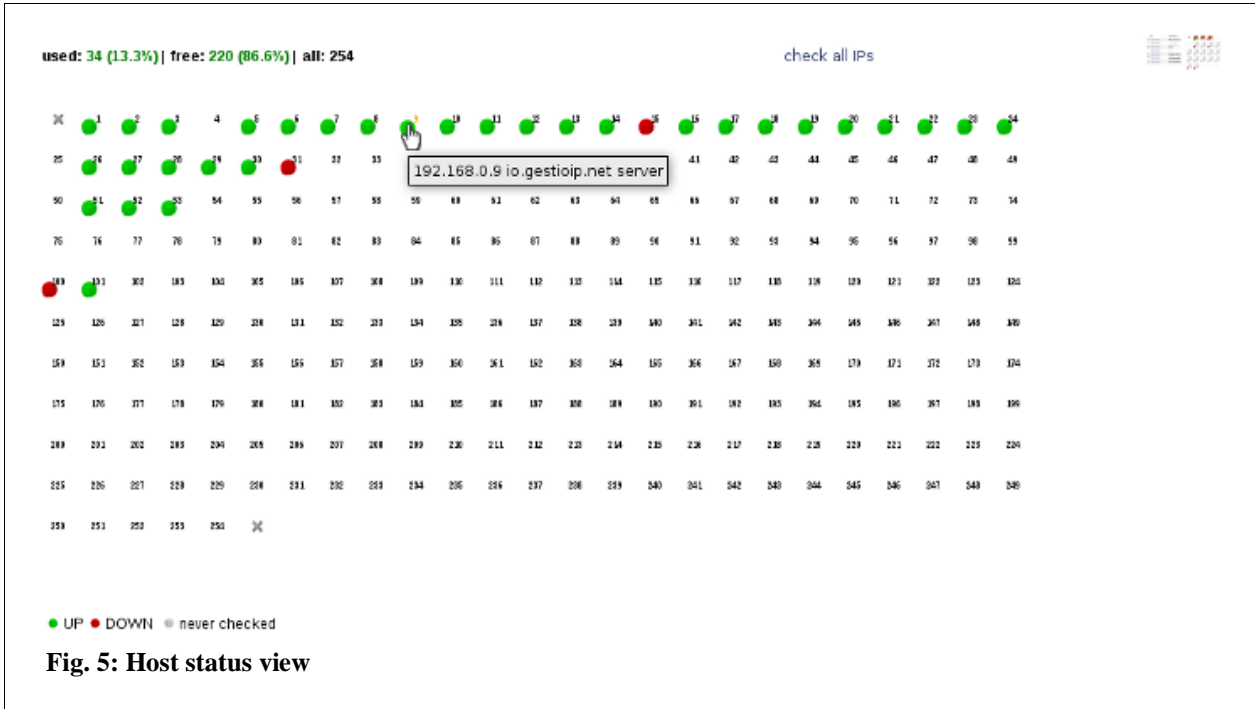


Fig. 4: Host overview

Access to *edit host* form by clicking on an IP address.

2.3.3 Host status view

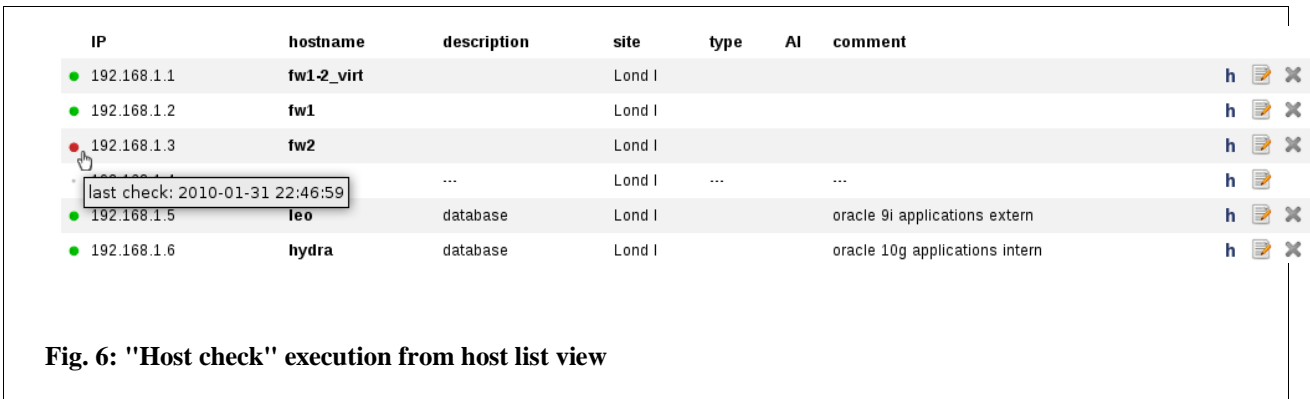
Host status view shows the status of all IP addresses of a network in a compact manner.



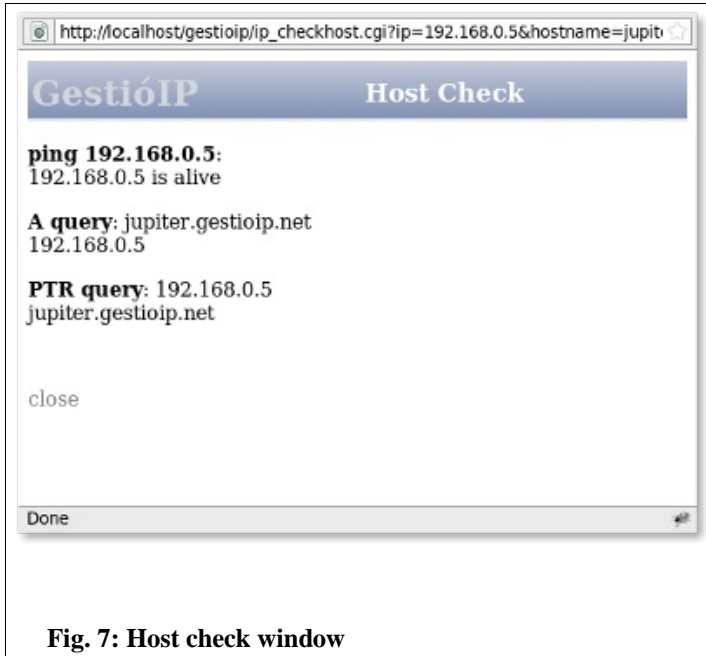
Execute the *host check* by clicking on an IP address. To check the status of all addresses of a network click "check all IPs". Unassigned addresses will be indicated with a blinking number.

2.3.4 Host check

To execute the host check access the relevant network and click over the point in front of the IP address.



GestióIP checks the IP address with an ICMP echo request ("ping") and executes a DNS PTR query. When the IP address has an PTR entry, GestióIP executes a DNS A query with the result of the PTR query.



The *host check* is also available from *host status view* and from the *edit host*-form.

Note

If results of DNS A and PTR query don't correspond make sure that there is no DNS misconfiguration.

2.4 Search functions

GestióIP offers two different search engines. The *quick search* and the *advanced search*.

2.4.1 Quick search

The *quick search* for networks and for hosts in the menu bar are accessible from all pages.

The *quick search* for networks executes a search in the following database fields: *network* (IP), *description*, *site*, *category*, *comment* and *custom network columns*.

The *quick search* for host entries searches the fields *IP*, *hostname*, *description*, *site*, *type*, *comment* and *custom host columns*.

The quick search allows Internet Search Engine equivalent expressions like *-string_to_ignore*, *+exact_match* and *"exact match"*. A single string will be processed like "%search-string%". By using search-string "192", GestióIP lists all networks with an ID containing "192". With search-string "dhcp", it lists all networks with descriptions or comments containing "dhcp". With search-string "192 prod" it will list all networks of production environment whose ID contains "192".

The search isn't case sensitive.

Search expression examples:

entry: **foo bar**

<i>expression</i>	<i>result</i>
fo	match
FO	match
foo	match
bar foo	match
foo -ba	match
foo -bar	no match
+fo	no match
+foo	match

"bar foo"	no match
"foo bar"	match
"oo ba"	match

2.4.2 Advanced network search

The advanced search executes a search in specific database fields.

client independent

network ID: * *

description: * *

comment: * *

site:

category:

Synchronized: all only synchronized networks only not synchronized networks

search to change/delete networks

Fig. 8: Advanced network search

You can search for instance all production networks which are not included within the automatic synchronization (see 6) or all networks of site xy where the description contains "backup".

When the check-box "to change/delete networks" is checked, the network manipulation buttons *change*, *ranges*, *synchronize*, *split*, *clear* and *delete networks* are shown within the search result.

Note

If you have multiple clients configured, there appears the new check-box "client independent search" which permits to execute a search through GestioIP's database ignoring to which client the network belongs. The client will be shown within the search result.

2.4.3 Advanced host search

If the check-box "exact match" behind the hostname field is checked, only hosts with hostname entries identical to the search string would be listed. If not, the search string would be processed like "%search_string%".

Example: search for "foo"

Result without marked check-box: foo, foo1, foo.bar.com...

Result with marked check-box: foo

2.5 History

The history is available for both, networks and hosts. It lists IP address or network specific events from the audit db. Access network history from the *network list view* and host history from *host list view* by clicking the **h** icon.

Note

History information is extracted from audit log. Deleting old audit events causes history entries to also be deleted.

2.6 Audit

The audit system logs all events to GestioIP's database.

To access the audit log click on "manage" -> "audit".

time range **or** date from to search string type class event entries/
page

4 weeks ▼ 14/02/2010 16:04 28/02/2010 16:04 ▼ ▼ ▼ 100 ▼ 🔍

Fig. 9: Audit log filter

The audit page offers flexible search and filter functions for all audit fields.

"time range" *or* **"date from ... to"** - mark the radio button to either show entries of a time range (e.g. last 4 weeks) *or* to specify a start and an end date.

"search string" - search for an individual search string. Searches all audit specific database fields.

"type" - search for a specific event type.

GestióIP recognizes the following event types:

<i>event type</i>	<i>description</i>
man	manual events launched from GestióIP's web interface
auto	event created by the automatic updating of GestióIP v2.2.5 (DNS, OCS, import via SNMP)
man dns	manual network synchronization against the DNS (via Web interface)
auto dns	automatic network synchronization against the DNS
auto ocs	automatic network synchronization against the OCS Inventory NG
man snmp	manual import of networks from snmp-enabled devices
auto snmp	automatic import of networks from snmp-enabled devices
man net sheet	manual import of networks from spreadsheet
man range	Events in relation with ranges (create, delete)
man host sheet	manual import of hosts from spreadsheet
red cleared	all entries of a network manually deleted

"class": Search for event class

GestióIP recognizes the following event classes:

<i>event class</i>	<i>description</i>
host	for events related to host entries (e.g. host deleted, host edited, ...)
net	for events related to networks (e.g. network added, network split, reserved range added, network synchronized against DNS, ...)
security	for events related to security (e.g. old audit events deleted)
dns	unused
admin	For changes in GestioIP's configuration
conf	automatic network synchronization against the DNS
man_vlan	manual events related to to VLANs
vlan_auto	automatic update of VLAN database
ini_man	Manual execution of discovery process
ini_auto	unused

"event": Search for events like (host edited, host deleted, range added, ...)

"entries/page": Define the number of found entries per page.

"user": Can be found using the field "search string".

The shown user can either be a system user (for AUTO events) or a GestióIP user (for MAN events created from actions carried out manually via front end Web).

Note

If you configure authentication with individual accounts, audit will show individual users (see 2.6). When using generic accounts (e.g. gipadmin) it is not possible to directly reproduce who has made which changes.

Format of entries:

Hosts events: IP, hostname, description, site, category, comment, administrative interface

Network events: IP/bitmask, description, site, category, comment, synchronized

Note

If you have multiple clients configured, there appears the new check-box “all clients” which permits to execute a search through GestioIP's database client independently. The client will be shown within the search result.

Note

To delete old audit events or to see how many events are currently stored in the database, go to “manage” -> “manage GestióIP”

3 Administration

3.1 Administration of host entries/IP addresses

To manage host entries/IP addresses, access *host list view* by clicking on the relevant network.

IP	hostname	description	site	type	AI	comment	vendor	OS
● 192.168.0.1	fw1-fw2_vrrp		Lond I	FW				h
● 192.168.0.2	fw1		Lond I	FW				h
● 192.168.0.3	fw2		Lond I	FW				h
● 192.168.0.4			Lond I					h
● 192.168.0.5	jupiter.gestioip.net		Lond I	server				h
● 192.168.0.6	saturn.gestioip.net		Lond I	server				h

Fig. 10: Host list view

3.1.1 Insert or edit host entries

Click on the "edit" icon behind the IP address to insert or edit host entries .

IP	hostname	description	site	category	AI	comment	UT
192.168.0.5	jupiter.gestioip.net	<input type="text"/>	Lond I	server	<input type="checkbox"/>	<input type="text"/>	dns

custom columns

vendor

OS

[change](#)

Fig. 11: Edit host form

Hostname – Name to identify the node. If a node has more than one interface it is advisable to introduce the same hostname for all IPs or to introduce the hostname in the comment field of all IPs of the node – so that the search function finds all IPs of a node when searching for its hostname - mandatory field

Description – Short description of the node - optional field

Site – Physical location of the node – mandatory field

Category – Category of the node – optional field

AI (Administrative Interface) – To mark the IP address to access the node (to administrate it) in case the node has more than one network interface – optional field

Comment – To point out whatever seems to be interesting regarding this node – optional field

UT (Update Type): Relevant for manual synchronization against DNS and automatic update (see 6)

- *man* – Entries which are marked as "man" will never be overwritten.
- *ocs* – Entries created by the automatic update against an OCS Inventory NG. Entries which are marked as "ocs" will not be overwritten by manual or automatic update against DNS.
- *dns* - For entries created by manual or automatic update against DNS. Entries which are marked as "dns" will be overwritten by automatic update against DNS and OCS.
- Entries with no update type will be overwritten by manual and automatic update against DNS and OCS.


Note

With configured predefined or self defined columns there appear text-boxes for every of these columns, permitting to edit the value.

Note

To prevent an entry from being overwritten by the automatic update, it must be classified as "man".

3.1.2 Delete host entries

Click “delete”  to drop host entries from GestióIP's database.

3.2 Network administration

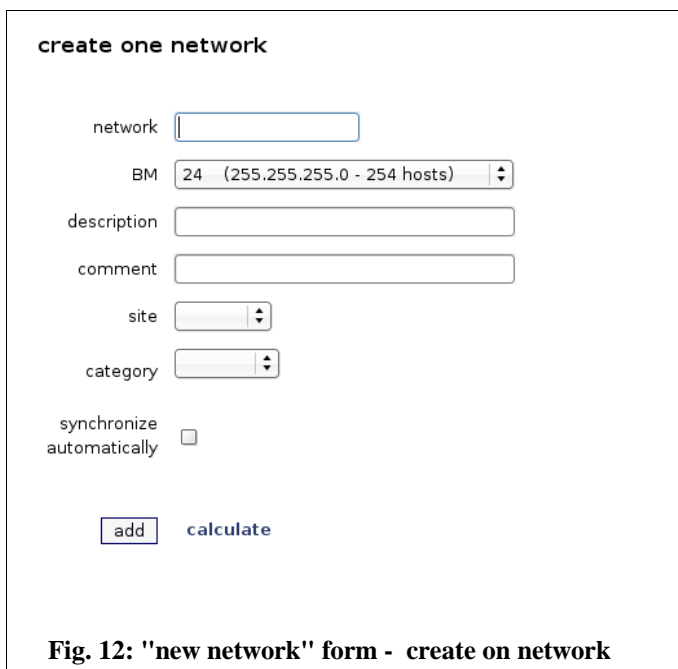
GestióIP offers several tools to create, delete or manipulate networks.

3.2.1 New - add networks manually

To add a new networks manually, click “networks” -> "new" on the menu bar.

The *new* form offers the possibility to create one network, multiple consecutive networks with the same bitmasks or multiple consecutive networks with different bitmasks.

Create on network



create one network

network

BM

description

comment

site

category

synchronize automatically

Fig. 12: "new network" form - create on network

network – ID of the network. e.g.: 192.168.0.0 – mandatory field

BM (bitmask) – Bitmask of the network – mandatory field

description – Short description of the network – mandatory field

comment - Optional comment

site – Where is the network “physically” located? When the site of the network is changed (or renamed), site of the host entries of the network will be changed as well – mandatory field

category- To categorize the network in e.g. production, pre-production, development – mandatory field

synchronize automatically – To include the network within the automatic update (see 6) - optional field

Click on the “calculate“ link to check whether network and bitmask are correctly introduced.

Create multiple networks with same bitmasks

With the *create multiple networks* form it is possible to create up to 50 consecutive new networks in one step. Enter the network ID (e.g. 172.16.0.0), choose a bitmask and choose the number of networks to create.

create multiple networks with same BMs

first new network

BM 24 (255.255.255.0 - 254 hosts) ▼

number of networks 1 ▼

site ▼

category ▼

synchronize automatically

Fig. 13: "new network" form – create multiple networks with same BMs

Create multiple networks with different bitmasks

With this form you can create multiple networks with different bitmasks.
Introduce the bitmasks in the following format: /BM1/BM2[/BMn].

create multiple networks with different BMs

first new network

bitmasks (format: /BM1/BM2[/BMn] - example: /25/26/26)

site

category

synchronize automatically

calculate

Fig. 14: "new network" form – create new networks with different BMs

Example

To create networks 4.4.1.0/25, 4.4.1.128/27, 4.4.1.160/27, 4.4.1.192/26 in one step, introduce the following values:

first network: 4.4.1.0

bitmasks: /25/27/27/26

Note

"show free ranges"- view offers the possibility to create new networks directly by clicking a free range.

3.2.2 Change/delete networks

Click “networks” → "change/delete" on the menu bar to access the network manipulation form.

network	BM	description	site	category	comment	sync	vlan								
10.0.1.0	29	sync FWs	Lond I	Prod	not routed		101 - sync_FW								
10.0.1.8	29	sync LBs	Lond I	Prod	not routed		100 - sync_LB								
192.168.0.0	24	frontends	Lond I	Prod		x	200 - frontends_prod								
192.168.1.0	25	backends	Lond I	Prod		x	201 - backends_prod								

Fig. 15: "change/delete" network form

The *change/delete* form offers the following functions:



Edit – To resize bitmask or edit description, site, category, comment or status of automatic synchronization (see 3.2.2.1)



Reserved ranges – To reserve or delete reserved IP address ranges (see 3.2.2.2)



Manual synchronization via DNS – To update the network entries against the DNS (see 3.2.2.3)



Manual synchronization via SNMP – To update the network entries via SNMP (see 3.2.2.4)



Split network – To split network into smaller subnets (see 3.2.2.5)




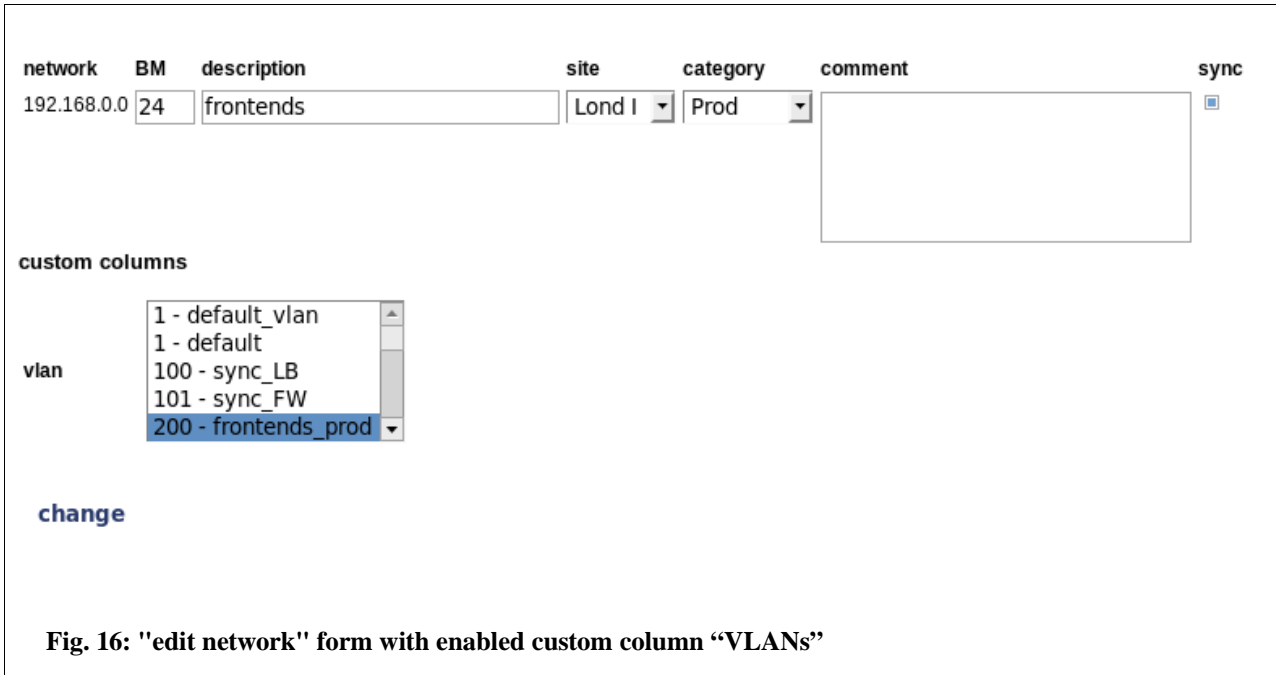
Clear network – Delete all entries of the network (entries of reserved ranges will be maintained) (see 3.2.2.2)



Delete network – Delete network with all entries and reserved ranges (see 3.2.2.7)

3.2.2.1 Edit

Click "networks" -> "change/delete/" -> "edit"  to resize the bitmask or to edit *description*, *site*, *category*, *comment* or *sync* (synchronization) field.



The screenshot shows the 'edit network' form with the following fields and values:

network	BM	description	site	category	comment	sync
192.168.0.0	24	frontends	Lond I	Prod		<input type="checkbox"/>

Below the main form, there is a 'custom columns' section with a dropdown menu. The dropdown is open, showing the following options:

- 1 - default_vlan
- 1 - default
- 100 - sync_LB
- 101 - sync_FW
- 200 - frontends_prod (selected)

A 'change' button is located below the dropdown menu.

Fig. 16: "edit network" form with enabled custom column "VLANs"

For a description of the fields see 3.2.1.

Clicking on the IP address executes the *host check*.

3.2.2.2 Reserved ranges

GestióIP offers the possibility to reserve ranges for special usage (e.g. for DHCP).

Creating a reserved range, GestióIP adds a comment to the corresponding network and to the hosts

that are included in the range. The host type of the IP addresses of the reserved range is predetermined (but changeable). This means that automatic update sets host type automatically when creating new host entries within reserved ranges (e.g. range type: “workst (DHCP) => host type: “workst”).

Click “networks” -> “change/delete” -> “ranges”  to access range manipulation form.

Note

Host overview shows IP addresses of reserved ranges with a gray background.

Insert ranges

Mark the first and the last IP address of the range you want to add, insert a short descriptive comment and mark the “range type” (host types of the reserved range). Then click “add” to create the new range.

Reserve range

Please select the first and the last IP address of the range which should be reserved

<p>First IP</p> <div style="border: 1px solid gray; padding: 2px;"> 192.168.35.1 192.168.35.2 192.168.35.3 192.168.35.4 192.168.35.5 </div>	<p>Last IP</p> <div style="border: 1px solid gray; padding: 2px;"> 192.168.35.250 192.168.35.251 192.168.35.252 192.168.35.253 192.168.35.254 </div>
---	--

Comment

Range type

workst (DHCP)
wifi (DHCP)
 VoIP (DHCP)

Fig. 17: "new range" form

Note

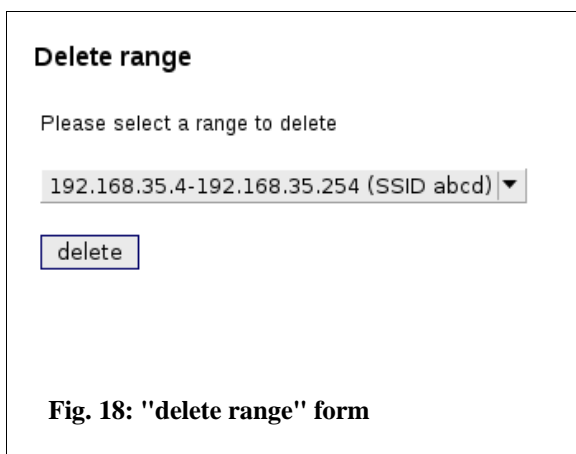
If you set configuration parameter “dyn_ranges_only” to “yes” (see 6.3), automatic update will only process entries of reserved ranges.

Note

When creating a reserved range, all entries between "First IP" and "Last IP" will be deleted.

Delete ranges

To delete a reserved range access to the range manipulation form, choose the range you want to delete and press "delete" button. This will delete the range with all of its entries from GestioIP's database.



Delete range

Please select a range to delete

192.168.35.4-192.168.35.254 (SSID abcd) ▼


delete

Fig. 18: "delete range" form

Note

When splitting networks with reserved ranges, the ranges and all of their entries will be dropped.

3.2.2.3 Manual update against DNS

The function "sync"  (network synchronization against DNS) is intended to update all IP addresses of a network with the actual DNS entries. The network synchronization executes an ICMP echo request (ping) to all IP addresses and an rDNS query of all IP addresses of the network. The decision if and how an entry is updated follows the following scheme:

<i>Answers to ping?</i>	<i>rDNS entry configured?</i>	<i>Match ignore or ignore_generic_auto?</i>	<i>Update?</i>	<i>Hostname set to</i>
Yes	Yes	Yes	Yes	unknown
Yes	Yes	No	Yes	rDNS name
Yes	No	-	Yes	unknown
No	Yes	Yes	No	-
No	Yes	No	Yes	rDNS name
No	No	-	No	-

Note

Update type “ocs” or “man” avoids that manual synchronization updates these entries (see 3.1.1).

Note

To prevent that the networks being filled with generic rDNS entries read 3.2.2.3.1.

3.2.2.3.1 Generic rDNS entries

Generic rDNS (PTR) entries are often used in relation with dynamic assigned IP addresses or to prevent network reverse discovery. With configured rDNS entries you will get a valid answer to rDNS queries for all addresses of a network (but without useful information content). Generic rDNS entries may look like this:

1-2-4-5.domain.org

2-2-4-5.domain.org

3-2-4-5.domain.org

....

GestióIP's update functions (AUTO and MAN) update unassigned addresses when they receive a valid answer to an rDNS query. This causes the database to be filled with (undesired) rDNS entries. GestióIP offers two mechanisms to prevent the update from actualizing the network with generic

rDNS entries (like 10-2-4-5.domain.org):

ignore generic auto: Set this value to "yes" if the update script should ignore DNS entries that match “auto generated generic rDNS strings” and that does not respond to “ping”.

Example:

<i>IP address</i>	<i>auto generated generic rDNS string (generated by GestióIP)</i>
192.168.200.8	<p><i>192-168-200</i></p> <p><i>200-168-192</i></p> <p><i>168-200-8</i></p> <p><i>8-200-192</i></p>

With **ignore generic auto** set to "yes" the “auto generated generic rDNS string” matches if your rDNS entries look like

192-168-200-15.some_string or *15-200-168-192.abc.de.fg*

IP addresses with rDNS entries that match “auto generated generic rDNS strings” but don’t answer to “ping” will be ignored. If the address answers to “ping” and matches “auto generated generic rDNS strings”, the hostname is set to “unknown”.

ignore: If you use a scheme for rDNS entries other than the schemes supported by GestióIP, the strings to be ignored can be set here manually. The field accepts a single string or a comma-separated list of strings to ignore.

Example:

To avoid that a network is filled with generic PTR entries like 10.200.168.192.domain.org and 55.0.16.172.domain.org set the "ignore" variable to:

200.168.192,0.16.172


Make sure that the string to ignore is specific for your rDNS entries. If you set ignore in the

example above to "domain", the generic rDNS entries will be ignored but entries such as "host.domain.org" ("good entries") will be ignored as well.

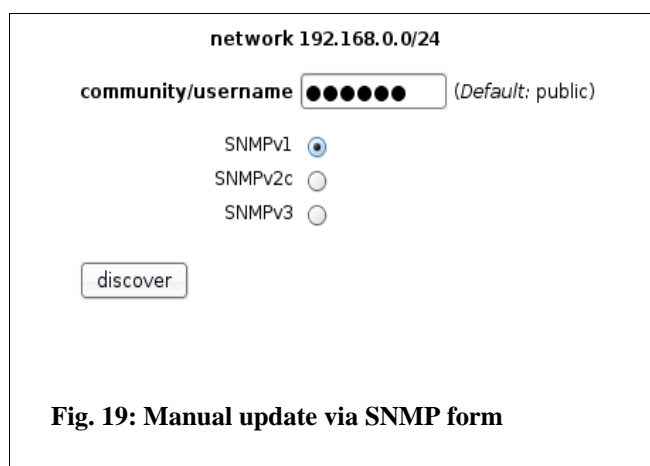
Note

Configure ignore and ignore generic auto global configuration parameters from manage GestióIP form (see 3.4).

3.2.2.4 Manual host update via SNMP

The manual host update via SNMP offers the option to update the host entries of a network by querying all IPs via SNMP. Click  to access to manual update form.

Manual update via SNMP will try to connect to every IP address of the network and actualize host information with found values.



network 192.168.0.0/24

community/username (Default: public)

SNMPv1

SNMPv2c

SNMPv3

Fig. 19: Manual update via SNMP form

Insert a community name (SNMPv1/2c) or a username (SNMPv3), choose SNMP version and click “discover” to start the update process.

Note

Execution of manual host update via SNMP may take some minutes.

Note

Host update via SNMP actualizes predefined host columns, too (see 3.7).

Note

GestióIP currently supports only SNMPv3 with the Security Level 'noAuthNoPriv'.

3.2.2.5 Split

The split network form offers the possibility to split a network either into smaller networks with the same bitmasks or into smaller networks with different bitmasks.

Click “networks” -> “change/delete” -> "split"  to access the “split network” form.

Split network into smaller networks with same bitmasks

BM ▾

keep site keep category

Split network into smaller networks with different bitmasks

bitmasks

keep site keep category

Wrong "bitmasks" format

Please introduce the bitmasks of the new subnets using the following format: **/BM1/BM2[/BMn]**

Example network 192.168.0.0:

bitmasks **/24/25/25** -> 192.168.0.0/**24**, 192.168.1.0/**25**, 192.168.1.128/**25**

bitmasks **/26/27/27/25** -> 192.168.0.0/**26**, 192.168.0.64/**27**, 192.168.0.96/**27**, 192.168.0.128/**25**

Fig. 20: "split network" form

To split networks into smaller networks with the same bitmask select the new bitmask and click “send”.

To split networks into smaller networks with different bitmasks insert a “/” (slash)-separated list of the bitmasks of the new subnets in the “bitmasks” field (/bitmask1/bitmask2[/bitmaskN]) and click “send”.

Example

If you want to split network 172.16.5.0/24 into the networks

172.16.5.0/25

172.16.5.128/26

172.16.5.192/26

introduce /25/26/26 into the “bitmasks” field.

When the "bitmasks" are correctly introduced, a list of the new subnets is shown. If the list is correct, introduce description; choose sites and categories for the new networks and press "send" to split the original network into the new subnets. If the bitmasks are incorrectly introduced, a detailed error notification will be displayed.

192.168.220.0/24 - /25/25

The network will be split into the following subnets

192.168.220.0/25
192.168.220.128/25

If correct edit the parameters of the new networks and press "split"

network	description	site	category	comment	sync
192.168.220.0/25	<input type="text"/>	Lond I ▾	Pre ▾	<input type="text"/>	<input type="checkbox"/>
192.168.220.128/25	<input type="text"/>	Lond I ▾	Pre ▾	<input type="text"/>	<input type="checkbox"/>

keep host entries

(reserved ranges will be dropped)

Fig. 21: Confirm split network

If the new networks don't include the entire original network, a warning will be displayed. By clicking “send” the new networks will be created and the hosts of the original network that are not included within the new ranges will be dropped.

Note

Splitting a network causes all reserved ranges of this network to be dropped.

3.2.2.6 Clear

Click “networks” -> “change/delete” -> "clear" ✖ to delete all entries of a network.

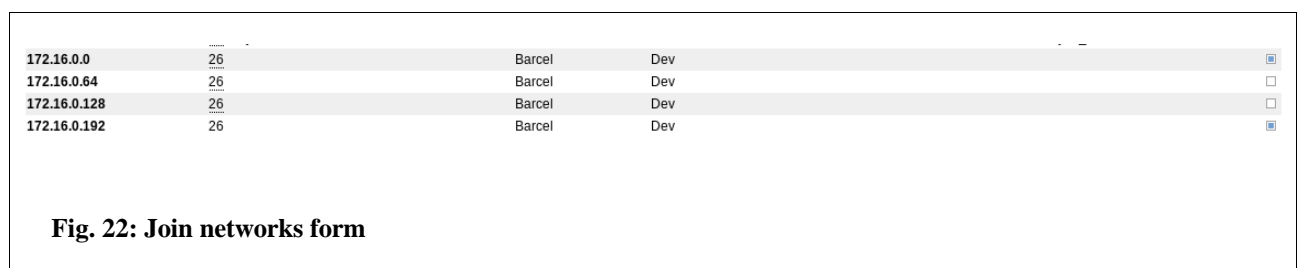
3.2.2.7 Delete

Click “networks” -> “change/delete” -> "delete" ✖ to delete the network with all of its entries and reserved ranges from GestióIP's database.

3.2.3 Join networks

To join networks click “networks” -> “change/delete” -> "join" on the menu bar.

Mark two networks that you wish to join and press ENTER or click "join" at the bottom of the page.



The networks do not need to be consecutive. GestióIP suggests one way to join the networks. The suggestion can be accepted or the new network can be introduced manually. In case it is not possible to join the networks directly, GestióIP offers the possibility to introduce the new network manually.

Format of network for manual introduction: network/bitmask e.g. 192.168.0.0/24

The new range **172.16.0.0/24** (172.16.0.0-172.16.0.255) contains the following networks:

172.16.0.0/26
 172.16.0.64/26
 172.16.0.128/26
 172.16.0.192/26

If correct edit the parameters of the new network and press "join"

network	description	site	category	comment	sync
172.16.0.0/24	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

keep host entries keep reserved ranges

If not correct please insert the new range manually

Fig. 23: Confirm join networks

3.2.4 Show free ranges

For an overview of the unused spaces between the existing networks click "networks" -> "show free ranges" on the menu bar. Click on the unused space to create one or multiple networks directly from the unused space.

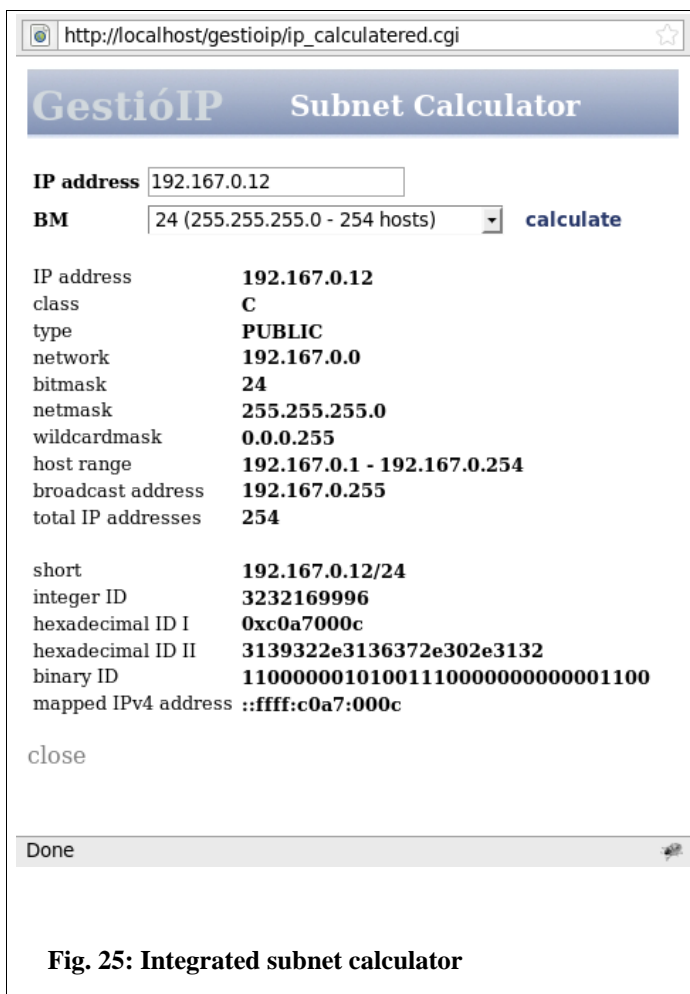
192.168.200.0	28	Lond I	Prod
192.168.200.16	28	Lond I	Prod
192.168.200.32	28	Lond I	Prod
192.168.200.48-192.168.200.79 (32 free addresses)			
192.168.200.80	28	Lond I	Prod
192.168.200.96	28	Lond I	Prod
192.168.200.112-192.168.200.127 (16 free addresses)			
192.168.200.128	28	Lond I	Prod
192.168.200.144	28	Lond I	Prod
192.168.200.160	28	Lond I	Prod

Fig. 24: Free ranges

3.2.5 Subnet calculator

GestióIP's subnet calculator supports both classful and classless networks.

Click “networks” -> "subnet calculator" on the menu bar to open the subnet calculator window.



Note

The subnet calculator also accepts IPs in integer format.

3.3 VLANs

GestióIP incorporates an automated VLAN management system integrating the possibility to import VLANs easily from network devices via SNMP.

The predefined network column “VLANs” is aimed to associate VLANs to specific networks. With configured VLAN column, VLAN information will be shown within *network list view* (see 3.7).

3.3.1 Show

Access to *VLAN list view* ("VLANs" -> "show") to show, edit or delete VLANs.

number	name	description	provider	devices	unified VLANs
500	frontends_pre			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
501	backends_pre			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
700	cad			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
701	cma			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
702	chu			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
704	cdev			192.168.210.9 , 192.168.210.10 , 192.168.210.11	
1000	xWAN I	eBGP	ISP I	192.168.220.8 , 192.168.220.9	
1001	xWAN II	eBGP	ISP I	192.168.220.8 , 192.168.220.9	

Fig. 26: Show VLANs

VLAN list view features the following columns

number - VLAN number (mandatory).

name - VLAN name (mandatory).

description - A description for the VLAN (optional).

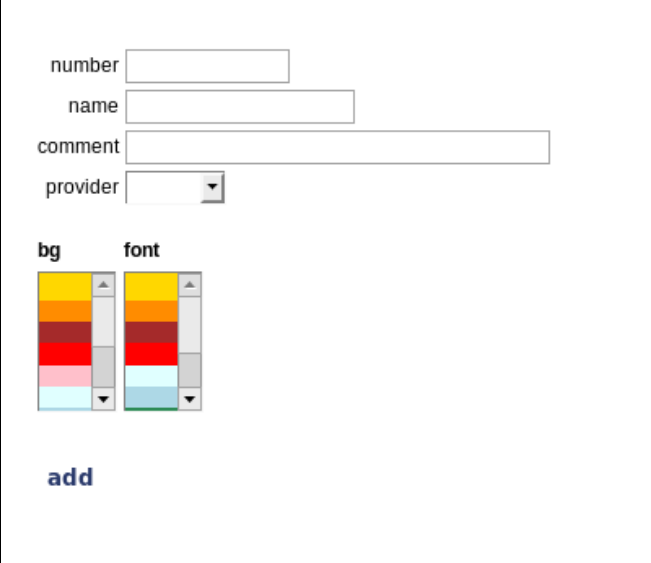
provider - There might be VLANs with different Internet Service Providers (ISPs) contracted. This column allows to specify an Internet Service Provider (optional).

devices - This column lists the network devices where the VLAN was found by *VLAN discovery*. Hovering over the IP address displays the device name. This field can not be edited manually.

unified VLANs - To associate same VLANs which appears in different devices with different names (e.g. VLAN 1 may have the name "default" on one and "default_vlan" on another device) (see 3.3.3).

3.3.2 New

Click over "VLANs" -> "new" to introduce new VLANs manually.



number

name

comment

provider

bg **font**

add

Fig. 27: "New VLAN" form

3.3.3 Unify

Unify VLANs is aimed to associate same VLANs which appear in different devices with different names, so that they appear like one VLAN in GestióIP's database.

Because VLAN name is configured manually by network administrators, same VLANs may appear in different devices with different names (e.g. VLAN 1 may have the name "default" on one and "default_vlan" on another device). Automatic VLAN importation will import that kind of VLANs like different VLANs. That causes that this VLANs will appear like two VLANs in *VLAN list view*. With *unify* option it's possible to associate this VLANs so that they appear like one VLAN in GestióIP's *VLAN list view*.

Click "VLANs" -> "unify" to access *VLAN unify form*. There appear only VLANs with same number but different names. Mark two or more VLANs with same numbers that should be unified and click "unify" at the bottom of the VLAN list.

	number	name	description	provider	devices
<input type="checkbox"/>	1	default_vlan			<u>192.168.210.9</u> , <u>192.168.210.11</u>
<input type="checkbox"/>	1	default			<u>192.168.210.9</u> , <u>192.168.210.10</u> , <u>192.168.210.11</u>

unify

Fig. 28: Unify VLANs form

Select the name that should appear for the unified VLAN and click "send" to unify the VLANs.

Please select the *VLAN name* that should be shown for the unified VLANs

default

default_vlan

send

Fig. 29: Unify VLANs form

3.3.4 VLAN provider

An organization may have VLANs with ISPs contracted. Option *VLAN provider* is intended to associate this VLANs with an ISP.

3.3.4.1 Show VLAN provider

Click "VLANs" -> "show VLAN providers" to list, edit or delete VLAN providers.

3.3.4.2 New VLAN provider

Click "VLANs" -> "new VLAN providers" to access *new VLAN provider* form

add VLAN provider

name

comment

add

Fig. 30: Add VLAN provider form

To add a new provider introduce a name and an optional comment and click "add".

3.3.5 Import VLANs via SNMP

Click "import/export" -> "import VLANs via SNMP" to access to VLAN importation form.

node (IP address)

Layer II devices

Layer III devices No Layer III devices defined

community/username (Default: public)

SNMPv1

SNMPv2c

SNMPv3

query

Fig. 31: Import VLANs form

Import VLANs function can be lanced against one device by introducing an IP Address (text-filed “node”) or against multiple devices which are classified like “L2 device” or “L3 device” by making them in the “Layer II devices” or “Layer III devices” select-box.

Note

If there are no devices classified with host type L2 or L3 device, there appears the note "No layer II/III devices defined" . To change the host type of a device go to "show networks", access to the corresponding network and click device "edit host" button.

Note

Column "switches" of VLAN overview will only be updated if discovery is lanced against a device from Layer II or Layer III devices select box.

Note

VLAN discovery is base on the Perl Module SNMP::Info (see 6.5.1.1). VLAN discovery works only with devices supported by SNMP::Info. Consult the device compatibility matrix to verify if your devices are supported (<http://netdisco.org/DeviceMatrix.html>). If the device is not supported or if it is not possible to connect to the device, GestióIP will display the message “CAN NOT CONNECT”.

Note

GestióIP currently supports only SNMPv3 with the Security Level 'noAuthNoPriv'.

3.4 Manage GestióIP (global configuration parameters)

GestióIP's configuration is divided in three sections:

- Client independent configuration parameters
- Client specific configuration parameters
- Audit database

To configure global configuration parameters or to delete old audit events from the database click “manage” -> "manage GestióIP" from the menu bar.

3.4.1 Client independent configuration parameters

default client - Client to display when accessing to GestióIP.

ask for confirmation - If this parameter is set to “yes”, there will be a confirmation window display when executing “critical” actions like *clear network* or *delete network*.

MIB directory - Directory where Netdisco MIBs are stored (see 6.5.1.1).

Vendor specific MIBs - Manufacturer specific directories. This should be only be edited after updating to a newer Version of Netdisco MIBs.

client independent configuration parameters

default client

ask for confirmation

MIB directory

Vendor specific MIBs

(Coma separated list)

Fig. 32: Client independent configuration parameters

3.4.2 Client specific configuration parameters

With the client specific configuration parameters it's possible to influence GestióIP's compoment.

smallest bm - Networks with a bitmask smaller than the value of `smallest_bm` can't be listed and don't have host entries (default: 16)

"ping" timeout – GestióIP works with `Net::Ping::External` Perl module. Because the module ignores timeout argument under Linux, host check and update against DNS work with the default timeout of 10s. Patch `Net::Ping::External` Perl module to make the functions which use "ping" faster

(with a timeout of 2 seconds it would be 5x faster).

See http://www.gestioip.net/docu/Ping_External_Timeout_Problem.txt for instructions on how to patch it.

The following parameters are related to the DNS server to use for the actual client:

use default resolver - Check this radio-button if DNS queries for this client should be lanced against the default DNS server (specified in /etc/resolv.conf) (default)

specify DNS server - Check this radio-button if DNS queries for this client should be lanced against custom DNS servers (*host check, update against DNS, update via SNMP*).

DNS server I-III - Specify here the DNS Server to query in the case that “specify DNS server” radio button is checked.

The following parameters are related to manual update and network discovery:

ignore - String that match generic rDNS entries in the case that your generic rDNS entries don't match "generic auto PTR entries" (see *ignore generic auto*). This option helps update to recognize generic rDNS entries. Example: rDNS entry: dhcp-2.3.5.2.gestioip.net -> *ignore: dhcp-*

ignore generic auto - Set this value to "yes" if the update script should create auto generated generic rDNS entries. Example: IP: 1.2.3.4 -> generic auto PTR entries generated by GestióIP: 4-3-2 and 2-3-4 (default: yes).

See 3.2.2.3.1 for more information about *ignore* and *ignore generic auto* variables

generic-dynamic name - Set here generic names that match the hostnames associated by an DHCP server. If an IP address has an entry in the database that match generic-dynamic name and does not respond to “ping” it would be deleted. If you use both update against DNS and update against OCS Inventory NG, this parameter also avoids actualization created by update against OCS that match “*generic-dynamic name*” from being overwritten by update against DNS (in the case that synchronization against OCS's configuration value "set_update_type_to_ocs" is set to "no") (coma separated list, case sensitive).

Example: If your dynamically assigned names look like PC-001, PC-002, LAP-001, LAP-002 set *generic-dynamic name* to “PC-,LAP-”.

max number parallel processes - Maximum number of parallel processes to fork when updating networks (each process executes a “ping” to, and a DNS A and PTR query of one IP address).

Increasing this value reduces execution time but increases CPU load; decreasing the value increases execution time but reduces CPU load.

(If the machine that runs GestióIP isn't too occupied, a value of 254 shouldn't be a problem).

Note

High values of max number parallel processes may also cause peaks of the CPU load of the DNS server.

3.4.3 Manage audit db

Audit database will grow with time. You can delete events created by automatic update against DNS, SNMP or OCS (AUTO events) or events created by actions made via GestióIPs frontend Web (MAN events) independently (see 2.6).

manage audit db

Delete *AUTO* audit events older than (1 *AUTO* events *client* 1)

actual client

all clients

keep network events

Delete *MAN* audit events older than (7 *MAN* events *client* 1)

actual client

all clients

DB size total: 0.11MB (AA: 0.01MB, MA: 0.00MB)

Fig. 33: Manage audit db

To delete old audit events:

- Choose a time from which the events should be deleted.
- Select if either only events for the actual client or the events for all clients should be deleted.
- Mark check box “keep networks events” if network specific events should be kept.
- Click “delete” to delete the audit events.

Note

With older versions of Mysql “DB total size” may not be displayed.

Note

History information for networks and hosts is extracted from audit log. Deleting old audit events causes history entries to also be deleted.

3.5 Clients

GestioIP permits to manage different clients with independent networks and VLANs. If there is more than one client defined, there appears a new select box in the menu bar indicating the actual client.

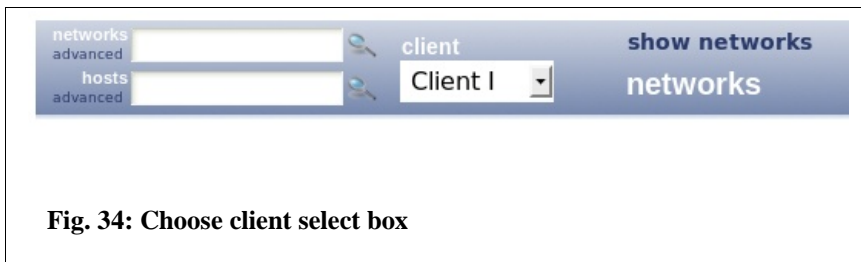


Fig. 34: Choose client select box

To change actual client choose the new client from *client select box* and click refresh button 



Fig. 35: Change actual client refresh button

3.5.1 Manage clients

Manage clients form offers the following options:

- list client details
- add clients
- edit clients
- delete clients

Click "manage" -> "clients" to access to *manage clients form*.

3.5.1.1 Add clients


When creating the first client, all existing networks, VLANs and sites will be associated with this client. Because sites are managed client independently you have to insert at least one site for every new client (text field “sites”). Multiple sites must be introduced in form of a comma separated list.

Note

You can change sites from "manage" -> "sites and categories".

To add the new client complete *add client form* and click "add". The new client will now appear in client select box in the menu.

3.5.1.2 Edit clients

Click "manage" -> "clients" to access to *edit client form*. Choose the client you want to edit and click edit button .



edit client

client 

 1234567

 987654

Fig. 36: Edit clients

Click "update" at the bottom of the *edit client form* to save the changes.

3.5.1.3 Delete clients

To delete a client choose the client to delete from *delete client form* and click "delete".

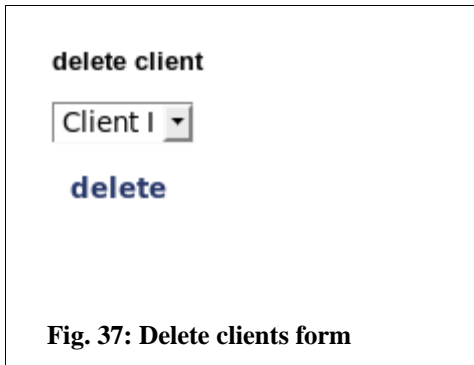


Fig. 37: Delete clients form

Deleting a client causes that all information specific to this client will be deleted (networks, hosts, sites, audit events).

3.6 Sites and categories

To introduce, rename or delete *sites*, *host categories* or *network categories*, open "manage" -> "sites and categories" on the menu bar.

3.6.1 Sites

GestioIP's *sites* are intended to associate a physical location (e.g. a data center) within the networks and hosts.

Note

Sites for network and host are independently configurable. If you have networks that are distributed over different sites (e.g. A and B) you can create an additional site A_B, assign this new site to the network and assign site A or B individually to the hosts.

Note

With multiple clients configured there will only the sites of the actual client be displayed.

3.6.2 Network categories

During installation GestióIP proposes the following networks categories:

Prod – For networks of the production environment

Pre – For networks of pre-production environment

Test – For networks of test environment

Dev – For networks of development environment





Dev-test – For networks of development-test environment







Corp – For corporate networks (e.g. with PC of end-users, printers,...)

other – For all other networks

3.6.3 Host categories

GestióIP comes with the following *host categories*:

	L2 device	devices that work in layer 2 (e.g. hubs or switches)
	L3 device	devices that work in layer 3 (e.g. multilayer-switches or router)
	FW	firewalls
	DB	for database servers

	server	any kind of server
	workstation	workstations
	wifi	wireless devices
	VoIP	VoIP phones
	printer	printers
	other	all other types of devices

Note

Self defined host categories appear in network overview with the "other" - symbol.

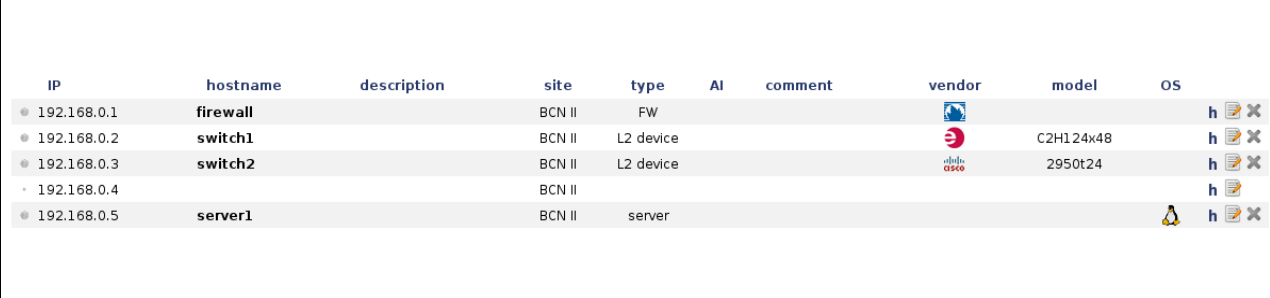
Note

Default host categories can't be deleted nor renamed.

3.7 Custom columns

GestióIP offers the possibility to define custom columns to be shown in *network list view* (network columns) or *host list view* (host columns) making it adaptable to organization specific needs.

Click "manage" -> "custom columns" to define new or to delete columns for networks and hosts.







IP	hostname	description	site	type	AI	comment	vendor	model	OS
192.168.0.1	firewall		BCN II	FW					
192.168.0.2	switch1		BCN II	L2 device				C2H1.24x48	
192.168.0.3	switch2		BCN II	L2 device				2950t24	
192.168.0.4			BCN II						
192.168.0.5	server1		BCN II	server					

Fig. 38: Network list view with predefined host columns updated by SNMP discovery

GestióIP features two types of custom columns: Predefined and self defined columns. Predefined columns will be updated by SNMP discovery mechanisms, self defined columns not.

3.7.1 Predefined custom columns

Predefined custom columns will be processed by SNMP based discovery mechanisms. For this reason it's preferable to use predefined columns if available instead of self defined columns.

There is only one predefined network column available: VLANs. This column is aimed to associate VLANs with networks to be shown in *network list view*.

There are the following custom host columns available:

vendor - manufacturer (will be displayed with an icon)

model - model

contact - contact (OID system.sysContact)

serial - serial number

MAC - MAC address

OS - operating system (will be displayed with an icon)

device_descr - description (OID system.sysDescr.)

device_name - hostname (OID system.sysName)

device_loc - location (OID system.sysLocation)

GestióIP distinguishes actually between more than 80 manufactures (vendors) and 18 operating systems (OS) which will automatically be recognized by SNMP discover functions. If the vendor or OS is known, an icon that stands for the vendor/OS will be displayed within *network list view*. Hovering over the icon displays vendor/OS name. (See Appendix A for a complete list of manufacturers and operating systems).

Note

Predefined as well as self defined custom columns will be processed by network and host quick search.

Note

Predefined network column "VLAN" and predefined host column "MAC" will not be updated by SNMP based discovery.

Note

If you have multiple clients defined there appears a radio button which let you choose to either add columns for all or only for the actual client.

3.7.2 Add columns

With add columns function you can define new columns to be shown in network or host list view.

insert predefined host column

title

all clients actual client

add

insert custom host column

title

all clients actual client

add

Fig. 39: Add host columns form

Choose if the column should either be shown for all or only for actual client and click “add”.

3.7.3 Delete columns

Choose the column which should be deleted and click “delete”.

delete host column

title

delete

Fig. 40: Delete columns form

Note

The “delete column form” will only be displayed if there are custom columns defined.

Note

Deleting a column causes that all entries of this column will be deleted from GestióIP's database.

3.8 Statistics

GestióIP's statistics page shows the number of managed networks and host as well as an overview of how many networks are in the different environments (*network categories*) and in the different *sites*.

To access the statistics page go to "manage" -> "statistics".

Note

With multiple clients configured, only client specific statistics will be displayed here. To see the total number of managed clients, networks and host go to "help" -> "about".

In addition, the statistics page offers the possibility to show an overview of net or range occupation. This may be useful to detect poorly utilized address ranges. You can filter the networks that should appear in the report by IP (or parts of IP), description, site, category and comment.

The screenshot shows a web form titled "network occupation" and "range occupation". Under "network occupation", there are two rows. The first row has the text "show networks with an occupation > 90 %", a dropdown menu showing "90", a "filter" input field, and a "show" button. The second row has the text "show networks with an occupation < 10 %", a dropdown menu showing "10", a "filter" input field, and a "show" button. Under "range occupation", there are two rows. The first row has the text "show ranges with an occupation > 90 %" and a "show" button. The second row has the text "show ranges with an occupation < 10 %" and a "show" button.

Fig. 41: Network and range occupation form

4 Database initialization

GestióIP offers several mechanisms to import data into its database.

- networks/hosts/VLANs via SNMP query
- hosts via DNS queries
- networks/hosts from spreadsheets

4.1 Discovery

The Discovery is intended to initialize GestióIP's database after a new installation. It explores the network infrastructure using SNMP and DNS and adds found VLANs, networks and hosts to GestióIP's database.

It executes the following processes:

- VLAN discovery via SNMP using Perl Module SNMP::Info
- Network discovery via SNMP querying routing tables from network devices
- Host discovery of new found networks via SNMP using SNMP::Info and own discovery mechanisms
- Host discovery of new found networks via DNS

The discovery process needs about 45s for one class C networks with 254 addresses, depending on the value of max-procs (number of parallel discovery processes) and the CPU/memory of the server. Note that discovery for one class B network with a bitmask of /16 (65.534 addresses) may take hours because discovery processes the network portionwise each with 128 parallel processes (depending of max-procs).

Click “import/export” → “Discovery” to access discovery form.

Note

Discovery process will optionally process networks found by last run of “import networks from spreadsheets”. So import your network spreadsheets before you execute the discovery process.

Note

Discovery process will update predefined columns, too. So configure predefined columns first before executing the discovery process.

Note

GestióIP currently supports only SNMPv3 with the Security Level 'noAuthNoPriv'.

Network devices
holding routing tables
(e.g routers or multilayer switches)

(Coma separated list of IP addresses)

community/username ●●●●●● (Default: public)

SNMPv1

SNMPv2c

SNMPv3

max number of parallel discovery processes 128

Include networks which were added by last run of import networks from spreadsheet within discovery

add comment to found networks (e.g. Local route from 192.168.46.1)

discover

Fig. 42: "Discovery" form

Network devices - One or a list of IP addresses of devices holding routing and/or VLAN information. These are typically network devices like routers or multilayer switches.

community/username - community (SNMPv1/v2c) or username (SNMPv3).

maximal number of parallel discovery processes - Number of child processes lanced by discovery. Augment of this value will speed up discovery process but increase CPU load and memory usage.

Include networks which were added by last run of import networks from spreadsheet within

discovery - mark this check-box if you want that discovery processes the networks which were imported by last run of *import networks from spreadsheet*, too.

add comment to found networks - mark this check-box if discovery should add automatically comment like “*Static route from 192.168.239*”.

Click “discover” to lance discovery process.

It appears a new page offering the options to consult the status of the discovery process or to interrupt the discovery process.

Discovery started

[consult discovery status](#)

[stop discovery](#)

Fig. 43: "Discovery started" form

Clicking “consult discovery status” opens a new window showing the actual status of discovery process. The status page refreshes automatically every 10s during discovery.

GestióIP **Discovery status**

Discovery start time: 2011-01-20 11:51:05

New VLANs found: **13**
New networks found: **66**
New hosts found: **0**



DISCOVERY INTERRUPTED BY USER

(execution time: 1m and 35s)

Please consult the

[log file](#) to see discovery details.

Fig. 44: "Discovery status window"

Click “stop discovery” to interrupt the discovery process. It may take up to 15s to stop all discovery child processes.

Once the discovery process is finished appears the new link “log file” within the *discovery status window*. The log file shows detailed messages about the last run of the discovery process. The log file will be deleted when discovery process is executed again.

Note

If you use a SNMP community other than the default “public”, SNMP based parts of the discovery process will try to query the devices with community string “public”, too. That makes sure that devices which do not have a custom community configured, not to be ignored (e.g. it's a common error to forget to set community for printers or to configure a custom community for a device but not disable the community “public”). Execute a search for “public” through the audit log to identify devices with default community strings configured.

Note

You can also consult the audit log to see the details of the discovery process.

4.2 Import networks via SNMP

The "import networks via SNMP" function queries routing tables from SNMP enabled devices and adds networks with local or static routes to the database. Let it run against your layer III devices (e.g. routers or multilayer switches).

4.2.1 Manual import via SNMP

To import networks via SNMP click “import/export” → "import networks via SNMP" .

host to query (IP address)

community/username (Default: public)

SNMPv1

SNMPv2c

SNMPv3

add comment to found networks

include networks within automatic update

Fig. 45: "import via SNMP" form

Insert the IP address of the node to query, introduce a community (SNMPv1/SNMPv2c) or a username (SNMPv3) and select SNMP version.

Mark "add comment" check-box to force importation via SNMP to add comments such as "local route from 192.168.10.1" or "static route from 172.16.10.3" to the networks.

If the found networks should be included within *automatic update*, mark "include networks within the automatic update".

Note

Network importation via SNMP only adds networks found within local or static routes. Dynamically learned routes will be ignored.

Note

If you query devices with enabled dynamic routing protocols (e.g. BGP), a query may take quite a long time and can cause a "web-server timeout" error (because the routing tables can be very large). In this case, use script "get_networks_snmp.pl" from the directory "/usr/share/gestioip/bin".

Note

Network importation via SNMP will be although be executed during discovery process (see 6)

4.2.2 Script based network import via SNMP

GestióIP comes with the script `"/usr/share/gestioip/bin/get_networks_snmp.pl"` to import networks via SNMP. The script accepts single devices or a list of devices to query and can be executed manually or by cron.

It reads most parameter from configuration file `/usr/share/gestioip/etc/ip_update_gestioip.conf`. However, you have to configure some parameter directly in the script. To do so open the script with your favorite editor and configure the parameter in the section between

```
#####
### change from here... #####
#####

.....

#####
#### ...to here #####
#####
```

`get_networks_snmp.pl` reads its target nodes from a file called `snmp_targets`. This file is located in the directory `/usr/share/gestioip/etc/`. Open the file and enter the nodes that should be queried (one host per line).

The script depends on the following Perl modules:

SNMP, Net::IP, DBI

If you execute the script from a server other than that which comes with the installation of GestióIP, you may get an error message such as "Can't locate SNMP.pm in @INC ..."

This means that there are Perl modules missing. See 6.5.1 for instructions how to install them.

4.3 Import from spreadsheet

GestióIP possesses flexible mechanisms to import networks or hosts from spreadsheets. Spreadsheets must have .xls extension (MS Excel). If you use OpenOffice use the "Save As..." option to save the spreadsheet in .xls format.

4.3.1 Import networks from spreadsheets

Go to "import/export" -> "import networks from spreadsheet" and upload the spreadsheet with the networks to import.

Normally, a spreadsheet consists of different sheets. In step II you have the possibility to import all sheets, one sheet by its name or multiple sheets by numbers.

Step II ⓘ

Mark radio button and introduce the sheets to import

all sheets

sheet name

sheets ⓘ

Fig. 46: "Import from spreadsheet" form

To import all sheets mark "all sheets". To import one sheet mark the radio button "sheet name" and introduce the sheet name (e.g. "server") (see Fig. 47). To import multiple sheets mark the "sheets" radio button and introduce the numbers of the sheets to import. The form accepts a single number, a comma-separated list or a range of sheets (e.g. 2-4 to import sheets "LAN I, LAN II and Sheet4" in the example below).

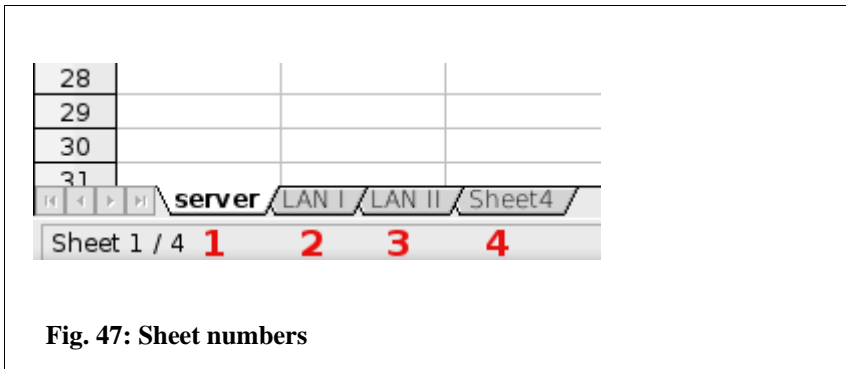


Fig. 47: Sheet numbers

Next, indicate what information is in each column: Associate the letters of the columns with the corresponding content.

The letters of the columns are found at the top of each column of your spreadsheet (see Fig. 48).

networks - Column with networks. Example of format supported entries: 192.168.0.0 - entries that don't match the format will be ignored.

netmask/bitmask - Column with netmask or bitmask (columns with mixed netmask and bitmask are also supported). Example of format supported entries: 24, 255.255.255.0 - entries that don't match the format will be ignored.

networks and netmask/bitmask in one column - Column with both network and net/bitmask. If your spreadsheet contains one column with both networks and net/bitmasks, leave *networks* and *netmask/bitmask* blank.

Examples of supported formats:

1.1.1.0/24, 1.1.1.0/255.255.255.255, 1.1.1.0-24, 1.1.1.0 – 255.255.255.0, 1.1.1.0 xyz 24

Network entries that don't match the supported formats will be ignored.

description - Column with network descriptions – optional.

site - Column with sites. The sites of the networks to import must be identical to the sites in GestióIP's database. If the site doesn't exist in the database it will be ignored – case-sensitive – optional.

category - Column with categories. The category must be identical to the categories in GestióIP's database. If the category doesn't exist it will be ignored – case-sensitive – optional.

comment - Column with comments – optional.

Mark "include networks within automatic update" if the network should be processed by automatic update.

	A	B	C	D	E	F
1	<u>network</u>	<u>bitmask or subnetmask</u>	<u>description</u>	<u>site</u>	<u>category</u>	<u>comment</u>
2						
3	192.168.0.0	24	<u>some description</u>	<u>Lond I</u>		
4	192.168.1.0	24		<u>Lond I</u>	<u>Prod</u>	
5	192.168.2.0	255.255.255.0			<u>Dev</u>	
6	192.168.3.0	24	<u>some description</u>	<u>Barcel</u>	<u>Pre</u>	<u>some comment</u>
7	<u>xxxxxxxxxxx</u>			<u>Barcel</u>	<u>Pre</u>	
8	192.168.4.0	27				
9						
10	192.168.5.0	25	<u>some description</u>			<u>some comment</u>
11	192.168.5.128	255.255.255.128	<u>some description</u>	<u>Lond I</u>		
12	10.0.10.0	24		<u>Lond I</u>		
13						

column entries

A networks

B netmask/bitmask/bitmask's last octet

or

networks and netmask/bitmask in one column

Fig. 48: Spreadsheet to import

Note

Old script "import_from_excel.pl" is obsolete and not longer included within GestióIP.

4.3.2 Import hosts from spreadsheet

To import host from spreadsheets into GestioIP's database click “import” -> ”import host from spreadsheet” and upload the spreadsheet containing host entries to import.

Note

The networks containing the hosts to import must exist; so import or introduce networks first. If import function doesn't find an adequate network for the host entries, they will be ignored.

Indicate if you want to import all sheets, one sheet by its name or multiple sheets (see. 4.3.1).

Indicate the format of the IP addresses in the spreadsheet:

Indicate the format of the IP addresses in the spreadsheet

standard (e.g. 192.168.250.3)

only last octet (e.g. 3 or .3) field which contains the network address (e.g. B3)

Fig. 49: Indicate IP address format

If your spreadsheet contains IP addresses in standard format (e.g. 82.98.146.69) select “standard” radio button. If your spreadsheet contains only the last octet of the IP address, mark “only last octet” and specify the field containing the network address (e.g. A1). Networks must have one of the following formats:

NetworkID/netmask (192.168.9.0/255.255.255.0)

NetworkID/bitmask (192.168.9.0/24)

Leading or following strings will be ignored (e.g. the entry “Network 192.168.9.0/24 XXX” will also be accepted) (see Fig. 50).

	A	B	C	D
1	<u>Production network 192.168.9.0/255.255.255.0</u>			
2				
3				
4		.1	gtw-vrrp	
5		.2	gtw1	
6		.3	gtw2	
7		.7	serverA1	
8		.8	serverA2	

Fig. 50: Spreadsheet containing last octet of IP addresses to import

Next, associate the letters of the columns with the corresponding content (see 4.3.1) and click “import”.

Indicate the format of the IP addresses in the spreadsheet

- standard (e.g. 192.168.250.3)
- only last octet (e.g. 3 or .3) field which contains the network address (e.g. B3)

Indicate the corresponding letters and columns

column	entries
<input type="text" value="B"/>	IP address
<input type="text" value="C"/>	hostname

Fig. 51: Import spreadsheet containing last octet of IP addresses

5 Advanced functions

5.1 Database configuration (*ip_config*)

The database configuration of GestióIP is stored in /DocumentRoot/priv/ip_config

Because the database password is stored in clear text, the Apache web server must be correctly configured and the permissions of the configuration file (500) must be correctly set. To check whether the Apache2 web server is correctly configured, you can try to access the configuration of GestióIP with a browser. Open the following URL with a browser:

http://servername/gestioip/priv/ip_config

You should receive an "access denied" message. In case it is possible to access the file "ip_config", check file permissions of "ip_config" and review the configuration of Apache2.

Configuration parameter description:

<i>parameter</i>	<i>description</i>
bbdd_host	Host where the GestióIP Mysql database runs
bbdd_port	Port on which the database listens
sid_gestioip	SID of the GestióIP database
user_gestioip	GestióIP database user
pass_gestioip	GestióIP database user password

5.2 Authentication/access control

The access control of GestióIP is carried out through mod_auth of the Apache web server. The default installation works with "HTTP Basic Authentication". But you can use any kind of authentication which is supported by the Apache web server (e.g. user/groups, LDAP, MS Active

Directory, certificates, ...). You can find sample Apache configurations with authentication against a LDAP directory, against KERBEROS 5 and against a Microsoft Active Directory in the documentation page of <http://www.gestioip.net>.

5.2.1 Default authentication

GestióIP's default authentication works with “HTTP Basic Authentication”. During the setup, the administrator creates manually the default users "gipoper" and "gipadmin (using the command “htpasswd”). That means that there is no “default password”. The users are authenticated with the password which were created during setup.

The ro-user (read-only) "gipoper" has access to the different network and host views as well as to the search and filter functions. However, ro-user can access network and host history, but not the global audit log or management functions. When the ro-user tries to access a manipulation form or global audit log, the user receives a server error 401 – "access denied" (all manipulation scripts are stored in DocumentRoot/gestioip/res/).

The rw-user (read-write) "gipadmin" has access to all features of GestióIP.

Note

To enhance security it is recommended to configure authentication with individual accounts. This has the advantage that MAN audit events can be associated with a specific user.

5.2.1.1 Create new accounts

To create new accounts to use with “HTTP Basic Authentication” you need to add a user with the command “htpasswd” and configure new "Require user" directives in Apache's configuration file “gestioip.conf”.

Users are stored in the password file “users-gestioip” which you find in the configuration directory of the Apache Web server (e.g. /etc/apache or /etc/httpd). To create a new account change to

Apache's configuration directory and execute the following command from a shell:

```
$ sudo htpasswd ./users-gestioip newaccount
```

GestióIP's Apache configuration `gestioip.conf` is stored in Apache's include directory (e.g. `/etc/apache/conf.d` or `/etc/httpd/conf.d`).

To habilitate the new account you need to add a "Require User" directives for the directories `DocumentRoot/gestioip` (ro/rw-user) and `DocumentRoot/gestioip/res` (rw-user) to Apache's "`gestioip.conf`".

For a rw-user open `gestioip.conf` with your favorite editor and search the lines

```
Require user gipadmin
```

Copy and insert the line and replace "gipadmin" with the new account (`newaccount`). Close and save "`gestioip.conf`".

To take changes affect you need to reload the Apache Web server.

Note

"gestioip.conf" contains one "Require User" directive for a ro-user and two directives for a rw-user.

5.2.1.2 Change users password

To change a user password go to Apache's configuration directory and execute the following command from a shell:

```
$ sudo htpasswd ./users-gestioip account
```

5.2.1.3 Delete accounts

To delete a GestióIP account, authenticated by "HTTP basic authentication", you need to delete it

from the password file `users-gestioip` (e.g. in `/etc/apache/` or `/etc/httpd/`) and from GestióIP's Apache configuration `gestioip.conf` (e.g. in `/etc/apache/conf.d` or `/etc/httpd/conf.d`).

To delete an account from the password file change to Apache's configuration directory and execute the following command from a shell:

```
$ sudo htpasswd -D ./users-gestioip account
```

To delete an account from GestióIP's Apache configuration open “`gestioip.conf`” with your favorite editor and delete the directives “`Require user account`”

Reload the Apache Webserver to take changes affect.

5.3 Export networks or hosts to CSV

GestióIP includes the possibility to export networks as well as host to CSV files (comma separated list) which you can import easily e.g. into OpenOffice or MS Excel.

Click “import/export” → “export networks or hosts to CSV” to access the export form.

The image shows a web interface for exporting data to CSV. It is divided into two sections: 'Export networks to CSV' and 'Export hosts to CSV'. Each section has radio buttons for 'all' and 'match' criteria, and an 'export' button.

Export networks to CSV

all networks

networks which match

export

Export hosts to CSV

all hosts

from network (e.g. 192.168.0.0)

hosts which match

export

Fig. 52: Network or host export form

There is either the option to export all networks/hosts or to export networks or host with match a specific string. The string could be an IP address (or a part of an IP address), a part of the description, site, category or comment.

Host export offers furthermore the option to export all IP addresses of a dedicated network by introducing the network ID (e.g. 172.16.4.0) into the text-box “from network”.

Click “export” to execute export function. After a successful export a link to download the exported data is shown.

export successfully finished

[download CSV file](#)

Fig. 53: Link to download the exported data

When importing the data into a spreadsheet application choose “UTF8” like character set and “,” (coma) like separator.

5.4 Add a new language

Currently GestióIP supports the following languages: Catalan, Spanish, Italian, German and English. GestióIP possesses a system that makes it easy to add new languages. To add a new language you need to execute the following steps:

- Translate language-file
- Create flag images
- Edit stylesheets

Translate the language-file

To translate the language-file make a copy of one of the existing language files (e.g. /DocumentRoot/vars/vars_en) and name it vars_xy (replace the xy with the abbreviation of the new language – for French "vars_fr", for Danish "vars_dk". The abbreviation must contain two or three characters). The file contains variables such as:

name_of_the_variable=value of the variable

example file /DocumentRoot/vars/vars_en

```
mostrar_redes_message=show networks
mostrar_red_message=show network
busqueda_detallada_message=advanced search
crear_red_message=create new network
llenar_red_message=synchronize network
```

Translate the text starting at the right of the "="

Special characters must be introduced encoded in HTML (ú -> ú)

Create a flag image

GestióIP uses two flag icons for each language (one is shown when hovering over the flag icon). To active the new language its sufficient if use the same icons for both.

Copy the flag icon (19x12px) that stands for the new language to [DocumentRoot]/imagenes/bandera_xy.gif and to [DocumentRoot]/imagenes/bandera_xy_hover.gif (replace the xy with the abbreviation of the new language).

Check the owner and the permissions of the files vars_xy and bandera_xy.

Edit stylesheet.css

Open [DocumentRoot]/stylesheet.css with your favorite editor and search the lines

```
.lang_de_button { border: none; background:
url('/gestioip/imagenes/bandera_de.gif') no-repeat top left; width: 20px;
height: 20px; cursor:pointer; }
.lang_de_button:hover { border: none; background:
url('/gestioip/imagenes/bandera_de_hover.gif') no-repeat top left; width: 20px;
height: 20px; cursor:pointer; }
```

Copy and insert the two lines and replace “de” with the abbreviation of the new language.

And...

Send the new language file and the flag icon to contact@gestioip.net. It would be a pleasure to add your language to the next release of GestióIP!

6 Automatic update

GestióIP comes with scripts which automatically update the database of GestióIP via SNMP (`ip_update_gestioip_snmp.pl`), against the DNS (`ip_update_gestioip_dns.pl`) and against an OCS Inventory NG (`ip_update_gestioip_ocs.pl`) .

It's highly recommended to enable automatic update (AU) to make sure that GestioIP's database is always up to date. AU against DNS and via SNMP can be run in any environments which dispose of a DNS server. If you have an installation of an OCS Inventory NG you can also update GestioIP's database against the OCS database.

AU against DNS/SNMP and AU against OCS Inventory NG work different. AU against DNS/SNMP processes all addresses of a network. AU against OCS only processes the entries which are found in the OCS database. That causes, that entries which are deleted from OCS database will not longer processed by AU against OCS and will not be deleted form GestioIP's database by AU against OCS. AU against DNS is able to detect and delete this entries. So if you run AU against OCS, run always AU against DNS, too. Configure the cron jobs in that way, that AU against OCS will be executed before AU against DNS.

Note

Create a cronjob to execute the scripts automatically (see 6.4).

Note

The automatic update processes only networks with checked "sync" field (see 3.2.1).

Note

AU need not run on the host with the installation of GestioIP. If you have a monitoring server (e.g. with Nagios) which can reach all relevant networks with ping and SNMP, this could be a good place to run scripts from.

Note

AU might rise load on the host where the scripts run and on DNS servers

6.1 Script directory structure

Since version 2.2.8 the installation creates the following directory structure for the AU scripts under /usr/share:

/usr/share/gestioip/bin	Directory with AU scripts
/usr/share/gestioip/bin/web	Directory for Web-based discovery scripts (not relevant for AU)
/usr/share/gestioip/etc	Directory with configuration for AU scripts (ip_update_gestioip.conf)
/usr/share/gestioip/etc/vars	Directory where the language-files are stored
/usr/share/gestioip/var/log	Directory to store log files
/usr/share/gestioip/var/run	Directory to store lock y pid-files

Note

AU of older version are not compatible with GestióIP v2.2.8. Disable AU cronjobs before updating to v2.2.8 and reconfigure cronjobs with new script after updating GestióIP. Do NOT use AU scripts of older versions with v2.2.8.

6.2 Command line options

```
./ip_update_gestioip_snmp.pl --help
```

```
usage: ip_update_gestioip.pl [OPTIONS...]
```

```
-v, --verbose           verbose
-l, --log=logfile      logfile
-d, --disable_audit    disable auditing
-m, --mail              send the result by mail (mail_destinatarios)
-h, --help             help
```

configuration file: /usr/share/gestioip/etc/ip_update_gestioip.conf

```
$ ./ip_update_gestioip_dns.pl
```

usage: ip_update_gestioip_dns.pl [OPTIONS...]

-t, --test	Testing mode - no database changes would be made (requires option -v)
-v, --verbose	verbose
-V, --Version	version
-l, --log=logfile	logfile
-m, --mail	send the result by mail (mail_destinatarios)
-h, --help	help

configuration file: /usr/share/gestioip/etc/ip_update_gestioip.conf

```
$ ./ip_update_gestioip_ocs.pl
```

usage: ip_update_gestioip.pl [OPTIONS...]

-v, --verbose	verbose
-V, --Version	Version
-l, --log=logfile	logfile
-m, --mail	send the result by mail (mail_destinatarios)
-h, --help	help

configuration file: /usr/share/gestioip/etc/ip_update_gestioip.conf

Note

If you run the scripts manually use “verbose” option (./ip_update_gestioip.pl -v) to see what's happening.

6.3 Configuration

The configuration of `ip_update_gestioip_dns.pl` and `ip_update_gestioip_ocs.pl` is stored in the file `"/usr/share/gestioip/etc/ip_update_gestioip.conf"`.

Configuration parameter description:

<i>parameter</i>	<i>description</i>	<i>default value</i>
<code>sid_gestioip</code>	SID of the GestióIP's database	<code>gestioip</code>
<code>user_gestioip</code>	GestióIP's database user	<code>gestioip</code>
<code>pass_gestioip</code>	GestióIP's database user password	-
<code>bbdd_host_gestioip</code>	Host where the GestióIP Mysql database runs	<code>localhost</code>
<code>bbdd_port_gestioip</code>	Port where GestióIP's Mysql database is listening	
<code>sid_ocs</code>	SID of the OCS database	<code>ocsweb</code>
<code>user_ocs</code>	OCS's database user	<code>ocs</code>
<code>pass_ocs</code>	OCS's database user password	-
<code>bbdd_host_ocs</code>	Host where the OCS Mysql database runs	-
<code>bbdd_port_ocs</code>	Port where OCS Mysql database is listening	<code>3306</code>
<code>lang</code>	language - supported values: en, es, cat, de	<code>en</code>
<code>mail_destinatarios</code>	Where to send the report. Coma-separated list of mail addresses. Example: <code>user1@domain.org,user2@domain.org</code>	-
<code>mail_from</code>	“From” for the report mail. Change “your-domain” to your domain.	<code>GestioIP@your-domain.org</code>
<code>logdir</code>	Where to store the log file	<code>.</code> (actual directory)
<code>ignore_generic_auto</code>	Set this value to "yes" if the update script should ignore DNS entries that match auto generated generic rDNS entries (see 3.2.2.3)	<code>yes</code>

ignorar	Generic rDNS entries to ignore when updating a network against the DNS (see 3.2.2.3)	-
max_sinc_procs	Maximum number of parallel processes to fork when synchronizing a network against the DNS. Decrease this value if the automatic update uses too much CPU load or increase it for faster run. Also, have a look at CPU load of your DNS servers during the run of scripts (if the servers are not very busy a value of 254 should not be a problem). possible values: 4,8,16,32,64,128,254	128
generic_dyn_host_name	Configure here strings that match generic names with are assigned via DHCP (see 3.4.2). Comma-separated list, case-sensitive. Example: PC-,LAP (for dynamic assigned names such as PC-001,PC-002, LAP001, LAP002)	-
dyn_rangos_only	Set dyn_ranges_only to "yes" if you only want to update IPs of reserved ranges	no
delete_dns_hosts_all_down	Set this parameter to "yes" if you want updating against DNS to delete all IPs that don't respond to ping and that don't have rDNS entries.	yes
no_ocs_redes	For networks which should not be synchronized against the OCS. Only for ip_update_gestioip_ocs.pl Comma-separated list. Example: 10.0.1.0,192.168.0.0	-
set_update_type_to_ocs	Set this to "yes" if automatic update against OCS should set the update type to "ocs". When update_type is set to "ocs" automatic update against DNS will not overwrite updates from OCS. Only for ip_update_gestioip_ocs.pl	no
ignore_ocs_host_down	OCS doesn't always delete old entries from its database. If you set "ignore_ocs_host_down" to	yes

	"yes", update against OCS will only update GestióIP's database with IPs which respond to "ping". Only for ip_update_gestioip_ocs.pl	
delete_ocs_hosts_down_match	Set this parameter to "yes" if you want updating against OCS to delete IPs that don't respond to ping and with matching "generic auto" or "generic dyn hostnames" Only for ip_update_gestioip_ocs.pl	yes
delete_ocs_hosts_down_all	Set this parameter to "yes" if you want updating against OCS to delete all IPs that don't respond to ping Only for ip_update_gestioip_ocs.pl	no
snmp_community_string	SNMP Community (SNMPv1/v2c) or username (SNMPv3)	public
snmp_version	SNMP version allowed values: 1,2,3	1

Note

If you use both, AU against DNS and AU against OCS, check log files or audit for ping-pong effects (e.g. AU against DNS updates an entry and AU against OCS deletes it ...). If ping-pong effects occur check whether A and rDNS entries for the affected IP address are correctly configured.

6.4 Automatic execution with cron

Create a cronjob to activate the automatic update.

Example 1

With the crontab entries below ip_update_gestioip_snmp.pl will be executed every Saturday at 22:30.

```
30 22 * * 6 /usr/share/gestioip/bin/ip_update_gestioip_snmp.pl -m > /dev/null
2>&1
```

Example II

With the crontab entries below, `ip_update_gestioip_dns.pl` and `ip_update_gestioip_ocs.pl` will be executed every day once per hour (`ip_update_gestioip_dns.pl` at 00:30, 01:30, 02:30,... and `ip_update_gestioip_ocs.pl` at 00:45, 01:45,...) assuming that `ip_update_gestioip_dns.pl` need less than 15 min for one run.

```
30 * * * * /usr/share/gestioip/bin/ip_update_gestioip_dns.pl -m > /dev/null
2>&1
```

```
45 * * * * /usr/share/gestioip/bin/ip_update_gestioip_dns.pl -m > /dev/null
2>&1
```

Note

Choose a frequency that ensures that the last run of the script has finished when cron executes the script again (scripts create semaphore files - so it's sure that there are never running multiple instances of the script)

You can use the command “time” to determine how long the script needs for one run. Execute

```
$ time ./ip_update_gestioip_dns.pl -v
```

....

```
real 0m14.431s <- time the scrip needs to run
```

```
user 0m1.864s
```

```
sys 0m2.432s
```

(result for one class C network)

6.5 Required Perl Modules

Automatic update scripts depend amongst others on the following Perl Modules:

DBI, DBD-mysql, Net::IP, Net::Ping::External, Parallel::ForkManager, Net::DNS, SNMP::Info, ParseExcel (optional), OLE-Storage_Lite (optional, needed by ParseExcel) .

If you run the update scripts from a host other than the GestióIP host, you need to install this Perl Modules on the machine, too.

If you execute the update scripts from command line, missing modules will be indicated by an error message like:

```
Can't locate ParseExcel.pm in @INC (@INC contains: ...
```

Here are some examples of how to install the required Perl Modules for different Linux distributions (already installed modules will be ignored):

Debian/Ubuntu

Many of this packages are from “Universe” repository. You have to enable (uncomment) it in `/etc/apt/sources.list`. Don't forget to execute “`sudo apt-get update`” to resynchronize the package index files from their sources after editing `sources.list`

```
$ sudo apt-get install libdbi-perl libdbd-mysql-perl libparallel-forkmanager-perl
libnet-ping-external-perl libwww-perl libnet-ip-perl libspreadsheet-parseexcel-
perl libsnmp-perl libdate-manip-perl libdate-calc-perl libtime-modules-perl
libmailtools-perl libnet-dns-perl libsnmp-info-perl
```

Suse

```
$ sudo zypper install Perl-DBD-mysql perl-DBI Perl-Net-IP perl-libwww-perl perl-
SNMP perl-MailTools perl-Time-modules perl-Date-Calc perl-Date-Manip perl-Net-DNS
```

The following Perl module are not available from Suse repository: `Parallel::ForkManager`, `ParseExcel` ,`OLE-Storage_Lite` and `SNMP::Info`

Download the modules from <http://search.cpan.org/> and install it manually (see 6.5.1).

Fedora/RedHat/CentOS

```
$ sudo yum install perl-Net-IP perl-Net-Ping-External perl-Parallel-ForkManager  
perl-DBI perl-DBD-mysql perl-Spreadsheet-ParseExcel net-snmp-perl perl-DateManip  
perl-Date-Calc perl-TimeDate perl-MailTools perl-SNMP-Info perl-Net-DNS
```

Note for Redhat 5 and CentOS 5.3

The following Perl modules are not available from repositories: Parallel-ForkManager, Net-Ping-External, Net::DNS and SNMP::INFO

Download the modules from <http://search.cpan.org/> and install them manually (see 6.5.1).

6.5.1 Manual installation of missing Perl modules

If you run automatic update from a different host than that which comes with installation of GestióIP there might be Perl modules missing.

Download the missing modules from http://search.cpan.org and install them using the following commands (requires that “make” is installed):

```
$ tar vzxvf module.tar.gz or rather unzip module.zip  
$ cd module  
$ perl Makefile.pl  
$ make  
$ sudo make install
```

6.5.1.1 SNMP::Info and Netdisco MIBs

VLAN discovery as well as parts of host discovery via SNMP are based on the Perl Module `SNMP::Info`, developed by Max Backer for the Netdisco project. `SNMP::Info` requires the Netdisco MIBs to be installed on the system. If Netdisco MIBs are already installed on the server you can specify the path to the directory where the MIB files are stored from “Manage” → “GestióIP”.

To install MIB files download them from Sourceforge

```
$ wget http://sourceforge.net/projects/netdisco/files/netdisco-mibs/0.7/netdisco-mibs-0.7.tar.gz
```

Untar the file `netdisco-mibs-0.7.tar.gz`

```
$ tar vzxvf netdisco-mibs-0.7.tar.gz
```

Copy the content of `netdisco-mibs-0.7/` to `/usr/share/gestioip/mibs/`

```
$ sudo cp -r netdisco-mibs-0.7/* /usr/share/gestioip/mibs/
```

Change the owner and group to the user under which is running the Apache Web server (e.g. Ubuntu: `www-data`)

```
$ sudo chown -R www-data:www-data /usr/share/gestioip/mibs
```

7 General information

7.1 Backup

Don't forget to include GestióIP's database within your backup strategy.

To make a manual backup of GestióIP's database execute the following command:

```
$ mysqldump -u gestioip -p gestioip > backup_gestioip.sql
```

To recover a backup made with “mysqldump” execute the following command:

```
$ mysql -u gestioip -p gestioip < backup_gestioip.sql
```

7.2 Firewall rules

GestioIP's Web-based, as well as the script based discovery and update functions are working with with DNS and SNMP queries plus ICMP echo requests (ping). That means that the nameservers must be accessible and that the target networks must be reachable with SNMP and ICMP from the host with the installation of GestióIP and the host where the update scripts (see 6) are running (if not the same). All connections are initialized by GestióIP. That means that the following firewall rules are necessary to run GestióIP's update functions properly.

protocol	src address	src port	dest address	dest port
ICMP echo request (type 8)	GestióIP host	-	destination networks	-
UDP	GestióIP host	> 1023	destination networks	161
UDP	GestióIP host	> 1023	DNS servers	53
ICMP echo reply (type 0)	destination networks	-	GestióIP host	-
UDP	destination networks	161	GestióIP host	> 1023
UDP	DNS servers	> 1023	GestióIP host	53

7.3 Java-script

GestióIP uses some java-script:

- to position the cursor in the right form fields
- to open *subnet calculator* and *host check* windows
- to scroll to last position after manipulation networks or host form “list”-views
- to enable and disable form fields
- to open confirmation window for critical actions

You have to enable java-script in your browser to use this functions.

7.4 Cookies

GestióIP uses the following six cookies:

- GestioIPLang - to remember the last used language
- EntriesRedPorPage - to remember the last value of *entries/page* (network entries shown per page)
- scrollx and scrolly - to scroll to last position after manipulating host from “list”-view
- net_scrollx and net_scrolly - to scroll to last position after manipulating networks from “list”-view

8 License

GestióIP is free software. It is distributed under the GNU GENERAL PUBLIC LICENCE version 3 (GPLv3).

Appendix A

List of manufactures recognized by GestioIP's SNMP discovery mechanisms (displayed with icons)

Aficio/Ricoh, Apple, Aruba, Adtran, Allied, APC, Altiga, Arista, Asante, Avocent, Axis, Barracuda, Billion, Belair, Bluecoat, Borderware, Brother, Broadcom, Brocade, Calix, Cyclades, Canon, Checkpoint, Cisco, Cyberoam, Dell, Dialogic, ECI Telecom, Edgewater, EMC, Emerson, Enterasys, Epson, Extreme, f5, Fluke, Fortinet, Foundry, H3C, Hewlett Packard, IBM, Juniper, Proxim, Kodak, Konica, Lancom, Alcatel-Lucent, Lexmark, Linksys, Lifesize, Microsoft, Minolta, Motorola, Netapp, Netgear, Nortel, Novell, Optibase, Ovislink, Panasonic, Passport, Paloalto, Phaser, Polycom, Qnap, Radvision, Radware, Riverstone, Samsung, Siemens, SMC, Sonicwall, Stonesoft, Sony, Symantec, Sun, Tandberg, Toplayer, Vegastream, Vyatta, Watchguard, Websense, Xerox, Zyxel

List of operation systems recognized by GestioIP's SNMP discovery mechanisms (displayed with icons)

AIX, CentOS, Debian, Fedora, FreeBSD, Linux, NetBSD, Netware, OpenBSD, Redhat, Slackware, Solaris, Suse, Ubuntu, exTurbolinux, Unix, Windows