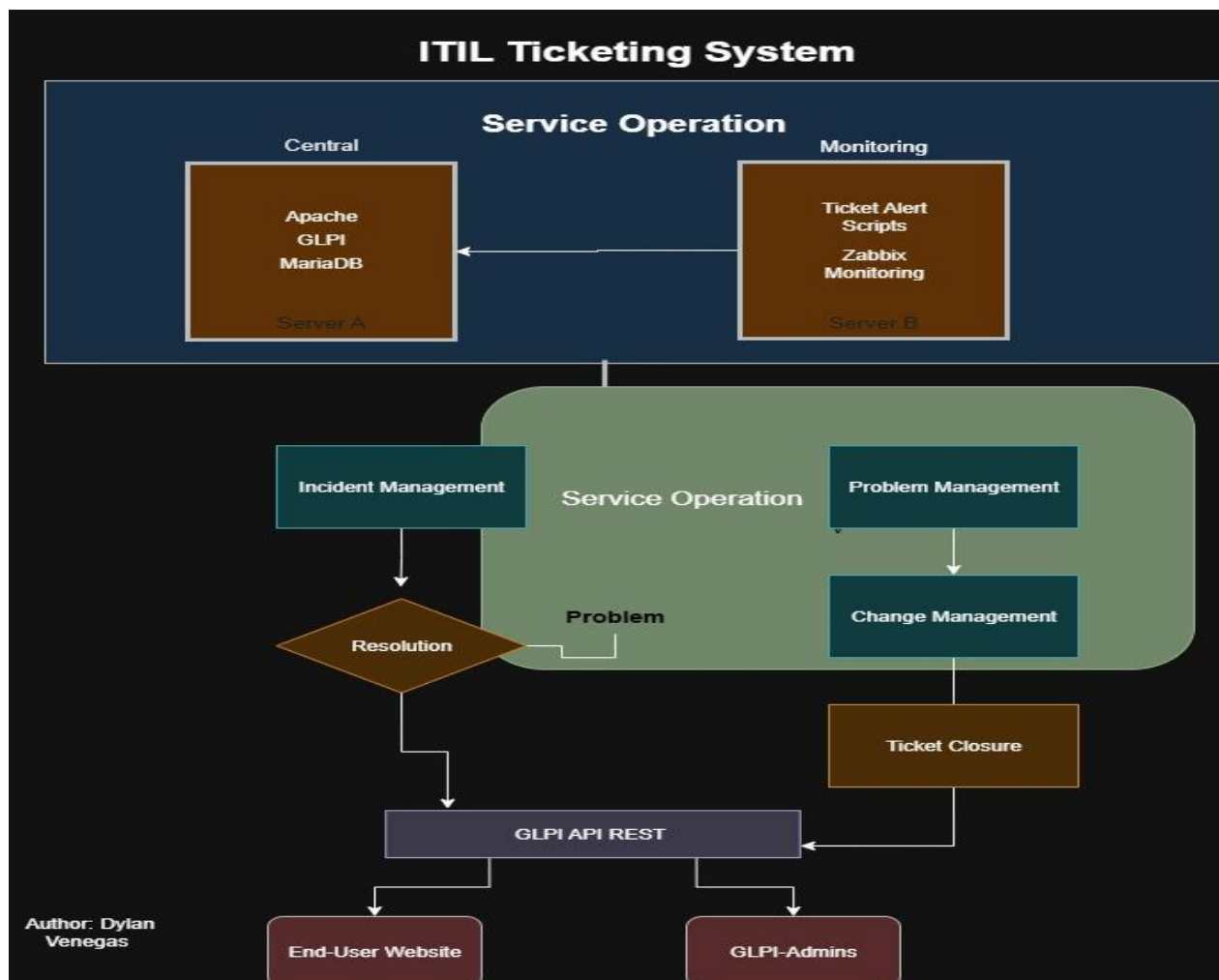


ITIL TICKET SYSTEM

Name: Dylan Venegas

This Project has like objective build a ITIL system focus on explain the flow of IT support on ITIL framework with GLPI like central administration



Support flow

- **Service Operation Layer**

One Ubuntu server hosts **GLPI**, **Apache**, and **MariaDB**, forming the central ticketing and service management platform.

A second Ubuntu server runs **Zabbix** for infrastructure monitoring and **cron jobs** to trigger automated alerts.

- **Incident Detection and Ticket Creation**

Incidents can originate from two sources:

- **End users** through a web interface connected to GLPI via **REST API**, they can create tickets there.
- **Zabbix/cron scripts**, which automatically create tickets for service failures or alerts (e.g., high CPU usage, downtime).

- **Incident Management (ITIL)**

GLPI receives and classifies incoming tickets.

The **Service Desk** (admin panel) begins resolution or escalates to higher-level support depending on ticket severity and type.

- **Problem Management**

Repeated or unresolved incidents are escalated as **problems**.

Admins investigate root causes and implement **Change Management** if updates to the infrastructure are required.

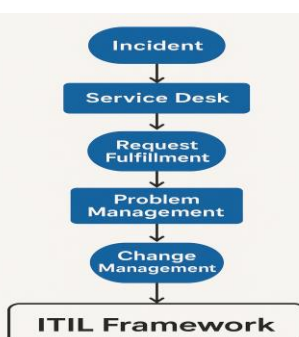
- **Change Management**

Approved changes (e.g., software updates, configuration tweaks) are applied to resolve recurring problems.

Once validated, related tickets are closed.

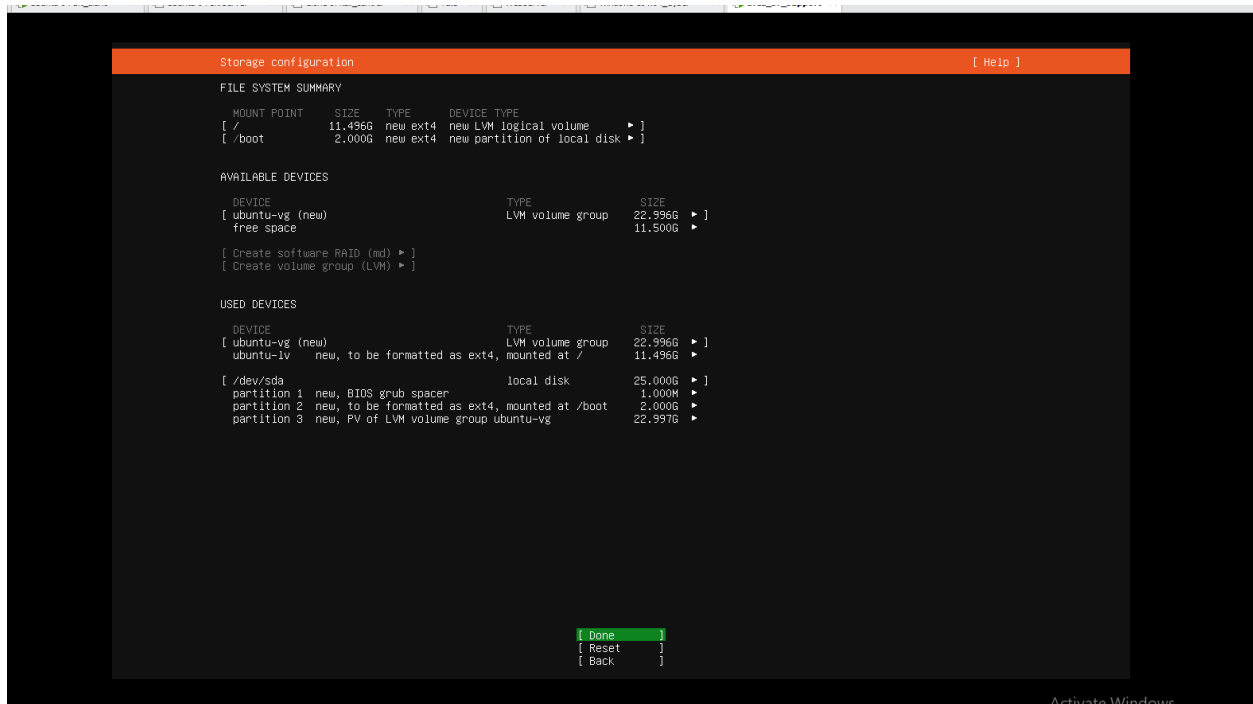
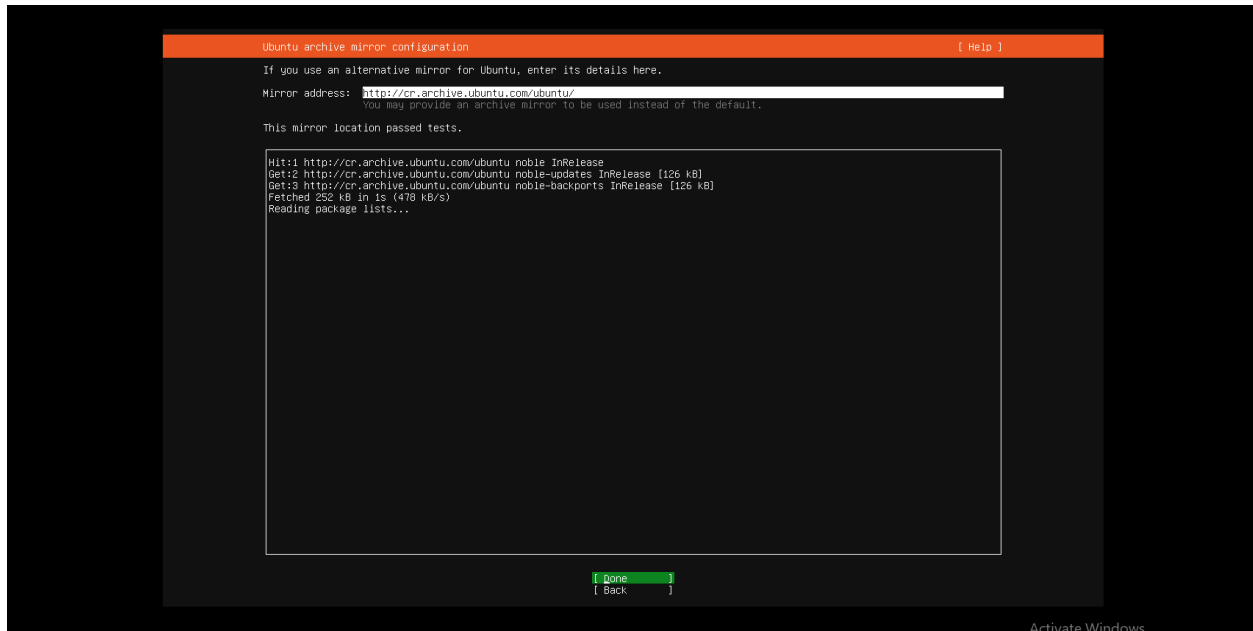
- **Ticket Closure**

After resolution or change implementation, tickets are marked as completed, and feedback can be collected from the user.



ITIL PROJECT

Project Screenshots



ITIL PROJECT

```
Updating system [ Help ]

configuring format: format-0
configuring partition: partition-2
configuring lvm_volgroup: lvm_volgroup-0
configuring lvm_partition: lvm_partition-0
configuring format: format-1
configuring mount: mount-1
configuring mount: mount-0
executing curtin install extract step
curtin command install
writing install sources to disk
running 'curtin extract'
curtin command extract
acquiring and extracting image from cp:///tmp/tmpgrspk142/mount
configuring keyboard
curtin command in-target
executing curtin install curthooks step
curtin command install
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring NVMe over TCP
installing kernel
setting up swap
apply networking config
writing etc/fstab
configuring multipath
updating packages on target system
configuring pollinate user-agent on target
updating initramfs configuration
configuring target system bootloader
installing grub to target devices
copying metadata from /cdrom
final system configuration
calculating extra packages to install
configuring cloud-init
downloading and installing security updates
curtin command in-target \
```

```
Dylan login: dylan
Password:
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-71-generic x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/pro

System information as of Sat Aug  2 06:44:37 PM UTC 2025

System load:  0.0          Processes:      209
Usage of /:   41.5% of 11.21GB   Users logged in:  0
Memory usage: 7%           IPv4 address for ens33: 192.168.18.189
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

82 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Dylan@dylan:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:32:b1:d0 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.18.189/24 metric 100 brd 192.168.18.255 scope global dynamic ens33
        valid_lft 2827sec preferred_lft 2827sec
    inet6 fe80::20c:29ff:fe32:b1d0/64 scope link
        valid_lft forever preferred_lft forever
Dylan@dylan:~$
```

ITIL PROJECT

```
Setting up ncurses-term (6.4+20240113-1ubuntu2) ...
Setting up openssh-sftp-server (1:9.6p1-3ubuntu13.13) ...
Setting up openssh-server (1:9.6p1-3ubuntu13.13) ...

Creating config file /etc/ssh/sshd_config with new version
Created symlink /etc/systemd/system/sockets.target.wants/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Created symlink /etc/systemd/system/ssh.service.requires/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
dylan@dylan:~$ sudo systemctl status ssh
* ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: inactive (dead)
TriggeredBy: ● ssh.socket
             Docs: man:sshd(8)
                  man:sshd_config(5)
dylan@dylan:~$ sudo systemctl start ssh
dylan@dylan:~$ sudo systemctl status ssh
* ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: active (running) since Sat 2025-08-02 19:26:03 UTC; 9s ago
TriggeredBy: ● ssh.socket
             Docs: man:sshd(8)
                  man:sshd_config(5)
   Process: 2436 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 2438 (sshd)
     Tasks: 1 (limit: 4548)
    Memory: 1.2M (peak: 1.3M)
       CPU: 20ms
   CGroup: /system.slice/ssh.service
           └─2438 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 02 19:26:03 dylan systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Aug 02 19:26:03 dylan sshd[2438]: Server listening on 0.0.0.0 port 22.
Aug 02 19:26:03 dylan sshd[2438]: Server listening on :: port 22.
Aug 02 19:26:03 dylan systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
```

The SSH server is installed on the server and activated. Then, the IP addresses are checked. In this case, since the server is in bridge mode, it is reachable from the host machine as it appears as another device on the local network. SSH is used to transfer files from PowerShell to the server, in order to speed up installation and configuration through scripting.

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/powershell

PS C:\Windows\system32> ssh [-464acfgkxmnqsttvvxy] [-B bind_interface] [-b b
[-c cipher_spec] [-D [bind_address]:port] [-f log_file]
[-e escape_char] [-F configfile] [-I idcard] [-i id]
[-l destination] [-L address] [-l login_name] [-m mac]
[-O client] [-o option] [-p port] [-P path] [-Q over
[-x address] [-S ctl_path] [-W host:port] [-w local_
destination [command [argument ...]]

PS C:\Windows\system32>

nd Prompt:
nvIPCONFIG
nfiguration
ten Ethernet:
-specific DNS Suffix . : fe80::6d8:34ab:6679:21e9%1
IPv6 Address . . . . . : fe80::6d8:34ab:6679:21e9%1
ss. . . . . : 192.168.18.6
x. . . . . : 255.255.255.0
eaway. . . . . : 192.168.18.1
ten VMware Network Adapter VMnet1:
-specific DNS Suffix . :
To direct input to this VM, click inside or press Ctrl-G.
```

ITIL PROJECT

```
dylan@dylan: ~  
ED25519 key fingerprint is SHA256:G2MwBzV86R16gUfwOsZu6-In6jW8cW2Yj8DJAIVE3F4.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '192.168.18.189' (ED25519) to the list of known hosts.  
dylan@192.168.18.189's password:  
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-71-generic x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:       https://ubuntu.com/pro  
  
System information as of Sat Aug  2 07:37:48 PM UTC 2025  
  
System load:  0.0          Processes:      215  
Usage of /:   41.7% of 11.21GB Users logged in:  1  
Memory usage: 8%          IPv4 address for ens33: 192.168.18.189  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
81 updates can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
dylan@dylan: $ pwd  
/home/dylan  
dylan@dylan: $
```

I used Visual Studio on my host machine to create the scripts for convenience.

In this case, I need to transfer the GLPI environment setup script first.

```
scripts > $ instalar_entorno.sh  
1 #!/bin/bash  
2 # Script: instalar_entorno.sh  
3  
4 echo "🔧 Actualizando sistema..."  
5 sudo apt update && sudo apt upgrade -y  
6  
7 echo "📦 Instalando Apache, MariaDB y PHP..."  
8 sudo apt install apache2 mariadb-server -y  
9 sudo apt install php php-mysql php-xml php-curl php-mbstring php-zip php-bz2 php-gd php-intl unzip wget -y  
10  
11 echo "🗄 Configurando base de datos GLPI..."  
12 sudo mysql -e "CREATE DATABASE glpidb;"  
13 sudo mysql -e "CREATE USER 'glpiuser'@'localhost' IDENTIFIED BY 'GLPIstrong123';"  
14 sudo mysql -e "GRANT ALL PRIVILEGES ON glpidb.* TO 'glpiuser'@'localhost';"  
15 sudo mysql -e "FLUSH PRIVILEGES;"  
16  
17 echo "📄 Descargando GLPI..."  
18 cd /var/www/html  
19 sudo wget https://github.com/glpi-project/glpi/releases/download/10.0.14/glpi-10.0.14.tgz  
20 sudo tar -xvzf glpi-10.0.14.tgz  
21 sudo rm glpi-10.0.14.tgz  
22 sudo chown -R www-data:www-data glpi  
23  
24 echo "🔥 Activando Apache y reiniciando servicios..."  
25 sudo systemctl enable apache2  
26 sudo systemctl restart apache2  
27  
28 echo "✅ Instalación lista. Accede desde tu navegador a: http://$(hostname -I | awk '{print $1}')/glpi"  
29 echo "👤 Usuario inicial: glpi / glpi"  
30 |
```

ITIL PROJECT

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.19044.6093]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>scp "C:\Users\DylanV\Documents\projecto-itol-linux\scripts\instalar_entorno.sh"
dylan@192.168.18.189:/home/dylan/
dylan@192.168.18.189's password:
instalar_entorno.sh                                100% 1102   538.1KB/s   00:00

C:\Windows\system32>
```

Now it's time to grant execution permissions using `chmod`, and then run it with `./instalar_entorno.sh`.

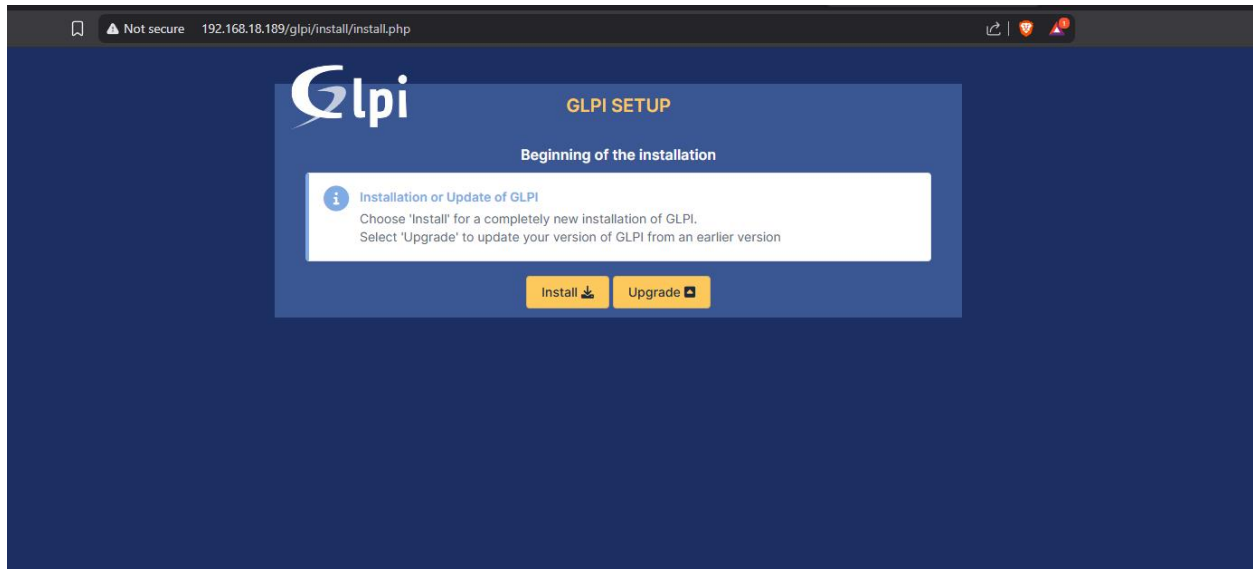
In this case, I'll do it from the PowerShell session I opened to control the server via SSH.

Below is the result after running the script:

```
glpi/css_compiled/css_palettes_purplehaze.min.css
glpi/css_compiled/css_palettes_teclib.min.css
glpi/css_compiled/css_palettes_vintage.min.css
glpi/css_compiled/css_standalone_chartist.min.css
glpi/css_compiled/css_standalone_dashboard.min.css
glpi/css_compiled/css_standalone_gridstack-grids.min.css
glpi/css_compiled/css_standalone_marketplace.min.css
glpi/css_compiled/css_standalone_reservations.min.css
[+] Activando Apache y reiniciando servicios...
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
[+] Instalación lista. Accede desde tu navegador a: http://192.168.18.189/glpi
[+] Usuario inicial: glpi / glpi
dylan@dylan:~$
```

Now I will proceed with the GLPI setup.

ITIL PROJECT



ITIL PROJECT

GLPI SETUP	
Step 0	
Checking of the compatibility of your environment with the execution of GLPI	
TEST DONE	RESULTS
Required PHP Parser	✓
Required Sessions configuration	✓
Required Allocated Memory	✓
Required mysql extension	✓
Required PHP core extensions	✓
Required curl extension <i>Required for remote access to resources (inventory agent requests, marketplace, RSS feeds, ...).</i>	✓
Required gd extension <i>Required for image handling.</i>	✓
Required intl extension <i>Required for internationalization.</i>	✓
Required zlib extension <i>Required for the handling of compressed communication with inventory agents, installation of gzip packages from the marketplace, and PDF generation.</i>	✓
Required Sodium ChaCha20-Poly1305 size constant <i>Enable usage of ChaCha20-Poly1305 encryption required by GLPI. This is provided by libsodium 1.0.12 and newer.</i>	✓
Required Permissions for log files	✓
Required Permissions for GLPI data directories	✓
Security PHP maintained version <i>A PHP version maintained by the PHP community should be used to get the benefits of PHP security and bug fixes.</i>	✓
Security Safe configuration of web root directory <i>Web server root directory should be "/var/www/html/glpi/public" to ensure non-public files cannot be accessed. Web server root directory configuration is not safe as it permits access to non-public files. See installation documentation for more details.</i>	⚠
Security Safe path for data directories <i>GLPI data directories should be placed outside web root directory. It can be achieved by redefining corresponding constants. See the installation documentation for more details. The following directories should be placed outside "/var/www/html/glpi": "/var/www/html/glpi/files" ("GLPI_VAR_DIR") You can ignore this suggestion if your web server root directory is "/var/www/html/glpi/public".</i>	⚠
Security Security configuration for sessions <i>Ensure security is enforced on session cookies. PHP directive "session.cookie_httponly" should be set to "on" to prevent client-side script to access cookie values.</i>	⚠
Suggested PHP maximum integer size <i>Support of 64 bit integers is required for IP addresses related operations (network inventory, API clients IP filtering, ...).</i>	✓
Suggested exif extension <i>Enhance security on image validation.</i>	✓
Suggested ldap extension <i>Enable usage of authentication through remote LDAP server. ldap extension is not present.</i>	⚠
Suggested openssl extension <i>Enable email sending using SSL/TLS.</i>	✓
Suggested PHP extensions for the marketplace <i>Enable support of most common package formats in the marketplace.</i>	✓
Suggested Zend OPcache extension <i>Enhance PHP engine performances.</i>	✓
Suggested PHP emulated extensions <i>Slightly enhance performances.</i>	✓
Suggested Permissions for marketplace directory <i>Enable installation of plugins from the marketplace.</i>	✓

There are some warnings — certain directories need to be granted permissions. I will use the following commands.

```
sudo chown -R www-data:www-data /var/www/html/glpi/
```

```
sudo find /var/www/html/glpi/ -type d -exec chmod 755 {} \;
```

```
sudo find /var/www/html/glpi/ -type f -exec chmod 644 {} \;
```

ITIL PROJECT

```
ynchronizing state of apache2.service with SysV service script with /usr/lib/systemd/sy
xecuting: /usr/lib/systemd/systemd-sysv-install enable apache2
Instalación lista. Accede desde tu navegador a: http://192.168.18.189/glpi
Usuario inicial: glpi / glpi
dylan@dylan: $ sudo chown -R www-data:www-data /var/www/html/glpi/
var/www/html/glpi/ -type d -exec chmod 755 {} \;
udo find /var/www/html/glpi/ -type f -exec chmod 644 {} \[sudo] password for dylan:

orry, try again.
sudo] password for dylan:
orry, try again.
sudo] password for dylan:
```

I had to verify the installation of some Apache dependencies and fix related errors, which I will correct in the final environment setup script.

```
dylan@dylan: $ php -v
PHP 8.3.6 (cli) (built: Jul 14 2025 18:30:55) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.3.6, Copyright (c) Zend Technologies
    with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies
dylan@dylan: $ php --ini
Configuration File (php.ini) Path: /etc/php/8.3/cli
Loaded Configuration File: /etc/php/8.3/cli/php.ini
Scan for additional .ini files in: /etc/php/8.3/cli/conf.d
Additional .ini files parsed: /etc/php/8.3/cli/conf.d/10-mysqlnd.ini,
/etc/php/8.3/cli/conf.d/10-opcache.ini,
/etc/php/8.3/cli/conf.d/10-pdo.ini,
/etc/php/8.3/cli/conf.d/15-xml.ini,
/etc/php/8.3/cli/conf.d/20-bz2.ini,
/etc/php/8.3/cli/conf.d/20-calendar.ini,
/etc/php/8.3/cli/conf.d/20-ctype.ini,
/etc/php/8.3/cli/conf.d/20-curl.ini,
/etc/php/8.3/cli/conf.d/20-dom.ini,
/etc/php/8.3/cli/conf.d/20-exif.ini,
/etc/php/8.3/cli/conf.d/20-ffi.ini,
/etc/php/8.3/cli/conf.d/20-fileinfo.ini,
/etc/php/8.3/cli/conf.d/20-ftp.ini,
/etc/php/8.3/cli/conf.d/20-gd.ini,
/etc/php/8.3/cli/conf.d/20-gettext.ini,
/etc/php/8.3/cli/conf.d/20-iconv.ini,
/etc/php/8.3/cli/conf.d/20-intl.ini,
/etc/php/8.3/cli/conf.d/20-mbstring.ini,
/etc/php/8.3/cli/conf.d/20-mysqli.ini,
/etc/php/8.3/cli/conf.d/20-pdo_mysql.ini,
/etc/php/8.3/cli/conf.d/20-phar.ini,
/etc/php/8.3/cli/conf.d/20-posix.ini,
/etc/php/8.3/cli/conf.d/20-readline.ini,
/etc/php/8.3/cli/conf.d/20-shmop.ini,
/etc/php/8.3/cli/conf.d/20-simplexml.ini,
/etc/php/8.3/cli/conf.d/20-sockets.ini,
/etc/php/8.3/cli/conf.d/20-sysvmsg.ini,
/etc/php/8.3/cli/conf.d/20-sysvsem.ini,
/etc/php/8.3/cli/conf.d/20-sysvshm.ini,
/etc/php/8.3/cli/conf.d/20-tokenizer.ini,
/etc/php/8.3/cli/conf.d/20-xmlreader.ini,
/etc/php/8.3/cli/conf.d/20-xmlwriter.ini,
/etc/php/8.3/cli/conf.d/20-xsl.ini,
/etc/php/8.3/cli/conf.d/20-zip.ini
dylan@dylan: $ apache2ctl -M | grep php
M00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' directive globally to suppress this m
php_module (shared)
dylan@dylan: $ sudo apt install libapache2-mod-php8.3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
libapache2-mod-php8.3 is already the newest version (8.3.6-0ubuntu0.24.04.5).
libapache2-mod-php8.3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
dylan@dylan: $ sudo a2enmod php8.3
Considering dependency mpm_prefork for php8.3:
Considering conflict mpm_event for mpm_prefork:
Considering conflict mpm_worker for mpm_prefork:
Module mpm_prefork already enabled
Considering conflict php5 for php8.3:
Module php8.3 already enabled
dylan@dylan: $ sudo systemctl restart apache2
dylan@dylan: $
```

A configuration must be made in Apache's init — in this case, edit using a text editor like Nano with the command:

sudo nano /etc/php/8.3/apache2/php.ini,
specifically the **session** section.

ITIL PROJECT

```
; https://php.net/session.cookie-path
session.cookie_path = /

; The domain for which the cookie is valid.
; https://php.net/session.cookie-domain
session.cookie_domain =

; Whether or not to add the httpOnly flag to the cookie, which makes it
; inaccessible to browser scripting languages such as JavaScript.
; https://php.net/session.cookie-httponly
session.cookie_httponly = 1

; Add SameSite attribute to cookie to help mitigate Cross-Site Request Forgery (CSRF/XSRF)
; Current valid values are "Strict", "Lax" or "None". When using "None",
; make sure to include the quotes, as `none` is interpreted like `false` in ini files.
; https://tools.ietf.org/html/draft-west-first-party-cookies-07
session.cookie_samesite =

; Handler used to serialize data. php is the standard serializer of PHP.
; https://php.net/session.serialize-handler
session.serialize_handler = php

; Defines the probability that the 'garbage collection' process is started on every
; session initialization. The probability is calculated by using gc_probability/gc_divisor,
; e.g. 1/100 means there is a 1% chance that the GC process starts on each request.
; Default Value: 1
; Development Value: 1
; Production Value: 1
; https://php.net/session.gc-probability
; Debian Default Value: 0
; This is disabled in the Debian packages due to the strict permissions
```

Now, after clicking Continue, the database configuration section appears. You use the credentials created for the user in the environment setup script, which are: localhost, glpi, and GLPIstrong123.



The image shows a web-based setup interface for GLPI. At the top left is the GLPI logo. To its right, the text "GLPI SETUP" is displayed in orange. Below this, "Step 1" is centered, followed by "Database connection setup" in a smaller font. The form contains three input fields: "SQL Server (MariaDB or MySQL)", "SQL User", and "SQL Password". Each field is a white rectangle with a thin border. Below the "SQL Password" field is a yellow button with the text "Continue >". The entire form is set against a dark blue background.

Then the created database is selected.

ITIL PROJECT

Step 2

Test of the connection at the database

✓ Database connection successful

Please select a database:


Create a new database or use an existing one:

☐

☒

glpidb

Continue >



GLPI SETUP

Step 4

Collect data

☒ Send "usage statistics"

We need your help to improve GLPI and the plugins ecosystem!

Since GLPI 9.2, we've introduced a new statistics feature called "Telemetry", that anonymously with your permission, sends data to our telemetry website. Once sent, usage statistics are aggregated and made available to a broad range of GLPI developers.

Let us know your usage to improve future versions of GLPI and its plugins!

See what would be sent...

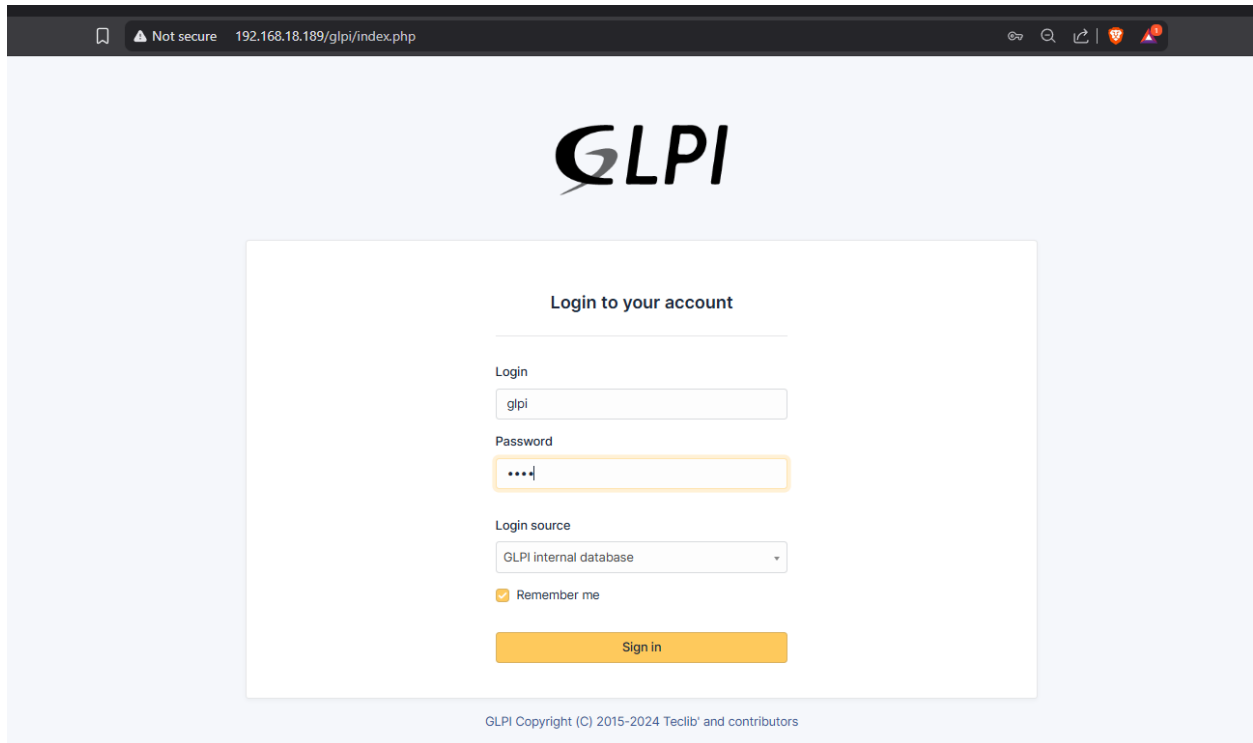
Reference your GLPI

Besides, if you appreciate GLPI and its community, please take a minute to reference your organization by filling [the registration form](#)

Continue >

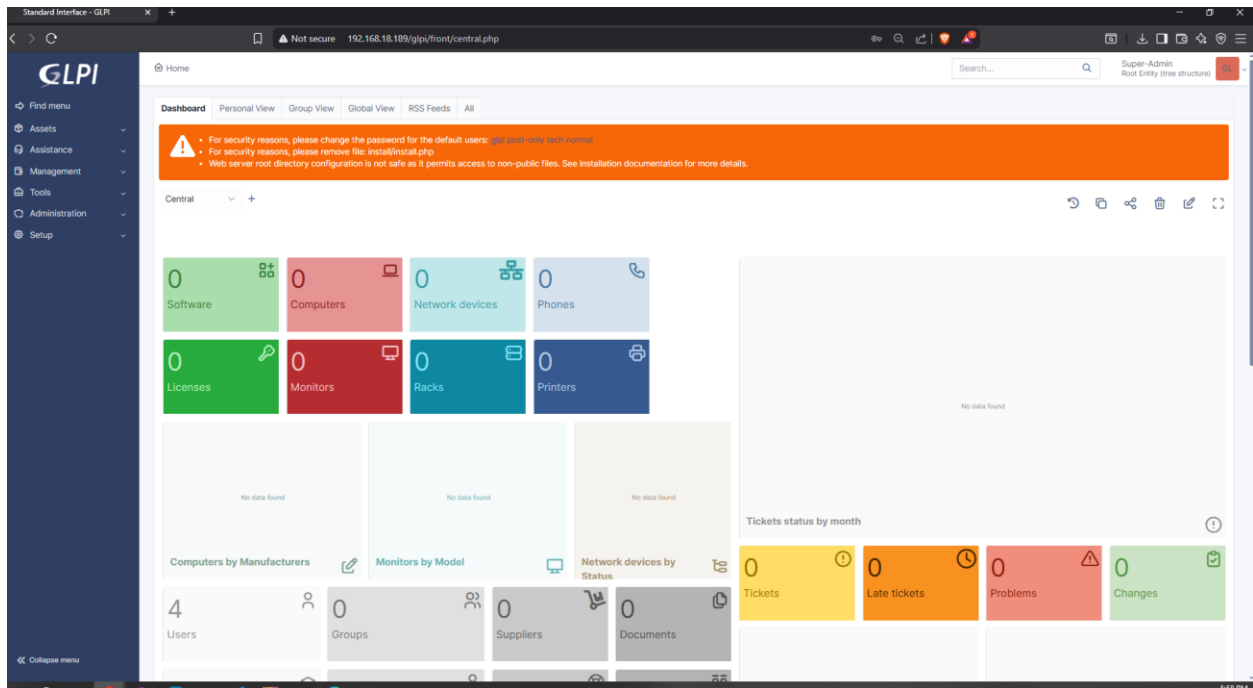
Now we log in to the service itself using the credentials glpi / glpi.

ITIL PROJECT



The screenshot shows the GLPI login page in a web browser. The browser's address bar displays "192.168.18.189/glpi/index.php" with a "Not secure" warning. The GLPI logo is centered at the top. Below it is a "Login to your account" form. The form includes a "Login" field with the text "glpi", a "Password" field with masked characters, a "Login source" dropdown menu set to "GLPI internal database", a checked "Remember me" checkbox, and a yellow "Sign in" button. At the bottom of the page, a copyright notice reads "GLPI Copyright (C) 2015-2024 Teclib' and contributors".

Ya tenemos acceso como tal



The screenshot shows the GLPI dashboard after a successful login. The browser address bar shows "192.168.18.189/glpi/front/central.php". A dark blue sidebar on the left contains a "Find menu" search bar and a list of navigation items: Assets, Assistance, Management, Tools, Administration, and Setup. The main content area features a top navigation bar with tabs for Dashboard, Personal View, Group View, Global View, RSS Feeds, and All. Below this is a large orange warning banner with security instructions. The dashboard is divided into several sections: a central grid of asset categories (Software, Computers, Network devices, Phones, Licenses, Monitors, Racks, Printers) each showing a count of 0; a "Computers by Manufacturers" chart; a "Monitors by Model" chart; a "Network devices by Status" chart; and a "Tickets status by month" section with four colored boxes: Tickets (yellow), Late tickets (orange), Problems (red), and Changes (green). The bottom of the dashboard shows a row of statistics: 4 Users, 0 Groups, 0 Suppliers, and 0 Documents. The top right corner of the dashboard includes a search bar and the user's name "Super-Admin" with a dropdown arrow.

In the dashboard, you must go to General Setup and then to API to enable the REST API. After that, save the changes and add a new API Client.

ITIL PROJECT

New Item - API Clients

NameScript de Tickets

Comments

ActiveYes

Log ConnectionsDisabled

FILTER ACCESS

Leave these parameters empty to disable API access restriction

IPv4 Address Range Start

IPv4 Address Range End

IPv6 Address

Application Token (app_token)

Regenerate

+ Add

API

URL of the API

Enable Rest APIYes

API inline Documentation

Authentication

Enable login with credentialsi

No

Enable login with external tokeni

Yes

Save

Add API client

14

Items Seencontains

ruleglobal rulegroupSearch

Actions

NAME

full access from localhost

Script de Tickets

20 rows / page

Showing 1 to 2 of 2 rows

ActiveYes

Log ConnectionsDisabled

FILTER ACCESS

these parameters empty to disable API access restriction

IPv4 Address Range Start

IPv4 Address Range End

IPv6 Address

Application Token (app_token)

Regenerate

Delete Permanently

Save

on 2025-08-03 00:09

Last update on 2025-08-03 00:09

Dejando eso por un lado ahora vamos a trabajar un poco en el Server B de monitoreo el cual llevara zabbix para esto igual usare Powershell via SSH para configurarlo le estaremos

ITIL PROJECT

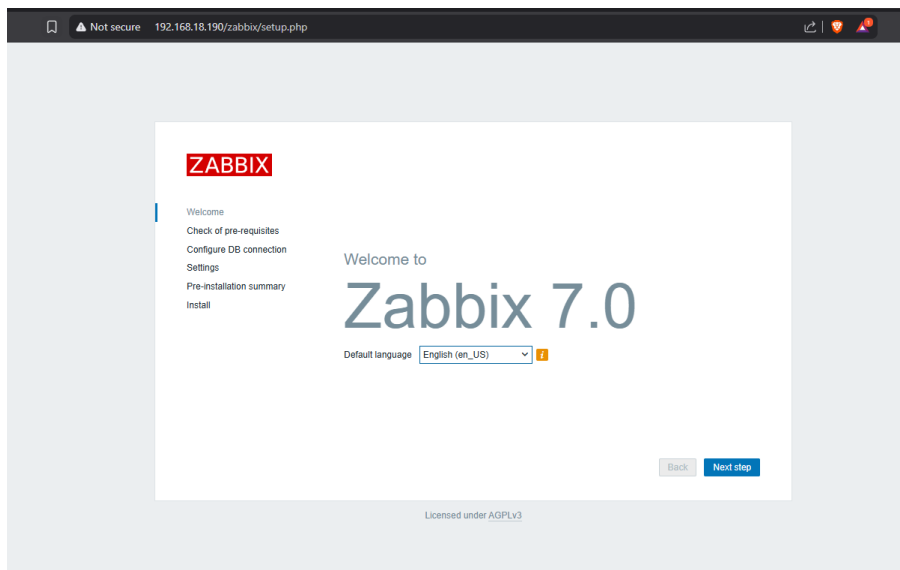
instalado mysql para el zabbix que recopilara info ademas de los scripts que trabajaran con API de GLPI para generar tickets a nivel infra

Para Zabbix seguir la instalacion desde este link , igual dejare un script para ubuntu 24.04 noble :

https://www.zabbix.com/download?zabbix=7.0&os_distribution=ubuntu&os_version=24.04&components=server_frontend_agent&db=mysql&ws=apache

```
mysql> SELECT User, Host FROM mysql.user WHERE User = 'zabbix';
+-----+-----+
| User | Host |
+-----+-----+
| zabbix | localhost |
+-----+-----+
1 row in set (0.01 sec)

mysql> quit
Bye
monitor@monitor: $ zcat /usr/share/zabbix-sql-scripts/mysql/server.sql.gz | mysql --default-character-set=utf8mb4 -uzabbix -p zabbix
Enter password:
ERROR 1050 (42S01) at line 1: Table 'role' already exists
```



ITIL PROJECT

ZABBIX

Welcome

Check of pre-requisites

Configure DB connection

Settings

Pre-installation summary

Install

Check of pre-requisites

	Current value	Required	
PHP version	8.3.6	8.0.0	OK
PHP option "memory_limit"	128M	128M	OK
PHP option "post_max_size"	16M	16M	OK
PHP option "upload_max_filesize"	2M	2M	OK
PHP option "max_execution_time"	300	300	OK
PHP option "max_input_time"	300	300	OK
PHP databases support	MySQL		OK
PHP bcmath	on		OK
PHP mbstring	on		OK
PHP option "mbstring.func_overload"	off	off	OK

Back

Next step

Licensed under AGPLv3

ZABBIX

Welcome

Check of pre-requisites

Configure DB connection

Settings

Pre-installation summary

Install

Configure DB connection

Please create database manually, and set the configuration parameters for connection to this database. Press "Next step" button when done.

Database type

MySQL

Database host

localhost

Database port

0

0 - use default port

Database name

zabbix

Store credentials in

Plain text

HashiCorp Vault

CyberArk Vault

User

zabbix

Password

Database TLS encryption

Connection will not be encrypted because it uses a socket file (on Unix) or shared memory (Windows).

Back

Next step

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ZABBIX

Welcome

Check of pre-requisites

Configure DB connection

Settings

Pre-installation summary

Install

Install

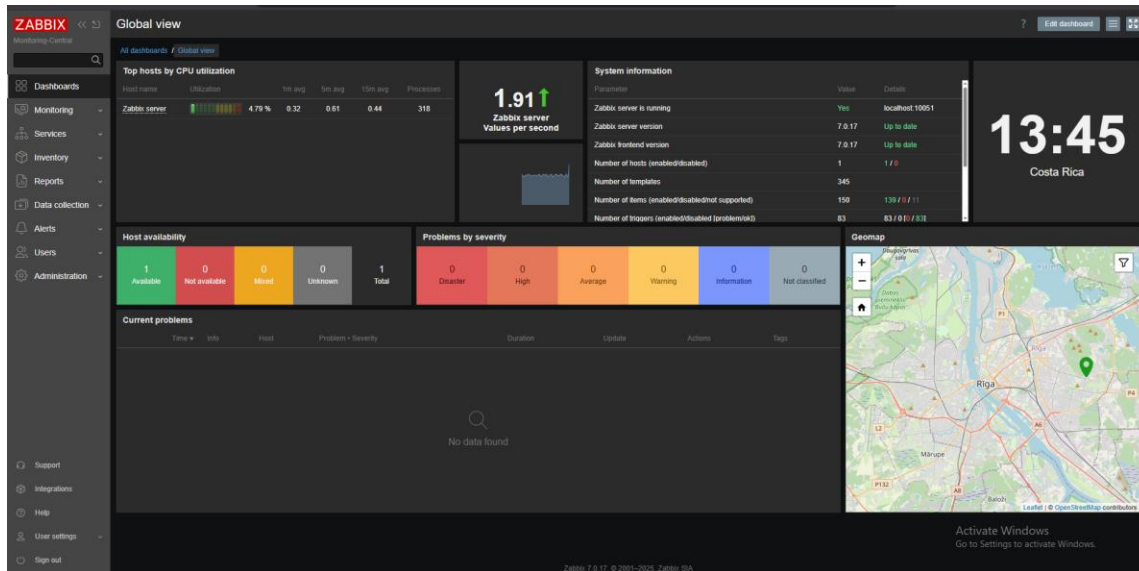
Congratulations! You have successfully installed Zabbix frontend.

Configuration file "conf/zabbix.conf.php" created.

Back

Finish

ITIL PROJECT



Instalar agente Zabbix en el servidor A

The packages are installed the same way as for the central server, but we only install Agent 2. In the agent configuration, we must set `Server` and `ServerActive` with the IP address of Server B, and `Hostname` with the name by which Server A will be recognized in Zabbix.

```
ServerActive=zabbix.cluster.node1;zabbix.cluster.node2:200
Example for high availability with two clusters and one server:
ServerActive=zabbix.cluster.node1;zabbix.cluster.node2:200

Mandatory: no
Default:
ServerActive=

serverActive=192.168.18.190

### Option: Hostname
List of comma delimited unique, case sensitive hostnames.
Required for active checks and must match hostnames as configured.
Value is acquired from HostnameItem if undefined.

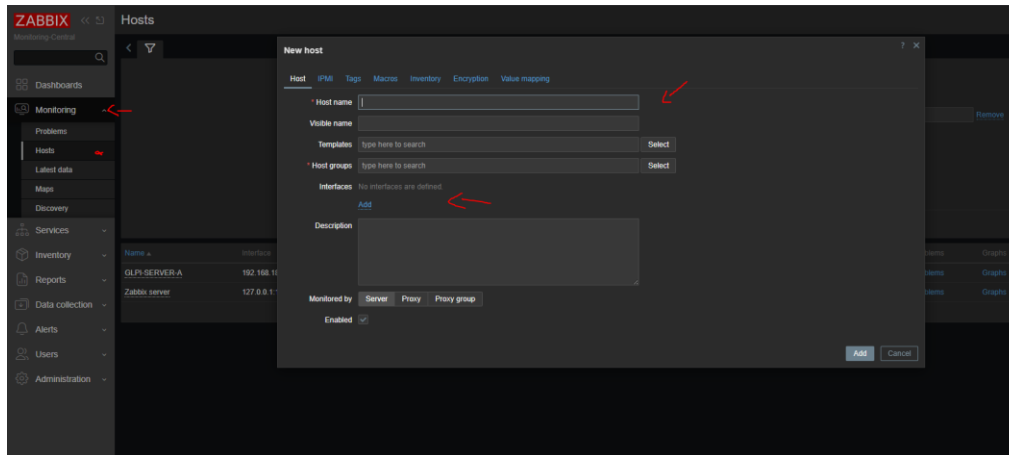
Mandatory: no
Default:
Hostname=

hostname=GLPI-SERVER-A

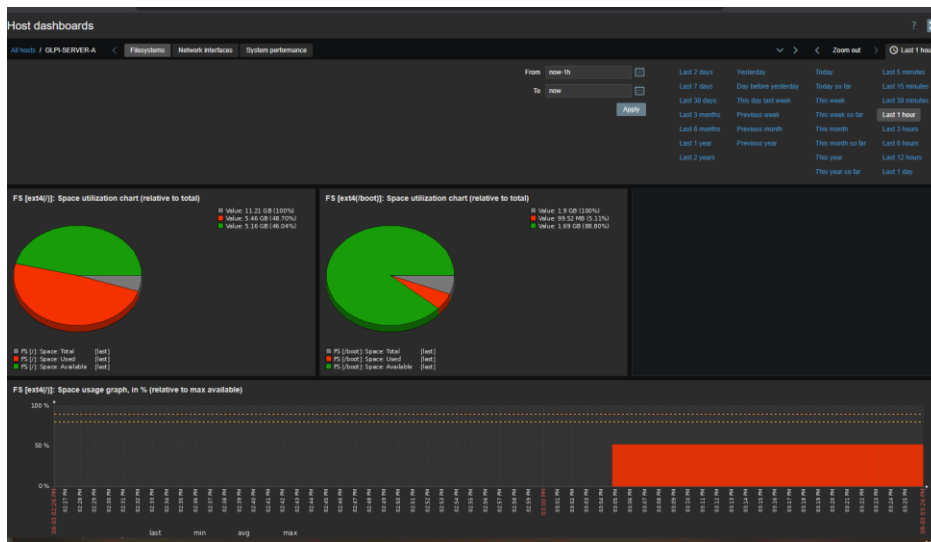
### Option: HostnameItem
Item used for generating hostname if it is undefined. Ignored if H
```

The agent process is started, and the host is then added to Zabbix through the web interface.

ITIL PROJECT



Name	Interface	Availability	Tags	Status	Latest data
GLPI-SERVER-A	192.168.18.189:10050	ZBX	class: os target: linux	Enabled	Latest data 75
Zabbix server	127.0.0.1:10050	ZBX	class: os class: software target: linux ...	Enabled	Latest data 150



Esta en la plantilla para linux server by zabbix ahora voy a configurar lo del monitoreo de Apache

ITIL PROJECT

```

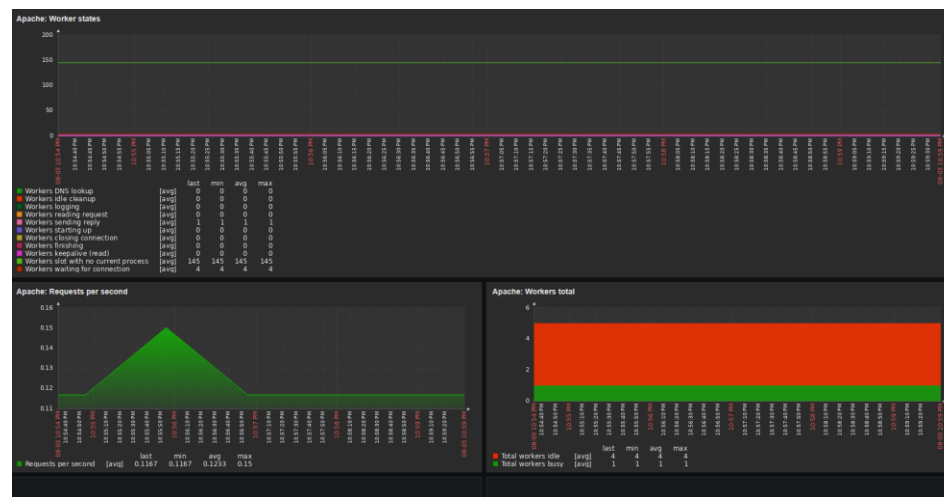
Memory: 5.9M (peak: 6.1M)
CPU: 36ms
CGroup: /system.slice/zabbix-agent2.service
└─55391 /usr/sbin/zabbix_agent2 -c /etc/zabbix/zabbix_agent2.conf

Aug 03 20:40:32 dylan systemd[1]: Started zabbix-agent2.service - Zabbix Agent 2.
Aug 03 20:40:32 dylan zabbix_agent2[55391]: Starting Zabbix Agent 2 (7.0.17)
Aug 03 20:40:32 dylan zabbix_agent2[55391]: Zabbix Agent2 hostname: [GLPI-SERVER-A]
Aug 03 20:40:32 dylan zabbix_agent2[55391]: Press Ctrl+C to exit.
dylan@dylan: ~$ cat /etc/zabbix/zabbix_agent2.conf | grep -i listenport
# If left empty or not set will disable passive checks, and Zabbix agent 2 will not listen on the ListenPort.
### Option: ListenPort
# ListenPort=10050
dylan@dylan: ~$ sudo ss -tulpn | grep 10050
[sudo] password for dylan:
tcp        LISTEN 0      4096          *:10050          *: *      users:((("zabbix_agent2",pid=55391,fd=7))

dylan@dylan: ~$ grep ^Hostname /etc/zabbix/zabbix_agent2.conf
Hostname=GLPI-SERVER-A
dylan@dylan: ~$ sudo a2enmod status
[sudo] password for dylan:
Module status already enabled
dylan@dylan: ~$ sudo nano /etc/apache2/conf-available/status.conf
dylan@dylan: ~$ sudo a2enconf status
sudo systemctl reload apache2
Enabling conf status.
To activate the new configuration, you need to run:
    systemctl reload apache2
dylan@dylan: ~$ sudo systemctl reload apache2
Job for apache2.service failed.
See "systemctl status apache2.service" and "journalctl -xeu apache2.service" for details.
dylan@dylan: ~$ sudo apachectl configtest
AH00558: Syntax error on line 5 of /etc/apache2/conf-enabled/status.conf:
ip address '#' appears to be invalid
dylan@dylan: ~$ sudo nano /etc/apache2/conf-available/status.conf
dylan@dylan: ~$ sudo systemctl reload apache2
dylan@dylan: ~$ sudo apachectl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' directive globally to suppress this message
Syntax OK
dylan@dylan: ~$

```

Then it is configured using a template — in this case, I chose the default Linux and Apache templates by Zabbix Agent.



Here I ran some tests to see if the alerts would trigger by overloading Server A's CPU, and indeed, it generated a warning.

Save as

Apply

Reset

<input type="checkbox"/>	Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Update	Actions	Tags
<input type="checkbox"/>	11:02:24 PM	Warning		PROBLEM		GLPI-SERVER-A	Linux: High CPU utilization (over 90% for 5m)	1m 11s	Update	1	class: os component: cpu scope: performance ...
	23:00										
<input type="checkbox"/>	10:55:18 PM	Average	11:02:18 PM	RESOLVED		GLPI-SERVER-A	Linux: Load average is too high (per CPU load over 1.5 for 5m)	7m	Update		class: os component: cpu scope: capacity ...

0 selected

Mass update

Displaying 2 of 2 found

ITIL PROJECT

Time	Action	Media type	Recipient	Message	Status	Info
2025-08-03 11:02:24 PM	Envier ticket a GLPI	GLPI Webhook	Admin (Zabbix Administrator) glpi	<p>Subject: Linux: High CPU utilization</p> <p>Message: ("app_host": "Server: www01.glpisite.com", "logo": "glpi", "password": "glpi", "url": "http://192.168.18.189/glpi/apirest.php", "title": "Linux: High CPU utilization", "content": "Host: GLPI-SERVER-AppProblem: Linux: High CPU utilizationSeverity: WarningGTime: 2025.08.03 23.02.24etURL": "category": "1", "urgency": "3", "impact": "3", "priority": "3")</p>	Sent	

Time	Action	Media type	Recipient
2025-08-03 10:31:54 PM	Enviar ticket a GLPI	GLPI Webhook	Admin (Zabbix Administrator) glpi
2025-08-03 10:24:53 PM	Enviar ticket a GLPI	GLPI Webhook	Admin (Zabbix Administrator) glpi

Top 100 triggers

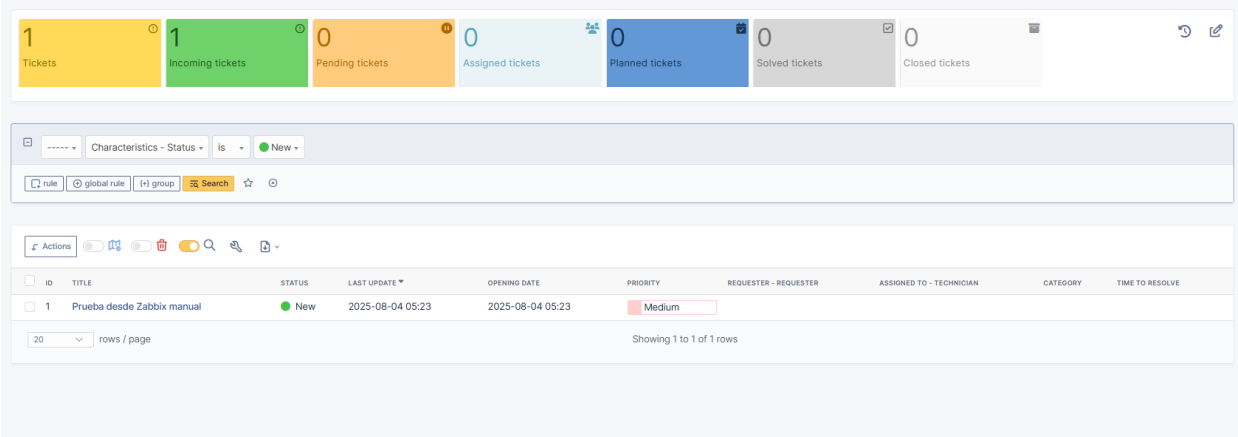
From: now-1h To: now [Apply]

Last 2 days Yesterday Today Last 5 minutes
 Last 7 days Day before yesterday Today so far Last 15 minutes
 Last 30 days This day last week This week Last 30 minutes
 Last 3 months Previous week This week so far **Last 1 hour**
 Last 6 months Previous month This month Last 3 hours
 Last 1 year Previous year This month so far Last 6 hours
 Last 2 years This year Last 12 hours
 This year so far Last 1 day

Host	Trigger	Severity	Number of problems
GLPI_SERVER-A	Apache: Process is not running	High	1
GLPI_SERVER-A	Apache: Service is down	Average	1
GLPI_SERVER-A	Linux: Load average is too high	Average	1
GLPI_SERVER-A	Apache: Service has been restarted	Information	1

ITIL PROJECT

Here I tested creating a ticket using curl from Server B to Server A to verify that the credentials were working correctly.

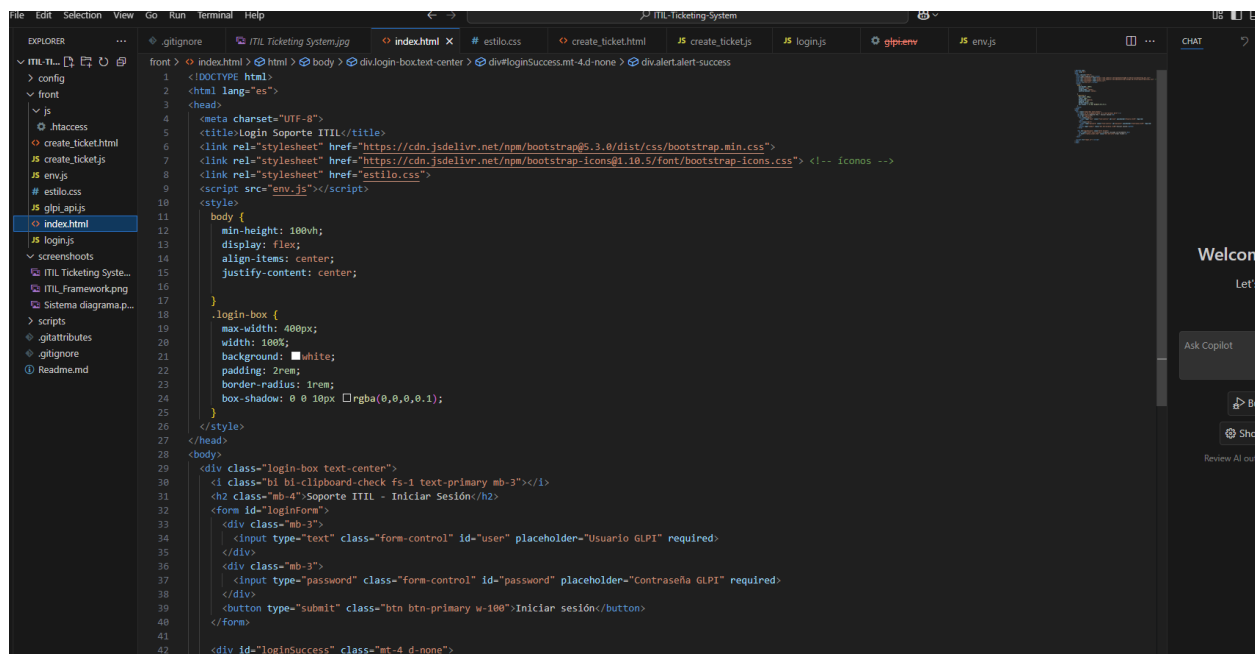


The dashboard displays ticket counts for different statuses: Tickets (1), Incoming tickets (1), Pending tickets (0), Assigned tickets (0), Planned tickets (0), Solved tickets (0), and Closed tickets (0). Below this is a search bar and a table of tickets.

ID	TITLE	STATUS	LAST UPDATE	OPENING DATE	PRIORITY	REQUESTER - REQUESTER	ASSIGNED TO - TECHNICIAN	CATEGORY	TIME TO RESOLVE
1	Prueba desde Zabbix manual	New	2025-08-04 05:23	2025-08-04 05:23	Medium				

Showing 1 to 1 of 1 rows

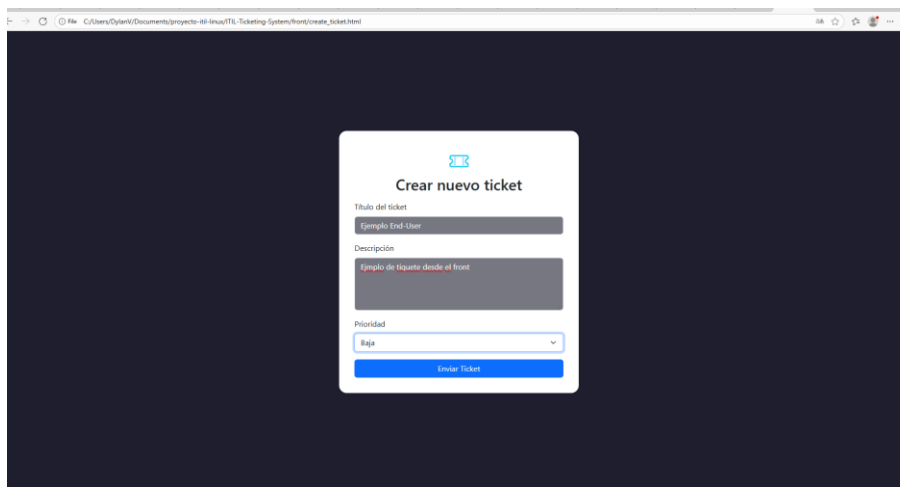
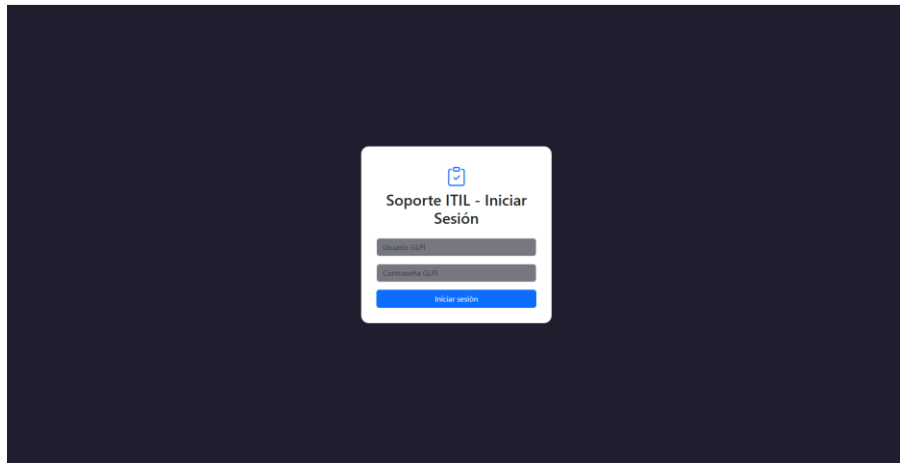
End-User Website



```
1 <!DOCTYPE html>
2 <html lang="es">
3 <head>
4 <meta charset="UTF-8">
5 <title>Login Soporte ITIL</title>
6 <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
7 <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.10.5/font/bootstrap-icons.css"> <!-- icons -->
8 <link rel="stylesheet" href="estilo.css">
9 <script src="env.js"></script>
10 <style>
11 body {
12 min-height: 100vh;
13 display: flex;
14 align-items: center;
15 justify-content: center;
16 }
17 .login-box {
18 max-width: 400px;
19 width: 100%;
20 background: white;
21 padding: 2rem;
22 border-radius: 1rem;
23 box-shadow: 0 0 10px rgba(0,0,0,0.1);
24 }
25 </style>
26 </head>
27 <body>
28 <div class="login-box text-center">
29 <i class="bi bi-clipboard-check fs-1 text-primary mb-3"></i>
30 <h2 class="mb-4">Soporte ITIL - Iniciar Sesión</h2>
31 <form id="loginForm">
32 <div class="mb-3">
33 <input type="text" class="form-control" id="user" placeholder="Usuario GLPI" required>
34 </div>
35 <div class="mb-3">
36 <input type="password" class="form-control" id="password" placeholder="Contraseña GLPI" required>
37 </div>
38 <button type="submit" class="btn btn-primary w-100">Iniciar sesión</button>
39 </form>
40 <div id="loginSuccess" class="mt-4 d-none">
41
42
```

I developed a small ticket web or view only for End-User this is an example my idea is show the structure of the ITIL Framework and the Support Flow

ITIL PROJECT



Home / Assistance / Tickets

+ Add Search Lists Templates Global Kanban Tickets waiting for your approval

Search...

3 Tickets 3 Incoming tickets 0 Pending tickets 0 Assigned tickets 0 Planned tickets 0 Solved tickets 0 Closed tickets

Items Seen contains

rule global rule 34 group Search

Actions

ID	TITLE	STATUS	LAST UPDATE *	OPENING DATE	PRIORITY	REQUESTER - REQUESTER	ASSIGNED TO - TECHNICIAN	CATEGORY	TIME TO RESOLVE
3	Ejemplo End-User	New	2025-08-04 19:29	2025-08-04 19:29	Low				
2	ticket	New	2025-08-04 07:31	2025-08-04 07:31	Medium				
1	Prueba desde Zabbix manual	New	2025-08-04 05:23	2025-08-04 05:23	Medium				

20 rows / page Showing 1 to 3 of 3 rows

ITIL PROJECT

Script-daemon

En el repo vendrá un script `supervisor_itol.sh` para monitoreo basico de umbrales para generar tickets , su funcion es crear tickets de tipo infraestructura de monitoreo y enviarlos a glpi por medio de api rest , estaran siempre ejecutandose por medio de cron

```
tylan@dylan:~$ sudo apt install jq
[sudo] password for dylan:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
jq is already the newest version (1.7.1-3ubuntu0.24.04.1).
jq set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
tylan@dylan:~$
```

I did test first with curl simulated ticket and zabbix webhook

```
monitor@monitor:~$ curl -X POST http://192.168.18.189/glpi/apirest.php/Ticket \
> -H "Content-Type: application/json" \
> -H "App-Token: foYZZ90rrUxhGhsvtfNMkO4RuHLLvD1uCmqkhlzN" \
> -H "Session-Token: gFqkjnuhIsn5jvh8mki6apc9pe" \
> -d '{
>   "input": {
>     "name": "Prueba desde Zabbix manual",
>     "content": "Este ticket fue generado desde curl como prueba directa.",
>     "urgency": 3,
>     "impact": 3,
>     "priority": 3,
>     "category": 1
>   }
> }'
{"id":1,"message":"Item Successfully Added: Prueba desde Zabbix manual (1)"}monitor@monitor:~$ ^C
monitor@monitor:~$ sudo nano /usr/lib/zabbix/alertscripts/glpi_webhook.sh
monitor@monitor:~$ sudo chmod +x /opt/glpi-monitor/monitor.sh
monitor@monitor:~$
```

Here I add the script `supervisor_itol.sh` in a Dir and give permission.

```
> }'
{"id":1,"message":"Item Successfully Added: Prueba desde Zabbix manual (1)"}monitor@monitor:~$ ^C
monitor@monitor:~$ sudo nano /usr/lib/zabbix/alertscripts/glpi_webhook.sh
monitor@monitor:~$ sudo chmod +x /opt/glpi-monitor/monitor.sh
monitor@monitor:~$ sudo nano /etc/systemd/system/glpi-monitor.service
monitor@monitor:~$ sudo systemctl daemon-reexec
monitor@monitor:~$ sudo systemctl daemon-reload
monitor@monitor:~$ sudo systemctl enable glpi-monitor.service
Created symlink /etc/systemd/system/multi-user.target.wants/glpi-monitor.service → /etc/systemd/system/glpi-monitor.service.
monitor@monitor:~$ sudo systemctl status glpi-monitor.service
● glpi-monitor.service - Monitor de Infraestructura para GLPI
   Loaded: loaded (/etc/systemd/system/glpi-monitor.service; enabled; preset: enabled)
   Active: inactive (dead)
monitor@monitor:~$ sudo systemctl start glpi-monitor.service
monitor@monitor:~$ sudo systemctl status glpi-monitor.service
● glpi-monitor.service - Monitor de Infraestructura para GLPI
   Loaded: loaded (/etc/systemd/system/glpi-monitor.service; enabled; preset: enabled)
   Active: active (running) since Mon 2025-08-04 20:36:47 UTC; 5s ago
     Main PID: 400733 (monitor.sh)
       Tasks: 2 (limit: 4548)
      Memory: 1.0M (peak: 4.2M)
         CPU: 95ms
    CGroup: /system.slice/glpi-monitor.service
            └─400733 /bin/bash /opt/glpi-monitor/monitor.sh
              └─400751 sleep 60

Aug 04 20:36:47 monitor systemd[1]: Started glpi-monitor.service - Monitor de Infraestructura para GLPI.
monitor@monitor:~$
```

The script is on mode daemon now

ITIL PROJECT

Netdata Monitoring + Nginx (Extra)

```
# Mandatory: no
# Default:
# Hostname=

Hostname=monitor

### Option: HostnameItem
#         Item used for generating Hostname
```

```
# Default:
# Server=

Server=192.168.18.189

### Option: ListenPort
#         Agent will listen on this port for connections from the server
#
# Mandatory: no
```

```
monitor@monitor: ~$ sudo systemctl status netdata
[sudo] password for monitor:
● netdata.service - Netdata, X-Ray Vision for your infrastructure!
   Loaded: loaded (/usr/lib/systemd/system/netdata.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-08-03 17:15:54 UTC; 22min ago
     Process: 35856 ExecStartPre=/bin/mkdir -p /var/cache/netdata (code=exited, status=0/SUCCESS)
     Process: 35858 ExecStartPre=/bin/chown -R netdata /var/cache/netdata (code=exited, status=0/SUCCESS)
    Main PID: 35859 (netdata)
      Tasks: 106 (limit: 4548)
     Memory: 133.0M (peak: 136.0M)
        CPU: 1min 4.286s
   CGroup: /system.slice/netdata.service
           └─35859 /usr/sbin/netdata -P /run/netdata/netdata.pid -D
             └─35931 "spawn-plugins" " " " " " " " "
             └─36384 bash /usr/libexec/netdata/plugins.d/tc-qos-helper.sh 1
             └─36400 /usr/libexec/netdata/plugins.d/systemd-journal.plugin 1
             └─36401 /usr/libexec/netdata/plugins.d/nfacct.plugin 1
             └─36404 /usr/libexec/netdata/plugins.d/debugfs.plugin 1
             └─36406 /usr/libexec/netdata/plugins.d/apps.plugin 1
             └─36407 /usr/libexec/netdata/plugins.d/go.d.plugin 1
             └─36411 /usr/libexec/netdata/plugins.d/ebpf.plugin 1
             └─36424 /usr/libexec/netdata/plugins.d/network-viewer.plugin 1
             └─36446 "spawn-setns" " " " " " " " "

Aug 03 17:16:01 monitor netdata[36407]: level=error msg="check failed: GET 'http://127.0.0.1:8080/stub_status' returned HTTP status code: 401" plugin=go.d collector=nginx job=local
Aug 03 17:16:01 monitor netdata[36407]: level=error msg="check failed: GET 'http://127.0.0.1:8080/basic_status' returned HTTP status code: 401" plugin=go.d collector=nginx job=local
Aug 03 17:16:01 monitor netdata[36407]: level=error msg="check failed: GET 'http://127.0.0.1:8080/nginx_status' returned HTTP status code: 401" plugin=go.d collector=nginx job=local
Aug 03 17:16:01 monitor netdata[36407]: level=error msg="check failed: GET 'http://127.0.0.1:8080/status' returned HTTP status code: 401" plugin=go.d collector=nginx job=local
Aug 03 17:16:03 monitor netdata[35859]: Dimension metadata check has been scheduled to run (max id = 3449)
Aug 03 17:16:03 monitor netdata[35859]: Chart metadata check has been scheduled to run (max id = 1284)
Aug 03 17:16:03 monitor netdata[35859]: Chart label metadata check has been scheduled to run (max id = 4122)
Aug 03 17:16:08 monitor cgroup-name.sh[36643]: cgroup 'user.slice_user-1000.slice_user-1000.service_init.scope' is called 'user.slice_user-1000.slice_user-1000.service_init.scope', labels ''
Aug 03 17:16:08 monitor cgroup-name.sh[36647]: cgroup 'user.slice_user-1000.slice_session-35.scope' is called 'user.slice_user-1000.slice_session-35.scope', labels ''
Aug 03 17:16:08 monitor cgroup-name.sh[36659]: cgroup 'init.scope' is called 'init.scope', labels ''
monitor@monitor: ~$
```

```
GNU nano 2.2
[global]
run as user = netdata

[web]
bind to = 127.0.0.1
```


ITIL PROJECT

