

Steve DESTIVELLE / ZABBIX Summit 2022

Because I'm



Yes, I'm French !

- I am Steve Destivelle
- ZABBIX French Evangelist
- Founder of IZI-IT
- We have this super sexy accent



ZABBIX
CERTIFIED PARTNER

ZABBIX
CERTIFIED TRAINER



IZI-IT

What is the purpose of my talk

About the ZABBIX API, but

- Not a workshop
- Not very detailed
- Just to show the potential
- IT people are so overwhelmed that they need to move fast



What is an API ?

` An Application
Programming Interface`

Wikipedia



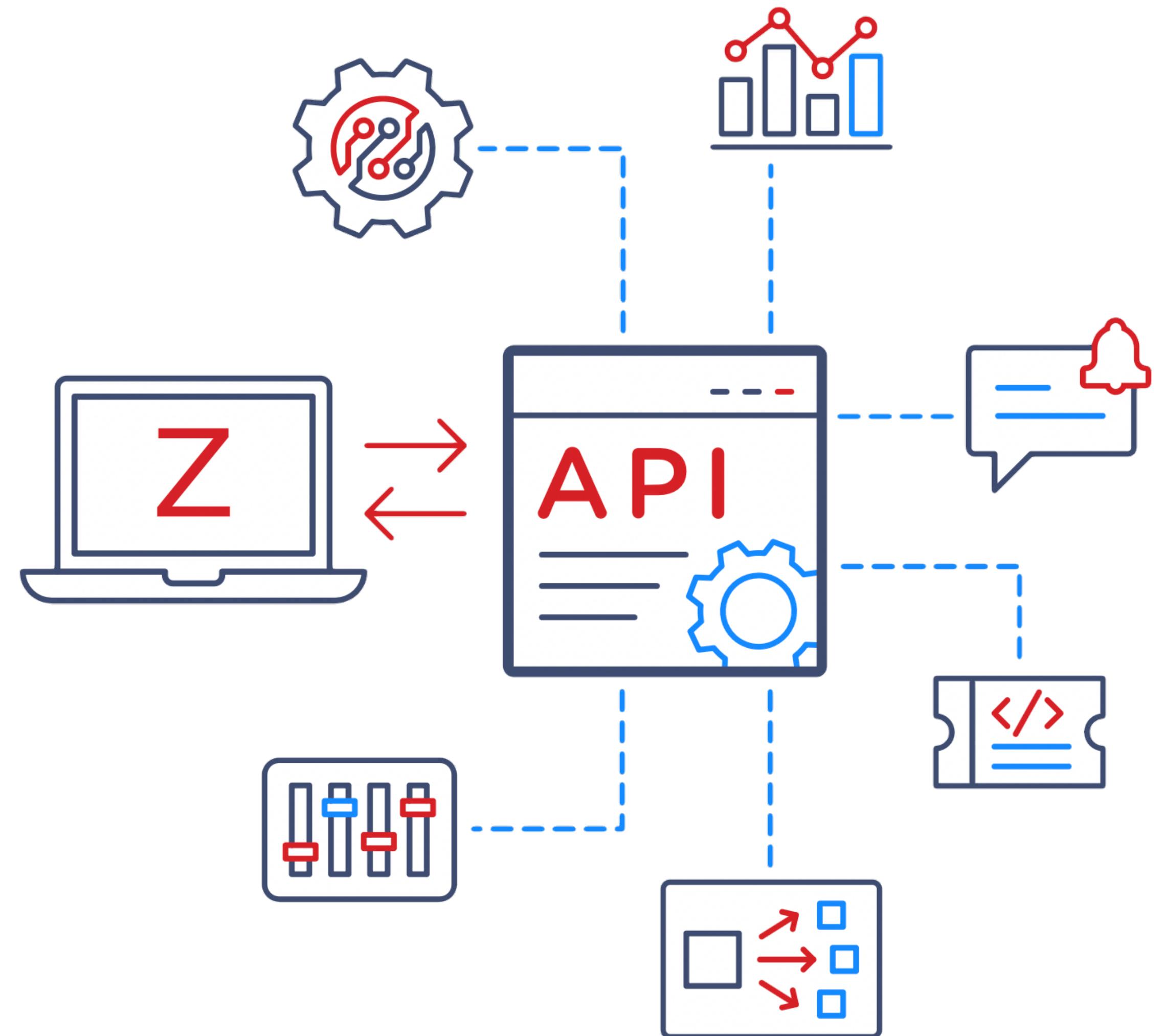
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**How many
people in the
room use
ZABBIX**



The fact is that

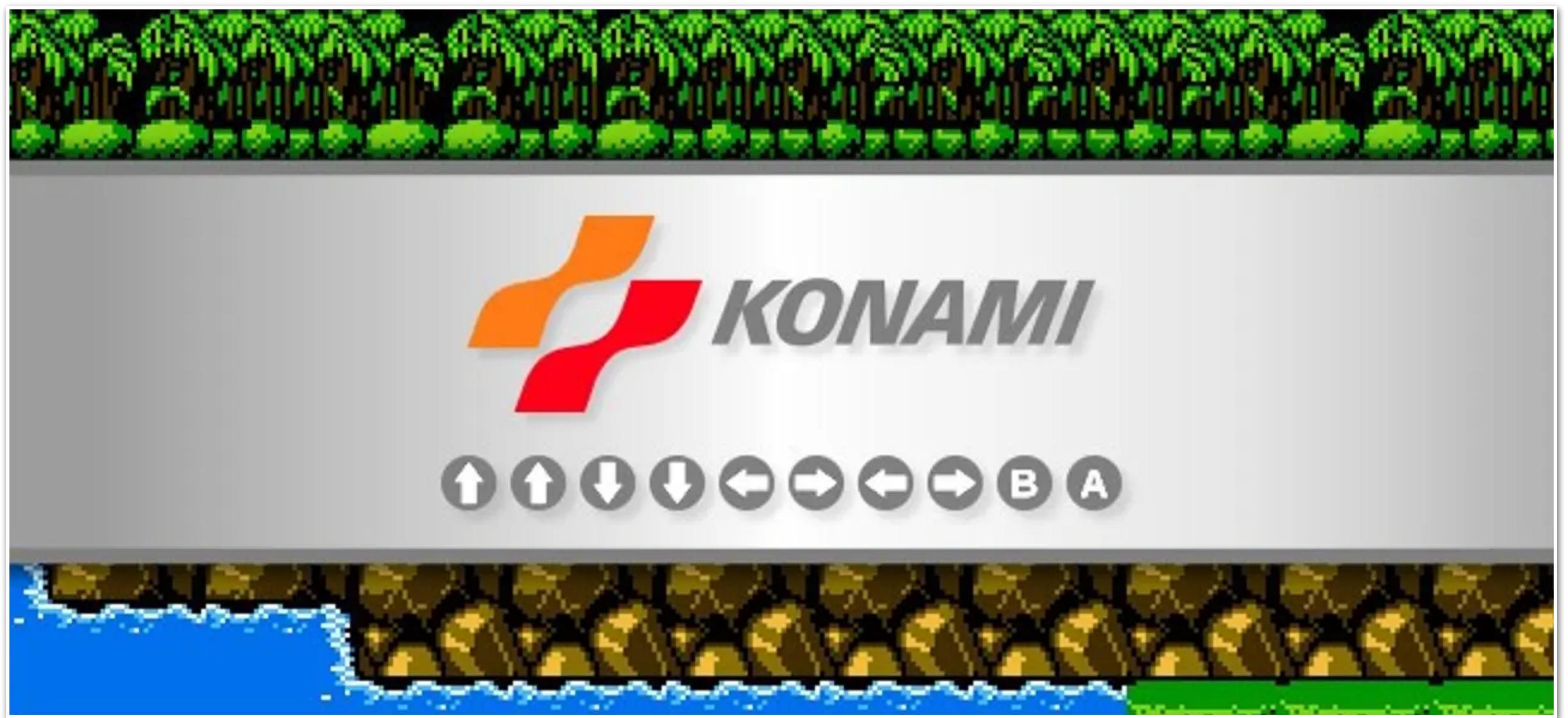
- Even if you didn't notice it, you were using the ZABBIX API since you began to use ZABBIX



The Debug mode

- Through the Frontend
- Activate the “Konami code”

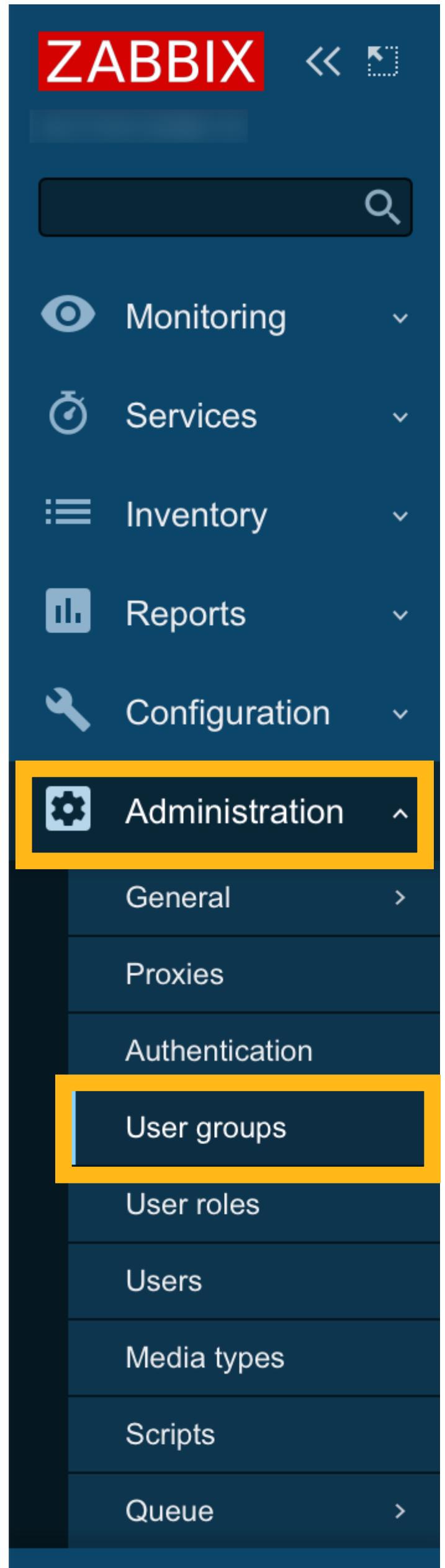
for your **Usergroup** and click on
the **Debug** button



Enable the Debug mode

- Administration > User groups

Menu



Enable the Debug mode

User groups

User group Template permissions Host permissions Problem tag filter

* Group name: Zabbix Admin Internal

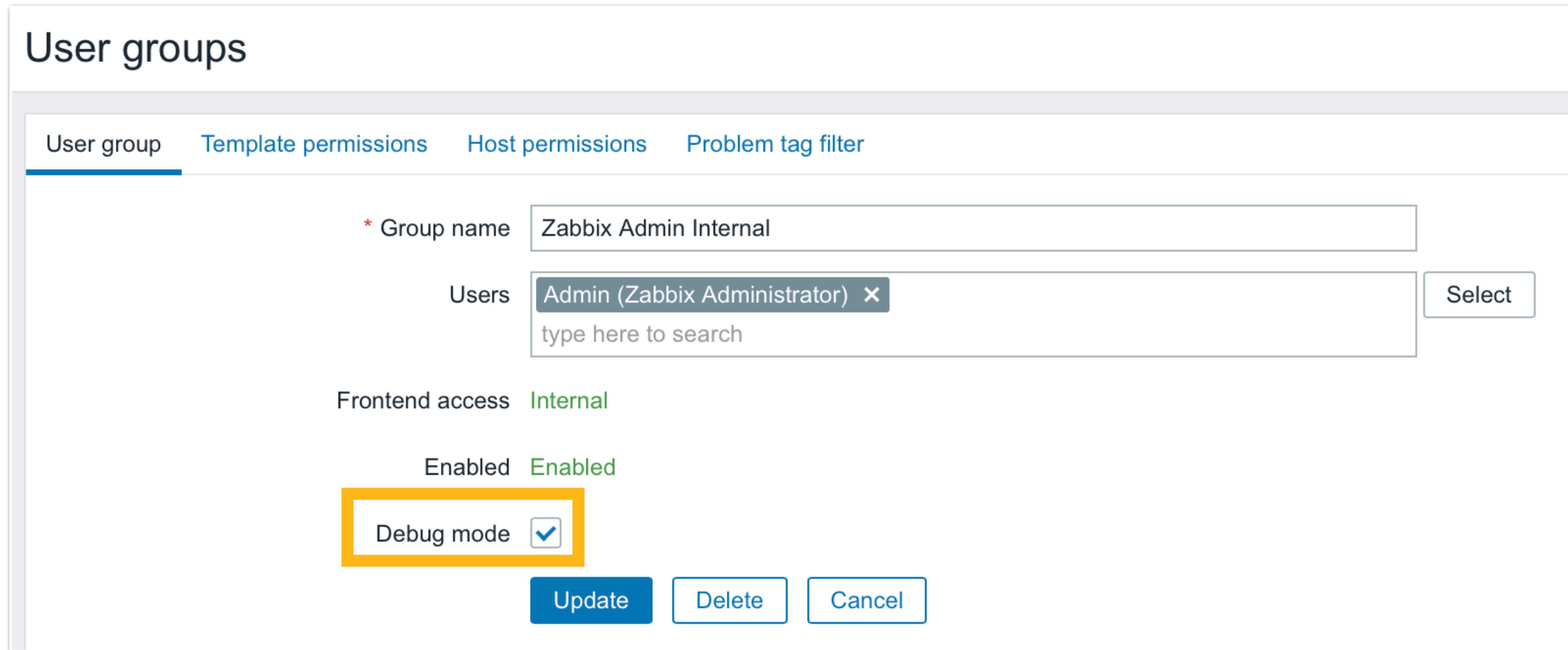
Users: Admin (Zabbix Administrator) × Select
type here to search

Frontend access: Internal

Enabled: Enabled

Debug mode:

Update Delete Cancel



Enable the Debug mode

The screenshot shows the Zabbix web interface under the 'Administration' section, specifically the 'User groups' configuration. A modal window is open for editing a user group named 'Zabbix Admin Internal'. In the 'Debug mode' section, there is a checkbox labeled 'Debug mode' which is currently checked (indicated by a blue border). A yellow arrow points from this checked checkbox to a large button labeled 'Debug' located on the right side of the screen.

ZABBIX

User groups

User group Template permissions Host permissions Problem tag filter

* Group name: Zabbix Admin Internal

Users: Admin (Zabbix Administrator)

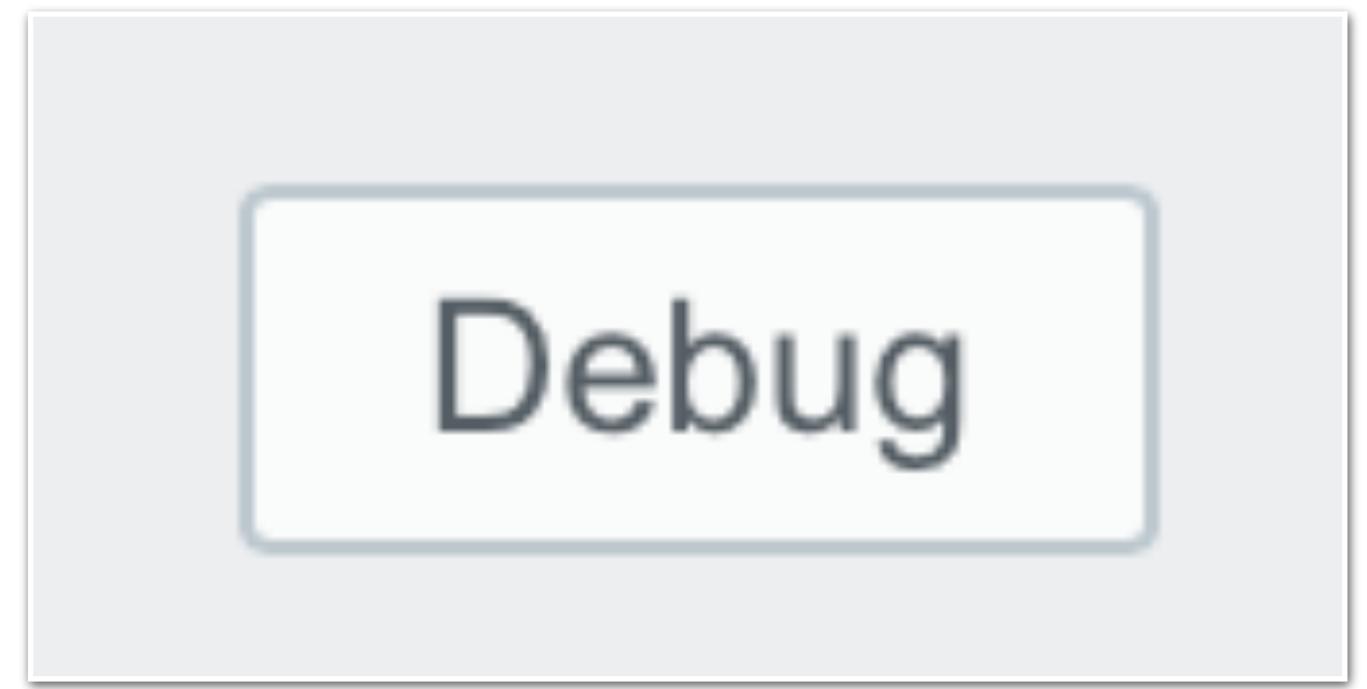
Frontend access: Internal

Enabled: Enabled

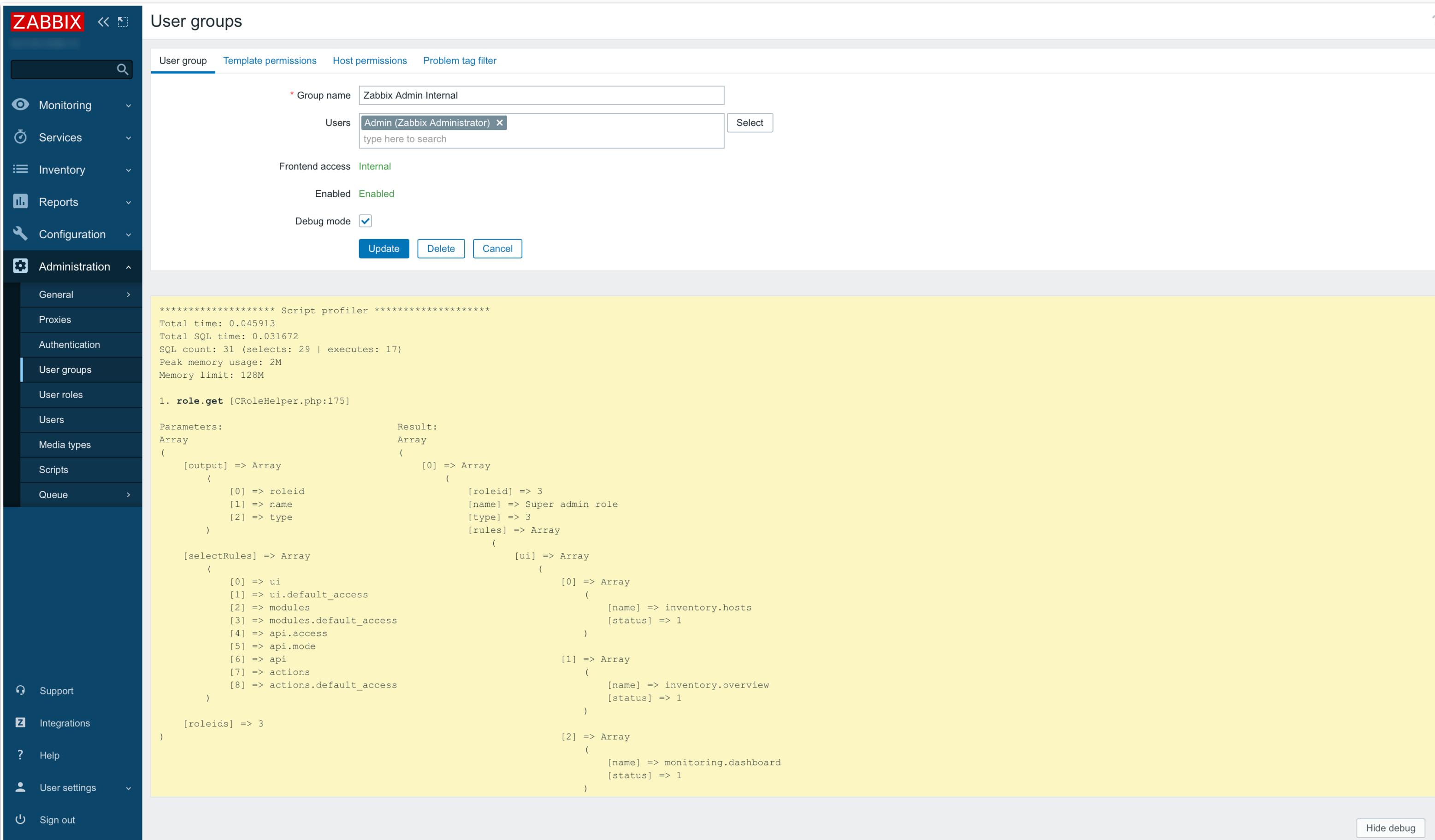
Debug mode:

Update Delete Cancel

Zabbix 6.2.2. © 2001–2022, Zabbix SIA



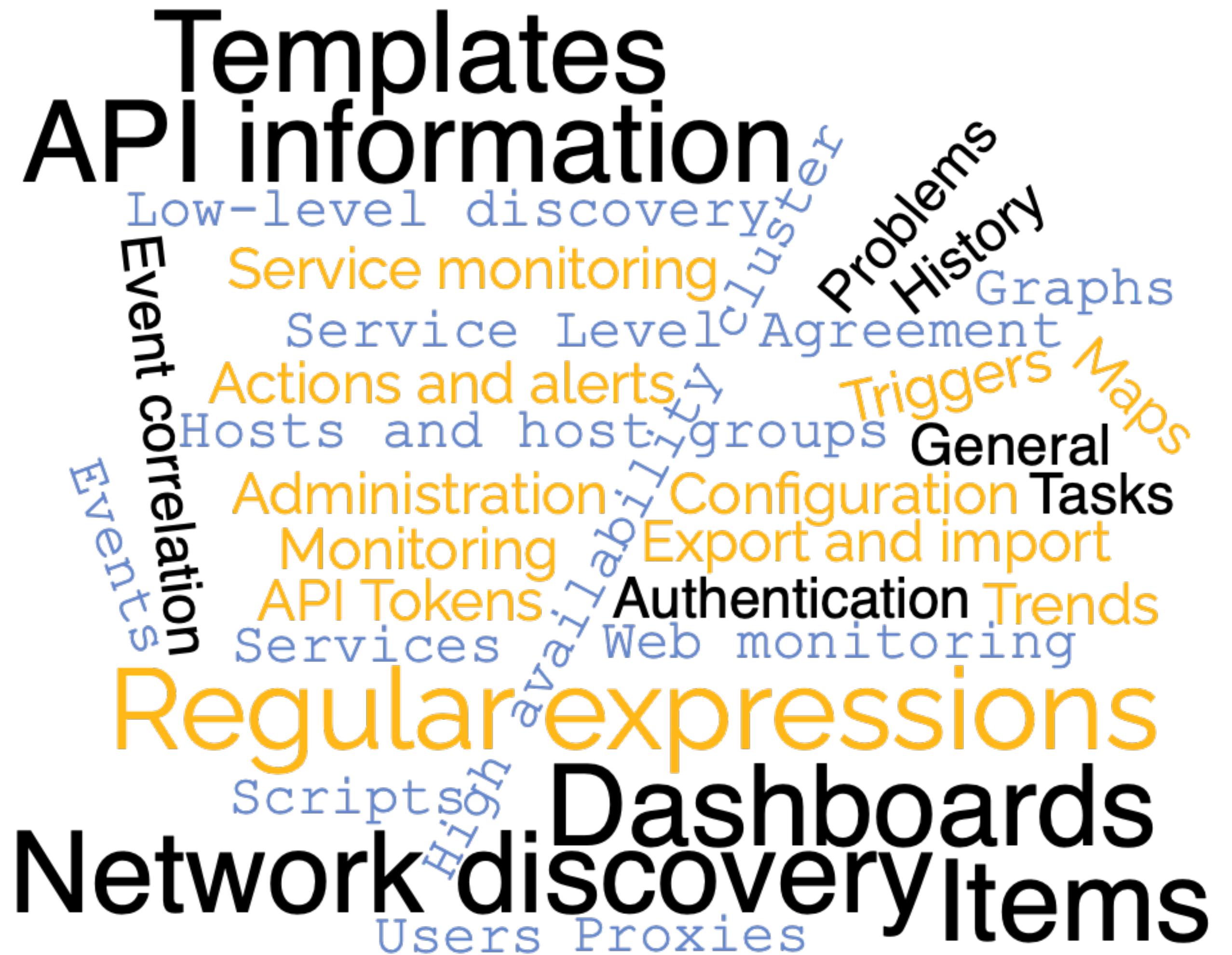
Enable the Debug mode



All the methods

- Create
- Update
- Delete
- Get

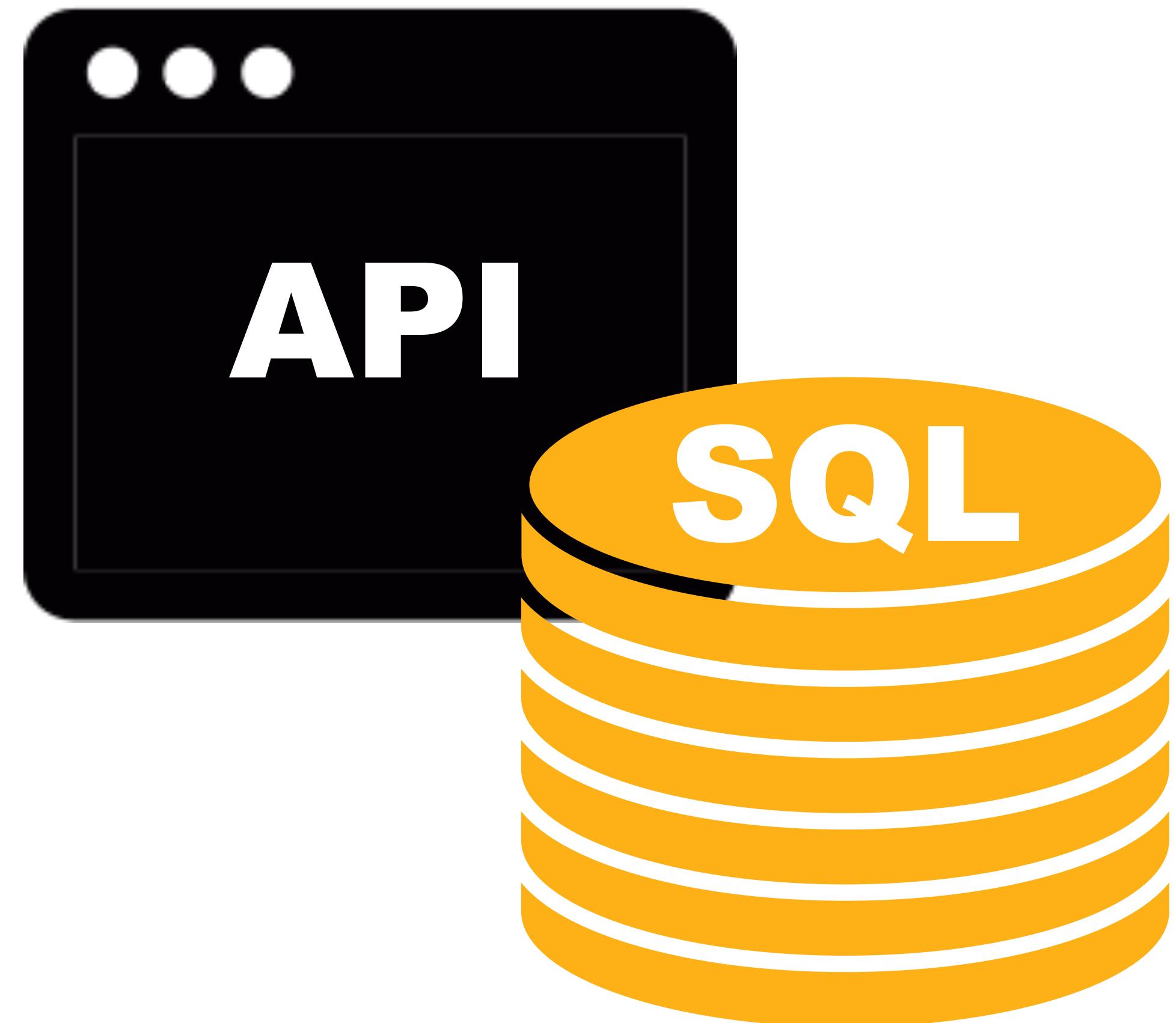
The complete list =>
<https://www.zabbix.com/documentation/current/en/manual/api/reference>



Why not using SQL command ?

With the API:

- No major change of the methods
- Rollback in case of error
- Auditable
- Respect of the user permission



Why not using SQL command ?



Because, we need
you to learn
Python



How to secure the API call ?

With Roles

Since **ZABBIX** 5.2

Administration > User roles Menu

- Permissions granularity
- UI element restriction
- Restrict the API methods

<https://blog.zabbix.com/user-roles-for-the-enterprise>

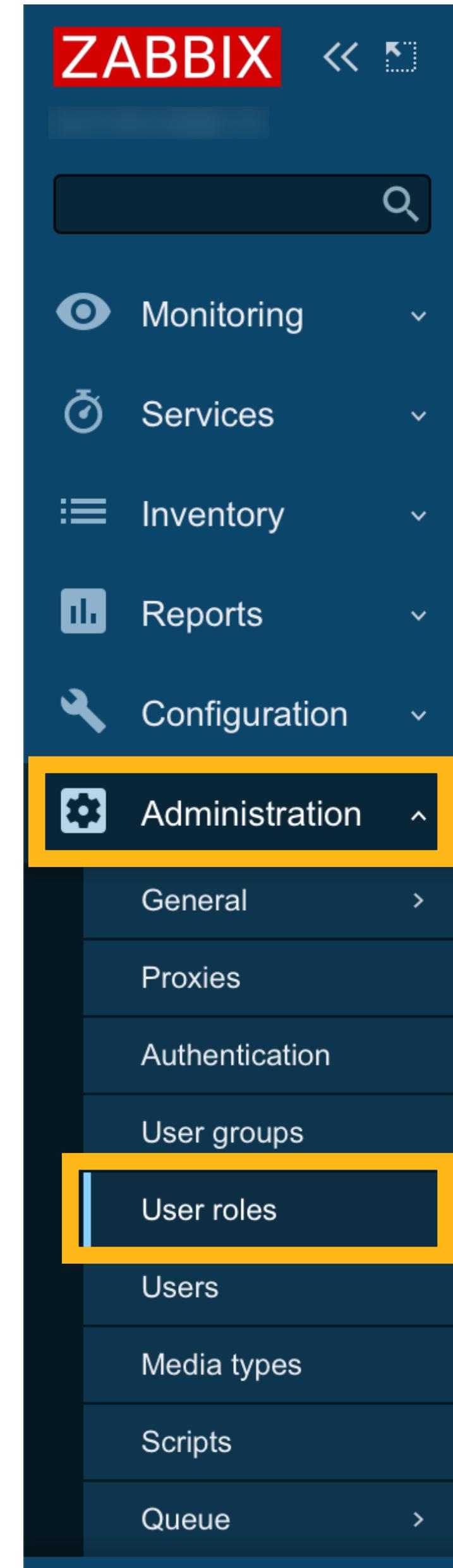
```
{  
    "jsonrpc": "2.0",  
    "error": {  
        "code": -32602,  
        "message": "Invalid params.",  
        "data": "No permissions to call \\"host.create\\"."  
    },  
    "id": 1  
}
```



Secure with Roles

- Administration > User Roles

Menu



Secure with Roles

- New Role

* Name

User type User

Access to UI elements

Category	UI Element	Access
Monitoring	Dashboard	<input checked="" type="checkbox"/>
	Latest data	<input checked="" type="checkbox"/>
Services	Services	<input checked="" type="checkbox"/>
	SLA report	<input checked="" type="checkbox"/>
Inventory	Overview	<input checked="" type="checkbox"/>
	Hosts	<input checked="" type="checkbox"/>
Reports	System information	<input type="checkbox"/>
	Audit	<input checked="" type="checkbox"/>
	Scheduled reports	<input type="checkbox"/>
Configuration	Template groups	<input type="checkbox"/>
	Hosts	<input type="checkbox"/>
	Event correlation	<input type="checkbox"/>
Administration	General	<input type="checkbox"/>
	User groups	<input type="checkbox"/>
	Media types	<input type="checkbox"/>
Problems	<input checked="" type="checkbox"/>	
Maps	<input checked="" type="checkbox"/>	
Service actions	<input type="checkbox"/>	
SLA	<input type="checkbox"/>	
Availability report	<input checked="" type="checkbox"/>	
Action log	<input type="checkbox"/>	
Triggers top 100	<input checked="" type="checkbox"/>	
Notifications	<input type="checkbox"/>	
Host groups	<input type="checkbox"/>	
Maintenance	<input type="checkbox"/>	
Discovery	<input type="checkbox"/>	
Proxies	<input type="checkbox"/>	
User roles	<input type="checkbox"/>	
Scripts	<input type="checkbox"/>	
Templates	<input type="checkbox"/>	
Actions	<input type="checkbox"/>	
Authentication	<input type="checkbox"/>	
Users	<input type="checkbox"/>	
Queue	<input type="checkbox"/>	

* At least one UI element must be checked.

Default access to new UI elements

Access to services

Read-write access to services

Read-only access to services

Access to modules

No enabled modules found.

Default access to new modules

Access to API

Enabled

API methods
type here to search

Access to actions

Create and edit dashboards
 Create and edit maps
 Create and edit maintenance
 Add problem comments
 Change severity
 Acknowledge problems
 Suppress problems
 Close problems
 Execute scripts
 Manage API tokens
 Manage scheduled reports
 Manage SLA
 Invoke "Execute now" on read-only hosts

Default access to new actions



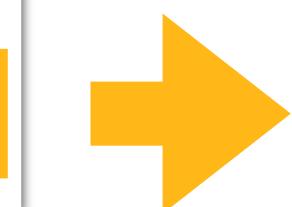
Secure with Roles

- Define all the methods that this specific role will be allowed or denied

Access to API

Enabled

API methods



API methods	
<input type="checkbox"/>	Name
<input type="checkbox"/>	action.get
<input type="checkbox"/>	alert.get
<input type="checkbox"/>	configuration.export
<input type="checkbox"/>	configuration.import
<input type="checkbox"/>	configuration.importcompare
<input type="checkbox"/>	correlation.get
<input type="checkbox"/>	dashboard.create
<input type="checkbox"/>	dashboard.delete
<input type="checkbox"/>	dashboard.get
<input type="checkbox"/>	dashboard.update
<input type="checkbox"/>	dcheck.get
<input type="checkbox"/>	dhost.get
<input type="checkbox"/>	discoveryrule.get
<input type="checkbox"/>	drule.get
<input type="checkbox"/>	dservice.get
<input type="checkbox"/>	event.acknowledge

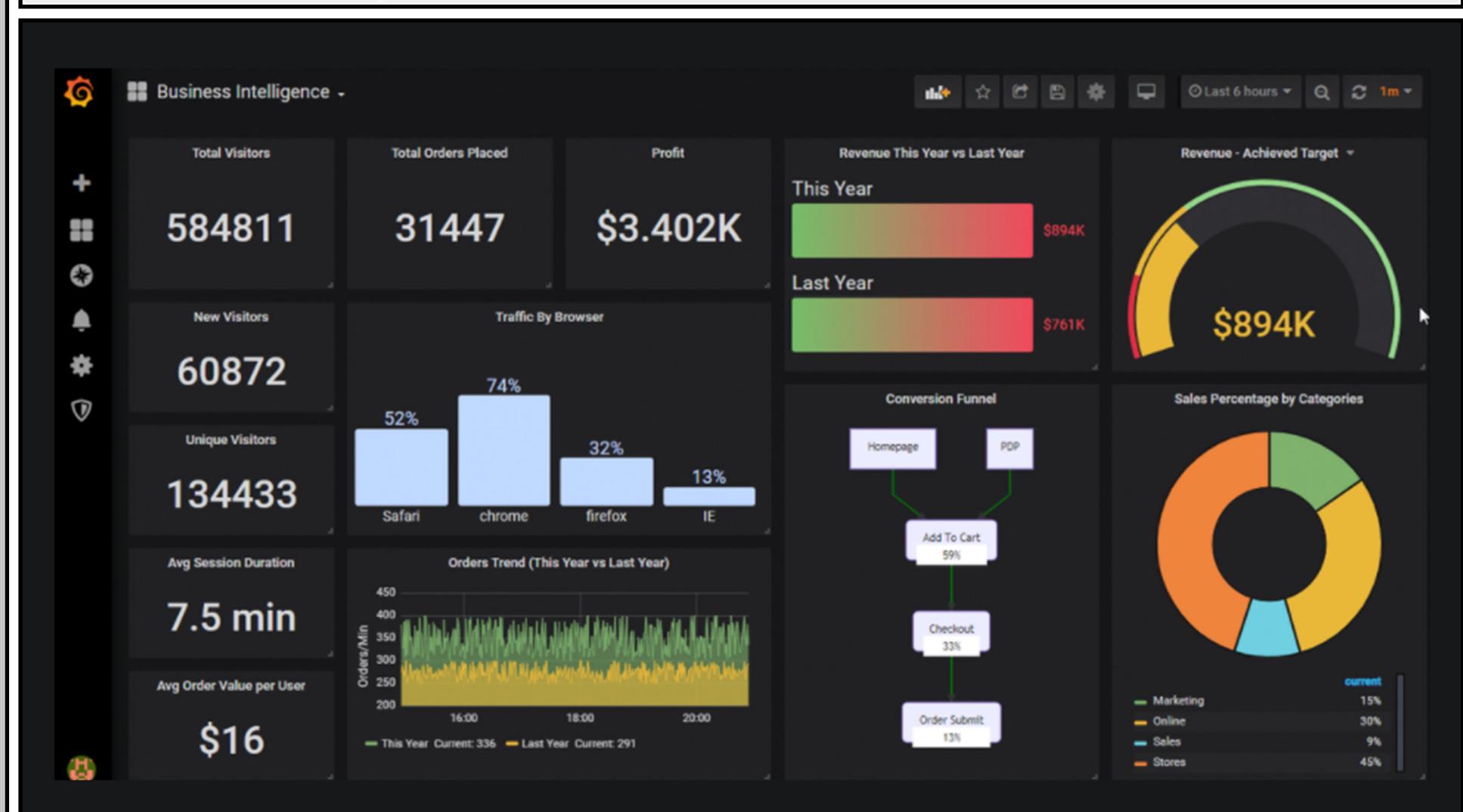
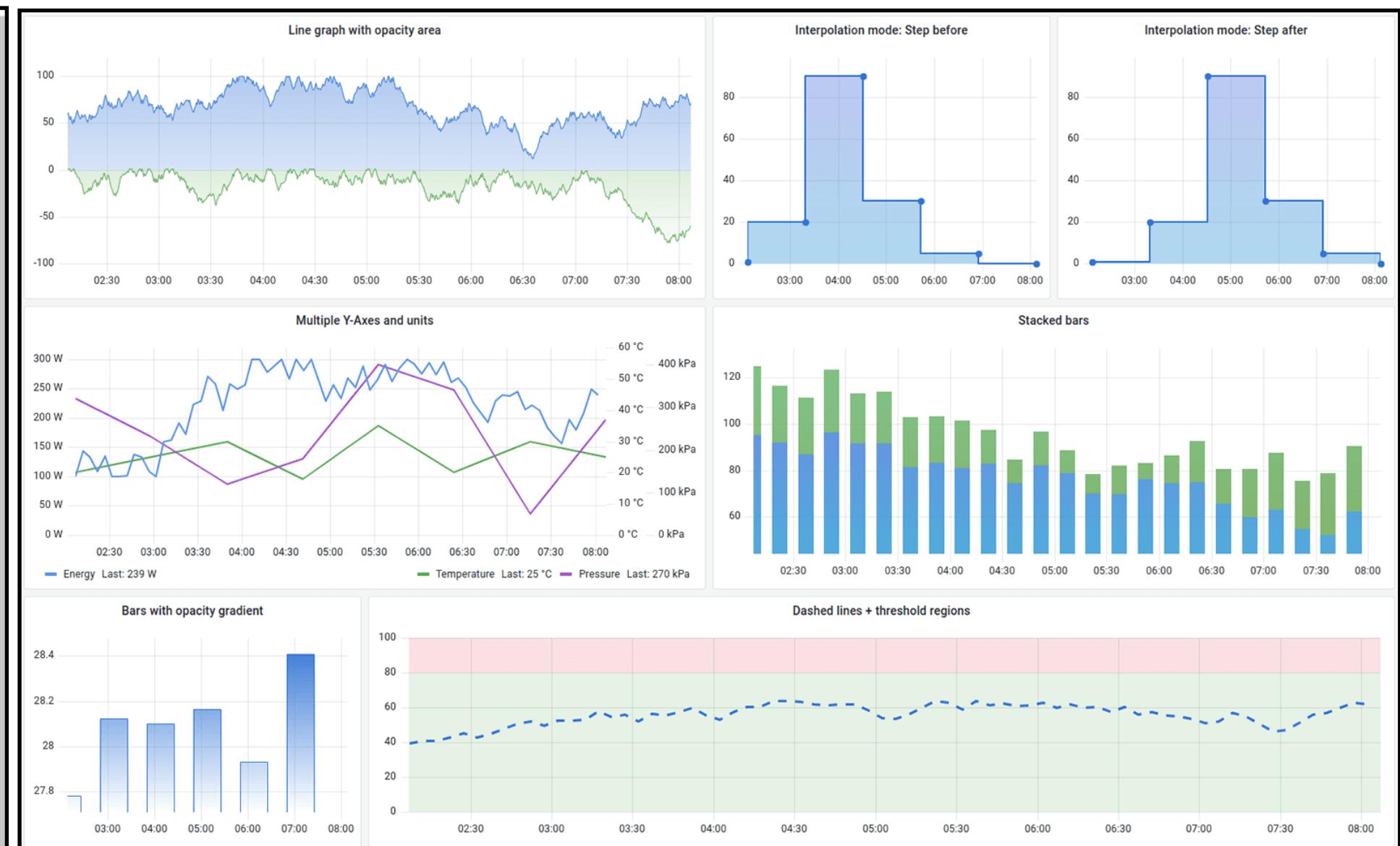


**What could
be done with
ZABBIX API**



Grafana

- Native **ZABBIX** data source
- Fully customizable



Custom interfaces

- Python (Flask)
- Pyzabbix

<https://github.com/lukecyca/pyzabbix>



Zabbix upload tool using the Zabbix API

Choose csv to upload

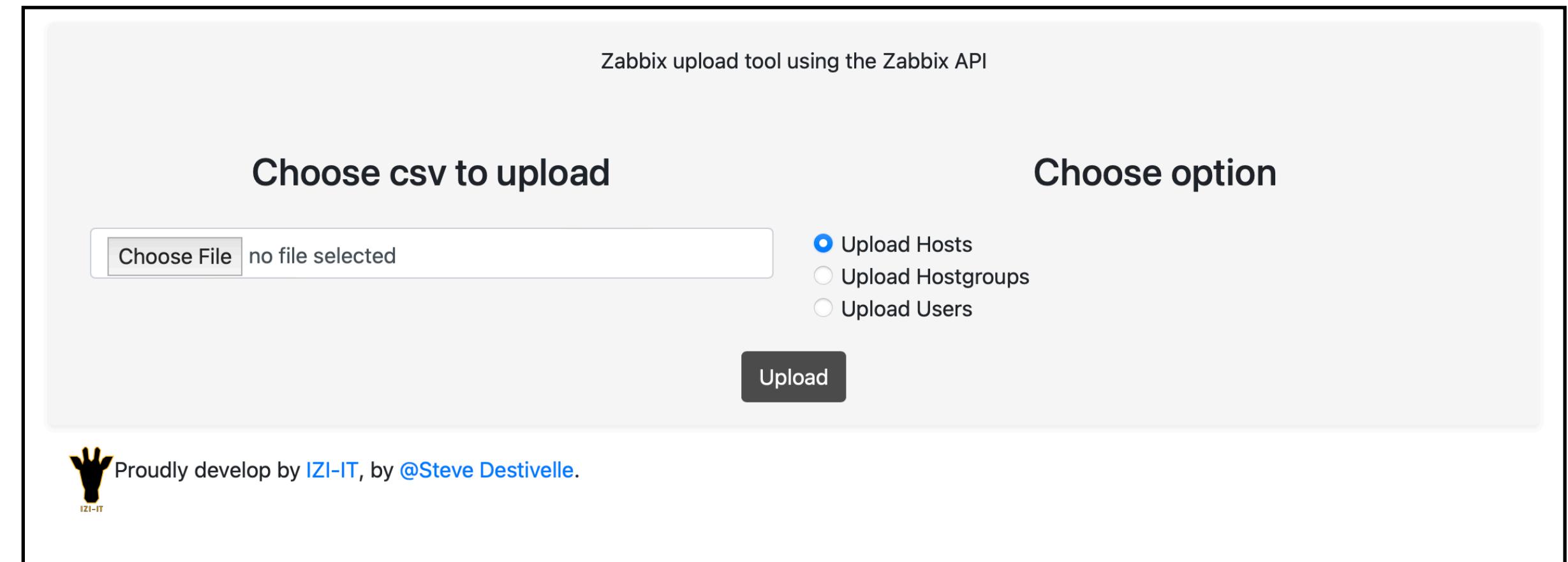
Choose option

Choose File no file selected

Upload Hosts
 Upload Hostgroups
 Upload Users

Upload

Proudly develop by IZI-IT, by @Steve Destivelle.



Search Files & Folders

New Folder

Upload Files

82 items

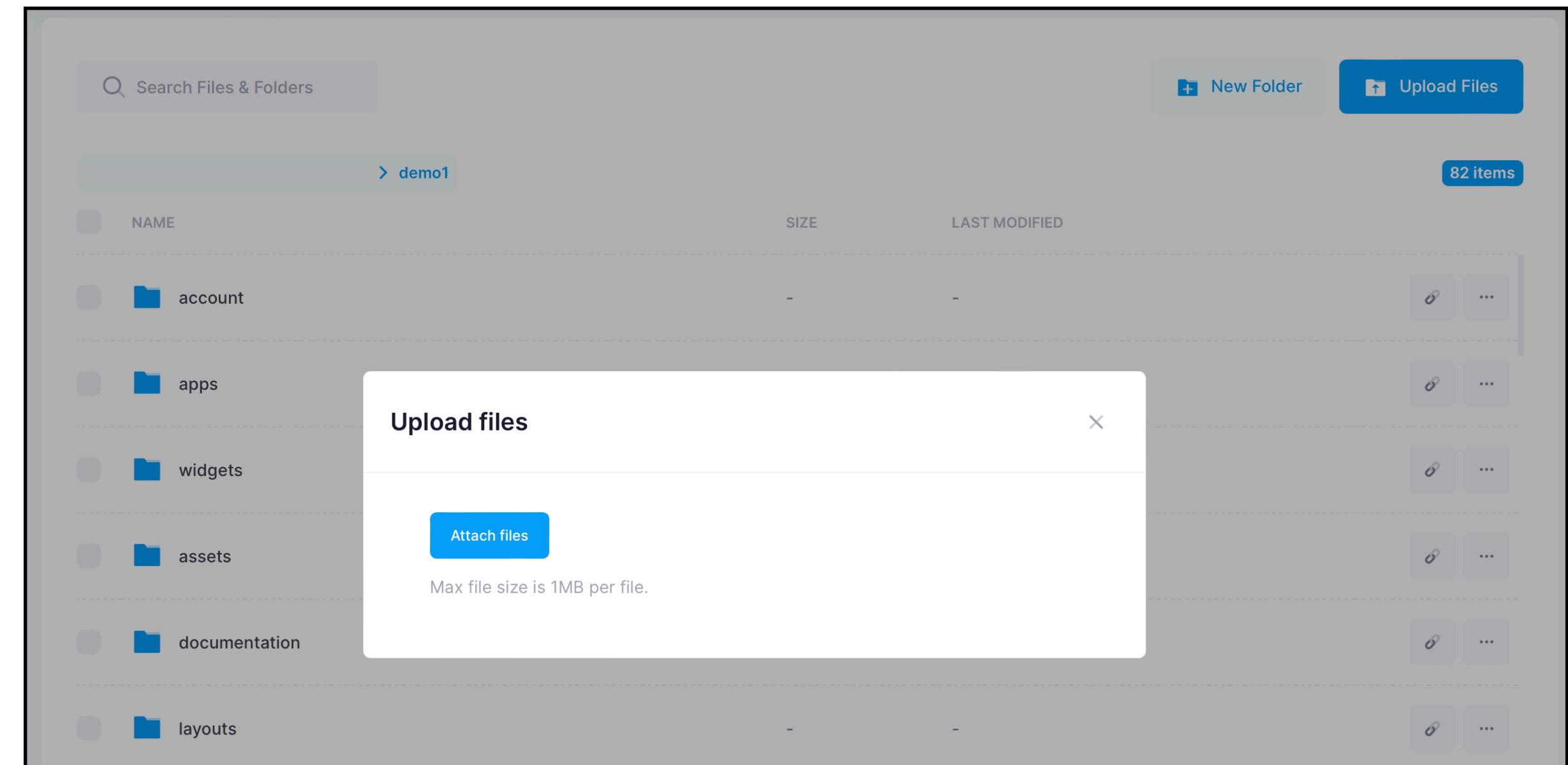
demo1

NAME	SIZE	LAST MODIFIED
account	-	-
apps	-	-
widgets	-	-
assets	-	-
documentation	-	-
layouts	-	-

Upload files

Attach files

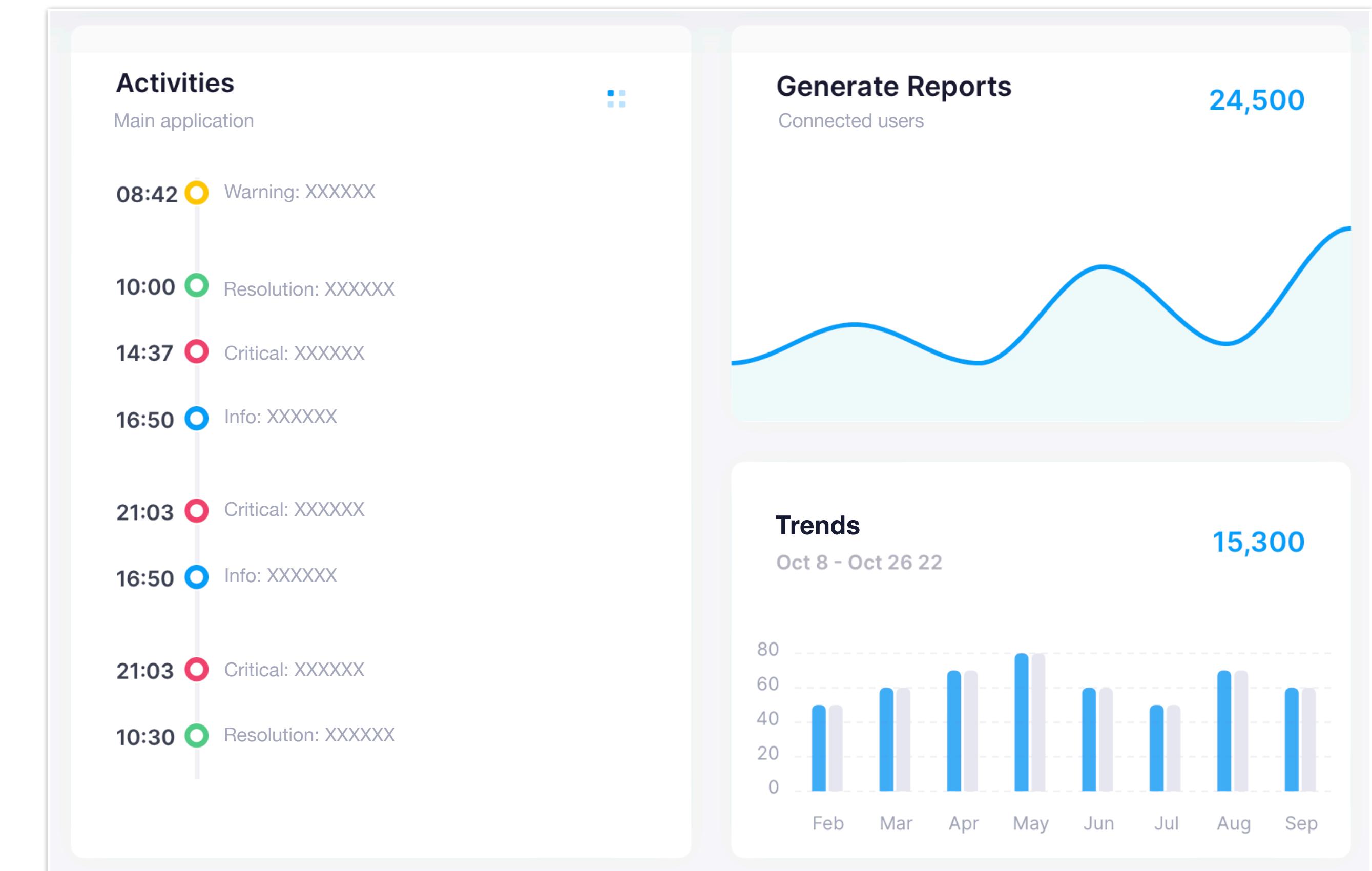
Max file size is 1MB per file.



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Custom reports

- Because it was not possible to do the same with ZABBIX reports
- Extract data with ZABBIX API
- Create custom reports with HTML/CSS



Automation

- To make work easier
 - Add Hosts from CSV files
 - Add Hostgroups
 - Add Users

Zabbix upload tool using the Zabbix API

Choose csv to upload Choose option

no file selected

Upload Hosts
 Upload Hostgroups
 Upload Users

 Proudly develop by IZI-IT, by @Steve Destivelle.

```
zapi.host.create({"host": host_name,
  "interfaces": [
    {
      "type": 2,
      "main": 1,
      "useip": 1,
      "ip": ip_address,
      "dns": "",
      "port": "161",
      "bulk": "0",
      "proxy_hostid": proxyid
    }
  ],
  "groups": [
    {
      "groupid": host_groupid
    }
  ],
  "templates": [
    {
      "templateid": template_id
    }
  ],
  "inventory_mode": 1
})
```



Automation

- Create maintenance period only once from ics calendar file

```
{  
    <all-day Event 'Vacances de Noël' begin:2021-12-18 end:2022-01-03>,  
    <all-day Event 'Vacances d'Hiver' begin:2022-02-19 end:2022-03-07>,  
    <all-day Event 'Vacances de Printemps' begin:2022-04-23 end:2022-05-09>,  
    <all-day Event 'Pont de l'Ascension' begin:2022-05-26 end:2022-05-28>,  
    <all-day Event 'Vacances d'Été' begin:2022-07-07 end:2022-09-01>,  
    <all-day Event 'Vacances d'Été (prérentrée Enseignants )' begin:2022-08-31 end:2022-09-01>,  
    <all-day Event 'Vacances de la Toussaint' begin:2022-10-22 end:2022-11-07>,  
    <all-day Event 'Vacances de Noël' begin:2022-12-17 end:2023-01-03>,  
    <all-day Event 'Vacances d'Hiver' begin:2023-02-18 end:2023-03-06>,  
    <all-day Event 'Début des Vacances d'Été' 2023-07-08>,  
    <all-day Event 'Vacances de Printemps' begin:2023-04-22 end:2023-05-09>,  
    <all-day Event 'Pont de l'Ascension' begin:2023-05-18 end:2023-05-22>  
}
```



Migration

Move from:

- BMC Patrol
- HP OV
- Centreon
- Nagios
- Shinken
- DataMiner
- Older ZABBIX

To:



Migration

Custom tool:

- Working on this tool was a lot of work
- Follow the changes in Zabbix API
 - Users => Username
 - Actions (operations, recovery_operations, update_operations)

The screenshot shows a web-based migration tool for Zabbix. At the top, a red header bar contains the word "ZABBIX". Below it, a sub-header reads "Zabbix migration tool with Zabbix API". The interface is divided into two main sections: "Zabbix Source informations" on the left and "Zabbix Destination informations" on the right. Both sections contain fields for "Zabbix URL", "Username" (set to "Admin"), and "Password" (set to "zabbix"). Under "Zabbix Source informations", there is a list of checkboxes for various items to export, with most checked. Under "Zabbix Destination informations", there is a list of checkboxes for various items to import, also with most checked. A large red "Migrate" button is located at the bottom right of the form.

Zabbix Source informations		Zabbix Destination informations	
Zabbix URL	http://url_to_zabbix_source/zabbix	Zabbix URL	http://url_to_zabbix_destination/zabbix
Username	Admin	Username	Admin
Password	zabbix	Password	zabbix
<input checked="" type="checkbox"/> Export Hostgroups		<input checked="" type="checkbox"/> Import Hostgroups	
<input checked="" type="checkbox"/> Export Usergroups		<input checked="" type="checkbox"/> Import Usergroups	
<input checked="" type="checkbox"/> Export Mediatypes		<input checked="" type="checkbox"/> Import Mediatypes	
<input checked="" type="checkbox"/> Export Users		<input checked="" type="checkbox"/> Import Users	
<input checked="" type="checkbox"/> Export Templates		<input checked="" type="checkbox"/> Import Templates	
<input checked="" type="checkbox"/> Export Proxies		<input checked="" type="checkbox"/> Import Proxies	
<input checked="" type="checkbox"/> Export Hosts		<input checked="" type="checkbox"/> Import Hosts	
<input type="checkbox"/> Export Actions - Triggers		<input type="checkbox"/> Import Actions - Triggers	
<input type="checkbox"/> Export Actions - Auto registration		<input type="checkbox"/> Import Actions - Auto registration	
<input type="checkbox"/> Export Maintenances		<input type="checkbox"/> Import Maintenances	
<input type="checkbox"/> Export Dashboards		<input type="checkbox"/> Import Dashboards	
<input type="checkbox"/> Export Authentication		<input type="checkbox"/> Import Authentication	
<input type="checkbox"/> Export Maps		<input type="checkbox"/> Import Maps	
<input type="checkbox"/> Export Scripts		<input type="checkbox"/> Import Scripts	
<input type="checkbox"/> Export Settings		<input type="checkbox"/> Import Settings	
<input type="checkbox"/> Export Services		<input type="checkbox"/> Import Services	

<https://github.com/aldevar/zabbix-db-migration>



Import icons Easily in ZABBIX

- Based on ZABBIX API
- Select different size of your icon

ZABBIX

Zabbix Icons import tool with Zabbix API

Made by IZI-IT

Zabbix URL

Username

Password

Choose File no file selected

24 pixel
 48 pixel
 64 pixel
 96 pixel
 128 pixel

Publicly available at the end of October 2022



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Import icons

Easily in ZABBIX

- Need to install pyzabbix library
- pip install pyzabbix

```
from pyzabbix import ZabbixAPI  
import os  
import base64
```

Base64 encoded image. The maximum size of the encoded image is 1 MB. Maximum size can be adjusted by changing ZBX_MAX_IMAGE_SIZE constant value.

Supported image formats are: PNG, JPEG, GIF.



Import icons

Easily in ZABBIX

- Specify your ZABBIX URL
- And credential to use

```
zapi = ZabbixAPI("http://zabbix.example.fr")  
zapi.login("Admin", "zabbix")
```



Import icons

Easily in ZABBIX

- Upload the image that you want to convert

```
@app.route('/uploader', methods = ['GET', 'POST'])

def upload_file():

    if request.method == 'POST':

        f = request.files['file']

        f.save(secure_filename(f.filename))
```



Import icons

Easily in ZABBIX

- Test if an image with the same name already exists
- If not, encode the new image to be imported
- Then create the image in ZABBIX

```
img = zapi.image.get(output="name", filter=({"name":filename}))  
  
imgread = base64.b64encode(open(document, "rb").read())  
  
img64=str(imgread, 'utf-8')  
  
zapi.image.create({  
    "imagetype": 1,  
    "name": filename,  
    "image": img64  
})
```

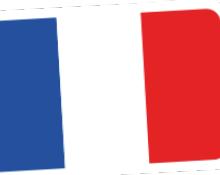
Type of image.

Possible values:

1 - *(default) icon;*

2 - background image.





Who we are ?



IZI-IT

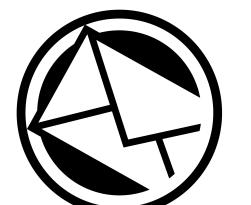
Your monitoring partner



- Biggest French speaking company specialised in ZABBIX
- Leader of the French speaking community
- Delivers professional services in Saas or on Premise
- Development, training, expertise



<https://gitlab.izi-it.io/community>



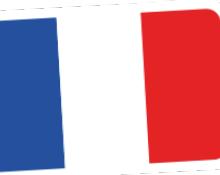
contact@izi-it.io



<https://izi-it.io>

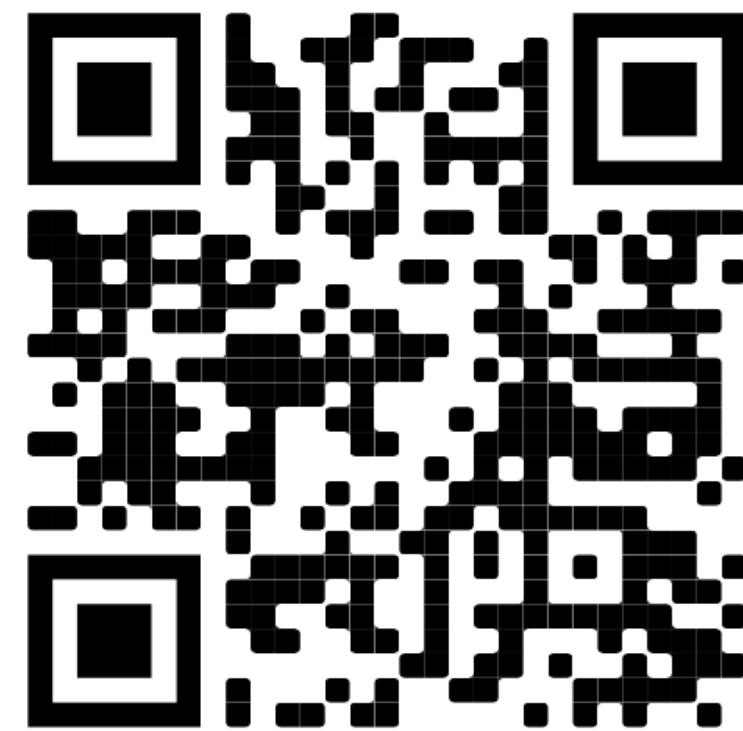


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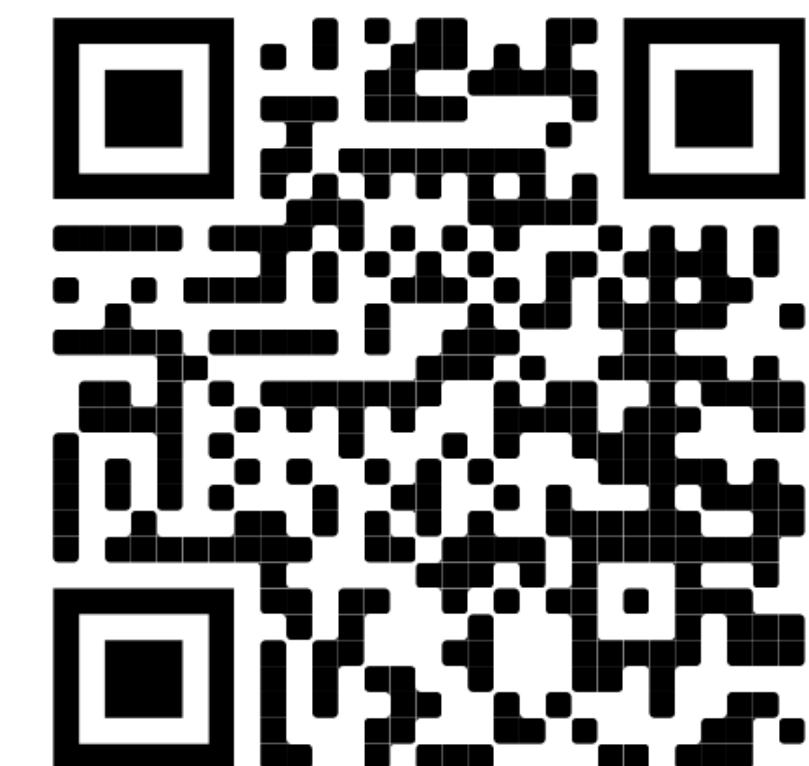


Join our community

The French speaking ZABBIX
Discord community with more than
740 members around the world



The French ZABBIX Forum



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Steve DESTIVELLE / ZABBIX Summit 2022

Because
I'm **HAPPY** with you



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